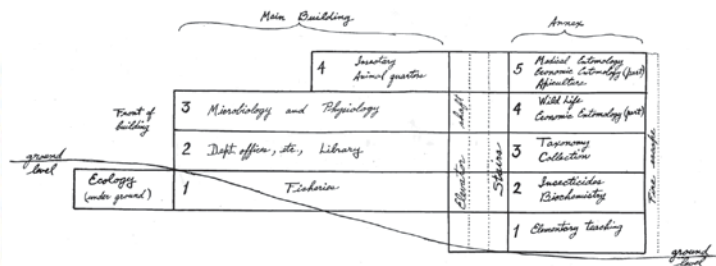




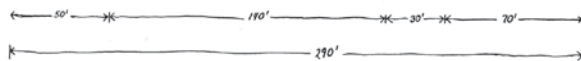
DEPARTMENT OF ENTOMOLOGY

Newsletter 2009

Metamorphosis



Approximate Side-view of Entomol. Bldg.
(Each floor arbitrarily given 20 feet in height)



UNIVERSITY OF MINNESOTA

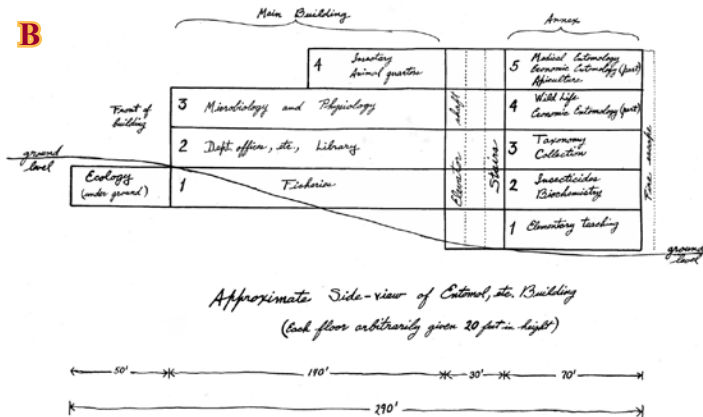
About the cover picture:

Entomologists know all about change. Metamorphosis is a part of many insect's life cycle. Metamorphosis is also a part of every University department. Picture A is Coffey Hall, home of the Entomology Department until 1970. Picture B is a hand drawn plan of a new Entomology, Fisheries and Wildlife Building. Picture C is an artist's rendering of the new Entomology, Fisheries and Wildlife Building (later renamed Hodson Hall). Picture D is a picture of Hodson Hall, current home of the Department of Entomology as well as the Department of Fisheries, Wildlife and Conservation Biology.

A



B



C



D



College of Food, Agricultural
and Natural Resource Sciences

UNIVERSITY OF MINNESOTA



Welcome from the Department Head

David Ragsdale



The Entomology Department has undergone significant changes in the 2009-2010 academic year. Two faculty retired, **Dr. Mark Ascerno** and **Dr. Edward (Ted) Radcliffe** as did two staff members, **Anna Gerenday** (from **Ann Fallon's** lab) and **Diana Ritchmond**. So the faces changed, but the work continues. Mark is keeping busy in his new office next door in the Forest Service Building working on his IPM³ program which is ready to launch this fall. This novel online educational system is targeting professionals who are seeking continuing education to achieve or maintain certification in Integrated Pest Management. This is a collaborative effort between Purdue University (Steve Yaninek) and USDA (Bob Nowierski). Mark was Head of Entomology for 19 years and his leadership will be missed. I am currently filling in as Interim Head.

It's a challenging time to be Department Head and Minnesota has not been spared from the economic downturn affecting the nation. But on a positive note we were able to begin a search for the Forest Entomology position vacated some years ago. We completed interviewing four strong candidates in October and at the time of this printing, we had not yet made an offer to anyone. By this time next year we will once again have a active Forest Entomologist program. Minnesota faces some daunting forest pests from gypsy moth (high levels found on the north shore of Lake Superior) to emerald ash borer (first found in May 2009 about a half mile south of the St. Paul campus in the Hamden Park area), along with the cadre of native and introduced insects that cause damage to Minnesota forests. We want to give a special 'Thank you' to **Pete Rush** who for the past several years has stepped in and taught Forest Entomology. He will be missed and we are grateful to Pete for doing this in his retirement for so many years.

Faculty and students in Entomology continue to be highly productive and several were recognized for their efforts in 2009. **Dr. Marla Spivak** was inducted by the Board of Regents in May 2009 as a *Distinguished McKnight University Professor*. The recipients of this award are mid-career faculty members and this year only four faculty at the University were so honored.

Along with the title, which she keeps as long as she remains a University of Minnesota faculty member, Marla also receives a research grant of \$100,000 over five years. Marla is a world authority on honeybees and she has worked tirelessly with colleagues around the country to help solve the colony collapse disorder that European honey bees are facing. She has developed queen rearing methods for northern producers and provided her hygienic bee line that defends itself from chalk brood, varroa mite, and other difficult to control parasites and pathogens. Marla joins an elite group of scientists and scholars across the University. Marla joins two additional *Distinguished McKnight University Professors*, **Dr. David Andow** and **Dr. Ann Fallon**. In total five faculty have been recognized by the McKnight (3M) Foundation. **Dr. George Heimpel** and **Dr. Karen Mesce** were honored with a **McKnight Land-Grant Professorship**.

Ann Fallon added yet another award to her long list of accomplishments and was selected as the 2009 recipient of the *Distinguished Women Scholars Awards* awarded by the Graduate School and the Office of University Women (OUW) as the award winner for the Science and Engineering faculty. Only two such awards are given each year, the other to a faculty member in Humanities, Social Sciences and Arts. Ann is a world authority on mosquito biology or the "little blood suckers" as she calls them and with the goal to rid the world of malaria – a disease that kills millions each year. Ann also added undergraduate teaching to her list of accomplishments as she took over teaching the Insect Biology (ENT 3005) course when **Dr. Susan Weller** stepped into her administrative role as Director of the Bell Museum of Natural History. Undergrads love this class and I expect this course to attract an even larger following in future years. We had to open up a third lab section this year because our usual two sections were filled to capacity.

The **Bell Museum of Natural History** was to build a new facility at the corner of Cleveland and Larpenteur Avenue, but funds for this project have not yet been approved by the Minnesota Legislature or the Governor. Susan is still hopeful this will occur as years of planning and fund raising has gone into this project. Having the Bell Museum of Natural History at this very busy intersection, would improve public access to this landmark public museum and scientific collection. As many of you know there is the public venue and education at the Bell Museum, but it is also a working museum and houses special collections many of which are unique to Minnesota's multiple biomes.

