



Entomology @ Purdue

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Emerald Ash Borer Nears Indiana

As Exotic Insects Education Coordinator here at Purdue, I spend a large amount of time preparing citizens for a pest that hasn't even been found in Indiana, the emerald ash borer (*Agrilus planipennis* Fairmaire). Emerald ash borer, a buprestid beetle that attacks all species of ash (*Fraxinus* spp.) trees, is one of the most aggressive species of wood boring insects ever introduced to North America. The mortality of North American ash trees attacked by this beetle is 100%. Although emerald ash borer has yet to appear in Indiana, it is uncomfortably close and of great concern.

Accidental introductions of emerald ash borer and other forest pests are the unplanned consequences of accelerating rates of global trade. From 1985 through 1998, USDA APHIS intercepted nearly 7,000 exotic insects on wood articles at 100 ports from shipments originating in at least 95 countries. With global trade increasing approximately at 14% per year, more accidental introductions are likely in the future.

Emerald ash borer is native to parts of China, Mongolia, and North and South Korea. It was first identified in summer 2002 in the Detroit, Michigan/ Windsor, Ontario area. Based on the age of infested trees, it is now estimated that emerald ash borer first arrived in North America 7-10 years ago, probably in wooden packing material from Russia. Since its arrival, emerald ash borer has been responsible for the destruction of millions of ash trees throughout southeastern Michigan and Ontario. These areas are now under federal quarantine for the beetle itself, ash trees, and ash products including nursery stock and firewood. In Michigan alone in 2003, \$11.6 million of damage to

landscapes and woodlots was reported, with quarantines restricting the sale of at least \$2 million worth of nursery stock. Projected costs of eradication in southeastern Michigan will exceed \$350 million over the next 10-13 years.

Adult emerald ash borers are dark metallic green in color, measuring approximately one-half inch long and 1/16 inch wide, and are present from May until late July. Larvae

are a creamy white color and can be found under the bark of affected trees. The life cycle of this species spans one calendar year. Adults begin emerging in late May, with peak emergence in mid-June. Egg-laying occurs soon after emergence. After hatching, the borer goes through



EMERALD ASH BORER: Photo by D. Cappaert, Michigan State University

several larval stages, overwinters as a larva, and then pupates in the spring. For the most part, trees greater than 2 inches in diameter and larger can become infested, and these can occur in woodlots as well as landscaped areas. While many trees affected by borers have been stressed or diseased, they will also infest healthy trees.

Eradication and control of emerald ash borer is complicated for several reasons. Because of the adult beetles' long emergence period over the summer months, foliar applications of insecticides (such as Sevin, Orthene, Tempo, or Talstar) would need to be repeated several times during the season. Needless to say, this would severely impact non-target organisms and possibly have long-term environmental effects. Efficacy of soil and trunk injections of insecticides (such as imidacloprid) to control larval stages vary greatly by age and condition of tree, and by method and timing of injections.

Perhaps the most important barrier to developing effective control programs is the

(Continued on page 2)





Steve Yaninek

From the Head Bug

Homeland Security

The events of September 11, 2001 changed our world forever. The attack on America, and the perception of vulnerability, compelled government at every level to look at our lives through a new lens focused on homeland security. The USA Patriot Act was passed in Congress in 2001 to provide the Federal government with new legislative authority to fight terrorism. One year later, Congress created the new Department of Homeland Security with the mission to "... prevent and deter terrorist attacks and protect against and respond to threats and hazards to the nation ...". This includes acts of terrorism directed toward agriculture and natural resources. Threats to our food security have been a focus of entomologists for many years. Concerns about the increasing impact of invasive species have already galvanized many of us to become more aggressive about monitoring and controlling new economically important pests. At Purdue, our insect diagnostician (**Tim Gibb**), who also serves as the entomologist member of Purdue's Plant and Pest Diagnostic Laboratory (P&PDL), handles most of the general

