Self-evaluation Report

Forest Resources Program
University of Minnesota

Prepared for the
Committee on Accreditation
Society of American Foresters

April 2007

PREFACE

This document is a Self-evaluation Report for reaccreditation of the Forest Resources and Urban and Community Forestry programs at the University of Minnesota. The report describes the status of programs and changes that have been made or have occurred since the last interim status report in 2001. The last Accreditation visit was in 1996. The major changes since the 2001 Interim Status Report have occurred in the organization of programs at the collegiate level. The changes resulted from the University's Strategic Positioning and associated merger of several colleges on the Twin Cities campus.

The program home for the Forest Resources and Urban and Community Forestry curricula is the Department of Forest Resources (DFR). This departmental home has remained essentially unchanged for more than a century. As the University's forestry program grew and expanded to broader coverage, it eventually became the College of Natural Resources (CNR) with several departments, including the Department of Forest Resources. In 2006, the CNR was merged with the College of Agricultural, Food and Environmental Sciences and portions of the College of Human Ecology. As a consequence, the Department of Forest Resources and its instructional program now reside in the resulting new College of Food, Agricultural and Natural Resources Sciences (CFANS).

A second important change has been the merger of the Forest Resources curriculum with two tracks or specializations and the Urban and Community Forestry curriculum with but one track. The change will be effective fall semester 2007, thus this report assumes that new structure, i.e., a Forest Resources (FR) curriculum with three tracks. In fact, the merger did not involve any changes to the resulting three tracks. The merger is intended to simplify program marketing and recruiting efforts.

The documentation was developed following the instructions in the Society of American Foresters 1994 Accreditation Handbook, revised 2003 (2004/2005 Edition). Material in the report was developed from records in DFR and CFANS, and from the University's various central offices. Readers may note that departmental and college information differs from central data at times due to definitions and the date of materials used in the reports. In most cases, local data was used for consistency with our previous reporting and because these are often the most detailed and current figures.

Alan R. Ek
Professor and Head
Department of Forest Resources

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

APPENDIX

APPENDIX -- VOLUME 2

LIST OF TABLES

STANDARD I: FORESTRY PROGRAM MISSION, GOALS, AND OBJECTIVES

1 Institution and Program Mission

1.1 University: The University of Minnesota is one of the most comprehensive public universities in the United States. It is both the state land-grant university, with a strong tradition of education and public service, and the state's primary research university, with faculty of national and international reputation. The University's *mission*, carried out on multiple campuses and throughout the state, is threefold (statement approved by Board of Regents January 14, 1994):

- Research and Discovery - Generate and preserve knowledge, understanding, and creativity by conducting high-quality research, scholarship, and artistic activity that benefit students, scholars, and communities across the state, the nation, and the world.

- Teaching and Learning - Share that knowledge, understanding, and creativity by providing a broad range of educational programs in a strong and diverse community of learners and teachers, and prepare graduate, professional, and undergraduate students, as well as nondegree-seeking students interested in continuing education and lifelong learning, for active roles in a multiracial and multicultural world.

- Outreach and Public Service - Extend, apply, and exchange knowledge between the University and society by applying scholarly expertise to community problems, by helping organizations and individuals respond to their changing environments, and by making the knowledge and resources created and preserved at the University accessible to the citizens of the state, the nation, and the world.

Importantly, recent transformational recommendations by the University's administration seek to position the institution as one of the top three public research universities. These recommendations were articulated by President Robert Bruininks and approved by the Board of Regents June 10, 2005. Changes in collegiate structure noted in the preface to this report were a result of this action. Additionally, these plans seek to improve faculty, student, organizational, and operational aspects of the institution. More information on this planning and progress can be found at: http://www1.umn.edu/systemwide/strategic_positioning/.

1.2 College: The College of Food, Agricultural and Natural Resource Sciences (CFANS) is the home for the Department of Forest Resources (DFR), which administers the Forest Resources (FR) curriculum. The recently stated *mission* of this college is to promote interdisciplinary scholarship supporting food systems, agriculture, and natural resources.

CFANS plays a key and lead role in keeping Minnesota competitive and connected as challenges and discoveries abound in areas such as biology, ecology, environmental and human health, energy, economic development, sustainability and associated policy. As the college most closely connected with the University's historical roots as a land grant institution, its programs revitalize the University's core mission and support the University's goals through interdisciplinary and aligned research and education efforts and a systems approach to complex problems.

The CFANS strategic goals are to:

- Position the University to develop viable food and agricultural systems for the 21st century.
- Position the University as the national center of excellence in research related to energy and products from renewable resources.
- Position the University to address fundamental issues related to global climate and environmental change.
- Develop capacity for collaborative, interdisciplinary research and training laboratories in support of graduate and undergraduate students.

This new college was formally recognized July 1, 2006. Since then considerable effort has gone into formulating organization of administrative functions, staffing and responsibilities. To this point administrative processes, committee structures and individual responsibilities have been articulated and more detail will likely evolve in the coming year. Since the merging colleges had similar administration organizations and responsibilities, major difficulties in this evolution appear unlikely. However, some elaboration of the above objectives is anticipated.

1.3 Division: The CFANS has recently designated six divisions, fourteen academic units (two are held jointly), seven research and outreach centers throughout Minnesota, the Bell Museum of Natural History and the Minnesota Landscape Arboretum. The college also participates in many interdisciplinary centers and cooperatives. The divisions are listed below with their respective units.

Division of Applied Economics
- Department of Applied Economics

Division of Bioresources and Bioenergy
- Department of Bioproducts and Biosystems Engineering (joint with Institute of Technology)

Division of Environmental Science, Policy and Management
- Department of Entomology
- Department of Fisheries, Wildlife, and Conservation Biology
- **Department of Forest Resources**
- Department of Soil, Water and Climate

Division of Food, Animal and Nutritional Sciences
- Department of Animal Science
- Department of Food Science and Nutrition

Division of Plant Science
- Department of Agronomy and Plant Genetics
- Department of Horticultural Science
- Department of Plant Biology (joint with College of Biological Sciences)
- Department of Plant Pathology

Division for Translational Research and Engagement
- Cloquet Forestry Center
- North Central Research and Outreach Center at Grand Rapids
- Northwest Research and Outreach Center at Crookston
- Southern Research and Outreach Center at Waseca
- Southwest Research and Outreach Center at Lamberton
- UMore Park at Rosemount
- West Central Research and Outreach Center at Morris
- Department of Agricultural Education (joint with College of Education and Human Development)

The Divisions have been charged with developing respective missions and goals during spring, 2007.

However, these planning efforts will likely follow the lead provided by the college. Importantly, the divisions are a structure designed to foster interdisciplinary effort in teaching, research and outreach and as a basis for providing support services, e.g., human resource, financial, information technology support and for planning. The divisions do not have a formal administration; the department or unit heads convene for the purpose of coordination, planning, and recommendations and requests to the college administration. The current convenor of the Division of Environmental Science, Policy and Management (ESPM Division) is the head of the Department of Forest Resources. The division structure does not replace leadership, administration, operations and planning at the department level.

1.4 Department: Given the new college, departments have been asked by the college to develop new statements of mission and objectives during spring 2007. The last formal strategic or long-term plan for the DFR was developed in late 1995. Since then the University has moved to what is called Compact Planning, i.e., first biannual and now annual plans and reporting leading to a compact or agreement with Central Administration as to plans for the coming year and resources (central and collegiate) to be directed to those efforts. Typically there are three to five new and/or continuing strategic initiatives that are the focus of such planning. Departments have adapted to this strategic initiative driven process by focusing on (1) providing input to the development of the compact and (2) refining their mission and objectives as appropriate.

The DFR *mission* since the last departmental strategic plan has evolved as the University has repeatedly sharpened its overall planning. A draft update of the mission and vision for starting the departmental planning process this spring is "*to advance the science and management of forest and related natural resources through discovery and education that enhances the productivity and sustainable use of these resources.*" The means for this accomplishment will be our core expertise and collaboration focused on discovery, education, and outreach that **integrates** and **translates** physical, biological, social, and managerial sciences. Further, we will target resource issues and problems that are **local to global** in scale and importance to society. Finally, revisiting departmental planning this spring will involve a similar (to 1995) process but a greater focus on discovery, interdisciplinary efforts, and the overall strategic positioning of the University.[1]

In terms of core mission, the DFR exemplifies discovery and synthesis that informs society as complex choices are made regarding the management, protection, and sustainable use of the environment and our natural resources. Historically and currently, faculty from the DFR have played an active role in advising federal, state, county, and local government and industry and special interest groups on policy development and evaluation, new management technologies, and improved practices for the management, protection, and use of our natural resources. Recent examples include leadership in developing and conducting the state's first generic environmental impact statement, drafting and working successfully to implement major new state legislation organizing forest management, providing new and critical ecological understanding and modeling capability for enabling new national forest plans in the state, leading research quantifying human impacts on biodiversity in forests, leading research to quantify the impacts of climate change on forest and other wildlands, and service and leadership to state agencies in developing the full potential of governor-chartered task forces on the competitiveness of the primary

[1] In developing this planning effort, we are guided by Minnesota Statutes Chapter 89.001 Definitions… "Forest resources" means those natural assets of forest lands, including timber and other forest crops; biological diversity; recreation; fish and wildlife habitat; wilderness; rare and distinctive flora and fauna; air; water; soil; and educational, aesthetic, and historic values. Additionally, Minnesota Statues Chapter 89.66 describes the respective responsibilities of the Agricultural Experiment Station and Extension in providing scientific information on forest resources.

forest products industry and on the organization needed for addressing conservation needs. At the same time, faculty have been working as major facilitators of natural resource industry investments in the state. Much of this direction is embodied in Minnesota Statues Chapter 89.66.

As with the 1995 plan, the new mission statement will be developed through an iterative process with a broadly constituted team: the faculty, staff, students, and constituents. The resulting mission will also be accompanied by strategic goals and associated action steps focusing on collaboration, developing opportunities, improving the climate for participation by underrepresented groups, faculty and staff development, and targeted and efficient research and outreach.

Given this context for DFR planning, our educational goals are:

1. To provide the professional course work component and overall guidance to baccalaureate degree programs for the education of natural resource professionals and scientists. The specific educational objectives of the undergraduate programs of the DFR are:

    a. To help students develop a basic understanding of the sciences, communications, mathematics, and people and society,

    b. To help students develop entry-level professional qualifications through specialized curricular offerings,

    c. To provide opportunity for training in a variety of professional areas through availability of electives, tracks, or areas of specialization, and

    d. To provide opportunity for advanced study to those interested in and capable of preparation for graduate study and careers in research, teaching, and extension.

2. To provide course work for and advise students with majors in forestry and related natural resources in the Master of Science and Ph.D. programs. These programs are conducted through the Graduate School with policies, standards, and evaluation under guidance of the Natural Resource Science and Management graduate program and associated faculty. The faculty also participate in graduate programs such as Conservation Biology, Water Resources Science, Plant Biological Sciences, etc.

3. To conduct research on problems of state and national need in forestry and related subjects in cooperation with the University's Agricultural Experiment Station. Such research complements the graduate study activity by providing graduate assistants opportunity for firsthand experience in scientific endeavors.

4. In cooperation with University of Minnesota Extension, to provide information and continuing education for natural resource landowners, professionals, policy makers, and the public

5. To provide public service where special knowledge and expertise can contribute to improved short- and long-term management of our forests and related resources.

1.5 Origin and Evolution of Goals: The goals have evolved since the programs were founded, with the changes following articulation of the University and college missions. These changes have always been made with faculty, student, and other stakeholder involvement. The goals for instruction, as noted in section 1.4, remain consistent with those expressed for the last reaccreditation visit. However, the last five years have seen increased emphasis on the quality of the undergraduate experience, improved retention rates, and improving the preparation and quality of students.

1.6 Process for Modification: The faculty, through departmental and college curriculum committees, is largely responsible for the development and revision of curricula goals. They are typically the initiators of change, be it by small revisions annually, by major revisions that might occur once or twice in a decade, or in the proposing of new curricula. The approval process for changes is through the departmental curriculum committee, then to the department faculty, then the college curriculum committee, and final approval by the college faculty. In the case of the Environmental Sciences, Policy and Management (ESPM) curriculum, a separate college-wide committee substitutes for department consideration. For proposals for new curricula, final approval rests with the University's central administration.

Understanding the influences on change requires consideration of the close interrelationship between the education, research, public engagement, and service functions of the college. Nearly every faculty member is involved to some extent in all these functions. The faculty is funded partially through the department's operations and maintenance (teaching) budget, and partially through the Minnesota Agricultural Experiment Station and/or University of Minnesota Extension. Since most faculty members are involved in teaching, that effort significantly influences the nature of research and extension efforts and vice versa. Teaching responsibilities are often closely associated with the research interests of the faculty.

2 Program Objectives

The general objectives of the curricula in the department are described in section 1.1 above. The specific objectives of the undergraduate Forest Resources (FR) curriculum, the subject of this document, are described under the section of this report dealing with STANDARD II. These curricula are intended to prepare students for careers in the management and science of forest resources. The three tracks are different to the extent that they recognize the particular needs of the respective career focus and working environments as identified by the three tracks or specializations.

The curricula objectives and details appear in the University Catalog (see: http://www.catalogs.umn.edu/index.html) and in various informational and promotional materials for prospective students and other audiences. This and related material are also maintained on the CFANS website at http://www.cfans.umn.edu/fr, which can also be reached from the departmental website at: http://fr.cfans.umn.edu.

2.1 Context: The CFANS is the only institution of higher learning in Minnesota offering bachelor's and graduate degrees in forestry, i.e., forest resources. The instructional programs offered by CFANS and it departments are designed to help students integrate scientific knowledge with the management and communication skills necessary for professional success. Tuition reciprocity with Wisconsin, South Dakota, North Dakota, and other states open these programs to residents of those states as well as Minnesota.

The capabilities and mission of the college focus on serving the state's economic, social, and environmental goals relative to agricultural and natural resources. In addition, its programs reflect and contribute to national and international professional and scientific endeavors in the fields of forestry, forest products, fisheries, wildlife and water resources consistent with the resources available.

The college is also the principal home of forest scientists in Minnesota with a specific commitment to research on state forestry problems. This role is made explicit in the Minnesota Forest Resource Management Act of 1982, which authorizes the state Agricultural Experiment Station to conduct, support, and cooperate in research pertaining to forest resources. Additionally, the Minnesota Sustainable Forest Resources Act of 1995 identified the college as a member of the Research Advisory Committee of the Minnesota Forest Resources Council. This committee is responsible for identifying priority research and technology transfer needs related to forest management, fostering the funding of such activities, and coordination among agencies involved in this work. Faculty and supporting staff of the college also carry out the research mandate provided under federal legislation, the McIntire-Stennis Cooperative Forestry Research Act of 1962 (P.L. 87-788), with funding by Congress.

Through University of Minnesota Extension, the college faculty also provide the extension and continuing education programming focus for private nonindustrial landowners, consumptive and nonconsumptive users of forest, fishery, and wildlife resources, professional public and private natural resource managers, policy makers, and the public. The Minnesota Forest Resource Management Act of 1982 authorizes University of Minnesota Extension to assist in identifying forestry research needs, disseminating research results, and providing educational programs to improve forest management in the state. Under the federal Renewable Resources Extension Act of 1978 (P.L. 95-306), federal funds for forestry extension staffing have also been available. Responsibility for programming under these acts is shared by University of Minnesota Extension and the CFANS.

2.2 Influences Contributing to the Strength of the Educational Program: The college seeks to serve professionals in natural resource management in both the public and private sectors, and the citizens of Minnesota. In doing so, the college is engaged in issues of local, state, regional, national, and international concern. We consult extensively with stakeholders, including students, to ensure that changes meet real needs. This advice is sought in the form of user/need surveys, as conference/workshop input, advisory committees, focus groups, and one-on-one discussion. Additionally, we examine stakeholder group syntheses such as research and training priorities. Factors described in the following paragraphs then guide the use of this information.

The college conducts major research programs with the ultimate objective of discovering new facts and principles, and applying these to the practical resolution of natural resource problems. Emphasis at state and regional levels is on renewable natural resources as a base for improved economic activity and management that provides for environmental quality and resource sustainability. The college has sought to direct its programs so that the education and research contribute to economic and environmental needs. Although many of the research projects are aimed at state or regional problems, a national perspective is maintained on applications and research needs.

University of Minnesota Extension, through college faculty, provides leadership in forest resources, forest products, fisheries, wildlife, conservation biology, water resources, and broader environmental management issues statewide. These efforts have provided the college with opportunities to communicate with and involve landowners and natural resource managers regarding developments in state and national natural resources policies. In turn, these contacts provide important input to refinement of our educational

programs. The faculty often provide service to industry, public agencies, scientific and conservation organizations, the public, and the legislature. This public engagement takes many forms from providing unique expertise, short-term research assistance, one-on-one consultation, special interest group programs, and service on boards of directors, task forces, committees, etc.

Finally, faculty activity often reaches beyond the state in cooperative extension efforts and/or cooperative or broadly based research efforts. Grants may also require such activity. Additionally, administrative involvement, consultation, and professional participation with respect to programs of a regional, national or international scope are frequent.

3 Objectives of Curricula in Terms of Educational Outcomes

Desired educational outcomes are qualified, employed, and competent professionals who can and do contribute to meeting society's needs for management, protection, and the sustainable use of our natural resources.

In terms of coursework, we seek high quality students and evidence of subject matter learning, synthesis capability, and problem-solving skill. These are evidenced by satisfactory or better completion of course requirements including class participation, problem assignments, literature review, writing of reports, testing, individual and group problem solving, etc. We also assess learning as evidenced by student evaluation of courses every time they are taught. Success in terms of career employment rates is assessed using a standard and periodically implemented survey of graduates (Appendix Document F). An additional set of measures we see for students going on to graduate school includes their Graduate Record Exam Scores (required for entry into the Natural Resource Science and Management graduate program) and academic performance including theses, research problem papers, and oral and written exam findings. We further are able to observe skill development when students serve as teaching and research assistants, and in visiting alumni in their employment settings.

4 Developments Since the 2001 Interim Status Report

The general objectives of the University's forest resources educational programs have not changed since the interim status report in 2001. However, changes have occurred in college structure, administration, faculty, and staffing support and funding. Some of the major changes are described in the next section.

4.1 Administrative Structure and Faculty:

1. On November 8, 2002, Dr. Robert H. Bruininks became the 15th president of the University of Minnesota. Subsequently, he initiated a major strategic planning and positioning effort aimed at making the University of Minnesota one of the top three public research universities in the world within a decade. As part of that effort, six colleges were merged into three, with one result being the College of Food, Agricultural and Natural Resource Sciences.

2. Dr. Allen S. Levine was appointed dean of the College of Food, Agricultural and Natural Resource Sciences in November 2006. Dean Levine is now overseeing compact planning and new initiatives for the College.

3. The University has extended its revenue management (Incentives for Managed Growth [IMG]) that provides tuition income and indirect cost recovery from research to colleges by formula, but with evolving modifications in terms of the funding of services to colleges in various functional areas (e.g., human resources, financial services, information technology, space and facilities, etc.

4. The Minnesota Legislature funded major improvements in teaching/outreach and office facilities for the Cloquet Forestry Center.

5. With the creation of CFANS, significant responsibilities for development efforts and associated management were transferred to the DFR. Additionally, departmental scholarship and fellowship funds, continued giving, and a recent $1.7million gift are enabling improved student recruitment and support.

6. A number of faculty changes have occurred in the Department of Forest Resources since 2001. Four faculty have retired or are no longer with the University and four new faculty have been hired. These changes are described in the section covering STANDARD IV.

4.2 Support Staffing and Funding:

1. The new college has begun to direct greater efforts and resources toward recruiting freshmen and transfer students and to student advising. However, additional recruiting support will be needed to fully address the need to grow enrollment to meet the need for forestry professionals in the region.

2. The college continues to involve graduate students in undergraduate instruction. This provides the most capable graduate students with increased opportunities to gain teaching experience. Some work as part-time teaching assistants. Occasionally, students working on Ph.D. 's may also take on full responsibility for a course, notably an extra evening offering of a course, or when a faculty member is on sabbatical. Graduate enrollment has grown slightly with the apparently successful renaming and broadening of the primary graduate program to Natural Resource Science and Management. The University offers a range of training workshops for students with interests in teaching. Such involvement is also being monitored to insure a quality instructional experience for the undergraduate students. The constraint on graduate enrollment appears to be the number of faculty and associated teaching and research assistantship funding, in large part from research grants. Fortunately, graduate student support through a combination of assistantship and new fellowship support is being maintained at competitive levels.

3. While budget erosion has serious implications for maintenance of academic program strengths, the new college (CFANS) has been able to provide a wider range of staff support and funding continuity than was possible in CNR. Additionally, the instructional revenue generation by the department appears to justify greater investment in educational programs than is the case for most other college departments. Much of this revenue generation is due to the role of departmental faculty in the ESPM curriculum; the challenge will be to generate more enrollment and revenue from the FR curriculum

5 Conclusion

The DFR believes its stated mission and objectives conform to the guidelines of the SAF Standard I, and that they are consistent with the other SAF standards. They further indicate a spirit of service to the college's broadly defined constituencies and a sensitivity to their needs. They also include a broad interpretation of the scope of forestry education which enables the college to modify and/or expand its programs to meet the changing needs of its constituencies and society. They further recognize the necessity of cooperation with other subject areas and disciplines, and the importance to students of a broad and liberal education. Changes affecting the program since the last reaccreditation visit and interim status report should maintain this standard. We fully envision the current CFANS planning process continuing and strengthening these attributes.

STANDARD II: CURRICULA

1 Forest Resources Curriculum

1.1 Context: Continued accreditation is sought for the Forest Resources professional forestry curricula in CFANS. Effective Fall Semester 2007, this major includes three tracks formed by merging the curriculum in Forest Resources (two tracks) and the curriculum in Urban and Community Forestry. This curriculum is administered by the DFR.

The full set of undergraduate curricula offered in CFANS includes:

Agricultural and Food Business Management
Agricultural, Food and Environmental Education
Agricultural Industries and Marketing
Animal Science
Applied Economics
Applied Plant Science
Bio-based Products (BBE)
Environmental Horticulture
Environmental Sciences, Policy and Management (ESPM)
Fisheries and Wildlife (FW)
Forest Resources (FR)
Food Science
Nutrition
Recreation Resource Management

Among these, the Recreation Resources Management (RRM) curriculum is also administered by the DFR. The Bio-based Products curriculum is administered by the Department of Bioproducts and Biosystems Engineering (BBE); the Fisheries and Wildlife (FW) curriculum is administered by the Department of Fisheries, Wildlife, and Conservation Biology (FWCB). The college also administers the Environmental Sciences, Policy and Management (ESPM) curriculum as a college-wide effort. The FR faculty provide coursework important to each of these curricula, especially the RRM and ESPM curricula.

A list of the courses that make up the FR curriculum is provided in the 2007-2008 University Catalog (see http://www.catalogs.umn.edu/index.html). The individual FR track curriculum guides listing provided in appendix duplicate portions of the bulletin and list FR courses plus others that are required or frequently elected courses in the curriculum. Full or abbreviated course syllabi for those courses offered by the Department of Forest Resources and supporting courses provided by other units are contained in Appendix Volume 2.

1.2 Curriculum Objectives and Tracks: The official catalog description for this degree program leading to a Bachelor of Science degree is underlined below. This description provides the overall curriculum objectives and identifies the three tracks.

> The **Forest Resources** curriculum prepares students to plan, implement, and research the management, protection, and sustainable use of forest and related resources and environments, including timber, water, wildlife, recreation, and aesthetic resources. The curriculum provides a unique integration of the physical, biological, and social sciences with managerial sciences and policy, field skill development, and technologies for measuring and monitoring natural resources. Students are also trained in problem solving approaches to address specific local, regional, and global issues. Students select one of three tracks: 1) forest management and planning, 2) forest conservation and ecosystem management, and 3) urban and community forestry. Students should choose one of these tracks early in their college careers.

Graduates find positions as foresters, urban foresters, land and water resource managers, conservationists, researchers, habitat managers, ecologists, geographic information systems specialists, resource analysts/consultants, silviculture specialists, nursery managers, land acquisition specialists, environmental planners, and educators. Principal employers are federal, state and local forestry, wildlife, parks, conservation and related natural resource agencies; forest products industry companies; landowner organizations; consulting firms; and nongovernmental conservation organizations and international development agencies.

Additionally, the curriculum provides excellent preparation in the fundamental and applied sciences that is essential for graduate study and careers in research and teaching.

The individual tracks are described in the catalog as:

Forest Management and Planning (FMP)
Students taking the forest management and planning track learn the principles, practices, and techniques of forest and related resource management. It is designed for students who wish to become directly involved in forest land management or specializations such as resource analysis, planning, timber harvesting, forest protection, or policy. Graduates may also pursue advanced positions in these areas. Principal employers include federal and state forestry, wildlife, and conservation agencies; forest products companies; landowner organizations; consulting firms; and international agencies. This track includes courses in two field sessions at the Cloquet Forestry Center.

Forest Conservation/Ecosystem Management (FCEM)
The forest conservation and ecosystem management track prepares students for forest and related resource management with a focus on conservation issues and strategies. It is designed for students who seek a thorough understanding of ecosystem structure and function and the role of forests and their management in environmental quality. Graduates pursue careers as forest managers and conservationists or provide specialized expertise for resource management organizations. Principal employers are federal and state forestry, wildlife, parks and related agencies; forest products companies; and nongovernmental conservation organizations. This track includes courses in a field session.

Urban and Community Forestry (UCF)
The urban and community forestry track prepares students for planning and managing vegetation and related resources in or near urban communities, and for specializations such as urban planning and environmental education. Urban forests include areas along streets, in parks, private lands, greenbelts, and open spaces. Graduates help plan, design, and protect these forests including supervision of tree selection, planting, and plant health care programs. Employers include city government, tree care/arboricultural firms, state and federal forestry agencies, nurseries, and utility companies. Graduates may also qualify for traditional forestry positions. This track includes a field session.

1.3 General Education Objectives and Summary: Document A-1 lists the general education requirements for the forest resources curriculum. These are chosen in part to meet University requirements designed to insure that all students receive a broad liberal education. Document A-2 describes restricted electives, i.e., those that help meet the liberal education requirements of the University. According to these requirements, all students must complete a designated number of credits in four Diversified Core areas and four Designated Themes. Additionally, students are required to take at least four courses designated as Writing Intensive (a W following the course number indicates it is writing intensive). These courses are *in addition* to the one to two freshman writing courses required for all freshmen. Coursework required in the forest resources curriculum core and tracks fulfills most of these University requirements, but students must normally take several additional courses to meet requirements

in the humanities core and/or one of the designated themes. Some courses will satisfy both a diversified core requirement and a designated theme requirement; other courses will satisfy the requirements for each of two designated themes.

The Diversified Core curriculum requirements are:

Physical and Biological Sciences—a minimum of two courses totaling at least 8 credits, including one course in physical science with a laboratory or field experience, and one course in biological science with a laboratory or field experience.

Social Science and Humanities—a minimum of 15 credits distributed as follows:
Social Science—at least 6 credits
Humanities—at least 6 credits; including one course in literature and one course in "other humanities."
Historical perspective—at least three credits.

Mathematical thinking—one course of at least three credits.

The Designated Themes requirements are**:**

A minimum of one course of at least three credits in each of the following:
Environment
Cultural Diversity
International Perspectives
Citizenship and Public Ethic

The Writing Intensive requirements are:

Students are required to take four **writing intensive** courses. At least two of the four required writing intensive courses must be taken at the 3000-level or above, and at least one upper division writing intensive course must be taken with the student's major or program area.

Each semester, the online Class Schedule publishes the requirements and lists courses that count toward the liberal education requirements at http://onestop.umn.edu.

The resulting 120 semester credits required for graduation break down per SAF documents as:

Forest Management and Planning Track:	
Required core curriculum (Documents A-1 & A-2 Curriculum Parts A-E)	42-46
Required professional courses (Document B-1 Curriculum Part F)	65
Professional electives (Document B-2 Curriculum Part G)	6
Remaining liberal education requirements and free electives (Curriculum Part H)	3-7
Forest Conservation and Ecosystem Management Track:	
Required core curriculum (Documents A-1 & A-2 Curriculum Parts A-E)	42-46
Required professional courses (Document B-1 Curriculum Part F)	53
Professional electives (Document B-2 Curriculum Part G)	12
Remaining liberal education requirements and free electives (Curriculum Part H)	9-13
Urban and Community Forestry Track:	
Required core curriculum (Documents A-1 & A-2 Curriculum Parts A-E)	42
Required professional courses (Document B-1 Curriculum Part F)	62-63
Professional electives (Document B-2 Curriculum Part G)	6
Remaining liberal education requirements and free electives (Curriculum Part H)	9-10

For the FMP and FCEM tracks, note that Documents A-1 and B-1 both list ESPM 3241 and 3261. However, the above tabulation only includes those courses once—as required professional courses on Document B-1. In the case of the UCF track, Documents A-1 and B-1 both list ESPM 3261 and Pol 1001. However, the above tabulation only includes those once—as required professional courses on Document B-1.

1.4 Required Professional Courses and Summary: Documents B-1 for each of the tracks indicate their breath of coverage and depth. In most cases, more detail is also provided on the web, e.g., on the departmental website http://fr.cfans.umn.edu under "Quick Links" and "Semester course materials." In fact, most college faculty involved with the FR curriculum provide their course materials on their respective departmental or individual websites.

For the FMP track, the emphasis is on learning the principles, practices and techniques of forest and related resource management with the student employment goal being direct involvement in forest management. This is by far the most popular track in terms of enrollment.

For the FCEM track, the emphasis is on preparing students for forest and related resource management with a focus on conservation issues and strategies. However, a byproduct of the track's fewer formal requirements is flexibility for transfer students, students with limited opportunity for summer field sessions, e.g., those with substantial family obligations, and for focusing building toward graduate study. Still, most of the students in this track , like the other tracks, add coursework as they proceed because they like the subject matter. Thus the difference in backgrounds by track for graduating seniors is less than the requirements might suggest.

For the UCF track, the emphasis is on preparing students for planning and managing vegetation and related resources in or near urban communities. This has been a steady area of interest for several decades. Unfortunately, the "U" in UCF has placed this curriculum near the end of the catalog and thus complicated visibility and recruiting. Placing it in the FR curriculum as a track and with additional recruiting resources is part of the strategy for building enrollment.

Document A-1: General Education Summary—Required Courses

Institution Name: University of Minnesota Academic Year: 2007-2008

Official Degree Program Title: Forest Resources (all three tracks)

Official Option Title: All Tracks Forest Management and Planning
Forest Conservation and Ecosystem Management
Urban and Community Forestry Tracks

Required Courses: # & Title	Total Semester Credit Hours		
	Communications	Science and Mathematics	Social Science & Humanities
A. Communication Skills			
WRIT 1301 University Writing (by placement) (4)	4		
or WRIT 1401 Writing and Academic Inquiry (4)			
Comm 1101 Introduction to Public Speaking (3)	3		
B. Mathematical Thinking			
ESPM 1145 Quantitative Methods I (4) (Spring)		4	
or Math 1142 Short Calculus (4)			
or Math 1271 Calculus I (4)			
ESPM 3012 Quantitative Methods II (4) (Fall)		4	
or Stat 3011 Statistical Analysis (4)			
C. Physical and Biological Sciences			
Biol 1001 Introductory Biology I		4	
or Biol 1009 General Biology (4)			
Biol 2022 General Botany (3)		3	
Soil 2125 Basic Soil Science (4)		4	
or Soil 1125 The Soil Resource (4)			
Physics 1001W Energy and the Environment (4)		4 or 0 for FMP &	
or "B" or better in high school physics (0)		FCEM (0 for UCF)	
Chem 1011 General Principles of Chemistry (4)		4 for FMP & UCF	
and BioC 2011 Biochemistry for Agric & H Sci (3)		3 for FMP & UCF	
or Chem 1021 Chemical Principles I (4)		4 for FCEM	
and Chem 1022 Chemical Principles II (4)		4 for FCEM	
D. Social Sciences			
ESPM 3261 Economics of Natural Resources Mgmt (4)			4
ESPM 3241W Natural Resource & Envir. Policy (3)			3 for FMP & FCEM
Pol 1001 American Democracy in a Changing World (4)			4 for UCF
Total Credit Hours	7	26-30 for FMP 27-31 for FCEM 26 for UCF	7 for FMP 7 for FCEM 8 for UCF

Document A-2: General Education Summary—Restricted Electives

Institution Name: University of Minnesota Academic Year: 2007-2008

Official Degree Program Title: Forest Resources (all three tracks)

Official Option Title: All Tracks Forest Management and Planning
Forest Conservation and Ecosystem Management
Urban and Community Forestry Tracks

Required Courses: # & Title	Total Credit Hours*		
	Communications	Science and Mathematics	Social Science & Humanities
D. Social Sciences Continued for Electives			
Literature (3)			3
Other Arts and Humanities (3)			3
Historical Perspectives (3)			3
E. Designated Themes A minimum of one course for at least three credits is required in each of the following thematic areas			
CD = **Cultural Diversity**			[3]
E = **Environment**…satisfied with Chem 1021, 1022, ESPM 3261, Soil 1125 or 2125			[3]
CPE = **Citizenship and Public Ethics**			[3]
IP = **International Perspectives**			[3]
Total Available Restricted Elective Credit Hours			6-21
Minimum Credit Hours Required			6-21

* Credits in brackets need not be additive; according to the Liberal Education Requirements, a course may satisfy one diversified core requirement and one theme requirement or two theme requirements

1.5 Forest Resources Education Summary: Document B-1 describes and divides the required forest resources (core curriculum) credits into SAF required areas of study. One such table is produced for each of the three tracks. Additionally, Document B-2 list the restricted elective courses within each track, and divides those additional credits into SAF required areas of study.

Document B-1: Forest Resources Education Summary—Required Courses

Institution Name: University of Minnesota Academic Year: 2007-08
Official Degree Program Title: Forest Resources
Official Option Title: **Forest Management and Planning Track**

Required[1] Courses # & Title **F. Professional Required Core Courses** (58 cr) **(plus 7 credits from Part D of curriculum)**	**Credit Hours in SAF-Required Areas of Study[2]**				**Course Contains Significant Content in *(check all that apply)*:**				Total Credit Hours
	Ecology and Biology	**Measurement of Forest Resources**	**Management of Forest Resources**	**Policy, Economics, and Administration**	**Field Work**	**Ethics**	**Oral and/or Written Communications**	**Integrated Resource Management**	
Introductory Professional Courses (4)									
FR 1001 Orientation and Information Systems (1)	0.25	0.25	0.25	0.25	x	x	x	x	1
BBE 1002 Wood and Fiber Science (3)	2			1		x		x	3
Resource Assessment (11 cr)									
FR 3131 Geographic Information Systems (GIS) for Natural Resources (4)		4						x	4
FR 3218 Measuring and Modeling Forests (3)		3			x		x	x	3
FR 3262 Remote Sensing of Natural Resources and Environment (4)		4						x	4
Forest Management (12 cr)									
FR 3431 Timber Harvesting and Road Planning (2)			2					x	2
RRM 4232**W** Managing Recreational Lands (4)			2	2	x	x	x	x	4
FR 3471 Forest Planning and Management (3)			2	1		x	x		3
ESPM 3202**W** Environmental Conflict Mgmt, Leadership, & Planning (3) *or* ESPM 3011**W** Ethics and Leadership in Resource Management (3)			2	1		x	x	x	3
ESPM 3261 Economics of Natural Resources Mgmt (4) from Part D				4		x	x	x	4
ESPM 3241**W** Natural Resource & Envir. Policy (3) from Part D				3		x	x	x	3
Management of Vegetation, Wildlife, Soil and Water Resources (21cr)									
FR 1101 Dendrology: Identifying Forest Trees and Shrubs (3)	3				x				3
FR 3104 Forest Ecology (4)	4				x	x	x	x	4
FR 3114 Hydrology and Watershed Management (3)			3					x	3
FR 3411 Managing Forest Ecosystems: Silviculture (3)	1.5		1.5			x	x	x	3
FR 5413 Managing Forest Ecosystems: Silviculture Lab (1)	0.5		0.5		x				1
FR 3612 Silviculture Practices in Minnesota (two field trips) (1)			1		x	x		x	1
PlPa 3003 Diseases of Forest and Shade Trees (3) *or* Ent 4251 Forest and Shade Tree Entomology (3)	2		1		x			x	3
FW 2001 Introduction to Fisheries, Wildlife, and Conservation Biology (3) *or* FW 5603W Habitats and Regulation of Wildlife (3)	2		1			x		x	3
Field Training in Assessment and Biology of Forests (4 cr) (taught at Cloquet Forestry Center, August)									
FR 2101 Identifying Forest Plants (1)	1				x				1
FR 2102 Northern Forests Field Ecology (2)	2				x		x	x	2
FR 2104 Measuring Forest Resources (1)		1			x		x		1
Advanced Field Training in Assessment & Mgmt (6 cr) (taught at Cloquet Forestry Center, May-June)									
FR 5611 Field Silviculture (2)			2		x	x	x	x	2
FR 5615 Field Remote Sensing and Resource Survey (2)		2			x		x	x	2
FR 5621 Field Timber Harvesting and Road Planning (2)			2		x	x	x	x	2
Total Required Credit Hours	18.25	14.25	20.25	12.25					65

[1] Includes only required courses in forestry, natural resource, or other professional areas. Does not include electives, restricted electives, or basic, general education courses such as math, basic sciences, or English.
[2] See SAF Standard II: Curriculum, for specific areas of study definitions. Credit hours may be distributed among two or more areas of study for a listed course.

Document B-2: Forest Resources Education Summary—Restricted Electives

Institution Name: University of Minnesota Academic Year: 2005-2006
Official Degree Program Title: Forest Resources
Official Option Title: **Forest Management and Planning**

Required[1] Courses # & Title **G. Additional Professional Requirements** (6 credits) **Requires faculty adviser approval and a contract; courses may not be used to fill the requirement if they are used to satisfy other major requirements.**	**Credit Hours in SAF-Required Areas of Study[2]**				**Course Contains Significant Content in *(check all that apply)*:**				Total Credit Hours
	Ecology and Biology	**Measurement of Forest Resources**	**Management of Forest Resources**	**Policy, Economics, and Administration**	**Field Work**	**Ethics**	**Oral and/or Written Communications**	**Integrated Resource Management**	
ESPM 3202**W** Environmental Conflict Mgmt, Leadership, & Planning (3) *or* ESPM 3011W Ethics and Leadership in Resource Management (3)			2	1		x	x	x	3
ESPM 3031 Applied GPS for GIS (3)		3			x				3
ESPM 3251 Natural Resources in Sustainable Int'l Development (3)			1	2		x	x	x	3
ESPM 3245 Sustainable Land Use Planning and Policy (3)			2	1		x	x	x	3
ESPM 4061**W** Water Quality and Natural Resources (3)			3					x	3
FR 3203 Forest Fire and Disturbance Ecology (3)	1		2		x				3
FR 3204 Landscape Ecology and Management (3)	1		1	1				x	3
FR 4118 Physiological Ecology of Woody Plants (3)	3						x		3
FR 5142 Tropical Forest Ecology (3)	2		1			x		x	3
FR 5153 Forest and Wetland Hydrology (3)	1		2					x	3
FR 5228 Advanced Assessment and Modeling (3)		3						x	3
FR 5264 Advanced Forest Management Planning (3)			2	1				x	3
FR 5412 Digital Remote Sensing (3)		3						x	3
FW 5603**W** Habitats and Regulation of Wildlife (3)	2		1				x	x	3
FW 5604**W** Fisheries Ecology and Management (3)	2		1				x	x	3
Geo 1001 Earth and Its Environments (4)	3								3
PlPa 3003 Diseases of Forest and Shade Trees (3) *or* Ent 4251 Forest and Shade Tree Entomology (3)	2		1		x	x		x	3
Total Available Restricted Elective Credit Hours									51
Minimum Credit Hours Required									6

[1] Includes only required courses in forestry, natural resource, or other professional areas. Does not include electives, restricted electives, or basic, general education courses such as math, basic sciences, or English.
[2] See SAF Standard II: Curriculum, for specific areas of study definitions. Credit hours may be distributed among two or more areas of study for a listed course.

Document B-1: Forest Resources Education Summary—Required Courses

Institution Name: University of Minnesota Academic Year: 2007-08
Official Degree Program Title: Forest Resources
Official Option Title: **Forest Conservation and Ecosystem Management Track**

Required[1] Courses # & Title **F. Professional Required Core Courses** (46 cr) **(plus 7 credits from Part D of curriculum)**	**Credit Hours in SAF-Required Areas of Study[2]**				**Course Contains Significant Content in *(check all that apply)*:**				Total Credit Hours
	Ecology and Biology	**Measurement of Forest Resources**	**Management of Forest Resources**	**Policy, Economics, and Administration**	**Field Work**	**Ethics**	**Oral and/or Written Communications**	**Integrated Resource Management**	
Introductory Professional Courses (1)									
FR 1001 Orientation and Information Systems (1)	0.25	0.25	0.25	0.25	x	x	x	x	1
Resource Assessment (11 cr)									
FR 3131 Geographic Information Systems (GIS) for Natural Resources (4)		4						x	4
FR 3218 Measuring and Modeling Forests (3)		3			x		x	x	3
FR 3262 Remote Sensing of Natural Resources and Environment (4)		4						x	4
Forest Management (10 cr)									
RRM 4232**W** Managing Recreational Lands (4)			2	2	x	x	x	x	4
FR 3471 Forest Planning and Management (3)			2	1		x	x		3
ESPM 3202**W** Environmental Conflict Mgmt, Leadership, & Planning (3) *or* ESPM 3011**W** Ethics and Leadership in Resource Management (3)			2	1		x	x	x	3
ESPM 3261 Economics of Natural Resources Mgmt (4) from Part D				4		x	x	x	4
ESPM 3241**W** Natural Resource & Envir. Policy (3) from Part D				3		x	x	x	3
Management of Vegetation, Wildlife, Soil and Water Resources (20cr)									
FR 1101 Dendrology: Identifying Forest Trees and Shrubs (3)	3				x				3
FR 3104 Forest Ecology (4)	4				x	x	x	x	4
FR 3114 Hydrology and Watershed Management (3)			3					x	3
FR 3411 Managing Forest Ecosystems: Silviculture (3)	1.5		1.5			x	x	x	3
FR 5413 Managing Forest Ecosystems: Silviculture Lab (1)	0.5		0.5		x				1
PlPa 3003 Diseases of Forest and Shade Trees (3) *or* Ent 4251 Forest and Shade Tree Entomology (3)	2		1		x			x	3
FW 2001 Introduction to Fisheries, Wildlife, and Conservation Biology (3) *or* FW 5603**W** Habitats and Regulation of Wildlife (3)	2		1			x	x	x	3
Field Training in Assessment and Biology of Forests (4 cr) (taught at Cloquet Forestry Center, August)									
FR 2101 Identifying Forest Plants (1)	1				x				1
FR 2102 Northern Forests Field Ecology (2)	2				x		x	x	2
FR 2104 Measuring Forest Resources (1)		1			x		x		1
Total Required Credit Hours	16.25	12.25	13.25	11.25					53

[1] Includes only required courses in forestry, natural resource, or other professional areas. Does not include electives, restricted electives, or basic, general education courses such as math, basic sciences, or English.
[2] See SAF Standard II: Curriculum, for specific areas of study definitions. Credit hours may be distributed among two or more areas of study for a listed course.

Document B-2: Forest Resources Education Summary—Restricted Electives

Institution Name: University of Minnesota Academic Year: 2005-2006
Official Degree Program Title: Forest Resources
Official Option Title: **Forest Conservation and Ecosystem Management**

Required[1] Courses # & Title **G. Additional Conservation, Ecosystem, Professional and Scientific Requirements** (12 credits) **Requires faculty adviser approval and a contract; courses may not be used to fill the requirement if they are used to satisfy other major requirements.**	**Credit Hours in SAF-Required Areas of Study[2]**				**Course Contains Significant Content in *(check all that apply)*:**				Total Credit Hours
	Ecology and Biology	**Measurement of Forest Resources**	**Management of Forest Resources**	**Policy, Economics, and Administration**	**Field Work**	**Ethics**	**Oral and/or Written Communication**	**Integrated Resource Management**	
Group 1: Plant, Animal, Soil and Water Science									
Biol 3407 Ecology (3) or EEB 4014W Ecology of Vegetation (3) or EEB 4609W Ecosystem Ecology (3)	3						x		3
ESPM 3002 Colloquium: Exotic Plants and Animals (3)	2		1					x	3
ESPM 4061W Water Quality and Natural Resources (3)			3					x	3
Soil 5555 Wetland Soils (3)	2		1					x	3
FR 3203 Forest Fire and Disturbance Ecology (3)	1		2		x				3
FR 3204 Landscape Ecology and Management (3)	1		1	1				x	3
FR 3612 Silvicultural Practices in MN (1)			1		x	x		x	1
FR 4118 Physiological Ecology of Woody Plants (3)	3						x		3
FR 5142 Tropical Forest Ecology (3)	2		1			x		x	3
FR 5153 Forest and Wetland Hydrology (3)	1		2					x	3
FW 5603**W** Habitats and Regulation of Wildlife (3)	2		1			x	x	x	3
FW 5604**W** Fisheries Ecology and Management (3)	2		1				x	x	3
Geo 1001 Earth and Its Environments (4)	3								3
PlPa 3003 Diseases of Forest and Shade Trees (3) *or* Ent 4251 Forest and Shade Tree Entomology (3)	2		1		x	x		x	3
Soil 3416 Plant Nutrients in the environment (3)	2		1					x	3
Group 2: Conservation and Management									
Ent 5241 Ecological Risk Assessment (3)	1		2					x	3
ESPM 2041 Natural Resources Consumption and Sustainability (3)	1		1	1				x	3
ESPM 3021 Ecological Vegetation Mgmt: A consulting Approach(3)	1		2			x		x	3
ESPM 3031 Applied GPS for GIS (3)		3			x				3
ESPM 3101 Conservation of Plant Biodiversity (3)	2		1					x	3
ESPM 3202**W** Environmental Conflict Mgmt, Leadership, & Planning (3) *or* ESPM 3011W Ethics and Leadership in Resource Management (3)			2	1		x	x	x	3
ESPM 3245 Sustainable Land Use Planning and Policy (3)			2	1		x	x	x	3
ESPM 3251 Natural Resources in Sustainable Int'l Development (3)			1	2		x	x	x	3
ESPM 3703 Agroforestry in Watershed Management (3)	1		2					x	3
FR 3431 Timber Harvesting and Road Planning (2)			2					x	2
FR 5228 Advanced Assessment and Modeling (3)		3						x	3
FR 5264 Advanced Forest Management Planning (3)			2	1				x	3
FR 5615 Field Remote Sensing and Resource Survey (2)		2			x		x	x	2
FR 5615 Field Remote Sensing and Resource Survey (2)		2			x		x	x	2
FW 5003 Human Dimensions of Biological Conservation (3)									3
Hort 4021 Landscape Design and Implementation (3)	1		2			x		x	3
LA 3501 Environmental Design and its Biological & Physical Context (3)	1	1	1			x		x	3
Total Available Restricted Elective Credit Hours									91
Minimum Credit Hours Required									12

[1] Includes only required courses in forestry, natural resource, or other professional areas. Does not include electives, restricted electives, or basic, general education courses such as math, basic sciences, or English.

[2] See SAF Standard II: Curriculum, for specific areas of study definitions. Credit hours may be distributed among two or more areas of study for a listed course.

Document B-1: Forest Resources Education Summary—Required Courses

Institution Name: University of Minnesota Academic Year: 2007-08
Official Degree Program Title: Forest Resources
Official Option Title: **Urban and Community Forestry Track**

Required[1] Courses # & Title **F. Professional Required Core Courses** (35-36 cr) **(plus 4 credits from Part D of curriculum)**	**Credit Hours in SAF-Required Areas of Study[2]**				**Course Contains Significant Content in *(check all that apply)*:**				Total Credit Hours
	Ecology and Biology	**Measurement of Forest Resources**	**Management of Forest Resources**	**Policy, Economics, and Administration**	**Field Work**	**Ethics**	**Oral and/or Written Communications**	**Integrated Resource Management**	
Introductory Professional Courses (4)									
FR 1001 Orientation and Information Systems (1)	0.25	0.25	0.25	0.25	x	x	x	x	1
Resource Assessment (11 cr)									
FR 3131 Geographic Information Systems (GIS) for Natural Resources (4)		4						x	4
ESPM 3211 Survey, Measurement and Modeling for Environ. Analysis (3) *or* FR 3218 Assessment and Modeling of forests (3)		3			x		x	x	3
Economics, Management and Policy (10 cr)									
RRM 4232**W** Managing Recreational Lands (4)			2	2	x	x	x	x	4
ESPM 3261 Economics of Natural Resources Mgmt (4) from Part D				4		x	x	x	4
ESPM 3241**W** Natural Resource & Envir. Policy (3)				3		x	x	x	3
Urbs 1001/3001 **W** Introduction to Urban Studies: Complexity… (3)				3		x	x	x	3
Management of Vegetation, Wildlife, Soil and Water Resources (21cr)									
FR 1101 Dendrology: Identifying Forest Trees and Shrubs (3)	3				x				3
Hort 1015 Wood and Herbaceous Plants (4)	3		1		x				4
Hort 5041 **W** Nursery Management (4)	2		2		x		x		4
FR 3104 Forest Ecology (4)	4				x	x	x	x	4
FR 3114 Hydrology and Watershed Management (3) *or* ESPM 4061 **W** Water Quality and Natural Resources (3)			3					x	3
FR 3411 Managing Forest Ecosystems: Silviculture (3)	1.5		1.5			x	x	x	3
FR 3501 Arboriculture: Selection and Maintenance of Trees (3)	1		2		x				3
FR 4118 Physiological Ecology of Woody Plants (3) Or Biol 3002 Plant Biology: Function (2)	2-3						x		2-3
FR 4501 Urban Forest Management: Managing Greenspaces for People(3)			2	1	x		x	x	3
Ent 4251 Forest and Shade Tree Entomology (3)	2		1		x			x	3
PlPa 3003 Diseases of Forest and Shade Trees (3)	2		1		x			x	3
Field Training in Assessment and Biology of Forests (4 cr) (taught at Cloquet Forestry Center, August)									
FR 2101 Identifying Forest Plants (1)	1				x				1
FR 2102 Northern Forests Field Ecology (2)	2				x		x	x	2
FR 2104 Measuring Forest Resources (1)		1			x		x		1
Total Required Credit Hours	24.75	8.25	16.75	13.25					62-63

[1] Includes only required courses in forestry, natural resource, or other professional areas. Does not include electives, restricted electives, or basic, general education courses such as math, basic sciences, or English.
[2] See SAF Standard II: Curriculum, for specific areas of study definitions. Credit hours may be distributed among two or more areas of study for a listed course.

Document B-2: Forest Resources Education Summary—Restricted Electives

Institution Name: University of Minnesota Academic Year: 2005-2006
Official Degree Program Title: Forest Resources
Official Option Title: **Urban and Community Forestry**

Required[1] Courses # & Title **G. Additional Professional Requirements** (6 credits) **Requires faculty adviser approval and a contract; courses may not be used to fill the requirement if they are used to satisfy other major requirements.**	**Credit Hours in SAF-Required Areas of Study[2]**				**Course Contains Significant Content in *(check all that apply)*:**				Total Credit Hours
	Ecology and Biology	**Measurement of Forest Resources**	**Management of Forest Resources**	**Policy, Economics, and Administration**	**Field Work**	**Ethics**	**Oral and/or Written Communications**	**Integrated Resource Management**	
Anth 3041 Ecological Anthropology (3)	3					x	x		3
BBE 1002 Wood and Fiber Science (3)	2			1		x		x	3
FR 3204 Landscape Ecology and Management (3)	1		1	1				x	3
FR 3262 Remote Sensing of Natural Resources and Environment (4)		4						x	4
FW 2001 Introduction to Fisheries, Wildlife, and Conservation Biology (3) *or* FW 5603**W** Habitats and Regulation of Wildlife (3)	2		1			x	x	x	3
Geog 3371W Cities, Citizens and Communities (3)			1	2		x		x	3
Hort 4021 Landscape Design and Implementation (3)	1		2			x		x	3
LA 3501 Environmental Design and its Biological & Physical Context (3)	1	1	1			x		x	3
Mgmt 3001 Fundamentals of Management (3)				3		x			3
ESPM 3021 Ecological Vegetation Mgmt: A consulting Approach(3)	1		2			x		x	3
ESPM 3031 Applied GPS for GIS (3)		3			x				3
ESPM 3101 Conservation of Plant Biodiversity (3)	2		1					x	3
ESPM 3202**W** Environmental Conflict Mgmt, Leadership, & Planning (3)			2	1		x	x	x	3
ESPM 3703 Agroforestry in Watershed Management (3)	1		2					x	3
ESPM 3411 Group Process, Team Building and Leadership (3)				3		x		x	3
Soc 1001 Introduction to Sociology (3)			1	2		x		x	3
Soc 3541W Cities and Social Change (3)				3		x		x	3
Soil 3416 Plant Nutrients in the environment (3)	2		1					x	3
Total Available Restricted Elective Credit Hours									54
Minimum Credit Hours Required									6

[1] Includes only required courses in forestry, natural resource, or other professional areas. Does not include electives, restricted electives, or basic, general education courses such as math, basic sciences, or English.
[2] See SAF Standard II: Curriculum, for specific areas of study definitions. Credit hours may be distributed among two or more areas of study for a listed course.

1.6 Review of Educational Objectives with respect to goals: The explicit educational objectives of the curricula are intended to prepare students to be capable and effective forestry professionals. Documents A-1, A-2, B-1 and B-2 show the breadth and depth of coverage of the four forest resources areas of study. This preparation is also deemed to satisfy University and college-level program goals. Below we elaborate on aspects of the curriculum and its effectiveness of particular interest in accreditation.

Use of Restricted and Free Electives: In addition to core courses, students in the specific tracks are required to take professional (restricted) electives leaving 6-15 credits of free electives. As an example, for the FCEM track, the professional electives (see Document B-2) are further grouped into two categories:

Group 1: Managing Plant, Animal, Soil, and Water Science
Group 2: Conservation and Management

This grouping is intended to guide student choices among the various subjects and related career opportunities. The groups also reflect the faculty view of the main subject areas important to the track.

Students in the FCEM track have more options due to fewer required professional electives, the requirement of only one field session. However, they are required to develop a focused set of 12 credits developed with the assistance of their faculty advisor.

For all tracks, most of the free electives are used to satisfy liberal education requirements or to seek out individual interests. Note that double counting of courses satisfying more than one core or theme is allowed. A considerable number of students minors in diverse areas from wildlife management to foreign languages. The most common minors are Fisheries and Wildlife and Environment and Natural Resources (to become the ESPM minor soon). However, most FR students try to use electives to build their professional background and employability with a specialization and we encourage them to do so. Thus, these electives typically bolster coursework in the above restricted and free electives groups. An example is building a background to build qualifications for employment as a geographic information system (GIS) specialist.

In fact, many transfer students reach graduation with a considerable excess of electives. For some this is an asset. For others it is the result of their early exploration of alternative majors and/or weak advising before transferring into the college.

Communications: Instruction in writing has received much attention in the University in recent years. In fact, the freshman courses note in the curriculum are new for fall 2007. Additionally, reinforcement of written communication skills occurs throughout the curriculum in the form of papers, individual and group assignments or projects, and individual and group presentations. This is especially true for those courses designated as writing intensive. Examples are:

FR 5611 Field silviculture
(a group property exam report at Cloquet)

ESPM 3241 Natural resource and Environmental policy
(a writing intensive class with several required papers)

These courses are in addition to freshman writing requirements. At least two of the four required writing intensive courses must be taken at the 3000-level or above, and at least one upper division writing intensive course must be taken with the student's major or program area.

Writing-intensive courses integrate writing into the work of the course. They provide a variety of formal and informal occasions for students to write. In formal writing, students might learn the formats characteristic of a particular academic field, such as a research report, a critical essay, or a laboratory report. In informal writing, students use writing that may include logs, journals, or short in-class responses to readings and lectures in order to learn course material. Through both formal and information writing, students come to understand something of the goals, assumptions, and key concepts operating in their discipline.

To qualify as writing intensive (denoted by a "W" in the class schedule), a course must assign a significant amount of writing. Apart from informal writing and essay examinations, it should assign at least 10-15 pages of writing. On at least one occasion students should receive critical comments on a draft that they can then revise. These comments might be provided by other students in peer workshops, by teaching assistants, or by faculty. Throughout the course, students get instruction in how to do the assigned writing. That is, they might be shown a particular format or have a particular disciplinary convention explained, or be given help in how, for example, to organize, reach an audience, or cite secondary courses.

The University has also provided additional funding for teaching assistant support for these courses. Finally, writing centers and training are also available to guide faculty and teaching assistants and assist individual students.

In terms of speaking skills, as students progress through the curriculum, our courses call on them more often for verbal participation in class and/or in discussion groups or for the presentation of their individual or group assignments. Examples are reviews of papers, critiquing journal articles, reports from fellow students, and project reports. In fact, this training in communications starts early in the form of mock interviews of students in orientation classes.

Science and mathematics: Documents A-1 and A-2 describe the biological, physical and mathematics education student receive in the FR curriculum. The basic science and mathematics offerings are at the level of a major land grant and research institution. The syllabi and example materials for courses like FR 3104 Forest Ecology, FR3114 Forest Hydrology and Watershed Management and FR 5218 Measuring and Modeling Forests are illustrative of how we follow up on the basic subject matter education to provide the translation and extension of material to applications that is relevant and important to forestry understanding and practice.

Additionally, the faculty are very active in research through their role in the Minnesota Agricultural Experiment Station. Invariably and by design, faculty bring their science issues, questions, and research methods into coursework. Such effort enriches instruction, brings in cutting-edge ideas and fosters critical thinking from the basic to the applied. Importantly, such contacts can lead to student employment on various research projects—the DFR employs approximately 50 undergraduate students on a part-time basis each year on research and extension projects.

Integration: The curriculum provides a framework that allows truly integrative instruction, significant field experience, experience with new technologies, honed analytical skills, plus an awareness of the social context of the profession. Additional, many of our courses foster a problem-solving and opportunity development approach, notably with specific campus and real field problem situations, and encourage lifelong learning. As an example of the framework, various course syllabi specify the educational outcomes and capabilities anticipated or planned for the course, e.g., FR 2102 Northern Forests Field Ecology, offered at Cloquet and ESPM 3261 Economics in Natural Resources Management. In another way, the FR 2102 builds upon basic science understanding translated to real environments; the course then provides the background to succeed in the following campus course FR 3104 Forest Ecology which in turn is a building block for FR 3411 Managing Forest Ecosystems-Silviculture, which in turn feeds student capability to succeed in FR 3471 Forest Management and Planning in problem solving. Importantly, faculty view this building block approach and integration as central to our overall instructional effort.

A review of the objectives of various courses further shows their interrelatedness. Some courses introduce principles examined more closely in advanced courses. Other courses relate the subject matter to other areas of forest management. Many courses present management techniques to facilitate integrated forest resource use. Other courses are designed to encourage synthesis and use of information form earlier classes in problem solving. Below are some examples:

Course	Objective
Management of Recreational Lands (RRM 4232)	To understand the role of the land manager in recreational lands and outdoor recreation management, and some of the problems in integrating resource uses.
…Silviculture (FR 3411)	To link dendrology, forest ecology, etc. to management in the form of silvicultural practices and to prepare students for field silviculture and problem solving at Cloquet.
Forest Hydrology… (FR 3114)	To describe the effects of land cover and land use, including forest management, on water yields, water quality, erosion and sedimentation. To describe how timber harvesting affects nutrient cycling and nutrient concentrations in stream flow.
Measuring & modeling FR 3218)	To understand the statistical, measurement and modeling of forests concepts and methods for resource assessment and decision-making.
Timber Harvesting and Road Planning (FR 4431 at Cloquet)	To recognize interdependence among road planning, harvesting, site preparation, wildlife habitat, and other forest management considerations.
Natural Resource & Environmental Policy (ESPM 3241)	To understand the political and administrative processes that shape how technical information is used in policy development.
Environmental Conflict Management… (ESPM 3202)	To develop understanding and skills for conflict management,

The DFR coordinates coursework among the four SAF areas of study through informal communication between faculty members, a departmental curriculum committee, and semester faculty meetings. On a broader scale, the college coordinates coursework among departments through a collegiate curriculum committee and semester faculty meetings, as well as personal contacts between faculty members with similar interests.

Field experience: The 3.5 week required Introductory Field Session is held annually at the University's Cloquet Forestry Center (CFC) in August. The CFC is a 3400 acre field station with excellent classroom, computer, dining, and lodging facilities (see http://cfc.cfans.umn.edu/index.html). The CFC is the University's primary research and education forest. The Center serves the research, teaching, and education needs of the forestry and related natural resources community. This predominately pine and aspen forest also has controlled access that allows for a wide range of forest management practices and associated instructional efforts and student experiences.

Students who take the 3.5 week Introductory Field Session held at the Cloquet Forestry Center in August benefit from field coursework in a realistic work environment and in several other ways. The three courses taken at Itasca are Identifying Forest Plants (FR 2101), Northern Forest Field Ecology (FR 2101, and Measuring Forest Resources (FR 2104). Besides providing important coursework and field training helpful to understanding in later courses, the Itasca session allows students (many of them transfer students) to become better acquainted with their classmates and with DFR faculty. It also gives them an important early exposure to field forestry working conditions which help them choose later courses and to assess their professional aspirations.

Students required or choosing to take the five-week Advanced Field Session in May-June at the Cloquet Forestry Center during their junior or senior year also benefit in several ways. Students apply concepts and knowledge acquired in previous coursework to contemporary forestry management problems and decision making. Often this coursework takes them beyond the CFC to agency and industry operations in the larger region for understanding the broad scope and detail of natural resources management. They also develop strong (often lifetime) ties to their classmates. In some ways, the Cloquet session functions as a set of capstone courses.

Students have the chance via these field sessions to develop their skills and problem solving in very realistic settings. In brief, the field sessions provide important opportunity for students to develop their skills to a very professional level of competency.

Fostering Thinking Skills and Awareness: The curriculum fosters critical and analytical thinking through individual and group problem solving and the confrontation of biophysical, human, managerial, and social phenomena. These phenomena are dissected and critiqued to assess and understand their origin, technical nature, and implications. The subject may be ecological, such as a forest fire; technological, in terms of assessing the possibilities of new equipment; or social and managerial, in the context of broad forest resource management issues. In the process of problem solving, issues are developed from the individuals involved, stands, landscape scales, or on local, national, and sometimes global levels.

Many courses begin with the basics of what we know. Then, complications are added, such as possibilities for interaction and scaling up to very visible phenomena. Students also critique these situations, draw inferences, search for alternatives, and finally choose solutions or a course of action. For

students in the FMP or UCF tracks, emphasis may be placed on specific tools (technological or otherwise) and specific approaches to problem analysis and problem solving. For students in the FCEM track, this process can be part of the building of skill for a possible career in research. In either case, students will gain considerable experience in both individual and team or group efforts and learn the strengths, techniques and limitations of each.

In the areas of economics, policy, and planning, because of our unique situation with respect to co-location with state government (in St. Paul), major federal, state, county and local ownerships, plus major forest industry operations, plus substantial private forest land ownership, and being the only forestry education program in the state, we (as a forestry program) have a long history of working with stakeholders across the state and region. We also have a long history of active involvement working with the primary state forestry and natural resource agency and the Minnesota legislature, primarily as a source of expertise. This has provided us with great opportunity to work with and at times assist state government and others with economic, policy and planning issues that have great importance to our economy and the environment. Importantly, because of contacts and proximity, our faculty are able to draw such issues and participants in these arenas into our coursework to provide unique and first hand understanding of the issues, the interested parties, processes, solutions, and evaluations.

Relevance to the Region and Profession: The region's forest conditions, economy, and environment also influenced the development of the curriculum. About one-third of Minnesota's land is devoted to forest uses, and the forest industry is the state's third largest industry. The forests also have diverse species composition and history of use. Increasing forest recreational use, the need to protect and enhance the forest environment, the increasing competitive demands on the forest resources of the state and region, and climate change issues require education that improves on our capability for management, protection, and use of the resource. State and county governments are also major landowners. Thus, the curriculum incorporates distinct regional considerations in terms of the resource, ownership, and political factors.

Finally, the curriculum represents a unique component of the renewable resource management and use system in Minnesota, and of the state's higher education system. The CFANS' educational programs have been developed and implemented over nearly a century. A result has been contributions to the profession and to society from the faculty and graduates working worldwide. In addition, the college is the only institution in Minnesota's higher education system providing a four-year and advanced degree education of forestry professionals and scientists. As such, the CFANS has a unique opportunity to serve the state's economic, social, and environmental goals relative to forest lands and associated resources.

Global Perspective: This perspective, sought by the University and the college, is provided in several ways: (1) by specific courses that focus on global subjects, (2) by coursework that meets liberal education requirements (e.g., designated themes in cultural diversity and international perspectives), (3) by our many faculty with international experience who weave that into their courses, and (4) by formal study abroad opportunities. The first way is typified by courses focusing on global concerns such as ESPM 3251/5251 *Natural Resources in Sustainable International Development*. The liberal education requirements also force students to branch out. The third way is typified by the instructors relating their first-hand knowledge of a subject, say tropical deforestation, in their course. For example, FR 3104 *Forest Ecology* covers ecological factors, and ESPM 3261 *Economics of Natural Resources Management* covers forest valuation and competition considerations from local to global. Importantly, the University has taken major steps to formalize study abroad opportunities with the goal that they are taken by 50 percent or more of our students. This initiative has been formalized in the Learning Abroad Center (see http://www.umabroad.umn.edu/programs/index.html). The intent is that study abroad can help students

meet major or minor requirements, fulfill liberal education requirements, or achieve proficiency in a second language. Such experiences include internships or research for a senior thesis while on study abroad. We do not yet have a clear accounting of student experience with study abroad, but anecdotal evidence is that is already substantial and growing.

