



DEPARTMENT OF ENTOMOLOGY

Newsletter 2008

The Art of Science



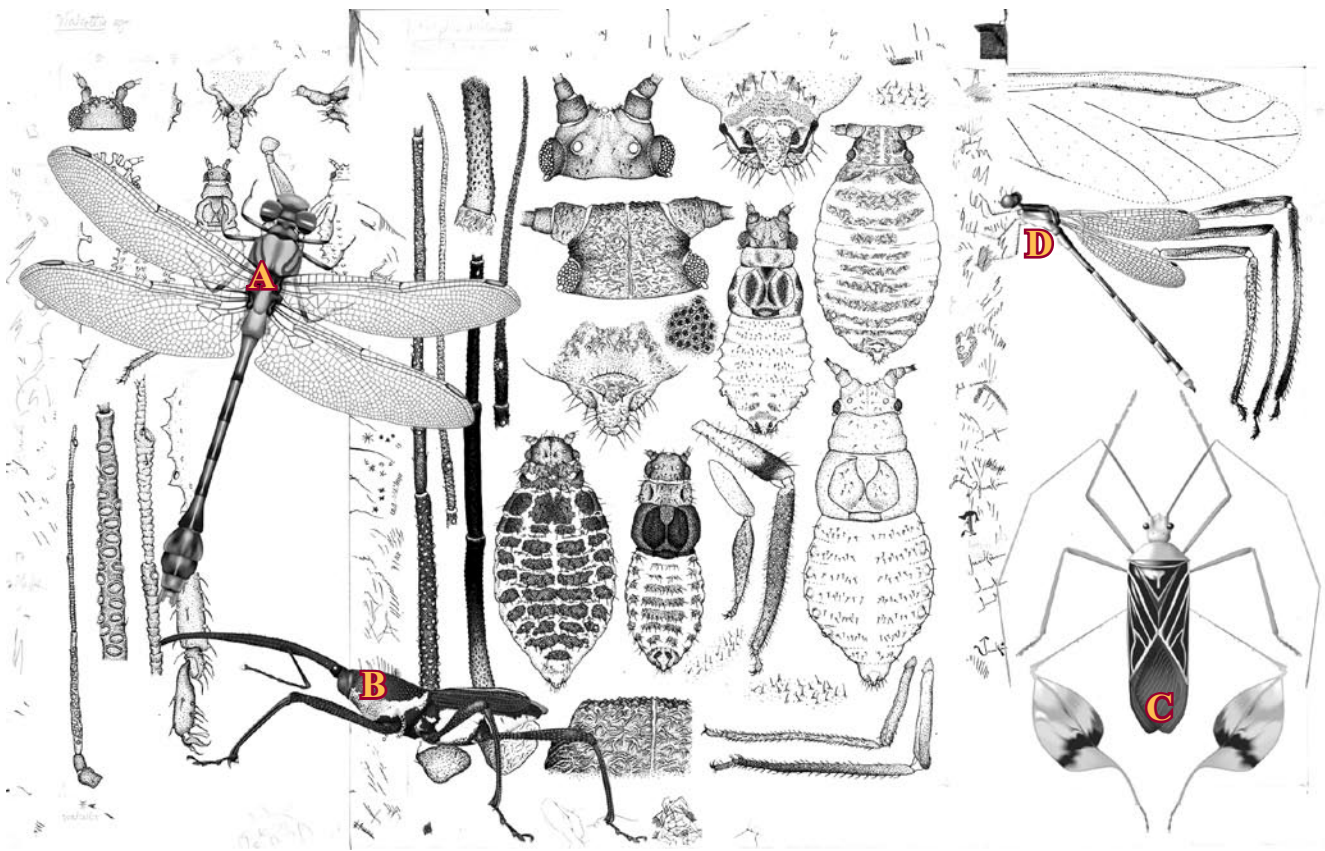
Scientific Illustration

UNIVERSITY OF MINNESOTA

About the cover picture:

Scientific Illustration has always been an integral part of entomological research. Even now, with microscope cameras, there are some structures that are more easily illustrated using drawings.

From October 9 through November 6, 2008 there was an exhibition of insect illustration, 'Nature's Design Identified' at the Paul Whitney Larson Art Gallery in the St. Paul Student Center. Illustrations drawn by Ralph Holzenthal, members of his Scientific Illustration of Insects class (ENT 5051) and plates drawn by alumna Louise Bush (M.S. 1939) were featured, along with pinned specimens of some of the insects illustrated. See Page 7 for further information.



Background: Pen and ink drawings of Aphids by Louise Bush.

A - *Ophiogomphus rupinsulensis* (Odonata: Gomphidae) by Ralph Holzenthal,

B - *Autonopsis* n. sp. (Coleoptera: Dryophthoridae) by Ralph Holzenthal,

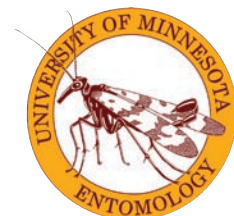
C - *Anisocelis flavolineata* (Hemiptera: Coreidae), Manuel Ramírez,

D - *Lestes* sp. by Ralph Holzenthal.



College of Food, Agricultural
and Natural Resource Sciences

UNIVERSITY OF MINNESOTA



Welcome from the Department Head

Mark Ascerno



There is a lot happening in Entomology at the University of Minnesota. Near the top was the decision to reexamine our strategic plan. Beginning in 2007, we developed new vision and mission statements but our progress was slowed down by the nuts and bolts of developing a meaningful strategic plan that would position us as one of the preeminent Departments of Entomology for the next 5 years and beyond. In 2008, with the help of an expert in strategic planning, we built on the vision and mission statements and are now completing the final stages of the plan. The effort is dove-tailing nicely with the fact that we will soon be undergoing a comprehensive CSREES and Graduate School Review. As you might imagine, these simultaneous efforts have and will continue to command significant energy by everyone in the Department. The combined outcomes will provide us with an exciting blueprint for expanding our excellence in research, graduate education and outreach.