insect IDs that come to the department. Just about all of our extension programs have pest surveillance and control elements that are central to their programs. Our Center for Environmental Regulatory Information Systems (CERIS) (**Eileen Luke**, Director) operates and maintains the National Agricultural Pest Information System (NAPIS) database (**Jim Pheasant**, Project Leader) for the Cooperative Agricultural Pest Survey (CAPS) administered by USDA and implemented as a program to monitor regulatory pests in every state and territory in the country. Our pest surveillance and management responsibilities linked with our cooperative extension service at the state level, and APHIS at the Federal level have put us in a position to take on added homeland security responsibilities. We have new responsibilities from USDA to develop a central repository for data generated by state partners in the new National Plant Diagnostic Network (NPDN) dedicated to enhancing our homeland security readiness. Our CAPS program has added a full-time CAPS State Survey Coordinator (**Chris Pierce**), and additional operational support to increase surveillance of targeted pests including listed biological threats. We're working with the State of Indiana to develop a program focused on improving the ability of first detectors and first responders to react to specific biothreats. Homeland security provides a new imperative and creates new opportunities to focus on invasive species and other pests of regulatory concern that posed both imminent and future threats to our food security. We're likely to see this part of our mission expand as we add research and teaching to the homeland security mix in the coming years.

- Steve Yaninek -

(Continued from page 1)

absence of techniques to monitor emerald ash borer populations. At present, detection is usually achieved through visual survey for symptomatic ash trees. Unfortunately, this method has limited use for early detection as early stage populations do not cause visible damage to the tree. By the time symptoms are noticeable, the tree is mortally wounded.

When emerald ash borer arrives, Indiana will model its strategic plan for emerald ash borer after programs currently in effect in Michigan and Ohio. When the beetle is confirmed in Indiana, all ash trees within a one-half mile radius of the find will be removed and destroyed to slow the natural spread of the beetle. In addition, state and federal quarantines will go into effect to deter artificial spread. Needless to say, public education will play an important role in an effective and orderly program to combat emerald ash borer.

To date, emerald ash borer has been confirmed in Toledo and Columbus, Ohio, and in three sites in western Ohio (two of them within a few miles of the Indiana border). The beetle was also found in Virginia and Maryland in 2003, the result of the deliberate movement of infested nursery stock from Michigan. If the spread of emerald ash borer is not slowed, \$50-60 billion in ash-related economic losses are possible, and ash trees may go the way of the American elm tree in the wake of Dutch elm disease.

For the latest information on emerald ash borers, visit our new website: < www.entm.purdue.edu/emerald_ash_borer/index.htm >.

- Jodie Ellis -

Department News

New Staff

Barry Pittendrigh has hired **Weilin Sun** (Ph.D. '03) as a research laboratory manager.

Paula Lloyd joined Entomology as the new Administrative Assistant to the Department in mid March. Paula came from the Southern Illinois University, Edwardsville, IL.

Departing Staff

Cheryl Spencer, Administrative Assistant to the Head has accepted a new position in the Graduate School.

Joy Beckett has accepted a new position in the Graduate School.

Claire Rutledge has been offered a position as Assistant Entomologist at the Connecticut Agricultural Experiment Station. She will be working on the ecology and control of wood-boring insects. She will be starting May 15, 2004. Her new address is CAES, 123 Huntington St., Box 1106, New Haven, CT 06504. Congratulations Claire!

Awards

Congratulations to **Tim Gibb** and the Turf Science Program for winning the 2004 Agriculture Team Award in recognition of their interdisciplinary efforts that impact stu-

dents, homeowners, and the turf industry. The award will be presented will this spring.

Cliff Sadof received the 2004 ESA-NCB Recognition Award in Urban Entomology for his contributions in ornamental entomology.

Gary Bennett received the Indiana Pest Management Association Hall of Fame Award presented to him by **Bobby Corrigan** (B.S. '77, M.S. '80, Ph.D. '95) for national and international contributions to the pest management industry. This award is very special to Gary for many reasons. Gary joins his mentor **John Osmun**, as well as **J.J. Davis**, as Boilermakers inducted into the Hall!



HALL OF FAME AWARD: Bobby Corrigan (r) presents the Indiana Pest Management Hall of Fame Award to Gary Bennett (l).

Dr. Al Goecker presented Tom Turpin and Al York with door plaques for the Book of Great Teacher and Teaching Academy members. This was to honor and recognize their accomplishments as great teachers to all who pass in the hall; provide a constant reminder to colleagues of a recognition worth aspiration and a mentor who could help them reach a similar level of success with their teaching; and to provide a visible signal to students who pass by that there is a caring, accomplished great teacher within.



PRESENTATION: (l-r) Al York, Tom Turpin with Dr. Al Goecker to receive their door plaques.

Staff News

Linda Mason is featured in a new article in Environmental Health Perspectives (EHP) about her work to control stored product pests using ozone titled, "Anti-Insect Ozone". You can view this from our website link <www.entm.purdue.edu/entomology/news/news.html>.