Incorporation of Professional Ethics: Instruction in professional ethics is covered with respect to guiding: (1) the relationship between peers, (2) our conduct with respect to the natural world, and (3) solving of the dilemmas that arise in practice while trying to follow the first two of these. The primary coverage of all three is through the use of lecture, case examples, discussion, and problem solving in ESPM 3241 Natural Resource Policy and Administration. Specific mention is made of the SAF code of ethics and forestry examples are used. Additional exposure is provided in ESPM 3202 Environmental Conflict Management, Leadership, and Planning, and in the elective course NRES 3011 Ethics and Leadership in Resource Management. This last course focuses on environmental ethics (including deep ecology to utilitarian views). Finally, most instructors incorporate ethical dilemmas and considerations in courses focused on science and/or management.

Information Technology, Computer Skills and Distance Learning: None of the required courses are taught with distance learning technologies. However, our campus and field classes do use computer-based learning tools and approaches extensively. In particular, GIS, remote sensing, forest inventory and modeling are areas with considerable computer usage.

With respect to computer skill development, we note great progress in incoming student skills in the last decade. The campus now has wireless access from most classrooms and PCs are ubiquitous within the classroom. We also provide several labs in the vicinity of Green Hall, our primary instructional site, for general to specialized coursework needs, notably in the GIS and modeling areas. Within the 1-2 years of instruction, numerous courses (including the FR Orientation and Information Systems required course) force virtually all students to productive skill levels with various software for word processing, spreadsheet development (e.g., Excel), and presentations (e.g., PowerPoint). Students taking the GIS coursework also develop operational level skills with associated spatial data analysis software. Further, information delivery to students in the University is largely by email. Additionally, a significant and growing number of students have been mastering web page development skills. A small number of students also develop traditional computer programming and data management software skills by their junior or senior year. In total, the University has become very electronic. Students experience that in many ways and with commensurate skill development from the requirements of their various classes.

1.7 Evaluation of Courses and Curriculum: The Department of Forest Resources requires that written student evaluations be obtained for each course taught by the department every time the course is offered. Faculty members have used a variety of student opinion survey forms, but these were standardized in the 1990s with the adoption campus wide of the Student Evaluation of Teaching Survey (SETS) forms and process developed by the University's Office of Measurement Services. SETS reports for a course are sent to both the instructor and the department head. The faculty member may also forward the individual evaluation forms with individual student comments (which show only on the faculty member copy. Finally, copies of the SETS reports are filed in the department office for use with promotion, tenure, or review purposes.

The department head also reviews summaries of student course evaluations each year as part of the annual review of the faculty. These student evaluations also form an essential part of promotion and tenure documentation. The department head, assisted by senior faculty, also visit classes as observers. Additionally, the department head will counsel individual faculty about course/instructional needs and training as suggested by course evaluations, visits or other input.

The Department of Forest Resources has a teaching committee responsible for working with the department head in: establishing policies regarding teaching evaluation, providing guidance to faculty who require corrective action to improve teaching, leading sessions on teaching-related topics at faculty retreats, and screening candidates for teaching awards. The committee is separate from the curriculum committee and draws on the faculty who are recognized as effective instructors and those who have participated in teaching-related activities such as training programs for new faculty.

Process of Curriculum Change: The faculty makes changes using a departmental curriculum committee which then passes results on to a college (CFANS) curriculum committee. Implementation of new curricula or elimination of a current curriculum requires action by the Board of Regents based on proposals from the college.

The curriculum committees are charged with reviewing, evaluating, and recommending all aspects of undergraduate curricular matters requiring departmental or collegiate action. The committees meet to review proposed curriculum changes with respect to whether students need the material presented as an introduction to more advanced courses, whether material is duplicated in courses, whether course titles and credit accurately reflect course content, etc.

In general, proposals for changes in curriculum (FR, RRM) are initiated at the departmental level, with approval required by the curriculum committee and later the full faculty. Approved proposals then move to the collegiate curriculum committee, and finally to the college faculty. However, in light of the fact that CFANS is a new college, some of these steps are now being reviewed for adequacy and efficiency. Normally, the following steps are required in making curricular changes:

1. A faculty member(s) submits a proposal to the departmental curriculum committee, or that committee develops a proposal for change.

2. The departmental curriculum committee reviews the proposal, makes any necessary modifications, and votes on its acceptance. If approved, the committee sends the proposal to the department's faculty.

3. The department's faculty reviews the proposal and votes on its acceptance. Usually this vote is taken at a regular departmental faculty meeting. Approved proposals are next forwarded to the college Curriculum Committee.

4. The college curriculum committee reviews the proposal with attention directed at maintaining consistent educational policy and standards across the college's programs. Proposals also are examined for the impact change may have for other departments within the college or beyond.

5. Upon approval, the college curriculum committee presents the proposal for action at the next college faculty meeting. If the college curriculum committee or faculty does not accept the proposal, it is returned to the department with comment.

The college-wide ESPM curriculum is an exception to this process. A proposal for change (say to an ESPM course) goes directly from a faculty member to an ESPM curriculum committee. Upon approval it is forwarded to the regular college curriculum committee. However, since some of the ESPM courses are central to the FR curriculum and are taught by DFR faculty, such courses do go through the department curriculum committee first.

The dean appoints college curriculum committee members, and the department heads appoint department-level curriculum committee members. Faculty, undergraduates, and graduate students may serve on these committees. By design, each curriculum has a major coordinator responsible for is administration of various aspects of the curriculum; such major coordinators are also members of the respective department and overall college curriculum committee.

Stakeholder Input. DFR faculty interact frequently with representatives of the forest products industry; public and private land management agencies; urban forestry organizations and public interest groups concerned with the environmental, recreational, and commercial uses of forests and forest resources. These contacts assist in shaping curricula which in turn prepares students for forestry careers. Individuals from these stakeholder groups are also asked to serve as guest speakers and participate in field sessions. In fact, most courses incorporate one or more guest lectures. The adjunct faculty from outside the University are also frequent participants in classes by virtue of their special expertise and experience. Continuous review and updating of courses and curricula in the DFR and college provide evidence of the influence of this input.

Related Curricula: Other curricula also influence the forest resources curriculum. The college offers several programs and curricula related to forest resources and urban forestry. Among these, the curriculum in recreation resources management is offered by the DFR. This curriculum prepares students for careers in the comprehensive planning and management of land and water for recreation, with emphasis on natural nonurban areas; for participation in government resource-oriented recreation programs as well as private planning and consultation.

The full set of 14 CFANS majors is shown in section 2.1. Most are departmentally administered; an important exception is the ESPM major. Collectively these programs provide courses that are either required or common electives in forest resources. Additionally, the faculty of these departments are important to the college's overall depth in natural resources and the environment.

The new ESPM curriculum is administered as a college wide program intended for students interested in an interdisciplinary education focusing on the use and management of natural resources and the study of the environment. The curriculum and its options (tracks) also function as an entry point to the University for students with interests in the environment but with as yet no major identified. A number of ESPM students seek minors in forest resources. In fact, the DFR faculty are major contributors to the ESPM curriculum by virtue of the many component courses they provide.

1.8 Changes in Curriculum Since the Last Reaccreditation: The content of the forest resources curriculum tracks has not changed much since the Interim Status Report in 2001. However, the University has urged a change from 128 to 120 semester credits. This change has meant that several courses had to be shortened or their content incorporated into new or existing required or elective courses.

STANDARD III: FORESTRY PROGRAM ORGANIZATION AND ADMINISTRATION

1 Administration

1.1 Department and College Administration: The primary administrator of the Forest Resources Program is the head of the Department of Forest Resources (DFR). The DFR is one of twelve departments within the College of Food, Agricultural and Natural Resources Sciences (CFANS). The nearly full set of departments and other units in CFANS was provided in Section 1.3 of this report. The head of the DFR reports to the dean of CFANS.

The dean of CFANS reports to the senior vice president and provost and manages and provides leadership for the teaching, research and outreach programs conducted by the college. CFANS is one of 17 colleges and professional schools in the University. CFANS was established July 1, 2006, per the merger of colleges described in Section 1.2 of this report.

The organizational outline of the CFANS Dean's Office is shown below.

Dean
Allen S. Levine

Associate Dean of Faculty and Academic Affairs
Ann Hill Duin

Associate Dean of Research
F. Abel Ponce de Leon

Associate Dean of Extension and Outreach / Director of Financial Affairs
Michael A. Schmidt

Associate Dean
Robert A. Stine

The dean of the college has overall responsibility for the programs, personnel, and budgets of the college. These responsibilities are similar to those of other college deans in the University. Department heads have line authority and are delegated broad responsibility for personnel, programs, and budgets within their departments.

In carrying out their responsibilities, the dean and department heads are assisted by several faculty designated as associate deans, staff coordinators or directors of collegiate functions. Key among these for forestry programs are the Associate Dean of Faculty and Academic Affairs (Ann Hill Duin), the Director of Student Services (William K. Ganzlin), the Coordinator of the Cloquet Forestry Center (Ronald W. Severs), and the various directors of graduate studies (DGSs), notably Kenneth N. Brooks for the graduate program in Natural Resource Science and Management.

1.2 Major Coordinator: The head of the department is also assisted by the major coordinator of the Forest Resources curriculum, appointed by the dean in consultation with the department head. Currently the roles of department head and FR major coordinator are vested in one person, but that is not a requirement. The responsibilities of the major coordinator are to:

-serve on the college curriculum committee to represent the major
-provide academic leadership for the major including revisions to meet employer needs
-participate in activities for recruiting, advising, and assisting student learning communities
-coordinate internships for students if required in the major
-assist the Student Services Office in training faculty advisors
-in consultation with faculty advisors, make decisions regarding petitions within the major

1.3 Student Advising Roles: The college's advising model designates the college's Student Services Office (SSO) as responsible for advising all freshmen and first-year transfer students. A full time academic advisor position serves as the academic advisor for freshman and new transfer students in the FR major, along with similar students in several other majors nearby. This position reports to the CFANS Student Services Office (SSO). The SSO also provides an academic advisor for undecided college majors in the SSO.

In terms of a faculty role in the advising model, nearly all of the department faculty participate in undergraduate student advising, i.e., they serve as advisors to undergraduate students. Typically a faculty advisor has 5-10 advisees across the various majors in which the department is involved (FR, RRM, ESPM).

2 Student Recruiting, Admissions and Transfers

The college's SSO is responsible for overseeing student recruiting, admissions, registration, and academic progress; assisting in the scheduling of courses; maintaining undergraduate and alumni student records; coordinating undergraduate placement efforts; and organizing, conducting, and recruiting prospective student contacts.

CFANS has four full-time, dedicated admissions counselors responsible for recruiting undergraduate students. Two of these counselors are responsible for recruiting new freshman and two are responsible for recruiting transfer students. CFANS recruitment staff work closely with the central Admissions Office to maximize the effectiveness of the recruitment plan. Enrollment in CFANS overall has see a steady increase in recent years.

2.1 Admission Requirements: Admission to the University of Minnesota is competitive. Each year there are more applicants than can be accommodated in the freshman class. On their application, students are asked to declare a first and second choice for college of admission. If unable to offer admission to a first choice, the University will consider admission to a second choice, and/or to the college that best matches student interests and academic record.

Admission decisions are based on an overall assessment of the primary and secondary factors listed below (source http://admissions.tc.umn.edu/index.html.)

Primary review factors are:

- Successful completion of a college preparatory curriculum.
- High school rank percentile. (Students from non-ranking schools and those with GED or other high school equivalency scores are given full consideration.)
- Grade point average

- ACT or SAT scores
- Strength of the curriculum through high school graduation, including courses that exceed the core subject requirements and any advanced courses (i.e. honors, AP, IB, college level)

Secondary review factors:

- Evidence of exceptional achievement, aptitude, or personal accomplishment not reflected in the academic record or standardized test scores.
- A pattern of steady improvement in academic performance.
- Participation in extracurricular college preparatory programs (e.g., MEP, PSEO, Talent Search, UMTYMP, Upward Bound, and other programs).
- Evidence of exceptional talent or ability in artistic, scholarly, leadership, or athletic performance.
- ACT/SAT writing test results.
- Outstanding high school or community involvement.
- Size of graduating class.
- Work experience, paid or unpaid.
- Family attendance or employment at the University of Minnesota.
- First-generation college student.
- Evidence of exceptional motivation, maturity, or responsibility.
- Evidence of having overcome social, economic, or physical barriers to educational achievement.
- Evidence that enrollment would enhance the cultural, gender, age, economic, racial, or geographic diversity of the student body.
- Extenuating circumstances.

Freshman Admission: During high school, students are expected to complete, at a minimum, the University's core college preparatory course requirements listed below. Some majors may have additional requirements. If as student is not on track to complete all of the core subject requirements, but has a promising academic record and meets other admission requirements, they may still be admitted. If admitted with any course deficiencies, students must make them up before graduating from the University.

> *4 years of English*, with emphasis on writing, including instruction in reading and speaking skills and in literary understanding and appreciation
>
> *3 years of mathematics*, including one year each of elementary algebra, geometry, and intermediate algebra (integrated math 1, 2 & 3)

3 years of science, including one year each of biological and physical science and including laboratory experience

3 years of social studies, including one year each of U.S. history and geography (or a course that includes a geography component such as world history, western civilization, or global studies)

2 years of a single second language

Additionally, if an applicant is a non native speaker of English with ACT English and/or reading scores of 17 or lower (or SAT critical reading [verbal] score of 420 or lower), they may be asked to submit scores from the Michigan English Language Assessment Battery (MELAB) or Test of English as a Foreign Language (TOEFL).

Table III.1 below describes the profile of fall 2006 admitted freshman for CFANS and other freshman admitting colleges.

Table III.1. Academic profile of fall 2006 admitted freshmen by college. The data are a composite picture of the freshman class and do not reflect the combination of individual factors that led to each admission decision.

	Biological Sciences	**Design**	**Education & Human Development**	**CFANS**	**Liberal Arts**	**Carlson School of Management**	**Institute of Technology**
High School Rank Percentile							
Average HSR	**92.4%**	**87.5%**	**85.9%**	**78.6%**	**85.9%**	**94.2%**	**89.4%**
Top 10%	72.2%	43.9%	40.2%	27.8%	40.2%	87.2%	58.4%
75-89	25.5%	50.9%	48.1%	35.4%	48.1%	12.2%	35.8%
Below 75	2.3%	5.2%	11.7%	36.8%	11.7%	0.6%	5.8%
ACT Composite							
Average ACT	**27.8**	**25.2**	**25.8**	**24.4**	**25.8**	**27.9**	**28.2**
28+	52.4%	19.8%	30.2%	18.7%	30.2%	59.1%	57.7%
24-27	39.2%	52.5%	45.8%	41.0%	45.8%	32.8%	34.9%
Below 24	8.4%	27.7%	24.0%	40.3%	24.0%	8.1%	7.4%
SAT 1 Total							
Average SAT (out of 1600)	**1290.3**	**1170.6**	**1224.2**	**1172.8**	**1224.2**	**1268.5**	**1318.5**
1300+	50.0%	25.0%	33.3%	21.8%	33.3%	44.2%	61.0%
1100-1299	42.2%	47.2%	47.7%	46.0%	47.7%	47.0%	33.7%
Below 1100	7.8%	27.8%	19.0%	32.2%	19.0%	8.8%	5.3%

Transfer Admissions: Admission is to a particular college or program, each of which has its own admissions requirements. All applicants, however, need to have successfully completed the University's high school preparation requirements. For CFANS, transfer applicants to the major in Forest Resources must have:

- Completed intermediate algebra with a passing grade
- Demonstrated a solid foundation in math and science

Table III.2 below provides a general overview of the academic qualifications of last year's admitted transfer students, as reflected in students' college GPA[1] (grade point average).

Table III.2. Overview of the academic qualifications of 2006 admitted transfer students, as reflected in students' college GPA[1] (grade point average on 4.0 scale).

College or program	*Number of admitted students*	*Average transfer GPA*	*Transfer GPA range distribution*			
			4.0-3.5	3.49-3.0	2.99-2.5	Below 2.5
Biological Sciences	204	3.38	48%	35%	16%	1%
Continuing Education	36	3.17	30%	30%	30%	10%
Design	104	3.30	41%	27%	28%	4%
Education & Human Development	106	3.11	27%	35%	31%	7%
CFANS	230	3.31	34%	37%	27%	2%
Liberal Arts	1,205	3.37	44%	41%	13%	2%
Carlson School of Management	56	3.71	96%	4%	0%	0%
Institute of Technology	368	3.32	40%	42%	15%	3%
Health Science Program Dental Hygiene	18	3.47	50%	44%	6%	0%
Health Science Program Medical Technology	24	3.32	25%	63%	12%	0%
Health Science Program Mortuary Science	20	3.16	15%	65%	20%	0%
Health Science Program Nursing	44	3.58	66%	30%	4%	0%

As background, CFANS has been accepting a high per percent of applications received for both freshman and new advanced standing (transfer) students both intra-university, and from other institutions. However, CFANS is increasingly faced with enrollment limitations imposed centrally for freshman and likely in the future for transfer students.

Appropriate credits earned at other accredited colleges and universities or within other units of the University may be applied toward CFANS programs. Most students find they must transfer before their junior year to meet residence and upper division course requirements.
Students from other colleges and universities make up a large portion of the enrollment in CFANS. Today, most of the students who graduate from the Forest Resources major arrived as transfers, approximately half from within the Twin Cities Campus and half from other institutions, e.g., the Minnesota State College and University System (MNSCU), notably its community colleges, and beyond.

We encourage and seek transfers and suggest appropriate planning and preparation. The University, college and major then decide what credits transfer and whether those credits meet degree standards. The college and ultimately the major coordinator and faculty determine what credits meet major degree requirements. Credits are usually counted in three categories: general education (decided by the University), major/minor courses (decided by the degree program), and electives. In a few complex cases, the department head, major coordinator and/or individual faculty will be asked to decide. In most cases, the transfer of credit is fairly clear.

Students who have taken courses from another college or university can find out how those credits will transfer using the Minnesota Course Applicability System (MnCAS). This free, Web-based system grants access to accurate, up-to-date information about how your courses will transfer and apply to a degree program at the University of Minnesota. See https://mn.transfer.org/cas/index.jsp. Additionally, CFANS major specific guides (including Forest Resources) for students transferring from Minnesota Community Colleges are available on the college website. See http://www.cfans.umn.edu/Transfer_Guides2.html.

Credits earned through special examination or through the College of Continuing Education may also transfer to CFANS. The minimum GPA for transfer admission is 2.00.

Student Academic Records and Progress: Students in CFANS are expected to maintain an academic standing that will enable them to meet minimum requirements for graduation upon completion of the required number of credits in the major that they have selected. A complete description of the College probation standards is available in the University of Minnesota Undergraduate Catalog and at http://www.cfans.umn.edu/Scholastic_Requirements. The primary consideration in evaluating probation status is the semester and cumulative GPA on student transcripts. Students not meeting standards are subject to probation and suspension actions.

3 Teaching

As a collegiate unit, CFANS has broad authority and direct responsibility to regulate many academic matters including curricula development, degree requirements, student admissions, and academic performance standards. Only general University guidelines limit this authority. Additionally, the department head has sufficient authority to address many aspects of the departmental programs. However, the size, breadth, and depth of the full set of forest resources programs requires considerable faculty input, initiative and careful prioritizing of needs and activity. Further, a high level of success requires the intellectual contribution of faculty, their buy-in and their active participation.

All faculty in the DFR hold varying distributions of teaching, research and extension responsibilities based on their faculty position appointment and departmental allocation of resources. Teaching assignments are made with hiring per faculty expertise and modified as program needs and faculty interests and skills evolve. In fact, teaching roles are specified in position descriptions developed for faculty searches and offer letters make explicit mention of teaching roles. Additionally, faculty are expected to provide a detailed account their efforts, including teaching, annually. Further these accounts are compiled and circulated to promote overall faculty knowledge of individual efforts, collaborations, and opportunities.

The importance of teaching is evident in several other ways: (1) The annual report of activity includes a listing of specific courses taught and student credit hours generated, number of undergraduate advisees, assistance to student organizations (e.g., as a faculty advisor), participation in special advising or mentoring of students, attendance at commencement, etc. (2) The DFR also requires student evaluations of teaching for each instructor each time a course is taught. These evaluations of teaching strengths are important inputs to annual performance evaluations conducted by the department head for merit salary increases and as input to promotion and tenure decisions. (3) For promotion and tenure consideration, a faculty teaching review committee is appointed and asked to use the accumulated teaching evaluations, peer evaluations, and solicited input from former students in drafting a report on the faculty member's contributions in terms of teaching. These reviews typically involve examination of syllabi, teaching pedagogy, course materials, etc. Teaching evaluations are further a major consideration in promotion and

tenure decisions. (4) The University has moved to provide truly exceptional resources and training to assist new faculty and others in developing their teaching skills, including the Faculty Development program, the Technology Enhance Learning (TEL) program and others. (5) The University and college award programs provide important recognition of instructional skill and contributions, notably the Horace T. Morse Minnesota Alumni Association Award for Outstanding Contributions to Undergraduate Education and the John Tate Award for Excellence in Undergraduate Student Advising. These awards carry substantial recognition and financial reward. In particular, the Morse Award carries membership in the University's The Academy of Distinguished Teachers, a program of the Office for Academic Affairs and Provost that promotes excellence in teaching and learning. Within CFANS a Professor of the Semester Award is also voted on by students.

Additionally, numerous support resources are made readily accessible and available to assist faculty with their instruction, notably those listed below:

Tools and Resources (see http://onestop.umn.edu/onestop/faculty/Teaching/Resources.html)

ADCS-Academic and Distributed Computing Services
Center for Teaching and Learning Services
Classroom Management
Digital Media Center
Libraries
Minnesota English Center
Office of International Programs
Office of Measurement Services
Access for students with disabilities
Disability Services Homepage
Resources for TA Supervisors and Teaching Assistants
TA Web Certification Program
Teaching at the U of M Handbook WebCT

The CFANS intranet site provides access to additional teaching assistance and resources (see http://intranet.cfans.umn.edu/Teaching2.html).

The faculty's authority and responsibilities in establishing degree requirements are also substantial. The actual level of faculty initiative and effort going into the development and maintenance of undergraduate programs has gradually increased over the last two decades. As an example, the undergraduate program conversion to semesters described here was largely a faculty effort. Direction and procedures were provided by Central Administration, but faculty really carried the effort in terms of course and curriculum design.

Finally, the dean periodically seeks advice and/or perspectives, including those pertaining to teaching, from the college Faculty Consultative Committee, the Student-Faculty Board, or other standing or ad hoc committees which involve faculty and are available to the dean in an advisory capacity.

4 Support Staff

Table III.3 indicates the clerical and technical support staff for the departmental office. In addition to the staff listed, the department employs part-time undergraduate and graduate student workers on a nonregular basis to assist with research and outreach programs. Additional technical staff are associated

with various laboratories. The department staff is excellent and handles a very high volume of work with an exceptional level of effectiveness. However, the recent college merger has lead to a process of reconfiguring staff support around functional areas and by Division. The subject functional areas include human resources, financial (including grants) management, information technology, communications, development, student services and alumni relations. This realignment process is underway and expected to be completed and associated staffing in place by July 2007. The DFR anticipates increased support staffing in the ESPM Division and improved delivery of the various services through this effort.

Table III.3. Department of Forest Resources administrative (nonfaculty), clerical, and technical staff, full-time equivalents.

	Responsibility			
Department	**Instruction**	**Research**	**Extension**	**Percent time**
Administrative Professional	x	x	x	100
Executive Office and Administrative Specialist	x	x	x	100
Executive Office and Administrative Specialist	x	x		100
Secretarial Support (student worker)	x	x	x	25
Lab Technical Support		x		50
Computer/Network Support (via CFANS)	x	x	x	20

Other department offices in the ESPM Division have comparable staffing levels. The college office has additional staff to support college-wide development, communications, and outreach. Other units have support staffing commensurate with their size and function. For example, the Cloquet Forestry Center has staff to assist with various aspects of continuing education, field sessions, and research and forest management on the Center. The Student Services Office has staffing for advising, recruiting, records, etc. Additionally, the nearby St. Paul Campus Career Center has staffing to assist students with career planning and placement.

5 Program Planning and Related Issues

Several factors do or potentially impact CFANS undergraduate programs. Among these are:

1. The University operates with a common entry point for new students. This is significant to recruiting in that many of our graduates are actually transfers from other colleges within the University. Further, many students only discover this college and its programs after they are admitted to the University. The planned departmental augmentation of recruiting and stakeholder liaison efforts in the coming year could thus have a major impact on program visibility and in increasing enrollment.

2. The college has recently asked each division to develop a mission, vision and strategic goals commensurate with their function. Additionally, the college has also asked departments to revisit and refine their mission, vision and strategic goals, including the identification of core and unique resource strengths. These efforts are to take place over the next several months. These planning efforts are viewed as a significant opportunity to articulate strengths, potentials and specific actions for forest resources and related programs. Guiding this planning is the strengthening of CFANS and achieving the University's goal in terms of becoming one of the top three public

research universities in the world within 10 years. Participants in this planning will be students, faculty, employers and other stakeholders.

3. Development efforts have become very important to future funding. The merger of colleges to form CFANS brought additional development resource management and potentials to the department. The department received various gifts in 2006 approaching $2 million in total. Such gifts, provide significant opportunity for the future.

4. Recent CFANS level planning to develop college compact planning for central administration also provides opportunities to articulate program strengths, opportunities and needs.

6 Education Needs and Outcomes Assessment

Desired educational outcomes are qualified, employed, and competent professionals who can and do contribute to meeting society's needs for management, protection, and the sustainable use of our forest and related natural resources.

The assessment of educational needs and outcomes is addressed in several ways: (1) by curriculum development and review processes, (2) course development including the specification of coverage, objectives and outcomes in terms of student learning or skill development, (3) actual student performance in meeting course objectives and outcomes, (4) by employment surveys and associated feedback, and (5) employer needs surveys and feedback. The Minnesota Forest Industry Forester Needs Survey of 2006 (see Appendix X) is noteworthy as an industry effort to address the needs for skilled employees, both in terms of skill areas and numbers of employees.

Other reviews helpful in understanding program quality are the USDA Cooperative State Research reviews of research programs, periodic reporting and reviews of graduate programs by the Graduate School, and published reports of outside reviews and ranking. The last CSRS review was conducted in 1989 (a new
review is anticipated in the next 1-3 years) and the last review by the Graduate School was in the 1980s, thus we have increasingly relied on additional materials in interpreting program strengths and needs.

A published report which suggests favorable outcomes is the Gourman Report (1998) which ranks our undergraduate forestry program first out of thirty surveyed nationally. Among 42 graduate forestry programs nationally, the Gourman report ranking was #6; for 15 graduate natural resource management programs nationally, the Gourman Report ranking was #7.

A recent article in the Journal of Forestry[1] also examined citation and perception based ranking of North American forestry research programs. The study placed the DFR among the top tier of such research programs nationally. An internal study of research productive departments at the University also included the DFR as exemplary of productive research performance.[2]

[1] Laband, D. N. and D. Zhang. 2006. Citations, publications, and perceptions-based rankings of the research impact of North American forestry Programs. *Journal of Forestry* 104(5):254-261.

[2] Bland, C. J., A. M. Weber-Main, S. M. Lund and D. A. Finstad. 2004. The research productive department: Strategies from departments that excel. Anker.

Additionally, in terms of coursework, we seek qualified student enrollment and evidence of subject matter learning, synthesis capability, and problem-solving skill. These are evidenced by satisfactory or better completion of course requirements including class participation, problem assignments, literature review, writing of reports, testing, individual and group problem solving, etc. As noted earlier, we also assess learning as evidenced by student evaluation of courses every time they are taught. Success in terms of career employment rates in recent years has been assessed using several ways: (1) a Graduate Follow-up Survey (for 2005) by the St. Paul Campus Career Center, (2) a Post Graduate Survey by the College of Natural Resources conducted in 2005 addressing graduates back to 1995, and (3) an electronic survey conducted by the DFR in April 2007 for graduates from the years 2001 through 2006.

An additional set of measures we see for students going on to graduate school includes their Graduate Record Exam Scores (required for entry into the Natural Resources Science and Management graduate program) and academic performance including theses, research problem papers, and oral and written exam findings. We further are able to observe skill development when students serve as teaching and research assistants, and in visiting alumni in their various field and office employment settings.

In terms of student input to the evaluation of instruction, Section 1.7 of STANDARD II describes the student evaluation of courses and the considerable use of those evaluations by the department to provide for the improvement and recognition of teaching efforts.

Finally, faculty promotion and tenure policy within the college involves criteria, indices, and standards covering teaching, research, extension, and service responsibilities. The criteria are established within the overall University guidelines as stated in the University's Regulations Concerning Faculty Tenure. As these criteria for promotion and/or tenure indicate, many aspects of a faculty member's teaching performance are considered. The review encompasses initiation of new subject matter and courses, instructional load, advising, and contributions to extension and continuing education of professionals (where appropriate), as well as classroom instruction. The department also has developed and adopted a post-tenure review process that also considers teaching.

STANDARD IV FACULTY

1 Description and Responsibilities of Faculty

1.1 Faculty Involved in Forestry Instruction: A detailed description of faculty is contained in documents provided in the appendix. Document C-1 in the appendix lists all regular and nonregular faculty of the department, and summarizes their qualifications and responsibilities. Document C-2 provides a summary of background for faculty teaching courses listed in Forms B-1 and B-2 but not reporting to the department head. Document D summarizes faculty budgeted time and teaching responsibilities for faculty reporting to the department head. The exception is that graduate level seminar and research problem courses are not considered here. Staff who have academic administrative or academic professional appointments and have teaching responsibilities in undergraduate education are also included. Document E, a full academic summary of current faculty reporting to the department head, is also provided in the appendix.

New regular tenure-track faculty since August 2001 are:

Anthony W. D'Amato	Silviculture/Vegetation Management (arrives August 2007)
Dennis R. Becker	Natural Resources and Environmental Policy
Joseph F. Knight	Remote Sensing and Geospatial Analysis (arrives July 2007)
Rebecca A. Montgomery	Forest ecology
Ingrid E. Schneider	Recreation and Tourism
Anthony G. Snider	Natural Resources and Environmental Policy
Eric K. Zenner	Silviculture/Vegetation Management

Academic professional faculty who have been regularly involved in teaching in the last 1-3 years are:

Dean A. Current, Ph.D	Research Associate	Agroforestry & International Forestry
Grant M. Domke, M.S	Research Fellow	Silviculture
Sherry A. Enzler, J.D.	Research Fellow	Environmental Law
Cynthia C. Messer, M.S.	Extension Associate Professor	Tourism
Andrew C. Jenks, M.S.	Teaching Specialist	Geographic Information Systems
Roy L. Rich, Ph.D	Research Associate	Forest Ecology

These faculty are all located in St. Paul.

Regular tenure or tenure-track faculty who retired (R) or departed (D) to another position since August 2001 were:

Eileen V. Carey (D)	Forest Ecology
Paul V. Ellefson (R)	Forest Policy
Daniel W. Gilmore (D)	Silviculture
James A. Perry (D)	Forest water quality (moved to head position in Dept of FWCB)
Dietmar W. Rose (R)	Forest Economics
Anthony G. Snider	Natural Resources and Environmental Policy
Eric K. Zenner (D)	Silviculture/Vegetation Management

Regular faculty are those with tenure or tenure-track appointments funded by the college. Other faculty include academic professional staff, joint, and adjunct faculty. Academic professional faculty do not have tenure or tenure-track appointments and do not come under the University tenure regulations. Their teaching is funded by department instructional funds, but their research or other funding is typically covered by grants. Generally, they work on an annually renewable contract or temporary basis. Persons holding these appointments are reviewed on a somewhat different basis than tenure-track faculty. Nearly all other terms of employment are similar to that for regular faculty. Some may hold appointments in University of Minnesota Extension.

Adjunct faculty are of two types: (1) faculty who are funded all or in part by other University units, but are involved in the college's programs as instructors or co-instructors of regular or supporting courses, graduate student advisors, and in other capacities including close collaboration in research; and (2) professionals funded by outside agencies such as the USDA Forest Service, Minnesota Department of Natural Resources, etc. The second type of adjunct faculty are typically involved in the college's programs as guest lecturers, and in an advisory capacity, usually at the graduate program level. However, some have taught undergraduate courses in their area of specialization. There a large number of such adjuncts, but few have led instruction in courses. Consequently these are not listed in this report.

Open positions/areas are:

- Silviculture/Vegetation Management (E. Zenner position)—a search has been concluded and Dr. Anthony W. D'Amato will begin his assistant professor appointment in August 2007.

- Silviculture (D. Gilmore position)—a request is being developed to refill this position in the area of forest ecosystem health.

- Water quality (J. Perry position)—a request is being developed to return this position upon retirement.

There are no known retirements pending in the next year, but there may be some in the next 2-5 years. The department will seek to fill all such positions, each with an instructional component.

1.2 Adequacy of Faculty for Program Objectives: Document D in the appendix summarizes the number of full-time equivalent (FTE) faculty members in the department. Note that 9-month appointments became the norm for new faculty in the 1990s. However, given the growth of grant and contract funding, most faculty are expected to be funded for the entire year. Generally, 9-month appointments extend over the academic year (September to June). Since the DFR offers few courses (other than field sessions) during the summer, such changes have not significantly affected the instructional program.

The number of regular faculty in the Department of Forest Resources has declined by one since the since the 2001 review (J. Perry, moved to become head of the Department of FWCB). The number of regular faculty is now at 16 but will return to 18 fall semester 2007. Regular faculty teaching FTEs have declined from 6.06 to 5.09. However, this number and the associated instructional FTEs for academic professional staff (5.96) are adequate to offer the Forest Resources programs. Additionally, Adjunct joint and faculty from other campus departments provide important support to DFR efforts, e.g., Professor R. Blanchette in Plant Pathology and Assistant Professor W. Zanner in Soil, Water and Climate. Further, Document D is a very strict interpretation of budgeting. Importantly, the University views its funding as more fungible today

than in the past. Also, the research appointment has some history—approximately one-third of our state experimentation funding is intended to support graduate student education.

One faculty member (M. Baughman) has also served in recent years as a half time appointment as assistant/associate dean for the college. He returned to a regular faculty and extension specialist role as of January 2007.

1.3 Recruitment and Retention of Faculty: In hiring faculty and staff, the DFR adheres to explicit University Board of Regents policy on diversity, equal opportunity and affirmative action. Additionally, the University has explicit process. A first step involves the submission and approval of a search plan which includes a position description, the search committee composition, the planned advertising, etc. This plan must be approved by the college Equal Employment Opportunity (EEO) officers and by the dean of the college. After seeking applicants, a request is required to conduct interviews. Upon recommendation of the final candidate, a report on the search is made along with a request to extend an offer. An offer can be made only after the report is approved by the dean.

As part of the commitment to female/minority hiring, the department seeks to assist female and minority graduate students complete their studies, particularly Ph.D. programs. To date we have used graduate school fellowship, departmental fellowship endowments and graduate assistantship monies to fund promising students. We have also encouraged support and mentoring programs such as the Women in Natural Resources organization. We are encouraged by the increasing numbers of women in our graduate program, but more progress is needed in the case of minority groups.

1.4 Adequacy of Faculty for Program Objectives: Document D in the appendix lists the number of advisees for each faculty member actually advising undergraduates. For 2006-2007, 15 DFR faculty advised 175 students (includes FR, RRM, and ESPM students). The result is an advising ratio of 11.7 students per active advising faculty member. However, this effort is assisted by the full time academic advisor, notably for freshman and new transfers.

Table IV.1 documents the teaching revenue/teaching support ratios developed from data developed by CFANS. The Department of Forest Resources shows much more instructional revenue per instructional support dollar than any other unit in the college. This result is in part because of growth in the enrollment of the ESPM major (which originated in the DFR) and because the department has taken the lead in teaching new courses for the ESPM curriculum.

Table IV.1. CFANS FY05-06 Instructional tuition and instructional support.

Department	Tuition generated 2005-2006 $	2006-07 base allocation $	2006-07 instructional compact allocations $	2006-2007 Total Allocation $	Return per $ Invested $
Food Science and Nutrition	1,901,986	1,961,174	200,000	2,161,174	0.88
Applied Economics	1,238,253	1,655,624	160,000	1,815,624	0.68
Forest Resources	1,128,253	658,267	60,000	718,267	1.57
Animal Science	801,328	1,245,496	1,000,000	2,245,496	0.36
Fisheries, Wildlife & Conservation Biology	573,531	837,641	58,000	895,641	0.64
Horticultural Science	566,252	1,003,734	50,000	1,053,734	0.54
Soil, Water & Climate	443,887	763,432	50,000	813,432	0.55
Bioproducts and Biosystems Eng.	381,152	853,853	40,000	893,853	0.43
Agronomy and Plant Genetics	305,726	676,881	13,400	690,281	0.44
Plant Pathology	237,715	584,949	20,000	604,949	0.39
Entomology	185,485	595,237	8,500	603,737	0.31
Total	7,763,568	10,836,288	1,659,900	12,496,188	0.62

1.5 Availability and Use of Innovative Teaching Methods: The University administers a number of small grants and training programs to foster improvements in teaching. Examples of programs funded included new courses, restructuring of existing courses to reflect changing disciplines and teaching methods, and improvement of instruction in large classes. A number of these programs and related resources were described under STANDARD III Section 3. The DFR faculty are encouraged to be frequent users of such programs.

Notably among this University support are the offerings by the Center for Teaching and Learning, which include programs such as:

Early Career Faculty Learning Community
Mid-Career Faculty Learning Community
Making Meaning of a Life in Teaching
Multicultural Teaching and Learning Fellowship
Innovative Teaching and Technology Strategies
Teaching Enrichment Series
Graduate Student Programming
International TA Program
Preparing Future Faculty
Teaching Enrichment Series
Consultations & Customized Workshops
Resources for Nonnative English Speakers
Online Workshops & Tutorials

More details are available at http://www1.umn.edu/ohr/teachlearn/.

The Office of Academic Affairs and Provost also includes programs to develop well-prepared, fully engaged faculty and staff. These programs include:

New Faculty Orientation
Grant Writing Seminars
Leadership Development Programs
Provost's Department Chairs Leadership Program
Faculty Development

Evidence of participation in the above teaching and other programs is indicated in Document E in the appendix, notably under item 10: *Major self-improvement activities during the past 10 years*. The growth of these programs and the participation of faculty during the past five years has been considerable.

The course syllabi or portions thereof in the appendix also attest to innovation in instruction. Examples are:

- FR 1001 Orientation and Information Technology….accessing diverse information by computer early in the student career
- FR 2104 Measuring Forest…GPS instruction and usage in field exercises at Cloquet
- FR 4131 Timber Harvesting…new Minnesota Forest Management guidelines instruction at Cloquet
- ESPM 3241Natural Resource and Environmental Policy…advocacy strategy assignment and writing-intensive instruction

1.6 Teaching Awards: The last decade has witnessed increased emphasis on teaching with the University and college. The University recognizes the importance of excellence in teaching with two annual awards noted below with the names of the DFR faculty who have received such awards.

Undergraduate Education:

Horace T. Morse - University of Minnesota Alumni Association Award

- James A. Perry (formerly with DFR)
- Dorothy H. Anderson

Graduate and Further Education:

Outstanding Contributions to Postbaccalaureate, Graduate, and Profession Education Award

- Kenneth N. Brooks

Only 15-20 such awards are made annually. Each carries a salary augmentation of $3,000 annually for as long as the faculty member remains with the University and a five-year award of $1,500 annually to the recipient's department for professional development activities. Also, recipients of the awards join the Academy of Distinguished Teachers for a five-year term.

Within the college, a gift has allowed the establishment of the Richard C. Neuman Art of Teaching Award. There is one award (including a cash award) in the college annually. DFR faculty to receive this award since its inception in 1997 are:

James A. Perry
Dorothy H. Anderson
Thomas E. Burk
Kristen C. Nelson

Additionally, recipients of the Richard C. Newman Community Impact Award (for outreach) since its inception in 2001 have been:

Gary R. Johnson
Charles R. Blinn
Howard M. Hoganson

The college Alumni Society also has recognized "Outstanding Contributions to Undergraduate Education." DFR recipients since 1995 have been:

Dorothy H. Anderson
Thomas E. Burk

Finally, the college Student Services Office managed a process by which students selected a "Professor of the Semester." Those receiving the award since its inception in 1999 have been:

Klaus J. Puettman
Dorothy H. Anderson
Carl E. Vogt
Anthony G. Snider
Erik K. Zenner

Adjusted for department size, few units in the University can match this record of recognition for excellence in teaching.

1.7 Availability and Use of Sabbaticals and Faculty Development Options: After six consecutive years of regular full-time service at the University, faculty members are eligible for sabbatical leave at half-salary for up to one full term of appointment. After three years of service, faculty are eligible for the competitive full salary single semester leaves available as University policy. These two types of leave are for study, research, or other professional activities that will strengthen individual knowledge and understanding and benefit University teaching and scholarly activity. Since the SAF reaccreditation visit in 1996, six current DFR faculty have taken sabbatical leaves (P. Bolstad, K. Brooks, P. Reich), and four have taken advantage of single semester leaves (M. Bauer, M. Baughman, A. Ek, K. Nelson).

The University also encourages outside consulting service activities as long as University responsibilities are fully met. Outside professional activities of a full-time faculty member may not exceed an average of one day per seven-day week for the term of the appointment, and the way in which outside activities are scheduled must be compatible with the faculty member's obligations to the University. Several members of the DFR faculty have long-term relationships with outside firms or agencies, and several more perform outside services of a short-term nature such as single consultantships, guest lectures, and site visits. These activities give the faculty an additional opportunity to develop and maintain contact with the business, government, and professional communities.

Numerous DFR faculty are active in international forestry and related activities. International activities help the faculty learn about the forest management, utilization opportunities, and resource problems in other countries, and may lead to mutually beneficial technical and scientific exchanges. Faculty involvement in such activities also promotes a worldwide perspective in teaching. Such a perspective becomes increasingly

important to our graduates as countries become more interdependent for raw materials and markets as well as in the maintenance and protection of diverse ecosystems.

Full-time faculty and staff members may also apply for the Regents Scholarship program which pays the tuition for those wanting to take a course, say one a semester, and build skill or work toward a degree. Additionally, Finally, full-time faculty members who hold Ph.D. degrees may audit University courses without registration or payment of fees.

1.8 Workload Allocations: The department head, in consultation with the faculty member, decides the proportion of each faculty member's salary to be funded from each source. This decision is based on the interests and capabilities of the faculty member, departmental program needs, and the total funding available to support each activity. The amount of sponsored (grant or contract) research or outreach a faculty member undertakes depends on the individual faculty member's interest, expertise, and ability to seek and secure such funding. The DFR typically use such funds for graduate assistant and staff support, as well as other research expenses.

Each year, the department head evaluates salary distribution (i.e., percentage for instruction, research, and extension) against work performed. Where significant differences exist, the department head attempts to readjust salary allocation to reflect actual performance. However, the total percentages for instruction, research, extension, and administration are relatively fixed for the department, and thus usually for individual faculty members.

Student advising is part of a faculty member's instructional responsibility. Some faculty members have shown special interest in working with undergraduates, while those with more extensive research programs tend to work more closely with graduate students. Generally, the Student Services Office assigns undergraduates to faculty advisers who specialize in the student's expressed area of interest.

As a guide to workload determination, the department has adopted formal workload principles encompassing teaching, research and outreach expectations. These principles include the suggestion of a teaching load of 2 semester courses annually for a 9-month appointment with a 50 percent time teaching assignment. In general, the DFR faculty more than meet these principles. However, the diversity of assignments and size and character of courses makes precise comparisons of faculty instructional workloads difficult.

STANDARD V: STUDENTS

1 Forest Resources and Urban Forestry Graduates and Employment

1.1 Graduates: At the department level, the progress of graduates is assessed periodically by an employment survey designed to provide information for SAF accreditation and identify program success in terms of student satisfaction, salaries of graduates, assess areas for improvement in our program and to connect with alumni. The University has also conducted similar surveys periodically for all graduates, but the response rate has been too low to be useful for this report. The DFR conducted a surface mail survey in 2005 for students graduating between 1999 and 2004. More recently (April 2007) an employment survey was distributed electronically (see http://www.zoomerrang.com for the methodology) to assess results for graduates from the years 2002 to 2006. Some overlap with the previous survey was desired to gage survey repeatability and to build improved connections with alumni. Document F provides information on employment for students achieving the Bachelor of Science degree in Forest Resources during the last five years. In light of the small number of graduates, the three curriculum tracks were combined.

The forest resources graduates employed full time in a job directly or indirectly related to their field plus those in graduate school comprised 84 percent or more of all graduates responding. We did not discern much difference among the tracks in these results. The figures for urban forestry are very similar. Typical starting salaries are in the range of $30,000-40,000 per year.

Most graduates have stayed within the Midwest. Employment is with a mix of local, state, federal, and industry employers. The most common employers for forest resources are state and county forestry programs. For urban forestry, municipal governments, private consulting and service firms, and nursery operators are the most common employers. Earlier surveys have indicated the forest resources majors leaving the state but remaining in the US typically move to western states.

We see these employment results as quite positive. Together with a strong forestry job market, we see a promising outlook for the next decade. Additionally, this placement in positions related to the major is very high compared to a range of other curricula in the University (e.g., architecture, biology, history, journalism).

A caveat for this survey is concern about the adequacy of the address list. This list was drawn from University Foundation records constructed at or shortly after graduation. The response rate of the survey was 47 percent, probably hindered by out-of-date email addresses. However, we noted similar response rates with the surface mail survey mailed in 2005. Earlier surveys (e.g., as reported in the 2001 Interim Status report) had a much higher response rate as a result of having a permanent staff member with personal knowledge of each graduate. However, with the retirement of this individual, surveys may have to be conducted in stages in order to build up the accuracy of the address list. In fact, the DFR will contact the email survey respondents and others later this year for information on nonrespondents for whom they may have address information.

1.2 Enrollment: Document G shows undergraduate enrollment by class and curriculum. There is no preforestry category. In fact, most students transfer to the major. The largest class is typically seniors, the smallest class is freshman. This reversal of traditional enrollment patterns by year is likely due to the increase in the number of community colleges and the increasing tuition differences between community

colleges and the University of Minnesota. In some cases, the University's tuition is approximately double that of the community colleges. Interestingly, the current number of minors in forest resources is nearly as large as the number of majors. Thus individual classes have substantial enrollment.

The quality of students comprising this enrollment is suggested by admissions records of high school rank, etc. provided in Standard III Section 2, notably tables III.1 and III.2.

The diversity of the enrollment is also shown in Document G. Note the gender diversity can vary widely from year or class to the next. Overall, the current enrollment is 25 percent female and 75 percent male. In the current senior class, minority enrollment is 8 percent. However, this enrollment is very small in number, totaling 5 students in the past four years.

The current undergraduate diversity statistics for CFANS are:

	Number	Percent
Male	982	55
Female	814	45
Total	**1796**	
African American	41	2
Asian	76	4
Caucasian	1598	89
Hispanic	22	1
Native American	12	1
Other	42	2
International	13	1

1.3 Graduate Student Enrollment: The University has a large number of graduate students. Those students in forestry are largely housed within the Natural Resource Science and Management (NRSM) graduate program in its various tracks. Table V.1 illustrates the fall enrollment for the last five years.

Table V.1. Natural Resource Science and Management graduate program enrollment

	Fall Semester enrollment				
Track	**2002**	**2003**	**2004**	**2005**	**2006**
Forests: Biology, ecology, conservation & management	0	11	10	16	16
Recreation resources, tourism & environmental education	0	6	6	8	8
Economics, policy, management & society	0	6	12	14	14
Forest hydrology and watershed management	0	3	4	4	0
Assessment, monitoring & geospatial analysis	1	16	15	13	13
Wildlife ecology and management	0	0	0	0	3
Paper science and engineering	0	5	5	6	5
Forest products	2	2	1	1	2
No track	3	14	16	15	24
Forestry*	64	8	6	7	5
Wildlife conservation*	17	15	17	16	11
Total	87	86	92	100	101

* Legacy programs to disappear as their enrollment shifts to the above tracks.

Table V.2 shows the number of student graduating with M.S. and PhD degrees. This graduate program serves undergraduates by providing specialized training for those seeking teaching and research careers as well as advanced positions in forestry and related organizations. The presence of a substantial number of graduate students on campus also serves to enrich the undergraduate educational experience.

Table V.2. Natural Resource Science and Management graduate program graduates.

	Fall Semester enrollment Graduates										
Track	**2002-03**		**2003-04**		**2004-05**		**2005-06**		**2006-07**		
	MS	**PhD**	**MS**	**PhD**	**MS**	**PhD**	**MS**	**PhD**	**MS**	**PhD**	**Total**
Forests: Biology, ecology, conservation & management			3	1	2		3	1			10
Recreation resources, tourism & environmental education			4				1		2		7
Economics, policy, management & society		2	1		2	1	2	2			10
Forest hydrology and watershed management	1	1	1		2		1	1			7
Assessment, monitoring & geospatial analysis			2			3					5
Wildlife ecology and management											0
Paper science and engineering	2	4	1	2			1		1		11
Forest products	1	1									2
No track	1	2	2		2	1			2	1	11
Forestry*	5		4		1		2	1			13
Wildlife conservation*	3		2		2	2	3	3	2		17
Total	13	10	20	3	11	7	13	8	7	1	93

* Legacy tracks that will eventually disappear as students move into the above tracks

1.4 Student Advising and Recruiting: The framework, staffing, and responsibilities for admissions and the advising model were described in Section 2 of Standard III. With the recent addition of a professional academic advisor, the major coordinator role and increased training for faculty within CFANS and by the University broadly, advising continues to improve. Ultimately advising should become quite consistent across advisors and programs. Additionally, there is increased attention to advising and special efforts for retention which should also move students toward graduation at an increased rate. The continued role of faculty in advising also serves to increase overall program understanding and provides a pathway for students seeking to be connected with summer jobs and internship experiences with which the faculty have historically been well connected.

The St. Paul Campus Career Center offers numerous services and resources to students in CFANS and partner colleges on the Campus. These services include individual career counseling, career assessments, coaching on resume writing and employment searches, career fairs, arranging on campus interviews plus extensive on site and on-line employment resources. The Center also assists faculty in the conduct of orientation classes for new freshman and transfer students.

Student learning communities (SLCs) also provide first year CFANS students with a human support system. Their intent is to foster positive academic and social relationships with faculty and other new

students as they make the transition to the University. Research on the first year SLC experience indicates participating students tend to be more satisfied with their undergraduate experience and more likely to remain in school.

Additionally forms of advising are provided by faculty acting as advisors to student clubs. One to two DFR faculty are assigned as advisors to each club or organization.

While not officially part of the curriculum requirements or advising role, the department has historically made strong efforts to place students during the summers on jobs and internships useful in building professional backgrounds. Examples of these include urban forestry internships with communities; cooperative education agreements with federal agencies such as the USDA Forest Service, and internships with the Minnesota Department of Natural resources, county government, and forest industry firms. All of the internships require a formal course offering (ESPM 3051) in conjunction with the work experience. Certain cooperative agreements, e.g., with the USDA Forest Service, have specialized training schedules offering alternating periods of work and study. The federal agency cooperative programs offer noncompetitive career appointments upon completion of the educational requirements for a bachelor or master's degree. The experience gained by students is also important to understanding career choices and aiding retention.

As another form of experience, the University has developed an *Undergraduate Research Opportunities Program (UROP)* to provide grants (up to a $1,400 stipend plus up to $300 for supplies and expenses) to undergraduates for research, scholarly, or creative projects undertaken with a faculty member. Faculty and student interest in this program has been high with DFR faculty typically advising 2-4 such students each year. The projects provide both research experience and close contact with faculty. While the UROP program is the most visible undergraduate employment, the department actually funds 40-50 undergraduates in part-time or summer employment on research projects annually. The UROP program and supplements have increased student-faculty contact, improved advising, and provided important financial support and work experience for students.

The University also has a formal agreement to provide a home for a Peace Corps office on campus. In addition, the agreement established a Peace Corps Masters Internationalist Program in which we assist in providing masters programs and advising for enrollees, notably in the NRSM graduate program.

The University, college and departments are also able to provide substantial scholarship support that is positive recognition and important to retention and improving graduation rates. One application allows students to apply for all CFANS and University scholarships. In the case of DFR administered scholarships, all applying and enrolled students are automatically eligible, thought such funding will only materialize upon admission and enrollment. The CFANS website provides the federal and University policy and procedures for eligibility and disbursement of scholarships and other aid.

Typical annual recruitment efforts involve centralized marketing of the University by the Admissions Office followed by college level articulation of majors and the contacting of prospective students by mail, phone, email…and increasingly through websites and special campus events. Additionally, majors are articulated at annual college fairs held at various locations in the state, with campus tours for applicants, and advising of undecided or disenchanted students in other colleges of the University. The University's Admissions Office website (see http://admissions.tc.umn.edu/index.html) provides considerable insight and detail on the recruiting process for both freshman and transfer students.

The CFANS Student Services Office (SSO) staff develops the college's overall recruiting plan in coordination with the University's central admissions staff and process. On the St. Paul Campus recruiting also utilizes the participation of the professional academic advisors, major coordinators, department heads, faculty, and student volunteers

Primary contacts for recruitment include prospective students, teachers, counselors, and administrators in high schools, community colleges, private colleges, state universities, and other university academic advisors in the University. Some Wisconsin schools are also included because of tuition reciprocity between states.

The college's existing honors program is also seen as an aid in recruiting top students and to promote and recognize outstanding academic achievements.

1.5 Recruiting for Forest Resources Majors: The particular challenge for the DFR is the augmentation of the above recruiting efforts in light of the "discovery" nature of recruiting for the FR major. Past surveys of students and graduates have consistently indicated they only discovered the major existed after they had spent several semesters at the University or a college from which they later transferred. Success will require working on marketing the college, yet going beyond that to recruiting for the specific major.

Within the University, recruiting is now aided by systematic electronic contact with applicants who have indicated first, second and further preferences for majors. This contact mechanism has been developed by the SSO in coordination with central Admissions. With initial contact and expression of interest, the DFR will contact the student to describe the possibilities. The DFR has also engaged its communications specialist to prepare banners, posters, curriculum materials, etc. to bolster program visibility on campus and at conferences and special events where recruiting contacts are possible. We see this work as likely to help in building enrollment from within the University.

To aid transfer recruitment, the DFR will also sponsor Cloquet Forestry Center and campus visits for students enrolled at northern Minnesota community colleges. The selected community colleges are those with one and two year natural resources programs and existing or potential 2 plus 2 programs. In particular, we will be seeking to reestablish 2-plus-2 programs that fell out of sight when institutions went from hardcopy to web based bulletins and communication mechanisms, a common problem in the region.

The recruiting of more freshmen will require a consistent and strong effort to increase program visibility, and to inform high school contacts, teachers, parents and students of the opportunities offered by the program. Doing so will also require partnerships with numerous public and private stakeholders.

As part of these recruiting efforts, the DFR will increase efforts to attract minority students in our student body. Given that we are located in a state and metro region with significant minority populations present, the soon to be developed DFR planning will place specific emphasis on recruiting minorities. In doing so We note the Board of Regents policy: *"The University of Minnesota is committed to the policy that all persons should have equal access to the programs, facilities and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veterans status or sexual orientation."*

The recent forestry enrollment decline nationally plus the demands of employers for more graduates calls

for greatly increased attention to recruiting. However, enrollment increases will not be achieved without a creative plan plus substantial new resources and considerable effort. The DFR will outline a plan for such resources and a demonstrably increased recruitment effort in the next section (STANDARD VI) of this report. This effort will necessarily involve all of the activities described above and more.

1.6 Student Life: A significant portion of student learning occurs with experience outside of the classroom. CFANS students have many opportunities for such experience

Students have the opportunity to participate in policy and decision-making bodies at the University, campus, collegiate, and departmental levels, notably in the form of committee service, e.g., on the department curriculum committees. The CFANS website for students also indicates major specific student clubs and college wide student organizations, plus additional enrichment opportunities. The University's Student Union website for Student Groups has many more (see http://www.sua.umn.edu/groups/). Leadership opportunities are available with many of these.

Within the DFR, the Forestry Club and the Student Chapter of the Society of American Foresters are quite active. The Forestry Club just received the Outstanding Organization of the Year Award at the University's Tony Diggs Excellence Awards Reception and Award Ceremony in Coffman Memorial Union. This event was organized to recognize student groups for their contributions to the campus and community throughout the past academic year. The competition included 48 other nominees (student organizations) from across the University.

Student members of the student chapter of the SAF have been informed of the 2007 accreditation team visit. The members have also been encouraged to notify their fellow students of this opportunity to meet and interact with accreditation team members.

Undergraduates who meet the selection criteria also may belong to Xi Sigma Pi, the National Forestry Honor Society.

On a collegiate level, students participate in several committees and on the Student-Faculty Board. The Student-Faculty Board is the most important in terms of college-wide policy and decision-making. It is composed of the faculty advisers of the departmental student clubs, student club presidents, etc. The board is co-chaired by the director of the SSO and an undergraduate student selected by the undergraduate members of the board. One of the board's primary functions is to provide a student advisory capacity in college policy formation and program decision processes.

Opportunities for cultural and intellectual stimulation through the St. Paul Student Center revolve around four programming areas: cultural, social, educational, and recreational. Programs in each area are accessible to students, usually at low or no cost. Music, theater, film, dance, lectures, symposia, discussion groups, and recreational activities occur each quarter featuring traditional offerings in each area plus issues of current interest. Although no hard data are available, observation over a number of years indicates students take advantage of those programs related to their interests, such as natural resource and recreation programs. Additionally, since most students are required to take courses on the Minneapolis campus, they are exposed to a very large number of opportunities in that setting.

STANDARD VI: PARENT INSTITUTION SUPPORT

1 Institution and Supporting Units

1.1 Strengths and Limitations: A major strength of CFANS programs is the presence and support of a large and diverse research university. The University of Minnesota is a world-class institution of undergraduate and graduate education and scholarly research. It consistently ranks among the top public universities in the nation, based on sources such as the National Research Council, *U.S. News & World Report*, and other rankings. The Twin Cities campus is made up of 17 colleges and professional schools offering undergraduate and graduate degrees in more than 250 fields of study. The breadth and depth in many subject matter areas is enormous. The expansive library system is a major strength.

Related and nearby units that directly contribute to our programs are the departments in the Division of ESPM and other CFANS units. Several of these supporting departments are nationally and/or internationally recognized for their excellence. These units provide important coursework for the forest resources major. The list of supporting faculty from nearby departments in Document C-2 is indicative of the extent of close interdepartmental relationships. These and other adjunct faculty offer courses that are important to our core and professional coursework, enrich our classes by guest lectures, assist in our advising, and link us with a broad range of instructional and research capability.

While not a part of the University, it is important to note the proximity of the USDA Forest Service-Northern Research Station on the St. Paul Campus. A number of the station's researchers are adjunct faculty, participate in our courses, and enhance the exposure of our students to forestry issues, as well as provide opportunities for employment. Additionally, the Twin Cities is the home for state government, a wide array of federal agency offices, and various interest groups. This proximity along with the fact that Minnesota has only one forestry education program makes us somewhat unique. This situation has also enabled us to develop and maintain very close working relationships with a wide array of stakeholders. These relationships have in turn enriched the student experience by stakeholder's visiting and relaying their experience to classes, adjunct faculty participation, and by improved linkages to internship and employment opportunities.

The primary institutional weakness of our program is budget uncertainty. In the past decade, fiscal reallocation and retrenchment has been common in the University. Supporting departments have taken their reductions first in course offerings that affect majors other than their own. Thus, difficulties in intercollegiate planning remain a problem. Among these, the move toward responsibility center management will likely exacerbate competition between colleges and make the staffing for supporting courses from nearby units increasingly difficult to maintain.

1.2 Forestry Program Financial Support:

Teaching, Research and Extension Budgets: Table VI.1 provides a budget or allocation with teaching, research, and extension budgets for CFANS for FY 2006-2007. For the DFR, approximately 27 percent of the department's budget is dedicated to teaching, 64 percent to research and 9 percent to extension. Also, for interpretation, a portion of state, Hatch, and McIntire-Stennis funding serves the purpose of graduate student education. Among CFANS units, the DFR is funded not unlike other units except for instruction. That area is clearly underfunded compared to other units.

Table VI.1. CFANS Base budget allocations, 2006-07.

		Agricultural Experiment Station				Extension			
Units	Teaching/ Operations	State Special	Hatch	McIntire-Stennis	MRF & Animal Health	State Special	Federal	Total	Positions T & TT FTEs
Ag Education		224,609						224,609	1.00
Agronomy	676,881	2,143,254	367,389		119,587	502,008		3,809,119	20.00
Animal Science	1,245,496	1,870,654	526,852		299,429	447,720	106,274	4,496,425	23.00
Applied Economics	1,655,624	1,664,611	668,030		61,782	671,325	119,609	4,840,981	30.00
Bioproducts & Biosystems Eng	853,853	1,812,811	205,978	107,087	53,002	513,053	156,945	3,702,729	21.06
Entomology	595,237	1,316,463	128,180		80,763	354,869	16,045	2,491,557	16.49
Fisheries, Wildlife & Conservation Biology	837,641	845,959	87,350	16,458		100,802	20,074	1,908,284	14.15
Food Science and Nutrition	1,961,174	1,199,075	419,491			186,189	61,770	3,827,699	21.00
Forest Resources	658,267	1,223,736	80,330	304,134		162,030	54,084	2,482,581	16.15
Horticulture	1,003,734	1,964,247	343,185			347,753	140,183	3,799,102	21.10
Plant Pathology	584,049	1,431,260	162,591			99,452		2,277,352	13.00
Soil, Water & Climate	763,432	1,327,455	227,135		71,575	431,608	84,466	2,905,671	20.58
Total	10,835,388	17,024,134	3,216,511	427,679	686,138	3,816,809	759,450	36,766,109	217.53

Beyond this base allocation, the college has provided additional funding for instruction by a request process (termed the instructional compact). For 2006-07 the amount awarded to the DFR was $60,000. Additionally, the college has matched departmental startup funding for the silviculture/vegetation management position. The Provost's office has also covered the salary of the new hire in remote sensing/geospatial analysis (a spousal hire). Additionally, the 2006-07 college compact with the Provost's office brought funding for two new faculty positions in the ESPM Division, notably for a strategic initiative in the area of Global Climate and Environmental Change. The positions are in atmospheric science and atmosphere-biosphere modeling and searches are underway. Ultimately the new hires will chose their tenure home in the division. The compact also provided additional support for graduate students in this area, courtesy of CFANS.

Given this funding developments, it appears the new college will be able to fund instruction and research at or above the levels possible under CNR.

The Budget Model: New to the University in the last decade is an evolving budget model. The departmental budgets have been based largely on expenditures for the previous year, yet considering changes in plans, new hires, and new local initiatives. In addition, the department and college participate in an annual compact planning process to identify new strategic initiatives and investment opportunities. The DFR has participated in the development of the recent Global Climate and Environmental Change initiative that has brought new resources from the Provost's office. A separate instructional compact process within the college has also led to augmentation of instructional support.

Importantly, the University is moving to a new budget model this year to be fully operational in 2008. According to this model, each college is responsible for all of their revenues (including base allocations,

tuition and indirect cost recovery)—and expenses including the cost of central services expressed as cost pools. These cost pools encompass:

Utilities
Custodial/Operations
Debts and Leases
Libraries
Research Administration
Information Technologies
Student Services
Central Administrative Units
General Purpose Classrooms.

Additionally, each cost pool will have a basis for attributing costs, e.g., per enrollment, faculty headcount, etc. Just how this model turns out may have a major impact on planning by CFANS and its component departments.

1.3 Staff Support and Service: The college is in the process of organizing service by functional areas to units via divisions. Those functional areas will include financial services, human resources, information technology, etc. Further, division heads and administrators have been asked to take a major role in shaping this service and associated staffing. It appears the new college will be able to provide a wider range of staff support, more funding and greater continuity than was possible under CNR.

Teaching and Research Assistants: The department has been able to allocate funding for approximately 2.5 FTE graduate teaching assistant (TA) positions annually. These are allocated typically to the largest 7-11 courses Most TA appointments are 0.25 to 0.50 time for one semester, with the TAs being drawn from the ranks of graduate research assistants or other graduate students specializing in the subject matter area of the course. The department has used academic salary savings when available and funds from the dean's office (instructional compact) to cover and/or augment this need. The TA performance has been generally excellent, as most of the chosen students have been experienced with the subject matter and are often interested in a teaching career.

Graduate TAs are used with large courses and offerings that have field and laboratory requirements, such as dendrology, remote sensing, GIS, and at the Cloquet field sessions. In addition to setting up laboratory classes and teaching laboratory sessions, graduate TAs grade reports and examinations. In cases where a graduate TA is given primary responsibility for a course, they are usually a Ph.D. candidate and an advisee of the faculty teaching the course.

The department has used sponsored funding (gifts, grants and contracts) and Agricultural Experiment Station funds to support graduate research assistantships. There are fellowship endowment earnings that also bolster graduate student support. The actual number of graduate research assistants, and FTE graduate research assistant positions varies by year according to need and amount of funding available. Fellowship support from the Graduate School has also been significant in the funding of graduate students

During FY 2006-07 the department funded 55-60 graduate research assistant positions, most at 25 or 50 percent time. These graduate assistants work on those projects specified in the grants or research projects. Many graduate research assistants use the research project worked on as a basis for their graduate theses or papers.

The department also employs undergraduate research assistants as funding and needs permit. The undergraduate research assistants are part-time employees, and assist with laboratory preparations, field work, or other specialized needs.

Student Services and Student Financial Support: The University provides a large array of central support services and counseling. These were described under STANDARD III, including how the college assists with recruiting, advising and placement. In general, these are high quality and very helpful services.