The College of Food, Agriculture and Natural Resource Sciences, a result of combining the old College of Agricultural, Food and Environmental Sciences with the College of Natural Resources, is now over one year old. The combination has been good for entomology as our long-time efforts in the environmental sciences are now being recognized. We also see a bright future in undergraduate education as the diversity of our expertise is becoming apparent to the administration and students. We have become active in the Freshman Seminar series by offering courses for incoming freshman in each of the last 3 years. Providing courses of broad undergraduate appeal will be an important component of our Strategic Plan. We are also important players in interdisciplinary research and education programs such as the National Science Foundation Integrative Graduate

Education, Research and Training (IGERT) program on the topic of *Risk Analysis for Introduced Species and Genotypes*.

Several pending retirements will precipitate departmental change. Most notable is the retirement of Dr. Ted Radcliffe after over 40 years of active, world-class research in IPM, 51 graduate students and the publication of over 82 refereed articles. His productivity in turning out world class entomologists is phenomenal. Ted's impact on IPM is clearly demonstrated by his compilation of an electronic IPM textbook which is available in Spanish and English. Requests for translation into Arabic and Russian illustrate the international contributions Ted has made to the theory and practice of IPM. Everywhere our faculty travel, China, Africa, Australia, the UK and several European countries, people ask about "the world renowned entomologist, Edward Radcliffe". Ted's final project, culminating his illustrious career, was shepherding the IPM World textbook into a print edition with over 40 contributed chapters.

Diana Ritchmond has also announced her retirement in 2009. Diana has been with the department since 1966 and administrator since 1983. Diana has been the glue that has kept the department running smoothly under 4 different Department Heads, including Alec Hodson, and an untold number of Deans. She is a 4 time recipient of the Department's Civil Service/Bargaining Unit Award which recognizes outstanding performance and contributions to the Department based on exceptional initiative, innovative ideas and participation beyond job expectations. In addition, Diana has been a positive influence on morale both for the people she supervises and the Department as a whole. Diana plans to spend more time with her children and grandchildren in Seattle, Washington and Bali, Indonesia.

Anna Gerenday will also be retiring in 2009. Anna has been Senior Scientist in Ann Fallon's lab since 1987. She pioneered several projects in the lab, including work on the enzyme dihydrofolate reductase, analysis of the division cycle of mosquito cells, and examination of the effects of an insect steroid hormone on the mosquito cell cycle. She has recently cloned a mosquito cell cycle inhibitor, dacapo, and has worked with

Ann on flow cytometric analysis of the effects of *Wolbachia*. Anna has actively participated in undergraduate and graduate student advising, and oversaw the overall management of the lab. After retirement, Anna will continue her work in mycology, including descriptions of Minnesota species. She will also teach microscopy and will act as a consultant for the Hennepin Regional Poison Control Center.

After much thought and contemplation, I have decided to step down as Department Head and retire on 1 July 2009. My decision is based on many factors including a desire to pursue other interests. At the time of retirement, I will have been a member of this extraordinary department for over 33 years, 17 of which have been as department head. Being your department head has been the ride of my life. Thanks for all the support, encouragement, and constructive comments. My plan is to concentrate my professional time to the IPM³ project, a consortium of federal agencies and land-grant institutions dedicated to providing distance-delivery IPM training to federal agencies. I am grateful for the many opportunities associated with being a member of the Department. I have traveled widely and met many interesting people, but most of all, I am grateful for all the entomology staff, students, and faculty I have had the pleasure to work with and for over my 33 years.

Once again, I extend my personal invitation to nominate an alumnus for the **Twelfth Hodson Alumni Award**. A nomination form is enclosed for your convenience. Thanks to all who joined us at our **Sixteenth Annual Alumni Gathering** which was held in Reno, Nevada at the National Meeting of the Entomological Society of America. **See photos on page 20.**

I hope to see you at the 2009 Alumni Gathering to be held in conjunction with the ESA Annual Meeting, December 13-16, 2009, at the Indiana Convention Center Indianapolis, IN. Although I won't be hosting it, I do hope to attend and visit with alumni and friends.



UNIVERSITY OF MINNESOTA
DEPARTMENT OF ENTOMOLOGY

Alumni Reception

Spread the word!



Indianapolis ESA Meeting, 2009

Departmental Changes

Welcome

Jonathan Dregni, Jr. Scientist working in George Heimpel's Lab
 Marc Eaton, Jr. Scientist working in Stephen Kells' Lab
 Darci Lambert, Jr. Scientist, working in Ken Ostlie's Lab
 Jen Zaspel, Post-Doc working with Susan Weller

Farewell

Will Bouchard	Areca Roe
Jeff Davis	Brian Schloeder
Tederson Galvan	Gred Setliff
Yang Hu	Zeynap Sezen
Brian McCornack	Jodi Swanson
Amanda Roe	

New Graduate Students

Richard Buenger (M.S.) Advisor Vera Krischik
Thelma Heidel (Ph.D.) Advisor Dave Ragsdale.
Mike Goblirsh (Ph.D.) Advisor Marla Spivak
Amy Morey (M.S.) Advisor Bill Hutchison.
Jessica Starcevich (M.S.) Advisor Roger Moon.
Robin Thomson (Ph.D.) Advisor Ralph Holzenthal.

M.S. Grads Continuing for Ph.D.

Karrie Koch, Advisor Dave Ragsdale
Adela Oliva Chavez, Advisor Uli Munderloh.
Joelle Olson, Advisors Stephen Kells and Roger Moon.