Our graduate students also continue to garner multiple awards from fellowships and traineeships to presentations awards at regional and national

meetings. At the Hodson Alumni Award Lecture in May, we recognized 15 graduate students for their accomplishments and awards. One award given to Ms. **Adela Chavez** was the Distinguished Master's Thesis Award from the Graduate School. Adela is currently a Ph.D. student working with **Dr. Uli Munderloh**. Adela's thesis title is, "*Expression of Anaplasma marginale major surface protein 2 variants during culture in tick and mammalian cells*". Only one Distinguished Master's Thesis Award is given each year so this is quite an accomplishment for Adela. Adela is also Uli's first graduate student. Many of you may know Uli as a research scientist working side by side with **Dr. Tim Kurtti**. Uli brings a solid independent research program and was appointed (January 2007) as a tenure-track Associate Professor of Entomology. She supports a well-staffed lab and her area of research is still focused on unraveling the complex biology associated with various tick-borne pathogens that cause disease in animals and humans. Think of Lyme disease, erlichiosis, anaplasmosis and Rocky Mountain spotted fever and examples of tick-borne diseases. Her faculty career is off to a great start with Adela and the accomplishments of her lab group continue to make landmark discoveries.

I want to encourage you to nominate a fellow alumnus for the prestigious Hodson Alumni Award. Last year **Dr. Sujaya Rao**, (Ph.D. with **Dr. Richard Jones**) who is currently an Assoc. Professor in the Department of Crop and Soil Sciences, Oregon State University, was recognized as the 2009 Hodson Alumni Award winner. Sujaya gave a lecture titled "Integrating native bee research with 'outside the box' learning opportunities". It was a great lecture and the pictures Sujaya brought with her that were taken when she was a student here were fun to view and reminisce about during the reception. Please navigate to our new website and select the "Alumni and Friends" tab, download the nomination form and send this in for consideration.

If you have not visited the Department's website lately, we've given that a new look. Our new Administrative Assistant, **Felicia Christy-Horan** has worked diligently to give our website a much needed face lift. It highlights all the faculty, students and staff in the department with an up to date and image intense website. Many of the photos are from our ace photographer, **Jeff Hahn**. By the way, you might want to pick up Jeff's new book, "Insects of the North Woods", available at Amazon.com and other bookstores. Hundreds of color photographs, many of which are Jeff's photos make this a great gift for the Holidays (see page 9 for more information).

Ted Radcliffe, **Bill Hutchison** and **Rafael Cancelado** (one of Ted's first grad students, who translated the on-line version of the *Radcliffe's*

IPM World Textbook into Spanish) have teamed up with Cambridge University Press and released an updated version of the IPM textbook, *Integrated Pest Management Concepts, Tactics, Strategies and Case Studies*. Of course the website is still up and active, <http://impworld.umn.edu> along with the VegEdge site that Bill maintains, www.vegedge.umn.edu. As I mentioned earlier, Ted retired after 46 years of service to the University and the Department of Entomology. His presence is sorely missed, but he pops in to hear a seminar from time to time and his wit is still intact. Ted flew into the annual Halloween party at the Honey House as Batman - I hope someone has pictures. They might just show up on the website.

The Entomology Graduate Program is in good hands with **George Heimpel** as our new Director of Graduate Studies. We had 6 new grad students enter the program in 2009 and anticipate a record level of recruitment again this year. Faculty have been busy writing grants and many of those efforts have been funded. Many friends and alumni of the Department of Entomology have also kindly donated to various endowments that help support graduate students, and we are eternally grateful for those donations. In lean economic times we rely on such generous gifts to continue to recruit the best and the brightest students into our graduate program. We appreciate all the support from all our donors and always enjoy hearing from you.

If any of you happen to be on campus, please stop by and say hi. The walls of the office are adorned by the great artwork of **Ralph Holzenthal** and his students in the Scientific Illustration class and this year the graduate student club, **Frenatae**, has produced a calendar that uses 12 of the student and staff produced illustrations. Make a donation to the Entomology Foundation Account by the end of the year and we'll send you a 2010 calendar as a token of our appreciation.



UNIVERSITY OF MINNESOTA
DEPARTMENT OF ENTOMOLOGY

Alumni Reception
Spread the word!



San Diego ESA Meeting, 2010

Departmental Changes



Welcome

Nadilia Gomez Raboteaux, Post-Doctoral Associate working with Rob Venette.
Felicia Christy Horan, Associate Administrator
Diana Castillo Lopez, Sr. Research Associate working with Dave Ragsdale.
Aaron Zimmer, Jr. Scientist working with Ken Ostlie

Felicia Christy Horan

Felicia Christy Horan replaced Diana Richmond as the Associate Administrator for the Department in May of this year. While Felicia is new to the St. Paul Campus, she has worked for University of Minnesota for twenty-two years. The last position she held was as the Associate Administrator for the Executive Health Care Study Program, (an off-site Masters program for health care administrators). This program began in the late sixties and came to a close one year ago. Felicia went on the layoff list and was unemployed for the first time since she was fourteen years old, she applied and was hired for Diana's position and she is as happy to be here as we are to have her.



Lestes (drawing by Ralph Holzenthal)

Farewell

Mark Ascerno
Alejandro Costamagna
Erica Davis
Anna Gerenday
Darci Lambert
Katie Lee
Patina Mendez
Ted Radcliffe
Diana Ritchmond
Areca (Treon) Roe
Jodi Swanson

Graduate Degrees Awarded

M. Lourdes Chamorro, Ph.D. (Advisor: Ralph Holzenthal) Systematics of the Family Polycentropodidae (Insecta: Trichoptera: Psychomyioidea) and Taxonomic Revision of New World Polyplectropus Ulmer.

Kathleen Lee, M.S. (Advisor: Marla Spivak) A Practical Standardized Sampling Plan for *Varroa destructor* on *Apis mellifera*.

Gregory Setliff, Ph.D. (Advisors: Susan Weller and George Weiblen) Systematic Studies of the Indo-Australian Crowned Weevils (Coleoptera: Curculionidae: Cryptorhynchinae).

Abigail Walter, Ph.D. (Advisors: Stephen Kells and Rob Venette) Potential Host Use by the Mediterranean Pine Engraver on Novel Tree Species.

Faculty News

Dr. Stephen Kells recognized for his efforts in improving IPM practices with Wal-Mart Stores, Inc.

Pest management practices in retail industries have to date received little attention except for an occasional research project. As a result, existing pest management programs for retail industries are based on experiences borrowed from other industry sectors (e.g., food processing). However, there are major differences in retail habitats compared to those found in food processing facilities. Practices developed from the latter often do not provide adequate protection in a retail and distribution facility. Despite pesticide applications (both reactive and prophylactic), there continue to be outbreaks of rodents, birds and stored product pests that cause damage to saleable goods. In extreme cases, pest issues have resulted in the temporary closure of stores and warehouses, and health citations.

In an effort to improve prevention measures against pests in retail facilities, a team of researchers including Dr. **Stephen Kells** (University of Minnesota), Mr. Kim Kemp (Nestle Purina PetCare) and Dr. Bobby Corrigan (RMC Pest Management Consulting) worked with major retail giant, Wal-Mart Stores Inc., to adjust the IPM practices conducted in warehouse and retail facilities. This work was funded by Nestlé Purina PetCare. The main adjustment to the program was a shift from an over-reliance on monitoring devices to more time spent in proactive inspections and improved reporting.