We have two professors that will be conducting Maymester Classes in Study Abroad. Bob O'Neil will be conducting a class in Cuba, "Mystique of Cuba," May 17 - June 11. Chris Oseto will be conducting a class in Costa Rica, "Biodiversity Costa Rica," May 17 - June 11. Learn more about our international programs at: <www.agriculture.purdue.edu/ipia/>.

Cooperative Agricultural Pest Survey (CAPS)

The Cooperative Agricultural Pest Survey (CAPS) is a combined effort by Federal and State agricultural organizations to con-

duct surveillance, detection, and monitoring of exotic plant pests – insects, weeds, and diseases that are known to occur in the U.S. or have been recently introduced through U.S. ports of entry or other pathways. Typical surveys target recently established exotic pests of export significance, and pests not known to occur in the U.S., including certain wood-boring beetles, which do not exist in the United States but have been intercepted at U.S. ports of entry. The intentional or unintentional introduction of pests could have serious consequences on the health and economic well-being of our citizens, state and nation. The time between detection and response is crucial as we attempt to lessen, or prevent, the effects of a new pest. Early detection saves millions of dollars in control and eradication costs, protects our natural resources, and prevents the economic disruption of agricultural industries. In an increasingly global economy involving more international trade than ever before, pests affecting agriculture and natural areas can have a significant impact on the marketability of U.S. agricultural commodities throughout the world. For more information contact Christopher Pierce by phone at: (765) 494-9522 or e-mail: cpierce@purdue.edu.

- Christopher Pierce -

Protecting America's Agriculture

Following September 11, America's attention and resources were refocused on homeland security. While emphasizing the security of facilities, such as airports, tourist attraction sites, and major public buildings, etc. Congress also recognized the vulnerability of its agricultural systems. Purdue University is playing a role in Homeland Security with CERIS' (Center for Environmental and Regulatory Information Systems) participation in the National Plant Diagnostic Network (NPDN). The mission of NPDN is to enhance national agricultural security by quickly detecting introduced pests and pathogens. This will be achieved by creating a functional nationwide network of public agricultural institutions with a cohesive, distributed system to quickly detect deliberately introduced, high consequence, biological pests and pathogens into our agricultural and natural ecosystems by providing means for quick identifications and establishing protocols for immediate reporting to appropriate responders and decision makers. The network is comprised of Land Grant University plant

disease and pest diagnostic facilities linked to regional centers at Cornell University, Michigan State University, Kansas State University, University of Florida at Gainesville, and University of California at Davis.

The National Agricultural Pest Information System (NAPIS), under the administration of the Entomology Department at Purdue, has been designated as the central repository for archiving diagnostic data collected from the regions. At present, NAPIS maintains information from the Cooperative Agricultural Pest Survey (CAPS), a network of state agricultural organizations and universities that survey for pests of regulatory concern. NAPIS will expand its data on plant diseases and other pests. The system will provide a national perspective on agricultural pests through dynamic maps and reports of plant pest distribution. Currently the pest information system houses 1.3 million records on more than 3,800 organisms, and that number will grow significantly as the plant diagnostic network centers start feeding information into the national database in the Spring, 2004. Check the CERIS website for more information: <www.ceris.purdue.edu/>.

- Eileen Luke -

John V. Osmun Award Nominations

The 2004 John V. Osmun Alumni Professional Achievement Award in Entomology solicitation will use an electronic nomination this year. You can access this at: <www.entm.purdue.edu/osmunaward>.

Mosquito and Tick Genomics

Dr. Catherine Hill joined the Department of Entomology in the fall of 2003 to establish a research and extension program in vector biology. Dr. Hill was previously employed as a research scientist with Elanco Animal Health in Indianapolis and at the University of Notre Dame. Dr. Hill's research program at Purdue focuses on the genomics of mosquitoes and ticks. Her ongoing research efforts involve the identification and structural and functional analysis of novel drug target receptors in the mosquito *Anopheles gambiae* (principal vector of malaria in sub-Saharan Africa). In addition, she will continue her studies of mosquito visual processes and their impact on critical mosquito behav-