Faculty News

Professor Susan Weller Named Director of the Bell Museum of Natural History.

(From a news item at http://www.cfans.umn.edu/www_cfans_umn_edu_news_news25.html, dated November 10, 2008)

Susan Weller, professor of entomology and interim director of the Bell Museum of Natural History at the University of Minnesota, has been named the museum's director. Weller, the first female director in the museum's 136-year history, assumes the post as the university enters its second year of seeking bonding approval for a new Bell Museum facility in St. Paul.

Weller is internationally recognized for her research on the evolution of butterflies and moths and will be one of only three women researchers leading U.S. university-based natural history museums.

A passionate advocate of engaging both university students and everyday citizens in real research opportunities, Weller may be most familiar to Minnesotans as the leader of the Bell Museum's annual "Minnesota BioBlitz" event in which professional biologists work shoulder-to-shoulder with citizen volunteers to document and count an area's plant and animal life within a 24-hour time frame.

Founded by state legislative mandate in 1872 to collect, preserve, display and interpret Minnesota's animal and plant life for research and public appreciation, the Bell Museum is one of the country's premier university-based science museums with the region's largest scientific collections of invertebrates, mammals, birds, plants, fungi and insects. The museum's outreach programs, including STEM (Science, Technology, Engineering and Math) -related educational initiatives, reach nearly one million Minnesota adults and students in half the school districts in the state.

"Susan Weller has done outstanding work as interim director of the Bell Museum," said Allen Levine, dean of the College of Food, Agricultural and Natural Resource Sciences. "Her enthusiasm for making science accessible to citizens of all ages as well as her leadership and communication talents will be essential at this crucial time in the Bell's history."

"I feel privileged to serve the Bell Museum in this new capacity," said Weller. "As director, my first priority is to ensure our internationally recognized academic research and public programs continue to thrive and that these programs reach all Minnesotans. I want everyone in the state to be excited by science and to be driven to discover nature in their own backyards."

Associate Professor Uli Munderloh Awarded Patent

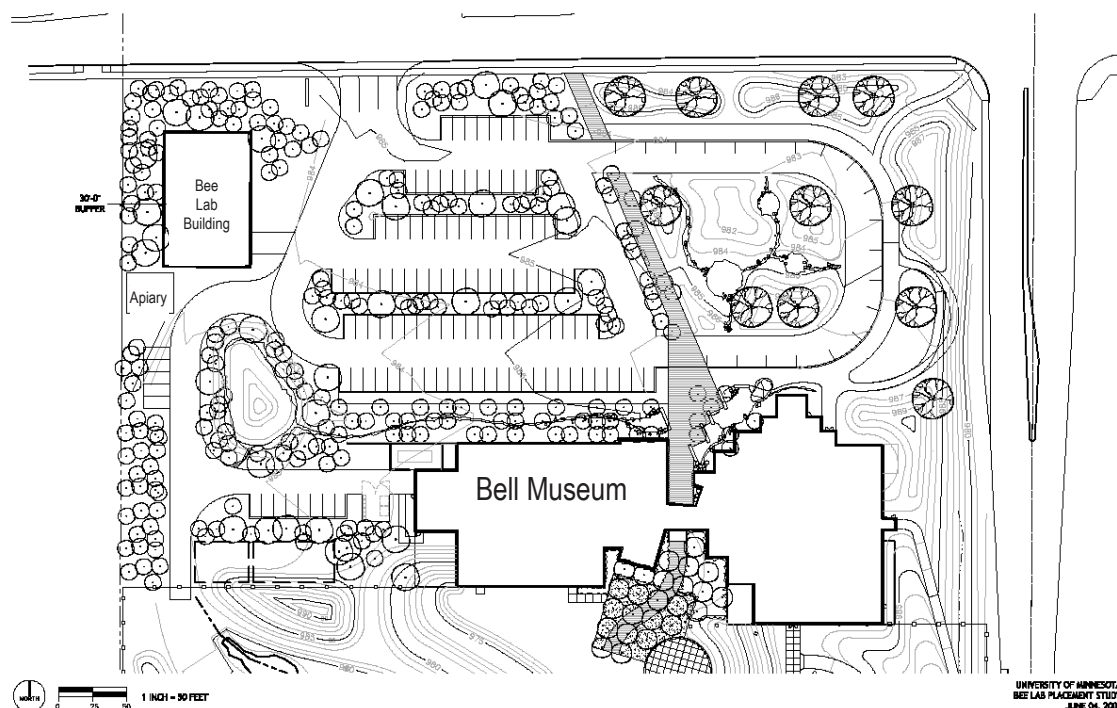
Dr. Ulrike Munderloh was recently awarded a patent for propagating *Anaplasma* in mammalian cells. According to the patent summary: The invention provides methods and materials related to propagating *Anaplasma* species in mammalian cells. Specifically, the invention provides for mammalian nucleated cells and mammalian adherent cells that are stably infected with an *Anaplasma* species, as well as methods and materials for making such mammalian cells. In addition, the invention provides methods and materials for (1) propagating various *Anaplasma* species in stably infected mammalian cells and (2) obtaining *Anaplasma* species from stably infected mammalian cells. The invention is based on the discovery that some mammalian cells such as endothelial cells and Vero cells can be stably infected with *Anaplasma* species, for example *A. marginale* and *A. phagocytophilum*. As such, these mammalian cells can be used as vehicles for propagating *Anaplasma* species in vitro. Such a culture system can allow *Anaplasma* to be clonally selected for genetic analysis, and can provide a ready source of *Anaplasma* that can be used as antigen for the production of anaplasmosis diagnostics and anaplasmosis treatment materials (e.g., *Anaplasma* vaccines).

