Biospheres is published for the alumni, friends, and faculty of the Department Ecology, Evolution, and Organismal Biology at Iowa State University, an academic department in the College of Liberal Arts and Sciences and the College of Agriculture and Life Sciences.

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Greetings former Students, Friends, and Alumni! It is a pleasure to write to you as the new Chairman of EEOB, to honor those who have played instrumental roles in the department’s fifteen-year history, and to share with you a number of exciting success stories!

When Jonathan Wendel helped to recruit me to the Botany Department at Iowa State in 2000 (thanks Jonathan!), neither of us imagined that we would soon be members of a new Ecology, Evolution, and Organismal Biology Department (EEOB), with Jonathan serving as its first Chair. I am quite sure that Jonathan never thought he would serve three five-year tours of duty, and I can unequivocally state I never imagined that 15 years later I would be filling Jonathan’s shoes as our department’s second ever Chair!

As summarized in this issue of Biospheres, which chronicles the history of EEOB, Jonathan has invested himself deeply in service to our department, establishing a wonderful esprit de corps and setting a high standard of excellence for students, staff, and faculty. He is one very tough act to follow! Nonetheless, on July 1 Jonathan stepped down to focus on teaching and continuing his extraordinarily successful research career, while I formally began the exciting (and daunting) task of replacing him as Chair. Fortunately, EEOB has so many things going for it to ease the transition, including vibrant and well-managed undergraduate and graduate educational programs, a dedicated and professional staff, and faculty that excel as researchers, teachers, and mentors. I am proud to represent everyone associated with EEOB!

In addition to chronicling Jonathan’s long tenure as EEOB Chair, this issue of Biospheres features the ongoing research activities of “retired” emeritus faculty Bill Clark and Don Farrar, and acknowledges the service of Steve Mahoney who is retiring after a 37 year career as Greenhouse Manager of the Pohl Conservatory. This conservatory, located atop Bessey Hall, is a landmark on campus and home to a diverse and beautiful collection of flowering (and non-flowering) plants. You are welcome to arrange a visit with new Greenhouse Manager Kenny McCabe, who will be happy to show you around.

Other significant news includes the near completion of the Bessey Addition, which will bring much needed teaching and research space to EEOB and the university, national recognition of our evolutionary biology faculty through a number of large external research grants, and special college- and university-level recognition of our graduate students for their teaching excellence and of our faculty for their research and service efforts.

There is never a dull moment in EEOB!

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Change is inevitable

A reception was held at Rieman Gardens on May 3 to thank Jonathan Wendel for his 15 years of leadership of EEOB. Guests included EEOB faculty and staff, a number of department chairs and representatives of LAS and CALS administration. Rob Wallace was asked to speak about the history of EEOB and Jonathan’s role in its evolution. The following is excerpted from Rob’s remarks.

Discussions began around 2001 about reorganization of the biological sciences; members of the Botany, Zoology, Biochemistry, Microbiology, Forestry, and Animal Ecology departments were trying to decide the best structure for maximum collaboration and coalescence around the research and investigative questions being asked, rather than division by focus of organismal groups being studied. A committee was formed to examine the impact on such a reorganization – The Interdepartmental Biology Curriculum committee (chaired by Martin Spalding with representatives from all biological science departments) examined various scenarios of how the Biology Program might interface with existing departmental majors, and how the courses would need to be structured.

Continued ➤

Top: Dr. Robert Wallace presents Dr. Jonathan Wendel with a thank you gift for the department. Bottom Left: Wendel offers remarks at his reception. Bottom Right: Wallace recounts the history of EEOB.
To make a very long story short, the three new departments of BBMB, GDCB, and EEOB were born, and the Biology curriculum continued its trajectory of becoming more and more interdisciplinary, with the Departments of Botany and Zoology giving up their majors in favor of a unified Biology Major which we have today. This was not an easy decision, but one made in the best interest in the spirit of collegiality and advancing our programs.

I can tell you that Jonathan made a significant contribution to this entire process – he along with Marty Spalding, the then-Chair of the newly formed GDCB department orchestrated various dialogues about governance, oversight, and moving forward to develop procedures for vetting various issues, and developing policies needed to continue our departmental growth and development.

As a department, EEOB hit the ground running! Thanks to Jonathan’s strong leadership and by assuring everyone had ample opportunities to voice opinions, make contributions, and have a role in departmental governance, the department began its trajectory as a democratic, principled, and informed group of faculty colleagues which continues to this day.

Thanks to significant input from the faculty, and in particular the efforts of John Downing, the EEOB Governance Document evolved into a well crafted set of policies and procedures that became the “poster child” for what a departmental governance document should be, and it was emulated, and in fact copied, by other units on campus. This is something we should be proud of!