The research team monitored adoption of these new methods and conducted a survey to optimize the program. The results of the new IPM methods have been impressive, the use of insecticides and rodenticides being reduced by greater than 90%. In the case of warehousing, some of the highlights include:

- 16,916 fewer gallons of prophylactic pesticide applications (per year)
- 4.6 tons of rodenticide eliminated (approximately per year)
- 8,421 gallons for fogging eliminated (per year)

Further information is available at <http://www.epa.gov/oppbppd1/pep/strategies/2009/walmart09.htm>.

This work was recognized by the US-EPA, with Wal-Mart's inclusion in the EPA's Pesticide Environmental Stewardship Program. For their efforts, Dr. Kells, Mr. Kemp, and Dr. Corrigan received certificates of appreciation from Wal-Mart Stores, Inc. Headquarters.

More importantly, the team's efforts have generated great interest from other major food processing and retail companies requesting information and direction on how to improve their pest management programs.

Marla Spivak 2009 Distinguished McKnight University Professor

Professor **Spivak** joins **George Heimpel**, and **Karen Mesce**, who have been awarded McKnight Land-Grant Professorships, as well as Distinguished McKnight University Professors **David Andow** and **Ann Fallon**, in continuing the tradition of excellence in our Department.

The purpose of the Distinguished McKnight University Professorship is to recognize and reward our most outstanding mid-career faculty. Recipients are honored with the title Distinguished McKnight University Professor, which they will hold for as long as they remain at the University of Minnesota. The grant associated with the Professorship consists of \$100,000 to be expended over five years.

The winners were chosen on the merit of their scholarly achievements and the potential for greater attainment in the field; the extent to which their achievements have brought distinction to the University of Minnesota; the quality of their teaching and advising; and their contributions to the wider community.

From the award announcement page:

Professor Spivak is a world authority on honeybees, their behavior, and their services to humankind. As pollinators of one-third of all crops, bees are critical to environmental and human health. Spivak fuses basic and applied research, producing insights into basic biology while making significant differences for beekeepers. Spivak bred a widely used honeybee line resistant to disease through hygienic behavior. She is currently uncovering the antimicrobial benefits of propolis, a resin, to bees and humans. Spivak is past-president of the International Union for the Study of Social Insects' North American Section, a trustee of the Foundation for the Preservation of Honey Bees, and a member of the board of directors of the Xerces Society for Invertebrate Conservation. She received the University of Minnesota McKnight Land-Grant Professor award in 1996 and a National Science Foundation (NSF) CAREER grant in 1997. She has had continuous research funding from NSF since 1997.

Dr. Ann Fallon

Distinguished University Woman Scholar in Science and Engineering, 2009

The Distinguished Women Scholars Awards, supported collaboratively by the Office of the Dean of the Graduate School and the Women's Center, were established in 2001. This program awards two people annually—one in Sciences and Engineering and one in Humanities, Social Sciences and Arts. The purpose of this award program is to (1) acknowledge and honor the accomplishments of distinguished women scholars at the University of Minnesota and (2) to promote a more diverse atmosphere for student learning in departments where women are underrepresented. The focus of this award is the scholarship of distinguished women. Eligibility is limited to tenured women faculty who have been at the University of Minnesota for at least five years, and who are in departments where women are underrepresented among tenured faculty.

According to the award website at http://www.grad.umn.edu/news-events/dwsa_2009.html:

Ann Fallon, Entomology, is a leading international figure in the field of insect molecular biology. Her work on the molecular genetics of mosquitoes is innovative, groundbreaking, and immensely valuable in the effort to understand the genetics of disease transmission. "Those little bloodsuckers," as she refers to them with unmistakable respect, kill millions of people every year. Instead of aiming to exterminate them, she approaches the study of disease-transmitting insects from the perspective of a student of biology, molecular biology, and virology. Fallon has been recognized with a National Institutes of Health research grant and a University of Minnesota Distinguished McKnight University Professorship. Additionally, the World Health Organization selected her to be a member of an international working group, Biological Control of Vectors: Prospects for Malaria Control by Genetic Manipulation of its Vectors. Fallon is a dedicated teacher and mentor whose former students have gone on to conduct cutting-edge research at prestigious institutions around the country. In addition, she has demonstrated her commitment to improving the University by actively participating in governance and representing the University at programs as varied as the White Earth Indian Reservation, Northwestern College Child Development Center, and the Minnesota State Fair.

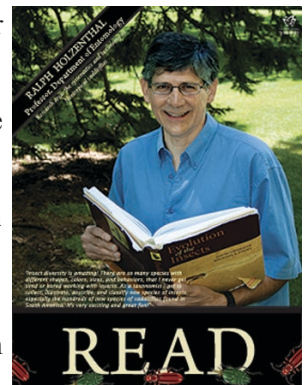
John Luhman, Assistant Adjunct Professor Retired from the MN Dept of Agriculture

Assistant Adjunct Professor **John Luhman** retired from the Minnesota Department of Agriculture June 30, 2009, where he was a biological control scientist the past 18 years. His retirement came a few years earlier than expected when his IPM-Biocontrol program was cut in the Ag Development and Ag Finance Division because of the state budget shortfall. Fortunately he had reached retirement age last January. He will, however, continue his museum activities on an expanded basis, and **Phil** will no longer have to wonder if he's "working" or having a day off! Right now he is reorganizing and updating the Chrysomelidae, and identifying several dozen common species to remove them from the "Undetermined" drawers. There are still hundreds of specimens of other beetles, flies, and Hymenoptera to accession from MDA surveys done over the past ten years. Then it'll be back to the parasitic Hymenoptera. John invites you to bring him specimens for identification when needed. Groups he has had experience in identifying, aside from the parasitic Hymenoptera, include wood boring beetles, coccinellids, grasshoppers and katydids, Hemiptera and Homoptera--esp. leafhoppers and mirids, many fly families--esp. the muscoid acalyperates and calypterates, many Lepidoptera--esp. tortricid and noctuid moths, and other Hymenoptera--esp. vespids, bumble bees, and ants. He can be found several times a week in the systematics lab, 311 Hodson, or in the museum itself.

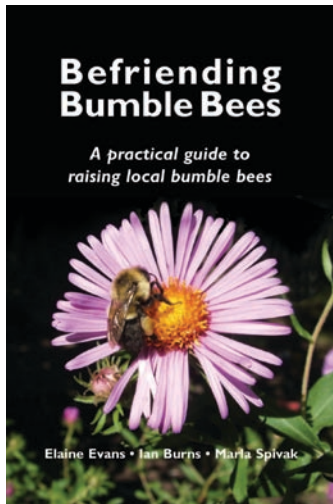
Read a good book lately?