New Bee Research and Outreach Facility

by Marla Spivak

The Department of Entomology at the University of Minnesota has maintained an internationally recognized research and extension program on honey bees and apiculture since 1918. Dr. Marla Spivak currently oversees this unique, regional extension program that is also the only research and extension program on honey bees in a five state region (MN, WI, IA, ND, and SD).

Future construction of the new Bell Museum, the State's Natural History Museum, on the corner of Larpenteur and Cleveland Avenues adjacent to the site of the existing Bee Lab, presents a unique and synergistic opportunity for increased outreach activity on honey bees. Dr. Spivak has received approval from the University to begin private fund-raising efforts for the construction of a new combined research, teaching and outreach bee research facility on the same site. The new Bee Research and Outreach Facility will replace the outdated and inadequate existing Bee Lab.



The facility is to be divided into two main areas. The first, a state-of-the-art research area, will centralize and support activities currently being conducted at Spivak's lab in Hodson Hall and the current bee lab on Larpenteur and Cleveland.

The second, a public area, will meet educational and outreach needs, serving both University students and interested public. This educational space will include informative exhibits to educate the public about honey bees and current research projects being conducted at the University of Minnesota. The Bell Museum will partner in outreach activities in this public area.

The new Bee Research and Outreach Facility will be a unique facility among bee labs nationally. The partnership of a research facility with a natural history museum is a novel concept. The research facility will enhance the quality and distinction of the University of Minnesota by enabling enhanced interdisciplinary research, and will consequently place the Department of Entomology and CFANS in high ranking for this research area. The innovative association with the Bell Museum will greatly enhance public knowledge through educational programming and serve as a model for other research-outreach centers.

An architectural firm, "DLR Group," is currently drawing up pre-design plans for the New Bee Research and Outreach Facility. Donations are more than welcome, and can be made through Adam Fischer, Development Officer for CFANS: 612-625-5766; afischer@umn.edu Please direct questions to Marla Spivak, spiva001@umn.edu Visit the Bee Lab website at <http://www.extension.umn.edu/honeybees/>

Nature's Design Identified

by Ralph Holzenthal

From October 9 through November 7, the Paul Whitney Larson Gallery in the St. Paul Student center was infested by insects. Well, actually it was infested by insect illustrations and pinned specimens from the Insect Museum.

The Department of Entomology sponsored an exhibition entitled Nature's Design Identified: An Exhibition of Insect Illustrations

With an estimated one million different species, insects are the most diverse group of organisms on Earth. In order to identify such a vast array of species, taxonomists rely on the exquisitely accurate illustrations of the insect's complex anatomy. It is this meticulous design that determines each individual species' identity. Based on the Entomology course "Scientific Illustration of Insects (ENT 5051)," the exhibition displayed examples of scientific illustration ranging from delicately hand-drawn pen and ink drawings from of the early twentieth century to digital artwork design by today's University of Minnesota students.

Both 'traditional' and digital illustrations were displayed. Traditional techniques used include pen and ink, coquille board, watercolor, and mixed use of acrylic paint and colored pencils; digital illustrations were created in Adobe Illustrator using the pen tool to create weighted line illustrations as well as the gradient mesh tool to create more complex illustrations in black and white and color. Adobe Photoshop was used to render highly realistic color digital paintings using primarily the digital brush and varying its hardness, opacity and color were displayed.

The illustrations were displayed alongside pinned specimens of the actual insects portrayed. Contributions to the University of Minnesota Insect Collection began in 1879 with specimens of insects and spiders from the North Shore of Lake Superior. During the last 130 years, the Collection's holdings have grown from a regional collection of 3,000 specimens to a major national and international resource of almost 3,700,000 specimens. In the most recent survey, the Collection ranked as the 8th largest university-affiliated insect collection in North America. Enhancing the Collection's status as an outstanding research facility are 7 resident taxonomists, computerized inventory management and specimen databases, a large departmental

library, and a molecular taxonomy laboratory. Research projects associated with the Collection have broad taxonomic and geographic scope. Faculty and graduate student research focuses on both aquatic and terrestrial insect groups and includes taxonomic, phylogenetic, and applied questions. The Collection is the mainstay of graduate training in systematic entomology at the University of Minnesota.

Artists included in the exhibition were:

Courtney Amundson
Roger Blahnik
Louise Bush
Lourdes Chamorro
Kevin Denny
Lydia M. Hart
Ralph Holzenthal
Sharolyn Kawakami
Kris Kuda
Haude Levesque
Stephanie Lyon
Julie Martinez
Rufus H. Pettit
Manuel Ramirez
Desiree Robertson

The Insect Collection has a website at:
<http://www.entomology.umn.edu/museum/>

The Paul Whitney Larson Art Gallery

University of Minnesota

The gallery is located on the lower level of the St. Paul Student Center

Nature's Design Identified

Presented by the department of Entomology

Exhibition Dates: Oct 9 – Nov 6, 2008

Based on the Entomology course "Scientific Illustration of Insects (ENT 5051)," this exhibition displays delicately hand-drawn illustrations from the early twentieth century to digital artwork designs by today's University of Minnesota students.



Hodson Graduate Alumni Award Recipient, 2008

John Witter



Dr. John Witter is the George Willis Pack Professor of Forest Entomology in the University of Michigan School of Natural Resources and Environment. His current research focuses on the effects of invasive insects and diseases on individual trees, ecosystems, and landscapes in the Great Lakes Region. His current and recent research projects include beech bark disease, emerald ash borer, basswood decline, and gypsy moth.

John received his Ph.D. from the University of Minnesota in 1971; his advisor was Herb Kulman and his thesis was "Bionomics of the forest tent caterpillar, *Malacosoma disstria* Hübner". He stayed at the University through 1972 as a Research Fellow and instructor for Forest Entomology before accepting a position as Assistant Professor of Forest Entomology in the

School of Natural Resources and Environment at the University of Michigan in Ann Arbor, where he now resides.

