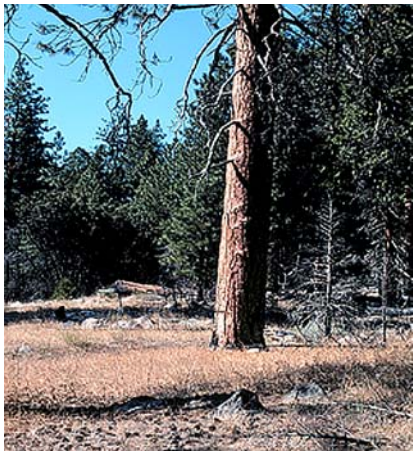

ANNOUNCEMENTS

Notices

Earthwatch Grants Available for 2004

The Research Program at Earthwatch invites proposals for field grants in 2004 for projects of high scientific merit that address critical environmental and social issues at local to international levels. Earthwatch is an international nonprofit organization dedicated to sponsoring field research and promoting public education in the sciences and humanities. Earthwatch has pioneered a unique method of supporting field-based science through "participant funding." Earthwatch recruits non-specialist volunteers from the general public to collectively share the costs of a research project and to join Earthwatch-supported scientists as field assistants. Earthwatch is one of the few significant sources of long-term funding for field-based research: 25% of the projects have been supported more than 5 years; 10% have been supported more than 10 years.

Past projects have been successfully fielded in, but are not limited to, the following disciplines: animal behavior, biodiversity, ecology, ornithology, endangered species, entomology, botany, and resource and wildlife management. Interdisciplinary projects and multinational collaboration are especially encouraged.

Earthwatch primarily supports post-doctoral or equivalent researchers, including Principal Investigators with commensurate life experience. We welcome proposals from advanced scholars and professionals of any nationality, covering any geographic region. Each year, the Research Program receives roughly 400 proposals and supports more than 250 scientists involved in 140+ projects spanning the biological, physical, cultural, and social sciences. Proposals are accepted and reviewed year-round, but should be submitted about one year in advance of fieldwork.

More information can be found at <http://www.earthwatch.org/research/> or e-mail <research@earthwatch.org>.

Society for the Study of Amphibians and Reptiles: Benefit Auction

SSAR is pleased to announce that the family of the late Robert E. Gordon (1925–1996), the Society's president in 1971, has recently donated his collection of books and stamps to SSAR. Gordon's library covers a wide variety of topics including ecology, evolution, herpetology, ichthyology, mammalogy, and ornithology. The society intends to auction the individual items beginning in April, with the proceeds being used to set up the Robert E. Gordon Endowment for the support of book-length publications. Gordon spent most of his distinguished career at the University of Notre Dame, where he was professor of biology and eventually vice president. He was a leading specialist on salamander behavior and ecology; he also published on his extensive philatelic interests. A full obituary was published in *Herpetological Review* 27(3):109–110 (1996).

If you wish to be notified about the auction, contact Breck Bartholomew, SSAR Publications Secretary (e-mail: <ssar@herplit.com>, phone/fax: (801) 453-0489). The full collection (about one-third herpetological) includes 59 boxes of books and stamps occupying 77 cubic feet and weighing over 2600 pounds. A complete list of books and minimum bids per lot is now posted online. The book auction will be held online at <http://www.BiblioBid.com> beginning on 13 April 2003, and the stamp auction will be about mid-April.

ESA's 88th Annual Meeting

The ESA and International Society for Ecological Modeling (ISEM) will meet jointly on Sunday, 3 August through Friday, 8 August 2003 in Savannah, Georgia for symposia, papers, posters, workshops, discussions, evening events, field trips, socials, and business meetings. The location and theme, "*Uplands to Lowlands,*" provide an excellent opportunity to appreciate coastal ecosystems and their vulnerability to climate variability and land use in the uplands. Participants from around the world are welcome, and will include practitioners, managers, regulators, academic scientists, agency researchers, educators, and members of the public.

Registration and housing reservations will begin in May at <http://www.esa.org/savannah/>. The Early Bird deadline is 19 June 2003, 5 pm EDT: regular ESA/ISEM member, $225; student ESA/ISEM member, $115; regular nonmember, $310; student nonmember, $145; K–12 educator, $145.

For Presenters: Instructions, Fees, and Notification

To discourage withdrawals and no-shows at the Annual Meeting, every abstract for an oral paper, poster, or symposium must be accompanied by a $50 submission fee, which will be credited to your meeting registration. If you do not attend, but arrange for a substitute presenter, the latter **will not** be entitled to the credit. If you submitted your abstract by the 1 March deadline but have not paid the fee, contact Tricia Crocker at <tricia@esa.org>. Submitting an abstract does not automatically register you for the Annual Meeting. You must register to present a paper, poster, or symposium talk.