One such service is the University's Office of Financial Aid, which maintains offices on each campus, and administers student financial assistance. By submitting one application form, students are considered for all scholarships, grants, loans, and work study programs for which they qualify. While scholarship awards may be based on merit, all other financial aid awards are based on financial need relative to a standardized student expense budget.

In addition to financial aid available through the Office of Student Financial Aid, various scholarships and awards supported by private individuals, foundations, and companies are available to natural resources students. Some of these are administered and distributed by the CFANS Scholarship Committee. Generally, these awards are given on the basis of criteria other than need, such as achievement. However, there is considerable scholarship support available for forest resource students through the DFR Scholarship Committee. Individual awards may vary from year to year depending upon endowment earnings. In total, gifts and resulting endowments have allowed this committee to award nearly $70,000 in undergraduate scholarship support this past year.

2 Faculty Support

Faculty Salaries: Regarding salaries, table VI.2 provides a comparison between average University of Minnesota faculty salaries and those in the CFANS. These results suggest CFANS faculty salaries are in line with comparable Twin Cities Campus units at the assistant professor level, and less so at the associate and full professor levels. Though not shown, the salaries for DFR faculty are essentially the same or slightly higher than CFANS averages for both nine- and twelve-month appointments.

Annual merit salary increases have been common since 2001. Such funds normally flow from the Provost to the deans for distribution to units. However, they sometimes require contributions from units that effectively reduce available program dollars. The last three years have seen additional funds for Star Awards, i.e., additional salary funds for a limited number of faculty in each unit for addressing issues of retention, extra merit and equity. The DFR has been able to make such awards to both regular and academic professional faculty each year.

The evaluation of faculty salary adequacy by programs is also based on comparison with peer programs regionally and nationally. Data obtained from annual meetings of forestry school heads in the north central region suggests we are in the upper middle of salary rankings.

Table VI.2. University of Minnesota, average faculty salaries, FY 2006-2007.

	Professor[a]	Associate Professor	Assistant Professor
Nine-Month			
All University of Minnesota	$102,611	$76,3539	$56,599
Twin Cities Campus[b]	$98,750	$80,097	$63,916
CFANS	$87,928	$67,251	$62,310
Twelve-Month			
All University of Minnesota	$125,413	$93,542	$69,176
Twin Cities Campus[b]	$120,695	$97,896	$78,453
CFANS	$107,469	$82,196	$76,157

[a] Does not include directors, department heads, or deans.
[b] Twin Cities Campus includes colleges of Biological Sciences, CFANS, and Liberal Arts.

Professional Improvement: There have been no substantive changes in the level or type of support available centrally for professional improvement since 2001. The University's has awarded about 25 Bush Sabbatical Fellowships each year to outstanding University faculty. The Bush Fellowship Program provides enhanced support for sabbaticals to encourage growth of scholarship and ultimately to improve instruction. The usual award is 30 percent of 9-month salary.

Several DFR faculty have taken advantage of the sabbatical and single semester leave opportunities since 2001. The department has also provided support to faculty to attend professional improvement programs (see the appendix Document E for various faculty and their listing of improvement efforts). In the last five years, the department, college, and University have put increased emphasis on improvement programs geared to teaching. In research, Minnesota Agricultural Experiment Station funding and grants have allowed faculty to travel widely and internationally for experience, cooperative research, and improvement programs.

3 Libraries and Computer Facilities

3.1 University Library System: The University of Minnesota Libraries (see http://www.lib.umn.edu/) have collectively more than 6.2 million volumes in 14 separate sites (including the Forestry Library located in the Natural Resources Administration Building) on the Twin Cities Campus. The collection includes more than 36,900 serial subscriptions. These libraries comprise the 16th largest academic library collection in the US. In particular, the library has substantial holdings of government publications, manuscripts, archives, audio and video tapes, and other materials. MNCAT is the online catalog that provides computerized access to the libraries' collections and serves as a gateway to local, national and global information sources.

The Forestry Library is home to a premier academic collection of books, journals, government documents, maps, and other information in all formats relating to the subjects of forestry, forest products, outdoor recreation, range management, and remote sensing. The Forestry Library serves the CFANS, the USDA Forest Service Northern Research Station (Library Services), the University of Minnesota Community at large, and the general public. The Forestry Library also produces specialized bibliographic

databases which are accessible on the Internet. The Forestry Library is readily accessible to students and faculty. Additionally, it is under the management of a professional librarian, and students receive a degree of attention and service not generally received elsewhere.

The Magrath Library is the main library facility on the St. Paul Campus and houses most of the University's agricultural and biological sciences collection. The Entomology, Fisheries and Wildlife Library also lies within the CFANS (Hodson Hall).

3.2 Computer Facilities and Instructional Equipment and Materials: CFANS maintains a number of computing laboratories with networked PCs. These facilities are used regularly for labs encompassing instruction in information technologies, survey design and analysis, measurements and modeling, remote sensing, geographic information systems, and forest management. The DFR and the Cloquet Forestry Center also have computer laboratories with additional networked PCs. Ten high-performance workstations and a high-speed network are associated with the Remote Sensing and Geospatial Analysis Laboratory (RSGL) in the DFR. College-wide, a network connects nearly all these computers, as well as nearly all faculty, staff, and some graduate student computers, to the University's backbone network and the Internet. Essentially all of the classrooms in Green Hall have wireless access to the Internet.

In addition, the substantial digital image processing and geographic information system facilities of the University's RSGL are in Green Hall. Numerous software products are maintained and/or made available through the University's Office of Information Technology. Nearly all major programming languages and analysis software packages are available for the various computer hardware. CFANS and University Information Technology support services are also available on a continuing basis. Short courses covering all aspects of computing on all types of machines are offered quarterly.

Nearly all students now have their own microcomputers. Students and faculty may also access the University from remote locations and increasing numbers of students and faculty are doing so. To assist in that, all faculty, staff, and students are assigned E-mail addresses upon their arrival at the University and access software available in several formats. As this capability grows, faculty are developing courses and/or course materials for remote access, notable on the web. In the future, we anticipate several courses being readily available on the web.

In summary, the DFR and CFANS are well positioned in terms of computer hardware and development skills to take advantage of new instructional technologies and approaches.

5 Space and Facilities Available to the DFR

5.1 Green Hall and other St. Paul Campus Facilities: CFANS occupies much of the St. Paul Campus. The DFR is house in Green Hall, but also uses instructional space in Kaufert Laboratory, Skok Hall, and Hodson Hall. A major addition and remodeling project (1984-90) added to and renovated Green Hall and constructed Skok Hall. The DFR website provides a schematic of the campus and these buildings.

The DFR occupies most of Green Hall except space allocated to several wildlife faculty from the Department of FWCB and one laboratory used by the Department of BBE. Green Hall was originally constructed in 1938 and is a very solid structure. The remodeling project improved the quality of our space by making it more functional and up to date. Of special significance was the addition of four large

laboratories to the back of the building. In addition, the adjacent Skok Hall houses the Forestry Library, a CFANS Computer Laboratory, meeting rooms and a student lounge. Additional faculty and staff are also located at the Cloquet Forestry Center and the North Central Research and Outreach Center in Grand Rapids.

After renovation, the total space in Green Hall is more than 34,000 assignable square feet. Approximately 1,500 square feet of that are assigned to wildlife faculty and one laboratory is still used for forest products research. The balance is assigned to the DFR for office, lab, classroom, conference, and workroom space. The greenhouse facility is an additional approximately 3,900 square feet. However, greenhouse space is now managed cooperatively across the St. Paul Campus.

Table VI-3. Space utilization for Green Hall.

	Green Hall sq. ft.
Classroom	
General Classroom	3121
Classroom Service Areas[a]	221
Laboratories	
Class Laboratories / Computer Lab	1702
Class Laboratory Service Areas[a]	184
Research Laboratories	6745
Research Laboratory Service Areas[a]	2436
Offices	
Secretarial/Clerical Offices	980
Staff Offices[b]	900
Faculty Offices	5451
Graduate Assistant Offices	4034
Office Service Areas[c]	2259
Other	
Conference Rooms	1119
Lounges (including service areas)	476
Greenhouse (including service areas)	4376
Total Assignable Space	34004

[a] Includes projection room, computer facilities, preparation rooms, storage areas, etc.
[b] Includes administrative faculty, professional civil service staff, and professional academic and administrative staff.
[c] Includes duplicating rooms, waiting rooms, supply rooms, storage areas, etc.

It is noteworthy that the addition and remodeling project connected several CFANS buildings (Green Hall, Skok Hall, Kaufert Laboratory, and Hodson Hall and the USDA Northern Research Station with a tunnel system. That step facilitates ready access to facilities and faculty interaction.

CFANS has several off-campus facilities available for use in its teaching, research, and extension programs. These are the Cloquet Forestry Center, the North Central Research and Outreach Center and several other small properties. These are described below.

5.2 Cloquet Forestry Center: The Cloquet Forestry Center, 130 miles north of St. Paul, was established through a gift of 2,200 acres to the University in 1910 for use as an experimental and demonstration forest. Subsequent purchases and gifts of land have brought the center to its present size of 3,751 acres. The Center has a small campus with high quality classrooms, meeting rooms, faculty offices, dormitories, kitchen, and dining facilities. The Center is operated year-round by the college as a working headquarters for forestry and related natural resources education, research, and extension and continuing education programs. Two research fellows from the DFR and many other staff members of the college are stationed at the center permanently. Among the staff are a coordinator and a full-time forest manager. Other faculty commute to the Center to assist in the teaching and extension programs and to conduct research. Faculty and graduate students make extensive use of the Center for on-site research and as a base of operations for research in northern Minnesota. In recent years, use of the Center by other University departments and natural resource related agencies has increased. The Cloquet Forestry Center is an excellent set of facilities for research and instruction.

All students in the forest resources curriculum take the 3.5-week Introductory Field Session at the Cloquet Forestry Center. Students in the forest resources curriculum forest management and planning track must also take the five-week Advanced Field Session at Cloquet. Students complete field exercises with special emphasis on the application of the concepts previously covered in the classroom. The Center also has networked computer facilities for student use.

The Center's management is geared to maintain the forest types and ages needed for teaching, research, and extension and continuing education. About two-thirds of the forest is upland, and the remainder is lowland. Upland forest types present include red, white, and jack pine; spruce-fir and aspen-birch. Lowlands predominantly support black spruce and/or tamarack forest types, with a small portion of the lowland acreage in northern white cedar. Facilities at the Center include weather, vegetation, stream, watershed, forest growth monitoring, and other installations that help it serve as a major environmental monitoring and research site. The Center is the oldest continuously operated forestry school field facility in the United States.

5.3 North Central Research and Outreach Center: The North Central Research and Outreach Center (NCROC) of the University is one of six branch experiment stations administered by the Minnesota Agricultural Experiment Station. Located in Grand Rapids (70 miles northwest of Cloquet), the NCROC is in the center of the region of Minnesota dominated by forestry activities. The DFR currently has two faculty members and several research support staff located at NCROC.

The NCROC has considerable research equipment and facilities including a forest tree nursery. Off-site plantings through cooperative efforts with both public land management agencies and private industry extend the Center's capability. Research efforts at the NCROC focus on problems or opportunities relevant to northern Minnesota. One faculty member at the station focuses on the area of forest management and planning. Another focuses on forest genetics and directs tree improvement research and associated cooperatives. Office, greenhouse, laboratory and field sites support these efforts. Graduate students in St. Paul are also involved in station projects. Some work at the NCROC during the summer.

Also on the same site is the Forest Sciences Laboratory of the USDA Forest Service North Central Research Station. This lab is a center for riparian forest ecology and management, watershed management, and silviculture research in the region.

5.4 Additional Properties Available for Instruction and Student Research:

The John H. Allison Forest: The John H. Allison Forest (named in honor of its founder, Professor Emeritus Allison of the College of Forestry) is a 300-acre tract about 10 miles from the St. Paul campus. This conifer forest was established in 1914 under Professor Allison's direction and the college has assisted with management ever since. Because of its proximity to campus, it is used as a site for field trips for both teaching and extension activities.

Hardwood Forest: In 1978, the University, through the College, acquired a 30-acre parcel of hardwood forest land about 50 miles southwest of St. Paul as a gift. This land is managed by the college and used as a site for student field trips and extension demonstration activities. Because the other field sites to which the college has direct access are primarily coniferous forest, this tract has helped provide students with more exposure to hardwood forest management.

Cedar Creek Natural History Area: Cedar Creek Natural History Area is a 5,460-acre research facility operated by the University of Minnesota in cooperation with the Minnesota Academy of Science. The facility is about 30 miles north of the Twin Cities and contains a blend of forests, prairies, marshes, lakes, ponds and abandoned agricultural fields. The site serves many University research projects. In 1982 it became one of a limited number of sites in the US selected by the National Science Foundation for funding of long-term ecological research (LTER).

5.5 Adequacy of Facilities: Space for forest resources programs on the St. Paul campus is good quality, but increasingly in short supply. Program needs exceed the current available space and it is anticipated we will become more tightly squeezed in the coming years. Of primary concern is the increasing demand for quality laboratory and workroom space for both instruction and research, and office space for the increasing number of grant funded research staff. We are also unable to house all of our graduate students. Space model calculations show the DFR's' space needs are substantial. Field facilities for instruction, particularly at the Cloquet Forestry Center are very good.

6. Departmental Planning

The department has received direction from the dean to redevelop its mission, vision and strategic goals over the next several months, and to collaborate in such efforts for the ESPM Division. These efforts are a considerable opportunity to articulate direction and position the department as an increasingly important program by itself and as a strength for the college and the University.

As part of this planning, the undergraduate instructional role looms important for serving the region's need for forestry practitioners, specialists and researchers. In that context, the department will plan for staffing that can grow our recruiting effort for the forest resources major, strengthen student internship and career position guidance, foster stakeholder and employer linkages that enhance recruiting, and expand our contacts to grow development gifts in support of instruction.

Appendix

Documents C1 and C2: Faculty Background Summary

Document D: Faculty Academic Summary

Document E: Individual Faculty Information

Document F: Forestry Graduate Employment Surveys

Document G: Student Data Summary

Forest Resources Curriculum Guides

Accreditation Correspondence Since August 2001 Interim Status Report

Document C-1: Background Summary for Faculty Reporting to the Forest Resources Program Head

Institution Name: University of Minnesota Academic Year: 2005-2006

Official Degree Program Title: Forest Resources

Official Option Title: Forest Management and Planning Specialization, Forest Conservation and Ecosystem Management Specialization, Urban and Community Forestry

Faculty Member	Academic Rank or Title	Major Field	Highest Degree Held Degree/ Year/Inst.	Experience (years)		
				Current Institution	Other Institution	Non-academic
Dorothy H. Anderson	Professor	Human Dimensions of Resource Management	PhD/1980/ Colorado State University	16	0	14
Marvin E. Bauer	Professor	Remote Sensing	PhD/1970/ U of Illinois	24	13	
Melvin J. Baughman	Professor	Forest Resources	PhD/1982/U of Minnesota	25	7.5	
Dennis R. Becker	Assistant Professor	Environment and Natural Resources	PhD/2002/ U of Idaho	1		
Charles R. Blinn	Professor, Extension Specialist	Forest Management	PhD/1984/ Virginia Tech	22	2	0
Paul V. Bolstad	Professor	Forest Resources	Ph.D./ U of Wisconsin/ 1990	11.5	5	4
Kenneth N. Brooks	Professor	Hydrology/Watershed Management	PhD/1970/ U of Arizona	31		5

Faculty Member	Academic Rank or Title	Major Field	Highest Degree Held Degree/ Year/Inst.	Experience (years)		
				Current Institution	Other Institution	Non-academic
Thomas E. Burk	Professor	Forest Biometrics	PhD/1981/ U of Minnesota	21	4	
Stephan P. Carlson*	Extension Educator/ Professor	Outdoor recreation, interpretation, leisure studies	PhD/1993/ Michigan State University	14	12	4
Dean A. Current*	Research Associate	Agroforestry, International Forestry	PhD/1995/U of Minnesota	7		
Andrew David	Associate Professor	Forest Genetics	PhD/1996/ Michigan State University	8.5	3.0	0
Grant M. Domke*	Research Fellow	Silviculture	MS/2005/U of Toronto	1.5		
Sherry A. Enzler*	Research Fellow	Environmental Law	J.D./1985/ William Mitchell	2	11	20
Lee Frelich*	Research Associate	Forest Ecology	PhD/1986/ U of WI-Madison	18		
Dan Gilmore	Assistant Professor	Silviculture	PhD/1995/U of Maine	5	1	4
Kent Gustafson*	Extension Professor	Tourism	MA/1972/U of Minnesota	33		3
Howard M. Hoganson	Associate Professor	Forest Management	PhD/1981/U of Minnesota	19	1+	4+

Faculty Member	Academic Rank or Title	Major Field	Highest Degree Held Degree/ Year/Inst.	Experience (years)		
				Current Institution	Other Institution	Non-academic
Andrew C. Jenks*	Research Specialist/ Teaching Specialist	Geographic Information Systems	BA/1974/U of Minnesota	5		20
Gary R. Johnson*	Extension Professor	Recreation/urban studies	MS/1972/ Western Illinois U	15	14	6
Michael A. Kilgore	Associate Professor	Forestry	PhD/1990/ U of MN	5		17
Cynthia C. Messer*	Associate Extension Professor	Tourism	MA/1988/ George Washington U	13		18
Rebecca A. Montgomery	Assistant Professor	Ecology	PhD/1999/U of Connecticut	3	3	
Kristen C. Nelson	Associate Professor	Human dimensions	PhD/1994/ University of Michigan	7	5	
Peter B. Reich	Professor	Ecology	PhD/ 1983/ Cornell U	16	6	
Roy L. Rich*	Research Associate	Forest Ecology	PhD/2005/U of Minnesota	2.75		
Ingrid Schneider	Associate Professor	Recreation Resource Management	PhD/1995/ Clemson U	5	5	1
Susan G. Stafford	Professor	Applied statistics and information management	PhD/1979/ SUNY	9	20	1

Faculty Member	Academic Rank or Title	Major Field	Highest Degree Held Degree/ Year/Inst.	Experience (years)		
				Current Institution	Other Institution	Non-academic
Carl E. Vogt	Instructor	Forest Resources and Biological Sciences	BS/1964/State U of NY BF/1964/ Syracuse U BS/1975/U of Minnesota	25		15
Eric Zenner	Assistant Professor	Silviculture	PhD/1998/ Oregon State University	4		1

*Academic professional faculty.

Document C-2: Background Summary for Faculty Teaching Courses Listed in Forms B-1 and B-2 but NOT reporting to the Program Head

Institution Name: University of Minnesota Academic Year: 2005-2006

Official Degree Program Title: Forest Resources

Official Option Title: Forest Management and Planning Specialization, Forest Conservation and Ecosystem Management Specialization, Urban and Community Forestry

Faculty Member	Course(s) Taught	Academic Rank or Title	Major Field	Highest Degree Held Degree/Year/Inst.
Ira Adelman	Introduction to Fisheries, Wildlife, and Conservation Biology, FW 2001	Professor	Fisheries, Wildlife, Conservation Biology	PhD
Robert Blair	Ethics and Leadership in Resource Management, ESPM 3011W	Associate Professor	Fisheries, Wildlife, Conservation Biology	PhD
Robert Blanchette	Diseases of Forest and Shade Trees, PLPA 3003	Professor	Plant Pathology	PhD
Daniel MacNulty	Habitats and Regulation of Wildlife, FW 5603W	Research Asst	Ecology, Evolution, and Behavior	MS
James A. Perry	Water Quality and Natural Resources, ESPM 4061W	Professor	Aquatic Ecology	PhD
William Tze	Wood and Fiber Science, BBE 1002	Assistant Professor	Bioproducts/Biosystems Engr	PhD
Diomides Zamora	Agroforestry in Watershed Management, ESPM 3703	Assistant Extension Professor	Agroforestry	PhD
William Zanner	Forest Soils, SOIL 5711	Assistant Professor	Soil, Water, Climate	PhD

Document D: Academic Summary for Faculty Reporting to the Program Head

Institution Name: University of Minnesota Academic Year: 2005-2006

Official Degree Program Title: Forest Resources

Official Option Title: Forest Management and Planning Specialization, Forest Conservation and Ecosystem Management Specialization, Urban and Community Forestry

Faculty Member	Budgeted Time Allocation (%)				All Courses Taught						
	Teaching	Research	Extension	Other	Title and Course #[1]	Required[2]	Credit Hours	Contact Hours	Total Enrollment: Undergrad	Total Enrollment: Graduate	# of UG[3] Advisees
Dorothy H. Anderson	45	65			Experience in a Field Setting, ESPM 3051		1	14	11		20
					Management of Recreation Lands, RRM 4232W/5232	Yes	4	56	17	1	
Marvin E. Bauer	28	73			Remote Sensing of Natural Resources and Environment, FR 3262/5262	Yes	4	56	15	10	7
					Digital Remote Sensing, FR 5412		3		1	7	
					Field Remote Sensing and Resource Survey, FR 5615[4]	Yes	2	48	8	2	
Melvin J. Baughman			50	50							
Dennis R. Becker	50	50			Natural Resources and Environmental Policy, ESPM 3241W/5241[4]	Yes	3	42	76	5	3

Faculty Member	Budgeted Time Allocation (%)				All Courses Taught						
									Total Enrollment		# of UG [3] Advisees
	Teaching	Research	Extension	Other	Title and Course #[1]	Required[2]	Credit Hours	Contact Hours	Undergrad	Graduate	
Charles R. Blinn	7	23	70		Timber Harvesting and Road Planning, FR 3431/5431	Yes	2	28	8	3	6
					Silviculture and Timber Harvesting Practices in Minnesota, FR 3612/5612[4]	Yes	1	20	8	3	
					Field Timber Harvesting and Road Planning, FR 5621	Yes	2	70	8	3	
					Issues in the Environment, ESPM 1011[4]	Yes	3	45	60	0	
Paul V. Bolstad	51	49			Introduction to GIS, FR 3131/5131 (taught twice a year)	Yes	4	70	110	60	5
					GIS in Natural Resource Planning, ESPM 4295/5295	Yes	4	56	12	12	
					GPS for GIS, FR 3031/5031[4]		3	42	8	4	
Kenneth N. Brooks	31	69			Hydrology and Watershed Management, FR 3114/5114	Yes	3	42	60	15	12
					Forest and Wetland Hydrology, FR 5153		3	42	1	7	
					Agroforestry in Watershed Management, ENR 3703/5703[4]		3	42	2	9	

Faculty Member	Budgeted Time Allocation (%)				All Courses Taught						
	Teaching	Research	Extension	Other	Title and Course #[1]	Required[2]	Credit Hours	Contact Hours	Total Enrollment		# of UG[3] Advisees
									Undergrad	Graduate	
Thomas E. Burk	18	82			Measuring Forest Resources, FR 2104	Yes	1	24	22	--	10
					Measuring and Modeling Forests, FR 3218/5218	Yes	3	42	12	2	
					Advanced Assessment and Modeling of Forests, FR 5228		3	42	--	5	
Stephan P. Carlson*	11		89		Environmental Interpretation, ESPM 4811/5811		3	60	8	8	8
Dean A. Current*	10	50	40		Natural Resources in Sustainable International Development, ESPM 3251/5251[4]		3	42	19	7	
Andrew J. David	9	91			Conservation of Plant Biodiversity ESPM 3101/5101		3	42	13	3	3
Grant M. Domke*	10	90			Field Silviculture, FR 5611	Yes	2	70	8	2	
Alan R. Ek	27	73			Orientation and Information Systems, ESPM/FR/RRM 1001[4]	Yes	2	2	70		10
					Survey, Measurement and Modeling for Environmental Analysis, ESPM 3211/5211		3	42	42	2	
Lee E. Frelich	10	90			Forest Fire and Disturbance Ecology, FR 3203/5203		3	3	50	10	

Faculty Member	Budgeted Time Allocation (%)				All Courses Taught						
	Teaching	Research	Extension	Other	Title and Course #[1]	Required[2]	Credit Hours	Contact Hours	Total Enrollment		# of UG[3] Advisees
									Undergrad	Graduate	
Dan Gilmore	25	50	25								
Howard M. Hoganson	15	85			Forest Management and Planning, FR 3471/5471	Yes	3	42	7	1	3
					Advanced Forest Management FR 5264		3	42	0	1	
Gary R. Johnson*	16	84			Problem Solving and Planning in Natural Resources, ESPM 4195[4]	Yes	4	60	22		12
					Arboriculture, FR 3501	Yes	3	42	20		
					Urban Forest Management: Managing Greenspaces for People, FR 4501/5501	Yes	3	42	7		
Michael A. Kilgore	40	60			Economics of Natural Resource Management, ESPM 3261W/5261	Yes	4	56	75	9	10
					Economic Analysis of Natural Resource Projects, ESPM 3000[4]	Yes	1	14	25		
Cynthia C. Messer*	10		90		Introduction to Travel and Tourism, RRM3201/5201		3	42	15		
Rebecca A. Montgomery	36	64			Forest Ecology, FR 3104/5104	Yes	4	60	50		18
					Northern Forest Field Ecology, FR 2102	Yes	2	6	22		

Faculty Member	Budgeted Time Allocation (%)				All Courses Taught						
	Teaching	Research	Extension	Other	Title and Course #[1]	Required[2]	Credit Hours	Contact Hours	Total Enrollment		# of UG[3] Advisees
									Undergrad	Graduate	
Kristen C. Nelson (joint with FWCB)	34	66			Conflict Management, Leadership and Planning, ESPM 3202/5202	Yes	3	50	38	7	18
					Problem Solving and Planning in Natural Resources and Environmental Studies, ESPM 4041[4]		4	60	20	--	
Peter B. Reich	6			94	Science and Policy of Global Environmental Change FR 5146/EEB5146		3	42	7	3	4
Roy L. Rich*	10	90			Landscape Ecology and Management, FR3204/5204[4]		3	42	14	8	
Ingrid Schneider	25	25		50	Nature and Culture-based Tourism, RRM 3101/5101		3	48	11	4	15
					Environmental Impacts of Tourism, ESPM 3000		1	16	19		
Carl E Vogt*	10		25		Dendrology: Identifying Forest Trees and Shrubs, FR 1101	Yes	3	60	67	3	
Eric Zenner	50	50			Managing Forest Ecosystems: Silviculture, FR 3411/5411	Yes	3	42	29	6	10
					Silviculture Lab, FR 5413	Yes	1	28	14		
					Ecological Vegetation Management: A Consulting Approach, ESPM 3021/5021		3	42	20		
Total	**5.84**	**13.49**	**3.49**	**1.44**							

Faculty Member	Budgeted Time Allocation (%)				All Courses Taught						
									Total Enrollment		# of UG [3] Advisees
	Teaching	Research	Extension	Other	Title and Course #[1]	Required[2]	Credit Hours	Contact Hours	Undergrad	Graduate	

[1] Faculty member shown is the lead instructor. Academic professional faculty indicated by an asterisk (*); other faculty may contribute.

[2] Course required in one or more Forest Resource curriculum tracks.

[3] Includes FR, RRM, and ESPM curricula.

[4] Course is team taught.

DOCUMENT E

INDIVIDUAL FACULTY INFORMATION

1. Name: **Dorothy H. Anderson**

2. Title: Professor

   Specialization: Recreation resource management
   Appointment: 12-month, tenured

3. Formal Education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Geography	BA	1969-73	1973
University of Minnesota	Geography	MA	1973-76	1976
Colorado State University	Natural Resources	PhD	1976-80	1980

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor
   Specialization: Recreation resources management
   Dates: July 1999 to present
   Total Years: 8 years

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: Recreation resources management
   Dates: July 1995 to July 1999
   Total Years: 4 years

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Recreation resources management
   Dates: March 1990 to June 1995
   Total Years: 5 years

   Institution: University of Minnesota
   Title: Lecturer
   Specialization: Recreation resources management
   Dates: September, 1989-February, 1990
   Total Years: 6 months

   Institution: University of Minnesota
   Title: Teaching Assistant
   Specialization: Geography
   Dates: August, 1973-July, 1974
   Total Years: 1

Dorothy H. Anderson (continued)

Employer: Private consultant
Nature of Work: Utilization, marketing and human relations
Title: Consultant
Dates: February, 1989-March, 1990
Total Years: 1

Employer: U.S. Agency for International Dev., U.S. Embassy, New Delhi, India
Nature of Work: Program coordinator for various forestry projects
Title: Social Forestry Advisor
Dates: September, 1986-November, 1988
Total Years: 2 years

Employer: USDA Forest Service North Central Forest Experiment Station
Nature of Work: Research on river recreation and related natural resource use
Title: Research Social Scientist
Dates: June, 1981-July, 1986
Total Years: 5

Employer: USDA Forest Service North Central Forest Experiment Station
Nature of Work: Backcountry river recreation management and research
Title: Geographer
Dates: October, 79-June, 1981
Total Years: 2.5 years

Employer: USDA Forest Service North Central Forest Experiment Station
Nature of Work: Recreation land use planning and development
Title: Associate Geographer
Dates: October, 1976-October, 1979
Total Years: 3

Employer: USDA Forest Service North Central Forest Experiment Station
Nature of Work: Research on river recreation and related natural resource use
Title: Research Social Scientist
Dates: July, 1974-October, 1976
Total Years: 2.25 years

5. Teaching experience:

Institution: University of Minnesota
Rank: Instructor/Assistant/Associate/Professor
Specialization: Recreation Resource Management
Dates: 1989-present
Total Academic Years: 18

Dorothy H. Anderson (continued)

6. Dates of appointment and promotions at present institution:

Title	Date
Professor	1999
Associate Professor	1995
Assistant Professor	1990

7. List of publications during the last five years:

Anderson, D. H. 2006. Managing landscapes for sustainable recreation benefits. In 12th ISSRM Conference on: *Social Science and Resource Management: Global Challenges Local Responses,* University of British Columbia and Simon Fraser University, Vancouver, Canada.

Anderson, D. H. 2006. Managing parks: Visitor and community benefits. In: *Best Practices for Parks and Outdoor Recreation Summit*. Arboretum, Minneapolis, MN.

Anderson, D. H. 2005. Managing for visitor and community benefits: What do we know, what do we need to know? In *Proceedings: Current issues, future challenges. Parks and Leisure Australia National Conference*. Hobart, Tasmania, Australia.

Anderson, D. H. 2002. Linking civic responsibility with thinking and learning about natural resources. In *Proceedings of the second international conference on environmental education in China: Leadership for the future*, 30-34. Guangzhou, PRC: Zhongshan University.

Anderson, D. H. 2002. Civic responsibility and natural resources education. In *Program and Abstracts of the fourth biennial conference on university education in natural resources,* 11. Raleigh, NC: North Carolina State University.

Anderson, D. H., et al., 2006. Green infrastructure for Sherburne County. Technical report prepared for US Fish & Wildlife Service, Sherburne National Wildlife Refuge, Minnesota. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Anderson, D. H., S. A. Enzler, and R. Jones-Loss. 2005. University of Minnesota, College of Natural Resources: Evaluation of ENR degree program: Part 1a–Natural resource and environmental studies past graduate survey report. St. Paul, MN: College of Natural Resources. 140 pages.

Anderson, D. H., S. A. Enzler, and R. Jones-Loss. 2005. University of Minnesota, College of Natural Resources: Evaluation of ENR degree program: Part 1b–Natural resource and environmental studies employer focus group report. St. Paul, MN: College of Natural Resources. 22 pages.

Anderson, D. H., K. M. Flitsch, J. L. Thompson, and J. E. Leahy. 2006. Community benefits, place dependency, and trust: The US Army Corps of Engineers Carlyle Lake Project. Technical Report prepared for US Army Corps of Engrs. St. Paul, MN: University of Minnesota, Department of Forest Resources.

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Dorothy H. Anderson (continued)

Project. Technical Report prepared for US Army Corps of Engrs. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Anderson, D. H., D. C. Fulton, J. M. Rosendahl, and S. A. Hayes. 2002. Assessing noneconomic benefits of waterfowl production areas in Minnesota. In *Choices and consequences: Natural resources and societal decision-making. Abstract proceedings from the ninth international symposium on society and resource management,* eds. A. Ewert, A. Voight, D. McLean, B. Hronek, and G. Beilfuss, 85-86. Bloomington, IN: Indiana University, School of Health, Physical Education, and Recreation.

Anderson, D. H., M. E. Lee, R. Nickerson, C. D. Pierskalla, and T. V. Stein. 2002. Understanding relationships among recreation opportunities: A meta-analysis of nine studies. In *Choices and consequences: Natural resources and societal decision-making. Abstract proceedings from the ninth international symposium on society and resource management,* eds. A. Ewert, A. Voight, D. McLean, B. Hronek, and G. Beilfuss, 133-134. Bloomington, IN: Indiana University, School of Health, Physical Education, and Recreation.

Anderson, D. H., R. G Nickerson, M. A. Davenport, and J. E. Leahy. 2005. Measuring visitor and community benefits of recreation: A research handbook for managers. In *The International Forestry Review.* (Abstract) International Union of Forest Research Organizations (IUFRO) XXII World Congress. Brisbane, Australia.

Anderson, D. H., and K. Phillips. 2006. Impacts on individuals of being featured in RTC Website stories. Technical Report prepared for Renewing the Countryside, Inc. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Anderson, D. H., J. L. Thompson, K. M. Flitsch, and J. Donnay. 2005. Glen Canyon National Recreation Area: 2005 Visitor Study. Technical Report prepared for USDI National Park Service. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Anderson, D. H., J. L. Thompson, and J. M. Schertz. 2006. Voyageurs National Park 2005 community trust study. Technical Report prepared for USDI National Park Service. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Campbell, V., D. H. Anderson, and P. Jakes. 2003. Human dimensions research related to wildland fire: An annotated bibliography (pdf).

Campbell, V. J., J. L. Thompson, and D. H. Anderson. 2002. Assessment of local communities' perceptions of cultural and archeological resources. In *Choices and consequences: Natural resources and societal decision-making. Abstract proceedings from the ninth international symposium on society and resource management,* eds. A. Ewert, A. Voight, D. McLean, B. Hronek, and G. Beilfuss, 243. Bloomington, IN: Indiana University, School of Health, Physical Education, and Recreation.

Campbell, V. J., J. L. Thompson, and D. H. Anderson. 2002. Hopewell Culture National Historical Park community survey (pdf). St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Campbell, V. J., J. L. Thompson, and D. H. Anderson. 2002. Hopewell Culture National Historical Park: A survey of public attitudes (pdf). CPSP Research Summary no. 27. St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Davenport, M., and D. H. Anderson. 2005. Getting from sense of place to place-based management: An interpretive investigation of place meanings and perceptions of landscape change. *Society and Natural Resources* 18(7):625-641.

Dorothy H. Anderson (continued)

Davenport, M., and D. H. Anderson. 2004. An interpretive analysis of the relationship between sense of place and landscape change in a gateway community. In *Proceedings, 4th social aspects and recreation research symposium—linking people to the outdoors: Connections for healthy lands, people, and communities.* San Francisco, CA: San Francisco State University.

Davenport, M. A., and D. H. Anderson. 2002. Comparing values visitors assign to the wilderness and scenic sections of the Niobrara River (pdf). CPSP Research Summary no. 33. St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Davenport, M. A., K. M. Flitsch, J. L. Thompson, and D. H. Anderson. 2002. 2001 Niobrara National Scenic River visitor study (pdf). St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Davenport, M. A., J. E. Leahy, D. H. Anderson, and P. J. Jakes. 2005. The Ozark National Scenic Riverways: An examination of trust between natural resource agencies and local communities. Technical Report prepared for USDI National Park Service. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Davenport, M. A., J. E. Leahy, D. H. Anderson, and P. J. Jakes. 2005. The Midewin National Tallgrass Prairie: An examination of trust between natural resource agencies and local communities. Technical Report prepared for USDA Forest Service. St. Paul, MN: Department of Forest Resources, University of Minnesota.

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Davenport, M. A., J. L. Thompson, J. M. Rosendahl, D. H. Anderson, and S. Weisberg. 2003. Snowmobile use in Voyageurs National Park: A visitor use estimation tool (pdf). St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

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Dorothy H. Anderson (continued)

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Hong, A., and D. H. Anderson. 2006. Barriers to participation for Latino people at Dodge Nature Center. *Environmental Education* 37(4):33-44.

Jakes, P., D. H. Anderson, and C. Schlichting. 2002. Lake Riparian area development profiles - describing the development potential for lakes in Itasca County, Minnesota (pdf). Appendix to this report: 44 profiles.

Kilgore, M., J. Leahy, C. Hibbard, J. Donnay, K. Flitsch, D. Anderson, J. Thompson, P. Ellefson, and A. Ek. 2005. Developing a certification framework for Minnesota's family forests. Technical Report submitted to Chas. K. Blandin Foundation, MN.

Leahy, J. E., and D. H. Anderson. 2004. Fireworks, duck races, and haunted trails: A benefits-based management research project involving rural Illinois communities and federally managed outdoor recreation areas. In *2004 Society of American Foresters conference proceedings.*

Leahy, J. E., and D. H. Anderson. 2004. Community benefits in the Kaskaskia Watershed: Preliminary technical report. Report to the US Army Corps of Engineers. Vicksburg, MS: Waterways Experiment Station.

Leahy, J. E., and D. H. Anderson. 2004. Social capital and trust in the Kaskaskia Watershed. In *Book of Abstracts for the 10th International symposium for society and resource management.*

Leahy, J. E., D. H. Anderson, and M. A. Davenport. 2005. The case of the Kaskaskia watershed's "sleeping assets": A benefits-based management application for nature-based recreation. In *The International Forestry Review*. (Abstract) International Union of Forest Research Organizations (IUFRO) XXII World Congress. Brisbane, Australia.

Leahy, J. E., M. A. Davenport, D. H. Anderson, and P. J. Jakes. 2004. Community trust in natural resource agencies: Case studies from Illinois. In Proceedings, 4th social aspects and recreation*research symposium—linking people to the outdoors: Connections for healthy lands, people, and communities.* San Francisco, CA: San Francisco State University.

Leahy, J. E., M. A. Davenport, D. H. Anderson, and P. J. Jakes. 2004. Scales of place: Resource manager and community member spatial perceptions of recreation areas. In *Book of Abstracts for the 10th international symposium for society and resource management*.

Leahy, J. E., K. Flitsch, and D. H. Anderson. 2005. Parks & Trails Council of Minnesota membership survey. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Lime, D. W., D. H. Anderson, and J. L. Thompson. 2004. Identifying and monitoring indicators of visitor experience and resource quality: A handbook for recreation resource managers. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Muton, B. G., and D. H. Anderson. 2006. Roles and responsibilities of communities in forest management decision-making: Case study of the Bimbia-Bonadikombo Natural Resource Management Council, Cameroon. In: 12th ISSRM Conference on: *Social Science and Resource Management: Global Challenges Local Responses,* University of British Columbia and Simon Fraser University, Vancouver, Canada.

Nickerson, R., D. H. Anderson, M. A. Davenport, J. E. Leahy, and T. V. Stein. 2005. *A manager's guide to gathering and using visitor and community benefits data to manage outdoor recreation areas*. Handbook developed for USDI Bureau of Land Management. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Dorothy H. Anderson (continued)

Payton, M. A., D. H. Anderson, D. C. Fulton, and E. M. Dougherty. 2003. Sherburne National Wildlife Refuge: A study of visitor experiences and preferences in support of comprehensive conservation planning (pdf). St. Paul, MN: University of Minnesota, Department of Forest Resources and Minnesota Cooperative Fish and Wildlife Research Unit.

Payton, M., D. C. Fulton, and D. H. Anderson. 2005. Influence of place attachment and trust on civic action: A study at Sherburne National Wildlife Refuge. *Society and Natural Resources* 18(6):511-528.

Payton, M. A., D. C. Fulton, D. H. Anderson, and E. Dougherty. 2002. Understanding visitor uses, motives and benefits at Sherburne National Wildlife Refuge. In *Choices and consequences: Natural resources and societal decision-making. Abstract proceedings from the ninth international symposium on society and resource management*, eds. A. Ewert, A. Voight, D. McLean, B. Hronek, and G. Beilfuss, 212-213. Bloomington, IN: Indiana University, School of Health, Physical Education, and Recreation.

Payton, M. A., D. C. Fulton, D. H. Anderson, and E. Dougherty. 2002. Place attachment and social capital at Sherburne National Wildlife Refuge. In *Book of Abstracts, The Wildlife Society's 9th annual conference*, 156. Bismarck, ND: Bismarck Civic Center.

Pierskalla, C. D., M. Lee, T. V. Stein, D. H. Anderson, and R. Nickerson. 2004. Understanding relationships among recreation opportunities: A meta-analysis of nine studies. *Leisure Sciences* 26:163-180.

Rosendahl, J. M., D. H. Anderson, and J. L. Thompson. 2003. Results of a fall 2001 visitor study at Theodore Roosevelt National Park: Summary of visitor characteristics (pdf). St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Rosendahl, J. M., D. H. Anderson, and J. L. Thompson. 2003. Results of a spring 2001visitor study at Theodore Roosevelt National Park: Summary of visitor characteristics (pdf). St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Rosendahl, J. M., D. H. Anderson, and J. L. Thompson. 2002. Results of a summer 2001 visitor study at Theodore Roosevelt National Park: Summary of visitor characteristics andinvestigation of group differences (pdf). St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Rosendahl, J. M., D. H. Anderson, and J. L. Thompson. 2002. Understanding what makes a quality visitor Experience at Theodore Roosevelt National Park. In *Choices and consequences: Natural resources and societal decision-making. Abstract proceedings from the ninth international symposium on society and resource management,* eds. A. Ewert, A. Voight, D. McLean, B. Hronek, and G. Beilfuss, 124. Bloomington, IN: Indiana University, School of Health, Physical Education, and Recreation.

Stein, T. V., and D. H. Anderson. 2002. Combining benefits-based management with ecosystem management for landscape planning: Leech Lake watershed, Minnesota. *Landscape and Urban Planning* 60:151-161.

Stein, T. V., D. H. Anderson, C. D. Pierskalla, R. N. Nickerson, and J. Clark. 2005. Benefits-based management as a research and planning framework for nature-based tourism and recreation. In *The International Forestry Review.* (Abstract) International Union of Forest Research Organizations (IUFRO) XXII World Congress. Brisbane, Australia.

Thompson, J. L., D. H. Anderson, and J. M. Schertz. 2006. Place dependence at Voyageurs National Park, Minnesota. In: 12th ISSRM Conference on: *Social Science and Resource Management: Global Challenges Local Responses,* University of British Columbia and Simon Fraser University, Vancouver, Canada.

Dorothy H. Anderson (continued)

Thompson, J. L., M. A. Davenport, J. M. Rosendahl, D. H. Anderson, and S. Weisberg. 2002. Estimating snowmobile use in Voyageurs National Park. In *Choices and consequences: Natural resources and societal decision-making. Abstract proceedings from the ninth international symposium on society and resource management*, eds. A. Ewert, A. Voight, D. McLean, B. Hronek, and G. Beilfuss, 64-65. Bloomington, IN: Indiana University, School of Health, Physical Education, and Recreation.

Vlaming, J., D. H. Anderson, D. C. Fulton, J. M Rosendahl, and S. A. Hayes. 2003. Minnesota waterfowl production areas 2001 visitor use study (pdf). St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program and Department of Fisheries, Wildlife and Conservation Biology, Cooperative Fish and Wildlife Unit.

Wang, G. A., D. H. Anderson, and P. J. Jakes. 2002. Heritage management in the U.S. Forest Service: A Mount Hood National Forest case study. *Society and Natural Resources* 15(4):359-370.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

- Primary consultant on LCMR Best Management Practices grant, 2006
- Conference co-coordinator for session development for social science sessions of the George Wright Society Conference, 2006
- Received University of Minnesota Certificate of Appreciation for Efforts in International Education - 2005, 2006
- Consultant for School of Natural and Built Environments looking at impact of mining communities in Australia's outback on local community social capital - 2005
- Awarded University of Minnesota John Tate Award for Excellence in Undergraduate Advising - 2004
- Consultant (unpaid) with University of South Australia on research project designed to look at tourism impact modeling in protected areas - 2004
- Consulted with OTAK on traffic congestion in Moab, UT, related visitor use at Arches National Park - 2003
- Re-elected for a 2-year term on IASNR Board. - 2003
- Selected to serve a 3-year term on NSF International Advisory Committee on Science and Engineering. Attended committee's inaugural meeting October 23-24, 2003.
- Consult with MnDNR on a regular basis about future research and training needs in the Division of Parks and Recreation.
- Selected as "Professor of the Semester" in CNR for fall semester 2002.
- Elected to serve on the International Association for Society and Natural Resources Council - 2002
- Short-term consultant with the Irland Group to review the availability and accuracy of information about recreation in and near forests in Minnesota - 2002
- Selected as "Professor of the Semester" in CNR for fall semester 2002.
- Elected to serve on the International Association for Society and Natural Resources Council - 2002

Dorothy H. Anderson (continued)

9. Membership and offices held in professional organizations:

-MnDNR Division of Parks & Recreation Continuing Education Committee, member, 2006
-International Association for Society and Natural Resources Board, member, 2006
-Renewing the Countryside, Inc., Board of Directors, member, 2006
-Continuing Education Committee, DNR Parks and Recreation Division, member, 1991-present
-National Association of Recreation Resource Planners, member, 1996-present
-National Recreation and Park Association, member, 1990-present
-Parkview Center School Forest Program, Roseville, co-coordinator, 1993-present
-Society of American Foresters (SAF)
-*Society and Natural Resources* professional journal, associate editor, 1998-2002
-USDA-FS Dispersed Recreation Task Force, research leader, 1995-present
-Xi Sigma Pi, member, 1995-present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

- 1998, Second Biennial Conference on University Education in Natural Resources, Utah State University
- 1999, Teaching Conversations enrichment seminars
- 1999, Writing Intensive Workshop sponsored by CISW
- 1999, Environmental Education workshop
- 2000, Parts 1 and 2 University of Minnesota's responsible conduct of research
- 2001, Co-hosted exchange opportunities with Hong Kong Institute for Education (HKIEd) and University of Minnesota professors. Worked with HKIEd instructors and natural resource agency professionals in Hong Kong SAR
- 2002,Worked with HKIEd instructors and natural resource agency professionals in Hong Kong SAR and Zhongshun University in Guangzhou, PRC
- 2003, Conference on Community Consensus and the Common Good, Sponsored by UMN Humphrey Institute
- 2003, National CESU meeting and conference in Washington, D.C.
- 2003, Renewable Natural Resources Foundation's Conference on Personnel Trends, Education, Policy, and Evolving Roles of Federal and State Natural Resources Agencies. Washington, D.C.
- 2005, Fall Semester leave provided with the opportunity to work with colleagues in Australia to implement planning and management models developed through research with US land managing agencies
- 2006, University Web CT training

Dorothy H. Anderson (continued)

11. External grants and other research funding during the last five years:

MIN-42-046. Benefits-based management: assessing and managing for public, private, and community benefits.
405-xxxx. Impact of *Renewing the Countryside* publications on individuals. D.H. Anderson. RTC, Inc. ($34,000) 2006
405-xxxx. Explore and analyze perspectives of gateway community members in the economics of protected lands and wilderness. D.H. Anderson. NPS ($47,300) 2008
405-xxxx. CESU strategic planning funds. D.H. Anderson. USACE ($10,000) 2012
405-1080. Parks & Trails Council of Minnesota membership perceptions and desired activities. D.H. Anderson. P&T Council ($10,000) 2005
405-1200. Assessing the success of and the role of law in developing structures to protect watershed ecosystems and ecosystems services. Co-PI w/ S. Enzler, 2007
405-6292. Developing a handbook and computer programs for BLM customer assessment. D.H. Anderson. BLM. ($22,000) 2004
403-6328. Assessment of use and benefits of waterfowl production areas in Minnesota. Co-PI w/ D.C. Fulton. USF&WS. ($99,928) 2004
405-6332. Subagreement #3-General support for cooperative park studies program. PI w/ J.L. Thompson. USGS BRD. ($49,820) 2002
405-6335. Assessing human dimension research needs in the Midwest. Co-PI w/ J.L. Thompson and D.C. Fulton. USGS BRD. ($39,000) 2003
403-6360. Understanding visitor uses, motives, and benefits at Sherburne National Wildlife Refuge. Co-PI w/ D.C. Fulton. USF&WS and USGS BRD. ($49,000) 2004
405-6371. Theodore Roosevelt National Park visitor use study. PI w/ J.L. Thompson. USDI NPS. ($25,000) 2002
405-6372. Niobrara National Scenic River replication of a 1993 visitor study. PI w/ J.L. Thompson. NPS. ($41,740) 2003
405-6376. Estimating visitor use in the Niobrara National Scenic River corridor. PI w/ J.L. Thompson. USDI NPS. ($41,740) 2003
405-6377. Apostle Island National Lakeshore: Meaning and values exploration. I. Schneider (PI) and D.H. Anderson (Co-PI). NPS, Great Plains CESU, Modification A. ($37,808) 2002
405-6378. Developing indicators and standards for monitoring visitor experience and resource quality in Minnesota state parks. D.H. Anderson. MnDNR Division of Parks and Recreation. ($31,075) 2004
405-6395. Scoping and development of methodology for preparing Voyageurs NP visitor experience and resource protection plan. D.H. Anderson. NPS, 2003
405-6403. Estimating summer use in Voyageurs National Park. PI w/ J.L. Thompson. NPS. ($50,000) 2004
405-6411. Benefits and values associated with Corps of Engineers Projects. Co-PI w/ I.E. Schneider. USACE. ($154,000) 2004, 2006
403-6427. Social science research support for comprehensive conservation planning: developing a standardized measurement approach for understanding visitor uses, motives and preferences at USFWS National Wildlife Refuges. Co-PI w/ D.C. Fulton. USFWS. ($33,326) 2004
405-6430. Tettegouche state park VERP study. D.H. Anderson. MnDNR Division of Parks and Recreation. ($15,000) 2003

Dorothy H. Anderson (continued)

405-6434. The role of trust in public land management. D.H. Anderson. USFS. ($86,380) 2005
405-6457. Assessing research, technical assistance, and education needs in NPS GLNF CESU. D.H. Anderson. NPS. $17,000. Modification to add additional funds ($15,000) 2007
405-6468. Community agency trust relationships: comparison within and across selected NPS units. D.H. Anderson. NPS ($15,500) 2005
405-6479. Developing a certification framework for Minnesota's nonindustrial private forests. Co-PI w/ M. Kilgore, A. Ek, and P. Ellefson. Blandin Foundation ($179,108) 2005
405-6488. Impact of *Renewing the Countryside* publications on individuals. D.H. Anderson. RTC, Inc. ($34,000) 2006
405-6497. Glen Canyon National Recreation Area: Visitor use and social carrying capacity. D.H. Anderson. NPS, ($35,591) 2006
405-6519. Community-agency trust relationships: Voyageurs National Park. D.H. Anderson. NPS, ($35,000) 2007
405-9083. GLNF CESU strategic planning and start up funds. PI w/ J.L. Thompson. BLM. ($10,000) 2006
405-9084. GLNF CESU strategic planning and start up funds. PI w/ J.L. Thompson. NASA. ($10,000) 2006
405-9085. GLNF CESU strategic planning and start up funds. PI w/ J.L. Thompson. USFS. ($10,000) 2006
405-9086. GLNF CESU strategic planning and start up funds. PI w/ J.L. Thompson. NRCS. ($10,000) 2006
405-9087. GLNF CESU strategic planning and start up funds. PI w/ J.L. Thompson. NPS. ($10,000) 2006
405-9092. GLNF CESU strategic planning and start up funds. PI w/ J.L. Thompson. USGS BRD. ($10,000) 2006
405-9098. GLNF CESU Conference, workshop, meeting support. D.H. Anderson. NPS, ($10,000) 2006
299-9083. Strengthening civil society through education: A proposed University of Minnesota, Chulalongkorn University, Sukhothai Thammatirat Open University and University affiliations program project. Co-PI w/ G. Fry and F. Finley (CEHD). US Dept. of State, Bureau of Education and Cultural Affairs. ($159,550) 2004

1. Name: **Marvin E. Bauer**

2. Title: Professor and Director, Remote Sensing Laboratory

   Specialization: Remote sensing
   Appointment: 12-month, tenured

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Purdue University	Ag Economics	BSA	1961-65	1965
Purdue University	Agronomy	MS	1965-67	1967
University of Illinois	Agronomy	Ph.D.	1967-70	1970

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor and Director, Remote Sensing Laboratory
   Specialization: Remote Sensing
   Dates: October 1, 1983, to present
   Total Years: 23.5

   Institution: Purdue University
   Title: Senior Research Agronomist, Department of Agronomy; and Program Leader, Crop Inventory Research, Laboratory for Applications of Remote Sensing (LARS)
   Specialization: Remote sensing research
   Dates: 1982-1983
   Total Years: 1

   Institution: Purdue University
   Title: Research Agronomist, Department of Agronomy; and Program Leader, Crop Inventory Research, LARS
   Specialization: Remote sensing research
   Dates: 1974-1982
   Total Years: 8

   Institution: Purdue University
   Title: Research Agronomist, Department of Agronomy; and Associate Program Leader, Ecosystems Research, LARS
   Specialization: Remote sensing research
   Dates: 1972-74
   Total Years: 2

Marvin E. Bauer (continued)

Institution: Purdue University
Title: Research Agronomist, Department of Agronomy and LARS
Specialization: Remote sensing research
Dates: 1970-72
Total Years: 2

5. Teaching experience:

Institution: University of Minnesota
Rank: Professor
Specialization: Remote Sensing
Dates: October 1, 1983, to present
Total Academic Years: 23.5

6. Dates of appointment and promotions at present institution:

Title	Date
Professor and Director	1983

7. List of publications during the past five years:

Bauer, M., and B. Loeffelholz. 2004. Impervious surface mapping and change monitoring using Landsat remote sensing. Abstract, 14th annual Minnesota GIS/LIS Conference. St. Cloud, MN.

Bauer, M., J. Doyle, and N. Heinert. 2002. Impervious surface mapping using satellite remote sensing. In *Proceedings, international geoscience and remote sensing symposium*. Toronto. CD ROM.

Bauer, M., N. Heinert, and J. Doyle. 2002. Impervious surface mapping using satellite remote sensing. Abstract. In *Twelfth annual Minnesota GIS/LIS conference*. Duluth, MN.

Bauer, M., T. Lillesand, D. Skole, K. Sawaya, and S. Batzli. 2003. Upper Midwest Regional Earth Science Applications Center: Upper Great Lakes. Final Report, NASA Grant NAG-13-99002.

Bauer, M., and B. Wilson. 2005. Satellite tabulation of impervious surface areas. LakeLine (spring):17-20. North American Lake Management Society.

Bauer, M. E. 2002. Satellite monitoring of land use change and its potential application to climate change. Abstract. In *Minnesota water 2002 conference*. St. Cloud, MN.

Bauer, M. E., and P. L. Brezonik. 2004. Advances in monitoring water resources with remote sensing. Abstract. In *Minnesota water 2004 conference*. Minneapolis, MN.

Bauer, M. E., N. J. Heinert, J. K. Doyle, and F. Yuan. 2004. Impervious surface mapping and change monitoring using satellite remote sensing. In *Proceedings, American Society of Photogrammetry and Remote Sensing annual conference*. Denver, CO. CD ROM.

Bauer, M. E., B. Loeffelholz and B.Wilson. 2005. Estimation, mapping and change analysis of impervious surface area by Landsat remote sensing. In *Proceedings, 16th William T. Pecora Memorial remote sensing symposium*. Sioux Falls, SD. CD ROM.

Marvin E. Bauer (continued)

Bauer, M. E., F. Yuan, and K. E. Sawaya. 2004. Multi-temporal Landsat image classification and change analysis of land cover in the Twin Cities (Minnesota) metropolitan area. In *Proceedings, second international workshop on the analysis of multi-temporal remote sensing images*, 368-376. Ispra, Italy.

Brezonik, P. L., S. M. Kloiber, L. G. Olmanson, and M. E. Bauer. 2002. Satellite and GIS tools to assess lake quality. Technical Report 145. St. Paul, MN: Water Resources Center, University of Minnesota.

Brezonik, P. L., K. Menken, and M. E. Bauer. 2005. Landsat-based remote sensing of lake water quality characteristics, including chlorophyll and colored dissolved organic matter (CDOM). *Lake and Reservoir Management* 21(4):373-382.

Brezonik, P. L., R. A. Osgood, L. Olmanson, E. Day, L. Hatch, J. Doyle, J. A. Perry, M. Bauer, E. MacBeth, and T. Anderle. 2002. Techmical Report 144. St. Paul, MN: Water Resources Center, University of Minnesota.

Haapanen, R., A. R. Ek, M. E. Bauer, and A. O. Finley. 2004. Delineation of forest/nonforest land use classes using nearest neighbor methods. *Remote Sensing of Environment* 89(3):265-271.

Haapanen, R., K. Lehtinen, J. Miettinen, M. E. Bauer, and A. R. Ek. 2002. Progress in adapting KNN methods for forest mapping and estimation using the new annual forest inventory and analysis data. In *Proceedings, October 2001 Midwest mensurationists meeting*. Gen. Tech. Bull. St. Paul, MN: USDA Forest Service, North Central Research Station.

Holden, G., and M. Bauer. 2002. Detecting oak wilt in Eagan, Minnesota, using high-resolution satellite imagery. Abstract. In *Twelfth annual Minnesota GIS/LIS conference*. Duluth, MN.

Kloiber, S. M., P. L. Brezonik, and M. E. Bauer. 2002. Application of Landsat imagery to regional-scale assessments of lake clarity. *Water Research* 36:4330-4340.

Kloiber, S. M., P. L. Brezonik, L. G. Olmanson, and M. E. Bauer. 2002. A procedure for regional lake water clarity assessment using Landsat multispectral data. *Remote Sensing of Environment* 82(1):38-47.

Manson, S., and M. Bauer. 2006. Changing landscapes in the Twin Cities Metropolitan Area. Center for Urban and Regional Affairs, University of Minnesota, *CURA Reporter* 36(3):3-11.

Menken, K. D., P. L. Brezonik, and M. E. Bauer. 2006. Influence of chlorophyll and colored dissolved organic matter (CDOM) on lake reflectance spectra: Implications for measuring lake properties by remote sensing. *Lake and Reservoir Management* 22(3):179-190.

Olmanson, L. G., M. E. Bauer, and P. L. Brezonik. 2002. Water quality monitoring of 10,000 Minnesota lakes: Statewide classification of lake water clarity using Landsat imagery. In *Proceedings, 15th William T. Pecora Memorial remote sensing symposium*. Denver, CO. CD ROM.

Olmanson, L. G., M. E. Bauer, and P. L. Brezonik. 2002. Aquatic vegetation surveys using high-resolution IKONOS imagery. In *Proceedings, 15th William T. Pecora Memorial remote sensing symposium.* Denver, CO. CD ROM.

Olmanson, L. G., M. E. Bauer, and P. L. Brezonik. 2002. The use of Landsat imagery for development of a water quality atlas of Minnesota's 10,000 lakes. Abstract. In *Twelfth annual Minnesota GIS/LIS conference*. Duluth, MN.

Olmanson, L. G., M. E. Bauer, and P. L. Brezonik. 2002. Aquatic vegetation surveys using high resolution IKONOS imagery. Abstract. In *Twelfth annual Minnesota GIS/LIS conference*. Duluth, MN.

Ozesmi, S. L., and M. E. Bauer. 2002. Satellite remote sensing of wetlands. *Wetlands Ecology and Management* 10(5):381-402.

Marvin E. Bauer (continued)

Pintea, L., M. E. Bauer, P. V. Bolstad, and A. Pusey. 2002. Matching multiscale remote sensing data to interdisciplinary conservation needs: The case of chimpanzees in Western Tanzania. In *Proceedings, 15th William T. Pecora Memorial remote sensing symposium.* Denver, CO. CD ROM.

Sawaya, K. E., L. G. Olmanson, N. J. Heinert, P. L. Brezonik, and M. E. Bauer. 2003. Extending satellite remote sensing to local scales: Land and water resource monitoring using high-resolution imagery. *Remote Sensing of Environment* 88:144-156.

Thoma, D. P., S. C. Gupta, and M. E. Bauer. 2004. Evaluation of optical remote sensing models for crop residue cover assessment. *Journal of Soil and Water Conservation* 59(5):224-233.

Thoma, D. P., S. C. Gupta, and M. E. Bauer. 2002. Evaluation of bank erosion inputs to the Blue Earth River with airborne laser scanner. Advances in Water Resources Research: Project Summaries for 2001. Technical Report 142:42-47. St. Paul, MN: Water Resources Center, University of Minnesota.

Thoma, D. P., S. C. Gupta, and M. E. Bauer. 2002. Laser altimetry assessment of riverbank erosion, Blue Earth River, Minnesota. Abstract. In *Minnesota water 2002 conference*. St. Cloud, MN.

Thoma, D. P., S. C. Gupta, and M. E. Bauer. 2002. Remote sensing model development for crop residue cover assessment. Abstract. In *Minnesota water 2002 conference*. St. Cloud, MN.

Thoma, D. P., S. C. Gupta, and M. E. Bauer. 2002. Riverbank erosion assessment with airborne laser altimetry. In *American Geophysical Union, Eos Trans. AGU, 83(47), Fall Meeting Supplement,* Abstract H72E-0906.

Thoma, D. P., S. C. Gupta, M. E. Bauer, and C. E. Kirchoff. 2005. Airborne laser scanning for riverbank erosion assessment. *Remote Sensing of Environment* 95:493-501.

van Ewijk, K., and M. Bauer. 2002. Analysis of landscape changes in the Twin Cities Metropolitan area using Landsat change classifications and landscape metrics. Abstract. In *Twelfth annual Minnesota GIS/LIS conference*. Duluth, MN.

Wu, J., D. Wang, and M. E. Bauer. 2005. Image-based atmospheric correction of QuickBird imagery of Minnesota cropland. *Remote Sensing of Environment* 99:315-325.

Yuan, F., and M. E. Bauer. 2006. Mapping impervious surface area using high resolution imagery: A comparison of object-based and per pixel classification. In *Proceedings, American Society of Photogrammetry and Remote Sensing Annual Conference*. Reno, NV, May 2-5. 8 pp.

Yuan, F., and M. Bauer. 2004. Land cover classification and change monitoring in the Twin Cities (Minnesota) metropolitan area with Landsat TM/ETM+ data. In *Abstract, American Association of Geographers, annual conference*. Philadelphia, PA.

Yuan, F., M. E. Bauer, N. J. Heinert, and G. Holden. 2005. Multi-level land cover mapping of the Twin Cities (Minnesota) metropolitan area with multi-seasonal Landsat TM/ETM+ data. *Geocarto International* 20(2):5-14.

Yuan, F., K. E. Sawaya, B. Loeffelholz, and M. E. Bauer. 2005. Land cover classification and change analysis of the Twin Cities (Minnesota) metropolitan area by multitemporal Landsat remote sensing. *Remote Sensing of Environment* 98:317-328.