In 2000, he was named George Willis Pack Professor of Forest Entomology, an endowed professorship at the University of Michigan that is reserved for scholars of national and international stature, who have made major contributions to the academic discipline of public policy and whose record of teaching, research, and publication is highly distinguished.

In addition to his research, John co-authored a textbook with the Hodson Alumni Award Lecturer, Robert Coulson, in 1984. The book, *Forest Entomology: Ecology and Management*, was reviewed by Timothy D. Showalter in the May, 1985 issue of *Bioscience*. In his review he said:

This new book by Coulson and Witter, both eminent forest entomologists, is a state-of-the-art approach to integrated pest management in forest ecosystems. Expressly intended for students studying forest entomology, it addresses the fundamental issues of this discipline. The synthesis of information on insect-plant interactions, impact assessment, modeling, and integrated pest management is also applicable in ecosystems besides forests; it is a valuable tool for anyone concerned with ecosystem resource management.



Hodson Graduate Alumni Award Lecturer, 2008

Dr. Robert Coulson



Dr. Robert N. Coulson is Professor of Entomology at Texas A&M University. He earned the BS degree in biology (1965) from Furman University, and his MS (1967) and Ph.D. (1969) degrees in entomology from the University of Georgia. After a year of post doctorate study at the Institute of Ecology at the University of Georgia, he joined the Texas A&M University System where he was initially employed as Principal Entomologist with the Texas Forest Service and Assistant Professor with the Texas Agricultural Experiment Station. In 1973 he received an academic appointment with the Department of Entomology at Texas A&M University.

Dr. Coulson's research has been transdisciplinary in approach and directed to investigations of the activities and impacts of insects and other taxa in forest, prairie, savanna and agricultural landscapes. The research addresses issues of significance to ecological science as well land-use management. In 1984 he co-founded the Knowledge Engineering Laboratory (KEL) to facilitate research and development of computer applications for planning, problem solving and decision making in environmental science and management. The focus of KEL research is directed to landscape-scale problems that require integration, interpretation, and use of different representations of knowledge. Special emphasis has been placed on ways and means of blending qualitative heuristic knowledge of experts, using methodologies from artificial intelligence, with quantitative information that results from scientific investigations.

We thank Dr. Coulson for Presenting the Hodson Alumni Award lecture in honor of Dr. Witter.

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, 2008



Ann Fallon presenting Chris Kulhanek with a special award for her efforts in making the Department more social.



Mark Ascerno presenting Abby Walters with the Marion Brooks-Wallace and Graduate School Block Grant Fellowship.



Mark Ascerno presenting Mary Rogers with the Dr. Alexander A. Granovsky Pest Management Scholarship.



L: Mark Ascerno presenting Mary Rogers with the Alan Peterson and Graduate School Block Grant Fellowship.

R: Christine Dieckhoff presenting Roger Moon with Frenatae's FAME award.



L: Bill Mattson introducing Robert Coulson.

R: Robert Coulson, Hodson Alumni Award Lecturer for Dr. John Witt.



Entomology Grad Students present at the Lecture:

Back (L-R): Greg Setliff, Mike Goblirsch, Abby Walter, JOsh Puhl, Alyssa Anderson, Jeremy Chacón and Mary Rogers.

Front (L-R): Joelle Olson, Karrie Koch, Desi Robertson-Thompson.

2008 Distinguished Master's Thesis

Entomology Graduate Student Named Recipient of the U of M's 2008 Distinguished Master's Thesis Award



Adela Oliva Chavez.

Adela Oliva Chavez was named recipient of the U of M 2008 Distinguished Master's Thesis Award. The Graduate School has nominated her thesis for the Midwestern Association of Graduate Schools (MAGS) master's thesis award, which will be given out in March, 2009.

Her M.S. thesis – Expression of *Anaplasma marginale* Major Surface Protein 2 Variants During Culture in Tick and Mammalian Cells – is ground breaking in the field of vector ecology, specifically tick transmission of pathogens to domestic cattle. To carry out her research, she had to master highly advanced techniques such as *in vitro* cultivation of tick cell lines as well as immunologic and molecular techniques.

Adela obtained her M.S. degree in February 2008 and is currently pursuing a Ph.D. under the continuing direction of Professor Ulrike Munderloh.

My Graduate Experience

by Jeremy Chacón

For me, much of my graduate education has not been very different than the rest of my life: You take classes, write papers, create hypotheses and test them with experiments. Anyone who has grown up with a desire to become a scientist has been doing this either at school or in their head their entire life. My real graduate education has been in the other, non-fact based tidbits of learning that have occurred through my time here, and which started with my second written preliminary exam.

After scoring top marks on my first written prelim on the first try, I assumed the rest would be as easy. That said, I still diligently studied the papers for the second exam, which were made up of a mix of scientific papers and mind-numbingly boring government documents. I came up with plausible questions that could be asked and outlined possible answers, and when the day of the exam came, was appalled that all that was wanted was a comparison of definitions. I was upset, and let my mood get the best of me and my answer. In retrospect, I shouldn't have been surprised when I received a zero on my answer, but I was – surprised and ashamed.

Re-reading my answer and the reviewers' comments with a clear mind was really hard – I had written an arrogant piece of bulls*** so bad that one reviewer put into their final comment that my answer was “plainly, wrong”; it was the kind of paper you can get away with in an undergrad English class but not as a graduate student of science. It was just as difficult to go to the reviewers to discuss my upcoming rewrite of the paper. I prepared for a harsh (and deserved) scolding and was trembling as I entered the professors' offices. However, I was met with patience, an understanding that this was a lesson learned, and a desire to get me back on the right track. I was humbled, wrote a decent rewrite that stuck to the point and didn't conjecture, and got a half-point (the max allowed of a rewrite).