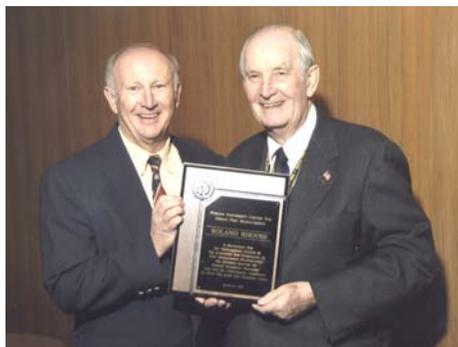
iors such as mating, oviposition and host finding. These studies are aimed at the development of better mosquito traps and surveillance mechanisms and the development of novel insect control methods that exploit unique aspects of mosquito biology. Dr. Hill is also leading an effort by the international tick research community to sequence the genome of the ixodid tick, *Ixodes scapularis*, the vector of Lyme disease, babesiosis, human granulocytic ehrlichiosis and encephalitis virus in the US. Genome projects have the potential to illuminate new aspects of vector biology, to unravel the genetic basis for vector competence and can lead to the identification of new strategies for pest control.

Dr. Hill's extension program will involve the monitoring and evaluation of public health issues related to vector-borne diseases such as West Nile virus and Lyme disease and will place an emphasis on the development of outreach and education programs to address these concerns. Dr. Hill will be working with clientele groups such as the Indiana Vector Control Association, the State Department of Health and pesticide applicators to assist with public policy development and to encourage the adoption of appropriate vector surveillance and control procedures.

68th Annual Pest Control Conference

Purdue University held its 68th Annual Purdue Pest Control Conference Jan. 5-9, in dedication to Roland L. Rhodes of Rhodes Chemical Co. This was Roland's 31st year in attendance, as he was honored by Gary Bennett with a beautiful Purdue stained glass lamp during the opening ceremonies.

The conference managed to increase attendee numbers and had over 800 participants.



RECOGNITION AWARD: Gary Bennett presents the 2004 Purdue Conference Recognition Award to Roland Rhodes (r).

Hot topics that were covered at this year's conference were mosquitoes, small ants, spiders, American roaches, bird management, wasps and stinging insects.

The next annual conference will be held January 10-14, 2005.



25 YEAR ATTENDANCE: (l-r) John Walton, Evansville, IN; John Vermillion, Terre Haute, IN; David Hanstra, Lafayette, IN; Tom Jaskal, Lafayette, IN; Carl Hinderer, Cleveland, OH; Mussa Mohammad, Gary, IN; Rickard Whitman, Beckley, WV; Leon Williams, Farmersburg, IN; and Russ Ives, Troy, MI.

The International Front

C. Richard Edwards, Professor Emeritus, continues his work in Europe on western corn rootworm (WCR), *Diabrotica virgifera virgifera* LeConte, as IOBC/IWGO Diabrotica Convenor and WCR advisor to EU countries. This past year, new captures of WCR were recorded in the Netherlands, England, Belgium, and Eastern France, near the



ENGELBERG, SWITZERLAND: Claudia and Rich Edwards (center) enjoying a traditional Swiss dinner with international colleagues and friends at the Diabrotica meeting.

border with Germany (Germany not infested as of 2003, although surrounding countries of Czech Republic, Austria, Switzerland, and France are now infested). As of 2002, about 285,000 km² (110,047 miles²) of Europe are infested with WCR (up from 182,000 km² in 2000) and about 64,000 km² (24,712 miles²) have economic populations (up from 27,000 km² in 2000). In January 2004, he chaired the

10th Diabrotica IOBC/IWGO Subgroup, 9th EPPA Ad Hoc Panel, and FAO Network Group Meeting in Engelberg, Switzerland. About 125 people from Europe and North America attended. At the meeting, he gave the opening address and presented papers on "The Impact of Areawide Pest Management on Carabids in Indiana/Illinois, USA" and "Towards Markers for Western Corn Rootworm." Prof. Edwards is working during the spring semester in the department on a new graduate level course with Prof. Larry Murdock and in his spare time is finishing his book, *The Cricket and Professor – The Case of the Cricket's Luck Chirp*.

6th Edition of Truman's Out

The 6th Edition of Truman's Scientific Guide to Pest Management Operations is hot off the press. This book is published by Advanstar Communications and Purdue University, authored by Gary W. Bennett, Purdue University, Bobby Corrigan (B.S. '77, M.S. '80, Ph.D. '95), Owner, RMC Pest Management Consultants, and John M. Owens, (M.S. '77, Ph.D. '80) Senior Associate in the research, development and engineering division of S.C. Johnson. It emphasizes the management of urban and industrial pests and the volume serves three purposes: provides a ready reference for practitioners, delivers valuable study information for persons seeking EPA/state certification, and presents a series of lessons for students enrolled in the Purdue correspondence course in pest control technology. This can be ordered by calling 800-598-6008 or online at <www.pestcontrolmag.com>.