Marvin E. Bauer (continued)

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   - Lifetime Achievement Award of the Minnesota GIS/LIS Consortium, recognizing contributions to the development of remote sensing applications in Minnesota, 2006
   - Editor-in-chief, *Remote Sensing of Environment Journal*, 1991 to present
     #1- rated remote sensing journal as measured by Science Citation Index impact factor
   - Advisory committee, Global Vegetation Project, Brussels, Belgium, 2002

9. Membership and offices held in professional organizations:

   -American Society of Agronomy
   -American Society of Photogrammetry and Remote Sensing; National director (2004-07)
   -Council of Science Editors
   -IEEE Geoscience and Remote Sensing Society
   -Minnesota Science Museum, Minnesota Map Lab Advisory Board, member
   -NASA-Stennis Space Center, Academic Advisory Board, Commercial Remote Sensing Program, member
   -National Research Council, Committee on Precision Agriculture in the 21st Century: Geospatial Information Technologies in Crop Management, member
   -The Remote Sensing Society
   -Society of American Foresters
   -The Electromagnetics Academy: Institute for Electromagnetic Modelling and Applications, member
   - Member, planning committee for 2007 Minnesota Remote Sensing Conference
   - Member, steering/planning committee for GEO (Group on Earth Observations) Inland and Nearshore Coastal Water Quality Remoter Sensing Workshop, Geneva, Switzerland, March 27-29, 2007
   - Member, scientific program committee for ISPRS 10th Intl. Symposium on Physical Measurements and Signatures in Remote Sensing, Davos, Switzerland, March 12-14, 2007

10. Major professional self-improvement activities during past 10 years, including sabbatical:

    - 1999, Pecora 14/Land satellite information conference, Denver, CO
    - 1999, Workshop on Remote sensing in support of forest inventory, NCRS
    - 2003, MultiTemp-2003, Second international workshop on the analysis of multi-temporal remote sensing images. Ispra, Italy
    - 2006, American Society of Photogrammetry and Remote Sensing annual conference, Reno, NV

Marvin E. Bauer (continued)

11. External grants and other research funding during the past five years.

MIN-42-37. Remote sensing inputs to inventory and analysis of natural resources
292-1128. Assessing and forecasting land use and land cover change in the Twin Cities Metropolitan Area. M. Bauer and S. Manson (Dept of Geography). Faculty Interactive Research Program, Center for Urban and Regional Affairs, Uof MN. ($38,731) 2005
405-1012. New technologies for full carbon accounting in developed land. J. McFadden (EEB Dept.) and M. Bauer. Initiative for Renewable Energy and the Environment, University of Minnesota. ($101,344) 2005-2007
405-6295. Institutionalizing mission to Planet Earth data for land and environmental management. T. Burk, S. Shekar, P. Bolstad, M. Bauer, and S. Laursen. NASA. ($997,129) 1998-2003
405-6307. Upper Midwest Regional Earth Science Applications Center. M. Bauer, P. Brezonik, T. Burk, and A. Ek. NASA Office of Earth Science, Applications Program. ($1,500,000) (includes $800,000 in subcontracts to MSU and UofWI)1999-2003
405-6331. Integrating satellite remote sensing into forest inventory and management. M. Bauer, W. Befort, T. Burk, A. Ek, R. McRoberts, M. Hansen, and R. Czaplewski. NASA Office of Earth Science, Applications Program. ($580,000) 1999-2003
405-6341. Remote Sensing Applications for annual forest inventories. M. Bauer, A. Ek. USDA-FS, NCRS. ($48,000) 1999-2004
405-6381. Advanced applications of satellite imagery for lake quality assessments. P. Brezonik and M. Bauer. MN DNR. ($90,000) 2001-2003
405-6386. Estimation and mapping of impervious surface area in the Twin Cities. M. Bauer. Metropolitan Council. ($31,000) 2001-2003
405-6387. Land cover classification of Twin Cities Metropolitan Area. M. Bauer. Metropolitan Council. ($40,000) 2001-2002
405-6449/6450 and 347-6050/6052. Accelerating and enhancing surface water monitoring for lakes and streams. M. Bauer and P. Brezonik. Minnesota Pollution Control Agency (LCMR). ($180,000) 2003-2005
405-6455. Satellite classification and mapping of conifer plantations in northeast Minnesota. M. Bauer. USDA-FS, NCRS. ($20,000) 2003-2005
405-6458. GIS support for analysis of public health and transportation. Minnesota Center for Environmental Advocacy. M. Bauer. ($4,500) 2003
405-6470. Impervious surface classification and mapping by satellite remote sensing. M. Bauer. Minnesota Pollution Control Agency. ($75,000) 2004-2006
Amendment 1: Analysis of hyperspectral imagery of wetlands. M. Bauer. Minnesota Pollution Control Agency. ($7,050) 2004-2006
Amendment 2: Additional classifications and analyses. M. Bauer. Minnesota Pollution Control Agency. ($65,000) 2005-2006
405-6483. Remote sensing of wetlands: Acquisition of hyperspectral imagery. M. Bauer. Minnesota Pollution Control Agency. ($4,950) 2004-2006
405-6499. Classification and monitoring by satellite remote sensing of lakes in the Minnehaha Creek Watershed District. M. Bauer. Minnehaha Creek Watershed District. ($4,995) 2005
405-6500. Assessing the performance of various proximal and remote sensing platforms for estimating lake trophic status and trends. North American Lake Management Society. M. Bauer. ($29,742) 2005-2006

Marvin E. Bauer (continued)

405-6513. Landsat classification and mapping of forest stands in northern Minnesota and southern Ontario. M. Bauer. Research Joint Venture Agreement, North Central Research Station, USDA Forest Service. ($55,370) 2005-2006

405-6514. Accelerating and enhancing surface water monitoring: Result 2: Provide the capability to use remote sensing tools to assess rivers and streams. M. Bauer. Minnesota Pollution Control Agency/Legislative Commission on Minnesota Resources. ($65,000) 2005-2007

405-6522. Spatial prediction and estimation. M. Bauer, Andrew Finley. USDA Forest Service, North Central Research Station. ($36,000) 2006-2007

405-6524. Cooperative Decision Support Technologies for the Northeastern United States: Bridging NASA and USGS Technologies Support System Application. M. Bauer. Institute for the Application of Geospatial Technology. ($20,000) 2006

405-6535. Satellite remote sensing and monitoring of Minnesota lakes. M. Bauer, L. Olmanson. Minnesota Pollution Control Agency. ($105,000) 2006-2007

405-8010. Multi-source forest inventory. NASA Earth Science Fellowship Program. M. Bauer. $24,000 per year, 2003-2006 *(= fellowship support for Andrew Finley).*

405-9095. Training for operationalizing a regional lake assessment program. M. Bauer. Metropolitan Council. ($3,605) 2003-2005

416-6328. Residue cover assessment in the Lower Minnesota River Basin using satellite imagery. S. Gupta and M. Bauer. Metropolitan Council. ($23,000) 2000-2002

416-6333. Airborne laser scanning to estimate river bank erosion. S. Gupta and M. Bauer. Minnesota Soybean Research and Promotion Council. ($20,000) 2000-2002

416-6336. Airborne laser scanning to estimate river bank erosion. S. Gupta and M. Bauer. Minnesota Corn Research and Promotion Council. ($20,000) 2000-2002

1. Name: **Melvin J. Baughman**

2. Title: Professor and Extension Specialist

   Specialization: Forest economics and policy
   Appointment: 12-month, tenured

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
U.S. Military Academy	Engineering	None	1966-67	--
Michigan State Univ.	Forestry	BS	1967-70	1970
Michigan State Univ.	Forest Recreation	MS	1970-71	1971
University of Minnesota	Forest Policy	Ph.D.	1978-82	1982

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Assistant Dean (CNR)/Extension Professor
   Specialization: Income taxes, economics, policy, management of nonindustrial private forest lands
   Dates: July 1996 to present
   Total Years: 11 years

   Institution: University of Minnesota
   Title: Extension Specialist/Associate Professor
   Specialization: Income taxes, economics, policy, management of nonindustrial private forest lands
   Dates: July 1988 to 1996
   Total Years: 8

   Institution: University of Minnesota
   Title: Extension Specialist/Assistant Professor
   Specialization: Income taxes, economics, policy, management of nonindustrial private forest lands
   Dates: 1985-88
   Total Years: 3

   Institution: University of Minnesota
   Title: Program Leader for Renewable Resources Extension, Extension Specialist--Forest Resources, and Assistant Professor
   Specialization: Leadership of natural resource extension programs, income taxes, economics, policy, management of nonindustrial private forest lands
   Dates: 1982-85
   Total Years: 3

Melvin J. Baughman (continued)

Institution: Pennsylvania State University
Title: Forest Resources Extension Specialist and Instructor
Specialization: Management of nonindustrial private forest lands, policy
Dates: 1981-82
Total Years: 1

Institution: University of Minnesota
Title: Graduate Research Assistant
Specialization: Forest policy
Dates: 1978-1981
Total Years: 3

Institution: Kansas State University
Title: Area Extension Forester and Assistant Professor
Specialization: Hardwood silviculture, urban forestry
Dates: 1971-1978
Total Years: 7

Institution: Michigan State University
Title: Graduate Research Assistant
Specialization: Dendrology, forest recreation
Dates: 1970-1971
Total Years: 1

5. Teaching experience:

Institution:
Rank:
Specialization:
Dates:
Total Academic Years:

6. Dates of appointment and promotions at present institution:

Title	Date
Professor	1996
Associate Professor	1988
Assistant Professor	1985

Melvin J. Baughman (continued)

7. List of publications during the last five years:

Baughman, M., and T. Serres. 2006. *Trail design for small properties*. St. Paul, MN: University of Minnesota Extension.

Baughman, M. J. 2002. SAF current and emerging issues survey results –2002. Presented at Society of American Foresters National Convention, Winston-Salem, NC. St. Paul, MN: University of Minnesota.

Baughman, M. J. 2006. Advocacy for the Renewable Resources Extension Act. In *Proceedings North American Natural Resources Extension Forum: Building Capacity for Cross-Border Collaboration*, ed., J. E. Johnson, 73-82. Blacksburg, VA: Virginia Polytechnic Institute and State University.

Baughman, M. J., K. Updegraff, and J. C. Cervantes. 2002. Impact of forest stewardship plans in the north central states. In *Proceedings of Society of American Foresters 2002 convention, forests at work*, 298-305. Winston-Salem, NC.

Kass, B., and M. Baughman. 2003. Natural Resources Special Report: Financial assistance to private landowners in Minnesota (NRSR-3). St. Paul, MN: University of Minnesota, Minnesota Extension Service.

Updegraff, K, M. J. Baughman, and S. J. Taff. 2004. Environmental benefits of cropland conversion to hybrid poplar: Economic and policy considerations. *Biomass and Bioenergy* 27:411-428.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

Judged Science Fair at Murray Jr. High School, 2001, 2002, 2003, 2004
National Web-based Learning Center for Nonfederal Forest and Range Lands, University of Tennessee, Advisory Board member, 2002, 2003, 2004
Evaluated potential interpretive trail site at Ft. Snelling for MN Air Force Reserve, 2004
Judged State Science Fair, St. Paul, MN, 2004
Minnesota representative to USDA Forest Service Midwestern workshop in Minneapolis on the Future Role of Nonfederal Forest Lands, 2005
Represented MN Extension Service on Minnesota Forest Stewardship Committee, 2005
Served on National Learning Center for Private Forest and Range Owners Advisory Committee, University of Tennessee, 2005
Community Emergency Response Team (CERT) , 2006
Agricultural and Food Science Academy School Board, 2006
National Forest and Range Web Site Steering Committee, University of Tennessee, 2006

9. Membership and offices held in professional organizations:

-Minnesota RC&D Forestry Technical Committee member
-The Nature Conservancy's Big Woods Committee, member
-Minnesota ReLeaf Advisory Committee, member
-Minnesota Forest Stewardship Committee, member

Melvin J. Baughman (continued)

-Forestry Incentives Committee
-Backyard Tree Farm Program Committee
-Minnesota Tree Farm Committee, member
-Minnesota Society of American Foresters
-Chair, MN SAF Strategic Planning Committee
-National Association of Forest Resource Extension Professionals, charter member
-Minnesota Forestry Association, member
-Midwest Forest Economists, member
-Society of American Foresters, Forest Science and Technology Board member
-Association for Temperate Agroforestry
-Association of Natural Resource Extension Professionals

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1997, Minnesota Society of American Foresters state conference, St. Paul, MN
-1997, Urban Sprawl Conference, St. Paul, MN. Sponsored by Minnesota Soil Conservation Society
-1997, Building partnerships for a better environment: National 4-H Environmental Stewardship Conference, Chevy Chase, MD
-1997, Environmental Education Summit, St. Paul, MN. Sponsored by Minnesota Office of Environmental Assistance
-1997, Midwest Agroforestry Workshop, West Lafayette, IN. Sponsored by National Agroforestry Center and Purdue University
-1997, Northeastern Area Forest Resources Program Leaders Conference, Nashville, IN. Sponsored by USDA Forest Service, Northeastern Area State & Private Forestry and Indiana State forestry agency
-1997, Traveled through Kansas, Nebraska, South Dakota, North Dakota, Wyoming, and Colorado interviewing foresters about windbreak renovation practices for a research project: Financial Analysis of Windbreak Renovation
-1997, Association of Natural Resources Extension Professionals annual meeting, Memphis, TN
-1997, University of Minnesota Extension Service Annual Conference, Brainerd, MN
-1997, Living Snow Fence Symposium, Alexandria, MN
-1998, Single Quarter Leave, Studied recreational trail design in 12 western states
-1998, Windbreak Renovation Workshop in North Platte, NE
-1998, Association of Natural Resource Extension Professionals meeting, Traverse City, MI
-1998, Society of American Foresters national convention, Traverse City, MI
-1998, North American Conference on enterprise development through agroforestry: Farming the agroforest for specialty products; Minneapolis, MN
-1998, Environment and natural resources specialization retreat; Annandale, MN
-1998, Training on Diversity and Inclusion. Sponsored by University of Minnesota Extension Service; St. Paul, MN
-1999, Media Relations Training sponsored by University of Minnesota Extension Service
-1999, Association for temperate agroforestry biennial conference, Hot Springs, AR
-1999, Agroforestry field day sponsored by CINRAM, Alexandria, MN
-1999, Society of American Foresters National Convention, Portland, OR

Melvin J. Baughman (continued)

-2000, Research - Part I Workshop on Responsible Conduct of Research, University of Minnesota
-2000, Research - Part II Workshop on Responsible Conduct of Research, University of Minnesota
-2000, University of Minnesota Extension Service, Environment and Natural Resources Retreat, St. Cloud, MN
-2000, Data Inquiry Training - PeopleSoft, University of Minnesota
-2000, Trail maintenance training, Minnesota Wilderness Trails Alliance
-2000, Society of American Foresters Leadership Academy
-2000, Association of Natural Resource Extension Professionals biennial conference
-2000, Tree Farm Inspector Certification Workshop, Tree Farm Program, Grand Rapids, MN
-2000, Association for Temperate Agroforestry Field Day, Mead, NE
-2000, Deans' Tour: How collaborative research and innovative management strategies contribute to sustainable forests, McCall, ID
-2000, ESCOP/ACOP Leadership Development Workshop, Indianapolis, IN
-2000, Society of American Foresters National Convention, Washington, DC; including Forest Science and Technology Board meetings
-2001, American Association of Higher Education Conference. Tampa, FL
-2001, Sexual Violence Awareness. University of Minnesota
-2001, Crosscut Saw Training for Trail Clearing. Marine-on-St. Croix, MN
-2001, Trail Building 101 sponsored by North Country Trail Association. Afton, MN
-2001, Completed ESCOP/ACOP Leadership Development Program. Washington, DC
-2001, Annual Meeting of Northeastern Area Forest Resource Program Leaders and Extension Foresters. Bloomington, IL
-2001, Temperate Agroforestry—Adaptive and mitigative roles in a changing physical and socioeconomic climate, conference. Regina, Saskatchewan, Canada
-2001, Society of American Foresters National Convention. Denver, CO
-2001, Orientation seminar series for new chairs, heads, and directors of academic departments and programs. Minneapolis, MN
-2001, IUFRO Forestry Extension Symposium. Lorne, Australia
-2002, Minnesota Society of American Foresters Conference, St. Cloud, MN
-2002, Natural Resources Education Conference, Raleigh, NC
-2002, Students with Disabilities Teleconference, St. Paul, MN; University of Minnesota
-2002, 3rd Natural Resource Extension Conference, Naples, FL; sponsored by Association of Natural Resource Extension Professionals
-2002, 1st Annual Sustainable Forest Management Summit: Science in Policy and Practice, Green Bay, WI; sponsored by Great Lakes Forest Alliance, Inc.
-2002, Library Workshop; St. Paul Campus; sponsored by University of Minnesota
-2002, Society of American Foresters National Convention; Winsto-Salem, NC
-2003, 15-passenger van training, sponsored by UM Vehicle Services, Minneapolis
-2003, Teaching Conference, sponsored by UM Academy of Distinguished Teachers, Minneapolis
-2003, NE Area Forest Resources Program Leaders and Extension Foresters Annual Meeting, Superior, WI
-2003, Learning Assessment Conference, sponsored by UM Council for Enhanced Student Learning, Minneapolis

Melvin J. Baughman (continued)

-2003, Conference on Video and Wireless Technology in Education, sponsored by UM, Minneapolis
-2003, Assessment Institute, sponsored by Indiana University-Purdue University Indianapolis, IN
-2004, Extension Course Web Design, at University of Tennessee
-2004, Digital Technology for enhancing student learning, at University of Minnesota
-2004, Internationalizing the curriculum: An international conference on Study Abroad Curriculum integration, sponsored by University of Minnesota, Minneapolis
-2004, Learning Assessment Conference, University of Minnesota
-2004, University of Minnesota Alumni Association Training for Board Members, University of Minnesota
-2004, Focusing on the First Year Conference, University of Minnesota
-2005, Public Issues Leadership Development Conference, Crystal City, VA
-2005, Workshop on Conducting Freshman Seminars, Minneapolis, MN
-2005, Community Emergency Response Team training, Falcon Heights, MN
-2005, Agroforestry field tour in northern MN, Ninth North American Agroforestry Conference
-2005, Community Emergency Response Team Instructor Training, New Brighton, MN
-2005, University of Minnesota Extension Service Annual Conference, Brooklyn Center, MN
-2006, Study Abroad Curriculum Integration Workshop, Twin Cities Campus
-2006, Association of Natural Resource Extension Professionals national conference, Park City, UT
-2006, Forestry Field Tour, Colville, WA.
-2006, Timber Tax Update, web conference
-2006, Peer Assisted Learning Conference, Twin Cities Campus
-2006, Annual Extension Conference, Twin Cities
-2006, University of Minnesota Extension Promotion Procedures, Twin Cities Campus

11. External grants and other research funding during the last five years

1. Name: **Dennis R. Becker**

2. Title: Assistant Professor

   Specialization: Natural resources policy
   Appointment: 9-month

3. Formal Education:

Institution	Major	Degree	Dates Attended	Date Earned
Fort Hays State University	Physics & Engineering		1988-90	
Kansas State University	Park Resource Mngmt	BS		1992
Michigan State University	Park, Recreation & Tourism Resources	MS		1997
University of Idaho	Natural Resources	Ph.D.		2002

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Natural Resources Policy
   Dates: 2005-present
   Total Years: 2

   Institution: University of Idaho, Moscow, ID
   Title: Research Assistant
   Specialization: Assessing economic operation of timber mills; environmental impact studies; ecosystem management
   Dates: 1997-2000
   Total Years: 3

   Institution: Michigan State University, East Lansing, MI
   Title: Research Assistant
   Specialization: Recreation impact study
   Dates: 1996-1997
   Total Years: 1

   Employer: Scientific Certification Systems, Oakland, CA
   Nature of Work: Auditor - Forest Stewardship Council (FSC) certification of forest management practices
   Title: Forest Certification Auditor
   Dates: 9/00 - present
   Total Years: 6

Dennis R. Becker (continued)

Employer: USDA Forest Service, Pacific Northwest Research Station, Portland, Oregon
Nature of Work: Research - Utilization of small diameter timber, fuels reduction and wildland fire management, community and collaborative forest partnerships, and economic development
Title: Post Doc Research Forester
Dates: 6/02 to 6/05
Total Years: 3

Employer: Resources For The Future, Washington, D.C.
Nature of Work: Research - Community-based social impact assessment methodologies and issues related to the environment, natural resources, and energy
Title: Joseph L. Fisher Fellow
Dates: 8/01 to 5/02
Total Years: 1.25

5. Teaching experience:

Institution: University of Minnesota
Rank: Assistant Professor
Specialization: Environment and Natural Resources
Dates: 2005 - present
Total Academic Years: 1

Institution: Northern Arizona University
Rank: Adjunct Faculty Member
Specialization: Forest Restoration
Dates: 01/2005 - 05/2005
Total Academic Years: 0.5

Institution: University of Idaho
Rank: Teaching Assistant
Specialization: Resource Recreation and Tourism
Dates: 08/1997 - 12/2000
Total Academic Years: 4

6. Dates of appointment and promotions at present institution:

Title	Date
Assistant Professor	2005

Dennis R. Becker (continued)

7. List of publications during the last five years:

Becker, D. R., M. Myers, and O. Pierson. 2006. Evaluation of the current forestry law enforcement program and development of a new forestry control program targeting illegal logging. USDA-Forest Service Technical Assistance Mission, Republic of Madagascar, Final Report to USAID Madagascar and the Jariala Program.

Cheng, A., and D. R. Becker. 2005. Public perspectives on the "Wildfire Problem." *Fire Management Today* 65(3):12-15.

Kelkar, V., B. Geils, D. R. Becker, S. Overby, and D. Neary. 2006. How to recover more value from small pine trees: essential oils and resins. *Biomass and Bioenergy* 30:316-320

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

- Appointed to Graduate Faculty in Water Resource Sciences, and Conservation Biology, University of Minnesota, 2006
- Provide ongoing technical expertise on biomass utilization to Las Communicades CFRP for the Vallecitos Federal Sustained Yield Unit, Vallecitos, NM, 2006
-Lead social forester for USDA-USAID mission to Madagascar to provide assistance to the government in developing policies to combat illegal logging, 2005
-Scientific Certification Systems, lead social science auditor, Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) forest certification on Minnesota Department of Natural Resources forest lands, 2005-present
-Consultation to Dovetail Partners for developing research initiative for forest certification stakeholder consultation processes, 2005
-Certificate of Outstanding Accomplishment, USDA Forest Service, PNW Research Station, 2002, 2004

9. Membership and offices held in professional organizations:

Advisory Board member, MN Action 2025, Agriculture Utilization and Research Institute (AURI) and MN Bio-Business Alliance, 2006-present
Forest Stewardship Council, 2002-present
Friends of Flagstaff's Future, 2002-2005
International Symposium of Society and Resource Management, 1997-present
Rural Sociological Society, 1998-present
Society of American Foresters, 2001-present

Dennis R. Becker (continued)

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2005, Initiative for Renewable Energy and the Environment (IREE) research symposium, University of Minnesota
-2005, Renewable Energy Development in Minnesota: The convergence of policy, economics & technology, Center for Rural Policy and Development, Minneapolis, MN
- 2006, National Bioenergy and Wood Products Conference, Denver, CO
- 2006, Initiative for Renewable Energy and the Environment (IREE) Research Symposium, McNamara Center, University of Minnesota
- 2006, University of Minnesota, International Programs, Study Abroad Training
- 2006, Association of MN Counties, 2006 Annual Meeting, Rochester, MN
- 2006, Rural Voices for Community and Conservation, 2006 Annual Policy Meeting, Portland, OR
- 2006, Completed human subjects training, University of Minnesota
- 2006, Completed Responsible Conduct of Research (Parts 1 & 2), University of Minnesota

11. External grants and other research funding during the last five years:

MIN-42-032. Private forest land ownership: Assessing and evaluating changes, 2005-
389-1574. Assessment of private and county land management issues associated with ATV use, D.R. Becker and I. Schneider, Central MN Sustainable Development Partnership ($19,900) 2006-2008
405-5966. Assessing barriers to implementation of state cumulative environmental impact review, D.R. Becker, University of Minnesota, Graduate School, Grant-in-Aid ($25,674) 2006-2008
405-6518. Planning fuel hazard reduction treatments with consideration of wood utilization opportunities, D. R. Becker, USDA-FS, Pacific Northwest Research Station ($23,000) 2005
405-6528. Off-highway vehicle trails, trail system and trail network optimization, I. Schneider and D.R. Becker, USDA Forest Service, North Central Research Station ($51,091) 2006-2008
405-XXX. Peer-to-Peer Woodland Owner Outreach and Sustainable Forestry Knowledge and Commitment, E. Sago and D.R. Becker, USDA Forest Service, North Central Research Station ($23,810) 2006-2008

1. Name: **Charles R. Blinn**

2. Title: Professor and Extension Specialist

   Specialization: Quantitative forest management
   Appointment: 12-month, tenured

3. Formal Education:

Institution	Major	Degree	Dates Attended	Date Earned
Bethany College	Biology	BS	1971-75	1975
University of Tennessee	Forest Soils	MS	1975-78	1978
Virginia Tech	Forestry-Harvesting and Economics	Ph.D.	1982-83	1983

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor and Extension Specialist
   Specialization: Forest Management
   Dates: 1996-present
   Total Years: 11

   Institution: University of Minnesota
   Title: Associate Professor and Extension Specialist
   Specialization: Forest Management
   Dates: 1989-1996
   Total Years: 7

   Institution: University of Minnesota
   Title: Assistant Professor and Extension Specialist
   Specialization: Forest Management
   Dates: 1984-89
   Total Years: 5

   Institution: Virginia Tech
   Title: Post-Doctoral Research Fellow
   Specialization: Timber harvesting and economics
   Dates: 1/84 - 5/84
   Total Years: 0.4

   Institution: University of Arkansas at Monticello
   Title: Research Associate
   Specialization: Forest Soils
   Dates: 9/78 - 6/80
   Total Years: 1.75

Charles R. Blinn (continued)

Employer: Weyerhaeuser Corporation
Nature of Work: Research - Tree nutrition
Title: Summer Intern
Dates: 6/77 to 9/77
Total Years: .25

Employer: Tennessee Valley Authority
Nature of Work: Research - Fish population surveys
Title: Summer Intern
Dates: 6/76 to 9/76
Total Years: .25

5. Teaching experience:

Institution: University of Minnesota
Rank: Assistant/Associate/Professor
Specialization: Forest management
Dates: 1984-present
Total Academic Years: 23

6. Dates of appointment and promotions at present institution:

Title	Date
Assistant Professor	1984
Associate Professor	1989
Professor	1996

7. List of publications during the last five years:

Aust, W. M., and C. R. Blinn. 2004. Forestry best management practices for harvesting and site preparation in the eastern United States: An overview of water quality and site productivity research during 1982-2002. *Water, Air, and Soil Pollution: Focus* 4(1):5-36.

Blinn, C. R. 2006. Introduction. In *Forestry Cooperatives: What Today's Resource Professionals Need to Know*, comp. Jakes, P., 1-2. St. Paul, MN: USDA Forest Service, North Central Research Station, St. Paul, MN. 62 p.

Blinn, C. R., D. M. Atuke, N. Danz, J. Hanowski, D. Kastendick, R. Kolka, J. Lind, R. M. Newman, B. Palik, N. Schlesser, J. Steil, D. Streblow, B. Vondracek, and E. Zenner. 2004. Evaluating timber harvesting and forest management guidelines. Final Report to Legislative Commission on Minnesota Resources. St. Paul, MN.

Blinn, C. R., P. A. Jakes, M. Rickenbach, E. S. Sagor, and K. Zeuli. 2005. Forest landowner cooperatives: A national satellite conference for resource professionals. Final Report submitted to USDA Cooperative State Research, Education and Extension Service.

Blinn, C. R., and M. A. Kilgore. 2005. The impact of Minnesota's forest management guidelines on the time required to set-up public agency timber sales. *Northern Journal of Applied Forestry* 22(3):175-180.

Charles R. Blinn (continued)

Blinn, C. R., and M. A. Kilgore. 2004. Riparian management practices in the Eastern US: A summary of state guidelines. *Water, Air, and Soil Pollution: Focus* 4(1):187-201.

Blinn, C. R., M. J. Phillips, T. Webb, R. Rossman, and A. Jones. 2002. Forest management guideline development through consensus: Important factors to consider. *International Journal of Forest Engineering* 13(2):77-81.

Blinn, C. R., D. M. Zak, and M. J. Vogt. 2006. Building and maintaining successful relationships between reservation and university programs: Summer school experiences on the White Earth Reservation. *Journal of Forestry* 104(2):84-88.

Eliason, S. K., C. R. Blinn, and J. A. Perry. 2003. Natural resource professionals continuing education needs in Minnesota: Focus on forest management guidelines. *Northern Journal of Applied Forestry* 20(2):71-78.

Eliason, S. K., C. R. Blinn, and J. A. Perry. 2002. Evaluating natural resource professional education needs using focus groups: A Minnesota case study. *Women in Natural Resources* 23(1):36-45.

Haworth, B. K., and C. R. Blinn. 2005. Assessment of logger education training programs: Opportunities in Minnesota. Final report to the Minnesota Logger Education Program.

Kilgore, M. A., and C. R. Blinn. 2005. The impact of timber harvesting guidelines and timber sale attributes on stumpage bidding behavior. *Northern Journal of Applied Forestry* 22(4):275-280.

Kilgore, M. A., and C. R. Blinn. 2004. Encouraging the application of sustainable timber harvesting practices: A review of policy tool use and effectiveness in the eastern United States. *Water, Air, and Soil Pollution: Focus* 4(1):203-216.

Kilgore, M. A., and C. R. Blinn. 2004. Policy tools to encourage the application of timber harvesting guidelines in the United States and Canada. *Forest Policy and Economics* 6(2): 111-127.

Kilgore, M. A., and C. R. Blinn. 2004. Cost of voluntary timber harvesting guidelines. Technical Release 04-R-23. Rockville, MD: Forest Resources Association, Inc.

Kilgore, M. A., and C. R. Blinn. 2004. Cost of voluntary timber harvesting guidelines. Associated Contract Loggers & Truckers of Minnesota, Biwabik, MN. ACLT 15(5): 8.

Kilgore, M. A., and C. R. Blinn. 2003. The financial cost to forest landowners who implement forest management guidelines: An empirical assessment. *Journal of Forestry* 101(8):37-41.

Kilgore, M. A., and C. R. Blinn. 2003. An assessment of the extent to which forest landowners bear additional costs resulting from implementation of Minnesota's timber harvesting guidelines. Report to the Minnesota Forest Resources Council, St. Paul, MN.

Kilgore, M. A., and C. R. Blinn. 2003. Willingness to pay for stumpage requiring timber harvesting guidelines: An evaluation of bidder characteristics, strategies, and perceptions. Report to the Minnesota Forest Resources Council, St. Paul, MN.

Kilgore, M. A., and C. R. Blinn. 2003. Minnesota's timber harvesting guidelines: An assessment of their financial cost to forest landowners and influence on willingness to pay for stumpage. Staff Paper Series no. 166. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Palik B., K. Cease K., L. Egeland, and C. R. Blinn. 2003. Aspen regeneration in riparian management zones in Northern Minnesota: Effects of residual overstory and harvest method. *Northern Journal of Applied Forestry* 20(2):79-84.

Phillips, M. A., and C. R. Blinn. 2004. State approaches for monitoring the application of best management practices and forest management guidelines: A regional summary. Staff Paper Series no. 173. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Charles R. Blinn (continued)

Phillips, M. J., and C. R. Blinn. 2004. Best management practices compliance monitoring approaches for forestry in the eastern United States. *Water, Air, and Soil Pollution: Focus* 4(1):263-274.

Sakai, M., and C. R. Blinn. 2005. Options for increasing productivity by utilizing more of what we have: The role of forestry cooperatives. Final report to the USDA Forest Service, North Central Research Station, St. Paul, MN.

Skally, C. W., and C. R. Blinn. 2002. An evaluation of the native plant communities management guide for mesic and dry-mesic white-red pine in northern MN. Staff Paper Series no. 156. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Smidt, M. F., and C. R. Blinn. 2002. Harvest caused soil disturbance decreases suckering capacity of quaking aspen (*Populus tremuloides* Michx.) following growing season harvests in Minnesota, USA. *Forest Ecology and Management* 163(1-3):309-313.

Steil, J. C., C. R. Blinn, R. M. Newman, B. Vondracek, D. M. Atuke, J. Lind, and J. Hanowski. 2005. Evaluating riparian timber harvesting guidelines: 2005 bridge funding report. Final report to the Minnesota Forest Resources Council.

Ukaga, O. M., M. R. Reichenbach, C. R. Blinn, D. M. Zak, W. D. Hutchinson, and N. J. Neil. 2002. Building successful campus-field faculty teams. *Journal of Extension* [On-line] 40(2). Available at: http://joe.org/joe/2002april/a3.html.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Peer review of Lake County Land Department SmartWood Assessment Report, 2005
-Dean and Director's Distinguished Award, Campus Faculty, University of Minnesota Extension Service, 2004
-Lake States Regional Technical Division Writing Award, Forest Resources Association, for Technical Release 04-R-23 entitled "Cost of voluntary timber harvesting guidelines," 2004
-Minnesota Sustainable Forestry Initiative® (SFI) Implementation Committee was recognized during the SFI Annual Conference in Austin, TX. Acknowledging the outstanding work by the State Implementation Committee (SIC) in implementing the SFI program, American Forest & Paper Association conferred its sixth-annual SIC award on the Minnesota committee, 2004
-Associate Editor, *Northern Journal of Applied Forestry*, 2004, 2005, 2006
-Richard C. Newman Award for Community Impact, 2003
-Appointed to the Wisconsin Master Logger Certification Board, 2003
-Program Award for Excellence, Partners of the Americas, 2002
-Staffed University of Minnesota Extension Service booth at the State Fair, 2001, 2002, 2003
-Judge Science Fair, Sunnyside Elementary School, 2001, 2002
-New Brighton Forestry Board, 2001, 2002, 2003
-Fall Logger Education Program Planning Committee, 2002
-Steering Committee, Professional Forest Harvester Logger Program, Vermilion Community College, chair, 2001
-Assisted with the development for a School Forest at the Circle of Life School on the White Earth Reservation
-Minnesota Sustainable Forestry Initiative Implementation Committee, 2001, 2002, 2003

Charles R. Blinn (continued)

9. Membership and offices held in professional organizations:

-Association of Natural Resource Extension Professionals, member
-Continuing Education Coordinating Committee, 2001
-Council on Forest Engineering, member
-Forest Management Guideline Curriculum Committee, 2000-present
-Forest Resources Systems Institute, member
-Forester Voluntary Certification Program Development Committee, Minnesota SAF, 2001
-Minnesota Extension Service Outcomes Consultant Group, 2001
-Minnesota Forest Resources Council Guideline Revision Technical Committee, 2001, 2002
-Minnesota Logger Education Program, Board of Directors, 2001 to present
-Minnesota Partners, Treasurer, 2001 to present
-Minnesota Sustainable Forestry Initiative Implementation Committee, 2001 to present
-Minnesota-Uruguay Partners, Board of Directors, 2001 to present
-Minnesota-Uruguay Partners, Natural Resources Committee, co-chair, 2001 to present
-Minnesota-Uruguay Partners, Nomination Committee, 2002
-National Association of Extension Foresters Planning Committee, 2001
-Society of American Foresters, member
-Timber Production and Harvesting Group, Forest Products Society Annual Meeting, program chair, 2002
-Wisconsin Master Logger Certification Board, 2004 to present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1997, Cultural Diversity Forum. St. Paul, MN
-1997, Minnesota Extension Service planning retreat. Chaska, MN
-1997, Adult education methods workshop. Grand Rapids, MN
-1997, Spring Break-up Workshops. Brainerd & Cloquet, MN
-1997, Minnesota Timber Producer Association's annual meeting. Duluth, MN
-1997, How to lead a team. Bloomington, MN
-1997, Landscape delineation workshop. Cloquet, MN
-1997, Logger education in the United States workshop. Louisville, KY
-1997, Indigenous perspectives in forestry education workshop. Vancouver, BC
-1997, Road construction strategies under the B.C. forest practices code. Vancouver, BC
-1997, Timber and wood flow security workshop. Cloquet, MN
-1997, Audubon forest logging/land management field trip. Grand Rapids, MN
-1997, Society of American Foresters annual meeting, Memphis, TN., 1997
-1997, Application of New Distance Education Communication Technologies Workshop. Montevideo, Uruguay, 1997
-1997, Partners of the Americas annual meeting. Buenos Aires, Argentina
-1998, Minnesota Society of American Forester's annual conference. Duluth, MN
-1998, Riparian management of forests of the continental eastern US. Columbus, OH
-1998, 1st National Extension Natural Resources Conference. Deerwood, MN
-1998, White Earth Reservation Visit. White Earth Reservation, MN
-1998, Society of American Foresters annual meeting. Traverse City, MI

Charles R. Blinn (continued)

-1998, Small-scale logging equipment field demonstration. Duxbury, MN
-1998, Lake Superior of the Society of American Foresters Chapter Meeting. Cloquet, MN
-1998, Improving forest productivity for timber: A key to sustainability conference, Duluth, MN
-1999, Introduction to Timber Harvesting and Forest Management Guidelines. Brainerd, MN
-1999, Minnesota Chapter of the Society of American Foresters annual meeting. Owatonna, MN
-1999, Forest management guideline education, Train-the-trainer workshop. Brainerd, MN
-1999, Ecology of forest ponds: Minnesota's unappreciated wetlands. Grand Rapids, MN
-1999, An ecosystem approach to managing northern hardwood forests in the Lake States. Green Bay, WI
-1999, Maintaining water quality in woodlands operations. Moncton, New Brunswick
-1999, Forestry and kids: Are you making the connection? Portland, OR
-1999, Society of American Foresters annual meeting. Portland, OR
-2000, Woodland Owners and Users Conference. Arden Hills, MN
-2000, Michigan Chapter of the Society of American Foresters spring meeting. Traverse City, MI
-2000, Cut-to-length: Big and small. Chain saws and trailers to high-tech. Grand Rapids, MN
-2000, Extension natural resources capacity area retreat. Cloquet, MN
-2000, DEMO 2000 conference and demonstration. Kelowna, British Columbia
-2000, Wetlands: Logging roads and harvesting workshop. Cable, WI
-2000, Forest owner cooperation: Balancing ecology and economics. Madison, WI
-2000, National Extension Foresters annual meeting. Washington, DC
-2000, Society of American Foresters annual meeting. Washington, DC
-2000, Information technology planning/co-provider meeting. St. Paul, MN
-2000, 62nd Midwest Fish and Wildlife Conference. Minneapolis, MN
-2001, Minnesota Chapter of the Society of American Foresters winter meeting. Ely, MN
-2001, Minnesota Forest Resource Partnership Meeting. Grand Rapids, MN
-2001, Million Acres Conference. Duluth, MN
-2001, Improving Riparian Management Practices Workshop. Grand Rapids, MN
-2001, Minnesota Logger Education Program Fall Workshop. Grand Rapids, MN
-2001, University of Minnesota Extension Service's Fall Program Summit. Rochester, MN
-2001, Forest Management Guideline Education Outdoor Workshop. Cloquet, MN
-2002, Rural Living Expo. Mora, MN
-2002, Inland Empire Forest Engineering Conference. Moscow, ID
-2002, Forestry Best Management Practices Research Symposium, Atlanta, GA
-2002, Forestry and Agroforestry Extension Staff Development. Brainerd, MN
-2002, Project Learning Tree Training. White Earth, MN
-2002, Sale Area Layout and Harvesting Institute refresher workshop. Clemson, SC
-2002, Forest Products Society annual meeting. Madison, WI
-2002, Office of Information Technology Co-Provider Meeting. St. Paul, MN
-2002, Protecting Site Quality Field Training, Cloquet and Grand Rapids, MN
-2003, Connecting University resources and community needs. St. Paul, MN
-2003, Forest Management Guideline Education Outdoor Workshop. Cloquet, MN
-2003, Protecting site quality workshop. Cloquet, MN
-2003, Building and sustaining project collaboration. Detroit Lakes, MN
-2003, Co-providers meeting. Minneapolis, MN

Charles R. Blinn (continued)

-2003, Natural resources and environment capacity area meeting. St. Paul, MN
-2003, Conference on video and wireless technology. Minneapolis, MN
-2003, Society of American Foresters annual meeting. Buffalo, NY
-2004, Natural resources and environment capacity area meeting. Cloquet, MN
-2004, Test of dynamic cone penetrometer on frozen soils. St. Paul, MN
-2004, Tour of partially frozen soils in northern Minnesota. Bemidji and Littlefork, MN
-2004, CITI Course in the Protection of Human Research Subjects. St. Paul, MN. (Online)
-2005, Natural resources and environment capacity area meeting. Shoreview, MN
-2005, Site Disturbance Guidelines / Standards Brainstorm. Thunder Bay, Ontario
-2005, Winning Solutions. Thunder Bay, Ontario
-2005, Tree City USA Awards Lunch. Chanhassen, MN
-2005, Timber Producer's Association annual meeting. Duluth, MN
-2006, Natural Resources and Environment Capacity Area Meeting. Mounds View, MN.
-2006, A Million Acres in Minnesota Conference. Duluth, MN.
-2006, Woody Biomass Harvesting and Utilization Workshops. Rochester, MN.
-2006, Silviculture: Research, Policy and Practice. A Tour of Northwestern Ontario.
-2006, Forest Guild Annual Meeting and Conference. Boulder Junction, WI.

11. External grants and other funding during the last five years.

MN-42-42. Effects of environmental protection policies on timber harvesting practices in Minnesota
405-6011. Minnesota's voluntary site-level forest management guidelines: A pilot study of barriers to implementation on nonindustrial private forest land. Sagor, E. S. and C. R. Blinn. USDA-FS NCRS ($11,750) 2004-2005
405-6357. Options for increasing forest productivity by utilizing more of what we have: The role of forestry cooperatives. C. R. Blinn. USDA-FS, NCRS ($84,450) 2000 -2005
405-6389. Evaluating timber harvesting and forest management guidelines. C. R. Blinn, Legislative Commission on Minnesota Resources ($200,000) 2001-2004
405-6404. Evaluating timber harvesting and forest management guidelines. C. R. Blinn, Minnesota Forest Resources Council ($32,000) 2002-2003
405-6405. Assessing the financial impacts associated with implementing timber harvesting and forest management guidelines. M. K. Kilgore and C. R. Blinn. Minnesota Forest Resources Council ($30,000) 2002-2003
405-6408. Multi-scale functional responses to stand manipulations in riparian forests. C. R. Blinn, USDA-FS NCRS ($114,000) 2002-2007
405-6438. Measuring coarse woody debris recruitment and assessing windthrow in a riparian management zone in northern Minnesota. C. R. Blinn, USDA-FS NCRS ($46,778) 2003-2006
405-6475. Response of Northern white cedar seedlings to stand manipulations in riparian forests. A. J. David and C. R. Blinn, USDA-FS NCRS ($55,000) 2004-2007
405-6480. Assessment of logger education training programs. C. R. Blinn, Minnesota Logger Education Program ($40,000) 2004-2005
405-6490. Evaluating riparian timber harvesting guidelines: 2005 bridge funding. C. R. Blinn, MN Forest Resources Council ($11,000) 2005

Charles R. Blinn (continued)

405-6495. An empirical assessment of the cost of applying Minnesota's forest management guidelines -- Phase I of a Four Phase Proposal. M. A. Kilgore and C. R. Blinn, USDA-FS NCRS ($159,000) 2005-2009

405-6503. Evaluating riparian timber harvesting guidelines: Part II. C. R. Blinn, E. Zenner, B. Palik, R. Kolka, R. Newman, B. Vondracek, and J. Hanowski, Legislative Commission on Minnesota Resources ($333,000) 2005-2008

405-6506. Water quality and BMPs National Web-based Learning Center. C. R. Blinn, USDA CSREES ($2,500) 2005

405-9088. Forest landowner cooperatives: A national satellite conference for resource professionals. C. R. Blinn, USDA-CSREES ($23,000) 2003-2005

405-9112. Design of timber sale design cross training workshop curriculum. C. R. Blinn, Blandin Foundation, MN Logger Ed Program ($2,656) 2006

1. Name: **Paul V. Bolstad**

2. Title: Professor

   Specialization: GIS in natural resource analysis, forest ecology, and spatial data analysis
   Appointment: 12-month, tenure track

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of California	Forest Resources	B.S.		1980
North Carolina State Univ.	Forestry	M.S.		1984
University of Wisconsin	Environmental Monitoring	Ph.D.		1990

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor
   Specialization: GIS in natural resource analysis, forest ecology and spatial data analysis
   Dates: June 2006
   Years: 1

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: GIS in natural resource analysis, forest ecology and spatial data analysis
   Dates: June 2003-2006
   Years: 3

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: GIS in natural resource analysis, forest ecology and spatial data analysis
   Dates: June 1995 - 2003
   Years: 8

   Institution: Virginia Polytechnic Institute and State University
   Title: Assistant Professor
   Specialization: Forest ecology, spatial data analysis
   Dates: 1990 to 1995
   Years: 5

5. Teaching experience:

   Institution: University of Minnesota
   Rank: Assistant/Associate/Professor
   Specialization: GIS in natural resource analysis, forest ecology and spatial data analysis
   Dates: 1995 - present
   Total Academic Years: 12

Paul V. Bolstad (continued)

Institution: Virginia Polytechnic Institute and State University
Rank: Assistant Professor
Specialization: Forest ecology
Dates: 1990 - 1995
Total Academic Years: 5

6. Dates of appointment and promotions at present institution:

Title	Date
Professor	2006
Associate Professor	2003
Assistant Professor	1995

7. List of publications during the last five years:

Bolstad, P. V. 2005. *GIS fundamentals, a first text on Geographic Information Systems*. 2d ed.

Bolstad, P. V., K. Davis, J. Martin, and B. Cook. 2004. Component and whole-system respiration in northern deciduous forest stands. *Tree Physiology* 24:493-504.

Bolstad, P. V., A. Jenks, J. Berkin, and K. Horne. 2005. A comparison of autonomous, WAAS, real-time, and post-processed GPS accuracies in northern forests. *Northern Journal of Applied Forestry* 22:5-10.

Bolstad, P. V., P. Reich, and T. Lee. 2003. Rapid temperature acclimation of leaf respiration rates in *Quercus alba* and *Quercus rubra*. *Tree Physiology* 23:969-976.

Bolstad, P. V., and J. Vose. 2005. Differences in total C pools and soil C fluxes after forest conversion in the Southern Appalachian Mountains. *Forest Science* 51:372-383.

Brown, N. L., T. E. Burk, P. V. Bolstad, and M. Balogh. 2004. Construction of a Geographic Information System for wildlife refuge planning: Rice Lake National Wildlife Refuge. Staff Paper Series no. 172. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Cook, B. D., K. J. Davis, W. Wang, A. R. Desai, B. W. Berger, R. M. Teclaw, J. G. Martin, P. V. Bolstad, P. S. Bakwin, C. Yi, and W. Heilman. 2004. Annual pattern of carbon exchange and evapotranspiration in an upland deciduous forest in northern Wisconsin, USA. *Agricultural and Forest Meteorology* 126:271-295.

Curtis, P. S., P. J. Hanson, P. Bolstad, C. Barford, J. C. Randolph, H. P. Schmid, and K. B. Wilson. 2002. Biometric and eddy-covariance based estimates of annual carbon storage in five eastern North American deciduous forests. *Agriculture and Forest Meteorology* 113:3-19.

Davidson, E. A., K. Savage, P. Bolstad, D. A. Clark, P. S. Curtis, D. S. Ellsworth, P. J. Hanson, B. E. Law, Y. Luo, K. S. Pregitzer, J. C. Randolph, and D. Zak. 2002. Belowground carbon allocation in forest ecosystems estimated from annual litterfall and IRGA-based chamber measurements of soil respiration. *Agriculture and Forest Meteorology* 113:39-51.

Desai, A. R., P. V. Bolstad, B. D. Cook, K. J. Davis, and E. V. Carey. 2005. Comparing net ecosystem exchange of carbon dioxide between an old-growth and mature forest in the upper Midwest, USA. *Agriculture and Forest Meteorology* 128:33-55.

Gonoski, J. A., T. E. Burk, P. V. Bolstad, and M. Balogh. 2004. Swan Lake National Wildlife Refuge vegetation cover (2000). Staff Paper Series no. 175. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Paul V. Bolstad (continued)

Gragson, T. L., and P. V. Bolstad. 2006. Land use legacies and the future of southern Appalachia. *Society and Natural Resources* 19:175-190.

Heinsch, F. A., M. Zhao, S. W. Running, J. S. Kimball, R. R. Nemani, K. J. Davis, P. V. Bolstad, B. D. Cook, A. R. Desai, D. M. Ricciuto, B. E. Law, W. C. Oechel, H. Kwon, H. Luo, S. C. Wofsy, A. L. Dunn, J. W. Munger, D. D. Baldocchi, L. Xu, D. Y. Hollinger, A. D. Richardson, P. C. Stoy, M. B. S. Siqeira, R. K. Monson, S. Burns, and L. B. Flanagan. 2006. Evaluation of remote sensing based terrestrial producitivity from MODIS using regional tower eddy flux network observations. *IEEE Transactions on Geosciences and Remote Sensing* 44:1908-1925.

Lee, T. R., P. B. Reich, and P. V. Bolstad. 2005. Acclimation in three deciduous tree species. *Functional Ecology* 19:640-647.

Martin, J. G., and P. V. Bolstad. 2005. Soil respiration in temperate forests: Influence of soil moisture and site biological, chemical and physical characteristics. *Biogeochemistry* 73:149-182.

Martin, J. G., P. V. Bolstad, and J. M. Norman. 2004. A carbon dioxide flux generator for testing infrared gas analyzer based soil respiration systems. *Soil Science Society of America Journal* 68:514-518 .

Mueller, B., T. E. Burk, P. V. Bolstad, and J. H. Schomaker. 2003. Constructing a geographic information system for wildlife refuge planning: Seney National Wildlife Refuge. Staff Paper no.169. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Pearson, S., M. Turner, P. Bolstad, and D. Wear. 2003. Effects of land-cover change on spatial pattern of forest communities in the Southern Appalachian Mountains (USA). *Landscape Ecology* 18:449-464.

Radtke, P. J., T. E. Burk, and P. V. Bolstad. 2002. Bayesian melding of a forest ecosystem model with correlated inputs. *Forest Science* 48:701-711.

Scott, M. C., G. S. Helfman, M. McTammany, E. F. Benfield, and P. V. Bolstad. 2002. Spatial and temporal influences on stream physiochemistry across southern Blue Ridge landscapes. *Journal of the American Water Resources Association* 38:1379-1392.

Sims, D. A., A. F. Rahman, V. D. Cordova, B. Z. El-Masri, D. D. Baldocchi, P. V. Bolstad, P. S. Curtis, L. B. Flanagan, A. H. Goldstein, D. Y. Hollinger, L. Misson, R. K. Monson, W. C. Oechel, H. P. Schmid, S. C. Wofsy, and L. Xu. 2006. On the use of MODIS EVI to assess gross primary productivity of North American ecosystems. *Journal of Geophysical Research* 111(G4):G04015, 10.1029/2006JG000162

Tang, J., P. V. Bolstad, B. E. Ewers, A. R. Desai, K. J. Davis, and E. V. Carey. 2006. Sap-flux-upscaled canopy transpiration, stomatal conductance and water use efficiency in an old-growth forest in the Great Lakes region of United States. *Journal of Geophysical Research – Biogeosciences* 111:G02009.

Vose, J., and P. V. Bolstad. 2006. Biotic and abiotic factors regulating forest floor CO_2 flux across a range of forest age classes in the southern Appalachians. *Pedobiologia* 51:577-587.

Walker, K., T. E. Burk, P. V. Bolstad, and J. H. Schomaker. 2003. Constructing a geographic information system for wildlife refuge planning: Agassiz National Wildlife Refuge. Staff Paper no. 164. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Wang, W., K. J. Davis, B. D. Cook, D. M. Ricciuto, and M. P. Butler. 2006. Decomposing CO_2 fluxes measured over a mixed ecosystem at a tall tower and extending to a region: A case study. *Journal of Geophysical Research - Biogeosciences* 111:(G02005, doi:10.1029/ 2005JG000093).

Paul V. Bolstad (continued)

Wythers, K. R., P. B. Reich, M. G. Tjoelker, and P. Bolstad. 2005. Respiration acclimation to temperature and temperature variable Q10 alter ecosystem carbon balance. *Global Change Biology* 11:435-449.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-NASA Land Validation and Field Investigations Subcomittee, 2006
-CRC Press book chapter reviewer, 2006
-Invited author, session moderator, topic area convener Southern Forest Research Partnership, Carbon Workshop, Asheville, NC, 2006
-Invited speaker, GIS Symposium, University of Wisconsin, Madison, 2006
-Invited speaker, Food Safety Symposium, University of Minnesota CFANS, 2006
-Joined editorial board, *Ecosystems*, 2005
-Invited participant, NSF-NEON panel on Land Use Monitoring, 2004
-Advisor to US National Park Service, Resource Assessment Division, Upper Great Lakes, on monitoring methods, 2003
-Participant, Evaluation Team of the International Long-Term Ecological Research Program, assessment of watershed level research. Organized by the National Science Foundation, 2003
-Invited speaker/advise U.C. Berkeley, College of Natural Resources in the development of a new long-term strategic plan, 2003
-Madeline Island Conservation Foundation, 2002

9. Membership and offices held in professional organizations:

-Member, American Society of Photogrammetry and Remote Sensing
-Member, Society of American Foresters
-Member, Ecological Society of America
-Member, Habitat Monitoring Working Group, Partners in Flight Interagency Initiative

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1998, Attended biocomputing initiative workshop, National Supercomputing Center, San Diego
-2002, Dreamweaver web development software
-2002, C++ programming and Java
-2002, ArcGIS upgrade
-2003, Geodatabase design in ArcGIS
-2003, Advanced editing in ArcGIS
-2003, Spatial Analyst
-2006, HTML development tools through Adobe GoLive Suite

Paul V. Bolstad (continued)

11. External grants and other research funding during the last five years:

384-3736. Productivity and C cycling at a range of spatial scales in eastern forests
405-6302. Leaf acclimation/adaptation in respiration, P.Bolstad, P. Reich, $110,000/year, NSF
405-6342. Productivity and global climate change, P.Bolstad, $31,000, USDA-FS
405-6358. Geospatial technologies for park assessment and management, P. Bolstad, PI; Sponsor: USDI NPS ($45,000) 2003-2005
405-6359. Water quality and quantity in the southern Appalachian mountains, P.Bolstad, USDA-FS ($32,000)
405-6367. Quantifying carbon sequestration in northern old-growth forests, E. Carey and P.V. Bolstad, DOE-TCP ($164,050) 2003-2006
405-6393. Land use and water quality, P. Bolstad, J. Vose, D. Wear, NASA ($479,790) 2001-2004
405-6419. Measuring and modeling component and whole-system C flux in mixed northern landscapes, P. Bolstad, NIGEC-Midwest ($170,000) 2003
405-6421. Causes and consequences of land use change in the southern Appalachian Mountains. P. Bolstad, NSF-LTER via University of Georgia ($140,354) 2003-2009 (continuation of efforts under 405-6259)
405-6451. Measuring and modeling component an whole-system CO2 flux at local to regional scales, P. Bolstad, PI; USDOE ($219,037) 2003-2006
405-6453. A system for monitoring land use in and adjacent to parks. P. Bolstad, NPS, ($44,958)
405-6469. Hemlock distribution in the southern Appalachians. P. Bolstad, USDA-FS, ($39,996)
405-6476. Evaluation and knowledge of belowground soil C cycling, P. Bolstad, USDA-FS, ($30,000)
405-6481. Developing a sampling framework for resource inventory. P. Bolstad, NPS, UMND ($25,850)
405-6485. North temperate wetlands carbon flux. P. Bolstad, DOE ($118,459)
405-6491. Testing the flux tower upscaling hypothesis. P. Bolstad, NASA ($182,979)
405-6516. Modeling evapotranspiration in eastern forests. P. Bolstad, USDA-FS ($59,930)
405-6517. Apostle Islands historic land use. P. Bolstad, NPS ($21,800)

1. Name: **Kenneth N. Brooks**

2. Title: Professor and Director of Graduate Studies, Forestry

   Specialization: Forest hydrology
   Appointment: 12-month, tenured

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Arizona	Watershed Hydrology	Ph.D.	1966-70	1970
University of Arizona	Watershed Hydrology	MS	1966-69	1969
Utah State University	Watershed Management	BS	1962-66	1966

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor and Director of Graduate Studies (Forestry Graduate Program)
   Specialization: Hydrology and watershed management
   Dates: 1985 to present
   Total Years: 22

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: Hydrology
   Dates: 1979 to 1985
   Total Years: 6

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Hydrology
   Dates: 1975 to 1979
   Total Years: 4

   Institution: University of Arizona
   Title: Graduate Associate in Teaching and Research
   Specialization: Watershed Hydrology
   Dates: 1969 to 1970
   Total Years: 1

   Institution: Utah State University
   Title: Range Research Aide
   Specialization: Range ecosystem analysis
   Dates: 1964 to 1966
   Total Years: Part-time for 2 years

Kenneth N. Brooks (continued)

Employer: US Corps of Engineers, The Hydrologic Engineering Center, Davis, California
Nature of Work: teaching and research in current hydrologic methods (computer modeling) and provided special assistance to District Offices
Title: Hydrologist
Dates: August 1973 to August 1975
Total Years: 2

Employer: US Corps of Engineers, North Pacific Division, Portland, OR
Nature of Work: developed and applied hydrologic engineering techniques and computer models with emphasis on hydrologic analysis of watershed response to rainfall and snowmelt
Title: Hydrologist, Assistant to Chief, Water Control Branch
Dates: February 1971 to August 1973
Total Years: 2-1/2 years

5. Teaching experience:

Institution: University of Minnesota
Rank: Assistant/Associate/Professor
Specialization: Hydrology
Dates: 1975 - present
Total Academic Years: 32

6. Dates of appointment and promotions at present institution:

Title	Date
Assistant Professor	1975
Associate Professor	1979
Professor	1985

7. List of publications during the last five years:

Brooks, K. N. 2002. Flooding in the Minnesota River Basin: A look at agricultural drainage and other changes affecting the river. *River Currents.* Winter 2002, A Publication of Clean Up our River Environment (CURE). Montevideo, MN.

Brooks, K. N., and M. Achouri. 2003. Sustainable use and management of freshwater resources: role of forests. In *State of the world's forests*. Rome, Italy: UN Food and Agriculture Organization (FAO).

Brooks, K. N., D. Current, and D. Wyse. 2006. Restoring hydrologic function of altered landscapes: An integrated watershed management approach. In *Water Resources for the Future*, eds., Tennyson, L. And P. C. Zingari, 101-114. Conference Proceedings, Porto Cervo, Sassari, Sardinia, Italy; 22-24 October, 2003, Watershed Management & Sustainable Mountain Development Working Paper 9. Rome: FAO, United Nations.

Kenneth N. Brooks (continued)

Brooks, K. N., and P. F. Ffolliott, eds. 2005. *Moving agroforestry into the mainstream*. The 9th North American agroforestry conference proceedings. St. Paul, MN: CINRAM and Department of Forest Resources, University of Minnesota.

Brooks, K. N., and P. F. Ffolliott. 2002. International watershed management training activities. *Hydrological Science and Technology* 18(1-4):55-64.

Brooks, K. N., P. F. Ffolliott, H. M. Gregersen, and L. F. DeBano. 2003. *Hydrology and the Management of Watersheds*. 3d ed. Ames, IA: Iowa State University Press.

Bryne, M., and K. N. Brooks. 2005. Soil moisture regimes under annual and perennial crops as components of agroforestry systems. In *Moving agroforestry into the mainstream*, eds., Brooks, K. N., and P. F. Ffolliott. The 9th North American agroforestry conference proceedings. St. Paul, MN: CINRAM and Department of Forest Resources, University of Minnesota.

Christner, W. T., Jr., J. Magner, E. S. Verry, and K. N. Brooks. 2004. Natural channel design for agricultural ditches. In *Self-sustaining solutions for streams, wetland, and watersheds, proceedings of the conference*, ed. J. L. D'Ambrosia. St. Paul, MN. ASAE Publication No. 701P0904.

Colson, A., K. Brooks, D. Wyse, G. Johnson, and C. Sheaffer. 2005. Runoff and sediment from woody and herbaceous perennial crops and an annual crop. In *Moving agroforestry into the mainstream*, eds. K. N. Brooks and P. F. Ffolliott. The 9th North American agroforestry conference proceedings. St. Paul, MN: CINRAM and Department of Forest Resources, University of Minnesota.

Ennaanay, D., L. Aniskoff, and K. N. Brooks. 2005. Modeling hydrologic response of converting annual crops to agroforestry and other perennial cropping systems: an assessment of SWAT and HSPF capabilities. In *Moving agroforestry into the mainstream*, eds. K. N. Brooks and P. F. Ffolliott. The 9th North American agroforestry conference proceedings. St. Paul, MN: CINRAM and Department of Forest Resources, University of Minnesota.

Ffolliott, P. F., K. N. Brooks, and M. M. Fogel. 2002. Managing watershed for sustaining agriculture and natural resource benefits into the future. *Quarterly Journal of International Agriculture* 41(1):223-240.

Ffolliott, P. F. L. F. DeBano, M. B. Baker, Jr., D. Neary, and K. N. Brooks. 2004. Hydrology and impacts of disturbances on hydrologic function. In *Riparian areas of the southwestern United States - Hydrology, ecology and management*, eds. Baker, et al., chap. 4, 51-76. Boca Raton, LA: Lewis Pub.

Magner, J. A., and K. N. Brooks. 2005. Assessing agroforestry options for water quality using regional hydraulic geometry curves. In *Moving agroforestry into the mainstream*, eds. K. N. Brooks and P. F. Ffolliott. The 9th North American agroforestry conference proceedings. St. Paul, MN: CINRAM and Department of Forest Resources, University of Minnesota.

Pfeffer, M. J., D. J. Abs, and K. N. Brooks, eds. 2003. *Watershed management for water supply systems.* Proceedings, American Water Resources Association, 2003 International Congress, New York.

Queen, L. P, W. L. Wold, and K. N. Brooks. 2003. Application of GIS and remote sensing for watershed assessment. In *GIS for water resources and watershed management*, ed. Lyon, chap. 11. London: Taylor & Francis.

Riedel, M. A., K. N. Brooks, and E. S. Verry. 2006. Stream bank stability assessment in grazed riparian areas. In *Proc. Joint 8th Federal Interagency Sedimentation and 3rd Hydrologic Modeling Conferences*, Reno, NV, April 2-6.

Kenneth N. Brooks (continued)

Riedel, M.S., E.S. Verry and K.N. Brooks. 2006. An approach to estimating stream bank erosion for sediment budgets. *Stream Notes*. USDA Forest Service, Rocky Mountain Research station, Stream System Technology Center.

Riedel, M. S., E. S. Verry, and K. N. Brooks. 2005. Impacts of land use conversion on bankfull discharge and mass wasting. *Journal of Environmental Management 76:326-337.*

Riedel, M. S., E. S. Verry, and K. N. Brooks. 2002. Land use impacts on fluvial processes in the Nemadji River watershed. *Hydrological Science and Technology* 18(1-4):197-205.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   -Consultant with FAO, Rome, on hydrologic role of forests, 2002
   -Member of Review Panel for the World Agroforestry Center (ICRAF), selected by the CGIAR; November 2005 - March 2006
   -Consultant for Barr Engineering, Minneapolis; reviewed methods/models for determining the hydrologic changes (water yield and streamflow regimes) associated with a proposed Minnesota Steel Industries Taconite Mine and Pellet Plant operation near Naushwauk, MN, 2005-present
   -Member, Watershed Management specialist, Panel for 3rd External Program and Management Review of the World Agroforestry Center (ICRAF), headquarters in Nairobi, Kenya, Science Council, Consultative Group on International Agricultural Research (CGIAR); Reviewed agroforestry - watershed program in Indonesia, 2006

9. Membership and offices held in professional organizations:

   -Chair, Board of Registration, American Institute of Hydrology, 1995 to present
   -Member, AIH Examination Committee for Wisconsin Registration of Hydrologists, 2001 to present
   -Chair, Science and Technology track, and member of the organizing committee for the AWRA 2003 International Congress "Watershed Management for Water Supply Systems," New York, New York, 2003
   -Co-chair of program/publication committee for the 2005 AFTA Conference, "Moving Agroforestry into the Mainstream," 2004
   -Member, Committee on Hydrologic Impacts of Forest Management, Water Science and Technology Board, The National Academies, Washington, D.C., 2006 - present
   -Member, Advisory Committee to Minnesota Pollution Control Agency, Lake Pepin Turbidity TMDL.

10. Major professional self-improvement activities during past 10 years, including sabbatical:

   -1997, Chinese language lessons
   -1997, Agroforestry conference, West Lafayette, IN
   -1997, Annual meeting of Taiwan Society of Soil and Water Conservation

Kenneth N. Brooks (continued)

-1997-1998, Sabbatical leave, Taiwan as a Fulbright lecturer and 7/98-8/98 worked with CIB in La Paz, Mexico
-1998, Attended Minnesota Water Resources Conference
-1999, AWRA Wildland Hydrology Symposium, Bozeman, MT
-2001, CATIE, Costa Rica; discussion on collaborative research and graduate educational programs between CATIE and the Colleges of Natural Resources and COAFES
-2002, AIH annual conference, Portland, OR
-2003, AWRA 2003 International Congress " Watershed Management for Water Supply Systems," New York, NY
-2005, AFTA Conference, "Moving agroforestry into the mainstream," Rochester, MN

11. External grants and other research funding during the last five years:

384- 3735. Hydrologic response of natural and disturbed forested watersheds, wetlands and riparian systems.
405-6321. Stream classification/riparian research; MN-PCA ($30,000) 1999-2003
405-6361. Effects of herbaceous and woody vegetation on nutrient export; USDA Forest Service (DOE); ($80,991) 2000-2005
405-6397. Evaluation of current management regime on Rice Lake. K.N. Brooks, P. Bloom. US Fish and Wildlife Service ($10,000) 2001-2004
405-6410. Hydrologic role of agroforestry practices as integral components of watershed management in Central America. K.N. Brooks, D. Current, J. Jones ($45,000) 2002-2005
405-6413. Improving water quality and enhancing hydrologic stability of the Minnesota River through agroforestry and other perennial cropping systems. K.N. Brooks, C.C. Sheaffer, D. Current, D.L. Wyse, K.W. Easter, N.R. Jordan. USDA Cooperative State Research, Education and Extension Service (CSREES) ($556,500) 2002-2005
405-6445. USFS–Stream morphological changes and their implications for floodplain management in the Minnesota River Basin–(augmentation to existing study) ($14,000) 2003-2004
405-6446. USFS–Soil compaction monitoring to assess site productivity and organic matter storage in aspen stands of Great Lake States. K. Brooks ($42,818) 2003-2006
405-6467. Research project to develop the Greater Blue Earth Turbidity TMDL. K.N. Brooks, MN Pollution Control Agency ($179,925) 2004-2007
405-8009. National Needs Fellowship; K.N. Brooks and S. Gupta, ($69,000) 1999-2004
405-9077. K.N. Brooks. Peace Corps Recruitment Strategy Contract. Continuing support from Peace Corps ($15,900) 2001-2002
405-9081. Peace Corps Recruitment Strategy Contract. Continuing support from Peace Corps. K.N. Brooks ($17,000) 2002-2003
405-9093. Peace Corps Recruitment Strategy Contract. Continuing support from Peace Corps. K.N. Brooks ($19,779) 2003-2004

1. Name: **Thomas E. Burk**

2. Title: Professor

   Specialization: Forest biometrics
   Appointment: 12-month, tenured

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Iowa State University	Forest Management	BS	1972-76	1976
University of Minnesota	Forest Biometrics	MS	1976-78	1978
University of Minnesota	Statistics	MS	1978-80	1980
University of Minnesota	Forest Biometrics	Ph.D.	1978-81	1981

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor
   Specialization: Biometrics: Forest growth modeling and experimental design
   Dates: 1993 to present
   Years: 14

   Institution: Department of Forest Resources, College of Natural Resources, University of Minnesota
   Title: Assistant then Associate Professor
   Specialization: Forest Biometrics
   Dates: March 1985 to 1993
   Total Years: 8

   Institution: Department of Forestry, School of Forestry and Wildlife Resources, Virginia Polytechnic Institute and State University
   Title: Assistant Professor
   Specialization: Forest Biometrics
   Dates: March 1981 to February 1985
   Total Years: 4

   Employer: USDA Forest Service, Washington Office
   Nature of Work: Economic analysis, computer programming
   Title: Forester
   Dates: June 1976 to September 1976
   Total Years: 1/4

Thomas E. Burk (continued)

Employer: International Paper Company
Nature of Work: Timber cruising, scaling
Title: Forestry Technician
Dates: June 1974 to September 1974
Total Years: 1/4

5. Teaching experience:

Institution: University of Minnesota
Rank: Associate/Full Professor
Specialization: Biometrics
Dates: 3/85-present
Total Academic Years: 22

Institution: Virginia Tech
Rank: Assistant Professor
Specialization: Biometrics
Dates: 3/81-2/85
Total Academic Years: 4

6. Dates of appointment and promotions at present institution:

Title	Date
Assistant Professor	1985
Associate Professor	1987
Professor	1993

7. List of publications during the last five years:

Brown, N. L., T. E. Burk, P. V. Bolstad, and M. Balogh. 2004. Construction of a geographic information system for wildlife refuge planning: Rice Lake National Wildlife Refuge. Staff Paper Series no. 172. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Curtis, T., T. E. Burk, J. H. Schomaker, and P. V. Bolstad. 2002. Geo-spatial planning data for Wisconsin waterfowl production areas. Staff Paper Series no. 161. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Edgar, C. B., and T. E. Burk. 2006. A simulation study to assess the sensitivity of forest health monitoring network to outbreaks of defoliating insects. *Environmental Monitoring and Assessment* 122:289-307.