If you've been to a library recently, you may have seen a poster featuring a celebrity reading a book with the message READ. The St. Paul Libraries Poster Project, is based on this series begun by the American Library Association in 1985 to promote reading. In April, they unveiled their latest poster, featuring Adjunct Professor, **William Miller**. http://blog.lib.umn.edu/magrath/stplibraries/2009/04/read_more.html Professor **Ralph Holzenthal** was on the first of the series of posters which feature department faculty and staff from the St. Paul Campus. http://blog.lib.umn.edu/magrath/stplibraries/2008/10/read_posters_come_to_the_st_pa.html Both posters are on display in the windows of the EFW Library in Hodson Hall.



Here are some suggestions...



Befriending Bumble Bees was named a 'Best Notable Government Document' by the GODORT Committee of the American Library Association. The "Notable Documents List" was originally begun by the Notable Documents Panel of the ALA's Government Documents Round Table (GODORT), with hopes that the list would promote awareness and acquisition of government publications by libraries and use by library patrons. The list also was intended to recognize the individuals and agencies involved in producing these excellent sources of information and inspiration. Yearly citations cover documents from the previous two years, so "2008 Notable Documents List" published in 2009 includes items published in 2007/2008.

The May 15, 2009 issue of the Library Journal (available online at <http://www.libraryjournal.com/article/CA6657395.html>) published the list in the article "Looking Back, Moving On: 2008 Best Notable Government Documents", by Jim Church, and the Bee Lab's publication, *Befriending Bumble Bees* was listed under the heading State & Local Documents as follows:

Befriending Bumble Bees: A Practical Guide to Raising Local Bumble Bees. by Elaine Evans & others. Univ. of Minnesota Extension. 2007. 65p. illus. OCLC # 137238403. \$19.99.

Interested in supporting a healthy ecosystem and encouraging agricultural productivity? Then consider raising bumble bees. Full of good color illustrations, this accessible guide discusses all aspects of raising bumble bees, from capturing queens to building boxes to caring for the colonies. Valuable, especially for beginners.

<http://www.extension.umn.edu/honeybees/components/bumbleID.htm>

Congratulations to Alumni **Elaine Evans** (M.S. 2001) and **Ian Burns** (Ph.D. 2004) who, along with Professor **Marla Spivak** were responsible for this excellent and inspiring publication.



As Dave Ragsdale mentioned in his letter, Extension Professor **Jeff Hahn** has written a book about insects in the north woods. He was a guest on several local radio stations promoting his book during late September and early October

In a blog posting, Jeff Gillman, Associate Professor of Horticulture and Nursery Management Specialist reviews the book and says:

...when you open the pages of this book, you quickly discover that it is not only as informative as you would expect from a University of Minnesota Entomologist, it's also entertaining. This book literally drips with Hahn's personality and sense of humor. Between talking about receiving a gift of a dead insect being every woman's dream when referring to scorpion fly mating rituals, and the mini scuba tanks that predaceous diving beetles use, you soon come to realize that this isn't just an entomologist reciting dry facts. Instead, this is an author who loves his subjects and who wants the reader to love them too.

To read more of Jeff Gillman's review go to <http://blog.lib.umn.edu/efans/ygnews/2009/10/field-guides-can-be-fun.html>

In addition to writing the text, Jeff took most of the photographs in the book. Congratulations!

Multi-state Soybean IPM project receives awards

Association of Public and Land-Grant Universities, 2009 Experiment Station Section Award for Excellence in Multistate Research

The Association of Public and Land-Grant Universities (APLU) awarded the Experiment Station Section Award for Excellence in Multistate Research to the multistate project Biology, Impact and Management of Soybean Insect Pests in Soybean Production Systems during its annual meeting in Washington, D.C., November 2009. The multistate project's work has formed the foundation for extension efforts on national and regional soybean insect problems for more than 30 years. The current project, supported the USDA's National Institute of Food and Agriculture (NIFA), includes researchers and extension personnel from 18 land-grant universities throughout the south and north central regions, and has recently focused on the soybean aphid (*Aphis glycines*). To read the full story, go to <http://www.usagnet.com/story-national.php?Id=2394&yr=2009>

Entomological Society of America 2009 Integrated Pest Management Team Award

The Soybean Aphid IPM Team, (David Ragsdale, Christina DiFonzo, Eileen Cullen, Ronald Hammond, Thomas Hunt, Brian McCornack, Kelley Tilmon, David Voegtlin, David Wright & Matthew O'Neal) was chosen as the recipient of the 2009 IPM Management team by ESA, which will be presented at the national meeting in Indianapolis, Indiana.

Presented by the Entomological Foundation, Dow AgroSciences' Integrated Pest Management Team Award recognizes the successful efforts of a small collaborative work team approach to pest control but must include one entomologist from the private sector and one from the public sector. (A team is defined as no more than 10 team members).

David Ragsdale points out that of the 10 team members listed, two are his former students (Chris DiFonzo and Brian McCornack) and not listed, but part of the 37 member larger team was Erin Hodgson, who developed 'Speed Scouting' which was mentioned in the ESA Newsletter article about the award.. Others involved in the 37 member team from Minnesota were Ian MacRae (Entomology), Bill Hutchison (Entomology), Ken Ostlie (Entomology), Bruce Potter (Entomology - SWROC), Rob Venette (USFS at U of MN; Adj. Associate Professor, Entomology), Phil Glogoza (U of MN Extension Regional Center, Moorhead), Fritz Breitenbach (Entomology - U of MN Extension SE District Office), and Lisa Behnken (U of MN Extension Regional Center, Rochester) - all U of MN faculty and regional extension educators or IPM specialists. So 12 of the 37 member team (almost 1/3) were from Minnesota or got their degrees from Minnesota!

Stopping the Societal Spread of Bed Bugs

Bed bugs are spreading throughout society using unique dispersal and hitchhiking behaviors. Dr. **Stephen Kells** is conducting on-going research and extension programs to counteract the proliferation of this insect. The principal research project is a collaborative venture with **Dr. Roger Moon** and Ph.D. Graduate Student **Joelle Olson**. This project is evaluating the chemical-mediated aggregation behavior of the bed bug, to establish how it identifies hiding places.

Other research projects headed up by Dr. Kells involve improving delivery of non-chemical control methods to suppress / eliminate this insect. Also, Dr. Kells is studying the behavioral response of bed bugs to high and low temperatures, steam treatments, and the efficacy of these treatments. All of these practices supplement, and in some cases replace, chemical control methods in situations where the use of pesticides is limited and the efficacy of such practices are questionable. These non-chemical control studies support undergraduate education by employing undergraduate students.

A very important aspect to Dr. Kells' extension program is the education of those in positions to control/eliminate bed bugs in their facilities. Stakeholders of this particular program include landlords, public health inspectors, emergency management services and those in social assistance programs. The immediate goal of this program is to make people aware of the presence of bed bugs, and how to respond appropriately to bed bugs when an infestation is found.

Strategies to prevent infestations through inspection programs are of paramount importance. Routine inspections play an initial and major role in an effective prevention program. Earlier detections of smaller infestations mean less extensive control measures compared to infestations that have existed for some time. Also, earlier detection prevents bed bugs from reaching dispersal/ hitchhiking stage at which point they can spread rapidly through societies. These programs have been well received and Dr. Kells is currently confirming the level of effectiveness of these proactive inspection processes.