Much of our success as an EEOB Department is due to the respect Jonathan has earned among deans, associate deans, and fellow department chairs. To many outside the biological sciences at ISU, “biology” is just a jumble of letters with little discrimination between the units. In different Faculty Senate capacities, and while serving on the Chairs Cabinet and on different committees with deans and other department chairs, I have frequently been asked “What department are you in?”, and my reply was “EEOB”. Their next question is telling: “Is that Jonathan’s department?” - I answer ”YES!”, and their next comment is, “You are lucky!” – Indeed we are! He is very well respected across campus by many others, which is a testimony to his abilities as a department leader and strong advocate for EEOB.

The first time I spoke with President Leath on the day of his installation, I went through that same “What department?” scenario, and the President was aware of Jonathan and his leadership of our department even be-
before arriving at ISU, as they both had some common North Carolina history. His notoriety as an effective department leader extends all across campus.

I doubt that anyone would disagree with me in saying that Jonathan’s leadership style is that of consensus building, involvement of all constituents in the discussion, and coming to action on items to the benefit of the department and its members. He likely has advocated for your research, your lab facilities, your teaching assignments, obtaining travel resources, special requests, and funding graduate students, small projects, and making sure we have an excellent staff in the office and with department facilities. We all have been positively influenced by Jonathan in one way or another throughout his history as the first EEOB department chair.

The philosopher Gorge Santayana said, “Those who do not learn from history are doomed to repeat it!” In the case of Jonathan and EEOB, we can definitely learn from our history that it has been a positive, synergistic, and successful history – one which I would be proud to repeat with no fear of doom. I think we can all be thankful for Jonathan’s leadership and for playing a pivotal role in our history as an administrator, as a colleague, and as a friend.

Thank you Jonathan!
A new look for Bessey Hall

Built in 1967, Bessey Hall has seen many changes over the years. The most recent is a four-story addition to the east side of the building. The Bessey addition is one of two new bioscience projects approved by the state Board of Regents.

The addition “is the result of a process that started at least 10 years ago. The university engaged in top-level discussions about how to prioritize capital projects,” said Dr. Jonathan Wendel. “Through those discussions, biology became singled out as something Iowa State was strong in, in a position to get better in, and we had a number of aging facilities that could prevent us from competing nationwide.”

When the two projects are complete, Bessey Hall will house EEOB and a number of the faculty from the department of Genetics, Development and Cell Biology (GDCB). The twenty majors that take biology courses will be able to enjoy eight new teaching labs, two new lecture halls, study spaces, and new meeting rooms.

The new teaching labs will provide accommodation for Biology 211L and 212L and several other introductory courses, and allow some lab courses to move to Bessey from Science II. The additional spaces will also reduce the number of early morning and late evening labs, a priority for both staff and students.
Life after retirement

When recently asked if he regrets retirement, Dr. Bill Clark said, “Sure there are days when I tell myself that I could still be doing this, but in many ways, I still am, just not with deadlines and committees!”

In his retirement, Clark can be found collaborating with former students, guest lecturing, and doing pro bono population analyses for the Iowa DNR and for the Institute for Wetland and Waterfowl Research of Ducks Unlimited Canada. One of his favorite activities is his annual commitment to a summer intern program, helping students learn the areas that they are working so hard to conserve.

Like Clark, Dr. Donald Farrar has continued to be active in teaching, research, and publication. Since retiring in 2006, he has authored or co-authored 14 papers in research journals, 2 book chapters, 6 floristic treatments in regional floras, and 2 books.

Farrar continues to participate in the Botanical Society of America and enjoys workshops and other field excursions with National Forest and National Park personnel in the US and Canada. It’s obvious that the emeritus faculty of EEOB prove there is life (a rich and active one) after retirement.

Connections key for first year students

The first year of graduate school can be both challenging and exciting. Graduate courses can be intense and rigorous, and many students find they have extra responsibilities such as teaching and research.

Current EEOB students feel that their first semesters were a great success because of the help they received from more advanced students. Nate Lawrence feels that both students and faculty have been welcoming and helpful as he learns how to balance classes with research. With organizations such as the Graduate Genetics Group (G3) and the weekly Friday coffee hour, students have many opportunities to make connections with each other and with faculty. These connections, according to Nick Lyon, not only make adjusting to life in Ames easier, but also can help students with issues like research design or other problems encountered in the lab.

This fall will provide an opportunity for these individuals who have received so much help to give back to the department by leading and mentoring EEOB’s newest additions.
Mahoney retires after 37 years

On June 1, 2017, friends, family, and colleagues gathered to thank Stephen Mahoney for his 37 years of service as he retired from his position as the greenhouse manager of the Pohl Conservatory, located in Bessey Hall.