I'm guessing that most people with graduate degrees have a story or two like this within them, and that if asked, would say that these times taught them more than the majority of their classwork. Due to these experiences, I'm pretty sure I'll exit grad school not just as a young scientist, but as a slightly better person. This whole, to me, has been the “student experience,” an experience for which I'm extremely grateful.

Honors and Awards

- Alyssa Anderson** – 2007: The Sping and Ying-ngoh T. Lin and Graduate School Block Grant Fellowship, University of Minnesota.
- Jeremy Chacón** – 2006 - 2009: EPA-STAR Fellowship For Graduate Environmental Study.
- Tederson Galvan** – 2008: Morris and Elaine Soffer Rockstein and Graduate School Block Grant Fellowship, University of Minnesota.
- Michael Goblirsch** – 2007: The Sping and Ying-ngoh T. Lin and Graduate School Block Grant Fellowship, University of Minnesota.
- Thelma Heidel** – 2008: IGERT Fellowship, University of Minnesota, Three Year Graduate School Fellowship, University of Minnesota.
- Kathleen Klukas** – 2008 Department of Entomology Civil Service/AFSME Award.
- Karrie Koch** – 2008: IGERT Fellowship, University of Minnesota; 1st Place, 10 minute paper presentation, "Effects of fungicide timing and active ingredient on soybean aphid fungal epizootics", ESA Annual Meeting, Reno, NV; 2007: Allan Peterson and Graduate School Block Grant Fellowship, for excellence at the M.S. level; University of Minnesota; IOBC-NRS (International Organization for Biological Control- Nearctic Regional Section) Outstanding Master's Student Award.
- Brian McCornack** – 2007: Dr. Alexander A. Granovsky Pest Management Scholarship, University of Minnesota.
- Roger Moon** – 2008 FAME award, Frenatae, University of Minnesota.
- Curt Nelson** – 2008 Department of Entomology Civil Service/AFSME Award.
- Adela Oliva Chavez** – 2008: Distinguished Master's Thesis, University of Minnesota; Nominated for Midwestern Association of Graduate Schools (MAGS) Master's Thesis Award; Alexander and Lydia Anderson Fellowship, University of Minnesota.
- Joelle Olson** – 2008: 2nd place, 10-minute paper presentation, "Antennal sensilla essential for off-host aggregation behavior by bed bugs, *Cimex lectularius*", ESA National Meeting, Reno NV. 2007: 2nd place, 10-minute paper presentation, "Sensory basis of aggregation by *Cimex lectularis* (Heteroptera: Cimicidae)", ESA annual meeting, San Diego, CA.
- JOsh Puhl** – 2008: Doctoral Dissertation Fellowship, Graduate School, University of Minnesota.
- Desi Robertson** – 2007: Morris and Elaine Soffer Rockstein and Graduate School Block Grant Fellowship, University of Minnesota; North American Benthological Society Boesel-Sanderson Award for Natural History Research.
- Mary Rogers** – 2008: Allan Peterson and Graduate School Block Grant Fellowship, for excellence at the M.S. level; University of Minnesota.
- Greg Setliffe** – 2008: Doctoral Dissertation Fellowship (did not accept).
- Abigail Walter** – 2008: Doctoral Dissertation Fellowship, Graduate School, University of Minnesota; Marion Brooks-Wallace and Graduate School Block Grant Fellowship, University of Minnesota.

Graduate Degrees Awarded

- R. William Bouchard, Jr**, Ph.D. (Advisor: Len Ferrington) Phenology and Taxonomic Composition of Lotic Chironomidae (Diptera) Communities in Contrasting Thermal Regimes.
- Tederson Galvan**, Ph.D. (Advisor: Bill Hutchison) Feeding Behavior, Phenology, and Management of the Multicolored Asian lady beetle, *Harmonia axyridis*, in Wine Grapes.
- Andrew Graves**, Ph.D. (Advisor: Mark Ascerno) The Chemical Ecology of the Northern Spruce Engraver, *Ips perturbatus* (Eichhoff) (Coleoptera: Scolytidae), and Associated Insects in Spruce Forests of Alaska.
- Yang Hu**, Ph.D. (Advisor: David Andow) Dispersal and Mating System of European corn borer, *Ostrinia nubilalis*, (Huber) (Lepidoptera: Crambidae), in relation to *Bt* Resistance Management.
- Karrie Koch**, M.S. (Advisor: David Ragsdale) Effects of Soybean Rust Fungicides on Fungal Entomopathogens of Soybean Aphid, *Aphis glycines* Matsumura.
- Adela Oliva Chavez**, M.S. (Advisor: Uli Munderloh) Expression of *Anaplasma marginale* Major Surface Protein 2 Variants During Culture in Tick and Mammalian Cells.
- Henrique Paprocki**, Ph.D. (Advisor: Ralph Holzenthal) A Taxonomic Revision of *Macronema* (Trichoptera: Hydropsychidae) and Selected Studies of Neotropical Trichoptera.
- Mary Rogers**, M.S. (Advisor: Vera Krischik) Non-target Effects of a Soil Application of Imidacloprid on Nectar-Feeding Green Lacewings, Monarch and Painted Lady Butterflies.
- Jodi Swanson**, M.S. (Advisor: Marla Spivak) Volatile Compounds from Chalkbrood Infected Larvae Elicit Honey Bee (*Apis mellifera* L.) Hygienic Behavior.
- Emily Tenczar**, M.S. (Advisor: Vera Krischik) An Integrated Pest Management Approach to Managing Cottonwood Leaf Beetle in Hybrid Poplar used for Biomass.