Development Update

Your Gift Support

Gift support from our alumni and friends moves quickly in the Department. In January, we awarded 27 scholarships totaling \$41,000 at the 68th Purdue Pest Control Conference. We financed a 4 student Linnaean game team that competed at the ESA North Central branch meeting in March. Four undergraduates received travel grants to join Chris Oseto to Costa Rica to study tropical agroecology this May. We're also supporting interns and prospective recruits this summer including under-represented minorities. None of this would be possible without your generous support. Thank you!

Friends of Entomology

The Honor Roll recognizes those who made new gifts to the Department in 2003.

Monarch Club (\$1000 up)

C.W. Bartholomai
John V. Osmun

Honey Bee Club (\$500-\$999)

Eldon E. Ortman

Firefly Club (\$101-\$499)

Muriel S. Andrew
Kenneth Fred Broda
C. Richard Edwards
Eldon Leslie Hood
Arwin Provonsha

Mayfly Club (up to \$100)

Clarence Arthur Callahan
Stephen Wayne Crouch
Wei Dai
George Fredrick Degler
Peter and Georgia Dunn
Gary Russell Finni
Roger Harry Grothaus
Peter Robert Johnson
George Thomas Larocca
John Joseph McHugh
Harlan L. McMillan
Eric Lee-Chien-Hsin Pang
Mark Douglas Shelton
Harlan L. McMillan
Tianqi Wang
Robert Neal Wiedenmann

Bindley Scholarship Challenge

Expanding the availability of scholarships is a top priority at Purdue. At Purdue and across the country, tuition has increased faster than families' ability to absorb all of the additional cost. At the same time, federal and state financial aid has not kept pace with tuition increases. In an effort to increase the availability of scholarship support to students, Indianapolis business and civic leader William E. Bindley and his wife Mary Ann have challenged Purdue to match their deferred gift of \$11.25 million and establish endowed scholarships in the area of Life Sciences at Purdue. The Bindley commitment

goes to the first scholarships funded up to the amount of the \$11.25 million in matching funds. New endowed scholarships for students in the School of Agriculture are eligible for this Bindley Scholarship Challenge. For more information about how you can leverage these funds and make a significant contribution to Entomology, please contact Eric Putman, Director of Development, at 800-718-0094 or by email at <eputman@purdue.edu>.

- Eric Putman -

Outreach Update

Gala Week/Bug Bowl: April 17th-18th

On April 17th and 18th the Department of Entomology will host the 14th annual Bug Bowl, an extravaganza of the six-legged variety. For the first time, alumni can attend Gala Week and Bug Bowl on the same weekend! Alumni can now eat pancakes in the morning, spit crickets in the afternoon, gamble at the ever popular Roachill Downs cockroach race and enjoy some chocolate covered crickets. Last year, nearly 30,000 people attended this event as part of Purdue's Spring Fest weekend.

Alumni will also have the opportunity to attend the dedication of the newly renovated Pfendler Hall (old Entomology Hall) at 9:00 AM on Saturday, April 17th. For additional information about Bug Bowl visit our website at <www.entm.purdue.edu/Entomology/outreach/bug_bowl/index.html>.



BUG BOWL PETTING ZOO: Jami Guenther shows a walking stick to a curious student.

Day in the Department

Day in the Department is scheduled on April 2. In recognition of their achievement for their Entomology 4-H project at the 2003 State Fair, a busy day has been planned that will provide 4-H members and their parents with an opportunity to learn more about insects. They will discover what entomologists do, and learn what is going on in the Department of Entomology at Purdue Uni-

versity. State Fair winners will be able to tour research labs and view a collection of nearly 2 million insects. Faculty and students will join them for lunch in one of the university residence halls, and in the afternoon they will learn about forensic entomology in Tom Turpin's class.

Entomology Students

Graduate Student News

For the first time in several years, the Purdue Entomology Department will be sending a team to compete in the Linnaean Games at the North Central Branch meeting of the Entomological Society of America, March 28-31 at Kansas City, MO. The team is led by captain, **Lori Sulek**, and coached by **Dr. Linda Mason**. Members also include **Matt Tarver**, **Kate Girsch**, **Justin Vitullo**, and **Marcus McDonough**. Purdue first participated in the games in 1986, under the leadership of **Tom Turpin** and **C. Richard Edwards**.