Mahoney graduated from Iowa State University with his bachelor’s degree in horticulture. In October of 1980, he began full-time responsibilities for the greenhouse and has cared for the various plants ever since.

“I never imagined myself working full-time in the same greenhouse where I took my college classes, but it’s wonderful,” he said. “Seeing something grow and come to life really brings a smile to my face. It’s a sense of accomplishment.”

His position required much of him, far more than plant caretaker and pesticide applicator. Over the years, Mahoney served as plumber, electrician, and carpenter. It was not uncommon for him to respond to greenhouse needs during the early morning hours. He was also a central player in the greenhouse renovations.

Mahoney received the LAS Professional & Scientific Excellence award in 2015.

During the reception, Dr. Rob Wallace reminded the audience of the many roles Mahoney took on outside Bessey Hall. He has served as a volunteer firefighter, city councilman, and the mayor of Gilbert, Iowa. Wallace said, “Steve was a great resource for me, mostly about getting information and advice to allow this Jersey Boy to become a central Iowan fairly quickly.”

New greenhouse manager

Kenneth McCabe received his bachelors and masters degrees at ISU before taking a position with the Midwest Wine and Grape Industry Institute. But he has been waiting years for the position of Bessey greenhouse manager to become available. When Stephen Mahoney decided to retire, he knew he had to go for it.

When asked what attracted him to working in the Pohl Conservatory, McCabe said, “Not only to get back into research, but it’s the conservatory. It’s incredible. It’s the last one on campus. That’s what excites me the most.”
Groundbreaking evolutionary biology research

By Elizabeth Peterson

Research in Iowa State’s Department of Ecology, Evolution and Organismal Biology (EEOB) has been garnering a lot of attention — and support — from the National Science Foundation (NSF) this past year. In 2016, eight faculty received grants from the NSF to support their exciting research in evolutionary biology.

The funding, totaling more than $2.9 million, allows faculty to get down to the business of understanding how sex chromosomes evolve, how fig plants and fig wasps can diversify through pollination, how new mathematical models can better represent evolutionary patterns, and more.

“It speaks to the remarkable strength of our program,” said Jonathan Wendel, Distinguished Professor and Chair of the Department of EEOB.

Funding was awarded to seasoned researchers as well as newer faculty members who represent the future of Iowa State University.

“People in this department are asking very interesting questions from very different perspectives,” said Nicole Valenzuela, associate professor of EEOB who received one of the grants. “The very high rate of funding that we’ve had is a testament to the degree of high regard that our peers have for the research that we do.”

▲ Pictured are award recipients Fredric Janzen, Dean Adams, Nicole Valenzuela, Matthew Hufford, Jonathan Wendel, Tracy Heath, John Nason, and Anne Bronikowski. Photo credit: Will Stone.
Lavrov recognized for evolution and systematics research

The College of Liberal Arts and Sciences honored Dr. Dennis Lavrov with the Mid-Career Achievement in Research award. Lavrov joined EEOB in 2004. The award recognized his research program in the systematics and evolution of animals and their genomes.

Lavrov’s research has had broad impact on the knowledge of the origin of animal groups, and their evolutionary relationships. Much of Lavrov’s research focuses on non-bilaterian animals, including sponges, corals, and jellyfishes. Through his work, he has discovered new species, has identified novel DNA structures in animal mitochondria, and has surveyed the molecular diversity of understudied taxa.

Lavrov’s work pushes the boundaries of the knowledge of mitochondrial genome evolution. Indeed, his application of phylogenetic methods for understanding the evolution of mitochondrial genomes places him at the cutting edge of research in genomic evolution.

Crumpton named University Professor

In 2017, Iowa State University honored Dr. William Crumpton with the title of University Professor. This award recognizes faculty whose professional work has effected positive, significant, institutional change.

Under Crumpton’s leadership, the Water Resources Graduate Program became the Environmental Science Interdepartmental Graduate Program in 2005. The program now bridges eight diverse departments.

As chair of the undergraduate Environmental Studies major, Crumpton restructured the program. He expanded course offerings by developing collaborative relationships among the cooperating departments. The program is now home to 60 majors.

The Environmental Science undergraduate program was established in 1996, with Crumpton as chair. With a focus on science rather than policy, this major was the first of its kind at any Iowa institution. This program is now home to 210 majors.

One nomination letter stated, “It is not an exaggeration to say that without Bill Crumpton’s creation of the Environmental Science degrees (both undergraduate and graduate), ISU would not be the major university player in environmental education that it is today.”
Students recognized for teaching excellence

Four EEOB graduate students received the Graduate College Teaching Excellence awards. The EEOB students honored are Hannah Carroll, Monica Cox, David Loney, and Finn Piatscheck.