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:

Entomology Department Head
219 Hodson Hall
University of Minnesota
1980 Folwell Ave
St. Paul, MN 55108

Recent Publications

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Grasshoppers

Photo by Whitney Cranshaw, Colorado State University, Bugwood.org

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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.

Photos from ESA Alumni Gathering in Reno (2008)



Millie Ascerno with raffle prizes.



Drawing for prizes.



Cynthia "Simon" Hsu with a prize.



Susan Weller and Robert Suranyi.



Kamal Gandhi, Susan Weller, Michelle DaCosta.



Gerrit Cuperus and Roger Moon.



Rick Meyer and Mark Ascerno.



Amanda Roe and Kamal Gandhi.



Brian McCornack and Erin Hodgson.

Photos from Reno (2008)



Bill Mattson and Frederick Stehr.



Brian McCornack and Andy Graves.



Top: Laura Weiser-Erlandson and Nancy Schellhorn.



Betty and Ted Radcliffe.



Left: Matt Carroll and Jorge Ruaño-Rossil.



Karrie Koch, Jeremy Chacón and Abby Walter.



Department attendees: Alejandro Costamagna, Marc Eaton, Joelle Olson, Abby Walter and Christine Dieckhoff.



Some of the Department's Professors: George Heimpel, Ted Radcliffe, Roger Moon, Mark Ascerno, Dave Ragsdale, Steve Kells and Bill Hutchison.

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 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.

Age	Annuity Rate*	Annuity (Based on \$25,000 gift)	Tax Deduction*
90+	11.3%	\$2,825	\$14,108
85	9.5%	\$2,375	\$12,847
80	8.0%	\$2,000	\$11,874
75	7.1%	\$1,775	\$10,566
70	6.5%	\$1,625	\$9,216
65	6.0%	\$1,500	\$8,093
60	5.7%	\$1,425	\$6,786

*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.”

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:

Cynthia Cashman
Director of Development
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St. Paul, MN 55108
Ph: 612-624-7489
Ph: 1-800-775-2187
Email: cashman@umn.edu

Along with the UofM'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 Haarstad

Long time resident naturalist at the University of Minnesota Cedar Creek Ecosystem Science Reserve (CCESR) in East Bethel, MN, John died peacefully surrounded by family on November 17, 2008 at the age of 62. After graduating from Carleton College in Northfield, MN, he served in the Peace Corps in northern Nigeria teaching science. He later earned his M.S. degree in 1980 (Thesis Title: Temporal organization in dragonfly communities) and Ph.D. degree in 1985 (Thesis title: Ecological Relationships Among Eight Species of Coexisting Burying Beetles (Coleoptera: Silphidae; Nicrophorus) in East-Central Minnesota) both under Dr. Huai C. Chiang. Much of his graduate research was done at CCESR and he continued to work there after he graduated, developing and curating an extensive insect collection. He joined the staff of CCESR as their resident naturalist and contributed to many ecological research projects. He shared his love of insects by writing about their habitat preferences at CCESR, compiling checklists, and making his work available on the CCESR website. In addition, he led interpretive walks for the general public to enhance their regard for the natural world and encourage their support for the preservation of its biodiversity. He traveled widely to destinations of biological richness, documenting his experiences with countless photographs. In appreciation of his contributions, the CCESR has chosen to name the trail on the south shore of Fish Lake in his honor. A dedication ceremony was held at the trail head on Friday, November 21 at 10 a.m., Ralph Holzenthal, Phil Clausen, John Luhman and Roger Blahnik represented the department at his memorial service.

An obituary was published in the Minneapolis Star Tribune on 11/20/2008

In Memoriam Dr. Robert “Bob” Pfadt, 1915 - 2009 Hodson Alumni Award Recipient, 1998

We have just received word that Dr. Robert Pfadt passed away on January 19, 2009 in Cody, Wyoming. Bob received his Ph.D. in Entomology under Dr. A. C. Hodson in 1948, and became a professor and research scientist at the University of Wyoming, where he became professor emeritus upon his retirement.

He was a world-renowned expert on Grasshoppers, and one of his last publications was the *Field Guide to Common Western Grasshoppers*. In addition to the field guide, he authored four textbooks on applied entomology and two children's books. He was a member of the American Association for the Advancement of Science as well as the Royal Entomological Society of London, and the Entomological Society of America.

He is survived by daughters Kathryn (Dan) Kifer, Margaret (Jim) Krier, and Elizabeth (John) Fabrizio, sister-in-law Sue Van Deventer Raymond, 10 grandchildren and five great-grandchildren. Bob was preceded in death by his parents, sisters Dorothy and Kathryn, son Robert Pfadt and wife Julia. A memorial service is planned at St. Mathew's Cathedral in Laramie, Wyoming at a later date. Obituaries appeared in the Cody Tribune and Powell Tribune.



Bob Pfadt giving the Hodson Alumni Award Lecture, June 1, 1998.

Alumni Updates

Vampire moths that are real vampires



Vampire moth feeding on blood from a scientist's finger. Photo by Jennifer Zaspel.

Jennifer Zaspel (M.S. 2004) was on an expedition in Siberia this past summer that found a new population of vampire moths (*Calyptra thalictri*) that seem to be evolving in a new direction — instead of feeding exclusively on fruit, they also feed on blood.

The report, on National Geographic's web site (<http://news.nationalgeographic.com/news/2008/10/081027-vampire-moth-evolution-halloween-missions.html>) has video of the moths feeding on scientists' hands.

Jen, who received her Ph.D. from the University of Florida in Gainesville, has returned to Minnesota as a post-doctoral associate under Susan Weller. She will be comparing the Siberian moth population's DNA to a Russian population that she and her team found in 2006, as well as other populations and other species.