A Truce?



Female mosquito tethered in front of a microphone

In February, 2009, the hum of mosquitoes could be heard in the Regis Center for Art, on the West Bank of the University campus. The amazing thing is that people were not swatting them, they were listening to them and letting them rest upon their fingers.

During the 2009 Spark Festival of Electronic Music and Arts, two artists, Robin Meier and Ali Momeni (Assistant Professor, Art Department) with the help of Professor **Ann Fallon** and her mosquitoes, created an interactive installation called **Truce: Strategies for Post-Apocalyptic Computation** which explored musical interactions between mosquitoes and computers. Inspired by a 2006 ScienceDirect

report (<http://dx.doi.org/10.1016/j.cub.2006.05.053>), “Flying in Tune: Sexual Recognition in Mosquitoes” which reported that both males and females respond to pure tones by altering their wing-beat frequency, they took advantage of that phenomenon to “engage the mosquitoes in song”. A stimulus sound is produced by a computer, the mosquitoes synchronize to the tone, then the computer produces a third voice that responds to the inflections of the mosquitoes’ buzz. A full explanation of the process can be found at <http://alimomeni.net/truce> or <http://robin.meier.free.fr/>

Notes for the visitors to the gallery were as follows:

We invite our visitors to interact with the mosquitoes. This interaction must be gentle; we request that you limit your interactions to one of two possibilities:

1. Offering a finger tip for the mosquito to land: slowly approach the mosquito from below and stop about 1/4 inch away from the mosquito. The mosquito will recognize the landing spot and extend his/her legs to reach you.
2. Exhaling on the mosquito: the carbon dioxide in our breath excites and entices the mosquitoes. Please avoid applying pressure to the mosquito, touching its wings, or touching the wire to which the mosquito is attached. These actions can hurt the mosquito, free the mosquito or produce undesirable sounds.

Video of the installation can be found at <http://mediamill.cla.umn.edu/mediamill/embedqt/28183>

Truce won a prestigious award in Austria http://www.aec.at/prix_about_en.php and is going to be on display in Yokohama https://www.siggraph.org/asia2009/for_attendees/art_gallery/index.php in December, 2009. While in Minnesota, Robin used *Culex pipiens*; in Japan, he will use *Aedes albopictus*. Ann was very impressed with Robin’s ability to manipulate mosquitoes, as this project was a completely new venture for him, and tethering mosquitoes, and keeping them alive while tethered, took a bit of skill. Good going, Robin!

History of the Insect Display Cases

By John Luhman

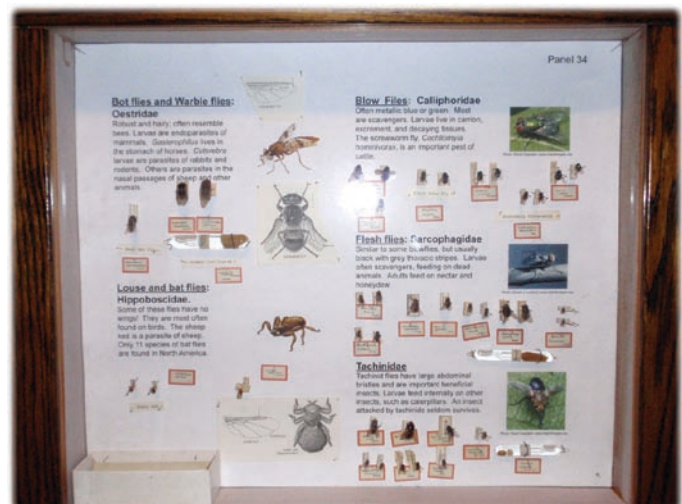


It has been 38 years since the public insect display cases have been changed on the 4th floor of Hodson Hall. The current, taxonomic display replaced the original display that was in Coffey Hall from about the mid 1930s until Entomology, Fisheries, and Wildlife moved into Hodson Hall in 1968 (then called the “EFW Building”). According to Hodson’s 1974 history booklet, “Department of Entomology, Fisheries, and Wildlife,” the insect display was begun by **Dr. Harry Knight** (of Mirid fame) in 1923, and “evolved” into the 90 drawer display that rested on top of the wooden museum cabinets on the 3rd floor of Coffey Hall. (A duplicate of that collection was prepared and mounted on a wall on the 2nd floor of the old Zoology building on the Minneapolis Campus—its disposition is unknown.)

The first display included most of the insect families treated in Comstock’s entomological text published in 1923. Text was cut from the book and pinned into the display drawers. Specimens with red-bordered identification labels were pinned by the text as examples. Many of the specimens have collection dates 1923 or after. It was mentioned that students named **Horace Lund** and **Lloyd Smith**, a later Fisheries Department head, worked on this display. They were students in the mid-to-late 1930s. From this information, I estimate the display was probably finished sometime in the mid 1930s. When the 1968 display replaced it, most of these specimens, often along with their red-bordered labels, were put back into the main collection—recognizable by their very faded, discolored condition. (The red-bordered labels were a vestige of an old color-coded faunal region scheme, in which red was Nearctic; green, Palearctic; orange, Neotropical, etc.—which is why all of the Minnesota specimens have red-bordered labels).

In 1970, I was a senior undergraduate in Entomology when **Dr. Hodson** approached me about redoing the public insect display. I had been working full and part-time in the Extension clinic for three years, and I had broad taxonomic interests, thanks to my personal collection and my extension work. I was to choose the families to be displayed, and write for each a diagnosis, a note on habitat, and numbers. I had to really pare down the number of families since there were only 36 drawers for the new display (not including another dozen drawers of economic entomology displays), instead of the 90 in the old display. Based on my own collecting, and insects encountered by people that called into the Extension Entomology office (clinic), I chose 125 families that I thought best represented each of the orders. I wanted families that were commonly encountered, or especially significant, or represented species commonly encountered, or of economic importance. I decided to make all of the descriptions as parallel as possible, to make it easier to compare and contrast similar orders. All orders were described by size, then shape, then color, followed by any special notes. This was the “diagnostic procedure” I used to identify insects from callers to Extension Entomology. I decided to use the classification in Peterson’s, then new, *A Field Guide to Insects*, which used the same classification as the original Borner and DeLong text. This grouped all the Orthopteroidea into Orthoptera, and Neuropteroidea into Neuroptera, kept Hemiptera and Homoptera as separate orders, and had the lice in 2 orders--Anoplura and Mallophaga. I also used the text of this book as a guide for writing my summaries of each order.