Hannah Carroll has been a teaching assistant and instructor of record for both Biology 486 and Environmental Science 202. She has also developed three more courses, EnSci 203, 204x, and 205x. When asked what she has learned in her teaching roles, Carroll said, “I’ve learned how important it is to let someone find their own way to an answer, rather than just feeding it to them.”

Monica Cox and David Loney have served as teaching assistants for Biology 211L. Linda Westgate, Biology Lab Coordinator, said that Cox is, “one of the most enthusiastic instructors” she’s worked with. Of Loney, she stated he “provided interesting connections to the topics of study above and beyond what was asked of him.”

Finn Piatscheck has taught introductory biology labs and also served as a teaching assistant for Biology 366. Arriving from France, Piatscheck struggled to meet English-speaking requirements. But with the help of university resources and Biology staff, Piatscheck was able to improve his English-speaking skills. In the spring of 2017, Dr. Lynn Clark requested that he teach Biology 366 while she was away for sabbatical.

Each student expressed gratitude for the support of the lab coordinators. Cox said, “I love teaching and to have a department and a support system in the labs that wants to encourage you to be a better TA, I took hold of that. It shows that it works.”
David Hufnagel is an EEOB PhD student studying plant genomics in the Bioinformatics and Computational Biology (BCB) program. He is working in Dr. Matthew Hufford’s lab. David got his BS in Genomics and Molecular Genetics at Michigan State University. Before joining ISU, he worked with Dr. Shinhan Shiu for a year and a half, where his research was completely computational, involving learning about UNIX, R, Python and more. “I really fell in love with the work, and that is why I decided to pursue a PhD in computational biology,” says David.

The research done in the lab is focused on many topics including the evolution of highland adaptation in maize and teosinte, hybridization and its effects on the evolution of the genus Zea, maize genomics, local adaptation of maize landraces, centromeric drive in the family Poaceae, and the domestication of maize. David’s work in the lab is “100% computational”. Bioinformatics and computational research provides a different kind of adventure in the lab, without chemicals, biological specimens, or conducting experiments at the lab bench.

David is one of the many students in EEOB who work entirely in the computational world. “I spend my time programming in Python and R, running calculations and making figures based on available data, and working in the UNIX terminal to organize my files, consolidating information and converting outputs to inputs to allow separate programs to work together in a pipeline” explains David. Iowa State University offers various computational resources to conduct bioinformatics research. David uses different high-performance computing clusters, like Iowa State’s Condo cluster, for analyses which require more computational power than what his laptop can provide.

These days David still does computational analyses but devotes a large amount of time for writing about his research, and explains, “knowledge is what scientists are driven to pursue, but knowledge is not worth much if it is never shared.”

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David Hufnagel in the Hufford Lab. Photo credit: Jacki Hayes
Dr. Ali Berens earned her PhD in Bioinformatics and Computational Biology in 2015. She worked in Dr. Amy Toth’s laboratory where she investigated genetic mechanisms underpinning caste development across three major social insect lineages (bees, ants, wasps) using comparative transcriptomics.

After ISU, she moved to a research position at Georgia Tech. Her work focused on identifying global populations with risk of prostate cancer and classifying regions of the human genome based on contributions to prostate cancer health disparities. She also assessed the health of ancient hominids based on estimated genetic risk at known disease-associated regions of the genome. In April 2017, she joined Monsanto as a Data Scientist in the Genomic and Data Science group along with other EEOB alumni: Lex Flagel and Ryan Williams.

After graduating with her PhD from EEOB, Dr. Jennifer Deitloff studied amphibian and reptile evolutionary ecology at Auburn University for three years as a postdoctoral scholar and assistant curator. During this time she served as a part-time Adjunct Faculty at Grand View University and Iowa State University. She also spent two years as a postdoctoral scholar working in Iowa State University’s Entomology department.

In Fall 2014, Dr. Deitloff started in her current faculty position at Lock Haven University, in Pennsylvania, teaching several biology courses including Comparative Vertebrate Anatomy and Herpetology. For graduate students preparing for academic careers, she wants to say “be prepared to keep working your butt off throughout your career, continue persisting”.

Where are they now?
Make a difference

The Department of Ecology, Evolution, and Organismal Biology at Iowa State University is committed to providing outstanding opportunities for the university community. In order to have the resources necessary to take these programs into the future, support for the department is essential. Funding is required to aid the program in developing new opportunities in technology, continuing and advancing outreach activities, maintaining and expanding current performance and educational opportunities, and supporting students and faculty. To help make a difference, simply fill out the form, drop it in the mail (ISU Foundation, 2505 university Blvd, Ames, IA 50010-8644), and check your next newsletter.

For more information about making a gift to EEOB or including ISU in your estate plans, please contact the College of Liberal Art and Sciences Development Office at 515-294-3607 or the College of Agriculture and Life Science Development Office at 515-294-9328.

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