Geurts, K. A., T. E. Burk, P. V. Bolstad, and M. Balogh. 2004. Construction of a geographic information system for wildlife refuge planning: Mingo National Wildlife Refuge. Staff Paper Series no. 171. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Gonsoski, J. A., T. E. Burk, P. V. Bolstad, and M. Balogh. 2005. Rice Lake National Wildlife Refuge historic wild rice mapping (1983-2004). Staff Paper Series no. 181. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Thomas E. Burk (continued)

Gonsoski, J. A., T. E. Burk, P. V. Bolstad, and M. Balogh. 2004. Swan Lake National Wildlife Refuge vegetation cover (2000). Staff Paper Series no. 175. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Gonsoski, J. A., K. Geurts, T. E. Burk, P. V. Bolstad, and M. Balogh. 2005. Rice Lake National Wildlife Refuge vegetation cover (2004). Staff Paper Series no. 180. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Henning, J. G., and T. E. Burk. 2004. Improving growth and yield estimates with a process model derived growth index. *Canadian Journal of Forest Research* 34(6):1274-1282.

Kerns, R. R., T. E. Burk, and M. E. Bauer. 2002. Taking GIS/remote sensing into the field. In *Proceedings of the 1st precision forestry symposium*, 51-59. University of Washington Press.

Kirk, R. W., and T. E. Burk. 2004. Regional-scale forest production modeling using process-based models and GIS. In *SoFor GIS 2004: Proceedings of the 4th southern forest and natural resources geographic information systems conference*. Athens, GA.

Mack, T. J., and T. E. Burk. 2005. A model-based approach to developing density management diagrams illustrated with Lake States red pine. *No. J. Applied Forestry* 22(2):117-123.

Mack, T. J., and T. E. Burk. 2004. Equations for predicting merchantable yield and diameter distribution for Lake States red pine. *No. J. Applied Forestry* 21(2):107-110.

Mack, T. J., and T. E. Burk. 2002. User's manual for Resinosa: An interactive density management diagram for red pine in the Lake States. Staff Paper Series no. 158. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Mack, T. J., and T. E. Burk. 2002. Application of a density management diagram for Lake States red pine management. In *Proceedings of the Red Pine SAF Region V Technical Conference*, eds., Gilmore, D. W., and L. S. Yount, 90-95. Staff Paper Series no. 157. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Mueller, B. D., T. E. Burk, P. V. Bolstad, and J. H. Schomaker. 2003. Construction of a geographic information system for wildlife refuge planning: Seney National Wildlife Refuge. Staff Paper Series no. 169. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Mueller, B. D., T. E. Burk, P. V. Bolstad, and J. H. Schomaker. 2003. Development of boundary and land ownership GIS files for U.S. Fish and Wildlife Service Region 3 national wildlife refuges. Staff Paper Series no. 168. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Radtke, P. J., T. E. Burk, and P. V. Bolstad. 2002. Bayesian melding of a forest ecosystem model with correlated inputs. *Forest Science* 48:701-711.

Sieracki, J. L., T. E. Burk, and J. H. Schomaker. 2002. Muscatatuck NWR vegetation cover spatial database. Staff Paper Series no. 159. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Sieracki, J. L., T. E. Burk, and J. H. Schomaker. 2002. Patoka River NWR vegetation cover spatial database. Staff Paper Series no. 160. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Vatsavai, R. R., T. E. Burk, S. Shekhar, and M. Gini. 2002. An efficient hybrid classification system for mining multi-spectral remote sensing imagery guided by spatial databases. In *Proceedings of the 2nd pattern recognition for remote sensing workshop*, 18-23. BMVA Press.

Vatsavai, R.R., S. Shekhar, and T.E. Burk. 2006. A spatial semi-supervised learning method for classification of multi-spectral remote sensing imagery. In *Multimedia Data Mining* – Special Issue of *IEEE Transactions on Multimedia*, eds., Zhang, Z., F. Masseglia, R. Jain, A. Del Bimbo, 49-55.

Thomas E. Burk (continued)

Vatsavai, R. R., S. Shekhar, T. E. Burk, and S. D. Lime. 2006. UMN-MapServer: A high-performance, interoperable, and open source web mapping and geo-spatial analysis system. In *Lecture Notes in Computer Science* 4197:400-417. Berlin: Springer Verlag.

Walker, K. V., T. E. Burk, P. V. Bolstad, and J. H. Schomaker. 2003. Construction of a geographic information system for wildlife refuge planning: Agassiz National Wildlife Refuge. Staff Paper Series no. 164. St. Paul, MN: University of Minnesota, Department of Forest Resources.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Maintain Web site for Midwest Forest Mensurationists, 2002
-"Best Course" instructor as identified by one or more graduating seniors, 2002
-H.T. Morse nomination, 2002
-Fond du Lac Reservation Business Committee, 2004
-Open Source Geospatial '05 international conference, host, 2005
-Governor's Commendation for MapServer GIS work presented at Minnesota GIS/LIS Conference, 2005
-HDR Engineering, 2005
-IAP World Services, 2005
-James Sewell, 2006
-Potlatch Corporation, 2006
-White Earth Indian Reservation, 2006
-USDA Certificate of Appreciation for outstanding efforts in developing the national estimation engine, 2006

9. Membership and offices held in professional organizations:

-Member, Society of American Foresters
-Member, American Statistical Association
-Member, Forest Resources Council, Spatial Analysis Technical Team, 2001, 2002
-NASA Federation Partnership Committee, 2001, 2002
-Minnesota State SAF Meeting, session developer and chair, 2002
-MapServer Users Meeting (International Conference) planning, 2002
-MapServer Users Meeting, chair, 2003

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1997, Forest Resources, Society of American Foresters, Applied Statistics, and EEB seminars
-1997, Diversity Forum and follow-ups
-1997, "Doing Business with NASA" workshop
-1997, "Conversations on Teaching" sessions
-2000, SPA PI Training Sessions
-2000, Institute of Technology "Tech Days"

Thomas E. Burk (continued)

-2000, "Global Ecosystem Change" symposium
-2002, 15 passenger van training
-2003, E-Commerce shortcourse. Pasadena, CA

11. External grants and other research funding during the last five years:

384-044. Growth modeling and information delivery tools for ecosystem management
405-1028 – Development of principles for the removal of woody biomass from forests and brush lands. Current (Burk leading transport model component). IREE. $88,262.
405-6295. Institutionalizing MTPE data for land and environmental management. Burk, et al. NASA. $865,000.
405-6307. Upper Great Lakes Regional Earth Sciences Application Center. Bauer, Burk, et al., NASA. $1,500,000.
405- 6331. Integrating satellite remote sensing into forest inventory and management. Bauer, Burk, et al., NASA. $600,000.
405-6355. Forest/nonforest classification with satellite imagery for statewide annual inventories. Burk and Bolstad, USDA-FS. $20,000.
405-6358. Geospatial technologies for national wildlife refuge planning and management. Burk and Bolstad, USDI. $75,000.
405-6409. Communicating national forest planning data with MapServer. Burk. USDA-FS. $25,000.
405-6433. MapServer user meeting income. Burk. NA. $9,746.
405-6437. Evaluation of increased crown dieback and reduced foliage transparency within the Laurentian mixed forest. Burk. USDA-FS. $37,300.
405-6461. MapServer access to OPeNDAP servers: Design, implementation, and demonstration. Burk, University of Rhode Island. $29,700
405-6473. Spatial and temporal trends of forest pest incidence and associated impacts in the northeastern US. Burk. USDA-FS. $160,000
405-6474. Implementing sample-based estimators in Oracle using Java stored procedures. Burk. USDA-FS. $29,767.
405-9102. Development of existing biomass resources through education at key supply bottlenecks. Demchik, Burk et al. NRCS. $67,165 (Burk portion).
514-9007. Watersheds Online: Minnesota. Burk. University of Minnesota Space Grant Consortium. $15,000.

1. Name: **Stephen P. Carlson**

2. Title: Assistant Professor/Extension Educator

   Specialization: Youth development, park and recreation resources
   Appointment: 12 month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Michigan State University	Park and Recreation Resources	Ph.D.		1993
University of Oregon	Parks and Recreation	M.S.		1977
Mankato State University	Recreation and Parks Administration	B.S.		1973

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor/Extension Educator, Minnesota Extension Service
   Specialization: Youth development, park and recreation resources
   Dates: 2002-present
   Total Years: 5

   Institution: University of Minnesota
   Title: Associate Professor/Extension Educator, Minnesota Extension Service
   Specialization: Youth development, park and recreation resources
   Dates: 1992-2002
   Total Years: 10

   Institution: Michigan State University
   Title: Instructor/Research Assistant
   Specialization: Parks and recreation resources
   Dates: 1987 to 1991
   Total Years: 4

   Institution: Michigan State University
   Title: Program Coordinator/Environmental Educator
   Specialization: Parks and recreation resources
   Dates: 1988 to 1989
   Total Years: 1

   Institution: University of Wisconsin
   Title: Naturalist and Program Director
   Specialization: Parks and recreation resources
   Dates: 1980 to 1986
   Total Years: 6

Stephan P. Carlson (continued)

Institution: University of Wisconsin
Title: Instructor
Specialization: Environmental education
Dates: 1977 to 1978
Total Years: 1

Institution: Bemidji State University
Title: Director, Wilderness Inquiry
Specialization: Parks and recreation resources
Dates: 1974 to 1975
Total Years: 1

Employer: Turner-Dodge Historical House
Specialization: Parks and recreation resources
Title: Interpretive Consultant
Dates: 1990 to 1991
Total Years: 1

Employer: E. H. May Environmental Park
Specialization: Parks and recreation resources
Title: Director
Dates: 1986 to 1987
Total Years: 1

Employer: Perrot State Park, Wisconsin DNR
Specialization: Parks and recreation resources
Title: Park Naturalist
Dates: 1979 to 1980
Total Years: 1

Employer: Campfire, Chugagh Council, Anchorage
Specialization: Parks and recreation resources
Title: Bush Staff Instructor
Dates: 5/77 to 9/77
Total Years: 5 mo.

Employer: Mahube Community, Park Rapids
Specialization: Parks and recreation resources
Title: Outreach Personnel
Dates: 1/76 to 6/76
Total Years: 6 mo.

Stephan P. Carlson (continued)

Employer: Expeditions of North American Plymouth Youth Center, Minneapolis
Specialization: Parks and recreation resources
Title: Assistant Director
Dates: 1/74 to 9/74
Total Years: 9 mo.

5. Teaching experience:

Institution: University of Minnesota Extension Service
Rank: Professor
Specialization: Environmental education, environmental interpretation, outdoor recreation, adventure education
Dates: 1992-present
Total Academic Years: 14

Institution: Michigan State University
Rank: Instructor
Specialization: Parks and recreation resources
Dates: 1987-1991
Total Academic Years: 4

Institution: University of Wisconsin
Rank: Instructor
Specialization: Environmental education
Dates: 1977 - 1978
Total Academic Years: 1

6. Dates of appointment and promotions at present institution:

Title	Date
Professor	2002
Associate Professor	1992

7. List of publications during the last five years:

Blair, R. B., N. Meyer, S. Rager, K. Ostlie, K. Montgomery, and S. Carlson. 2004. Best practices for environmental field days: Structuring your event for fun and learning. *Journal of Extension* http:www.joe.org/.

Carlson, S. P. 2004. Reach for the Sky. In *Consortium connections. Children youth and family consortium* 13(1):3; ed. Alberts, E. Minneapolis, MN: University of Minnesota. www.cyfc.umn.edu/publication/connection

Stephan P. Carlson (continued)

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   - Certificate of commendation from Governor Tim Pawlenty for the Environmental Education Advisory Board, 2004
   - Trainer for NSF informal science grant; National Professional Development Infrastructure, Meeting for After School Science, with the Science Museum of Minnesota, 2005-2007
   - Interpretation 101, Mississippi National River and Recreation Area, of the National Parks Service, Four day interpretive training at the Science Museum of Minnesota, 2005
   - Red River Watershed evaluation for North Dakota 4-H science and technology program, 2004-2007

9. Membership and offices held in professional organizations:

   -Minnesota Association for Environmental Education
   -North American Association for Environmental Education
   -Wisconsin Association for Environmental Education
   -National Association for Interpretation
   -American Camping Association
   -Visitor Studies Association

10. Major professional self-improvement activities during past 10 years, including sabbatical:

    -1997, Environmental and Natural Resources Specialization training
    -1997, Focus Group Training, Vocational Education for Natural Resource Professionals, Extension Education Class
    -1997, Youth and U Conference, St. Cloud, MN
    -2001, National Evaluation Training at the University of Wisconsin, Madison
    -2004, North American Association for Environmental Education, Biloxi, MS

11. External grants and other research funding during the last five years:

    - Sustainable Environmental Education curriculum development for the SE part of the state - 2001-2003
    - Interpretive signage for Old Wadena Historical Site ($10,000) 2001-2003
    - Team Evaluator, Wonderwise Science Kits, National Science Foundation ($10, 000) 2001-2004
    - NASA, Reach for the Sky for White Earth Science and Math Program ($50,000) 2001-2004
    - National Wild Turkey Hunter Federation ($15,000) 2001-2004
    - Toyota Foundation ($187,000) 2002-2004
    - Sub-contractor; Mentor/trainer, National Professional Development Infrastructure, Meeting for After School Science; NSF Informal Science Education grant with the Science Museum of Minnesota, ($120,000) 2005-2008
    - Evaluator, River Watch, at North Dakota State University, Center for Water Resources, ITEST

NSF grant for 5 schools who participate in the water quality activities in the Red River Watershed. ($36,000) 2004-2007

- Principle Investigator, NSF Science outreach grant for after-school programs from EDC and Lawrence Hall to work with 4-H after school programs ($120,000). The program is offered in the Worthington and Duluth communities, 2005-2007

1. Name: **Dean A. Current**

2. Title: Research Associate

   Specialization: Natural Resources in Developing Countries
   Appointment: Temporary

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Forest Economics	PhD.		
University of Minnesota	Anthropology	MA		
University of Minnesota	Forest Economics	MS		
University of Missouri	Forest Management	BS		

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Research Associate
   Specialization: Natural Resources in Developing Countries
   Dates: 9/2000 - to present
   Total Years: 7

   Institution: University of Minnesota
   Title: Research Fellow
   Specialization: Environmental and Natural Resources Policy and Training
   Dates: 1/1995 - 6/1995
   Total Years: 6 months

   Institution: University of Minnesota
   Title: Consultant
   Specialization: Forestry in Sustainable Development
   Dates: 1/1990 - 6/1990
   Total Years: 6 months

   Institution: University of Minnesota
   Title: Research Assistant
   Specialization: Sustainable Development
   Dates: 3/1988 - 8/1988
   Years: 5 months

   Institution: University of Minnesota
   Title: Research Assistant
   Specialization: Forestry in Developing Countries
   Dates: 7/1983 - 3/1984
   Years: 8 months

Dean A. Current (continued)

Employer: CIFOR-CATIE
Nature of Work: Coordinate activities of CIFOR and CATIE personnel and secondary forest management research project based in Costa Rica, Brazil, Nicaragua and Peru
Title: Project Leader and Consultant/CIFOR Research Associate
Dates: 1997 - 2000
Total Years: 3

Employer: Centro Agronomico Tropical de Investigacion y Ensenanza (CATIE)-World Bank
Nature of Work: Economic and institutional analysis of forestry and agroforestry projects in Central American and the Caribbean
Title: Project Leader
Dates: 5/1992 - 10/1994
Years: 2

Employer: CATIE
Nature of Work: Trop crop production project
Title: Socioeconomic Information Specialist
Dates: 10/1988 - 2/1991
Years: 2

5. Teaching experience:

Institution: University of Minnesota
Rank: Research Associate
Specialization: Natural Resources in Developing Countries
Dates: 9/2000 - to present
Total Academic Years: 7

6. Dates of appointment and promotions at present institution:

Title	Date
Research Associate	2000

7. List of publications during the past five years:

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

- Guest Editor, special edition of *Agroforestry Systems* (internationally peer reviewed journal) in which selected papers from the 9th North American Agroforestry Conference, UMN/CINRAM, will be published, 2005
- Certificate in recognition of outstanding commitment to international education, University of Minnesota, 2006

Dean A. Current (continued)

9. Membership and offices held in professional organizations:

- IUFRO Working Group 1.05
- Board of Directors, Association for Temperate Agroforestry (AFTA), president, 2005-present
- Advisory Board, Minnesota SARE., 2005
- Advisory Board, Minnesota Grown Opportunities, Minnesota Department of Agriculture, 2005

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2006, University of Life Sciences, As, Norway
-2006, Pan-European COST Conference, As, Norway

11. External grants and other research funding during the last five years:

- 405-1028. Research assessment for the development of principles for the removal of woody biomass from forests and brushland; D. Current, L. Frelich; UMN/IREE ($191,572)
- 405-5436/6441. 3rd crops and native perennials for water quality; K. Brooks, D. Wyse, B. Easter, C. Sheaffer. N. Jordan, D. Current, L. Meschke; MN-LCMR; ($622,000)
- 405-6410. Watershed management for water quality and storage in Costa Rica; K. Brooks, D. Current; USDA Foreign Ag. Service (FAS); ($45,000)
- 405-6413. Improving water quality and enhancing hydrologic stability of the Minnesota River through agroforestry and other perennial cropping systems; K. Brooks, D. Wyse, B. Easter, C. Sheaffer. N. Jordan, D. Current; USDA-CSREES; ($556,500)
- 405-6417. Wastewater management using hybrid poplar–developing demonstrations; D. Current; National Agroforestry Center; ($20,000)
- 405-6467. Research project to develop the Greater Blue Earth River Basin turbidity TMDL's; K. Brooks, D. Current (Mgmt.); MN Pollution Control Agency; ($179,925)
- 405-6489. Pilot Chamaedorea Palm Sale; D. Current; N. American Commission for Envir. Cooperation; ($397,711) 2005
- 405-6501. Continuation of the project (405-6441): 3rd crops and native perennials for water quality; K. Brooks, D. Wyse, B. Easter, C. Sheaffer. N. Jordan, D. Current; LCMR ($500,000) 2005-2007
- 405-6507. Testing the potential of hybrid willows in the meadowlands; D. Current; MN Dept. of Ag. ($8,900) 2005-2008
-405-6525. WETCC/UMN/Badgersett Hazelnut Project (Gitigan: Baaganag); D. Current; SCREES and White Earth Tribal and Community College; ($62,520) 2005-2007
-405-6527. Determining the relative costs of fuel removal from National Forest Lands on the Superior National Forest; D. Current ($17,917) 2006-2007
- 405-9102. Developing of existing biomass resources through education at key supply bottlenecks; D. Current, D. Zamora; USDA/DOE (USDA portion); $397,711
- 405-9107. Publishing articles from the 9th North American Agroforestry Conference; D. Current, K. Brooks; National Agroforestry Center, $5,000

Dean A. Current (continued)

- 436-1092. Minnesota terrestrial carbon sequestration project; J. Anderson, E. Nater, S. Polasky, C. Miller, D. Current; UMN IREE; $185,000

1. Name: **Anthony W. D'Amato**

2. Title: Assistant Professor

   Specialization: Silviculture/Vegetation Management
   Appointment: 9 month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Massachusetts	Forestry	PhD	2002-07	2006
Oregon State University	Forest Science	MS	2000-02	2002
University of Maine	Forest Ecosystem Sci.	BS		2000

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Silviculture
   Dates: 2007-
   Total Years: 0

   Institution: University of Massachusetts
   Title: Data Manager
   Specialization: Private forest landowner patterns
   Dates: 2005-2006
   Total Years: 1

   Institution: University of Massachusetts
   Title: Instructor
   Specialization: Forest resources management
   Dates: 2004
   Total Years: 1

   Institution: University of Massachusetts
   Title: Seminar Series Coordinator
   Specialization: Organized seminar series
   Dates: 2003-present
   Total Years: 4

   Institution: University of Massachusetts
   Title: Teaching Assistant
   Specialization: Forest resources management
   Dates: 2003, 2005
   Total Years: 1

Anthony W. D'Amato (continued)

Institution: Oregon State University
Title: Co-instructor
Specialization: Forest Science
Dates: 2002
Total Years: 0.4

Employer: Harvard Forest, Petersham, MA
Nature of Work: Examine structural attributes, disturbance dynamics and ecosystem properties of old-growth forests in western Massachusetts
Title: Research Assistant
Dates: 2003-present
Total Years: 4

5. Teaching experience:

Institution: University of Massachusetts
Rank: Instructor
Specialization: Forest resources management
Dates: 2004
Total Academic Years: 1

6. Dates of appointment and promotion at present institution:

Title	Date
Assistant Professor	2007

7. List of publications during the past five years:

D'Amato, A. W., and K. J. Puettmann. 2004. The relative dominance hypothesis explains interaction dynamics in mixed species *Alnus rubra/Pseudotsuga menziesii* forests. *Journal of Ecology* 92:450-463.

Foster, D. R., D. B. Kitredge, B. Donahue, G. Motzkin, D. Orwig, A. Ellison, B. Hall, B. Colburn, and A. W. D'Amato. 2005. Wildlands and woodlands: A vision for the forests of Massachusetts. *Harvard Forest Paper* no. 26.

Kelty, M. J., and A. W. D'Amato. 2006. An historical perspective on diameter-limit cutting in the Northeast. In *Proceedings of the Conference on Diameter-limit Cutting in Northeastern Forests*, eds., Kenefic, L. S., and R. D. Nyland. Gen. Tech. Rep. NE-342. USDA Forest Service.

Puettmann, K. J., and A. W. D'Amato. 2002. Selecting plot sizes when quantifying growing conditions in understories. *Northern Journal of Applied Forestry* 19:137-140.

Anthony W. D'Amato (continued)

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   -Volunteer Instructor, Parmenter Elementary School, Franklin, MA, 2004-2006
   - Volunteer Forest Ecologist, Mohawk Trail State Forest, Charlemont MA, 2003-2006

9. Membership and offices held in professional organizations:

   - Xi Sigma Pi
   - Member, Society of American Foresters
   - Member, Ecological Society of America

10. Major professional self-improvement activities during past 10 years, including sabbatical:

11. External grants and other research funding during the last five years:

1. Name: **Andrew David**

2. Title: Associate Professor

   Specialization: Forest genetics/silviculture
   Appointment: 9 month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Michigan State University	Plant Breeding Genetics-Forestry	Ph.D.		1995
Kalamazoo College, MI	Biology	B.A.		1983

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: Forest genetics/silviculture
   Dates: 2004- present
   Total Years: 3

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Forest genetics/silviculture
   Dates: October 1998-2004
   Total Years: 6

   Institution: University of Kentucky
   Title: Post-Doctoral Scholar
   Specialization: Genetics-forest
   Dates: 1996-1998
   Total Years: 2

   Institution: Michigan State University
   Title: Graduate Research Assistant
   Specialization: Plant breeding and genetics-forestry
   Dates: 1987-1993; 1994-1995
   Total Years: 7

   Institution: Virginia Polytechnic Institute
   Title: Instructor
   Specialization: Forest ecology
   Dates: August 1993 - December 1993
   Total Years: 6 months

Andrew David (continued)

Institution: University of Michigan
Title: Laboratory Technician
Specialization: Immunology
Dates: November 1986 - September 1987
Total Years: 10 months

Employer: Worthington Wood Works, Southfield, MI
Nature of Work: Woodworking
Title: Woodworker/Shift Leader
Dates: January 1986 - October 1986
Total Years: 10 months

Employer: Stone Environmental Schools, Groton, MA
Nature of Work: On-site Director
Title: Program Director
Dates: September 1984 - June 1985
Total Years: 10 months

Employer: Stone Environmental Schools, Groton, MA
Nature of Work: Naturalist
Title: Naturalist
Dates: September 1983 - June 1984
Total years: 10 months

5. Teaching experience:

Institution: Virginia Polytechnic Institute
Rank: Instructor
Specialization: Forest ecology
Dates: August 1993 - December 1993
Total Academic Years: 6 months

Institution: University of Minnesota
Rank: Assistant/Associate Professor
Specialization: Forest genetics/silviculture
Dates: 1998-present
Total Academic Years: 9

6. Dates of appointment and promotions at present institution:

Title	Date
Associate Professor	2004
Assistant Professor	1998

Andrew David (continued)

7. List of publications during the last five years:

David, A. 2002. Germination percentage and germination speed of European larch (*Larix decidua* Mill.) seed after prolonged storage. *North. J. Appl. For.* 19(4):168-170.

David, A., C. Pike, and R. Stine. 2003. Comparison of selection methods for optimizing genetic gain and family diversity in a red pine (*Pinus resinosa* Ait.) seedling seed orchard. *Theor. Appl. Genet*. 107:843-849.

David, A. J., C. C. Pike, and R. A. Stine. 2002. Eleven-year results of a red pine regional provenance test and options for converting to a seedling seed orchard. In *Proceedings of the Red Pine SAF Region V technical conference*, eds. D. W. Gilmore and L. S. Yount, 65-84. Cloquet, MN.

Fedorkov, A., D. Lindgren, and A. David. 2005. Genetic gain and gene diversity following thinning in a half-sib plantation. *Silvae Genetica* 54:185-189.

Fedorkov, A., D. Lindgren, and A. David. 2003. Gene diversity and genetic gain following thinning in a half-sib plantation. BECTHÈK 10:13-15. (in Russian)

Gilmore, D. W., and A. J. David. 2002. Current trends in management practices for European larch in North America. *For. Chron.* 78(6):822-829.

Gilmore, D. W., and A. J. David. 2002. European larch in North America: Site selection, yield, and management practices. In *Improvement of Larch (*Larix *sp.) for better growth, stem form and wood quality*, ed., Pâques, L. E., 306-321. INRA, Unité d'Amélioration, de Génétique et de Physiologie des Arbres forestiers, F-45166 Olivet Cedex, France.

Jurgens, J. A., R. A. Blanchette, P. J. Zambino, and A. J. David. 2003. Histology of resistance mechanisms to white pine blister rust in needles of eastern white pine. *Plant Disease* 87(9):1026-1030.

Smith, J. A., R. A. Blanchette, T. A. Burnes, J. H. Gillman, and A. J. David. 2006. Epicuticular wax and white pine blister rust resistance in selections of *Pinus strobus* L. *Phytopathology* 96:171-177.

Smith, J. A., R. A. Blanchette, J. J. Jacobs, L. Higgins, B. A. Witthun, J. H. Gillman, and A. J. David. 2006. Proteomic comparison of needles from blister rust-resistant and susceptible Pinus strobus seedlings reveals up-regulation of putative disease resistance proteins. *Molecular Plant-Microbe Interactions* 19:150-160.

Zasada, J., A. David, D. Gilmore, and S. Landhaüsser. 2002. Ecology and silviculture of natural stands of *Populus* species. In *Poplar culture in North America*, 119-151. National Resources Council of Canada Press.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

- Conference organizing committee, SAF Region V red pine technical workshop, 2002
- Conference organizing committee, MN SAF 2003 annual meeting, 2002
- Grand Rapids Chamber of Commerce, Forestry Affairs Committee, 2005

Andrew David (continued)

9. Membership and offices held in professional organizations:

   Society of American Foresters
   Xi Sigma Pi (National Forestry Honorary)
   Sigma Xi (associate member)

10. Major professional self-improvement activities during past 10 years, including sabbatical:

   -1998, USDA Forest Service Harrison Experimental Forest, Saucier, MS. Intensive, self-paced learning experience to run and analyze genetic samples on Perkin-Elmer Applied Biosystems Model 337 DNA sequencer. Wrote training/operation manual for same machine
   -1999, USDA National Research Initiative Competitive Grants Workshop, St. Paul, MN
   -1999, Minnesota Tree Improvement Cooperative annual meeting, Cloquet, MN
   -1999, Lake States FOREM annual meeting, Rhinelander, WI
   -1999, University of Minnesota Grantsmanship Conference, Minneapolis, MN
   -1999, Poplar Council of the United States annual meeting, Alexandria, MN
   -1999, American Forest & Paper Association's Southern Industrial Forest Research Council meeting on forest industry supported cooperative research programs, Atlanta, GA
   -2000, Responsible Conduct of Research Training, Parts I and II
   -2000, Supervisor Training session
   -2000, Lake States FOREM annual meeting. Houghton, MI
   -2000, Toured Boise Cascade hybrid poplar farms and harvesting operations in eastern Washington
   -2001, MN SAF Headwaters Chapter Meeting, Grand Rapids, MN
   -2001, Promotion and Tenure Workshop. Gateway Alumni Center, Minneapolis, MN
   -2001, White Pine Management Field Tour, Grand Rapids, MN and surrounding areas
   -2001, Forest Biotechnology Workshop, Biotech Branches Out
   -2003, White Pine Blister Rust Workshop, Crowne Plaza Hotel, Ottawa, Ontario, Canada, Ontario Ministry of Natural Resources
   -2003, Interactive TV training session, Itasca Community College, Grand Rapids, MN
   -2003, Oak Decline Workshop, NCROC, Grand Rapids, MN
   -2004, Minnesota SAF annual meeting, Craguns Resort, Brainard, MN
   -2004, Biorefining Conference, Earl Brown Center, University of Minnesota, St. Paul, MN
   -2004, Minnesota SAF Headwaters Chapter summer meeting, Boise Cascade lands, International Falls, MN
   -2004, Northeastern Tree Improvement Association Meeting, Kemp Biological Station, Minoqua, WI
   -2004, Seed zones construction meeting, USDA Forest Service, Milwaukee, WI
   -2005, Completed "Advanced Driving Skills Course," Fleet Services, University of Minnesota
   -2005, Minnesota SAF meeting, Mankato, MN
   -2005, Current blister rust screening techniques in controlled environments, USDA Forest Service, Oconto River Seed Orchard, Langlade, WI
   -2005, Meeting of Interagency Information Cooperative, Blandin Foundation, Grand Rapids, MN
   -2005, Biannual Rustbusters Meeting, USDA Forest Service, Yreka, CA

Andrew David (continued)

-2006, annual Minnesota SAF meeting in Brainerd, MN.
-2006, Biomass Utilization from Harvesting Residuals Conference in Grand Rapids, MN

11. External grants and other research funding during the last five years:

-MIN-42-070. Utilization of forest genetic resources to enhance productivity of forested lands 1998-
-384-2170. Reducing the impact of white pine blister rust in Minnesota, A. David, Minnesota Agricultural Experiment Station ($137,841) 2003-2004
-405-2090. Production of bio-energy and bio-products from alfalfa and willow, Johnson, G., Current, D. and others, UM IREE ($25,000) 2003-2004
-405-2132. Investigating resistance to white pine blister rust in eastern white pine selections from Tofte, Minnesota ($19,820) 2003-2006
-405-2132. Minnesota Tree Improvement Cooperative, A. David, C. Pike, cooperator dues ($51,000) 2001-2006
-405-2133. Aspen/Larch Genetics Cooperative, A. David, P. Anderson, cooperator dues ($46,000) 2001-2003
-405-6392. Genetic improvement of forest tree planting stock produced at DNR nurseries, MN DNR ($15,000) 2001-2003
-405-6432. Genetic improvement of forest tree planting stock produced at DNR nurseries, A. David, C. Pike, MN DNR ($20,000) 2003-2005
-405-6447. Adaptive variation in white pine. Anderson, P. and David, A. USDA For. Serv. ($8,500) 2003- 2005
-405-6475. Response of northern white cedar seedlings to stand manipulations in riparian forests. Haworth, B., Blinn, C. and David, A. USDA For. Serv. ($55,000) 2004-2007
-405-6502. Genetic improvement of forest tree planting stock produced at DNR nurseries, A.David, C.Pike, Minnesota Department of Natural Resources ($40,000) 2005-2007

1. Name: **Grant M. Domke**

2. Title: Research Fellow

   Specialization: Silviculture
   Appointment: 12-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Toronto	Silviculture	M.Sc.F.	2003-2005	2005
University of Wisconsin-Stevens Point	Forest Ecology	BS	1998-2003	2005

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Research Fellow
   Specialization: Silviculture
   Dates: 2005-present
   Total Years: 2

   Institution: University of Toronto
   Title: Research Assistant
   Specialization: Silviculture
   Dates: 2003-2005
   Total Years: 2

   Employer: Minnesota DNR
   Nature of Work: Natural resource stewardship
   Title: Natural resources worker
   Dates: 1998-2000
   Total Years: 3

5. Teaching experience:

   Institution: University of Toronto
   Rank: Teaching Assistant
   Specialization: Silviculture
   Dates: 2003-2005
   Total Academic Years: 2

   Institution: University of Wisconsin-Stevens Point
   Rank: Teaching Assistant
   Sepcialization: Forest Ecology
   Dates: 2003-2004
   Total Academic Years: 1

Grant M. Domke (continued)

6. Dates of appointment and promotion at present institution:

Title	Date
Research Fellow	2005

7. List of publications during the past five years:

Donke, G., A. Ek, M. Kilgore, B. Palik, S. Katovich, and S. Finley. 2006. Web-based forest management guides for the North Central Region. In *2006 Proceedings for the Society of American Foresters*, October 25-29, Pittsburgh, PA. CD-ROM. Bethesda, MN: Society of American Foresters.

Domke, G. M. 2005. Variation in light attenuation following selection harvesting in northern hardwood forests. M.Sc.F. thesis. Toronto, Ontario: University of Toronto.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

2005, Assessed properties and existing forest management plants for potential MFTIP renewal in central Ontario, Canada
2006, Co-organizer, Northeast Forest Soils Conference, Cloquet, MN/Thunder Bay, ONT

9. Membership and offices held in professional organizations:

-Botanical Club of Wisconsin
-Ecological Society of America
-Society of American Foresters
-Xi Sigma Pi

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2006, CFANS Grant Writing Workshop
-2005, "Write Winning Grants" seminar, University of Minnesota
-2005, SAS Essentials I, University of Minnesota
-2005, SAS Introduction, University of Minnesota
-2000, Wildland Firefighter Training, University of Wisconsin-Stevens Point

11. External grants and other research funding during the last five years:

1. Name: **Alan R. Ek**

2. Title: Professor and Head, Department of Forest Resources

   Specialization: Forest inventory and biometrics
   Appointment: 12-month, tenured

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Forestry	BS	1960-64	1964
University of Minnesota	Forestry	MS	1964-65	1965
Oregon State University	Forest Mensuration	PhD	1965-69	1969

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Head, Department of Forest Resources
   Specialization: Administration; Forest Inventory and Measurement (Biometry)
   Dates: 1984 to present
   Total Years: 23

   Institution: University of Minnesota
   Title: Professor
   Specialization: Forest Inventory and Measurement (Biometry)
   Dates: 1980 to present
   Total Years: 27

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: Forest Inventory and Measurements (Biometry)
   Dates: 1977-1980
   Total Years: 3

   Institution: University of Wisconsin - Madison
   Title: Assistant Professor 1969-1975; Associate Professor 1975-1977
   Specialization: Forest biometry, inventory, measurements, quantitative silviculture
   Dates: July 1969 to July 1977. Visiting professor rank July 1977- November 1978.
   Total Years: 8

   Employer: Canada Dept. Fisheries and Forestry, Sault Ste. Marie, Ontario
   Nature of Work: Research on sampling theory and practice, growth and yield studies, development and operation of regional photogrammetry laboratory.
   Title: Research Officer
   Dates: December 1966 to July 1969
   Total Years: 2.5

Alan R. Ek (continued)

5. Teaching experience:

Institution: University of Wisconsin - Madison
Rank: Assistant/Associate Professor
Specialization: Forest biometry, inventory, measurements, quantitative silviculture
Dates: 1969 to 1977
Total Academic Years: 8

Institution: University of Minnesota
Rank: Associate/Professor
Specialization: Forest Inventory and Measurements (Biometry)
Dates: 1977-present
Total Years: 30

6. Dates of appointments and promotions at present institution:

Title	Date
Associate Professor	1977
Professor	1980
Department Head	1984 (Acting Head August 1983 to June 1984)

7. List of publications during the last five years:

Domke, G., A. Ek, M. Kilgore, B. Palik, S. Katovich, and S. Finley. 2006. Web Based Forest Management Guides for the North Central Region. In *2006 Proceedings of the Society of American Foresters*, October 25-29, Pittsburgh, PA. CD-ROM. Bethesda, MD: Society of American Foresters.

Finley, A. O., R. E. McRoberts, and A. R. Ek. 2006. Applying an efficient k -nearest neighbor search to forest attribute imputation. *Forest Science* 52:130-135.

Finley, A. O., R. E. McRoberts, and A. R. Ek. 2006. A comparative study of a new nearest neighbor variance estimator. In *Nearest Neighbors Workshop*, Aug. 28-30, 2006. St. Paul, MN: University of Minnesota, Minneapolis, MN. Proceedings at http://knn.gis.umn.edu/2006meeting

Happanen, R., A. R. Ek, M. E. Bauer, and A. O. Finley. 2004. Delination of forest/nonforest land use classes using nearest neighbor methods. *Remote Sensing of Environment* 89:265-271.

Haapanen, R., K. Lehtinen, J. Miettinen, M. Bauer, and A. R. Ek. 2003. Progress in adapting kNN methods for forest mapping and estimation using the new annual forest inventory and analysis data. In *Proceedings of the third annual forest inventory and analysis symposium*, eds. R. E. McRoberts, G. A. Reams, P. C. Van Deusen, and J. W. Moser. Traverse City, MI. General Technical Report NC-230. St. Paul, MN: USDA Forest Service North Central Experiment Station.

Kilgore, M., A. Ek, K. Buhr, L. Frelich, H. Hanowski, C. Hibbard, A. Finley, L. Rathbun, N. Danz, J. Lind, and G. Niemi. 2005. Minnesota timber harvesting GEIS: An assessment of the first 10 years. Staff Paper Series no. 182. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Alan R. Ek (continued)

Kilgore, M., J. Heahy, C. Hibbard, J. Donnay, K. Flitsch, D. Anderson, J. Thompson, P. Ellefson, and A. Ek. 2005. Developing a certification framework for Minnesota's family forests. Staff Paper Series no. 176. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Robinson, A. P., and A. R. Ek. 2003. Description and validation of a hybrid model of forest growth and stand dynamics for the Great Lakes region. *Ecological Modeling* 170(1):73-104.

Schwalm, C. R., and A. R. Ek. 2004. A process-based modeling of forest ecosystems driven by meteorology. *Ecological Modeling* 179:317-348.

Schwalm, C. R., and A. R. Ek. 2003. Developing the next generation of forest ecosystem models. In *Proceedings of the third annual forest inventory and analysis symposium*, eds. R. E. McRoberts, G. A. Reams, P. C. Van Deusen, and J. W. Moser, 130-136. Traverse City, MI. General Technical Report NC-230. St. Paul, MN: USDA Forest Service North Central Experiment Station.

Vogel, M., A. Ek, R. Martin, M. Bauer, C. J. Fernandez, J. Kinney, D. Van Valkenburg, N. Schlepp, R. Holdorf, S. Finley, F. Yean, K. Page, A. Finley, and C. Schwalm. 2005. Red Lake River Corridor Enhancement Project. Minneapolis, MN: Center for Changing Landscapes, University of Minnesota.

Vogel, M., A. Ek, R. Martin, M. Bauer, J. Pettinari, C. J. Fernandez, J. Kinney, R. Holdorf, S. Finley, F. Yuan, D. VanValkenburg, A. Finley, and C. Schwalm. 2005. Linking communities: The Gitchi-Gami Trail. Minneapolis, MN: Center for Changing Landscapes, University of Minnesota.

Vogel, M., A. Ek, R. Martin, M. Bauer, J. Pettinari, C. J. Fernandez, J. Kinney, R. Holdorf, S. Finley, F. Yuan, D. VanValkenburg, A. Finley, and C. Schwalm. 2005. Linking communities: The Minnesota River Trail. Minneapolis, MN: Center for Changing Landscapes, University of Minnesota.

Vogel, M., R. Martin, C. J. Fernandez, J. Kinney, D. Van Valkenburg, J. Paune, A. Ek, M. Bauer, F. Yuan, K. Page, C. Schwalm, A. Finley, and S. Finley. 2004. Lake Country Scenic Byway Report: Thoughtful designs for Osage and Nevis using the LTM Growth Model. Minneapolis, MN: Center for Changing Landscapes, University of Minnesota.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-USDA CSREES review of University of Wisconsin-Madison forestry program, 2002
-Forest Science Summit. Washington, D.C., 2002
-U of MN Fulbright Session presentation, Minneapolis, 2002
-Wood Fiber Council Business Meeting, St. Paul, MN, 2001, 2002
-DNR Forest Summit Planning Committee, various dates
-MN Forest Resources Council, Spatial Analysis Project Strategy Team, various meetings and review efforts, 2001-
-Forestry legislative breakfasts, St. Paul, MN various dates.
-Governor's Citizen Advisory Committee for environmental appointments 2001-2002.
-Science Advisory Team, Boise Cascade Sustainable Forestry Initiative audit followup, International Falls, MN; LeGrande OR, 2002

Alan R. Ek (continued)

-Member of Science Advisory Board for Review of Finnish Ecology and Forestry Centers of Excellence, Jyvaskyla, Finland, 2002-present
-USDA Forest Service FIA Statband Review, Leader for double blind reviews of FIA design, 2002-
-Governor's Task Force on the Competitiveness of Minnesota's Primary Forest Products Industry, St. Paul and Grand Rapids, MN, 2003
-Minnesota Forest Industries Board Meeting, Duluth, MN, 2003.
-Forest Technology Group and Mead-Westvaco, 2003
-USDA Forest Service FIA Review Meeting Participant, St. Paul, MN, 2003
-NAPFSC / CSREES Education Leaders Meeting, East Lansing, MI, 2003
-Wood Fiber Council Liaison, 2003, 2004
-Minnesota Forest Productivity Research Cooperative, Cloquet, MN, 2003.
-Appointment by USDA FRAC Chair to the Blue Ribbon Panel on Forest Research, 2003, 2004
-Great lakes Forestry Alliance - Governor appointed Trustee for MN, 2004
-Forest Regional Roundtable, LaCrosse, WI, 2004
-Review of Forest Science Graduate Program, Texas A&M University, College Station, TX, 2004
-Wood Fiber Joint Legislative Council Meetings, St. Paul, MN, 2005
-Norway – Minnesota Energy Mtg, 2005.
-MN Forest Resources Council, GEIS Report Card Study reporting, 2005
-MN IIC Scientist Mtgs, Chair, St. Paul and Cloquet, MN, 2005
-SAF Accreditation Review at Virginia Tech, Chair, Blacksburg, VA, 2005
-Cooperative Ecosystem Studies Unit (CESU) Mtg, Washington, D.C., 2005
-UPM Kymmene Blandin Paper Co., assistance with technical aspects of EIS planning and execution, 2006
-MN DNR Division of Forestry, technical aspects of forest planning, 2006
-NAPFSC National Assembly Meeting, Pittsburg, PA, 2006
-NAPFSC Research representative to AF&PA, NASF, 2006
-U of MN representative to NAPFSC/NCA-10/23, Regional Research Chair, NCA-10, 2006 (draft Congressional appropriations priorities, liaison with stakeholders, member of Congress and their staff, and administration agency staff)
-Forestry Legislative Strategy Mtgs, St. Paul, MN , 2006
-Great Lakes Forestry Alliance - Governor appointed Trustee for MN, 2006

9. Membership and offices held in professional organizations:

-Xi Sigma Pi Forestry Honor Society
-Society of American Foresters, Fellow
-MN SAF Legislation and Policy Committee, Chair. 1990-94
-MN SAF Forest Practices Task Force, Chair, 1992-93
-American Association for the Advancement of Science
-American Statistical Association
-American Forestry Association
-American Society for Photogrammetry and Remote Sensing
-Minnesota Forestry Association

Alan R. Ek (continued)

-National Association of Environmental Professionals
-MN Shade Tree Advisory Committee, Executive Committee
-Minnesota Forestry Coordinating Committee, chair of research subcommittee, 1991-present
-NCA-10/NAPFSC, NC research chair and chair-elect, 1991
-University of Minnesota Representative NCA-10/NC NAPFSC, 1991-present
-Member of Science Advisory Board for Review of Finnish Ecology and Forestry Centers of Excellence, Jyvaskyla, Finland, 2002-present
-University of Minnesota Alumni Association District 53 Captain, 2002

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1997, International shortcourse on Forest Modeling and Systems Analsyis in the context of climate Change, Mekrijarvi Research Station
-1997, Introduction to dynamic models and their applications in forest ecology, University of Helsinki
-1997, Field tour forests and forestry in Russia
-1997, Minnesota Forest Resources Partnership Meeting, Grand Rapids, MN
-1997, Midwest Mensurationists Meeting, Keshena, WI
-1997, Managing Employee Behavior shortcourse, Minneapolis, MN
-1997, SAF National Convention, Memphis, TN
-1997, U of MN Digital Summit, Minneapolis, MN
-1997, Conversations on Teaching sessions, Green Hall, (Teaching Technologies, Case study methods)
-1998, NCASI Lake States Regional Meeting, Duluth, MN
-1998, Int'l Conference on "Integrated tools for natural resources inventories in the 21st century" Boise, ID
-1998, IUFRO Process Models for Forest Management Conference, Rovaniemi, Finland
-1998, SAF National Convention, Traverse City, MI
-1998, 1999, "Conversations on Teaching" sessions, CNR
-1999, Martin Luther King's Dream: A reality check. Special Event, Mpls Campus
-1999-present, Forestry related legislative hearings, breakfasts, briefings
-1999, Conversations about outreach, Univ. of Minnesota
-1999, Meeting with P.R. China University Presidents
-1999, MN SAF Mtg, Owatonna, MN
-1999, Invited participant/speaker, Blanding Paper Company Scholarship Awards Event, Grand Rapids, MN
-1999, Peoplesoft training
-1999-present, Wood Fiber Council Meetings, St. Paul
-1999-present, Forestry Club events, St. Paul
-1999-present, Minnesota Timber Producers events, Duluth, MN
-1999, Institute of Paper Science and Technology Annual Mtg, Atlanta, GA
-1999, National Research Council Workshop on Forestry Research Capacity, Washington, D.C.
-1999, Strategic Planning training with R. Buckler, M. Kelly, St. Paul, MN
-1999, Writing Intensive Workshop, St. Paul Campus
-1999, Society of American Foresters Convention, Portland, OR

Alan R. Ek (continued)

-1999, Aspen/Larch Genetics Cooperative Annual Meeting, Grand Rapids, MN
-2000, BWCAW Storm Recovery Workshop, St. Paul, MN
-2000, Research Conduct of Research Training, Parts 1&2
-2000, Extension Natural Resources Capacity Area Retreat, Cloquet, MN
-2000, Hybrid Poplar Forum, St. Paul, MN
-2000, Dean's Tour sponsored by AF&PA and USFS, McCall, ID
-2000, Economic Summit. Brainerd and St. Paul, MN
-2000, Society of American Foresters National Convention, Washington, D.C.
-2001, Extension Natural Resources Capacity Area Retreat on Land Use, Riverwood, MN
-2001, Sexual Violence Program
-2001, NCASI Regional Meeting, Bloomington, MN
-2001, Midwest Mensurationists Meeting, Traverse City, MI
-2002, Working Respect Workshop, SPCSC
-2002, Keeping Our Faculties Conference
-2002, Extension Natural Resources Capacity Area Session on Private Lands and Businesses
-2002, AF&PA Dean's Tour, Grand Summit Resort, Maine
-2002, Society of American Foresters Annual Meeting, Winston-Salem, NC
-2002, MN Environmental Initiative Issues meeting, St. Paul
-2003, CNR Research Day, Duluth, MN
-2003, Paul Portney, Resources for the Future, presentation, Bell Museum
-2003, University of Minnesota Data Warehouse Training
-2003, James Oberstar Forum on Transportation Policy and Technology, Center for Transportation Studies, Minneapolis, MN
-2003, 2004, Renewable Energy Initiative, various meetings
-2003, Comparative US/Canadian Forest Management Conference, EBC, SPC
-2003, CESU Annual Meeting and Congressional Breakfast, Wash., D.C.
-2003, Blandin Foundation Forestry Initiative Forums, Plymouth, MN
-2003, Society of American Foresters Annual Meeting, Buffalo, NY
-2003, USDA FS FIA Symposium, New Orleans, LA
-2004, Dean's Tour, AF&PA and Weyerhaeuser Company, Olympia, WA
-2004, Lake States Federal Timber Purchasers/Congressional Tour, NE MN and NW WI
-2005, Joint Canadian Institute of Forestry and Society of American Foresters Annual Meeting, Edmonton, Alberta, Canada
-2006, SAF National Convention, Pittsburgh, PA
-2006, Forest Stewardship Conference, St. Johns, Collegeville, MN
-2006, MN SAF Annual Meeting, Brainerd, MN
-2006, Blandin Vital Forests Conference, MN
-2006,Various campus seminars on environment, natural resources and energy research
-2006, American Forest & Paper Association Dean's Tour, Charleston, SC
-2006, Great Lakes Forestry Alliance Mtg. Madison, WI

Alan R. Ek (continued)

11. External grants and other research funding during the last five years:

- MN-42-045. Analysis of forest regeneration and ecosystem dynamics from large databases. A. Ek. $9,500 annually, 1998-
- Center for Changing Landscapes. M. Vogel, A. Ek. $40,000 for CNR and $40,000 for CALA, Uof MN Compact Process, 2002-2004
- 389-1531. Lake Country Scenic Byway. M. Vogel, A. Ek, et al. Regional Partnerships/ Central Region ($50,000) 2003
- 389-3518. Red Lake River Corridor. M. Vogel, A. Ek, M. Bauer. Regional Partnerships/Northwest Region ($16,000) 2003-2004
- 405-6307. Upper Great Lakes Regional Earth Sciences Applications Center. M. Bauer, T. Burk, A. Ek, S. Daley Laursen, P. Bolstad, P. Brezonik, and others from Univ. of Wisconsin and Michigan State. Univ. NASA Office of Earth Science, Applications Program ($1,500,000) 1999-2002
- 405-6331. Integrating satellite remote sensing into forest inventory and management. M. Bauer, W. Befort, T. Burk, A. Ek, R. McRoberts, M. Hansen, and R. Chaplewski. NASA Office of Earth Science, Applications Program ($580,000) 1999-2002
- 405-6341. Remote sensing applications for annual forest inventories. M. Bauer and A. Ek. USDA-FS, NCRS ($48,000) 1999-2002
- 405-6385. Analysis of Minnesota's forest inventory data. A. Ek. Minnesota Forest Resources Council ($22,000)
- 405-6394. Develop analysis tools and provide ecosystem based reports on status, change, and trends in forest health in Minnesota and Lake States Ecosystems. A. Ek. USDA-FS State & Private Forestry ($25,000) 2001-2003
- 405-6431. Red Lake River corridor enhancement project. J. Loegering, PI; A. Ek, Northwest Minnesota Foundation, 2003-2005
- 405-6462. Linking communities, design, technology, and DNR trail resources. M. Vogel, A. Ek. Legislative Commission on Minnesota Resources (yr. 1) 2003-2005
- 405-6463. Linking communities, design, technology, and DNR trail resources. M. Vogel, A. Ek. Legislative Commission on Minnesota Resources (yr. 2) 2003-2005
- 405-6472. Revising North Central Forest Management Guides to address diverse ecological, economic, and social objectives. A. Ek, USDA Forest Service, 2004-2006
- 405-6478. Revising the Manager's Handbook Series for the north central United States. A. Ek, USDA Forest Service, 2004-2007
- 405-6479. Developing a certification system for Minnesota's nonindustrial private forest lands. M. Kilgore, D. Anderson, P. Ellefson, and A. Ek. The Blandin Foundation ($179,000) 2004-2007
- 405-6484. Timber harvesting GEIS Assessment Study. M. Kilgore and A. Ek. Minnesota Department of Natural Resources ($124,000) 2004-2007
- 405-6487. Convening forest resources information interests and potentials. A. Ek, MN DNR, 2005
- 405-9075. Increased technical support & capacity building for the national information center for state and private forestry. A. Ek. USDA-FS State & Private Forestry ($132,000) 2001-
- 405-9091. Technical support national information center for state and private forestry. A. Ek. USDA-FS State & Private Forestry ($130,000) 2001-present

- 405-9099. National Information Center and the University of Minnesota's Interagency Information Cooperative. A. Ek, USDA Forest Service, 2004-2008
- 405-9103. Web-based GIS mapping of state and private forestry data for the National Information Center. A. Ek, USDA-FS, 2005-2009

1. Name: **Sherry A. Enzler**

2. Title: Research Fellow

   Specialization: Environmental policy and law
   Appointment: 12-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
William Mitchell College of Law	Law	J.D. *cum laude*		1985
University of Southern California	Intergovernmental Relationships	M.P.A.		1978
University of Minnesota	Political Science	B.A.		1976

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Research Fellow
   Specialization: Natural resources and environmental law
   Dates: 2004-present
   Total Years: 2

   Institution: William Mitchell College of Law, St. Paul
   Title: Professor
   Specialization: Natural resources law
   Dates: 1995-present
   Total Years: 11

   Institution: William Mitchell College of Law, St. Paul
   Title: Professor
   Specialization: Legal writing
   Dates: 1989-1993, 1995-1996
   Total Years: 5

   Employer: Office of Environmental Assistance, St. Paul, MN
   Nature of Work: Led and directed the operations
   Title: Executive Director
   Dates: 1999-2003
   Total Years: 4

   Employer: Doherty, Rumble & Butler Professional Association, St. Paul
   Nature of Work: Advised and represented clients
   Title: Associate Attorney
   Dates: 1997-1999
   Total Years: 2

Sherry A. Enzler (continued)

Employer: Minnesota Attorney General's Office, St. Paul
Nature of Work: Lead attorney for the state of Minnesota
Title: Assistant Attorney General
Dates: 1991-1997
Total Years: 6

Employer: Minnesota Attorney General's Office, Transportation Division of the General, St. Paul
Nature of Work: Lead attorney responsible for advising and representing MnDOT on environmental matters
Title: Special Assistant Attorney
Dates: 1985-1991
Total Years: 6

Employer: Minnesota Office of the Legislative Auditor, St. Paul
Nature of Work: Evaluated Minnesota's timber sale program
Title: Program Evaluation Specialist
Dates: 1979-1982
Total Years: 3

Employer: USDI, Policy, Budget and Administration, Washington, D.C.
Nature of Work: Advised and assisted Assistant Secretary develop positions on environmental impact statements
Title: Special Assistant to the Assistant Secretary
Dates: 1977-1979
Total Years: 2

Employer: California Department of Water Resources, Sacramento, CA
Nature of Work: Drafter California's model flood plain management ordinance
Title: Graduate Research Fellow
Dates: 1976-1977
Total Years: 1

5. Teaching experience:

Institution: University of Minnesota
Rank: Research Fellow
Specialization: Natural resources and environmental law
Dates: 2004-present
Total Academic Years: 3

Institution: William Mitchell College of Law, St. Paul
Rank: Professor
Specialization: Natural resources law
Dates: 1995-present
Total Academic Years: 12

Sherry A. Enzler (continued)

6. Dates of appointment and promotion at present institution:

Title	Date
Research Fellow	2004

7. List of publications during the past five years:

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

2004, Minnesota Super Lawyer-Environment, Minnesota Law & Politics
2004, Special Recognition/Merit Award, University of Minnesota for "excellence among faculty and professional staff"
2005, Acted as Hearing Officer for redevelopment matter of the St. Paul Housing and Redevelopment Authority
2005, Co-facilitated Federal Agency Equestrian Management Meeting at Land Between the Lakes, Kentucky
2006, Assisted the St. Paul Housing and Redevelopment Association on relocation matter for redevelopment project

9. Membership and offices held in professional organizations:

-Minnesota Environmental Quality Board, member, 1999-2003
-Minnesota State Bar Association
-Board of Directors Compatible Technology International
-Loft Literary Center, member
-Minnesota Center for Environmental Advocacy, member
-Minnesota League of Conservation Voters, member
-Natural Resources Defense Council

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2005, NCES Conference
-2005, 3 day digital teaching seminar
-2005, Continuing Legal Education Courses on environment and natural resources related topics including global warming, TMDLs, etc.
-2006, Sociological Research Methods course
-2006, IRB training

11. External grants and other research funding during the last five years:

1. Name: **Trent S. Erickson**

2. Title: Information Technology Specialist

   Specialization: Network design, web design
   Appointment: 75% time (?)

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
North Hennepin Community College Brooklyn Park, MN	??	??		??

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Information Technology Specialist
   Specialization: Network and web design; maintenance
   Dates: 2000-present
   Total Years: 7

   Institution: University of Minnesota
   Title: NT Network Administrator
   Specialization: Network performance and efficiency
   Dates: 04/2000-12/2000
   Total Years: 0.75

   Employer: Sell-employed
   Nature of Work: Technical support, development, design, etc. for small businesses
   Title: Contractor
   Dates: 1999-present
   Total Years: 7

   Employer: Netselector Incorporated, Minneapolis, MN
   Nature of Work: Advanced web testing
   Title: Software Test Engineer and Webmaster
   Dates: 1998-1999
   Total Years: 1

   Employer: New Horizon Production, Minneapolis, MN
   Nature of Work: Video editing, 3D animation
   Title: Digital Graphics Assistant and Network Support
   Dates: 1992-present
   Total Years: 14

Trent S. Erickson (continued)

Employer: Bell Atlantic Business Systems Services, Bloomington, MN
Nature of Work: Help Desk support
Title: Technical Support Engineer
Dates: 08/1995-11/1995
Total Years: 0.25

Employer: Uptown Ward (The Church of Jesus Christ of Latter-Day Saints)
Nature of Work: Manage administrative tasks; created and implemented web database
Title: Executive Secretary and Ward Mission Leader
Dates: 1998-present
Total Years: 8

5. Teaching experience: NA

   Institution:
   Rank:
   Specialization:
   Dates:
   Total Academic Years:

6. Dates of appointment and promotion at present institution:

Title	Date
Information Technology Specialist	2000

7. List of publications during the past five years:

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

9. Membership and offices held in professional organizations:

10. Major professional self-improvement activities during past 10 years, including sabbatical:

11. External grants and other research funding during the last five years:

1. Name: **Sarah R. Finley**

2. Title: Associate Editor

   Specialization: Organizing, editing, and generating printed and web materials
   Appointment: 100%

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Dublin City University, Ireland	Science Communication	M.S.		2001
Penn State University	Horticulture	B.S.		2000

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Associate Editor
   Specialization: Organizing, editing, and generating printed and web materials
   Dates: 2002-present
   Total Years: 4

   Employer: The Loka Institute, Amherst, MA
   Nature of Work: Communicating issues related to science, technology, and society
   Title: Communications Intern
   Dates: 10/2001-02/2002
   Total Years: 0.50

   Employer: Rodale Press, Emmaus, PA
   Nature of Work: Intern for *Organic Gardening* magazine
   Title: Readers' Service Intern
   Dates: 05/2000-08/2000
   Total Years: 3 months

5. Teaching experience: NA

   Institution:
   Rank:
   Specialization:
   Dates:
   Total Academic Years:

6. Dates of appointment and promotion at present institution:

Title	Date
Associate Editor	2002

Sarah R. Finley (continued)

7. List of publications during the past five years:

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   - 2006, Outstanding Achievement Award-Civil Service/Bargaining Unit, College of Natural Resources

9. Membership and offices held in professional organizations:

   - University of Minnesota Communicators Forum

10. Major professional self-improvement activities during past 10 years, including sabbatical:

11. External grants and other research funding during the last five years:

1. Name: **Lee E. Frelich**

2. Title: Research Associate

   Specialization: Forest ecology: Natural disturbance, competition, and stand development
   Appointment: 12-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Wisconsin	Botany	B.S.		1979
University of Wisconsin	Bacteriology	B.S.		1980
University of Wisconsin	Forest Science	Ph.D.		1986

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Research Associate
   Specialization: Forest ecology
   Dates: 1992 to present
   Total Years: 15

   Institution: University of Minnesota
   Title: Post-Doctoral Associate/Lecturer
   Specialization: Forest ecology
   Dates: 1988 to 1991
   Total Years: 3

   Institution: University of Wisconsin-Madison
   Title: Research Associate
   Specialization: Forest ecology
   Dates: 1986 to 1987
   Total Years: 1

5. Teaching experience:

   Institution: University of Minnesota
   Rank: Research Associate
   Specialization: Forest ecology/fire
   Dates: 1988-present
   Total Academic Years: 19

Lee E. Frelich (continued)

6. Dates of appointment and promotions at present institution:

Title	Date
Research Associate	1992
Post-Doctoral Associate/Lecturer	1988

7. List of publications during the last five years:

Dovciak, M., L. E. Frelich, and P. B. Reich. 2005. Pathways in old-field succession to white pine: seed rain, shade and climate effects. *Ecological Monographs* 75:363-378.

Dovciak, M., L. E. Frelich, and P. B. Reich. 2001. Discordance in spatial patterns of white pine (*Pinus strobus*) size-classes in a patchy near-boreal forest. *Journal of Ecology* 89: 280-291.

Dovciak, M., P. B. Reich, and L. E. Frelich. 2003. Seed rain, safe sites, competing vegetation, and soil resources spatially structure white pine regeneration and recruitment. *Canadian Journal of Forest Research* 33:1892-1904.

Freidman, S. K., P. B. Reich, and L. E. Frelich. 2001. Multiple scale composition and spatial patterns of the northeastern Minnesota presettlement forest. *Journal of Ecology* 89: 538-554.

Frelich, L. E. 2002. *Disturbance Regimes and Forest Dynamics*. Cambridge, UK: Cambridge University Press.

Frelich, L. E., M. W. Cornett, and M. A. White. 2005. Controls and reference conditions in forestry: The role of old-growth and retrospective studies. *Journal of Forestry*103:339-344.

Frelich, L. E., C. M. Hale, S. Scheu, A. R. Holdsworth, L. Heneghan, P. J. Bohlen, and P. B. Reich. 2006. Earthworm invasion into previously earthworm-free temperate and boreal forests. *Biological Invasions* 8:1235-1245.

Frelich, L. E., and P. B. Reich. 2003. Perspectives on development of definitions and values related to old-growth forests. *Environmental Reviews* 11:S9-S22.

Frelich, L. E., and P. B. Reich. 2002. Dynamics of old-growth oak forests. In *The ecology and management of oaks for wildlife*, eds. McShea, W. J., and W. H. Healy, 113-126. Baltimore, MD: Johns Hopkins University Press.

Frelich, L. E., P. B. Reich, and J.-L. Machado. 2003. Fine-scale environmental variation and structure of understorey plant communities in two old-growth pine forests. *Journal of Ecology* 91:283-293.

Hale, C. M., L. E. Frelich, and P. B. Reich. 2006. Changes in cold-temperate hardwood forest understory plant communities in response to invasion by European earthworms. *Ecology* 87:1637-1649.

Hale, C. M., L. E. Frelich, and P. B. Reich. 2005. Exotic European earthworm invasion dynamics in northern hardwood forests of Minnesota, USA. *Ecological Applications* 15:848-860.

Hale, C. M., L. E. Frelich, and P. B. Reich. 2003. Allometric equations for estimation of ash-free dry mass from length measurements for selected European earthworm species (Lumbricidae) in the western Great Lakes region. *American Midland Naturalist* 151(1):179-185.

Hale, C. M., L. E. Frelich, P. B. Reich, and J. Pastor. 2005. Effects of European earthworm invasion on soil characteristics in northern hardwood forests of Minnesota USA. *Ecosystems* 8:911-927.

Lee E. Frelich (continued)

Mehta, S., L. E. Frelich, M. T. Jones, and J. Manolis. 2004. Examining the effects of alternative management strategies on landscape-scale forest patterns in northeastern Minnesota using LANDIS. *Ecological Modelling* 180:73-87.

Reich, P. B., P. Bakken, D. Carlson, L. E. Frelich, S. K. Friedman, and D. Grigal. 2001. Influence of logging and fire on boreal forest biodiversity and productivity. *Ecology* 82: 2731-2748.