I typed all of the cards used in the ’71 display on my personal Smith-Corona portable typewriter, which was a then standard kind of typewriter. The state-of-



the-art “IBM Selectric” typewriters were just coming out, so they were not readily available. (One remaining machine is in the Insect Museum where it is still used to type the name cards for the drawers.) I finished the text just after graduating, and before leaving for the Peace Corps in June 1971. **Phil Clausen** and a graduate student (whose name we can’t remember) completed the major work in putting the display together. **Dr. Hodson** thought that all the examples should be identified to genus and species, and should be Minnesota species. **Phil** chose the examples for each of the families. He and the student cut out the illustrations (from the Peterson field guide), wrote the identification labels, and pinned all of this into the display drawers. One problem in choosing examples, **Hodson** told me, was finding good specimens for several common species, such as the house fly! Often common pest species are overlooked for collecting, pinning, and labeling. When I returned from the Peace Corps (from Morocco) in May 1973, the new insect display was up on the wall on the fourth floor, near the classrooms, in the new EFW Building (later Hodson Hall).

I don’t know about the history of the economic entomology drawers around the corner on the fourth floor. Judging from the dates of specimens, publications, and collectors, some of the earliest seemed to be from the 1940s, others the early 1950s, and one as late as about 1960. The oldest appear to be about stored grain pests and forest pests, followed by invasive pests (e.g. Japanese beetle and gypsy moth), and crops pests. Computers and accompanying software have vastly improved the illustrations and text of such displays.

One last comment on the public displays concerns the lighting. **Dr. Hodson** wanted the spotlights to illuminate the collection apart from the ceiling lights so that the collections were not exposed to direct light constantly. This was to slow the fading of the specimens used in the displays. Still, **Phil** has had to replace badly faded specimens, especially moths, several times over the past 30 years.

Editor’s note: **Ann Fallon** has begun to replace the typewritten display text with a new version, which has a larger, more readable font, and images from the web to illustrate smaller specimens. Most of the original pinned specimens with their red-bordered labels have been retained. **Janet Moe** printed the files on the department’s large-format printer; each page is fit to the size of the collection drawers.

Honors and Awards

Alyssa Anderson – 2009: Dayton-Wilkie Natural History Fellowship, Bell Museum of Natural History; Dissertation Research Award, Graduate School, University of Minnesota; Fulbright exchange candidate to NTNU-Trondheim, Norway from the University of Minnesota.

Jeremy Chacón – 2009: Doctoral Dissertation Fellowship, Graduate School, University of Minnesota.

Ann Fallon - 2009: The Distinguished Women Scholars Award, Sciences and Engineering, Office of the Dean of the Graduate School and the Women’s Center, University of Minnesota.

Joel Gardner – 2009: One Year Graduate School Fellowship, University of Minnesota.

Michael Goblirsch – 2009: Graduate School Block Grant Award (Summer Fellowship), University of Minnesota; NCR-SARE Graduate Student Grant: The effects of *Nosema ceranae* infection on honey bee health and Colony Collapse Disorder.

Thelma Heidel – 2008 - 2010: IGERT Fellowship, University of Minnesota; Three Year Graduate School Fellowship, University of Minnesota.

Karrie Koch – 2008 - 2010: IGERT Fellowship, University of Minnesota.

Adela Oliva Chavez - 2009: Morris and Elaine Soffer Rockstein and Graduate School Block Grant Fellowship, University of Minnesota.

Joelle Olson – 2009: Dr. Alexander A. Granovsky Pest Management Scholarship.

David Ragsdale - 2009: FAME award, Frenate, Dept. of Entomology, University of Minnesota.

Marla Spivak - 2009: Distinguished McKnight University Professor

Jessica Starcevich – 2009: Graduate School Block Grant Award (Summer Fellowship), University of Minnesota.

Robin Thomson – 2009: Dayton-Wilkie Natural History Fellowship, Bell Museum of Natural History; 2008: The Sping and Ying-ngoh T. Lin and Graduate School Block Grant Fellowship, University of Minnesota.

Hodson Graduate Alumni Award Recipient, 2009

Sujaya Rao



Dr. Sujaya Rao is currently Associate Professor and Field Crop Entomologist in the Department of Crop and Soil Science at Oregon State University. She received her Master's degree in Zoology from the University of Delhi, India and received her Ph.D. from the Department of Entomology, University of Minnesota, in 1991 under the guidance of Dr. Richard Jones. Her thesis was titled "A Chemically Mediated Interaction Between Plants and *Macrocentrus grandii* Goidanich (Hymenoptera: Braconidae), a Specialist Parasitoid of European Corn Borer." In 1991 she was the North Central Branch's recipient of the J. H. Comstock Graduate Student Award from the Entomological Society of America.

After leaving Minnesota for Postdoctoral Fellow positions at the University of Delaware as well as the University of California, Berkeley, she spent a year as an Extension Advisor for the University of California, Davis before accepting a position as Assistant Professor at Oregon State University in 2000.

Sujaya, an outstanding educator, has twice been awarded the Distinguished Achievement Award in Teaching (2004 and 2007) by the Pacific Branch of the Entomological Society of America.

Sujaya is also a tireless supporter of entomology outreach and in 2003 she was given the "Excellence in Entomology Outreach Award" from the Department of Entomology at Oregon State University. She works with the NSF K-12 program, OSU's SMILE program and serves as Faculty advisor for the undergraduate student group, BugZoo, which is interested in educating people about the importance of insects through live displays and hands-on activities using an exclusive collection of live arthropods.

Her research is centered on agricultural entomology with a strong emphasis on the grass seed industry in the Pacific Northwest. In addition she is working on a project to determine the diversity and abundance of native bees in diverse cropping systems and surrounding habitats. She started the native bee project after discovering that native bees are attracted to the color blue and could be trapped in jars using blue lids, thus making a population count feasible.

About the Hodson Graduate Alumni Award

The Hodson Graduate Alumni Award in the Department of Entomology, College of Food, Agricultural and Natural Resource Sciences at the University of Minnesota was established in 1998 in memory of Dr. Alexander C. Hodson, Department Head from 1960-1974. The award is intended to annually recognize and honor an outstanding alumna or alumnus of the Department of Entomology. The Award will be presented annually during the Department's Honors Day, which also pays tribute to the achievements of students in the Entomology Graduate Program.

Dr. Hodson was born in Reading, Massachusetts and attended the University of Massachusetts (B.S. 1928), and then the University of Minnesota (M.A. 1931 and Ph.D. 1935). During his graduate student period, he also attended the University of Washington's Puget Sound Biological Station in the summer of 1930 where he studied marine ecology, an experience which was to have a profound influence upon his later career. He studied and worked as a Teaching Assistant, and later as an Instructor, while a graduate student in the Departments of Zoology, and Entomology and Economic Zoology. Through his career in the latter Department, he moved up through academic ranks to Professor and finally to Head of the Department in 1960. In 1962, he was instrumental in changing the Department's name to Entomology, Fisheries, and Wildlife. In 1974, at the age of 68, he retired. Dr. Hodson passed away March 13, 1996 at the age of 89.