Thomas Say News

The Thomas Say Entomological Society has been quite active this year. Earlier this semester, society members participated in the Hunger Hike to provide food and assistance to the underprivileged in our community. They had a number of excellent guest speakers; including the very dynamic Dr. Steven Lovejoy, who regaled them with the fallacy of many modern energy practices.

In early March, the Society visited Insects Limited, the renowned pest control facility of Mr. **David Mueller** (B.S. '75). Mr. Mueller has also been extremely kind in offering to allow members to view some of Thomas Say's original writings. They're getting ready for Bug Bowl and hope to see you there!

2003-2004 Outstanding Entomology Students

Outstanding Freshman

Nick Seiter from Greensburg, IN.

Outstanding Junior

Tyler Janovitz from West Lafayette, IN.

Outstanding Senior

Marcus McDonough from Batesville, IN.

Outstanding Graduate Student Teaching Assistant

Jami Guenther from Clarksville, MI.



Eric Rebek

Meet Eric Rebek

Hello! I grew up in Fond du Lac, Wisconsin, a small town situated midway between Green Bay and Milwaukee. I received my B.S. and M.S. in Entomology at the University of Wisconsin-Madison. My advisor at UW was **Dr. David Hogg** (B.S. '71, M.S. '74), an alumnus of Purdue Entomology who was very influential in my early entomological career. A summer job in Dave's lab working with pests of forage crops exposed me to the joys of field work, and eventually led me to declare entomology as a major. I am truly lucky to have been a part of Dave's team. I am currently a Ph.D. candidate working in the ornamental entomology lab with **Dr. Cliff Sadof**. My research focus is conservation biological control of euonymus scale in urban landscapes. Specifically, I am using flowering plants to attract predators and parasitoids to ornamental plants that are infested with this insect pest. The goal of conservation biological control is to increase natural enemy abundance in landscapes by providing nectar and pollen, shelter and alternative prey species that improve the survival of these species. Strategies such as these have been proven to successfully reduce pest populations in both agricultural and ornamental environments without the use of insecticides. One attractive feature of

this approach is that many of these techniques can be implemented by growers and homeowners, making conservation biological control a viable, cost-effective, environmentally-sound approach to pest control. I personally enjoy the added bonus of beautifying the landscape with perennial flowers while improving conditions for beneficial insects.

My work shows that flowering plants do increase the abundance of natural enemies near host plants that harbor euonymus scale. I have also found that euonymus scale densities are significantly reduced in the presence of flowering plants, regardless of planting density. A significant source of scale mortality at my research site is attributed to a tiny aphelinid wasp that parasitizes euonymus scale. My data show that this parasitoid is especially effective at controlling the scale at low population densities, which tend to be found in plots containing flowering plants. I plan to continue this kind of research in the future and study the general applicability of conservation biological control techniques to a broader range of urban pest insects. Upon completing my degree in May 2004, I will begin a post-doctorate position at Michigan State University studying emerald ash borer. This highly destructive beetle has caused millions of native ash trees to be destroyed in east central Michigan and has already spread to northern Ohio. Many Hoosiers are already expecting the worst as this terrible pest is

-Eric Rebek -

kets. Mary recently became Board Certified in Advanced Diabetes Management and works mostly with patients who use insulin pumps. Mary also recently qualified for the Ironman Hawaii Triathlon in October 2004 - sort of an occupation in itself. Their oldest daughter, RaeMarie, recently graduated with her MS from the Virginia Institute for Marine Sciences and is working for William and Mary College in Virginia. Their youngest recently received her BA from DePaul University and has begun a two year volunteer stint in Belgrade, Serbia.

Miguel Arechavaleta (Ph.D. '02), accepted a job in Mexico working as a researcher for Instituto Nacional de Investigacion Forestales y Agropecuarias (INIFAP). Miguel will use his experience in molecular genetics and will continue working with bees and interacting with his Master's advisor, Ernesto Guzman, who spent his sabbatical leave at Purdue in 2003.