Discovery by Bugs

Entomologists researching insect-resistant corn find a maize with red-dye potential

Article reprinted courtesy of AURI

The original article can be found at http://www.auri.org/news/ainjul08/discovery_for_bugs.htm

BY LIZ MORRISON

Lamberton, Minn. — When Lee and Joann French first started breeding red corn, they were looking for hybrids that would be bad for pests. In a serendipitous twist, they found a hybrid that's good for people.

They've turned that discovery into a new business, Suntava, which will produce natural-food colors and antioxidants from the Frenches' red corn.

For nearly 30 years, the Frenches have supplied research insects to universities and chemical and seed companies to test pesticides and new plant genetics. Internationally-known French Agricultural Research Inc. rears corn borers, corn rootworms, black cutworms and half a dozen other major corn pests.

The Frenches' climate-controlled labs in Lamberton produce about 350 million insect eggs a year, says Lee, an entomologist and professor at Southwest Minnesota State University in Marshall.

His wife, Joann, a biologist and chemist, spends summers collecting fresh "livestock" from farm fields all over the Upper Midwest. That's necessary, she says, because corn pests are continually adapting



Entomologists Joann and Lee French bred a pest-resistant corn from ancient red maize strains that turned out to be a good source for natural red dye and antioxidants.

Bugs to plants

About a dozen years ago, the Frenches started searching for genes to improve insect, drought and disease resistance. Using traditional breeding methods, they drew on ancient maize strains, looking at “many different populations from all over the world,” Lee says.

The Frenches and their team of plant breeders were especially interested in the properties of red maize, which gets its intense color from plant pigments called anthocyanins, which are also flavonoids that contribute to good health.

Help from AURI

In 2002, the Frenches turned to AURI’s Dennis Timmerman for help researching the commercial potential of their new red maize hybrid.

AURI helped secure a \$100,000 USDA Rural Development grant for the project. The Minnesota Corn Research and Promotion Council and AURI also provided research money. The grants enabled the Frenches to identify the pigments and antioxidants in their new hybrid and test their properties. Later, AURI supported development of Suntava’s proprietary extraction and refining methods. “AURI did a good job of helping us avoid the common pitfalls of start-ups,” Joann says. “That was one thing we needed.”

In 2007, the Frenches hired Bill Petrich to get the business up and running. Petrich spent 10 years with Schwan Food Company developing new businesses and product launches for the Marshall-based food company. The Frenches had envisioned putting up a manufacturing plant in Lamberton. But that was putting the cart before the horse, Petrich told them. The first step in launching a successful new product, he says, is to ask: “What’s the market? Who are your customers? How will you get it to market? How will it be financed?”

Petrich charted a course of slow, deliberate growth for Suntava: “Start small, identify customers, farm out the manufacturing, and prove there’s a market for the product. Then decide if it makes sense to build a plant. Our focus now is on research and development, and sales and marketing.”

Petrich’s first task was to raise start-up money. He worked with Twin Cities-based Northland Securities to put together a half-million dollars in bridge financing, giving Suntava immediate access to cash. Northland Securities also helped raise private investment capital. Suntava completed its initial capitalization in February, exceeding its equity goal, Petrich says.

Earlier this year, Suntava received FDA approval for its red dye, Sayela TM Colorant, which will be manufactured by a local co-processor. Suntava is now seeking patent protections for its pigments and extraction process.

The Frenches also started a non-GMO corn-breeding company, Red Rock Genetics, which has applied for a patent on Suntava Red Maize and is continuing to develop new red corn hybrids, Lee French says.

Bringing the Frenches’ concept to market has been “up and down,” common with start-ups, Petrich says. He recalls the day an investor check arrived the very afternoon that a loan payment was due. It’s been a rewarding experience, too, he says, especially “working with people in rural Minnesota.”

Harry D. Pratt, Sr., (Ph.D. 1941)

Dr. Pratt sent us his updated information, including career highlights. He was a Captain (0-6) in the U.S.P.H.S., and worked for the Center for Disease Control (CDC) in Atlanta, Georgia. He taught various courses in insect-home disease control from 1946 -1972, and one of his career highlights was performing the first residual house application of DDT to kill malarial mosquitoes in Puerto Rico in 1945. His current address is 104 S Almond Drive, Simpsonville, SC 29681-3302; phone 864-228-4941.

Dr. Pratt was a frequent contributor to the early Entomology Department Newsletters, which are being posted online at <http://conservancy.umn.edu/> as we have time to scan them. You can either search for Entomology or click on ‘Collections’ and scroll down to ‘Department of Entomology’. We have already heard from the grandson of one of the correspondents, Calvin Pederson, who wanted to know if there were more newsletters with letters from his grandfather!

HELP US KEEP OUR ALUMNI DATABASE CURRENT!

You do not need to complete this if you recently supplied this information for us.

Name: _____

Address: _____

City, State & Zip: _____

Phone: _____

e-mail: _____

U of M Degree(s): _____ Year: _____ Advisor: _____

Current Position: _____

Institution/Employer: _____

Business Address: _____

Business Phone: _____ Fax: _____

Previous employment history:

1 _____

2 _____

3 _____

Professional/Personal Highlights: _____

: _____

: _____

OK to highlight selected information in next newsletter? *Please circle:* yes no

OK to print address/phone/e-mail in next newsletter? *Please circle:* yes no

Please e-mail Janet Moe if you'd like to sign up for our Alumni and Friends e-mail list.

If you'd like to receive this newsletter electronically, via an e-mailed web link or PDF file, please e-mail Janet Moe (moexx012@umn.edu).

P.S. Please send photos for our next Newsletter!

Please return to:

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ENTOMOLOGY NEWSLETTER Winter 2008

Produced for Alumni & Friends of the Department of Entomology, University of Minnesota.

The Entomology Newsletter is an annual publication of the Department of Entomology, University of Minnesota. The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

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