Graduate Student Award Day Pictures, 2009



Dharma Sreenivasam, Gary Reuter and Robert Suranyi



Len Ferrington and Grad Students



Pre-lecture reception



Mark Ascerno congratulates Joelle Olson



Mark Ascerno with Adela Oliva Chavez



David Ragsdale receives Frenatae's FAME award from Alyssa Anderson



Department of Entomology Graduate Students



Mark Ascerno presents Margot Monson with a thank you gift for hosting Sujaya Rao

Mark Ascerno presents the Hodson Alumni Award plaque to Sujaya Rao



Ralph Holzenthal and Sujaya Rao



Everyone enjoyed the open house, hosted by Mark and Millie Ascerno

Hodson Graduate Alumni Award



Call for Nominations



2010

The Department of Entomology, College of Food, Agricultural and Natural Resource Sciences at the University of Minnesota is proud to announce a call for nominations for the 2009 Hodson Graduate Alumni Award. The Award, named in honor of Dr. Alexander Hodson, Department Head from 1960 - 1974, is intended to annually recognize and honor an outstanding alumna or alumnus of the Department of Entomology. The Award will be presented during the Department's Honors Day which also pays tribute to the achievements of students in the Entomology Graduate Program.

Nominations are invited based on the following:

- ❖ One awardee will be chosen annually in February and invited to participate in the Department's Honors Day. The award includes travel to St. Paul and related expenses.
- ❖ Nominees must have received a graduate degree in an entomological program from the University of Minnesota. The degree must have been granted at least five years before nomination.
- ❖ Nominees must have demonstrated distinguished accomplishment and leadership in entomology through research, writing, teaching, extension or administration, and related career activities.
- ❖ Nominations consist of a letter highlighting the nominee's accomplishments, a current curriculum vitae, and three letters of support. Only one nomination from the same source will be accepted in a given year.
- ❖ The awardee must be willing to present a seminar during the Department's Honors Day in May, 2010.
- ❖ The award will not be bestowed on the same person more than once in ten years.

Nominations will be accepted at anytime, but must be received by 31 January to be considered for the current year's award. The awardee will be selected by the Awards Committee of the Department of Entomology.

To be eligible for the 2010 Award, nominations must be received by 31 January, 2010. The Award will be presented at a Department Honors Day in May 2010.

Nominations should be sent to:

David Ragsdale
219 Hodson Hall
University of Minnesota
1980 Folwell Ave
St. Paul, MN 55108

Recent Publications

- Asplen, M. K., J. B. Whitfield, J. G. De Boer, and G. E. Heimpel. 2009. Ancestral state reconstruction analysis of hymenopteran sex determination mechanisms. *Journal of Evolutionary Biology* 22: 1762-1769.
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Photographs by Jeff Hahn



Tiger moth



Six Spotted tiger beetle

Our Faculty

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Alumni & Friends - College Update

Bill Hutchison and Mary Buschette, Alumni Relations

Keep connected to the University of Minnesota through both the University of Minnesota Alumni Association (UMAA) and the College of Food, Agricultural and Natural Resource Sciences Alumni Society.

M Alumni Online is a web service that includes a directory of more than 300,000 alumni and friends of the U of M. The service also includes career networking tools. All U of M alumni may register for M Alumni Online free of charge and update their own directory listings. UMAA members may search the alumni directory and participate in the career network. Explore M Alumni Online at www.alumni.umn.edu/MAlumniOnline.

The College's Alumni Society offers many networking and social opportunities. The **Mentor Program** matches undergrads with professionals in their career interest areas. Alums can also volunteer to provide informational interviews via email and phone. **Classes Without Quizzes** was a half-day seminar that highlights how the research in the College impacts our daily lives (April 1, 2006). The Golf Scramble for Scholarships consists of a golf tournament and silent auction to raise funds for student scholarships. More information is available at <http://alumni.cfans.umn.edu>

Additional resources:

U of M Website - www.umn.edu

U of M Alumni Association - www.alumni.umn.edu

Entomology & Friends Email list for information and notices of events: Go to <http://www.entomology.umn.edu> and click on link for Alumni mailing list

If you have any questions about activities and events for alumni and friends, or to receive a monthly electronic alumni newsletter, please contact:

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Alumni & Friends

The Publicity Committee has a long-term goal of improving communication among alumni and friends of the department. Beginning with the Spring '97 Newsletter, the department renewed its commitment to provide a more consistent forum for keeping you posted with departmental news, with fellow alumni and friends. For those with access to the WWW, we are planning an expanded new series of Alumni & Friends pages which we hope many of you can use to obtain more frequent updates. The newsletter, the WWW page, and the Annual Mixer at the National ESA meeting are three primary ways we hope to improve and maintain communication.

We Want to Hear from You!

Depending on when you graduated, or last walked the byways of Hodson Hall, you may have a very clear or somewhat fuzzy recollection of our department. You may also have some unique stories and memories of the department that we would enjoy hearing. Regardless of when you last visited, we and our alumni would appreciate any updates you would like to provide, including your current position, address, favorite aspects of your position, travel opportunities, etc. Finally, any suggestions you might have for our department or the newsletter would be appreciated as well.

If you know where some of our alumni are located, please let us know. You may use the update form at the end of this newsletter for other alumni as well as any updates or change of address that you have had.

Goals:

- Renew commitment to alumni and friends of the University of Minnesota, by providing timely news of departmental and alumni activity.
- Facilitate connections between alumni and friends, and alumni and faculty, by providing updated addresses (including e-mail), and more alumni and friends information in the Newsletter.
- Provide a forum for acknowledging alumni and current graduate student accomplishments.
- Encourage support for program needs within Entomology, with a primary emphasis on Excellence in Graduate Education.

Suggestions Always Welcome!

Contact:

Bill Hutchison
612-624-1767
hutch002@umn.edu

Alumni and Friends of the Department: If you have not recently sent us an update regarding your varied activities, please do so before the next newsletter! You may send your updates, directly to Janet Moe, by e-mail to: moexx012@umn.edu, OR feel free to use the form in the back of this newsletter.

WISDOM IN GENEROSITY

...from the UofM Foundation and the College of Food, Agricultural and Natural Resource Sciences

Generosity through wills, trusts, and other kinds of planned gifts promises great things for the future of the University of Minnesota. Alumni and friends have provided funds for scholarships, fellowships, professorships, research and special programs while meeting personal financial goals.

All gifts are truly investments in wisdom—knowledge for a changing world.

They also can be wise financial investments.

Name an Endowment and Increase your Income Payments

Life income agreements allow you to create a named endowment and generate an annual income for you and/or other beneficiaries. Tax advantages include increased income (some of which may be tax free), estate tax charitable deductions, and a full or partial bypass of capital gains if you give appreciated securities.

Charitable Gift Annuity: A charitable gift annuity can be established with a gift of \$10,000 or more, and is funded with a gift of cash or marketable securities. You and one other person can receive income from your gift for life—at an annuity rate of up to 11.3%, depending on your age. Your annuity rate and your income tax deduction are based on age at the time the gift is made. The chart below shows figures for a one-life annuity based on a gift of \$25,000.