John M. Owens (M.S. '77, Ph.D. '80) was recipient of an *Officer's Award* from the Senior Vice President of the Research, Development and Engineering Division of S.C. Johnson & Son, Inc., where he works in Racine, WI. This was in recognition of his work to develop a global, corporate-wide policy on "Product Safety, Regulatory and Environmental (PSRE) Compliance", and implementation of an auditing program to assess policy compliance by S.C. Johnson subsidiaries around the world. S.C. Johnson manufacturers and markets many types of well-known consumer products in over 75 countries around the world. Of interest to entomologists would be their Raid and Baygon brand insecticides, and Off! or Autan repellents. In the last year, John has led PSRE audit teams at S.C. Johnson companies in the UK, US (Racine), Brazil, Japan and China (Shanghai), with Canada and Mexico scheduled for early summer. Next year he'll be in Italy, Spain, Germany, France, Thailand, and Australia! John never would have thought that, while working away as a grad student at Purdue on cockroach studies in the Flight Room or Entomology Hall, or in the Public Housing projects of Indianapolis, that he would one day play a leadership role in product safety, regulatory and environmental performance for a major consumer product company. John especially enjoys the travel and exposure to the people.

Christopher Voglewede (Ph.D. '99) and wife Paul, live in Lafayette, Indiana with their 4 children, Sarah, Matt, Charles, Anna and

New Fall 2004 Students

Undergraduate:

Rianna Arcinas, a junior transfer student from Neurobiology & Physiology is from Chula Vista, CA; Tyler Bird, a freshman from Osceola, IN; Emily Kraus, a freshman from Sunman, IN; Autumn Nance, a freshman from Warsaw, IN; Amanda North, a freshman from Ft. Wayne, IN; and Brad Fry, a freshman from Howe, IN.

Graduates from December 2003:

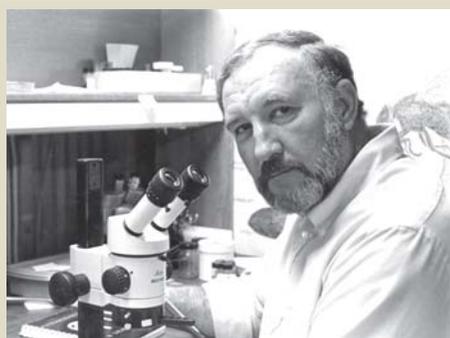
Randy Hamilton, Ph.D., Lu Sun, Ph.D., Kristin Saltzmann, M.S., and Jolene Hurt, B.S.

Science Fair Competition:

Ruth Hegarty won a gold in the zoology division of the science fair competition. Ruth, a senior at Jefferson High School, has been working in **Linda Mason's** lab for the past three years. Her work was entitled "Influence of Mating Status on *Plodia interpunctella* (Hubner) Trap Capture".

Alumni News

Tim Johnson (Ph.D. '84) and his wife Mary continue to live in Langhorne, PA although he works for Plato Industries Ltd. based in Houston, TX. His work involves identifying and developing insect control and monitoring products for small niche mar-



Neal Haskell

Forensics At Work

Neal Haskell (B.S. '69, M.S. '89, Ph.D. '93) received a B.S. in Entomology in 1969 and returned to the family farm following the death of his father to raise corn, cattle, and soybeans. During his time on the farm, he assisted local law enforcement agencies in advanced firearms training including sniper, automatic weapons, and explosives training.

After farming for over 15 years, he came back to Purdue completing an M.S. degree in 1989 and a Ph.D. in 1993 under Dr. **Ralph Williams**. His area of emphasis in forensic entomology was the first such degree in this discipline in the U.S. Dr. Haskell is noted as one of the foremost forensic entomologists in the U.S. He has given hundreds of scientific lectures, seminars, and training classes world-wide to provide coroners, medical examiners, death scene investigators, and others with valuable information regarding entomological evidence from death scenes. Several books / book chapters have been authored by Neal and he has been featured in a number of books and over 150 news articles, and other news media. In a

book by Dr. Michael Baden and Marion Roach, *Dead Reckoning*, an entire chapter is devoted to stories of Neal, the pig research and training in Rensselaer, and interesting case studies. In another book, *Corpse*, (Jessica Sachs), Haskell is chronicled among the pioneers of forensic entomology in the U.S. And recently his research and investigative techniques were discussed in a book by Dr. William Bass, *Death's Acres*, a story of the research and case work from the "Body Farm" at Knoxville, Tennessee.