Weyenberg, S. A., L. E. Frelich, and P. B. Reich. 2004. Logging versus fires: How does disturbance type influence the abundance of *Pinus strobus* regeneration? *Silva Fennica* 38:179-194.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Member of Minnesota DNR Spatial Analysis Technical Team, 2001
-Minnesota Shade Tree Advisory Committee award for best Arbor Day Event given to Friends of Loring Park Board of Directors, member, 2001
-Member of MN DNR Commissioner's Advisory Committee an Natural Areas and Nongame Wildlife, 2001
-Lead Forest Ecologist with Foster-Wheeler Environmental Corp., for the EIS on Boundary Waters Canoe Area Wilderness Fuel Treatment, 2001
-Trained Superior National Forest staff for ancient cedar identification and mitigation during prescribed fires, 2002
-Friends of the Boundary Waters, member of board of directors, 2001-present
-Friends of Loring Park, member of board of directors, 2001-present
-Listed in top 1% of scientists in the Ecology/Environment category by the Institute for Scientific Information Science Citation Index, 2003-present
-Boise Cascade Corporation, Range of Natural Variability work, 2003
-Acorn Environmental Consulting, evaluate oak forest in Ham Lake, 2003
-Minnesota Historical Society, consulting on historical forest conditions, 2003
-*Forest Science*, Associate Editor for topics related to fire, 2004-
-*Ecoscience*, Associate Editor, 2005
-Special Recognition/Merit Award from Deans of CNR/COAFES, 2005
-Blandin Paper Company, Thunderhawk Project EIS, 2005
-Chair, MN DNR Commissioners Advisory Committee on Natural Areas and Nongame Wildlife, 2006
-Thunderhawk Project, UPM Kiymene, Grand Rapids, 2006
-Consultant on content of History of the Land, the Northern Forests, Bell Museum and Twin Cities Public TV, 2006

9. Membership and offices held in professional organizations:

-Member, Ecological Society of America
-Member, MNDNR Commissioner's Advisory Committee on Natural Areas and Nongame Wildlife, 1992 to present
-Member, MNDNR Old Growth Roundtable

Lee E. Frelich (continued)

-Member of the MNDNR White Pine Regeneration Committee, 1996
-Member, Sigma Xi
-Chair, Ecological Society of America Cooper Awards Committee, 1997-2000
-Vice President, Eastern Native Tree Society, 2004-present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2001, Eastern Native Tree Society, Tree Measuring Workshop, at Mohawk Trail State Forest, MA

11. External grants and other research funding during the last five years:

- 405-1071. Center for Hardwood Ecology (Endowment). $150,000, annual payout, $8,000.
- 405-1082. Research assessment for the development of principles for the removal of woody biomass from forests and brushland. D. Current and L.E. Frelich, PIs. IREE ($201,572) 2005-2006.
- 405-1537. Wood-Rill Fellowship in Hardwood Ecology (Endowment). $245,000 (plus equal matching from UofMN Foundation), annual payout of $26,000.
- 405-6293. Regeneration of white pine. L.E. Frelich and P.B. Reich, Co-PIs. MN DNR, Division of Forestry ($160,000) 1997-
- 405-6362. Ecological consequences of European earthworm invasion. L.E. Frelich and P.B. Reich, Co-PIs. National Science Foundation ($318,228) 2000-2004
- 405-6365. European earthworms in Minnesota forests, L.E. Frelich, PI. Minnesota nongame small grants program, Natural Heritage program, Division of Ecological Services ($8,500) 2000-present
- 405-6375. LANDIS modeling of future forest spatial patterns in Minnesota, L.E. Frelich and T. Jones, Co-PIs. Minnesota DNR, Division of Forestry ($51,400) 2002-present
- 405-6384. Ecology and dendrochronology of ancient cedar. L.E. Frelich, PI. Quetico Superio Foundation ($9,233) 2001-present
- 405-9105. Minnesota Worm Watch. L.E. Frelich. C.M. Hale, K.L. Gilbertson. National Science Foundation, Informal Education Program ($74,982) 2005-2007

1. Name: **Kent Gustafson**

2. Title: Extension Professor

   Specialization: Tourism
   Appointment: 100%

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Sociology	BA		1968
University of Minnesota	Public Administration	MA		1972

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Extension Professor
   Specialization: Tourism
   Dates: 1996-present
   Total Years: 11

   Institution: University of Minnesota
   Title: Professor/Extension Educator/Instructor/Area Extension Agent
   Specialization: Community Resources
   Dates: 1974 -1996
   Total Years: 22

   Employer: Minnesota State Planning Agency
   Nature of Work: Community planning
   Title: Community Planner
   Dates: 1971-1974
   Total Years: 3

5. Teaching experience:

   Institution:
   Rank:
   Specialization:
   Dates:
   Total Academic Years:

Kent Gustafson (continued)

6. Dates of appointment and promotion at present institution:

Title	Date
Extension Professor	1992
Associate Professor and Area Extension Agent	1983
Assistant Professor and Area Extension Agent	1979
Instructor and Area Extension Agent	1974

7. List of publications during the past five years:

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

- 2003, Minnesota Festival and Events Association, ex officio member of the board of directors
- 2003, Central Region Sustainable Development Partnership
- 2003, St. Paul Festival Association, facilitated organizational development meetings.
- 2003, Pioneer Festival Grounds—Perham, facilitated development of marketing plan for festival grounds
- 2004, Award of Distinction, Regional Sustainable Partnerships
- 2004, Focus group facilitation–Patagonia travel package: itinerary and marketing materials
- 2005, Team Award, Retail Trade Analysis (Extension)
- 2006, Epsilon Sigma Pi (Director)
- 2006, 20 Year Leadership Award -- Southwest Minnesota Initiative Foundation

9. Membership and offices held in professional organizations:

- Advisory Committee, Minnesota Festivals and Events Association, 2006-
- Member, International Community Development Society, 2005
- Member, National Association of Extension Community Development Professionals, 2005
- Member, Tour Minnesota Association, 2003-present
- Member, Minnesota Association of Extension Educators
- Member, International Festivals and Events Association

10. Major professional self-improvement activities during past 10 years, including sabbatical:

- 2003, Annual conference—Governor's Conference on Tourism
- 2003, Minnesota Group Tour Conference
- 2003, Cen States Annual Tourism Research Conference
- 2003, International Festival and Events Association Annual Conference
- 2004, Minnesota Tourism Conference

Kent Gustafson (continued)

- 2004, Minnesota Festivals and Events Association conference
- 2004, Minnesota Group Tour Conference
- 2004, Design For Learning
- 2004, Northwest Area Foundation Symposium
- 2004, Vision of Teams
- 2004, Working with the Media
- 2004, Pull Factor Analysis
- 2005, State Tourism Conference
- 2005, Extension Community Vitality staff development
- 2005, Tour Minnesota Association education day
- 2005, International Association of Facilitation conference
- 2005, Disney Keys to Leadership
- 2005, International Festival and Event Association conference
- 2005, Minnesota Festival and Events Association Fall Workshop
- 2006, International Festival and Events Association
- 2006, Minnesota Tourism Conference
- 2006, International Events Group
- 2006, National Association of Extension Community Development Professionals
- 2006, Sustainable Tourism Conference
- 2006, Heartland Tourism Association quarterly meetings
- 2006, Minnesota Rural Summit
- 2006, Cultural-Heritage Tourism Conference

11. External grants and other research funding during the last five years:

1. Name: **David L. Hanson**

2. Title: Research Specialist

   Specialization: Urban and community forestry
   Appointment: 12-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Natural Resources Science and Management	M.S.		
University of Minnesota	Natural Resources and Environmental Studies	B.S.		2001
Mankato State University	Computer Science and Math	B.S.		1982

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Research Specialist
   Specialization: Urban and community forestry
   Dates: 2002-present
   Total Years: 5

   Institution: University of Minnesota
   Title: Teaching Assistant
   Specialization: Dendrology
   Dates: 08/2000 - 12/2000
   Total Years: 0.25

   Employer: Minnesota Parks and Recreation, Forestry Division
   Nature of Work: Urban and community forestry
   Title: Assistant Arborist (Intern)
   Dates: 2001-2002
   Total Years: 1

   Employer: Medics Training, Inc.
   Nature of Work: CPR instruction/training
   Title: Cardio-Pulmonary Resuscitation(CPR) Instructor
   Dates: 1999-present
   Total Years: 7

   Employer: USDI, Fish and Wildlife Service, Zimerman, MN
   Nature of Work: Fire monitoring at Sherburne National Wildlife Refuge
   Title: Fire Monitoring Crew
   Dates: 06/2000 - 09/2000
   Total Years: 0.25

David L. Hanson (continued)

Employer: UNISYS Corporation, Roseville, MN
Nature of Work: Analysis and resolution of operating system defects
Title: Principle Software Engineer
Dates: 1982-2000
Total Years: 8

5. Teaching experience:

Institution: University of Minnesota
Rank: Teaching Assistant
Specialization: Dendrology
Dates: 08/2000 - 12/2000
Total Academic Years: 0.25

6. Dates of appointment and promotion at present institution:

Title	Date
Research Specialist	2002

7. List of publications during the past five years:

Hanson, D. L. 2004. Why? Why do we prune trees? St. Paul, MN: University of Minnesota Extension Service. May 1, 2004, Yard and Garden Line News., Online http://www.extension.umn.edu/yardandgarden/YGLNews/YGLN-May0104.html#prune

Hanson, D. L. 2004. Minnesota's Tree Care Advisors. Minnesota Shade Tree Advocate 6(3) online, http://www.mnstac.org/STA/2004/Summer_2004.pdf

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

9. Membership and offices held in professional organizations:

-Chair, MnSTAC web committee (www.mntrees.org), 2004-
-Chair, Volunteer Committee for ISA's Minneapolis Conference in 2006
-Participant, Minnesota Shade Tree Short Course planning committee, 2005

David L. Hanson (continued)

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2004, Minnesota's Green Expo, Minneapolis, MN
-2004, Big Trees Conference, Rochester, MN
-2004, Minnesota's Shade Tree Short Course, St. Paul, MN
-2004, Chainsaw and Brush Cutter Safety, U-More Park, MN
-2005, Root Symposium, Morton Arboretum, Chicago, IL

11. External grants and other research funding during the last five years:

1. Name: **Howard M. Hoganson**

2. Title: Associate Professor (housed at the University's North Central Experiment Station at Grand Rapids, MN.

   Specialization: Management and Economics, timber supply analysis
   Appointment: 12-month tenure-track

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Forestry	BS	1973-77	1977
Univ. of Washington	Forest Management	MS	1977-78	1978
University of Minnesota	Operations Research	MS	1978-80	1980
University of Minnesota	Forest Management	Ph.D.	1978-81	1981

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: Forest Management/Economics
   Dates: 1992 to present
   Total Years: 15

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Forest Management/Economics
   Dates: August 1987 to July 1992
   Total Years: 5

   Institution: Virginia Polytechnic and State University
   Title: Assistant Professor
   Specialization: Forest Management/Economics
   Dates: 1986-87
   Total Years: 1-1/2

   Employer: North Central Forest Experiment Station, USDA Forest Service
   Nature of Work: Research
   Title: Principal Economist
   Dates: 11/81 - 11/85
   Total Years: 4

Howard M. Hoganson (continued)

5. Teaching experience:

Institution: University of Minnesota
Rank: Assistant/Associate Professor
Specialization: Forest Management/Economics
Dates: 1987-present
Total Academic Years: 20

Institution: Virginia Polytechnic and State University
Rank: Assistant Professor
Specialization: Forest Management/Economics
Dates: 1986-87
Total Academic Years: 1.5

6. Dates of appointment and promotions at present institution:

Title	Date
Assistant Professor	1987
Associate Professor	1992

7. List of publications during the last five years:

Borges, J. G., H. M. Hoganson and A. O. Falcão. 2002. Heuristics in multi-objective forest management. In *Multi-objective forest planning*, ed. T. Pukkala, Managing Forest Ecosystems vol. 5. Kluwer Academic Publishers.

Hoganson, H., J. Bixby, R. Bergmann, and J. Borges. 2004. Large-scale planning to address interior space production: three case studies from northern Minnesota. *Silva Lusitana* 12:35-47.

Hoganson, H. M., Y. Wei, and R. T. Hokans. 2005. Integrating spatial objectives into forest plans for Minnesota's national forests. In *Systems analysis in forest resources: Proceedings of the 2003 symposium*, comps. M. Bevers and T. Barrett, 115-122. General Technical Report PNW-GTR-656. Portland, OR: USDA Forest Service, Pacific Northwest Research Station.

Gilmore, D. W, T. C. O'Brien, and H. M. Hoganson. 2005. Thinning red pine plantations and the Langsaeter hupothesis: A Minnesota case study. *Northern Journal of Applied Forestry.* 22(1):19-26.

USDA Forest Service. 2004. Final environmental impact statement: Forest plan revision: Chippewa and Superior National Forests. Milwaukee, WI: Eastern Region. (Hoganson contributor)

USDA Forest Service. 2004. Final forest plan: Chippewa National Forest. Milwaukee, WI: Eastern Region. (Hoganson contributor)

USDA Forest Service. 2004. Final forest plan: Superior National Forest. Milwaukee, WI: Eastern Region. (Hoganson contributor)

USDA Forest Service. 2003. Draft environmental impact statement: Forest plan revision: Chippewa National Forest and Superior National Forest. Milwaukee, WI: Eastern Region.

USDA Forest Service. 2003. Proposed Forest Plan Chippewa National Forest. Mikwaukee, WI: USDA Forest Service, Eastern Region.

Howard M. Hoganson (continued)

USDA Forest Service. 2003. Proposed Forest Plan Superior National Forest. Milwaukee, WI: USDA Forest Service, Eastern Region.

Wei, Y., and H. Hoganson. 2006. Spatial information for scheduling core area production in forest planning. *Canadian Journal of Forest Research.* 36(1)23-33.

Wei, Y., and H. M. Hoganson. 2005. Landscape impacts from valuing core area in national forest planning. *Forest Ecology and Management* 218:89-106.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-USDA Forest Service Planning for Minnesota's National Forests, 2000-
-Itasca County Forestry Network, Grand Rapids, MN, 2001
-USDA Small Business Innovation Research Program, 2001
-Minnesota Forest Resource Council, 2002
-Strategy Team Member, Blandin Foundation Strategy Team Meeting, Forest Resource Use Initiative, "Sustaining Forests for Vital Communities," 2002
-Assisted the Dixie National Forest in understanding modeling tools for forest planning, 2003
-Assisted the Forest History Center on planning for future exhibits, 2003
-Invited participant, The Environmental Impact of Agriculture and Energy Use: How New Technologies, Including Biotechnology, Can Provide Sustainable Solutions. Co-hosted by: The Norwegian Ministry of Agriculture, The University of Minnesota, The Research Council of Norway, The Agricultural University of Norway (NLH), and the Royal Norwegian Embassy, Washington D.C. through its Norwegian Research and Technology Forum in North America, 2004
-Associate Editor for *Forest Science* covering management science and forest planning, 2004-present
-College of Natural Resource's Newman Award for Outreach, 2004
-USDA Forest Service Regional Forester's Honor Award, 2004

9. Membership and offices held in professional organizations:

-Society of American Foresters
-State Technology Coordinator for the MN SAF, 1991
-Advisory member for Minnesota Biomass Cash Crop Study, 1991
-Co-chair, IUFRO working group--4.02.07--Large area forest inventories and scenario modeling, 1996-2004
-Minnesota Forest Resource Council, Information Management Committee, member, 2004-present
-Alternate member, Governor's 2006 task force on the competitiveness of Minnesota's primary forest products industry, 2006

Howard M. Hoganson (continued)

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1996, Minnesota SAF white pine field tour, Grand Rapids, MN
-1996, USDA Forest Service NC Experiment Station red pine management tour, Grand Rapids, MN
-1996, Black Forest, Germany and University of Freiburg in Germany
-1997, 4-day workshop on Forest harvest modeling sponsored by Lavel University and the National Science Foundation of Canada
-1997, Birds and Forest workshop, Cloquet Forestry Center
-1997, University workshop on Responsible Research Management
-1997, Developed computer programming skills in Visual Basic 5.0 within a Windows NT operating environment
-1997, Began self-training in learning C++ programming language
-1997, Began self-training on better understanding spatial facets of forest management related to ecosystem management
-1998, Minnesota timber productivity conference, Duluth, MN
-1998, NCASI conference on current research problems, Duluth, MN
-1998, Continued learning computer programming skills in Visual Basic
-2000, National Meeting of the Institute for Operations Research and the Management Sciences (INFORMS), Salt Lake City, UT
-2001, Minnesota Forestry Summit
-2001, Research focus depends heavily on computer modeling and testing of new analytical methods. Major effort in self-improvement involving computer technologies to take advantage of new operating systems, new programming languages, GIS tools, and new mathematical programming software systems (CPLEX)
-2003, USDA Forest Service Interdisciplinary Planning Team and Joint Forest Leadership Team
-2003, Blandin Foundation's Vital Forests/Vital Communities workshops, Minneapolis
-2003, Forest Systems Analysis Conference, Stevenson, WA
-2003, Minnesota Forest Resources Council's Landscape Strategy Team
-2004, Blandin Foundation's Vital Forests/Vital Communities workshop: Implementing forest certification in Minnesota: experience and insights
-2006, Conference on red pine management, USDA Forest Service Silvicultural Research Unit, Grand Rapids, MN.

11. External grants and other research funding during the last five years:

- MN- 42-086. Economic modelling methods for forest-wide planning and timber supply analysis
- Planning models for Minnesota's national forests: Cost-share challenge agreement no. 00-CS-11090320-027 ($33,000) 2000-2004
- Integrating timber production and environmental quality, Hoganson and Bergmann, Phase II USDA Small Business Innovation Research Program ($210,000) 1998-2001
- A harvest scheduling model for spatial management objectives, Hoganson, Minnesota Forest Resource Council ($21,000) 2001-2002

1. Name: **Andrew C. Jenks**

2. Title: Research Specialist / Teaching Specialist

   Specialization: Geographic Information Systems
   Appointment: 12-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Am. Studies	BA		1974

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Research Specialist / Teaching Specialist
   Specialization: Geographic Information Systems
   Dates: 2003 - present
   Total Years: 4

   Institution: University of Minnesota
   Title: Graduate Research Assistant
   Specialization: Geographic Information Systems
   Dates: 09/2002 - 01/2003
   Total Years: 0.25

   Institution: University of Minnesota
   Title: Teaching Specialist
   Specialization: Geographic Information Systems
   Dates: 09/1999-01/2000; 09/2001-01/2002
   Total Years: 0.5

   Institution: University of Minnesota
   Title: Information Technology Specialist
   Specialization: Geographic Information Systems
   Dates: 01/2000 - 06/2000
   Total Years: 0.5

   Employer: Wells Fargo Corporation (formerly Norwest Corporation), Marketing Information Services
   Nature of Work: Managed department; built Geographic Information System, built first PC-based customer/household information system for Norwest
   Title: Manager; Director
   Dates: 1989-1997; 1997-1999
   Total Years: 10

Andrew C. Jenks (continued)

Employer: Business Banking Systems
Nature of Work: Directed cross-company team to automate office
Title: Director
Dates: 1985-1989
Total Years: 4

Employer: Direct Marketing Systems
Nature of Work: Directed the definition, analysis, and development of the Sales Management System for Commercial Bankers and deployed it to regional sites
Title: Manager
Dates: 1984-1985
Total Years: 1

Employer: Applications Systems
Nature of Work: Managed staff, and testing and pilot development process for new deposit processing system
Title: Project Manager 1982-1984; Project Leader 1981-1982
Dates: 1981-1984
Total Years: 3

Employer: Electronic Funds Transfer Systems
Nature of Work: Implementation of fault-tolerant computer at Norwest
Title: Project Leader
Dates: 1980-1981
Total Years: 1

Employer: Banking Systems
Nature of Work: Analyzed and flow-charted all deposit areas of Northwestern National Bank
Title: Systems Analyst
Dates: 1979-1980
Total Years: 1

Employer: University of Minnesota Medical School
Nature of Work: Built, operated, and maintained FORTRAN-based student scheduling system for the third and fourth year program of the Medical School
Title: Senior Student Personnel Worker
Dates: 1975-1979
Total Years: 4

Andrew C. Jenks (continued)

5. Teaching experience:

   Institution: University of Minnesota
   Rank: Research Specialist / Teaching Specialist
   Specialization: Geographic Information Systems
   Dates: 09/1999-01/2000; 09/2001-01/2002; 2003 - present
   Total Academic Years: 4.5

6. Dates of appointment and promotion at present institution:

Title	Date
Research / Teaching Specialist	2001

7. List of publications during the past five years:

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   - National Park Service-Great Lakes Region, 2006

9. Membership and offices held in professional organizations:

10. Major professional self-improvement activities during past 10 years, including sabbatical:

11. External grants and other research funding during the last five years:

1. Name: **Gary R. Johnson**

2. Title: Extension Professor

   Specialization: Urban and community forestry
   Appointment: 12-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Sauk Valley College	Chemistry	A.A.		1968
Western Illinois University	Ornamental Hort.	B.S.		1970
Western Illinois University	Plant Path/Ecology	M.S.		1977
University of Maryland	Recreation/urban studies	Ph.D.	1984-92	

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Extension Professor
   Specialization: Urban and community forestry
   Dates: 2002 to present
   Total Years: 5

   Institution: University of Minnesota
   Title: Extension educator/Associate professor
   Specialization: Urban and community forestry
   Dates: 1992 to 2002
   Total Years: 10

   Institution: University of Maryland
   Title: Instructor
   Specialization: Landscape management and urban forest management
   Dates: 1984-1992
   Total Years: 8

   Institution: University of New Hampshire
   Title: Assistant professor
   Specialization: Landscape management/horticultural technology
   Dates: 1978-1984
   Total Years: 6

   Employer: Self-employed
   Nature of Work: Landscape design/build firm
   Title: Owner
   Dates: 1974-78
   Total Years: 4

Gary R. Johnson (continued)

Employer: Illinois Wesleyan University
Nature of Work:
Title: Horticulturist/Grounds Superintendent
Dates: 1972-74
Total Years: 2

5. Teaching experience:

Institution: University of Minnesota
Rank: Extension educator/Associate/Professor
Specialization: Urban and community forestry
Dates: 1992-present
Total Academic Years: 15

Institution: University of Maryland
Rank: Instructor
Specialization: Landscape management and urban forest management
Dates: 1984-1992
Total Academic Years: 8

Institution: University of New Hampshire
Rank: Assistant professor
Specialization: Landscape management/horticultural technology
Dates: 1978-1984
Total Academic Years: 6

6. Dates of appointment and promotion at prsent institution:

Title		Date
Professor		2002
Associate Professor	1992	

7. List of publications during the past five years:

Albers, J. S., J. D. Pokorny, and G. R. Johnson. 2003. Chapter three: How to detect and assess hazardous defects in trees. In *Urban tree risk management: A community guide to program design and implementation*, 41-116. NA-TP-03-03. USDA Forest Service, Northeastern Area, State and Private Forestry.

Hallcock, K., and G. R. Johnson. 2004. Minnesota growers and landscapers: Have you no standards? Minnesota Shade Tree Advocate 6(2):1-9.

Hargrave, R., G. Johnson, and M. Zins. 2002. Planting trees and shrubs for long-term health. MI-07681. St. Paul, MN: University of Minnesota Extension Service.

Hauer, R. J., and G. R. Johnson. 2003. Chapter one: Tree risk management. In *urban tree risk management: A community guide to program design and implementation*, 5-10. NA-TP-03-03. USDA Forest Service, Northeastern Area, State and Private Forestry.

Gary R. Johnson (continued)

Johnson, G. 2002. It might be worth saving—transplanting trees and shrubs—Part I: Preparing for the move. *Yard and Garden News* 4(16). St. Paul, MN: University of Minnesota Extension Service web site. www.extension.umn.edu/projects/yardandgarden/.

Johnson, G. 2002. It might be worth saving - transplanting trees and shrubs - Part II: Making the move. *Yard and Garden News* 4(17). St. Paul, MN: University of Minnesota Extension Service web site. www.extension.umn.edu/projects/yardandgarden/.

Johnson, G. 2002. Transplanting trees and shrubs - Part I. In *Tree Care Advisor Newsletter* 9(4):8-15. St. Paul, MN: Minnesota Tree Care Advisor Program, University of Minnesota.

Johnson, G. 2002. Research rambles. In *Tree Care Advisor Newsletter* 9(3):8-15. St. Paul, MN: Minnesota Tree Care Advisor Program, University of Minnesota.

Johnson, G. R. 2006. Will the Pines Still Be Green Next Spring? Minnesota Shade Tree Advocate 8(1):13-16.

Johnson, G. R. 2005. Boulevards can be more than doggy litterboxes. *Tree Care Advisor Newsletter* 12(1):1-9.

Johnson, G. R. 2005. Protecting trees and shrubs from the wicked winters of the Upper Midwest. *Tree Care Advisor Newsletter* 12(4):6-10.

Johnson, G. R. 2004. Chandler and Lake Wilson, Minnesota: A tale of two towns. Minnesota Shade Tree Advocate 6(3):1.

Johnson, G. R. 2004. Can risky trees be managed? Minnesota Shade Tree Advocate 6(3):8.

Johnson, G. R. 2004. Preventing damage to landscape trees from stem girdling roots. In *Osnabrucker Baumpflegetage, aktiv fur Baume*, 7. Und 8.

Johnson, G. R., and R. Hauer. 2005. Feature Topic: Buried root systems affect long-term tree health and stem girdling root formation. In *Central States Forest Health Watch*, 5-7. St. Paul, MN: USDA Forest Service Northeastern Area.

Johnson, G. R., R. J. Hauer, and J. D. Pokorny. 2003. Chapter four: Prevention of hazardous tree defects. In *Urban tree risk management: A community guide to program design and implementation*, 117-142. NA-TP-03-03. USDA Forest Service, Northeastern Area, State and Private Forestry.

Koetter, R., and G. Johnson. 2006. Will Fill Kill? Minnesota Shade Tree Advocate 8(1):6-9.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-2001 Distinguished Service Award, Minnesota Society of Arboriculture
-2001 Richard C. Newman Community Impact Award, College of Natural Resources
-Tree Trust/MNDNR Best Management Practices Workshop for Tree Preservation planning committee. Helped design a series of workshops on tree preservation around the state, 2002
-St. John's University, Collegeville, MN. Consulted with the land manager and forester on tree health issues, root collar examinations, tree preservation during construction activities, 2002
-University of Iowa, Iowa City, IA. Consulted on diagnosing health problems of a significant campus tree, designing remedial treatments and avoiding construction damage to trees on campus, 2002
-Iowa Arborist Association. Assisted with the planning and design of a risk management program for the Iowa State Fairgrounds. Conducted training session on risk assessment for the Association, 2002

Gary R. Johnson (continued)

-Award for Teaching Excellence, College of Natural Resources, 2002
-"Preventing Stem Girdling Roots" video produced by the Minnesota Society of Arboriculture; "Outstanding Publication" award for 2002 by the International Society of Arboriculture, 2002
-Minnesota Shade Tree Advisory Committee award for the Nicollet Island Brownfield research site. Partners in project: University of Minnesota, Tree Trust and Minneapolis Park and Recreation Board, Forestry Section, 2003
-President's Award for 2003, Minnesota Society of Arboriculture, 2003
-Assisted St. Paul Foundation's Great River Greening (GRG) nonprofit urban forestry group by: providing training venue for them, providing cooperative training sessions with GRG and the College of Natural Resources, providing venues and marketing their public seminar series on prairie restoration, 2004
-Minnesota Department of Agriculture's Tree Inspector Program, design the update training sessions for annual recertification, design the home study version of recertification, 2004.
-U of MN Urban Forestry Club with their tree planting day at Groveland Elementary School in St. Paul, MN, 2004
-Minnesota Shade Tree Advisory Committee (MnSTAC) award for being one of the "30 People that Shaped 30 Years of MnSTAC," 2004
-Assisted Rainbow Treecare in diagnosing tree problems on housing developments, 2004
-Conducted strength loss tests and risk assessment tests on a large bur oak on the Eastcliff property, University of Minnesota Twin Cities Campus' president's residence, 2004
-"Excellence in Arboricultural Education" Award, International Society of Arboriculture and Urban Forestry, 2006
-2006, Roseville Public Golf Course

9. Membership and offices held in professional organizations:

-Minnesota Society of Arboriculture
-Minnesota Shade Tree Advisory Committee (MSTAC): executive council member, vice-chair, University system representative, 1992-1994, Chairperson, Education Committee, 1995
-MSTAC, Community Outreach Task Force, 1992; Member of Legislative Review Task Force, Chairman of Educational Task Force, 1993
-Minnesota Releaf (Department of Natural Resources); member of the Steering Committee, grant review committee, and community proposal workshops, 1992-1993
-UniversiTree: Member 1992
-National Urban Forestry Conference (NUFC): Member of the National planning committee for the 1993 conference; Chairperson for the Local Arrangements Committee on Educational Exhibits; Idea Center Planning Committee, 1993
-Backyard Tree Farm (BYTF) program: Member and Co-chairperson for development of program, 1992-93; Chairman 1993
-Minnesota Shade Tree Advisory Committee: Vice Chair, Member of Executive Council, 1996
-Minnesota Society of Arboriculture, 1996
Species Evaluation Committee [ad hoc]
Arborist Certification Liaison to the International Society of Arboriculture

Gary R. Johnson (continued)

International Society of Arboriculture Board of Directors
Arborist Jamboree Committee and Judge
-International Society of Arboriculture, Chairperson of Education Committee, 1996
-Minnesota Shade Tree Advisory Committee (MNSTAC) member, 1996
-MNSTAC Executive Committee, 1996
-MNSTAC Education Committee, Chairperson, 1996
-MNSTAC Tree Emergency Response Team [ad hoc], 1996
-City of Roseville Tree Task Force member, 1996
-Minnesota Society of Arboriculture, 1997
Tree Appraisal Task Force-committee member and author.
ISA Arborist Certification Liaison.
Executive Committee-member.
Developed and administer the MSA Certification Workshop Series.
Organize, administer the Certified Arborist exams for Minnesota, and conducted the examinations on four dates in March, June, September and December in Minnesota.
-International Society of Arboriculture, 1997
Board of Directors-member.
Education Committee-chairperson, through June 1, 1997.
ISA Certification Liaison Committee-member representing MN.
Reviewer of the ISA and ANSI specifications for Fertilizing Trees Standards.
-MN Shade Tree Advisory Committee, 1997
Executive Committee-member.
Education Committee-chairperson.
Tree Emergency Task Force-member.
Constitution Committee-reviewer.
-Tree Trust, 1997
-MN State Horticultural Society, 1997
-Board of Directors, International Society of Arboriculture, 1998
-Executive Committee, Minnesota Society of Arboriculture, 1998
-Board of Directors, MN State Horticulture Society, 1998
-Executive Committee, MN Shade Tree Advisory Committee, 1998
-Minnesota Society of Arboriculture's Arborist Certification Liaison, 1998
-Chair, MN Shade Tree Advisory Committee's Research and Education Committee, 1998
-Chair, MN Shade Tree Advocate (quarterly journal) editorial committee, 1998
-MN DNR's Best Management Practices for Preservation of Urban Forests committee, 1998
-American Phytopathological Society's Soil Symposium 2000 Planning Committee, 1998
-Minnesota Society of Arboriculture's Tree Appraisal Guidelines committee, 1998
-MN Shade Tree Advisory Committee's Tree Emergency Response Committee, 1998
-Editorial review committee for Minnesota Department of Agriculture's quarterly journal "Overstory", 1998
-Oak Wilt Working Group, a consortium of University, State and Federal Agency and private sector researchers and consultants, 1998
-Minnesota State Horticultural Society - Board of Directors, 1999
-Minnesota Society of Arboriculture - Certification Liaison, 1999
-USDA Forest Service, Midwest Center for Urban Forestry - University Liaison, 1999

Gary R. Johnson (continued)

-Minnesota Shade Tree Advisory Committee - Executive Committee member, Chairperson of the Education and Research Committee, Chairperson of the Editorial Board for the Minnesota Shade Tree Advocate, 1999
-MN Department of Natural Resources - member of the Best Management Practices for Preserving Trees in Urban Areas committee. Authored portions of the subsequent publication and served as a reviewer, 1999
-American Phytopathological Society - member of the Urban Soils 2000 Symposium planning committee. Member on the planning committee for the 1999 Wilts of Shade Trees conference, 1999
-International Society of Arboriculture - Organized and proctored four Certified Arborist Examinations in Minnesota, 1999
-Minnesota Shade Tree Short Course - Chairperson of the Steering Committee, 1999
-USDA Forest Service - Committee member for the development of a hazard tree manual for urban areas. Authored one chapter, reviewed two separate chapters. Member of the Interagency Oak Wilt Working Group, 1999
-Minnesota Landscape Arboretum - Member of the development committee for the 2000 symposium on deciduous trees, 1999
-Minnesota Department of Agriculture - Member of the editorial board for the quarterly journal, Overstory. Member of the planning committee for the Tree Inspector Workshop series, 1999
-Minnesota Crop Improvement Association Board of Directors, 1999
-Minnesota Shade Tree Advisory Committee, 2000
Member Board of Directors
Research and Education Committee, Chairperson
Chairman of the Editorial Group for the Shade Tree Advocate, a quarterly journal on Urban and Community Forestry
-Minnesota Society of Arboriculture, Professional Certification Program Chairperson, liaison to the International Society of Arboriculture, 2000
-MN Shade Tree Short Course Steering Committee, Chairperson, 2000
-International Society of Arboriculture's Arborist Certification Examination, set-up, proctored and managed five examination dates throughout MN, 2000
-MN Department of Agriculture, member of the editorial group, urban forestry journal "Overstory", 2000
-Minnesota Department of Agriculture. Member of the planning committee for the 2002, Certified Tree Inspector certification and recertification workshops around the state.
-Minnesota Department of Agriculture, Invasive Species Committee member, 2002
-Minnesota Shade Tree Advisory Committee: Member of the Executive Committee, representing the University of Minnesota; Chairperson of the Research and Education subcommittee; Chairperson of the Advocate Editorial Committee., 2002
-Minnesota Tree Care Advisor Program, Program Coordinator and Advisory Committee member, 2002
-USDA Forest Service, Midwestern Center for Urban and Community Forestry Technology Transfer Committee, Member, 2003
-Minnesota Shade Tree Advisory Committee, 2003-present
Executive Committee member
Research and Education Committee, chairperson

Gary R. Johnson (continued)

Shade Tree Advocate editorial committee, chairperson
-Minnesota Society of Arboriculture, Education and Program Committee, member, 2003-present
-Minneapolis Tree Advisory Committee, 2004
Member
Member of the Board of Directors, chairperson of the Research and Education committee
Chairperson of the Shade Tree Advocate Editorial committee.
-Chairperson of the Program Committee, International Society of Arboriculture's 2006, Annual Conference in Minneapolis, 2004
-Chairperson of the Minnesota Shade Tree Short Course Steering Committee, 2004
-Co-Chairperson – Local programming committee, International Society of Arboriculture's 2006 Annual Conference committee, 2005
-Committee University Representative – Minneapolis Tree Advisory Committee, 2005
-Committee Member – Minnesota Society of Arboriculture, Education Committee, 2005
- Minnesota Shade Tree Advisory Committee, 2005
University of Minnesota Representative, Board of Directors.
Chairperson, Committee on Information Transfer.
Chairperson, Editorial Committee for the Shade Tree Advocate, the official, quarterly journal of MnSTAC.
-Committee Member – Minnesota Department of Agriculture's Certified Tree Inspector Review Program, 2005
-Examination Proctor, Minnesota Society of Arboriculture, Certified Arborists, 2006

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1996, Annual Conference of International Society of Arboriculture, in Cleveland, OH
-1996, Workshop on "Inclusiveness in the Classroom," sponsored by the Bush Summer Institute, University of Minnesota
-1997, Iowa Shade Tree Short Course, Ames, IA
-1997, MN Shade Tree Short Course, Arden Hills, MN
-1997, MN Shade Tree Advisory Committee meetings
-1997, Minnesota Society of Arboriculture's Tree Climbing Championship in Duluth, MN
-1997, International Society of Arboriculture's Annual Conference, in Salt Lake City, UT
-1997, Living Snowfence Conference, Alexandria, MN. Sponsored by the MN Department of Transportation, FEMA, USDA Forest Service
-2001, ITV (interactive television) training at the University of MN
-2001, Iowa Shade Tree Short Course
-2002, Transportation Research Conference, St. Paul
-2002, Iowa Shade Tree Short Course, Ames, IA
-2002, Minnesota Shade Tree Short Course, Bethel College
-2002, Minnesota Society of Arboriculture's Annual Conference, St. John's University
-2002, Training on the use of high volume, air displacement systems for soil removal around tree roots
-2002, Training on the use of the Resistograph, instrumentation for the detection of decay in trees
-2003, University of Minnesota Supervisor Training, Earle Brown Center, St. Paul Campus

Gary R. Johnson (continued)

-2004, 11th Annual Conference of the Missouri Community Forestry Council
-2004, 42nd Annual Shade Tree Short Course in Minnesota
-2006, Iowa Shade Tree Short Course
-2006, Minnesota Shade Tree Short Course
-2006, International Society of Arboriculture Annual Conference
-2006, Midwest Chapter of the International Society of Arboriculture Annual Conference
-2006, Metropolitan Tree Improvement Alliance Annual Conference

11. External grants and other research funding during the last five years:

- 405-1031. Woodland restoration project, G.R. Johnson, PI, University of MN ($10,000) 2001-2004
- 405-1032. Arborist Directory production, G.R. Johnson, PI, Minnesota Society of Arboriculture, 2001
- 405-1061. MNSTAC, G.R. Johnson, PI, Minnesota Shade Tree Advisory Committee, 2001-2004
- 405-1138. Construction damage in MN, G.R. Johnson, MPRB, 2003
- 405-1179. Tree Care Advisor programming, G.R. Johnson, various sources/registration, 2001-2004
- 405-2000. Gift Account, G.R. Johnson, MNLA ($2,000) 2003-2004
- 405-2004. Tree loss due to urban infrastructure improvement, G.R. Johnson, Tree Research and Education Endowment Fund ($7,500) 2006
- 405-2005. Monitoring the health of Nicollet Island Brownfield site trees, G.R. Johnson, PI, Tree Trust, 2000-2005
- 405-6277. Monitoring oak forest health after construction activities, G.R. Johnson, PI, Minneapolis Park and Recreation Board, 2001-2002
- 405-6322. Oak wilt control strategies, G.R. Johnson and J. Juzwik, PIs, LCMR ($60,000) 2001-2002
- 405-6360. Predicting impacts of urbanization on oaks, G.R. Johnson and J. Juzwik, PIs, USDA Forest Service, 2001-2003
- 405-9076. Urban and Community Forestry Program Development. G.R. Johnson, PI, MN/Department of Natural Resources, 2001-2003
- 405-9078. Planting for long-term health publication, G.R. Johnson and R. Hargrave, USDA Forest Service, 2002
- 405-9080. Urban and Community Forestry Programs, G.R. Johnson, MN/DNR, 2002-2003
- 405-9089. Urban Tree Risk Management Workshop, G.R. Johnson, USDA Forest Service, 2003-2004
- 405-9094. U and CF Programming, G.R. Johnson, MN DNR, $99,000, 2004-2005
- 405-9096. Stem Girdling Roots and Street Tree Master Plan, G.R. Johnson, USDA Forest Service, 2004-2005
- 405-9097. National Online and Community Forestry, G.R. Johnson, USDA Forest Service, 2004-2005
- 405-9101. Landscape Tree Maintenance Calendar. G. Johnson and D. Hanson, PIs. USDA Forest Service, 2005

Gary R. Johnson (continued)

- 405-9108. Road to a thoughtful street tree design, G.R. Johnson, MnDOT ($30,450), 2006-2008
- 405-9109. Urban and community forestry programming, G.R. Johnson, MN DNR ($75,000) 2005-2006

1. Name: **Michael A. Kilgore**

2. Title: Associate Professor

   Specialization: Natural Resources Economics
   Appointment: 9 month, tenure-track

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Forest Economics, Policy & Administration	Ph.D.		1990
University of Minnesota	Forest Economics, Policy & Administration	M.S.		1984
University of Minnesota	Recreation Resource Management	B.S.(w/ distinction)		1982

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: Natural Resources Economics
   Dates: 2006
   Total Years: 1

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Natural Resources Economics
   Dates: 2001-2006
   Total Years: 5

   Institution: University of Minnesota
   Title: Research Assistant and Associate
   Specialization: Economic and policy research
   Dates: 1982-1984
   Total Years: 2 years

   Employer: Minnesota Forest Resources Council
   Nature of Work: Executive Leadership to the Minnesota Forest Resources Council
   Title: Executive Director
   Dates: 1995-2001
   Total Years: 6

Michael A. Kilgore (continued)

Employer: Minnesota Department of Natural Resources
Nature of Work: Coordinated the development of comprehensive sustainable forest resources policy for the state of Minnesota
Title: Forest and Environmental Policy Specialist
Dates: 1994-1995
Total years: 1

Employer: Minnesota State Planning Agency/Environmental Quality Board
Nature of Work: Project manager-Generic Environmental Impact Statement on timber harvesting
Title: State Planning Director
Dates: 1987-1994
Total Years: 7

Employer: Minnesota Department of Revenue
Nature of Work: Developed and administered statewide program for modeling agricultural and forest land values
Title: Agricultural Economist
Dates: 1984-1987
Total Years: 3

Employer: Pine County land Department, Pine County, Minnesota
Nature of Work: Conducted on-site inventories of state and country-administered forest lands in Pine County
Title: Natural Resource Inventory Specialist
Dates: 1981
Total Years: 1

5. Teaching experience:

Institution: University of Minnesota
Rank: Assistant/Associate Professor
Specialization: Forest Economics, Policy, and Administration
Dates: 2001 - present
Total Academic Years: 6

6. Dates of appointment and promotions at present institution:

Title	Date
Assistant Professor	2001
Associate Professor	2006

Michael A. Kilgore (continued)

7. List of publications during the past five years:

Blinn, C. R., and M.A. Kilgore. 2005. The impact of Minnesota's forest management guidelines on the time required to set-up public agency timber sales. *Northern Journal of Applied Forestry* 22(3):175-180.

Blinn, C. R., and M. A. Kilgore. 2004. Riparian management practices in the Eastern US: A summary of state guidelines. *Journal of Water, Air, and Soil Pollution* 4(1):187-201.

Daniels, S., J. Greene, M. Jacobson, M. Kilgore, and T. Straka. 2006. How effective are forestry incentives. *Southern Loggin' Times* 35(11):28, 30–31.

Domke, G., A. Ek, M. Kilgore, S. Finley, B. Palik, and S. Katovich. 2006. Financial incentives for practicing sustainable forestry on private forest lands. In *Our Woods Wild and Working: Proceedings of the 2006 Society of American Foresters National Convention*. October 25-28, 2006. Bethesda, MD: Society of American Foresters.

Ellefson, P., M. Kilgore, K. Skog, and C. Risbrudt. 2006. Forest products research and development organizations in a worldwide setting: a review of structure, governance, and measures of performance. Staff Paper no. 187. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Ellefson, P. V., C. M. Hibbard, and M. A. Kilgore. 2006. Managing across levels of government: evaluation of federal-state roles and responsibilities involving nonfederal forests in the United States. *Forest Policy and Economics* 8(6):652-666.

Ellefson, P. V., C. M. Hibbard, and M. A. Kilgore. 2005. Regulation of forestry practices on private land in the United States: assessment of state agency responsibilities and program effectiveness. Staff Paper Series no. 176. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Ellefson, P. V., C. M. Hibbard, and M. A. Kilgore. 2003. Federal and state agencies and programs focused on nonfederal forest in the United States: An assessment of intergovernmental roles and responsibilities. Staff Paper Series no. 167. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Ellefson, P. V., C. M. Hibbard, M. A. Kilgore, and J. E. Granskog, eds. 2005. Legal, institutional, and economic indicators of forest conservation and sustainable management: Review of information available for the United States. General Technical Report SRS-82. Ashville, NC: USDA-Forest Service, Southern Research Station.

Ellefson, P. V., C. M. Hibbard, M. A. Kilgore, and J. E. Granskog. 2002. Legal, institutional, and economic indicators of forest conservation and sustainable management: Review and evaluation of available information in the United States. Staff Paper Series no. 163. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Ellefson, P. V., and M. A. Kilgore. 2005. State government agencies and authorities affecting the use and management of forests in the northern United States. Staff Paper Series no. 179. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Ellefson, P. V., M. A. Kilgore, and J. E. Granskog. 2006. State government regulation of forestry practices applied to nonfederal forests: extent and intensity of agency involvement. *Journal of Forestry* 104(8):401-406.

Ellefson, P. V., M. A. Kilgore, and D. G. MacKay. 2003. Minnesota timber harvesting roundtable: A case of negotiated natural resources policy development. In *Finding common ground: Case studies in consensus-building and the resolution of natural resources controversies*, eds. P. S. Adler and K. Lowery. New York, NY: Lexington Press.

Michael A. Kilgore (continued)

Ellefson, P. V., R. J. Moulton, and M. A. Kilgore. 2003. Public agencies and bureaus responsible for forest management and protection: An assessment of the fragmented institutional landscape of state governments in the United States. *Forest Policy and Economics* 5:207-223.

Ellefson, P. V., R. J. Moulton, and M. A. Kilgore. 2002. An assessment of state agencies that affect forests. *Journal of Forestry* 100(6): 35-41.

Green, J., S. Daniels, M. Jacobson, M. Kilgore, and T. Straka. 2005. Existing and potential incentives for practicing sustainable forestry on nonindustrial private forest lands. Final report to the National Commission on Science for Sustainable Forestry.

Hibbard, C. M., M. A. Kilgore, and P. V. Ellefson. 2003. Property taxation of private forests in the United States: A national review. *Journal of Forestry* 101(3):44-49.

Jacobson, M. G., T. J. Straka, J. L. Greene, M. A. Kilgore, and S. E. Daniels. 2006. Financial incentives for practicing sustainable forestry on private forest lands. In *Our Woods Wild and Working: Proceedings of the 2006 Society of American Foresters National Convention.* October 25-28, 2006. Bethesda, MD: Society of American Foresters.

Kilgore, M., A. Ek, K. Buhr, L. Frelich, J. Hanowski, C. Hibbard, A. Finley, L. Rathbun, N. Danz, J. Lind, and G. Niemi. 2005. Minnesota timber harvesting GEIS: An assessment of the first 10 years. Staff Paper Series no. 182. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Kilgore, M., J. Leahy, C. Hibbard, J. Donnay, K. Flitsch, D. Anderson, J. Thompson, P. Ellefson, and A. Ek. 2005. Developing a certification framework for Minnesota's family forests. Staff Paper Series no.183. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Kilgore, M. and K. Martin. 2002. The economics of red pine management in the Lake States. In *Proceedings of the Red Pine SAF Region V Technical Conference*, 112-123. Staff Paper Series no. 157. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Kilgore, M. A. 2006. The impact of contract deed financing on Minnesota forest land markets. *The Appraisal Journal* 74(4): 367:379.

Kilgore, M. A. 2006. Minnesota's forest land prices continue to rise. Woodland Advisors 2(4): 1-3.

Kilgore, M. A. 2004. Trends in America's family forests: Public forest policies and the family forest. *Journal of Forestry* 102(7):11-12.

Kilgore, M. A. 2002. Minnesota's Sustainable Forest Incentive Act: A landowner's guide. Natural Resource Reports 1(1). Natural Resources Notes. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Kilgore, M. A. 2002. Minnesota's Sustainable Forest Incentive Act. Forest Tree Notes: 3(1). St. Paul, MN: College of Natural Resources, University of Minnesota.

Kilgore, M. A. 2002. Minnesota's Sustainable Forest Incentive Act. Nemadji River Basin Project Newsletter #6, Summer.

Kilgore, M. A., and C. R. Blinn. 2004. Policy tools to encourage the application of timber harvesting guidelines in the United States and Canada. *Forest Policy and Economics*. 6(2004):111-127.

Kilgore, M. A., and C. R. Blinn. 2004. Encouraging the application of sustainable timber harvesting practices: A review of policy tool use and effectiveness in the eastern United States. *Journal of Water, Air, and Soil Pollution* 4(1):203-216.

Kilgore, M. A., and C. R. Blinn. 2004. Cost of voluntary timber harvesting guidelines. Technical Release 04-R-23. Rockville, MD: Forest Resources Association, Inc.

Kilgore, M. A., and C. R. Blinn. 2004. Cost of voluntary timber harvesting guidelines. ACLT 15(5):8. Biwabik, MN: Associated Contract Loggers & Truckers of Minnesota.

Michael A. Kilgore (continued)

Kilgore, M. A., and C. R. Blinn. 2003. An assessment of the extent to which forest landowners bear additional cost resulting from implementation of Minnesota's timber harvesting guidelines. A report to the Minnesota Forest Resources Council. St. Paul, MN.

Kilgore, M. A., and C. R. Blinn. 2003. Willingness to pay for stumpage requiring timber harvesting guidelines: an evaluation of bidder characteristics, strategies, and perceptions. A report to the Minnesota Forest Resources Council. St. Paul, MN.

Kilgore, M. A., and C. R. Blinn. 2003. Minnesota's timber harvesting guidelines: An assessment of their financial cost to forest landowners and influence on willingness to pay for stumpage. Staff Paper Series no. 166. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Kilgore, M. A., and C. R. Blinn. 2003. The financial cost to forest landowners who implement forest management guidelines: An empirical assessment. *Journal of Forestry* 101(8):37-41.

Kilgore, M. A., and P. V. Ellefson. 2002. Evaluating the extent to which the economic framework supports the conservation and sustainable management of forests. Criterion 7, Indicator 58. http://www.fs.fed.us/research/sustain/INDICATOR-58.rtf

Kilgore, M. A., P. V. Ellefson, and M. J. Phillips. 2004. State BMP monitoring programs in the eastern United States. *Journal of Water, Air, and Soil Pollution* 4(1):119-130.

Kilgore, M. A., P. V. Ellefson, and M. J. Phillips. 2003. Ensuring the application of sound forestry practices on private forests: Challenges facing the design and implementation of state compliance monitoring programmes. In *Forest policy for private forestry: Global and regional perspectives*, eds. L. Teeter, B. Cashore, and D. Zhang, chap. 12, 117-128. Wallingford, UK: CABI Publishing.

Kilgore, M. A., P. V. Ellefson, and M. J. Phillips. 2002. Ensuring the application of sound forestry practices on private forests: Challenges facing the design and implementation of state compliance monitoring programmes. In *Forest Policy for private forestry: Global and regional perspectives*, eds. L. Teeter, B. Cashore, and D. Zhang, chap 12. Wallingford, UK: CABI Publishing.

Kilgore, M. A., C. Hibbard, and P. V. Ellefson. 2006. Comprehensive strategic planning for the use and management of forest resources: The experiences of state governments in the United States. *Forest Policy and Economics* 9:42-49.

Kilgore, M. A., and R. Salk. 2003. An assessment of state forest resource planning programs in the northeast United States. Staff Paper Series no. 170. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Kilgore, M. A., and R. Salk. 2003. State forest resource planning in the Northeast United States. A report to the Northeastern Forest Resource Planner's Association. St. Paul, MN: Department of Forest Resources, University of Minnesota.

Kilgore, M. A., and R. Salk. 2003. Results of 2003 survey of State Forest Resource Planning Programs. Northeastern Forest Resources Planning Association Planning Newsletter, Fall.

Straka, T., J. Greene, S. Daniels, M. Jacobson, and M. Kilgore. 2006. Forestry incentive Programs. *Forest Landowner* 65:15–16.

Straka, T., J. Greene, S. Daniels, M. Kilgore, and M. Jacobson. 2006. National survey reveals forest owners prefer technical assistance over financial incentives. *South Carolina Forestry*. MMVI (4): 1, 5.

Straka, T., M. Kilgore, M. Jacobson, S. Daniels, and J. Greene. 2006. Online forestry incentive programs. *Forest Products Equipment* 15:16–19.

Michael A. Kilgore (continued)

Straka, T. J., J. L. Greene, S. E. Daniels, M. G. Jacobson, and M. A. Kilgore. 2006. Website lists incentive programs available to non-industrial private forest owners. *South Carolina Forestry* MMVI (9):7.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Consultation: Environmental Management Advisory Committee Proposal–MN Forest Industries/Timber Producers Association, 2002
-Consultation: Tom Baumann DNR-Forestry; economic analysis of extended rotation forest policies on state DNR lands, 2002
-Consultation: Dave Zumeta, MN Forest Resources Council–forest resources research priorities; economic analysis of guideline implementation, 2002
-Consultation: MN Forest Resources Council; Personnel and Finance Committee–forest resources research priorities; economic analysis of guideline implementation, 2002
-Consultation: Blandin Paper Company–forest resources issues/research needs, 2002
-Consultation: MN Attorney General's Office–MN Supreme Court oral arguments on the Boise Cascade expansion litigation, 2002
-Consultation: MN Department of Revenue. Development of Sustainable Forest Incentive Act Application Enrollment Form and Covenant Form, 2002
-Consultation: Canadian Consulate General. Planning for US-Canadian comparative forest management and trade conference, Mpls., MN, 2002
-Consultation: House Environment and Natural Resources Policy Committee. MN National Council of State Government, Model State Legislation Committee Meeting Preparation, 2002
-Blandin Foundation's Vital Forests Public Policy Initiative Roundtable. St. Paul, MN, 2003
-Advisor: Minnesota Chamber of Commerce. State Right to Practice Forestry legislation and development of possible legislation in MN, 2003
-Advisor: Governor's Task Force on the Competitiveness of Minnesota's forest-based industries, 2003-present
-Advisor: Ontario Ministry of Natural Resources. Minnesota's timber pricing policies and public agency timber sale programs, 2003
-Advisor: Minnesota Department of Revenue. Calculation of statewide forest land current use values for use in determining the Sustainable Forest Incentive Act annual per acre payment, 2003
-Advisor: Chief Investment Officer and Assistant Director, University of Minnesota's Office of Asset Management. Institutional investing in timberland, 2003
-Advisor: Community Growth Institute. Review of MN Re-Leaf grant proposal, 2003
-Advisor: Forest Technologies Group. Background information on state and regional forest management organizations, systems, policies, and practices, 2003
-Advisor: Blandin Foundation. Steering Committee to plan and implement the Vital Forests/ Vital Communities forums on globalization and Minnesota's forests and forest-based industry, 2003-present
-BearingPoint, Inc., 2003

Michael A. Kilgore (continued)

-Consultation: UPM Kymmene, 2004
-Consultation: Potlatch Corporation, 2004-present
-Member: MN Pollution Control Agency's Forest Products Environmental Review Task Force, 2004
-Consultation: Development of Riparian Science Technical Committee process for the Minnesota Forest Resources Council, 2004
-Consultation: Ontario Ministry of Natural Resources, log trucking rates in Minnesota, 2004
-Consultation: Blandin Paper Company and The Nature Conservancy, Forest Legacy easements, 2004
-Consultation, Minnesota Pollution Control Agency–addressing timber harvesting impacts through state environmental review processes, 2004
-Canadian Embassy: Invited participant in 2004 International Forestry Partnership Program, Nova Scotia and Ontario CA, 2004
-Consultation: MN DNR and Environmental Quality Board on use of Timber Harvesting GEIS findings in future project-specific environmental review, 2004
-Consultation: SAPPI (MN operations) on wood fiber supply, economic, and harvesting and processing efficiency issues, 2004
-Forest Resources Association Inc.'s 2004 Lake States Regional Technical Writing Award (Cost of Voluntary Timber Harvesting Guidelines, Kilgore and Blinn 2003).
-Lake States Forestry Alliance, 2004
-Jaakko Poyry Consulting, Inc., 2004
-Hosted visit from Chinese delegation organized by International Paper; led discussion of forest land values and property tax policies. St. Paul, MN, 2005
-Governor's Task Force: Competitiveness of MN's Primary Forest Products Industry, 2005-present
-Governor's Task Force Implementation Team–implementation of Governor's Task Force: Competitiveness of MN's Primary Forest Products Industry recommendations, 2005
-USDA-Forest Service: Indicators and data assessment for the economic, institutional, and legal framework for sustainable forestry in the US, Montreal Process Criteria and Indicators, National Report, 2005
-Blandin Paper Company and Time, Inc. meeting on forest certification, 2005
-Potlatch Corporation–Dual certification of corporate forest lands, 2005
-Consultation: MFRC's Information Management Committee. Forest land parcelization and valuation trends. Duluth, MN, 2005
-Participant: Sustainable Forest Incentives Act Review Advisory Task Force. MN forest property tax law revisions, 2005
-Consultation: John Curry, Minnesota Campaign for Conservation–understanding major trends, issues, and implications associated with forest land ownership, 2005
-International Paper , 2005
-SAPPI, Cloquet Division, 2005
-MN Forestry Association, 2005-present
-MN Logger Education Program, 2005-present
-MN Department of Natural Resources, 2005-present
-The Blandin Foundation, 2005-present
-Scientific Certification Systems, 2005-present
-Chair, Governor Pawlenty's Conservation Legacy Council, 2006

Michael A. Kilgore (continued)

-Member, MN Master Logger Certification Program Certification Board, 2006
-Member, MN Sustainable Forest Incentives Act Study Task Force, 2006
-Advisor: MN DNR and The Nature Conservancy. Property taxes impacts associated with Sugar Hills/Floodwood River and Little Fork Conservation Areas Forest Legacy Project, 2006

9. Membership and offices held in professional organizations:

-Society of American Foresters
-Minnesota Delegate (6th District)–Council for Agricultural Research, Extension, and Teaching (CARET). Washington, D.C., 2001
-Society of American Forester's National Committee on Forest Policy, 2003-present
-Member: MLEP's Minnesota Master Logger Certification Program Working Group, 2005-present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2001, Statistics short course. Hamline University, MN
-2001, University of Minnesota Principal Investigator Training Parts I and II
-2001, New Faculty Orientation, University of Minnesota
-2001, Designing Effective Classroom Sessions Workshop, University of Minnesota
-2001, Effective Writing Workshop, University of Minnesota
-2001, Transportation and the Environment Conference-Center for Transportation Studies, University of Minnesota
-2001, Travel to Finland to develop contacts and collaborative research opportunities with faculty from the: University of Helsinki, University of Joensuu, European Forest Research Institute, Finnish Forest Research Institute, Finnish Forest Association, MTK, and UPM Kymmene
-2001, Minnesota Environmental Initiative, Environmental Policy Forum. 2002 Legislative Forum: A Bipartisan Dialogue
-2002, Environmental and Resource Economics Seminar Series, Department of Applied Economics
-2002, State SAF Meeting. St. Cloud, MN
-2002, Grant Writing Seminar. Getting Started as a Successful Grant Writer and Academician, Minneapolis, MN
-2002, Minnesota Timber Producers Annual Meeting. Duluth, MN
-2002, NCASI Forestry BMP Research Symposium. Atlanta, GA
-2002, Western Forest Economist Meeting. Welches, OR
-2002, Midwest Forest Economists Meeting. Stillwater, MN
-2002-2003, Bush Early Career Faculty Development Program, University of Minnesota
-2002, State SAF Meeting. Detroit Lakes, MN
-2003, SAF National Convention, Buffalo, NY
-2003, Forest Management in the United States and Canada: Prospect for Understanding, Missoula, MT
-2003, Audited Stat 5302: Applied Regression Analysis (Summer Term)

Michael A. Kilgore (continued)

-2003, Midwest Forest Economists/Mensurationists Meeting, Madison, WI
-2003, Blandin Foundation's Vital Forests-Vital Communities Forum, Plymouth, MN
-2004, Regional Policy Initiative Conference, St. Paul, MN
-2004, SAF National Convention. Edmonton, AB
-2004, Tour of provincial forest management policies and practices. Nova Scotia and Ontario, Canada
-2005, SAF National Convention. Dallas, TX
-2006, SAF National Convention, Pittsburg, PA
-2006, Forest Stewardship Conference, St. Johns University, Collegeville, MN
-2006, MN SAF Annual Meeting, Brainerd, MN

11. External grants and other research funding during the last five years:

- MIN-42-049. Identifying, measuring, and capturing forest values in an economic context, 2001
- 405-6391. State government programs regulating the forestry practices on nonfederal forest landowners: An assessment. Kilgore, M.A., P.V. Ellefson. USDA-Forest Service, Southern Research Station. ($30,000) 2001- 2003
- 405-6420. Regional park planning for nonmetropolitan urban areas. G. Orning, D. Anderson, M. Kilgore. Legislative Commission on Minnesota Resources ($86,000) 2005-2007
- 405-6425. Forest resource economics and policy research: review and evaluation of current and future directions. P. Ellefson, M. Kilgore, J. Granskog. USDA-Forest Service, Southern Research Station ($5,000) 2004
- 405-6429. Valuing rural forest land: A property price approach. S. Snyder, M. Kilgore. USDA-Forest Service, North Central Research Station ($27,996) 2003
- 405-6435. Forest products and related research capacity in foreign countries: a preliminary review and comparison of structure, conduct, and performance. P. Ellefson, K. Skog, M. Kilgore. USDA-Forest Service, Forest Products Laboratory ($24,000) 2004
- 405-6444. Increasing forest productivity at the landscape scale. T. Crow, M. Kilgore, D. Lytle, J. Manolis. USDA-Forest Service, North Central Research Station ($58,800) 2003
- 405-6472. Revising North Central forest management guidelines to address diverse ecological, economic, and social objectives. B. Palik, A. Ek, M. Kilgore, M. Prouty, S. Katovitch. USDA-Forest Service, North Central Research Station ($131,000) 2004-2006
- 405-6479. Developing a certification system for Minnesota's nonindustrial private forest lands. M. Kilgore, D. Anderson, P. Ellefson, A. Ek. The Blandin Foundation ($179,000) 2004-2007
- 405-6484. Timber harvesting GEIS Assessment Study. M. Kilgore, A. Ek. Minnesota Department of Natural Resources ($124,000) 2004-2006
- 405-6486. Existing and potential incentives for practicing sustainable forestry on nonindustrial private forest lands. J. Greene, S. Daniels, M. Jacobson, M. Kilgore, T. Straka. National Commission on Science for Sustainable Forestry ($50,000) 2004-2006
- 405-6495. An empirical assessment of the cost of applying Minnesota's Forest Management Guidelines. M. Kilgore, C. Blinn. USDA-Forest Service, North Central Research Station ($50,000) 2005-2009

Michael A. Kilgore (continued)

- 405-6508. Evaluating the financial and economic impacts of retention and disposal policies for county tax forfeited forest land in northern Minnesota. M. Kilgore. Minnesota Association of County Land Commissioners ($35,250) 2005-2007
- 405-6515. Economic structure, conduct and performance of US wood-based industry: An assessment of current status. P. Ellefson, M. Kilgore. USDA-FS Southern Research Station ($30,000) 2005-2007
-405-6520. Evaluating the financial and economic impacts of retention and disposal policies for county tax forfeited forest land in northern Minnesota. M. Kilgore. Minnesota Association of County Land Commissioners ($4,700) 2005-2006
-405-6534. Estimating MN family forest owner participation in the Sustainable Forest Incentive Act at alternative incentive payment levels. M. Kilgore. Blandin Foundation ($50,000) 2006-2008
-405-6540. Assessing drivers of and trends in forest parcelization and development in Minnesota: An Itasca County case study. M. Kilgore. Minnesota Forest Resources Council ($30,563) 2006-2007
- 405-9001. Third party certification of private woodlands. R. Stine, B. Joeselyn, D. Chura, M. Kilgore. Legislative Commission on Minnesota Resources ($376,000) 2005-2007

1. Name: **Joseph F. Knight**

2. Title: Assistant Professor

   Specialization: Geographic Information Science
   Appointment: 9 month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Purdue University	Natural Resources & Environmental Science	B.S.		1997
North Carolina State University	Forestry	PhD		2002

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Geographic Information Science
   Dates: 2007
   Total Years:

   Institution: North Carolina State University
   Title: Research Associate
   Specialization: Remote Sensing
   Dates: 2000-2002
   Total Years: 2

   Employer: US EPA
   Title: Research Biologist
   Specialization: Remote Sensing
   Dates: 2003-2007
   Total Years: 4

   Employer: US EPA
   Nature of Work: Remote Sensing
   Title: Analyst
   Dates: 1998-1999
   Total Years: 1

5. Teaching experience:

   Institution: North Carolina State University
   Rank: Adjunct Assistant Professor
   Specialization: Remote Sensing
   Dates: 1998-2007
   Total Academic Years: 9

Joseph F. Knight (continued)

Institution: University of North Carolina
Rank: Lecturer
Specialization: Remote Sensing
Dates: 2001-2002
Total Academic Years: 1

6. Dates of appointment and promotion at present institution:

Title	Date
Assistant Professor	2007

7. List of publications during the past five years:

Khorram, S., J. F. Knight, and H. I. Cakir. 2003. Thematic accuracy assessment of regional scale land cover data. In *Remote Sensing and GIS Accuracy Assessment*, eds., Lunetta, R. S., and J. G. Lyon. Boca Raton: CRC Press.

Knight, J. F. 2002. Improving estimates of the accuracy of thematic maps. Ph.D. Dissertation. North Carolina State University.

Knight, J. F., and R. S. Lunetta. 2003, An experimental assessment of minimum mapping unit variability. *IEEE Transactions on Geoscience and Remote Sensing* 41(9).

Knight, J. F., and R. S. Lunetta. 2006. Regional scale land cover characterization using MODIS NDVI 250 m multi-temporal imagery: A phenology-based approach. *GIScience and Remote Sensing* 43(1):1-23.