<u>Age</u>	<u>Annuity Rate</u>	<u>Annuity Payment</u>	<u>Tax Deduction</u>
90+	9.5%	\$2,375	\$15,484
85	8.1%	\$2,025	\$14,118
80	7.1%	\$1,775	\$12,557
75	6.3%	\$1,575	\$11,040
70	5.7%	\$1,425	\$9,535
65	5.3%	\$1,325	\$7,975
60	5.0%	\$1,250	\$6,522

*Rates and tax deduction for two lives will be lower. Tax deduction may vary slightly depending on the month of the gift.

“I never thought I could make such a wonderful gift.”

Charitable Remainder Trust: A charitable remainder trust provides the donor or designated beneficiary annual income payments. It combines charitable giving with other financial goals, including life or long-term income and a bypass of capital gains if appreciated property is used. You can establish a charitable remainder trust with a gift of \$100,000 or more by transferring cash, stocks, bonds, and/or real estate to establish the trust. The trust will pay a life income to you and others, at either a fixed amount (annuity trust) or a percentage of the trust’s market value (unitrust).

Example:

John and Mary, both age 65, fund a charitable remainder unitrust with \$100,000 in appreciated securities that originally cost \$50,000. They choose a 5% payout rate and receive a charitable deduction of \$35,069. Their first year income will be approximately \$5,000. Future income will vary with the trust value. Assuming an 8% total return for the trust, the before-tax benefit to them over their life expectancies is estimated to be over \$194,922. After their lifetimes, the remaining principal estimated to be over \$216,953 passes to the Department of Entomology.

Charitable Lead Trust

If you have more income than you need to maintain your lifestyle, and want to support the university before transferring assets to family members, then a CLT may be a good estate-planning tool for you. You can look forward to these benefits when you set up a CLT:

- Provide immediate valuable resources for the University
- Benefit family members with your gift
- Keep the appreciation of your trust assets out of your taxable estate
- Maintain control of the trust assets
- Fund the trust with growth assets and pass appreciation to family members without gift tax
- Shrink or eliminate federal gift and estate taxes on transfers of trust principal to heirs

A Charitable Lead Trust pays income to the University for a term of years, and then transfers assets to your family at a reduced federal gift and estate tax rate. There has never been a better time

to take advantage of this estate-planning tool. The combination of low valued stocks and the lowest IRS AFR (rate used to determine the tax impact of the transfer) create an opportunity to pass what could be significant gain in these stocks to family members at a very reduced estate tax cost.

Example:

A stock worth \$200,000 (which was worth \$500,000 two years ago and could return to that value in 10 years or less) could be passed to children in ten years from 8% lead trust at a gift tax cost of \$69,504. If the stock should increase at an even greater rate, all the additional value would be passed on with no additional gift tax cost.

A CLT may be a testamentary lead trust (you invest in the University and then transfer assets to your beneficiaries at reduced or no estate tax) or a grantor lead trust with certain term limit. It is possible to get the trust assets back (a grantor lead trust) after a certain term, often 20 years. However, a grantor lead trust doesn't allow you to save on gift and estate taxes because the assets remain in your estate.

Create a Legacy Through your Will or your Retirement Plan

- A substantial gift can be made without affecting your family's current financial security
- Both principal and the income of your assets ARE available to you during your lifetime
- The ultimate use of the funds may be designated as you see fit
- A scholarship or fellowship endowed through a bequest carries in perpetuity the name you designate
- You enjoy the good feelings that come from knowing that your gift will be an investment in wisdom and knowledge
- Tax savings for your estate are maximized.

Legacies make important statements about who we are, what we believe in, the people and institutions who have shaped us, and how we want to be remembered. Leaving a Legacy to the University of Minnesota is a testament to your feelings for the University and ensures that what you experienced will be carried on to future generations.

Language for a bequest:

I give, devise, bequeath to the University of Minnesota Foundation, University of Minnesota, Minneapolis, Minnesota 55454 (insert sum, property, or percentage of estate), which shall be used for the support of the College of Food, Agricultural and Natural Resource Sciences, Department of Entomology.

Designating a beneficiary for I.R.A. and/or Retirement Fund Designation Form: You may use similar language as a bequest. Check with your fund manager for a designation form to include the University of Minnesota Foundation and your preferred college or department.

"It gives me a great sense of satisfaction to be able to provide a scholarship long after I'm gone."

MORE INFORMATION

For confidential inquiries concerning cash gifts, or gifts of securities for the Department of Entomology, contact:

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Along with the U of M's recent emphasis on undergraduate scholarships, we in Entomology are continuing to focus on new gifts and endowments to support Distinguished Graduate Fellowships. Current fellowships and scholarships include the Morris and Elaine Soffer Rockstein Graduate Fellowship, the Sping & Ying-ngoh Lin Graduate Fellowship, the Allan Peterson Graduate Fellowship, the Granovsky Pest Management Scholarship and the Marion Brooks-Wallace Graduate Fellowship.

Please visit <http://www.cfans.umn.edu/alumnidonors.html> for more information.

In Memoriam Dr. John Lofgren



John A. Lofgren 1922 - 2009

John A. Lofgren, Professor Emeritus and former Extension Entomologist with the Department of Entomology, University of Minnesota, passed away on February 17, 2009.

John was born on July 28, 1922 in Sioux Falls, SD. He received his B.S. (1947) and M.S. (1950) degrees from South Dakota State College (Now South Dakota State University). He was an Assistant Entomologist at the South Dakota State College Agricultural Experiment Station from 1949 to 1951 and Extension Entomologist at SDSC from 1951 to 1958.

John was appointed Assistant Professor and Extension Entomologist at the University of Minnesota in 1958. Soon after his arrival, he initiated a 4-H program in entomology, which by 1974 had attracted about 1,600 participants. He also continued and developed the Insect Pest Clinic, which had been started in 1957. The clinic grew rapidly as an important public service—by 1974, the Insect Pest Clinic staff handled more than 20,000 telephone calls and over 5,000 letters per year.

From 1958 to 1965, John (with some help from other faculty members, as needed) carried the full entomology extension load. He planned and conducted extension educational programs on crop insects and their control, which included in-service training for Extension staff as well as other agricultural leaders and producers. John developed and coordinated the Extension Pesticide Applicator Training Program for certification or recertification of commercial and private pesticide applicators. He coordinated and conducted twelve area pesticide applicator recertification workshops, as well as four regional workshops for new commercial pesticide applicators a year. He developed the methods and technical materials for the program as well as developing a teaching package, script and slide/tape series for private pesticide applicator recertification training. From 1962 until his retirement, John produced or revised many of the Extension Service bulletins and fact sheets dealing with insects and insecticides.

In 1968, John went to Chile for two years to establish and conduct courses in Agricultural Extension under the auspices of a University cooperative program with the Catholic University in Santiago. In 1970, he returned to his position as Professor and Extension Entomologist with the Department of Entomology and stayed with the University of Minnesota until he retired on January 1, 1982.

John is survived by his wife, Ruth Joyce, daughters, Sandra, Virginia, Mary, and Joanne, and his grandchildren.

ENTOMOLOGY NEWSLETTER

Fall 2009

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Aerial shot of St. Paul Campus showing Hodson Hall in the upper left.