Dr. Haskell is a tenured Professor of Forensic Science and Biology at Saint Joseph's College. He has organized an insect/invertebrate/forensic course series where he teaches three successive courses in forensic science, three entomology courses and an invertebrate zoology course. He also teaches Human Anatomy and Physiology, Evolution of the Universe and Evolution of Man, and Scientific Writing. Due to the expanded interest in the forensic science subject, he was contacted by faculty at Purdue three years ago to assist in the inception of a basic forensic science introductory course. Since he had already developed a course curriculum for such a course, the course syllabus was used for the Purdue courses with some modification to fit the much larger numbers of students at Purdue as compared to Saint Joseph's College. Two advanced courses have since been developed at Purdue. The popularity of these forensic courses is seen in the class size where over 500 students have enrolled in the introductory course. Because of Dr. Haskell's involvement, experience, and recognition as a leader in the actual practice of death scene investigations, he provides the students not only with book learning, but first hand tales from some of the country's most publicized murder cases. In addition, Dr. Haskell has

contacts with Medical Examiner's Offices, Crime Laboratory Scientists, Coroner's Offices, and Police Death Scene Investigators across North America and Europe with which to place students as interns and student trainees. This real life experience for the students places the students at a great advantage over others who wish to enter a very competitive graduate school market.

Dr. Haskell continues as a private international forensic entomology consultant to hundreds of law enforcement agencies across North America and in Europe. He is a Board Certified Entomologist and is a Diplomat of the American Board of Forensic Entomology. During his work over the past 15 years, he has assisted in over 500 cases which have had questions regarding insects. He has been accepted and recognized as an expert witness in both state and federal courts where he has qualified as an expert in 21 different states in the U.S. and regional and provincial courts in Canada, in over 60 trials, many of which were capital murder cases. In addition, seminal research was conducted by Haskell and others at the University of Tennessee, "Body Farm" where actual human corpses were compared to pig corpses for establishing a replacement for humans in decomposition and forensic entomology studies needed across the U.S.

Due to the current interest in crime fighting by the general public (CSI and others), Dr. Haskell has been featured on a number of television programs including: "The New Detectives" Discovery Channel, "Secrets of Forensic Science", The Learning Channel, "How Things Work" A&E, "Lasting Impressions" on Court TV, "Dead Reckoning" and "Rats Bats and Bugs" The History Channel, and "The Mummy Road Show" National Geographic.

are expecting their 5th child in late spring. Chris works for Dow AgroScience in Indianapolis.

Randy Hamilton (Ph.D. '03) and family has settled in Salt Lake City, UT. He is starting his new position with Remote Sensing Applications Center. He has been assigned a project using remote sensing to map mortality in pinyon pines in Arizona and Colorado.

Joseph Kahn (M.S. '58) lives in West Chester, PA with his wife Eleahn, former Resource Manager at National Pest Management Association. He still works as a consultant and has his own pest control business. Joe and his wife live on a golf course,

have 5 children between them and 2 grandchildren. Being a Holocaust survivor, Joe and his wife traveled back to Germany this past year to meet friends and family of long ago. A family reunion was held at Remich, Luxemburg. Joe sends his "regards to Dr. John Osmun".

Steve Mroczkiewicz (B.S. '87, M.S. '90) is currently a Field Research Scientist with Syngenta Crop Protection and living in Attica. He worked for American Cyanamid Co. as a Technical Services Representative out of Lincoln, NE then moved back to Hamilton Co., IN in '97 to take a job as Regional Sales Mgr. in the Technical Div. with AgriBusiness Group

in Indianapolis before returning to this area. He and his wife Alison have 6 children ranging in age from 5 to 14, Rachel, Emily, Jacob, Isaac, Hunter, and Maggie. Alison keeps plenty busy managing a family and working with her small business. Besides raising kids, Steve's hobbies are hunting and anything else to do with the outdoors. In the last few years, he's been getting as much enjoyment out of teaching his kids to hunt and shoot as in doing those things himself. So far, Emily has become an excellent tracker and Rachel a very good marksman. Rachel harvested her first couple of deer this year. It was a toss-up as to who was more proud, daughter or dad.



Calendar

April

Day in the Department - April 2
Bug Bowl - April 17-18th
Insect Teacher Workshop - April 17

May

Graduation - May 15

June

Entomology Science Workshop - June 9-11

From the editor

As the new editor, I need your help to keep each issue informative and interesting. Feel free to share any events or special occasions and be sure to include photos that you would like to share with our alumni and staff.

Paula Lloyd

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Please include your name, address, degree, major and year of graduation. Photographs, if submitted, will be returned.