Lunetta, R. S., J. F. Knight, J. Ediriwickrema, J. G. Lyon, and L. D. Worthy. 2006. Land cover change detection using multi-temporal MODIS NDVI data. *Remote Sensing of Environment* 105:142-154.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Special Accomplishment Recognition Award, US Environmental Protection Agency, 2004, 2005, 2006

9. Membership and offices held in professional organizations:

-Member, American Society for Photogrammetry and Remote Sensing
-Member, IEEE Geoscience and Remote Sensing Society

10. Major professional self-improvement activities during past 10 years, including sabbatical:

11. External grants and other research funding during the last five years:

1. Name: **Cynthia C. Messer**

2. Title: Associate Extension Professor

   Specialization: Tourism-based Management
   Appointment:

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
George Washington University	Education/Human Dev	MA		1988
University of California	History	BA		1976

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Associate Extension Professor
   Specialization: Tourism-based Management
   Dates: 2002-present
   Total Years: 5

   Institution: University of Minnesota
   Title: Assistant Professor and Extension Educator
   Specialization: Tourism-based Management
   Dates: 1999-2001
   Total Years: 2

   Institution: University of Minnesota
   Title: Instructor and Extension Educator
   Specialization: Tourism-based Management
   Dates: 1998-1999
   Total Years: 1

   Institution: University of Minnesota
   Title: Research Fellow
   Specialization: Tourism-based Management
   Dates: 1993-1998
   Total Years: 5

   Employer: Dakota County Tourism & Convention Bureau
   Nature of Work: Promote tourism
   Title: Executive Director
   Dates: 1992-1993
   Total Years: 1

Cynthia C. Messer (continued)

Employer: National College
Nature of Work: Travel and tourism
Title: Program Coordinator and faculty
Dates: 1986-1993
Total Years: 7

Employer: Institute of Certified Travel Agents
Nature of Work: Travel career development
Title: National Coordinator
Dates: 1984-1986
Total Years: 2

Employer: Meridian International
Nature of Work: Travel counselor
Title: International Travel Counselor
Dates: 1980-1984
Total Years: 4

Employer: Ferguson-Gates Travel
Nature of Work: Travel counselor
Title: Travel Counselor and Group Department Manager
Dates: 1876-1980
Total Years: 4

5. Teaching experience:

Institution: University of Minnesota
Rank: Instructor to Associate Extension Professor
Specialization: Tourism-based Management
Dates: 1998-present
Total Academic Years: 9

6. Dates of appointment and promotion at present institution:

Title	Date
Associate Extension Professor	2002
Assistant Professor/Extension Educator	1999
Instructor/Extension Educator	1998

Cynthia C. Messer (continued)

7. List of publications during the past five years:

Messer, C. C., et al. 2005. *Wildlife Tourism: Opportunities and examples*. St. Paul, MN: University of Minnesota Tourism Center.
Messer, C. C., et al. 2004. *Community Tourism Development*. 2d ed. St. Paul, MN: University of Minnesota Tourism Center.
Messer, C. C. 2004. *At Your Service: Working with multicultural customers*. St. Paul, MN: University of Minnesota Extension.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

- 2003, World Tourism Organization. Presenter and workshop facilitator at 3 regional conferences
- 2004, World Tourism Organization, UNICEF and Ecpat regarding the sexual exploitation of children in travel and tourism
- 2004, Conference Moderator, North American launch of the Code of Conduct, UNICEF Headquarters in New York
- 2004, Invited by Marilyn Carlson Nelson to accompany her to Carlson Companies annual business conference in Aruba to help launch their involvement with Code of Conduct to Protect Children from Sexual Exploitation in Travel & Tourism
- 2005, ECPAT USA. Developed curriculum for use in Mexico tourism industry training for the protection of children from sexual exploitation in travel and tourism
- 2006, Brazilian Ministry of Tourism, training on protection of children from sexual exploitation in tourism
- 2006, Collaborated with the University of Minnesota Human Rights Program, Department of Political Science, and the Carlson Companies in planning and delivering a conference on sexual trafficking of children in travel and tourism
- 2006, Customer service presentation to volunteers and staff of Centerplate Concessions, Xcel Energy Center
- 2006, Invited keynote speaker, Tourism Saskatchewan regional community tourism conference
- 2006, Invited session moderator and panelist, plenary session on education, World Tourism Forum for Peace and Sustainable Tourism, Brazil

9. Membership and offices held in professional organizations:

- Member, International Federal of Women's Travel Organizations, 1988-present
- Member, UN World Tourism Organization, Task Force to Protect Children from Sexual Exploitation in Tourism, 1996-present
- Member, Minnesota Community and Natural Resources Association, 1998-present
- Academic Advisor to the Executive Committee, UN World Tourism Organization, Task Force to Protect Children from Sexual Exploitation in Tourism, 2000-present
- Member, National Extension Design Team, 2004-present

Cynthia C. Messer (continued)

- Steering Committee Chair, Code of Conduct to Protect Children from Sexual Exploitation in Travel and Tourism, 2004
- Advisory Committee, Washburn High School Travel & Tourism Academy, 2004
- Minnesota Executive Women in Tourism - Vice President 2003-2004, President 2004-2005
- Standing Committee Director, International Federation of Women's Travel Organizations, 2004
- Member, Community Development Society, 2004-present
- Member, International Society of Travel & Tourism Educators, 2005-present
- Member, Women in Tourism International Association, 2006-present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

- 2004, Cross-Cultural Communication, Creating a Supportive Environment, Census Data, Blogging, and Outlook workshops, University of Minnesota.
- 2004, Minnesota Governor's conference on Tourism.
- 2005, Tour Minnesota Association, attended meetings
- 2005, Digital Teaching short course, University of Minnesota
- 2005, International Society of Travel & Tourism Educators annual conference, Chicago
- 2005, Regional Extension Tourism conference, Galena, IL
- 2006, National Extension Tourism conference, Burlington VT
- 2006, International Society of Travel & Tourism Educators annual conference, Las Vegas
- 2006, NAFSA: Association of International Educators conference, Montreal
- 2006, MN State Tourism conference

11. External grants and other research funding during the last five years:

1. Name: **Rebecca A. Montgomery**

2. Title: Assistant Professor

   Specialization: Forest ecology, ecophysiology, tropical ecology
   Appointment: 9-month tenure-track

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Occidental College	Biology	A.B.		1994
University of Connecticut	Ecology	PhD		1999

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Forest ecology, ecophysiology, tropical ecology
   Dates: 2004-present
   Total Years: 3

   Institution: University of Minnesota
   Title: Research Associate
   Specialization: Forest ecology, ecophysiology, tropical ecology
   Dates: 2003-2004
   Total Years: 1

   Institution: University of Wisconsin
   Title: Research Associate
   Specialization: Botany
   Dates: 2000-2003
   Total Years: 3

   Institution: Organization for Tropical Studies and Smithsonian Tropical Research Institute
   Title: Research Fellow
   Specialization: Advanced Comparative Tropical Ecology
   Dates: 2001
   Total Years: .25

5. Teaching experience:

   Institution: University of Minnesota
   Rank: Assistant Professor
   Specialization: Ecology
   Dates: 2004 - present
   Total Academic Years: 3

Rebecca A. Montgomery (continued)

Institution: University of Minnesota
Rank: Research Associate
Specialization: Ecology
Dates: March 2003 - July 2004
Total Academic Years: 1.5

6. Dates of appointment and promotion at present institution:

Title	Date
Assistant Professor	2004
Research Associate	2003

7. List of publications during the past five years:

Dickie, I. A., R. A. Montgomery, P. B. Reich, and S. A. Schnitzer. 2006. Physiological and phenological responses of oak seedlings to oak forest soil in the absence of trees. *Tree Physiology* 27:133-140.

Givnish T. J., R. A. Montgomery, and G. Goldstein. 2004. Adaptive radiation of photosynthetic physiology in the Hawaiian lobeliads: Light regimes, static light responses, and whole-plant compensation points. *American Journal of Botany* 91:228-246.

Harms, K. E., J. S. Powers, and R. A. Montgomery. 2004. Variation in small sapling density, understory cover and resource availability in four Neotropical forests. *Biotropica* 36: 40-51.

Montgomery, R. A. 2004. Effects of understory vegetation on patterns of light attenuation near the forest floor. *Biotropica* 36:33-39.

Montgomery, R. A. 2004. Relative importance of photosynthetic physiology and biomass allocation for tree seedling growth across a broad light gradient. *Tree Physiology* 24:155-167.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Judge for Physiological Ecology section Buell/Braun awards for Best Poster/Paper in physiological ecology at the annual ESA meeting, 2005
-Third place prize (w/group), University of Minnesota Graduate School competition for proposals on "Innovations on Graduate Education", 2006
-Appointed senior member, Plant Biological Sciences program, 2006

9. Membership and offices held in professional organizations:

-Ecological Society of America
-Association for Tropical Biology and Conservation
-Botanical Society of America
-Society of American Foresters
-Xi Sigma Phi

Rebecca A. Montgomery (continued)

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2004, Getting started as a successful grant writer and academician, University of Minnesota
-2004, Forest Landscape Goals for NE Minnesota: An ecosystem approach
-2004, Responsible Conduct in Research
-2005, Bush Faculty Early Career Teaching Program
-2005, Responsible Conduct in Research
-2005, Interagency Information Cooperative. Scientist's/Analyst' meeting
-2005, University of Minnesota Center for Community Genetics, Symposium entitled Community Genetics and Phylogenetics
-2005, Hawaii, USA. Hawaii Volcanoes National Park
-2005, Sabah, Malaysian Borneo. Visited lowland dipterocarp forest; montane oak-chesnut forest; Kinabalu National Park; Sepilok Orang-Utan Rehabilitation Center; Sandakan and Kinabalu Herbaria
-2005, Porcupine Mountains. Visited research sites of Lee Frelich and Craig Lorimer
-2006, "Ecology in an Era of Globalization: Challenges and Opportunities for Environmental Scientists in the Americas," Merida, Yucatan, Mexico
-2006, Minnesota Natural Resources Conference, Brainerd, MN
-2006, LTER All Scientist's Meeting, Estes Park, CO
-2006, national planing meeting to develop a continental-scale integrated response to the National Ecological Observatory Network (NEON) Request for Information (FRI), Las Cruces, NM

11. External grants and other research funding during the last five years:

- MIN-42-074. Net primary productivity and carbon sequestration in the Lake States forests, 2004-
- 405-5945. Tree physiological response to climate across a latitudinal gradient, RA Montgomery, UofMN, Office of the Dean of the Graduate School, 2005-2006
- 405-6422. Functional responses of overstory retention and understory competition in red pine ecosystems, B. Palik, P. Reich, J. Zasada, R, Montgomery, USDA Forest Service, 2004-
- 405-6530. Collaborative research synergistic effects of light and water of physiological diversification in the Hawaiian lobeliads. R. Montgomery, National Science Foundation ($230,000) 2006-2009

1. Name: **Kristen C. Nelson**

2. Title: Assistant Professor

   Specialization: Human dimensions of natural resources and environmental management; environmental sociology
   Appointment: 9-month, tenure track

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Michigan	Environ. Sociology	Ph.D.		1994
University of Michigan	Environ. dispute resolution & policy dialogues	M.S.		1985
St. Olaf College	Environ. Ethics, ecology & environ. education	B.A.		1977

4. Professional and research experience held:

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: Human dimensions of natural resources and environmental management; environmental sociology
   Dates: 2005-present
   Years: 2

   Institution: University of Minnesota
   Title: Assistant Professor
   Specialization: Human dimensions of natural resources and environmental management; environmental sociology
   Dates: 1999-2005
   Years: 6

   Institution: Gettysburg College
   Title: Assistant Professor
   Specialization: Environmental problem-solving, sustainable development in Latin America, environmental movements, etc.
   Dates: 1997 to 1999
   Years: 2

   Institution: El Colegio de la Frontera Sur (ECOSUR), Mexico
   Title: Professor
   Specialization: Rural sociology
   Dates: 1994-1996
   Years: 2

Kristen C. Nelson (continued)

Institution: University of Michigan
Title: Lecturer and other teaching
Specialization: Issues of race and gender in natural resources
Dates: 1983-84; 1987-89, 1993
Years: 3+

Institution: University of Michigan
Title: Coordinator
Specialization: Social Science
Dates: 1984-85
Years: 1

Employer: INFACT, Minneapolis, MN
Nature of Work: Developed educational campaigns on breast feeding, workshops on infant formula problem in the U.S. and Third World, seminars on citizen organizing and media campaigns
Title: National organizer
Dates: 1979-81
Years: 2

5. Teaching experience:

Institution: University of Minnesota
Rank: Assistant / Associate Professor
Specialization: Human Dimensions
Dates: 1999-present
Total Academic Years: 8

Institution: Gettysburg College
Rank: Assistant Professor
Specialization: Environmental Sociology
Dates: 1997-1999
Total Academic Years: 2

Institution: El Colegio de la Fronter Sur
Rank: Principle Investigator
Specialization: Natural Resource and Agricultural Sociology
Dates: 1994-1997
Total Academic Years: 3

6. Dates of appointment and promotions at present institution:

Title	Date
Associate Professor	2005
Assistant Professor	1999

Kristen C. Nelson (continued)

7. List of publications during the last five years:

Andow, D. A., E. M. G. Fontes, A. Hilbeck, J. Jonston, D. M. F. Capalbo, K. C. Nelson, E. Underwood, G. P. Fitt, E. R. Sujii, S. Arpaia, A. N. E. Birch, A. Pallini, and R. E. Wheatley. 2006. Supporting risk assessment of Bt cotton in Brazil: synthesis and recommendations. In *Environmental risk assessment of genetically modified organisms volume 2: Methodologies for assessing Bt cotton in Brazil*, eds., Hilbeck, A., D. A. Andow, and E. M. G. Fontes, 346-361. Wallingford, UK: CABI Publishing.

Baker, L.A., P. Hartzheim, S. Hobbie, K. C. Nelson, and J. King. 2006. Effect of consumption on fluxes of carbon, nitrogen and phosphorus through households. *Urban Ecosystems, DOI 10.1007/s11252-006-0014-3.*

Bengston, D., N. J. Fletcher, and K. C. Nelson. 2004. Public policy instruments for managing urban growth: An assessment of lessons learned. In *Landscape and Urban Planning* 69:271-286.

Blissett, H., S. Simmons, N. Jordan, and K. C. Nelson. 2004. Evaluation of learning group approaches for fostering integrated cropping systems management. *Journal of Natural Resource and Life Science Education* 33:134-140.

Capalbo, D. M. F., M. F. Simon, R. O. Nodari, S. Valle, R. F. dos Santos, L. Coradin, J. De O. Duarte, J. E. Miranda, E. P. F. Dias, Le Quang Quyen, E. Underwood, and K. C. Nelson. 2006. Consideration of problem formulation and option assessment for Bt cotton in Brazil. In *Environmental risk assessment of genetically modified organisms volume 2: Methodologies for assessing Bt cotton in Brazil*, eds., Hilbeck, A., D. A. Andow, and E. M. G. Fontes, 67-92. Wallingford, UK: CABI Publishing.

Fingerman Johnson, J., D. N. Bengston, D. P. Fan, and K. C. Nelson. 2006. U.S. policy response to the fuels management problem: An analysis of the public debate about the Healthy Forests Initiative and the Healthy Forests Restoration Act. In *Fuels management—How to measure success: Conference proceedings*, comps., P. L. Andrews and B. W. Butler, 59-66. March 2006. Portland, OR. Proceedings RMRS-P-41. Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station.

Hilbeck, A., D. A. Andow, N. Birch, G. Fitt, J. Johnston, K. C. Nelson, D. Somers, E. Underwood, and R. Wheatley. 2004. Risk assessment of Bt maize in Kenya: Synthesis and recommendations. In *Environmental risk assessment of genetically modified organisms: A case study of Bt maize in Kenya*, eds. A. Hilbeck and D. A. Andow, 1:251-271. CABI Publishing.

Hilbeck, A., K. C. Nelson, D. A. Andow, and E. Underwood. 2004. A scientist's use of Problem Formulation and Options Assessment (PFOA) in risk assessment of GM crops. In *Risk hazard damage: Specification of criteria to assess environmental impact of genetically modified organisms*, 131-147. Proceedings for the International Symposium of the Ecological Society of Germany, Austria, and Switzerland. Hanover, Germany.

Jakes, P., K. C. Nelson, E. Lang, M. Monroe, S. Agrawal, L. Kruger, and V. Sturtevant. 2002. A model for improving community preparedness for wildfire. In *Wildfire and human dimensions proceedings*. St. Paul, MN: USDA-FS North Central Research Station.

Johnson, J. F., D. Bengston, K. C. Nelson and D. Fan. 2006. Defensible space in the news: Public discussion of a neglected topic. In *The public and wildland fire management: Social science findings for managers,* tech ed. S. M. McCaffrey, 169-174. Gen. Tech. Rep. NRS-1. Newtown Square, PA: USDA-Forest Service, Northern Research Station.

Kristen C. Nelson (continued)

Johnson, K., and K. C. Nelson. 2004. Conservation through co-management: Evaluation of a local common property regime within a national park in Mexico. *Journal of Human Ecology* 32(6):709-734.

Johnson Shiraltpour, H., M. C. Monroe, K. C. Nelson, and M. Payton. 2006. Working with neighborhood organizations to promote wildfire preparedness. In *The public and wildland fire management: Social science findings for managers,* tech ed. S. M. McCaffrey, 151-162. Gen. Tech. Rep. NRS-1. Newtown Square, PA: USDA- Forest Service, Northern Research Station.

Krueger, L., M. Monroe, K. C. Nelson, P. Jakes, V. Sturtevant, A. Agrawal, E. Lang, and S. McCaffrey. 2002. Keys to community preparedness for wildfire. In *Wildfire and human dimensions proceedings*. St. Paul, MN: USDA-FS North Central Research Station.

Lang, E., K. C. Nelson, and P. Jakes. 2006. Working with community leadership to promote wildfire preparedness. In *The public and wildland fire management: Social science findings for managers,* tech. ed., S. M. McCaffrey, 137-150. Gen. Tech. Rep. NRS-1. Newtown Square, PA: USDA-Forest Service, Northern Research Station.

Monroe, M., and K. C. Nelson. 2003. Developing educational messages: Assessing public perceptions of defensible space. In *Proceedings of National Association of Applied Environmental Education and Communication conference*, Anchorage, AK.

Monroe, M. C., and A. W. Bowers with K. C. Nelson. 2002. Public perceptions of defensible space and the use of prescribed fire in Florida's wildland-urban interface. Report to the USDA Forest Service, North Central Research Station, Chicago.

Monroe, M. C., and K. C. Nelson. 2004. The value of assessing public perceptions: Wildland fire and defensible space. *Applied Environmental Education and Communication* 3:109-118.

Monroe, M. C., K. C. Nelson, and M. Payton. 2006. Communicating with homeowners in the interface about defensible space. In *The public and wildland fire management: social science findings for managers,* tech. ed., S. M. McCaffrey, 99-110. Gen. Tech. Rep. NRS-1. Newtown Square, PA: USDA-Forest Service, Northern Research Station.

Nelson, K. C. 2005. Commentary on "Hierarchy theory in sociology, ecology, and resource management: A conceptual model for natural resource and environmental sociology and socioecological systems" by W. Warren. *Society and Natural Resources* 18(4):467-470.

Nelson, K. C., J. F. Johnson, M. Monroe, and A. Bowers. 2002. Public perceptions of defensible space and landscape values in Minnesota and Florida. In *Wildfire and human dimensions proceedings*. St. Paul, MN: USDA-FS North Central Research Station.

Nelson, K. C., and B. de Jong. 2003. Making global initiatives local realities: Carbon mitigation projects in Chiapas, Mexico. *Global Environmental Change*, Elsevier Science Ltd., 13/1: 19-30.

Nelson, K. C., G. Kibata, M. Lutta, J. O. Okuro, F. Muyekho, M. Odindo, A. Ely, and J. Waquil. 2004. Problem Formulation and Options Assessment (PFOA) for genetically modified organisms: The Kenya case study. In *Environmental risk assessment of genetically modified organisms: A case study of Bt Maize in Kenya*, eds. A. Hilbeck and D. A. Andow, 1:57-82. CABI Publishing.

Nelson, K. C., M. C. Monroe, J. Fingerman Johnson, and A. Bowers. 2005. The look of the land: homeowner values, actions, and defensible space landscapes in Minnesota and Florida. *Society and Natural Resources* 18(4):321-336.

Nelson, K. C., M. C. Monroe, J. Fingerman Johnson, and A. Brower. 2005. Living with fire: Homeowner assessment of landscape values and defensible space in Minnesota and Florida, U.S.A. *International Journal of Wildland Fire* 14(1):413-425.

Kristen C. Nelson (continued)

Nelson, K. C., S. Spencer, and P. Archer. 2002. Periurban greenways: Wildlife and homeowner interactions for the Bayport Wildlife Management Area. Report for the Division of Wildlife, Minnesota Department of Natural Resources.

Nerbonne, J. F., and K. C. Nelson. 2004. Volunteer macroinvertebrate monitoring in the United States: Resource mobilization and comparative state structures. *Society and Natural Resources* 17:1-23.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Member of the Organizing Committee, Rio+10: Environment, Development, and Security, MacArthur Consortium Workshop, University of Minnesota, 2002
-Discussed with Kenyan Coordinator of the MSID Study Abroad Program, Nairobi Kenya, the curriculum, staffing ways this program could fit CNR students, and how to work with the students when they return to Minnesota, 2002.
-Organized the New World Agriculture and Ecology International Meeting, St. Paul, 2002
-Collaborative project with the Kenyan government regarding Needs Assessment Guidelines for the review of transgenic organisms prior to introduction into the country; Coordinator of the Needs Assessment Section, 2002
-Award of Distinction, Regional Sustainable Development Partnerships, 2003
-Participant, Ecological Roundtable, Minnesota Department of Natural Resources, St. Cloud Civic Center, MN, 2003
-Collaborative project with Kenyan, Brazilian, and Vietnamese governments: Needs and Risk Assessment Guidelines for the review of transgenic organisms prior to introduction into the country; Coordinator of the Needs Assessment Section, part of a panel of 30 international scientists, under the patronage of the International Organization for Biological Control (IOBC), funded by the Swiss Agency for Development and Cooperation (SDC), 2003
-Presenter, GMO Guidelines Project Advisory Board Meeting, Bangkok, 2003
-Section Coordinator, Problem Formulation and Option Assessment (PFOA), Consultation with the Kenyan, Brazilian, and Vietnamese governments regarding environmental risk assessment guidelines for the review of transgenic organisms prior to introduction into the country, funded by the Swiss Agency for Development and Cooperation (SDC), 2002-2005
-Richard C. Newman Art of Teaching Award, College of Natural Resources, 2004
-GMO Guidelines Project Advisory Board Member, 2001-2004
-Minnesota Pollution Control Agency, 2006
-Southern Forest Extension Specialists Award in Mixed Media: High Distinction in Journal Publications, 2005-06, for "The Value of Assessing Public Perceptions: Wildland Fire and Defensible Space"

9. Membership and offices held in professional organizations:

-Society and Natural Resources
-American Sociological Association
-Latin American Studies Association

Kristen C. Nelson (continued)

-Rural Sociological Society
-Steering Committee member, International Project on GMO Environmental Risk Assessment Methodologies (GMO ERA Project), 2005-07.

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1999, Annual Meeting, Rural Sociological Society, Chicago, IL, 1999
-1999, Annual Meeting, American Sociological Society, Chicago, IL., 1999
-2000, University of Minnesota Responsible Conduct in Research Workshops: Parts 1 and 2
-2000, Attended the Conference on Forestry Cooperatives in the Upper Midwest
-2000, DNR Workshop on Nontimber Forest Products at the Cloquet Forestry Station
-2000, Society for Conservation Biology Professional Meetings, Missoula, MT
-2001, Bush Early Career Faculty Program: syllabi revision and teaching philosophy evaluation
-2001, Two Human Subject Review and Research Ethics Workshops
-2001, Safety First Conference, University of Minnesota
-2003-2004, Bush Faculty Development Grant, Enhancing Student learning Through Innovative Teaching and Technology Strategies
-2006, Malaysia Workshop on Risk Assessment for Transgenic Fish

11. External grants and other research funding during the last five years:

- MIN-42-033. Understanding the social context of communities and natural resources: Guidance for management, 2000-2005
-Environmental services in community forestry: Carbon mitigation and participation in Mexico and Nicaragua, #18286, K. Nelson, University of Minnesota-Graduate School Grant-In-Aid ($26,381) 2000-2002
-Implementation of integrated weed management through collaborative learning, N. Jordan, R. Becker, J. Gunsolus, K. Nelson, and S. Damme, USDA-Integrated Pest Management Grants Program ($41,804) 2000-2002
-Public perceptions of defensible space and the use of prescribed fire in the wildland-urban interface, K.C. Nelson, USDA-FS, North Central Social Science Cooperative Research ($22,000) 2001-2002
-Greenway Homeowers and wildlife interactions, K.C. Nelson, Wildlife Division, MNDNR, ($17,200) 2001-2002
-Coupled biogeochemical cycles in urban and agricultural ecosystems: Role of hydrology, stoichiometry, spatial linkages, and human behavior. National Science Foundation, Biocomplexity Program. P. Brezonick, L. Baker, D. Mulla, S. Hobbie, and K. C. Nelson ($355,317) 2003-2005
-Padumpur: The social, economic assessment of citizen initiated resettlement project. Save the Tiger Fund, US Fish and Wildlife Foundation, K. C. Nelson, D. Smith and N. Dhakal, 2004-2005
-Midwest community wildfire protection plans: Enhancing collaboration and building social capacity. USDA JFSP. K.C.Nelson, P. Jakes and D. Williams, 2005-2009

Kristen C. Nelson (continued)

-GMO Guidelines Project: Phase II tools and comparative implementation of PFOA, Swiss Development Council. K.C. Nelson, Hilbeck et al., 2005-2008
-Phase II: Padampur-the social, economic, and biodiversity assessment of citizen initiated resettlement projects. Save the Tiger Fund. K. Nelson, JLD. Smith, and N. Dhakal, 2005-2006
-405-6388. Community partnerships: Landscape-level strategies to reduce risk & loss from wildfire, K. C. Nelson, USDA-FS, North Central Social Science Cooperative Research ($117,000) 2001-2006
-405-6406. Neighborhood associations: Influence of social contracts on homeowner preparedness for wildfire. K. C. Nelson. USDA Forest Service ($37,800) 2002-2006
-405-6426. Metropolitan trout streams: Urban residents' perception,and management of unique urban resources. K. C. Nelson. USDA Forest Service NCRS ($29,580) 2003-2005
-405-6466. Public discourses about wildfire and fire management: A computer content analysis. K.C. Nelson. USDA Forest Service NCRS ($13,524) 2004-2005
-405-6496. Examining the local social context and processes of Community Wildfire Protection Plans in Minnesota and Florida. K. C. Nelson. USDA-Forest Service ($57,726) 2005-2010
-405-9106. Biosafety testing methodologies for transgenic plants. K. C. Nelson. Swiss Development Cooperative Agency ($47,587) 2005-2007

1. Name: **Jack Oleksyn**

2. Title: Research Associate

   Specialization: Ecophysiology and tree biology
   Appointment: 12-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Academy of Agriculture, Poznan	Forestry Sciences	Post-doc		1993
Silesian University, Katowice, Poland	Biological Sciences PhD		1982	
St. Petersburg Order of Lenin Forestry Academy, Russia	Forest Engineering	MS		1976

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Research Associate and Graduate Faculty Member
   Specialization: Ecophysiology and tree biology
   Dates: 11/1992 - present
   Total Years: 14

   Institution: Polish Academy of Sciences, Kornik (Poland)
   Title: Associate Professor and Professor
   Specialization: Dendrology
   Dates: 1993-1997
   Total Years: 4

   Institution: Polish Academy of Sciences, Kornik (Poland)
   Title: Associate Professor and Professor
   Specialization: Dendrology
   Dates: 1991-1992
   Total Years: 1

   Institution: University of Wisconsin, Madison
   Title: Visiting Scientist
   Specialization: Biology
   Dates: 1989-1991
   Total Years: 2

   Institution: University of Arizona, Tucson
   Title: Senior Fulbright Scholar
   Specialization: Forestry
   Dates: 1988-1989
   Total Years: 1

Jacek Oleksyn (continued)

Institution: Polish Academy of Sciences, Kornik (Poland)
Title: Assistant Professor and Head, Abiotic Disease Laboratory
Specialization: Dendrology
Dates: 1981-1988
Total Years: 7

Institution: Polish Academy of Sciences, Kornik (Poland)
Title: Senior Graduate Research Assistant and Research Assistant
Specialization: Dendrology
Dates: 1976-1981
Total Years: 5

Institution: Forest-Technical Academy, St. Petersburg (Leningrad), Russia
Title: Student Research Assistant
Specialization: Ecology, anatomy and physiology of trees
Dates: 1972-1975
Total Years: 3

5. Teaching experience:

Institution: Polish Academy of Sciences, Kornik (Poland)
Rank: Associate Professor and Professor
Specialization: Dendrology
Dates: 1993-1997
Total Academic Years: 4

6. Dates of appointment and promotion at present institution:

Title	Date
Research Associate and Graduate Faculty Member	1992

7. List of publications during the past five years:

Bajda, A., T. Chojnacki, J. Hertel, E. Świeżewska, J. Wójcik, A. Kaczkowska, A. Marczewski, T. Bojarczuk, P. Karolewski, and J. Oleksyn. 2005. Light conditions alter accumulation of long chain polyprenols in leaves of trees and shrubs throughout the vegetation season. *Acta Biochimica Polonica* 52:233-241.

Bajda A., J. Wojcik, A. Kaczkowska , M. Marczewski, P. Karolewski, J. Oleksyn, E. Swiezewska, and T. Chojnacki. 2003. Structure and defined by physiology presence of poliprenols in plants. 2nd Polish Biotechnology Congress, Lodz (Poland), 23-27 June 2003:1.

Bojarczuk, K., P. Karolewski, J. Oleksyn, B. Kieliszewska-Rokicka, R. Zytkowiak, and M. G. Tjoelker. 2002. Effect of polluted soil and fertilisation on growth and physiology of silver birch (*Betula pendula* Roth.) seedlings. *Polish Journal of Environmental Studies* 11:483-492.

Jacek Oleksyn (continued)

Daszkiewicz, P., and J. Oleksyn. 2003. Looking for mast pine: The Kherson misson, French espionnage in Polish forests as documented in French Naval Archives. *Sylwan* 147(3):71-83 [in Polish with English summary].

Dickie, I. A., J. Oleksyn, R. B. Reich, P. Karolewski, R. Zytkowiak, A. M. Jagodzinski, and E. Turzanska. 2006. Soil modification by different tree species influences the extent of seedling ectomycorrhizal infection. *Mycorrhiza* 16:73-79.

Edwards, J., P. Reich, J. Oleksyn, and D. Eissenstat. 2003. Causes for differential calcium accumulation among diverse forest trees: The role of root distribution. Proceeding of the 88th annual meeting of The Ecological Society of America held jointly with the International Society for Ecological Modeling-North American Chapter. Savannah, Georgia (http://199.245.200.45/pweb/document/?SOCIETY=esa&YEAR=2003&ID=26705)

Grzebyta J., P. Karolewski, J. Oleksyn, R. Zytkowiak, M. J. Giertych, M. Bakowski, and L. Rachwal. 2003. Effects of elevated temperature and fluorine compounds on host tree–insect herbivory relationships. *Acta Physiologiae Plantarum* 25(3) Supp:64.

Grzebyta, J., P. Karolewski, R. Zytkowiak, M. J. Giertych, A. Werner, M. Zadworny, and J. Oleksyn. 2005. Effects of elevated temperature and fluorine pollution on relations between the penduculate oak (*Quercus robur*) and oak powdery mildew (*Microsphaera alphitoides*). *Dendrobiology* 53:27-33.

Hobbie, S. E., P. B. Reich, J. Oleksyn, M. Ogdahl, R. Zytkowiak, C. Hale, and P. Karolewski. 2006. Tree species effects on decomposition and forest floor dynamics in a common garden. *Ecology* 87:2288-2297.

Karolewski, P., M. J. Giertych, J. Oleksyn, and R. Zytkowiak. 2005. Differential reaction of *Pinus sylvestris*, *Quercus robur* and *Q. petraea* trees to nitrogen and sulfur pollution. *Water, Air, and Soil Pollution* 160:95-108.

Karolewski, P., J. Grzebyta, A. Werner, M. Zadworny, J. Oleksyn, R. Zytkowiak, M. J. Giertych., and L. Rachwal. 2003. Effects of elevated temperature and fluorine compounds on the relationship between English oak and fungus *Microsphaera alphitoides* Griff. Et Maubl. *Acta Physiologiae Plantarum* 25(3) Supp:34.

Kieliszewska-Rokicka, B., J. Oleksyn, R. Zytkowiak, and P. B. Reich. 2003. Links between root carbohydrates and seasonal pattern of soil microbial activity of diverse European populations of *Pinus sylvestris* grown in a provenance plantation. *Acta Societatis Botanicorum Poloniae* 72:167-173.

Oleksyn, J., P. B. Reich, R. Zytkowiak, P. Karolewski, and M. G. Tjoelker. 2003. Nutrient conservation increases with latitude of origin in European *Pinus sylvestris* populations. *Oecologia* 136:220-135.

Oleksyn, J., P. B. Reich, R. Zytkowiak, R. Karolewski, and M. G. Tjoelker. 2002. Needle nutrients in geographically diverse *Pinus sylvestris* L. populations. *Annals of Forest Science* 59:1-18.

Reich, P. B., and J. Oleksyn. 2004. Global patterns of plant leaf N and P in relation to temperature and latitude. In *Proceedings of the National Academy of Sciences of the United States of America [PNAS]* 101:11001-11006 [Reviewed in: **(1)** Hurtley, S. 2004. Limits from leaf litter. *Science* 305:311, Editors' Choice–highlights of the recent literature; **(2)** Hedin, L. O. 2004. Global organization of terrestrial–plant nutrient interactions. *Proc. Natl. Acad. Sci. USA* 101:10849-10850.]

Reich, P. B., J. Oleksyn, J. Modrzynski, P. Mrozinski, S. E. Hobbie, D. M. Eissenstat, J. Chorover, O. A. Chadwick, C. M. Hale, and M. G. Tjoelker. 2005. Linking litter calcium, earthworms and soil properties: A common garden test with 14 tree species. *Ecology Letters* 8:811-818.

Jacek Oleksyn (continued)

Reich, P. B., M. G. Tjoelker, J.-L. Machado, and J. Oleksyn. 2006. Universal scaling of respiratory metabolism, size and nitrogen in plants. *Nature* 439(7075):457-461.

Reich, P. B., I. J. Wright, J. Cavender-Bares, J. M. Craine, J. Oleksyn, M. Westoby, and M. B. Walters. 2003. The evolution of plant functional variation: Traits, spectra, and strategies. *International Journal of Plant Sciences* 164(3 Suppl.):S143-S164.

Savva, Y., J. Oleksyn, P. B. Reich, M. G. Tjoelker, E. A. Vaganov, and J. Modrzynski. 2006. Interannual growth response of Norway spruce to climate along an altitudinal gradient in the Tatra Mountains, Poland. *Trees* 20:735-746.

Withington, J. M., A. D. Elkin, B. Bulaj, J. Olesinski, K. N. Tracy, T. J. Bouma, J. Oleksyn, L. J. Anderson, J. Modrzynski, P. B. Reich, and D. M. Eissenstat. 2003. On the choice of material used for minirhizotron tubes for root research. *New Phytologist* 160:533-544.

Withington, J. M., P. B. Reich, J. Oleksyn, and D. M. Eissenstat. 2006. Comparisons of structure and life span in roots and leaves among temperate trees. *Ecological Monographs* 76:381-397.

Wright, I. J., P. B. Reich, J. H. C. Cornelissen, D. S. Falser, E. Garnier, K. Hikosaka, B. B. Lamont, W. Lee, J. Oleksyn, N. Osada, H. Poorter, R. Villar, D. I. Warton, and M. Westoby. 2005. Assessing the generality of global leaf trait relationships. *New Phytologist* 166:485-496.

Wright I. J., P. B. Reich, J. H. C. Cornelissen, D. S. Falser, P. K. Groom, K. Hikosaka, W. Lee, C. H. Lusk, Ü. Niinemets, J. Oleksyn, N. Osada, H. Poorter, D. I. Warton, and M. Westoby. 2005. Modulation of leaf economic traits and trait relationships by climate. *Global Ecology and Biogeography* 14: 411-421.

Wright, I .J., P. B. Reich, M. Westoby, D. D. Ackerly, Z. Baruch, F. Bongers, J. Cavender-Bares, F. S. Chapin, J. H. C. Cornelissen, M. Diemer, J. Flexas, E. Garnier, P. K. Groom, J. Gulias, K. Hikosaka, B. B. Lamont, T. Lee, W. Lee, C. Lusk, J. J. Midgley, M-L. Navas, Ü. Niinements, J. Oleksyn, N. Osada, H. Poorter, P. Poot, L. Prior, V. I. Pyankov, C. Roumet, S. C. Thomas, M. G. Tjoelker, E. Veneklaas, and R. Villar. 2004. The worldwide leaf economics spectrum. *Nature* 428(6985):821-827.

Zytkowiak, R., K. Przybyl, P. Karolewski, and J. Oleksyn. 2005. Etiology of premature leaf shedding in geographically diverse *Pinus sylvestris* populations. *Polish Journal of Environmental Studies* 14:357-364.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   -2005, Dean's Special Award for Outstanding Scientific Achievement, College of Natural Resources, University of Minnesota, St. Paul, MN
   -2003, Institute for Scientific Information in Philadelphia (ISI Essential Science Indicators^{SM}) data ranks best research scientists by field of research–classified in top 1% researches, among 394,700 scientists active in the field of Plant & Animal Science.
   -2000- present, *Forest Genetics*, Editorial Board member
   -2000-present, *Tree Physiology*, Editorial Review Board member

Jacek Oleksyn (continued)

9. Membership and offices held in professional organizations:

-International Union of Forestry Research Organizations (IUFRO), member, 1981-present
IUFRO Task Force "Environmental Change", Core member, 1996-present
Deputy Coordinator IUFRO Research Group Conifer breeding and genetic resources, 2000-present
-Fulbright Alumni Association, 1989-present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

11. External grants and other research funding during the last five years:

-National Science Foundation (USA), Ecosystem Studies Program, "Collaborative research: Linking leaf and root traits to ecosystem structure and function in a common garden study of 14 temperate tree species," (P. Reich, S. E. Hobbie, J. Oleksyn, PIs) ($630,804), 2002-2005

1. Name: **JeriLynn E. Peck**

2. Title: Research Fellow

   Specialization: Epiphyte ecology, multivariate statistics, and administration
   Appointment: 12-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Natural Resources Science and Management	PhD anticipated 2007		
Oregon State University	Botany and Plant Pathology	MS		1996
Linfield College, Oregon	Environmental Socioeconomics	BS		1992

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Graduate School Fellow and Doctoral Candidate
   Specialization: Natural resources science and management
   Dates: 2005-present
   Total Years: 2

   Institution: University of Minnesota
   Title: Research Fellow
   Specialization: Epiphyte ecology, multivariate statistics, and administration
   Dates: 2001-present
   Total Years: 5

   Institution: University of Missouri
   Title: Research Assistant
   Specialization: Forestry
   Dates: 2000-2001
   Total Years: 1

   Institution: Oregon State University
   Title: Research / Administrative Assistant
   Specialization: Tree genetic research
   Dates: 1997-1998
   Total Years: 1

   Employer: USDA Forest Service, Siuslaw National Forest, Corvallis, OR
   Nature of Work: Independent contractor
   Title: Independent Contractor
   Dates: 2003-2005
   Total Years: 2

JeriLynn E. Peck (continued)

Employer: Missouri Department of Conservation, Columbia, MO
Nature of Work: Biometry
Title: Research Assistant
Dates: 2000-2001
Total Years: 1

Employer: Wall Street Institute, Freiburg, Germany
Nature of Work: Bilingual Receptionist for English language school
Title: Bilingual Receptionist
Dates: 1999-2000
Total Years: 1

5. Teaching experience:

Institution:
Rank:
Specialization:
Dates:
Total Academic Years:

6. Dates of appointment and promotion at present institution:

Title	Date
Graduate School Fellow and Doctoral Candidate	2005
Research Fellow	2001

7. List of publications during the past five years:

Peck, J. E. 2006. Towards sustainable commercial moss harvest in the Pacific Northwest of North America. *Biological Conservation* 28(3):289-297.

Peck, J. E. 2005. What do we know about commercial moss harvest in the Pacific Northwest? *Western Forester* 50(1):16-17.

Peck, J. E., and J. A. Christy. 2006. The Stewardship concept in practice: commercial moss harvest in northwestern Oregon, U.S.A. *Forest Ecology and Management* 225(1-3):225-233.

Peck, J. E., J. Grabner, D. Ladd, and D. Larsen. 2004. Microhabitat affinities of Missouri Ozarks lichens. *Bryologist* 107(1): 47-61.

Zenner, E. K., J. M. Kabrick, R. G. Jensen, J. E. Peck, and J. K. Grabner. 2006. Responses of ground flora to a gradient of harvest intensity in the Missouri Ozarks. *Forest Ecology and Management* 222(1-3): 326-334.

JeriLynn E. Peck (continued)

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   -Independent Contractor, USDA Forest Service, Siuslaw National Forest, Corvallis, OR, 2003-2005
   -University of Minnesota Graduate School Fellow, 2005-2006

9. Membership and offices held in professional organizations:

   -Ecological Society of America
   -Society of American Foresters
   -American Bryological and Lichenological Society
   -International Association of Bryologists

10. Major professional self-improvement activities during past 10 years, including sabbatical:

11. External grants and other research funding during the last five years:

1. Name: **Peter B. Reich**

2. Title: Professor and F. B. Hubachek, Sr. Chair in Forestry

   Specialization: Forest ecology, ecophysiology
   Appointment: 12-month, tenured

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
Goddard College	Creative writing and physics	B.A.		1974
University of Missouri	Forest ecology	M.S.		1977
Cornell University	Environ. Biology and Plant ecology	PhD.		1983

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor and F. B. Hubachek, Sr. Chair in Forest Ecology and Tree Physiology, and University of Minnesota McKnight Distinguished Professor
   Specialization: Forest ecology, ecophysiology
   Dates: 1991-present
   Total Years: 16

   Institution: University of Wisconsin
   Title: Associate Professor
   Specialization: Forest ecology and tree physiology
   Dates: 1989-1991
   Total Years: 2

   Institution: University of Wisconsin
   Title: Assistant Professor
   Specialization: Forest ecology and tree physiology
   Dates: 1985-1989
   Total Years: 4

   Institution: Boyce Thompson Institute
   Title: Postdoctoral Associate
   Specialization: Environmental biology
   Dates: 1982-1985
   Total Years: 3

   Institution: Cornell University
   Title: Graduate Research Assistant and Lecturer
   Specialization:
   Dates: 1979-1981
   Total Years: 2

Peter B. Reich (continued)

Institution: University of Kansas
Title: Research Specialist
Specialization:
Dates: 1978-1979
Total Years: 1

5. Teaching experience:

Institution: University of Minnesota
Rank: Professor and F. B. Hubachek, Sr. Chair in Forest Ecology and Tree Physiology, and University of Minnesota McKnight Distinguished Professor
Specialization: Forest ecology, ecophysiology
Dates: 1991-present
Total Academic Years: 16

Institution: University of Wisconsin
Rank: Assistant / Associate Professor
Specialization: Forest ecology and tree physiology
Dates: 1985-1991
Total Academic Years: 6

Institution: Cornell University
Rank: Graduate Research Assistant and Lecturer
Specialization: Environmental biology
Dates: 1979-1981
Total Academic Years: 2

6. Dates of appointment and promotion at present institution:

Title	Date
Professor and F.B. Hubachek, Sr. Chair in Forestry	1991

7. List of publications during the past five years:

Avis, P. G., D. J. McLaughlin, B. C. Dentinger, and P. B. Reich. 2003. Long-term increase in nitrogen supply alters above- and below-ground ectomycorrhizal communities and increases the dominance of *Russula* spp. in a temperate oak savanna. *New Phytologist* 160:239-253.

Bassirirad, H., J. V. H. Constable, J. Lussenhop, B. A. Kimball, R. J. Norby, W. C. Oechel, P. B. Reich, W. H. Schlesinger, S. Zitzer, H. L. Sehtiya, and S. Salim. 2003. Widespread foliage $\delta^{15}N$ depletion under elevated CO_2: Inferences for the nitrogen cycle. *Global Change Biology* 9:1-9.

Bolstad, P. V., P. B. Reich, and T. Lee. 2003. Rapid acclimation to temperature of leaf respiration in *Quercus alba* and *Q. rubra*. *Tree Physiology* 23:969-976.

Cornelissen, J. H. C., S. Lavorel, E. Garnier, S. Díaz, N. Buchmann, D. E. Gurvich, P. B. Reich, H. ter Steege, H. D. Morgan, M. G. A. van der Heijden, J. G. Pausas, and H. Poorter. 2003. A

Peter B. Reich (continued)

handbook of protocols for standardised and easy measurement of plant functional traits worldwide. Invited Paper: *Aust J. Botany* 51:335-380.

Craine, J., W. Bond, W. Lee, P. B. Reich, and S. Ollinger. 2003. The resource economics of chemical and structural defenses across nitrogen supply gradients. *Oecologia* 137:547-556.

Craine, J. M., and P. B. Reich. 2005. Leaf-level light compensation points in shade-tolerant woody species. *New Phytologist* 166:710-713.

Craine, J. M., P. B. Reich, G. D. Tilman, D. Ellsworth, J. Fargione, J. Knops, and S. Naeem. 2003. The role of plant species in biomass production and response to elevated CO_2 and N. *Ecology Letters* 6:623-630.

Craine, J. M., D. G. Tilman, D. A. Wedin, P. B. Reich, M. J. Tjoelker, and J. M. H. Knops. 2002. Functional traits, productivity and effects on nitrogen cycling of 33 grassland species. *Functional Ecology* 16:563-574.

Craine, J. M., D. A. Wedin, F. S. Chapin, III, and P. B. Reich. 2003. The dependence of root system properties on root system biomass of 10 North American grassland species. *Plant and Soil* 250:39-47.

Craine, J. M., D. A. Wedin, F. S. Chapin, III, and P. B. Reich. 2002. Relationship between the structure of root systems and resource use for 11 North American grassland plants. *Plant Ecology* 165:85-100.

Davis, M. A., J. Pergl, A.-M. Truscott, J. Kollman, J. P. Bakker, R. Domenech, K. Prach, A.-H. Prieur-Richard, R. M. Veeneklaas, P. Pysek, R. del Moral, R. J. Hobbs, S. L. Collins, S. T. A. Pickett, and P. B. Reich. 2005. Vegetation change: a reunifying concept in plant ecology. *Perspectives in Plant Ecology, Evolution, and Systematics* 7:69-76.

Dickie, I. A., P. G. Avis, D. J. McLaughlin, and P. B. Reich. 2003. Good-Enough RFLP Matcher (GERM) Program. *Mycorrhiza* 13:171-172.

Dickie, I. A., R. C. Guza, S. E. Krazewski, and P. B. Reich. 2004. Shared ectomycorrhizal fungi between a herbaceous perennial (*Helianthemum bicknellii*) and oak (*Quercus*) seedlings. *New Phytologist* 164: 375-382.

Dickie, I. A., J. Oleksyn, P. B. Reich, P. Karolewski, R. Zytkowiak, E. Turzanska, and A. M. Jagodzinski. 2006. Soil modification by different tree species influences the extent of seedling ectomycorrhizal infection. *Mycorrhiza* 16:73-79.

Dickie, I. A., and P. B. Reich. 2005. Ectomycorrhizal fungal communities at forest edges. *J. Ecology* 93:244-255.

Dickie, I. A., S. A. Schnitzer, P. B. Reich, and S. Hobbie. 2005. Spatially disjunct effects of co-occurring competition and facilitation. *Ecology Letters* 8:1191-1200.

Dijkstra, F., S. Hobbie, P. Reich, and J. Knops. 2005. Divergent effects of elevated CO_2, N fertilization, and plant diversity on soil C and N dynamics in a grassland field experiment. *Plant and Soil* 272:41-52.

Dijkstra, F., S. Hobbie, P. Reich, and J. Knops. 2004. Nitrogen deposition and plant species interact to influence soil carbon stabilization. Ecology Letters 7:1192-1198.

Dijkstra, F. A., S. Hobbie, and P. Reich. 2006. Soil processes affected by sixteen grassland species grown under different environmental conditions. *Soil Science Society of America Journal* 70:770-777.

Dijkstra, F. A., K. Wrage, S. E. Hobbie, and P. B. Reich. 2006. Tree patches show greater N losses but maintain higher soil N availability than grassland patches in a frequently burned oak savanna. *Ecosystems* 9:441-452.

Peter B. Reich (continued)

Dovciak, M., L. E. Frelich, and P. B. Reich. 2005. Pathways in old-field succession to white pine: Seed rain, shade, and climate effects. *Ecological Monographs* 75:363-378.

Dovciak, M., L. E. Frelich, and P. B. Reich. 2003. Seed rain, safe sites, competing vegetation and soil resources spatially structure white pine regeneration and recruitment. *Can J For Res* 33:1892-1904.

Ellsworth, D. S., U. Niinements, and P. B. Reich. 2004. Stacking, structure, and CO_2 fixation capacity from leaves to landscapes. In *Photosynthetic adaptation. Chloroplast to landscape. Series: Ecological Studies*, eds. W. K. Smith, T. C. Vogelmann, and C. Critchley, vol. 178.

Ellsworth, D. S., P. B. Reich, E. S. Naumburg, G. W. Koch, M. Kubiske, and S. Smith. 2004. Photosynthesis, carboxylation and leaf nitrogen responses of 16 species to elevated pCO_2 across four free-air CO_2 enrichment experiments in forest, grassland and desert. *Global Change Biology* 10:2121-2138.

Frelich, L. E., C. M. Hale, S. Scheu, A. Holdsworth, L. Heneghan, P. J. Bohlen, and P. B. Reich. 2006. Earthworm invasion into previously earthworm-free temperate and boreal forests. *Biological Invasions* 8:1235-1245.

Frelich, L. E., J. L. Machado, and P. B. Reich. 2003. Fine-scale environmental variation and structure of understorey plant communities in two old-growth pine forests. *Journal of Ecology* 91:283-293.

Frelich, L. E., and P. B. Reich. 2003. Perspectives on development of definitions and values related to old-growth forests. *Environmental Reviews* 11:S9-S22.

Frelich, L. E., and P. B. Reich. 2002. Dynamics of old-growth oak forests. In *The ecology and management of oaks for wildlife*, eds. W. J. McShea and W. H. Healy, 113-126. Baltimore, MD: Johns Hopkins University Press.

Friedman, S. K., and P. B. Reich. 2005. Regional legacies of logging: Departure from presettlement forest conditions in northern Minnesota. *Ecological Applications* 15:726-744.

Hale, C. M., L. E. Frelich, and R. B. Reich. 2005. Exotic European earthworm invasion dynamics in northern hardwood forests of Minnesota, USA. *Ecological Applications* 15:848-860.

Hale, C. M., L. E. Frelich, and P. B. Reich. 2004. Allometric equations for estimation of ash-free dry mass from length measurements for selected European earthworm species (Lumbricidae) in the western Great Lakes region. *American Midland Naturalist* 151:179-185.

Hale, C., L. E. Frelich, P. B. Reich, and J. Pastor. 2005. Effects of European earthworm invasion on soil characteristics in northern hardwood forests of Minnesota, USA. *Ecosystems* 8:911-927.

Hille Ris Lambers, J., W. S. Harpole, D. Tilman, J. Knops, and P. B. Reich. 2004. Mechanisms responsible for the positive diversity-productivity relationship in Minnesota grasslands. *Ecology Letters* 7:661-668.

Hobbie, S. E., P. B. Reich, J. Oleksyn, M. Ogdahl, R. Zytkowiak, C. Hale, and P. Karolewski. 2006. Tree species effects on decomposition and forest floor dynamics in a common garden. *Ecology* 87:2288-2297.

Johansson, P., and P. B. Reich. 2005. Population size and fire intensity determine post-fire abundance of grassland lichens. *Applied Vegetation Science* 8:193-198.

Kennedy, T., S. Naeem, K. Howe, J. Knops, D. Tilman, and P. Reich. 2002. Biodiversity as a barrier to ecological invasion. *Nature* 417:636-638.

Kieliszewska-Rokicka, B., J. Oleksyn, R. Zytkowiak, and P.B. Reich. 2003. Links between root carbohydrates and seasonal pattern of soil microbial activity of diverse European populations of *Pinus sylvestris* grown in a provenance plantation. *Acta Societatis Botanicorum Poloniae (Polish Journal of Botany)* 72:167-173.

Peter B. Reich (continued)

Knight, K., and P. B. Reich. 2005. Opposite relationships between invasibility and native species richness at patch versus landscape scales. *Oikos* 109:81-88.

Lee, T. D., P. B. Reich, and P. V. Bolstad. 2005. Acclimation of leaf respiration to temperature is rapid and related to specific leaf area, soluble sugars and leaf nitrogen across three temperate deciduous tree species. *Functional Ecology* 19:640-647.

Lee, T. D., P. B. Reich, and M. G. Tjoelker. 2003. Legume presence increases photosynthesis and N concentrations of co-occuring non-fixers but does not modulate their responsiveness to carbon dioxide enrichment. *Oecologia* 137:22-31.

Lee, T. D., M. G. Tjoelker, P. B. Reich, and M. P. Russelle. 2003. Contrasting growth responses of an N2-fixing and a non-fixing forb to elevated CO_2: dependence on soil N supply. *Plant and Soil* 255:475-486.

Lusk, C. H., I. Wright, and P. B. Reich. 2003. Photosynthetic differences contribute to competitive advantage of evergreen angiosperm trees over evergreen conifers in productive habitats. *New Phytologist* 160:329-336.

Machado, J. L., and P. B. Reich. 2006. Dark respiration rate increases with plant size in saplings of three temperate tree species despite decreasing tissue nitrogen and nonstructural carbohydrates. *Tree Physiology* 26:915-923.

Machado, J. L., M. B. Walters, and P. B. Reich. 2003. Belowground resources limit seedling growth in forest understories but do not alter biomass distribution. *Annals of Forest Science* 60:319-330.

Mitchell, C. E., and P. B. Reich. 2003. Assessing environmental changes in grasslands. *Science* (letter) 299:1844.

Mitchell, C. E., P. B. Reich, D. Tilman, and J. V. Groth. 2003. Effects of elevated CO_2, nitrogen deposition, and decreased species diversity on foliar fungal plant disease. *Global Change Biology* 9:438-451.

Niklas, K. J., T. Owens, P. B. Reich, and E. D. Cobb. 2005. Nitrogen/phosphorous leaf stoichiometry and the scaling of plant growth. *Ecology Letters* 8:636-642.

Oleksyn, J., P. B. Reich, R. Zytkowiak, P. Karolewski, and M. G. Tjoelker. 2003. Nutrient conservation increases with latitude of origin in European *Pinus sylvestris* populations. *Oecologia* 136:220-235.

Oleksyn, J., P. B. Reich, R. Zytkowiak, P. Karolewski, and M. G. Tjoelker. 2002. Needle nutrients in geographically diverse *Pinus sylvestris L*. populations. *Annals of Forest Science* 59:1-18.

Ollinger, S. V., J. D. Aber, P. B. Reich, and R. Freuder. 2002. Interactive effects of nitrogen deposition, tropospheric ozone, elevated CO_2 and land use history on the carbon dynamics of northern hardwood forests. *Global Change Biology* 8:545-562.

Reich, P. B. 2005. Global biogeography of plant chemistry: Filling in the blanks. *New Phytologist* 168:263-266.

Reich, P. B. 2002. Root-shoot relationships: Optimality in acclimation and allocation or the "Emperor's New Clothes"? In *Plant roots: The hidden half*, eds. Waisel et al., chap. 12:205-220. New York, NY: Marcel Dekker, Inc.

Reich, P. B., and L. E. Frelich. 2002. Temperate deciduous forests. In *Encyclopedia of global change, the earth system: Biological and ecological dimensions of global environmental change*, eds. H. A. Mooney and J. G. Canadell, v2:565-569. Chichester: John Wiley and Sons, Chichester.

Peter B. Reich (continued)

Reich, P. B., S. E. Hobbie, T. Lee, D. S. Ellsworth, J. B. West, D. Tilman, J. Knops, S. Naeem, and J. Trost. 2006. Nitrogen limitation constrains sustainability of ecosystem response to CO_2. *Nature* 440:922-925.

Reich, P. B., B. A. Hungate, and Y. Luo. 2006. Carbon-nitrogen interactions in terrestrial ecosystems in response to rising atmospheric CO_2. *Annual Review of Ecology, Evolution, and Systematics* 37:611-636.

Reich, P. B., and J. Oleksyn. 2004. Global patterns of plant leaf N and P in relation to temperature and latitude. *Proc Nat Acad Sci USA* 101:11001-11006.

Reich, P. B., J. Oleksyn, J. Modrzynski, P. Mrozinski, S. E. Hobbie, D. M. Eissenstat, J. Chorover, O. A. Chadwick, C. M. Hale, and M. G. Tjoelker. 2005. Linking litter calcium, earthworms, and soil properties: A common garden test with 14 tree species. *Ecology Letters* 8:811-818.

Reich, P. B., D. Tilman, S. Naeem, D. Ellsworth, J. Knops, J. Craine, D. Wedin, and J. Trost. 2004. Species and functional diversity independently influence biomass accumulation and its response to CO_2 and N. *Proc Nat Acad Sci USA* 101:10101-10106.

Reich, P. B., M. Tjoelker, C. Buschena, J. Knops, K. Wrage, J. Machado, and D. Tilman. 2003. Variation in growth rate and ecophysiology among 34 grassland and savanna species under contrasting N supply: A test of functional group differences. *New Phytologist* 157:617-631.

Reich, P. B., M. G. Tjoelker, J. L. Machado and J. Oleksyn. 2006. Universal scaling of respiratory metabolism, size, and nitrogen in plants. *Nature* 439:457-461.

Reich, P. B., C. Uhl, M. Walters, L. Prugh, and D. S. Ellsworth. 2004. Births, deaths, longevity and phenology of Amazonian rain forest leaves: Results of a 9-year, 40,000 leaf demography census. *Ecological Monographs* 74:3-24.

Reich, P. B., I. Wright, J. Cavender-Bares, J. Craine, J. Oleksyn, M. Westoby, and M. B. Walters. 2003. The evolution of plant functional variation: traits, spectra, and strategies. Invited paper. *International Journal of Plant Sciences* 164:s143-164.

Savva, Y., J. Oleksyn, P. B. Reich, M. G. Tjoelker, E. A. Vaganov, and J. Modrzynski. 2006. Interannual growth response of Norway spruce to climate along an altitudinal gradient in the Tatra Mountains, Poland. *Trees* 20:735-746.

Schnitzer, S. A., P. B. Reich, B. Bergner, and W. P. Carson. 2002. Herbivore and pathogen damage on grassland and woodland plants: A test of the herbivore uncertainty principle. Ecol Letters 5:1-9.

*Shipley, B., M. J. Lechowicz, I. Wright, and P. B. Reich . 2006. Fundamental tradeoffs generating the worldwide leaf economics spectrum. *Ecology* 87:535-541.

Strengbom, J., and P. B. Reich. 2006. Elevated (CO_2) and increased N supply reduce leaf disease and related photosynthetic impacts on *Solidago rigida*. *Oecologia* 149:519-525.

Tilman, D., J. Knops, D. Wedin, and P. Reich. 2002. Experimental and observational studies of diversity, productivity and stability. In *Monographs in Population biology. The functional consequences of biodiversity*, eds. A. Kinzig, S. Pacala, and D. Tilman, 42-70. Princeton University Press.

Tilman, D., P. B. Reich, and J. M. H. Knops. 2006. Biodiversity and ecosystem stability in a decade-long grassland experiment. *Nature* 441:629-632.

Tjoelker, M. G., J. M. Craine, D. Wedin, P. B. Reich, and D. Tilman. 2005. Linking leaf and root trait syndromes among 39 grassland and savannah species. *New Phytologist* 167:493-508.

West, J. B., K. McAlister, J. HilleRisLambers, T. D. Lee, S. E. Hobbie, and P. B. Reich. 2005. Legume species identity and soil nitrogen supply determine symbiotic nitrogen-fixation responses to elevated atmospheric [CO_2]. *New Phytologist* 167:523-530.

Peter B. Reich (continued)

West, J. B., S. E. Hobbie, and P. B. Reich. 2006. Effects of plant species diversity, atmospheric (CO2), and N addition on gross rates of inorganic N release from soil organic matter. *Global Change Biology* 12:1400-1408.

Weyenberg, S., L. E. Frelich, and P. B. Reich. 2004. Logging versus fire: How does disturbance type influence the abundance of *Pinus strobus* regeneration. *Silva Fennica* 38:179-194.

Withington, J. M., A. D. Elkin, B. Bulaj, J. Olesinski, K. N. Tracy, T. J. Bouma, J. Oleksyn, L. J. Anderson, J. Modrzynski, P. B. Reich, and D. M. Eissenstat. 2003. The impact of material used for minirhizotron tubes for root research. *New Phytologist* 160:533-544.

Withington, J. M., P. B. Reich, J. Oleksyn, and D. M. Eissenstat. 2006. Comparisons of structure and lifespan in roots and leaves among temperate trees. *Ecological Monographs* 76:381-397.

Wolf, J., N. C. Johnson, D. L. Rowland, and P. B. Reich. 2003. Elevated CO_2 and plant species richness impact arbuscular mycorrhizal fungal spore communities. *New Phytologist* 157:579-588.

Wright, I., P. B. Reich, M. Westoby, and GLOPNET researchers. 2004. The worldwide leaf economics spectrum. *Nature* 428:821-827.

Wright, I. J., P. K. Groom, B. B. Lamont, P. Poot, L. Pryor, P. Reich, E. D. Schulze, E. Veneklaas, and M. Westoby. 2004. Leaf trait relationships in Australian plant species. *Functional Plant Biology* 31:551-558.

Wright, I. J., P. B. Reich, O. H. Atkin, C. H. Lusk, M. G. Tjoelker, and M. Westoby. 2006. Irradiance, temperature and rainfall influence leaf respiration in woody plants: Evidence from comparisons across 20 sites. *New Phytologist* 169:309-319.

Wright, I. J., P. B. Reich, J. H. C. Cornelissen, D. S. Falster, E. Garnier, K. Hikosaka, B. B. Lamont, W. Lee, J. Oleksyn, N. Osada, H. Poorter, R. Villar, D. I. Warton, and M. Westoby. 2005. Assessing the generality of global leaf trait relationships. *New Phytologist* 166:485-496.

Wright, I. J., P. B. Reich, J. H. C. Cornelissen, D. S. Falster, P. K. Groom, K. Hikosaka, W. Lee, C. H. Lusk, Ü. Niinemets, J. Oleksyn, N. Osada, H. Poorter, D. I. Warton, and M. Westoby. 2005. Modulation of leaf economic traits and trait relationships by climate. *Global Ecology & Biogeography* 14:411-421.

Wright, I. J, P. B. Reich, and M. Westoby. 2003. Least-cost input mixtures of water and nitrogen for photosynthesis. *American Naturalist* 161:98-111.

Wright, I. J, P. B. Reich, and M. Westoby. 2002. Convergence towards higher leaf mass per area in dry and nutrient-poor habitats has different consequence for leaf life-span. *J Ecology* 90:534-543.

Wright, J. P., S. Naeem, A. Hector, C. Lehman, P. B. Reich, B. Schmid, and D. Tilman. 2006. Conventional functional classification schemes underestimate the relationship with ecosystem functioning. *Ecology Letters* 9:111-120.

Wythers, K. R., P. B. Reich, M. G. Tjoelker, and P. B. Bolstad. 2005. Foliar respiration acclimation to temperature and temperature variable Q10 alter ecosystem carbon balance. *Global Change Biology* 11:435-449.

Wythers, K. R., P. B. Reich, and D. Turner. 2003. Predicting leaf area index from scaling principles: Corroboration and consequences. *Tree Physiology* 23:1171-1179.

Peter B. Reich (continued)

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Initiated and continue collaboration with scientists in numerous departments at the University, and with other scientists in the state and internationally: within the Department of Forest Resources (P. Bolstad, L. Frelich), within the University (with faculty in Soils, EEB, Plant Biology, at NRRI and involving staff at Cloquet Forestry Center), with local colleges and universities (Vermilion Community College, Macalaster College), with the state (Forestry and State Parks), with forest industry , with the Superior National Forest, with CanadianForest Service and Ontario Ministry of Forestry, and with faculty/scientists at other universities and institutes (e.g., University of Arizona, Stanford University, University of Wisconsin, University of Nebraska, University of Washington, Pennsylvania State University, Brookhaven National Laboratory, University of New Hampshire, University of Illinois, Northern Arizona University, Agricultural University of Poznan, Poland; Oregon State University, University of Utrecht, Utrecht, Netherlands; University of Western Australia, Perth, Australia; Macquarie University, Sydney, Australia, etc.), 2001

-Recognized by ISI (Institute for Scientific Information) as Highly Cited Researchers (in the top half of 1% of all researchers) in the Ecology/Environment category, 2001

-North American Forest Ecology Workshop, co-organizer; Local Steering Committee, and a Session Leader, Duluth, 2001.

-Worked with Superintendent, Superior National Forest, provided the initial concept; worked with larger group to organize the Forest Research Review, Cloquet, MN, 2002

-Invited to be the Managing Editor for the international recognized Springer-Verlag journal, *Trees: Structure and Function*, 2002

-Recognized by ISI that I was in the top 0.5 % of all publishing scientists in the world, in all fields, in terms of the frequency with which my work was cited by other scientists in peer-reviewed international scientific journals, 2002

-Notified by the ISI that I was ranked 5th in the world in the field of "Ecology and Environmental Science" in terms of the frequency with which my work was cited by other scientists in peer-reviewed international scientific journals, 2002

-Hosted a meeting of 7 scientists from six institutions, involved in a project addressing the impacts of tree species traits on ecosystem processes and on soil development, 2002

-Co-led a two-week field campaign involving as many as 21 scientists for 7 institutions, as part of field research addressing the impacts of tree species traits on ecosystem processes and on soil development, 2002

-Chair, External Review Committee for the Intercollegiate Ecology Graduate Program at Penn State University, University Park, PA, 2003

-Awarded "Distinguished McKnight University Professor" by the University of Minnesota, 2003

-Invited for seminar and other sessions as "Distinguished Ecologist" by Michigan Technological University, School of Forest Resources and Environmental Science, 2003

-Notified by the ISI that I was ranked 4th in the world among all ecologists (8th among all ecologists and environmental scientists, including ecotoxicologists), in terms of the frequency with which my work was cited by other scientists in peer-reviewed international scientific journals, using totals from all fields including "Ecology and Environmental Science", "Plant and Animal Science", and "Geosciences", 2003

Peter B. Reich (continued)

-Began an international network of researchers (GLOPNET) focused on the development and syntheses of data on plant and ecosystem trait data. This group now includes more than 50 researchers from 20 countries and a functional data base has been developed. 2003-present
-Panelist, National Science Foundation, Biocomplexity and the Environment Program, Coupled Biogeochemical Cycles Panel member, 2004
-Semester Leave at Laboratorio Ecotono, Bariloche, Argentina, 2005

9. Membership and offices held in professional organizations:

-American Association for the Advancement of Science
-American Institute of Biological Sciences
-Association for Tropical Biology
-Ecological Society of America
-Sigma Xi
-Society of American Foresters
-Member, Advisory Committee, Wilderness Research Foundation, Chicago, IL

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1998, Sabbatical, Australia and New Zealand
-2001, Participated in a unique one-week intensive course for ecology and forestry graduate students (sponsored by two Chilean universities) in Concepcion, Chile, at the Universidad de Concepcion, and titled, "Functional diversity in ecosystems." This course was absolutely outstanding, and probably the best educational initiative that I have experienced, after almost a half century as a student and teacher in a variety of settings. This course brought together 25 students from at least a dozen universities in five countries and lecturers from several countries and universities as well
-2005, Semester sabbatical, Argentina

11. External grants and other research funding during the last five years:

- MIN-42-020. Forest responses to environmental change: An approach to multiple interactions
- 401-1635. Ecological health and change in Quetico-Superior Forests, P.B. Reich, L.E. Frelich. Wilderness Research Foundation ($110,000) 2001
- 405-5958. Center for Hardwood Ecology. L.E. Frelich, M.B. Davis, P.B. Reich. University of Minnesota Graduate School ($100,000) 2001
- 405-6090. National Council for Air and Stream Improvement, “Ecosystem management of Minnesota forests: A stand-to-landscape approach to sustainability and biodiversity in harvested and undisturbed forests,” P. Reich, D. Grigal, L. Frelich, M Bauer, PIs ($200,000) 1995-2001
- 405-6241. National Science Foundation, Ecological and Evolutionary Physiology Program, “Biogeographic adaptation to temperature, photoperiod and CO_2 in boreal conifers,” P. Reich, J. Oleksyn, M. Tjoelker, PIs ($316,000) 1996-2001

Peter B. Reich (continued)

- 405-6247/6363. Department of Energy, Terrestrial Ecology and Global Change Program, "Interaction of biodiversity, CO_2 and soil nitrogen on ecosystem functioning," P. Reich, D. Tilman, S. Naeem, J Knops, PIs ($3,110,000) 1996-2002
- 405-6263. National Science Foundation, Ecology Program, "Ecological consequences of exotic invaders: Interactions involving European earthworms and native plant communities in hardwood forests," L. Frelich, P. Reich, PIs ($318,000) 2000-2003
- 405-6293. Natural regeneration of white pine. L.E. Frelich, P.B. Reich. Minnesota DNR ($160,000) 2001
- 405-6302. National Science Foundation, Ecology Program, "Temperature acclimation and adaptation of respiration in eastern deciduous forests," P. Bolstad, P. Reich, J. Vose , PIs ($375,000) 1998-2001
- 405-6305. NASA, "Bigfoot: An approach to validation of EOS NPP products," W. Cohen, T. Gower, P. Reich, D. Turner, PIs ($1,500,000) 199-2002
- 405-6309. National Science Foundation, International Programs, "Convergence and divergence in leaf traits," P. Reich PI ($29,700) 1999-2002
- 405-6370. National Science Foundation, Environmental Sciences Division, "Schoolyard long-term ecological research," P. Reich, PI ($30,000) 2001
- 405-6374. National Science Foundation (USA), Ecosystem Studies Program, "Collaborative research: Linking leaf and root traits to ecosystem structure and function in a common garden study of 14 temperate tree species," P. Reich, Sarah E. Hobbie, J. Oleksyn, M. Tjoelker, D.M. Eissenstat, J.D. Chorover, PIs ($50,000) 2001-2002
- 405- 6390. USDA Forest Service. Boundary Waters Canoe Area Wilderness Controlled Burn Project. P. Reich, L. Frelich, R. Rich, PIs ($20,000) 2001-2002
- National Science Foundation, Long-term Ecological Research Program, "Biodiversity, disturbance and ecosystem functioning at the prairie-forest border," D. Tilman, P. Reich, other co-PIs ($4,200,000) 2000-2006
- 405-6399. National Science Foundation, Ecosystem Program, "Linking leaf and root traits to ecosystem structure and function in a common garden study of 14 temperate tree species," P. Reich, D. Eissenstat, S. Hobbie J. Oleksyn, and others ($1,080,000) 2002-2005
- 405-6414. Department of Energy, Terrestrial Ecology and Global Change Program, "Interaction of biodiversity, CO_2 and soil nitrogen on ecosystem functioning," P. Reich, D. Tilman, S. Naeem, J. Knops, PIs ($228,000) 2002-2003
- 405-6422. USDA Forest Service, "Functional responses to overstory retention and understory competition in red pine ecosystems," P. Reich ($90,000) 2003
- 405-6459. National Science Foundation, Biocomplexity Program, "Interacting responses of C and N cycles to altered biodiversity, elevated CO2, and N enrichment," P. Reich, S. Hobbie and others ($1,800,000) 2003-2007
- National Science Foundation, Ecological and Evolutionary Physiology Program, "Natural selection and evolutionary constraints in an elevated CO2 environment," P. Tiffin, P. Reich, R. Shaw, PIs ($237,000) 2004-2006
- National Science Foundation, Major Research Instrumentation Program, "Development of the Minnesota terrestrial integrated mesocosms for biophysical and ecophysiological research," T.J. Griffis, J.M. Cavender-Bares, J.Y. King, M.P. Russelle, P. B. Reich, PIs ($927,418) 2004-2006
- Bush Foundation, "University of Minnesota Ecosystem Science and Sustainability Initiative," A. Kapuscinski, P. Reich, D. Tilman, PIs ($350,000) 2004-2006

Peter B. Reich (continued)

- USDA National Research Institute, "Managing for complex structure and wood productivity in Great Lakes pine ecosystems," B Palik, P Reich, R Montgomery, PIs, ($400,000) 2006-2009
- USDA Forest Service, "Climate change and forest productivity in the Lakes States," P Reich, PI, ($25,000) 2006-2007
- National Science Foundation, Long-Term Ecological Research Program, "Biodiversity, environmental change and ecosystem functioning at the prairie-forest border," D. Tilman, P. Reich and other co-PIs ($4,9200,000) 2006-2012
- National Institute for Climate Change Research, "Interactions of water, CO_2 and N in an experimental model system," P Reich PI, ($375,000) 2006-2009
- Bush Foundation, "University of Minnesota Ecosystem Science and Sustainability Initiative," A. Kapuscinski, P. Reich, D. Tilman, PIs, ($700,000) 2006-09

1. Name: **Roy L. Rich**

2. Title: Research Associate

   Specialization: Plant trait and plant soil relations across regional climate, disturbance and vegetation gradients
   Appointment: 100% time

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Forestry	Ph.D.		2005
Grinnell College, Grinnell, IA	Biology	B.A.		1996

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Research Associate
   Specialization: Plant trait and plant soil relations across regional climate, disturbance and vegetation gradients
   Dates: 2005
   Total Years: 2

   Institution: University of Minnesota
   Title: Post-doctoral Research Associate
   Specialization: Distribution and tradeoffs of canopy leaf traits in boreal tree species across their geographical range
   Dates: 03/2005-12/2005
   Total Years: 0.75

   Institution: University of Minnesota
   Title: Graduate Research Assistant
   Specialization: Wind disturbance on near-boreal forests
   Dates: 1999-2005
   Total Years: 6

   Institution: Grinnell College, Grinnell, IA
   Title: Student Research Assistant
   Specialization: Independent research on Collembola biogeography
   Dates: 1994-1996
   Total Years: 2

Roy L. Rich (continued)

5. Teaching experience:

   Institution: University of Minnesota
   Rank: Research Associate
   Specialization: Plant trait and plant soil relations across regional climate, disturbance and vegetation gradients
   Dates: 2005-present
   Total Academic Years: 2

6. Dates of appointment and promotion at present institution:

Title	Date
Research Associate	2005

7. List of publications during the past five years:

Rich, R. 2005. Large wind disturbance in the Boundary Waters Canoe Area Wilderness. Ph.D. dissertation. St. Paul, MN: University of Minnesota, College of Natural Resources, Department of Forest Resources.

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   2005, College of Natural Resources, Travel Award to North American Forest Ecology Workshop

9. Membership and offices held in professional organizations:

   Xi Sigma Pi

10. Major professional self-improvement activities during past 10 years, including sabbatical:

    2005, North American Forest Ecology Workshop
    2001, North American Forest Ecology Workshop

11. External grants and other research funding during the last five years:

1. Name: **Ingrid E. Schneider**

2. Title: Associate Professor /Director, Tourism Center

   Specialization: Outdoor recreation, adventure recreation, conflict, and nature-based tourism
   Appointment: 9-month

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
University of Minnesota	Scientific & Technical Communication	BS		1990
University of Minnesota	Recreation Resource Mngmt	MS		1992
Clemson University	Parks, Recreation, and Tourism Management	PhD		1995

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Associate Professor
   Specialization: Recreation Resource Management
   Dates: 2005-present
   Total Years: 2

   Institution: University of Minnesota
   Title: Director, Tourism Center
   Specialization: Tourism
   Dates: 2003-present
   Total Years: 3

   Institution: University of Minnesota
   Title: Research Associate
   Specialization: Recreation Resource Management
   Dates: 2001-2005
   Total Years: 4

   Institution: Arizona State University
   Title: Associate Professor
   Specialization: Recreation Resource Management
   Dates: 1995-2001
   Total years: 6

Ingrid E. Schneider (continued)

Institution: Clemson University
Title: Research Assistant
Specialization: Research on visitor behavior and attitudes, National Park Service
Dates: 1993-1995
Total Years: 2

Institution: University of Minnesota
Title: Research Assistant
Specialization: Evaluated recreation research for USDA Forest Service
Dates: 1990-1992
Total Years: 2

Employer: LodgeNet Entertainment Corporation, Sioux Falls, SD
Nature of Work: Developed, conducted and planned usability research for video products
Title: Market Analyst Manager
Dates: 2000-2001
Total Years: 1

Employer: USDI, Bureau of Land Management
Nature of Work: Researched/assimilated information for planning national recreation areas
Title: Planner
Dates: June-August 1993
Total Years: 0.25

5. Teaching experience:

Institution: University of Minnesota
Rank: Associate Professor
Specialization: Recreation Resource Management
Dates: 2001-2007
Total Academic Years: 6

Institution: Arizona State University
Rank: Associate Professor
Specialization: Recreation Resource Management
Dates: 1995-2000
Total Academic Years: 5

6. Dates of appointment and promotion at present institution:

Title	Date
Associate Professor	2005
Director, Tourism Center	2003
Research Associate	2001

Ingrid E. Schneider (continued)

7. List of publications during the past five years:

Budruk, M., I. E. Schneider, R. J. Virden, and K. A. Andereck. 2002. Crowding and satisfaction among visitors to a built desert attraction. *Journal of Park and Recreation Administration* 20(3) 1-17.

Chavez, D. C., R. Courtright, and I. E. Schneider. 2004. Over the water and through the woods: Geocaching. Parks & Recreation 40.

Dustin, D. L., and I. E. Schneider. 2005. The politics of science/the science of politics: Examining the snowmobile controversy in Yellowstone National Park. *Environmental Management* 34(6):761-767.

Dustin, D. L., I. E. Schneider, L. McAvoy, and A. Frakt. 2002. Cross-cultural claims on Devils Tower National Monument: A case study. *Leisure Sciences* 24(1):79-88.

Dyck, C., I. E. Schneider, M. Thompson, and R. J. Virden. 2003. Mountaineering specialization and its relationship to environmental attitudes. *Journal of Park and Recreation Administration* 21(2):44-62.

Hendricks, W., I. E. Schneider, and M. Budruk. 2004. Extending importance-analysis with benefits-based segmentation. *Journal of Park & Recreation Administration* 22(1):53-74.

Hung, T. T., I. E. Schneider, and W. G. Gartner. 2006. Image of Vietnam held among U.S. tourists: Initial inquiry. *Asia Pacific Journal of Travel Research* 11(2):147-159.

Iwasaki, Y., and I. E. Schneider. 2003. Leisure, stress, and coping: An evolving area of inquiry. *Leisure Sciences* 25(2/3):107-114.

Salk, R., D. Erkkila, and I. E. Schneider. 2005. Market and economic impact of a potential market and economic analysis for the Red River Valley Bird Observatory and Gateway Nature Center. St. Paul, MN: University of Minnesota Tourism Center.

Salk, R., and I. E. Schneider. 2006. Consumer profile of the SPFA festivals. St. Paul, MN: University of Minnesota Tourism Center. (series of 5 reports)

Schneider, I. E. 2004. Less stress for you and yours: Managing visitor conflict. Parks & Recreation 39.

Schneider, I. E., P. Elisabeth, R. Salk, and T. Schoenecker. 2005. Economic impact of snowmobilers in MN. St. Paul, MN: University of Minnesota Tourism Center.

Schneider, I. E., and J. Heisey. 2004. Carlyle Lake visitor survey results: Summer 2004. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., and J. Heisey. 2004. Lake Shelbyville visitor survey results: Summer 2004. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., and J. Heisey. 2004. Carlyle Lake visitor survey results: Summer 2003. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., and J. Heisey. 2004. Lake Shelbyville visitor survey results: Summer 2003. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., and Y. Iwasaki. 2003. Reflections on leisure, stress, and coping research. *Leisure Sciences* 25(2/3):301-305.

Schneider, I. E., and R. Salk. 2005. Visitor profile of Leech Lake visitors: A focus on nature and culture based tourism. St. Paul, MN: University of Minnesota Tourism Center.

Schneider, I. E., and R. Salk. 2004. Visitors to the Leech Lake Area: A focus on culture and nature based tourism. St. Paul, MN: University of Minnesota Tourism Center.

Ingrid E. Schneider (continued)

Schneider, I. E., and R. Salk. 2002. Information needs and experience preferences of birders and watchable wildlife participants. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., and R. Salk. 2002. Meanings and values associated with Apostle Islands National Lakeshore. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., and R. Salk. 2002. The values associated with Apostle Islands National Lakeshore: Constituent group comparisons. CPSP Research Summary no. 29. St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Schneider, I. E., and R. Salk. 2002. Communications at its core: Language perceptions and the differences among Apostle Islands National Lakeshore communities. CPSP Research Summary no. 30. St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Schneider, I. E., and R. Salk. 2002. Characteristics of and differences among Apostle Islands National Lakeshore campers. CPSP Research Summary no. 31. St. Paul, MN: University of Minnesota, Department of Forest Resources, Cooperative Park Studies Program.

Schneider, I. E., and T. Schoenecker. 2006. Consumer profile and economic impact of ATVs in Minnesota. St. Paul, MN: University of Minnesota Tourism Center.

Schneider, I. E., O. Ukaga, D. Vanderkomp Campell, and J. Heisey. 2004. Tourism Resource team recommendations for International Falls. International Falls, MN.

Schneider, I. E., and S. Wilhelm. 2004. Marina member survey results. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., S. Wilhelm, and J. Heisey. 2006. Cumulative visitor report for Carlyle Lake & Lake Shelbyville: Experiences, benefits, and values. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., S. Wilhelm, and J. Heisey. 2005. Carlyle Lake visitor profile: Experiences, benefits, and values. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., S. Wilhelm, and J. Heisey. 2005. Lake Shelbyville visitor profile: Experiences, benefits, and values. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., S. Wilhelm, and J. Heisey. 2004. Shoulder season visitors to Carlyle Lake. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., S. Wilhelm, and J. Heisey. 2004. Shoulder season visitors to Lake Shelbyville. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schneider, I. E., S. Wilhelm, and C. Outley. 2004. Nature in the city: Recommendations for an nature exhibit for diverse urban youth. St. Paul, MN: University of Minnesota, Department of Forest Resources.

Schuster, R. M., W. E. Hammitt, D. Moore, and I. E. Schneider. 2006. Coping with stress resulting from social value conflict: Nonhunter's response to social interaction with hunters. *Human Dimensions of Wildlife Management* 11(2):101-113.

Wilhelm, S., and I. E. Schneider. 2005. The meaning of nature to diverse urban youth. *Applied Environmental Education* 4:103-113.

Ingrid E. Schneider (continued)

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

-Nominated and approved as Leisure Research Symposium co-chair for the National Recreation & Parks Association, 2006
-Invited presentations, Explore Minnesota Tourism Annual Conference, 2005
-Invited keynote presenter, North Dakota Nature-Based Tourism, North Dakota Marketplace, Parks & Trails Annual Conference, 2005
-Roseville Visitors Association. Reviewed assessment document and served as judge for hotel certification program, 2005

9. Membership and offices held in professional organizations:

-Minnesota Recreation and Parks Association, 2005-present
-National Recreation and Parks Association, 1993-present
-Society of American Foresters, 1992-present
-The International Ecotourism Society, 1998-present
-Travel and Tourism Research Association, 2004
-Member, MN Dept of Health Land Use, Transportation, & Health Working Group, 2002
-Member, NE Sustainable Development Partnership Board, 2002-2004
-Collegiate Partner, Tourism Center, 2002
-Member, DNR Statewide Comprehensive Outdoor Recreation Policy Advisors Group, 2002
-Member, St. Paul Cultural Heritage Tourism Association, 2003
-Tour Minnesota Association, 2003-present
-Board member, Governor's Council on Tourism, 2004
-Board member, Tour Minnesota Association, 2004
-National Recreation & Parks Association Leisure Research Symposium Co-Chair, 2005
-Governor's Council on Tourism: Governor appointee, 2005-present
-Board member, Sustainable Development Partnership, Northeast and Statewide Coordinating Committee, 2005
-The International Association of Society & Natural Resources, 2000-present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-2001, Mid-Career Teaching Institute
-2001, Changes & challenges: Policy analysis in the 21st century conference. St. Paul, MN
-2001, Meeting on world population and sustainable development. St. Paul, MN
-2002, MN Office of Tourism state conference
-2002, NE MN Tourism Summit
-2002, SE MN Tourism Association
-2002, MEI Policy & Legislative update
-2003, Bush Innovation Technology Seminar
-2003, MN Office of Tourism state conference
-2003, Designing Healthy Communities

Ingrid E. Schneider (continued)

-2003, Growing Smart in MN
-2003, Travel & Tourism Research Association, Central States Chapter
-2003, Western Association of Recreation Resource Planners, Certificate in Festival & Event Management: 1
-2005, National Recreation & Parks Association Conference. San Antonio, TX
-2005, Multi-generational learning, CCE
-2005, Vista training/grading
-2006, National Recreation & Parks Association Conference, Seattle, WA
-2006, Climate Change in the BWCAW, St. Paul, MN
-2006, MN Environmental Initiative: Sustainable development & market transformation
-2006, Podcasting workshop @ ACDS

11. External grants and other research funding during the last five years:

- MN-42-043. Benefits and values associated with Corps of Engineer Projects, 2004-
- MN-42-047. Evaluating, planning, and managing for natural resource based tourism, 2001-
- 389-1574. Assessment of private and county land management issues associated with ATV use. Schneider, I.E. and D. R. Becker, Pis. Central Regional Sustainable Development Partnership ($19,900) 2006-2008
- 389-2024. Schneider, I.E. Tourism Resource Team: Coordination. Ongoing support for GA, NE Sustainable Development Partnership ($14,000) 2002-
- 389-3034. Meander visitor profile. Schneider, I.E. Sustainable Development Partnership ($10,000) 2005
- 403-6532. Green routes market potential. Schneider, I.E. Renewing the Countryside ($6,750)
- 405-5493. Economic impact and profile of ATVs in Minnesota. Schneider, I.E., MN ATV Association ($40,000) 2005
- 405-6377. Apostle Islands National Lakeshore: Meaning and values exploration. Schneider, I.E., D.H. Anderson, Pis, USDOI National Park Service ($37,000) 2001-
- 405-6398. Information needs and experience preferences of an emerging and growing wildlife constituency: Birders and watchable wildlife participants. Schneider, I.E. DNR ($23,000) 2002
- 405-6411. Benefits and values associated with Corps of Engineer Projects: A pilot study. Schneider, I.E., Anderson, D.H. USDA CSREES ($45,500) 2002-2006
- 405-6439. Perceived and realized health benefits across the urban Recreation Opportunity Spectrum: year 1. Schneider, I.E., Vogel, M., Shinew, K.J. USDA FS ($30,000) 2003-2004
- 405-6465. Visitor profile in the Leech Lake area. MN American Indian Chamber of Commerce ($15,000) 2004
- 405-6482. Economic impact of snowmobiling in Minnesota. MN United Snowmobilers ($38,000) 2004
- 405-6521. Profile of visitors to St. Paul festivals. Schneider, I.E., St. Paul Festival Association ($40,000) 2006-
- 405-6528. Off-highway vehicle trails, trail system, and trail network optimization: The case of ATVs. Schneider, I.E., S. Snyder, and D.R. Becker, Pis. USDA Forest Service ($63,000) 2006

Ingrid E. Schneider (continued)

- 405-6529. Changing experiences and relationships with wilderness: Implications for management. Schneider, I.E. USDA Forest Service Aldo Leopold Wilderness Institute ($65,000) 2006-2008
- 405-9100. Sverdursky, D., Schneider, I.E., Vogel, M. Red River Valley Observatory. City of Crookston ($17,500) 2005

1. Name: **Susan G. Stafford**

2. Title: Professor

   Specialization: Applied statistics and information management
   Appointment:

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
SUNY College of Environmental Science and Forestry	Applied Statistics	Ph.D.		1979
SUNY College of Environmental Science and Forestry	Quantitative Ecology	M.S.		1975
Syracuse University	Biology	B.S.		1974

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Professor
   Specialization: Applied statistics and information management
   Dates: 2006-present
   Total Years: 1

   Institution: University of Minnesota
   Title: Dean, College of Natural Resources
   Specialization: Applied statistics and information management
   Dates: 1998-2006
   Total Years: 8

   Institution: Oregon State University
   Title: Professor
   Specialization: Applied statistics and information management
   Dates: 1992-1998
   Total Years: 6

   Institution: Oregon State University
   Title: Assistant/Associate Professor
   Specialization: Applied statistics and information management
   Dates: 1979/1985-1992
   Total Years: 13

   Employer: National Science Foundation
   Nature of Work: Applied statistics and information management
   Title: Visiting Division Director
   Dates: 1994-1995
   Total Years: 1

Susan G. Stafford (continued)

5. Teaching experience:

   Institution: Oregon State University
   Rank: Assistant/Associate Professor, Professor
   Specialization: Applied statistics and information management
   Dates: 1979-1998
   Total Academic Years: 21

6. Dates of appointment and promotion at present institution:

Title	Date
Dean, College of Natural Resources	1998

7. List of publications during the past five years:

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

9. Membership and offices held in professional organizations:

   - American Institute of Biological Sciences (AIBS), 1990-present
   - Ecological Society of America, 1988-present
   - Long-Term Ecological Research (LTER) Information Managers Committee, 1986-present
   - National Association of Professional Forestry Schools and Colleges (NAPFSC), 2002-present
   - PHI BETA KAPPA, 1974-present
   - Society of American Foresters, 1982-present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

11. External grants and other research funding during the last five years:

1. Name: **Carl E. Vogt**

2. Title: Instructor and Extension Specialist

   Specialization: Dendrology
   Appointment: 12-month, 45% time, nonregular

3. Formal education:

Institution	Major	Degree	Dates Attended	Date Earned
State Univ. of New York	Forest Management	BS	1959-63	1964
Syracuse University	Bio/Forestry	BF	1959-63	1964
University of Minnesota	Sci. Educ.	BS	1968-75	1975
University of Minnesota	Forestry		1980-	

4. Professional and research experience:

   Institution: University of Minnesota
   Title: Instructor and Extension Specialist
   Specialization: Specialty crops, natural resources education
   Dates: 1976 to present
   Total Years: 31

   Institution: New York State College of Forestry
   Title: Lab instructor
   Specialization: Dendrology
   Dates: 1962-63
   Total Years: 1

   Employer: The Environmental Collaborative
   Nature of Work: Consulting Forester
   Title: President
   Dates: 1975 to present
   Total Years: 31

   Employer: Minnesota Environmental Sciences Foundation
   Nature of Work: Site planning and Forester
   Title: Site Planning Coordinator
   Dates: 1968-1975
   Total Years: 8

   Employer: Minnesota Department of Conservation
   Nature of Work: District Field Forester covering four SE Minnesota counties
   Title: District Forester
   Dates: 1964-68
   Total Years: 5

Carl E. Vogt (continued)

5. Teaching experience:

   Institution: University of Minnesota
   Rank: Instructor and Extension Specialist
   Specialization: Specialty crops, natural resources education
   Dates: 1976 to present
   Total Academic Years: 31

   Institution: New York State College of Forestry
   Rank: Lab instructor
   Specialization: Dendrology
   Dates: 1962-63
   Total Academic Years: 1

6. Dates of appointment and promotion at present institution:

Title	Date
Assistant Extension Forester	1976
Instructor and Extension Specialist	1978

7. List of publications during the past five years:

8. Off-campus consulting, or other professional activities, special honors, recognition, during the past five years:

   -Chairman, Program Committee, Educational Events Committee, Tour Committee, and Finance Committee for the 2001 NAMSC/IMSI meeting, St. Cloud, MN
   -Co-chair, FFA Forestry Contest, 2001-2005
   -Judge, 4-H Forestry projects at the Minnesota State Fair, 2001-2005
   -Take Your Daughters' to Work Day Program, University of Minnesota, St. Paul Campus, 2001, 2002
   -Conducted Arbor Day program on sawmill operation, City of Ramsey, 2001-present
   -Conducted two-day program, Circle of Life School, White Earth Reservation, MN, 2002-2005
   -Developed Maple Sugar Field tour, 2002
   -Received Professor of the Semester Award-Fall 2003, College Student Faculty Board, 2003
   -Worked with Boy Scouts on Soil Conservation and Forestry merit badges, 2003-present
   -Received Professor of the Semester Award–Fall 2004, College Student Faculty Board, 2004
   -Received Award from the North American Maple Syrup Council for serving as Secretary/Treasurer for 14 years, 2004
   -Received Professor of the Semester Award–Fall 2005, College Student Faculty Board, 2005
   -Assisted Forestry Club with tree lot operations and other activities, 2006

Carl E. Vogt (continued)

-Received Special Award from the North American Maple Syrup Council (NAMSC) for service to the organization, 2006

9. Membership and offices held in professional organizations:

-Director - International Maple Syrup Institute (IMSI)
-Secretary-Treasurer - North American Maple Syrup Council, 1990-2004
-President - Minnesota Maple Syrup Producers Association, 1996-present
-Walnut Council
-Society of American Foresters
-Minnesota Forest Association
-Minnesota Christmas Tree Growers Association
-Minnesota Maple Syrup Producers Association
-Member, Horticultural Specialities Committee
-Member, Extension Maple Specialist Group of the NAMSC
-Member, Steering Committee, Project Learning Tree
-Board member, Minnesota Christmas Tree Association
-Member, North American Maple Syrup Council, 1990-present

10. Major professional self-improvement activities during past 10 years, including sabbatical:

-1997, Society of American Foresters meetings
-1997, Continued learning more about computer capabilities, etc.
-1998, National Christmas Tree Meeting in Asheville, NC.
-1999, Studied and photographed plant materials for Dendrology course, FR 1101
-2000, National Christmas Tree meeting, Rochester, NY
-2000, NAMSC and IMSI meeting, Burlington, VT
-2001, Minnesota Stewardship Conference, Duluth, MN
-2002, NAMSC Meeting, New Hampshire
-2004, Traveled to Peru and took photographs of forestry/agricultural activities for use in Dendrology and other college activities
-2005, Traveled to Brazil and took photographs of forestry/agricultural activities for use in Dendrology and other college activities
- 2006, Traveled to Alaska and took photographs of forestry/agricultural activities for use in Dendrology and other college activities

11. External grants and other research funding during the last five years:

Document F: Forestry Graduate Employment Summary

Institution Name: University of Minnesota Academic Year: 2002-2006

Official Degree Program Title: Forest Resources

Official Option Title: All tracks: Forest Management and Planning, Forest Conservation and Ecosystem Management, Urban and Community Forestry

Post Graduation Status	NUMBER OF GRADUATES FOR PAST FIVE YEARS										
	2002		2003		2004		2005		2006		Total Graduates
	#	%	#	%	#	%	#	%	#	%	
Employed permanent: *Forestry*	3		3		8		3		3		20
Forestry-related	1		1		0		0		0		2
Other employed	1		1		0		1		0		3
Employed temporary: *Forestry*	0		0		0		0		0		0
Forestry-related	1		0		0		0		0		1
Other employed	0		1		0		0		0		1
Graduate Study:	0		2		0		2		0		4
Unemployed:	0		0		1		0		0		1
Unknown:	10		16		0		2		8		36
Total Number and Percentage of Graduates	**16**		**24**		**9**		**8**		**11**		**68**

Document G: Student Data Summary

Institution Name: University of Minnesota Academic Year: 2003-2006

Official Degree Program Title: Forest Resources

Official Option Title: All tracks: Forest Management and Planning, Forest Conservation and Ecosystem Management, Urban and Community Forestry

STUDENTS ENROLLED*	Freshman		Sophomore		Junior		Senior		Total Students	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Current Enrollment-2006	1	2	3	8	6	7	1	16	11	33
Last Year-2005	4	6	3	8	2	10	1	15	10	39
Two Years Ago-2004	5	11	2	9	1	11	4	15	12	46
Three Years Ago-2003	1	7	3	5	2	6	9	22	15	40

STUDENTS ENROLLED*	TOTAL NUMBER OF STUDENTS					
	African Amer	Asian	Caucasian	Hispanic	Native Amer.	Other
Current Enrollment-2006			41			3
Last Year-2005			46	1		2
Two Years Ago-2004		1	55	1		1
Three Years Ago-2003		1	52		1	1

Projected Total Enrollment for Next Three Years	*Year:* _____	*Year:* _____	*Year:* _____

GRADUATING CLASS**	TOTAL NUMBER OF GRADUATING STUDENTS							
	Female	Male	African Amer	Asian	Caucasian	Hispanic	Native Amer.	Other
Current Class-2006	1	12			12			1
Last Year-2005	2	6		1	6			1
Two Years Ago-2004	3	6			9			
Three Years Ago-2003	8	16			22		2	

Projected Total Graduates for Next Three Years	*Year:* _____	*Year:* _____	*Year:* _____

*Fall Semester
** Calendar year

Name_____

FOREST RESOURCES – Forest Management & Planning Specialization
Curriculum Guide
Fall 2007

Students taking this specialization learn the principles, practices, and techniques of forest and related resource management. It is designed for students who wish to become directly involved in forest land management or specializations such as resource analysis, planning, timber harvesting, forest protection, or policy. Graduates may also pursue advanced positions in these areas. Principal employers include federal and state forestry, wildlife, and conservation agencies; forest products companies; landowner organizations; consulting firms; and international agencies. This track includes courses in two field sessions at the Cloquet Forestry Center.

A. Communication Skills (7 cr)
_____ WRIT 1301 University Writing (by placement) (4)
or WRIT 1401 Writing and Academic Inquiry (by placement) (4)
_____ Comm 1101 Introduction to Public Speaking (3)

B. Mathematical Thinking (8 cr)
_____ ESPM 1145 Quantitative Methods I (4) (Offered only in Spring Semester)
or Math 1142 Short Calculus (4)
or Math 1271 Calculus I (4)
_____ ESPM 3012 Quantitative Methods II (4) (Offered only in Fall Semester)
or Stat 3011 Statistical Analysis (4)

C. Physical and Biological Sciences (18-23 cr)
_____ Biol 1001 Introductory Biology I: Evolutionary & Ecological Perspectives (4)
or Biol 1009 General Biology (4)
_____ Biol 2022 General Botany (3)
_____ Soil 2125 Basic Soil Science (4)
or Soil 1125 The Soil Resource (4)
_____ Physics 1001W Energy and the Environment (4)
or "B" or better in high school physics
Choose from either chemistry sequence:
_____ Chem 1011 General Principles of Chemistry (4)
_____ and BioC 2011 Biochemistry for the Agricultural & Health Sciences (3)
or Chem 1021 Chemical Principles I (4)
and Chem 1022 Chemical Principles II (4)

D. Social Sciences and Humanities (16 cr)
_____ESPM 3261 Economics of Natural Resources Management (4)
_____ESPM 3241W Natural Resource & Environmental Policy (3)
Historical Perspective (3)_____(could be satisfied with ESPM 3001)
Literature (3)_____
Other Arts and Humanities (3)_____

E. Designated Themes – A minimum of 1 course for at least 3 credits is required in each of the following thematic areas:
CD = Cultural Diversity_____ (could be satisfied with ESPM 3001)
E = Environment_____(satisfied w/ Chem 1021,1022; ESPM 3261, Soil 1125 or 2125)
CPE = Citizenship and Public Ethics_____ (could be satisfied with ESPM 3011)
IP= International Perspectives_____ (could be satisfied with ESPM 3251)

W – following the course number indicates the course is writing intensive

F. Professional Required Core Courses (58 cr)

Introductory Professional Courses (4 cr)
FR 1001 Orientation and Information Systems (1)
BBE 1002 Wood and Fiber Science (3)

Resource Assessment (11 cr)
FR 3131 Geographic Information Systems (GIS) for Natural Resources (4)
FR 3218 Measuring and Modeling Forests (3)
FR 3262 Remote Sensing of Natural Resources and Environment (4)

Forest Management Professional Requirements (12 cr)
FR 3431 Timber Harvesting and Road Planning (2) *take concurrently with FR 3411/5413*
RRM 4232W Managing Recreational Lands (4)
FR 3471 Forest Planning and Management (3)
ESPM 3202W Environmental Conflict Management, Leadership, and Planning (3)
or ESPM 3011W Ethics and Leadership in Resource Management (3)

Management of Vegetation, Wildlife, Soil and Water Resources (21 cr)
FR 1101 Dendrology: Identifying Forest Trees and Shrubs (3)
FR 3104 Forest Ecology (4)
FR 3114 Hydrology and Watershed Management (3)
FR 3411 Managing Forest Ecosystems: Silviculture (3) *take concurrently with FR 5413, 3431*
FR 5413 Managing Forest Ecosystems: Silviculture Lab (1) *take concurrently with FR 3411*
FR 3612 Silviculture Practices in Minnesota (two field trips) (1)
PlPa 3003 Diseases of Forest and Shade Trees (3)
or Ent 4251 Forest and Shade Tree Entomology (3)
FW 2001 Introduction to Fisheries, Wildlife, and Conservation Biology (3) (recommended for sophomores)
or FW 5603W Habitats and Regulation of Wildlife (3) (recommended for juniors or seniors)

Field Training in Assessment and Biology of Forests (4 cr)
(taught at Cloquet Forestry Center during late summer)
FR 2101 Identifying Forest Plants (1)
FR 2102 Northern Forests Field Ecology (2)
FR 2104 Measuring Forest Resources (1)

Advanced Field Training in Assessment and Management of Forest Resources (6 cr)
(taught at Cloquet Forestry Center during early summer)
FR 5611 Field Silviculture (2)
FR 5615 Field Remote Sensing and Resource Survey (2)
FR 5621 Field Timber Harvesting and Road Planning (2)

W – following the course number indicates the course is writing intensive

G. Additional Professional Requirements (6 credits). Contract Required for Your File. Students are required to select, with faculty adviser approval, a minimum of 6 additional credits of professional courses chosen from the list below. Courses may not be used to fill the 6 credit enrichment requirement if they are used to satisfy other major requirements. Obtain a contract form from the Student Services Office,190 Coffey Hall or at http://www.cfans.umn.edu/fr. Return the completed contract to the Forest Resources Major Advisor or the Student Services Office.

ESPM 3202W Environmental Conflict Management, Leadership, and Planning (3)
or ESPM 3011W Ethics and Leadership in Resource Management (3)
ESPM 3031 Applied GPS for GIS (3)
ESPM 3251 Natural Resources in Sustainable International Development (3)
ESPM 3245 Sustainable Land Use Planning and Policy (3)
ESPM 4061W Water Quality and Natural Resources (3)
FR 3203 Forest Fire and Disturbance Ecology (3)
FR 3204 Landscape Ecology and Management (3)
FR 4118 Physiological Ecology of Woody Plants (3)
FR 5142 Tropical Forest Ecology (3)
FR 5153 Forest and Wetland Hydrology (3)
FR 5228 Advanced Assessment and Modeling (3)
FR 5264 Advanced Forest Management Planning (3)
FR 5412 Digital Remote Sensing (3)
FW 5603W Habitats and Regulation of Wildlife (3) (recommended for juniors or seniors)
FW 5604W Fisheries Ecology and Management (3)
Geo 1001 Earth and Its Environments (4)
PlPa 3003 Diseases of Forest and Shade Trees (3)
or Ent 4251 Forest and Shade Tree Entomology (3)

H. Electives (*however many necessary to reach 120 credits required for graduation*). Students may choose these credits from any discipline.

120 Credits required to graduate

Writing Intensive requirement: All students are required to complete four writing intensive courses in addition to freshman writing. Two of these courses must be in your major; one of those must be a 3 – 4xxx course. This requirement is satisfied by RRM 4232W, ESPM 3241W, and ESPM 3202W or 3011W.

Students are encouraged to incorporate international study into their academic programs. Visit the St Paul Campus Career Center and the Learning Abroad Center to find out how you can enhance your college education with a study abroad experience. For more information about study abroad opportunities, call the Student Services office at 612-624-6768 or go on-line at: http://www.cfans.umn.edu/international.html.

W – following the course number indicates the course is writing intensive

Name_____

FOREST RESOURCES – Forest Conservation and Ecosystem Management Specialization
Curriculum Guide
Fall 2007

This specialization prepares students for forest and related resource management with a focus on conservation issues and strategies. It is designed for students who seek a thorough understanding of ecosystem structure and function and the role of forests and their management in environmental quality. Graduates pursue careers as forest managers and conservationists or provide specialized expertise for resource management organizations. Principal employers are federal and state forestry, wildlife, parks and related agencies; forest products companies; and nongovernmental conservation organizations. This track includes courses in a field session.

A. Communication Skills (7 cr)
_____ WRIT 1301 University Writing (by placement) (4)
or WRIT 1401 Writing and Academic Inquiry (4) (by placement)
_____ Comm 1101 Introduction to Public Speaking (4)

B. Mathematical Thinking (8 cr)
_____ ESPM 1145 Quantitative Methods I (4) (Offered only in Spring Semester)
or Math 1142 Short Calculus (4)
or Math 1271 Calculus I (4)
_____ ESPM 3012 Quantitative Methods II (4) (Offered only in Fall Semester)
or Stat 3011 Statistical Analysis (4)

C. Physical and Biological Sciences (19-23 cr)
_____ Biol 1001 Introductory Biology I: Evolutionary & Ecological Perspectives (4)
or Biol 1009 General Biology (4)
_____ Biol 2022 General Botany (3)
_____ Soil 2125 Basic Soil Science (4)
or Soil 1125 The Soil Resource (4)
_____ Chem 1021 Chemical Principles I (4)
_____*and* Chem 1022 Chemistry Principles II (4)
_____ Physics 1001W Energy and the Environment (4)
or "B" or better in high school physics

D. Social Sciences and Humanities (16 cr)
_____ ESPM 3261Economics of Natural Resources Management (4)
_____ ESPM 3241W Natural Resource & Environmental Policy (3)
Historical Perspective (3)_____(could be satisfied with ESPM 3001)
Literature (3)_____
Other Arts and Humanities (3)_____

E. Designated Themes – A minimum of 1 course for at least 3 credits is required in each of the following thematic areas:
CD = Cultural Diversity_____ (could be satisfied with ESPM 3001)
E = Environment_____(satisfied w/ Chem 1021,1022; ESPM 3261, Soil 1125 or 2125)
CPE = Citizenship and Public Ethics_____ (could be satisfied with ESPM 3011)
IP = International Perspectives_____ (could be satisfied with ESPM 3251)

W –following the course number indicates the course is writing intensive

F. Professional Required Core Courses (49 cr)

Introductory Professional Courses (1 cr)
FR 1001 Orientation and Information Systems (1)

Resource Assessment (11 cr)
FR 3131 Geographic Information Systems (GIS) for Natural Resources (4)
FR 3218 Measuring and Modeling Forests (3)
FR 3262 Remote Sensing of Natural Resources and Environment (4)

Forest Management, Policy, and Planning (10 cr)
RRM 4232W Managing Recreational Lands (4)
FR 3471 Forest Management and Planning (3)
ESPM 3202W Environmental Conflict Management, Leadership, and Planning (3)
or ESPM 3011W Ethics and Leadership in Resource Management (3)

Management of Vegetation, Wildlife, Soil and Water Resources (20 cr)
FR 1101 Dendrology: Identifying Forest Trees and Shrubs (3)
FR 3104 Forest Ecology (4)
FR 3114 Hydrology and Watershed Management (3)
FR 3411 Managing Forest Ecosystems: Silviculture (3) *take concurrently with FR 5413*
FR 5413 Managing Forest Ecosystems: Silviculture Lab (1) *take concurrently with FR 3411*
PlPa 3003 Diseases of Forest and Shade Trees (3)
or Ent 4251 Forest and Shade Tree Entomology (3)
FW 2001 Introduction to Fisheries, Wildlife, and Conservation Biology (3) (recommended for sophomores)
or FW 5603W Habitats and Regulation of Wildlife (3) (recommended for juniors or seniors)

Field Training in Assessment and Biology of Forests (4 cr)
(taught at Cloquet Forestry Center during the summer)
FR 2101 Identifying Forest Plants (1)
FR 2102 Northern Forests Field Ecology (2)
FR 2104 Measuring Forest Resources (1)

G. Additional Conservation, Ecosystem, Professional, and Scientific Requirements (12 credits). Contract Required for Your File. Students are required to select, with faculty adviser approval, a minimum of 12 additional credits of courses chosen from the list below. Courses may not be used to fill this additional requirement if they are used to satisfy other major requirements. Obtain a contract form from the Student Services Office,190 Coffey Hall or at http://www.cfans.umn.edu/fr. Return the completed contract to the Forest Resources Major Advisor or the Student Services Office.

• *Group 1: Plant, Animal, Soil, and Water Science*
Biol 3407 Ecology (3)
or EEB 4014W Ecology of Vegetation (3)
or EEB 4609W Ecosystem Ecology (3)
ESPM 3002 Colloquium: Exotic Plants and Animals
ESPM 4061W Water Quality and Natural Resources (3)
Soil 5555 Wetland Soils (3)
FR 3203 Forest Fire and Disturbance Ecology (3)
FR 3204 Landscape Ecology and Management (3)
FR 3612 Silvicultural Practices in MN (field trips) (1)
FR 4118 Physiological Ecology of Woody Plants (3)
FR 5142 Tropical Forest Ecology (3)

W –following the course number indicates the course is writing intensive

FR 5153 Forest and Wetland Hydrology (3)
FW 5603W Habitats and Regulation of Wildlife (3) (recommended for juniors or seniors)
FW 5604W Fisheries Ecology and Management (3)
Geo 1001 Earth and Its Environments (4)
PlPa 3003 Diseases of Forest and Shade Trees (3)
or Ent 4251 Forest and Shade Tree Entomology (3)
Soil 3416 Plant Nutrients in the Environment (3)

• *Group 2: Conservation and Management*
Ent 5241 Ecological Risk Assessment (3)
ESPM 2041 Natural Resources Consumption and Sustainability (3)
ESPM 3021 Ecological Vegetation Management: a Consulting Approach (3)
ESPM 3031 Applied GPS for GIS (3)
ESPM 3101 Conservation of Plant Biodiversity (3)
ESPM 3202W Environmental Conflict Management, Leadership, and Planning (3)
or ESPM 3011W Ethics and Leadership in Resource Management (3)
ESPM 3245 Sustainable Land Use Planning and Policy (3)
ESPM 3251 Natural Resources in Sustainable International Development (3)
ESPM 3703 Agroforestry in Watershed Management (3)
FR 3431 Timber Harvesting and Road Planning (2)
FR 5228 Advanced Assessment and Modeling (3)
FR 5264 Advanced Forest Management Planning (3)
FR 5611 Field Silviculture (2) taught at Cloquet
FR 5615 Field Remote Sensing and Resource Survey (2) taught at Cloquet
FW 5003 Human Dimensions of Biological Conservation (3)
Hort 5071 Restoration and Reclamation Ecology (3)
LA 3501 Environmental Design and its Biological and Physical Context (3)

H. Electives (*however many necessary to reach 120 credits required for graduation*). Students may choose these credits from any discipline. In addition to those courses listed in G above, other suggested courses are:

Anth 3041 Ecological Anthropology (3)
EEB 4002 Ecology of Minnesota (2)
EEB 4631 Global Ecology (4)
ESPM 3221 Soil Conservation and Land-use Management (3)
Geo 3002 Climate Change and Human History (3)
GloS 5301 Environment and Empire (3)
Hsci 3244 History of Ecology and Environmentalism (3)
Pbio 5412 Plant Physiology
Pol 3872 Global Environmental Cooperation (3-4)

120 Credits required to graduate

Writing Intensive requirement: All students are required to complete four writing intensive courses in addition to freshman writing. Two of these courses must be in your major; one of those must be a 3 – 4xxx course. This requirement is satisfied by RRM 4232W, ESPM 3241W, and ESPM 3202W or 3011W.

Students are encouraged to incorporate international study into their academic programs. Visit the St Paul Campus Career Center and the Learning Abroad Center to find out how you can enhance your college education with a study abroad experience. For more information about study abroad opportunities, call the Student Services office at 612-624-6768 or go on-line at: http://www.cfans.umn.edu/international.html.

W –following the course number indicates the course is writing intensive

Name_____

FOREST RESOURCES – Urban & Community Forestry Specialization
Curriculum Guide
Fall 2007

This specialization prepares students for planning and managing vegetation and related resources in or near urban communities, and for specializations such as urban planning and environmental education. Urban forests include areas along streets, in parks, private lands, greenbelts, and open spaces. Graduates help plan, design, and protect these forests including supervision of tree selection, planting, and plant health care programs. Employers include city government, tree care/arboricultural firms, state and federal forestry agencies, nurseries, and utility companies. Graduates may also qualify for traditional forestry positions. This track includes courses in a field session.

A. Communication Skills (7 credits)
_____ WRIT 1301 University Writing (by placement) (4)
or WRIT 1401 Writing and Academic Inquiry (by placement) (4)
_____ Comm 1101 Introduction to Public Speaking (3)

B. Mathematical Thinking (8 credits)
_____ ESPM 1145 Quantitative Methods I (4) (Offered only in Spring Semester)
or Math 1142 Short Calculus (4)
or Math 1271 Calculus I (4)
_____ ESPM 3012 Quantitative Methods II (4) (Offered only in Fall Semester)
or Stat 3011 Statistical Analysis (4)

C. Physical and Biological Sciences (18 – 19 credits)
_____ Biol 1001 Introductory Biology I: Evolutionary & Ecological Perspectives (4)
or Biol 1009 General Biology (4)
_____ Biol 2022 General Botany (3)
Choose from either chemistry sequence:
_____ Chem 1011 General Principles of Chemistry (4)
_____ *and* BioC 2011 Biochemistry for the Agricultural & Health Sciences (3)
or Chem 1021 Chemical Principles I (4)
and Chem 1022 Chemical Principles II (4)
_____ Soil 2125 Basic Soil Science (4)
or Soil 1125 The Soil Resource (4)

D. Social Sciences and Humanities (17 credits)
_____ ESPM 3261 Economics and Natural Resources Management (4)
_____ Pol 1001 American Democracy in a Changing World (4)
Literature (3)_____
Other Arts and Humanities (3)_____
Historical Perspective (3)_____(could be satisfied with ESPM 3001)

E. Designated Themes – A minimum of 1 course for at least 3 credits is required in each of the following thematic areas:
CD = Cultural Diversity_____(could be satisfied with ESPM 3001)
E = Environment_____(satisfied w/ Chem 1021,1022; ESPM 3261, Soil 1125 or 2125)
CPE = Citizenship and Public Ethics_____(satisfied with Pol 1001, Urbs 3001 or FR 4501)
IP = International Perspectives_____(could be satisfied with ESPM 3251)

W –following the course number indicates the course is writing intensive.

F. Required Professional Core Courses (60 credits)

Introductory (1 credit)
FR 1001 Orientation and Information Systems (1)

Resource Assessment (7 credits)
FR 3131 Geographic Information Systems (GIS) for Natural Resources (4)
ESPM 3211 Survey, Measurement and Modeling for Environmental Analysis (3)
or FR 3218 Measuring and Modeling Forests (3)

Field Training in the Assessment and Biology of Forests (4 credits)
(taught at Cloquet Forestry Center)
FR 2101 Identifying Forest Plants (1)
FR 2102 Northern Forests Field Ecology (2)
FR 2104 Measuring Forest Resources (1)

Management of Vegetation, Wildlife, Soil, and Water Resources (34-35 credits)
FR 1101 Dendrology: Identifying Forest Trees and Shrubs (3)
Hort 1015 Woody and Herbaceous Plants (4)
Hort 5041W Nursery Management (4)
FR 3104 Forest Ecology (4)
FR 3114 Hydrology and Watershed Management (3)
or ESPM 4061W Water Quality and Natural Resources (3)
FR 3411 Managing Forest Ecosystems: Silviculture (3)
FR 3501 Arboriculture: Selection and Maintenance of Trees (3)
FR 4118 Physiological Ecology of Woody Plants (3)
or Biol 3002 Plant Biology: Function (2)
FR 4501 Urban Forest Management: Managing Greenspaces for People (3)
Ent 4251 Forest and Shade Tree Entomology (3)
PlPa 3003 Diseases of Forest and Shade Trees (3)

Economics, Management and Policy (10 credits)
RRM 4232W Managing Recreational Lands (4)
ESPM 3241W Natural Resource and Environmental Policy: History, Creation, and Implementation (3)
Urbs 1001/3001W Introduction to Urban Studies: The Complexity of Metropolitan Life (3)

G. Additional Professional Requirements (6 credits). Contract Required for Your File. Students are required to select, with faculty adviser approval, a minimum of 6 additional credits of professional courses chosen from the list below. Courses may not be used to fill the requirement if they are used to satisfy other major requirements. Obtain a contract form from the Student Services Office,190 Coffey Hall or at http://www.cfans.umn.edu/fr. Return the completed contract to the Forest Resources Major Advisor or the Student Services Office.

Anth 3041 Ecological Anthropology (3)
BBE 1002 Wood and Fiber Science (3)
ESPM 3021 Ecological Vegetation Management: a Consulting Approach (3)
ESPM 3031 Applied GPS for GIS (3)
ESPM 3101 Conservation of Plant Biodiversity (3)
ESPM 3202W Environmental Conflict Management, Leadership and Planning (3)
ESPM 3703 Agroforestry in Watershed Management (3)

W –following the course number indicates the course is writing intensive.

FR 3204 Landscape Ecology and Management (3)
FR 3262 Remote Sensing of Natural Resources and Environment (4)
FW 2001 Introduction to Fisheries, Wildlife, and Conservation Biology (3)
FW 5603W Habitats and Regulation of Wildlife (3)
Geog 3371W Cities, Citizens and Communities (3)
Hort 4021 Landscape Design and Implementation I (4)
LA 3501 Environmental Design and Its Biological and Physical Context (3)
Mgmt 3001 Fundamentals of Management (3)
Comm 3411 Group Process, Team Building and Leadership (3)
Soc 1001 Introduction to Sociology (4)
Soc 3451W Cities and Social Change (3)
Soil 3416 Plant Nutrients in the Environment (3)

H. Electives (*however many necessary to reach 120 credits required for graduation*). Students may choose these credits from any discipline.

120 credits required to graduate.

Writing Intensive requirement: All students are required to complete four writing intensive courses in addition to freshman writing. Two of these courses must be in your major; one of those must be a 3 – 4xxx course. This requirement is more than satisfied by Hort 5041W, RRM 4232W, ESPM 3241W and Urbs 3001W.

Students are encouraged to incorporate international study into their academic programs. Visit the St Paul Campus Career Center and the Learning Abroad Center to find out how you can enhance your college education with a study abroad experience. For more information about study abroad opportunities, call the Student Services office at 612-624-6768 or go on-line at: http://www.cfans.umn.edu/international.html.

W –following the course number indicates the course is writing intensive.

Society of American Foresters
Committee on Accreditation
5400 Grosvenor Lane
Bethesda, Maryland 20814-2198
(301) 897-8720 Extension 123

ANNUAL CHECKLIST for SUBSTANTIVE CHANGE REPORTING

The forestry program head is responsible for reporting substantive changes in an SAF accredited program to the Committee on Accreditation (COA). This form is provided in response to the SAF Accreditation Handbook requirement that the SAF provide a checklist annually to facilitate substantive change assessment and reporting. A copy of the handbook may be found on the SAF website at http://www.safnet.org/education/AccHdbk2004.pdf.

Use the Tab and Shift-Tab to navigate between fields

Date: December 31, 2005

Name of Institution: University of Minnesota

SAF Accredited Program(s): Forest Resources (B.S.) and Urban and Community Forestry (B.S.)

Contact Person

Name: Alan R. Ek
Title: Professor and Head
Department of Forest Resources
Address: University of Minnesota
115 Green Hall
1530 Cleveland Avenue N.
St. Paul, MN 55108

City/State/Zip:
Work Phone: 612-624-3400 Email: aek@umn.edu

Substantive Change Checklist • Has a change has taken place in your SAF accredited forestry program? • Is the change substantive? A substantive change is one that may significantly affect the quality or direction of a program. • Evaluate each item below and check the appropriate boxes in the right-hand columns.	There has been a change relative to standards checked.[1]	The change is substantive relative to standards checked.[2]
Standard I: Forestry Program Mission, Goals, and Objectives	☐	☐
Standard II: Curriculum	☐	☐
Standard III: Forestry Program Organization and Administration	☐	☐
Standard IV: Faculty	☐	☐
Standard V: Students (*e.g.*, admission and retention standards)	☐	☐
Standard VI: Parent Institution Support (*e.g.*, financial support)	☐	☐

☒ **No Changes in Our Forestry Program this Year**

[1] Describe the changes in the Summary of Changes and Accomplishments on page 2 of this checklist.

[2] A Substantive Change Report must be filed with the COA following the Guidelines in Part III of the SAF Accreditation Handbook (see http://www.safnet.org/education/AccHdbk2004.pdf).

Summary of Important Changes and Accomplishments

In the expandable box below, please provide a brief (one-page) bulleted summary of important changes or accomplishments that occurred in the subject program during the past year that *do not appear to affect* your forestry program's ability to meet the SAF Standards. On the basis of this report, the COA may determine that a Substantive Change Report is required.

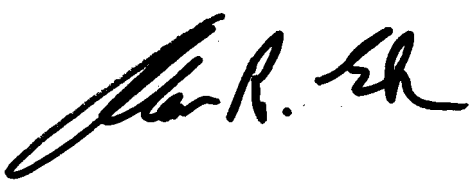
Name of Institution: University of Minnesota

Changes in 2005

- Refinements of curriculum including course naming and course coverage (minor changes).
- Hiring a new faculty member in area of policy to fill a recent vacancy (minor change)
- Overall – no substantive change

Pending changes in 2006

- Change in College Structure (pending). In July 2006 it appears the College of Natural Resources will be merged into the College of Agriculture, Food, and Environmental Sciences to form a new College of Food, Agriculture, and Natural Resource Sciences. Thus the Department of Forest Resources will in the future report to the dean (TBA) of this new college rather than to the dean of the College of Natural Resources. Importantly, so far this does not indicate any substantive change in the level of financial support or other aspects of the program.
- Site visit to be scheduled for early 2007 will clarify changes, though none are not expected to be substantive.



Mail or email to:
Terrance W. Clark, CF, Associate Director, Science and Education
Society of American Foresters · 5400 Grosvenor Lane · Bethesda, MD 20814-2198
clarkt@safnet.org

Society of American Foresters
Growing better all the time

October 7, 2005

Dr. E. Thomas Sullivan
Senior Vice President for Academic Affairs and Provost
234 Morrill Hall
100 Church Street S.E.
Minneapolis, MN 55455-0110

Dear Dr. Sullivan:

As requested, the Society of American Foresters (SAF) will postpone its accreditation self-study and site review for one year to allow for the ongoing Strategic Positioning at the University of Minnesota. SAF accreditation of the Forest Resources and Urban Forestry curricula is extended through December 31, 2007.

Sincerely,

Terrance W. Clark, CF
Associate Director, Science and Education

cc: Dr. Stafford
Dr. Ek

5400 Grosvenor Lane • Bethesda, Maryland 20814-2198 • (301) 897-8720 • fax (301) 897-3690
www.safnet.org

UNIVERSITY OF MINNESOTA

Office of the Senior Vice President for Academic Affairs and Provost

234 Morrill Hall
100 Church Street S.E.
Minneapolis, MN 55455-0110
Office: 612-625-0051
Fax: 612-624-3814

August 28, 2005

Terrance W. Clark, CF
Associate Director, Science and Education
Society of American Foresters
5400 Grosvenor Lane
Bethesda, MD 20814-2198

Dear Mr. Clark:

Per your letter of January 27, 2005, I am writing to request a one-year extension for the Society of American Foresters accreditation of the undergraduate professional forestry curricula at the University of Minnesota. I do so with the full intent of the institution to continue these historically strong and highly rated curricula (Forest Resources and Urban Forestry).

The reason for this request is the ongoing Strategic Positioning at the University of Minnesota (see http://www1.umn.edu/systemwide/strategic_positioning/). As part of this strengthening effort, we are integrating the colleges of Natural Resources, and Agriculture, Food and Environmental Sciences to form a new, expanded college. A task force will work this fall to develop a report on various aspects and potentials of this merger to the President of the University, Dr. Robert Bruininks, late this year. The President will then use these recommendations in subsequent structural and positioning decisions early next year.

This planning timeframe makes it very difficult for the program faculty to prepare their usual self-study report in a timely manner, notably for the report sections describing:

STANDARD III: FORESTRY PROGRAM ORGANIZATION AND ADMINISTRATION
STANDARD VI: PARENT INSTITUTION SUPPORT

Preparation of this report for a 2005-2006 site visit is thus problematic. Consequently we request this site visit be postponed to 2006-2007.

Should you have questions on this request, please contact College of Natural Resources Dean Susan G. Stafford at 612-624-1234 or email: stafford@umn.edu.

Sincerely,

Tom Sullivan

E. Thomas Sullivan
Senior Vice President for Academic Affairs and Provost

cc: Susan G. Stafford, Dean, College of Natural Resources
✓Alan R. Ek, Head, Department of Forest Resources

growing forests for our future

Society of American Foresters

January 14, 2002

CONFIDENTIAL

Dr. Robert Bruininks
Executive Vice President & Provost
University of Minnesota
Minneapolis, MN 55455-0100

Dear Dr. Bruininks:

It is my responsibility to report the action of the Society of American Foresters' Committee on Accreditation in its recent review of the first professional forestry degree program within the Department of Forest Resources. I also wish to convey to you the appreciation of the Society for the institution's support of professional forest resources education and for the program's participation in the peer review process.

At its recent meeting, the Committee adopted the attached findings and action. A summary of this action follows:

The Committee on Accreditation accepts the Interim Status Report and continues accreditation through 2006 for the Forest Resources and Urban Forestry Curricula as administered by the Department of Forest Resources, University of Minnesota.

Further, the Committee requests a self-evaluation and on-site visit in 2006 to comply with procedures stated in the Accreditation Handbook.

Congratulations on continued accreditation by the Society of American Foresters. We are pleased to recognize your program's continued dedication to excellence in forest resources education, and to acknowledge this achievement in the Society's publications and in contacts with prospective students seeking guidance when selecting qualified programs.

SAF's accreditation staff director will notify the program of the due date and procedures well in advance of the next scheduled review. By copy of this letter, I am reminding the program head that any reference to SAF accreditation status in public documents, such as catalogues and brochures, follow this suggested format:

The educational program(s) in [list specific curriculum title(s)] leading to the first professional degree in forestry of the [list degree designation] is/are

accredited by the Society of American Foresters (SAF). SAF is the specialized accrediting agency recognized by the Council for Higher Education Accreditation as the accrediting agency for forestry in the United States.

It is our Society's sincere desire that this review provided faculty and administrators the opportunity to assess and improve the quality of forestry education within the Department of Forest Resources. We appreciate your continued support of specialized accreditation review, and always encourage comments on our Society's process and procedures. Should you have any questions concerning this specific action, please address them to the Director of Science and Education at the Society of American Foresters.

Sincerely,

SOCIETY OF AMERICAN FORESTERS

William H. Banzhaf, CF, CAE
Executive Vice President

cc: Dr. Alfred D. Sullivan, Dean, College of Natural Resources
Dr. Alan R. Ek, Professor & Head, Dept. of Forest Resources ✔
Enclosure: SAF Committee on Accreditation Action

growing forests for our future

Summary Findings and Action Regarding the Continued SAF Accreditation of Certain Curricula in the Department of Forest Resources University of Minnesota

Society of American Foresters Committee on Accreditation

October 31, 2001

INTRODUCTION

In 1999, SAF accreditation was continued for the Forest Resources and Urban Forestry curricula leading to the Bachelor of Science degree as administered by the Department of Forest Resources, University of Minnesota through 2001. Further, the Committee requested that the required 2001 Interim Status Report specifically address funding support of undergraduate teaching efforts. The previous on-site visit occurred in 1996.

The following summary findings and action by the SAF Committee on Accreditation are based upon a review of the Department of Forest Resources Interim Status Report of August 2001.

SUMMARY FINDINGS

Standard I. Forestry Program Mission, Goals, and Objectives: The program goals, objectives, and policies as stated are consistent with the mission of the university. The goals, objectives, and policies are clearly and publicly stated.

The standard is met.

Standard II. Curriculum: Since the last site visit in 1996, the department converted from a quarter system to a semester system. The conversion changed the requirement from 192 quarter credits to 128 semester credits. The Interim Status Report indicates that some courses were dropped or their contents were incorporated into new or existing courses to accommodate the conversion.

Continued accreditation is sought for the Forest Resources curriculum and the Urban Forestry curriculum. The Forest Resources Curriculum has two tracks – Forest Management and Forest Science. The Forest Management track is intended for students interested in forestland management, and the Forest Science track is for students who are interested in the fundamentals of forest resource management and the basic and applied sciences related to forest resources.

Both tracks of the Forest Resource curriculum require 128 credit hours, including electives, for graduation. The distribution of the courses between the general educational component and the SAF required areas of study is consistent with the standard.

The Urban Forestry curriculum requires 128 credit hours, including electives, for graduation. The students enrolled in this area of study take many of the courses required for students in the Forest Resources area of study. The distribution of the courses between the general educational component and the SAF required areas of study is consistent with the standard.

Instruction in Professional Ethics is achieved through the following courses: (1) NRES 3241 – Natural Resources Policy and Administration; (2) NRES 3202 – Leadership, Planning, and Conflict Management in Natural Resources and; (3) NRES 3011 – Ethics, Conflict, and Leadership in Resource Management (elective course).

The standard is met.

Standard III. Organization and Administration of the Forestry Program: The Department of Forest Resources is one of three departments and two centers situated in College of Natural Resources. A Department Head, who reports to the Dean of the college, administers the Department of Forest Resources. The Department Head has sufficient authority to manage functions of the department including the enhancement of program quality.

Faculty participation in establishing requirements for degrees offered, the selection and promotion of faculty members, and the development of policy is evident.

There is a clear and published procedure for evaluating and accepting students. Also, there is a process by which transfer credits are accepted. The department attaches priority to teaching, planning and outcome assessment.

The standard is met.

Standard IV. Faculty: The department has highly qualified faculty members. Despite the large number of faculty, there is limited diversity among the faculty in terms of gender and race. The department indicates that it has put into place a process to ensure that minority and women candidates are identified and considered.

The standard is met.

Standard V. Students: Enrollment in Forest Resources has remained fairly stable since 1995. There has been a slight decline in the enrollment in Urban Forestry during the same period. In 2000, minorities accounted for 6 percent of the student body in the College of Natural Resources. Women accounted for 45 percent of the student body in

the College. The contribution by the department to those figures was not indicated in the report.

The department's efforts in student recruitment and retention, academic advising, and professional development are commendable. Also, the department has activities to ensure that students approaching graduation are competent in their fields.

The standard is met.

Standard VI. Parent Institution Support: The operational and maintenance budget for the Department of Forest Resources had declined slightly (3.1 percent) since 1995. During the same period, the research budget also experienced a decline (6.6 percent). The department lost one faculty position in forest soils through retirement and has not filled it. Notwithstanding, the department reports that there is no real change in teaching effort.

The standard is met.

Standard VII. Physical Resources and Facilities: The department's physical resources and facilities are adequate to ensure that its mission is carried out.

The standard is met.

Standard VIII. Research, Extension, Continuing Education, and Public Service: Almost every faculty member in the department is involved in research. The department views participation in research as a means of maintaining faculty's technical and scientific competence. Research is complementary to the instructional program. Both graduate and undergraduate students are involved in research activities. Some faculty members have extension appointments. The university encourages participation in public service by all faculty members.

The standard is met.

ACTION

The Committee on Accreditation accepts the Interim Status Report and continues accreditation through 2006 for the Forest Resources and Urban Forestry Curricula as administered by the Department of Forest Resources, University of Minnesota.

Further, the Committee requests a self-evaluation and on-site visit in 2006 to comply with procedures stated in the Accreditation Handbook.

Edwin L. Miller, Chair
SAF Committee on Accreditation

10/31/01
Date