The submission fee will be refunded for abstracts canceled by 30 April 2003. Cancellations after 30 April 2003 will not receive a refund. If your submission fee has been received and processed by the deadline, the Meeting Program Chair will notify you whether your abstract has been accepted, rejected, or requires revision. If your fee has not been received or fails to clear the bank, ESA headquarters will notify you by e-mail or telephone before 15 April 2003 so that you can make alternative arrangements for payment. It is vital that you use the identical spelling and order of your name, institution, address, and e-mail address for both the abstract submission and meeting registration.

For more Annual Meeting information, consult the ESA web site <http://www.esa.org/savannah/> or contact the Program Chair: Dr. Thomas W. Swetnam, Laboratory of Tree-Ring Research, University of Arizona, Tucson, AZ 85721; phone (520) 621-2112; fax (520) 621-8229; e-mail: <tswetnam@lter.arizona.edu> or <esa@lter.arizona.edu>.

Highlights of the 2003 ESA Annual Meeting

Field trips: 2–3 August and post-meeting to Sapelo and Ossabaw Islands, Jones Ecological Center, Altamaha River Biosphere, and Okeefenokee Swamp.

Scientific sessions: Sunday 3 August to Friday 8 August, with 24 Symposia, 104 Contributed Paper Sessions, Workshops, Discussions, Evening Sessions, Poster Pubs

Socials: "Low Country Boil," historic Orleans Square, mixers, Tybee Island Crab Shack dinner

Public Plenary and MacArthur Lecture

90 exhibits and displays

ESA's SEEDS Program

The SEEDS (Strategies for Education in Ecology, Development, and Sustainability) Program of the ESA works to increase the number of underrepresented minorities in the field of ecology by promoting opportunities for minority students and their faculty. Started in 1996, SEEDS has been an effective model for stimulating interest in pursuing ecology, providing professional development to aid science faculty in creating new offerings, and taking new steps to increase cultural diversity within the ESA. SEEDS-sponsored opportunities include Student Field Trips, ESA Annual Meeting Travel Awards, Student Undergraduate Research Fellowships, and Campus Ecology Chapters. ESA also collaborates with the United Negro College Fund (UNCF) to award Program Activity Grants to five UNCF member schools to promote curriculum and faculty development, and student recruitment.

The SEEDS Program is excited to welcome 18 new SEEDS Campus Ecology Chapters: Alabama A&M University, Alcorn State University, Bethune-Cookman College, College of Menominee Nation, Florida A&M University, Florida Memorial College, Fond du Lac Tribal and Community College, Fort Berthold Community College, Hampton University, Haskell Indian Nations University, Little Big Horn College, Livingstone College, North Carolina A&T State University, Northwest Indian College, Paine College, Rust College, Salish Kootenai College, and Sitting Bull College.

Chapters receive a grant each semester to conduct ecological activities in education, outreach, recruitment, and career development. The Chapters have proposed a wealth of activities including field trips, hosting guest speakers, sending students to professional meetings, field research, and community service projects. Each Chapter in good standing is also eligible to apply for additional money to fund special projects and faculty development.

Visit <http://www.esa.org/seeds> or e-mail <seeds@esa.org> for information.

Spatial Survey Methods Workshops

The Centre for Research into Ecological and Environmental Modelling (CREEM), St. Andrews, Scotland, is hosting Introductory and Advanced Distance workshops, 10–17 September 2003, taught by leading researchers in the field. The aim is to train participants in the latest methods for design and analysis of distance sampling surveys. Participants will learn to use Distance 4.0 software. The number of participants is limited. The cost is £485 Sterling for one workshop (£375 for registered students) or £830 for both (£625 for students). Scholarships are not available. For further information and forms, see <http://www.ruwpa.st-and.ac.uk/workshop2002/workshoppage.php> or contact:

Catherine Brown, CREEM
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Workshop 1: Introduction to Distance Sampling, 10–12 September 2003

An introductory workshop, focusing on standard distance sampling methods, including line and point transects. The workshop will blend theory and practice, and participants will learn how to use version 4.0 of the program Distance. They will gain a solid grounding in both survey design and methods of analysis for distance sampling surveys.

Workshop 2: Advanced Techniques and Recent Developments in Distance Sampling, 15–17 September 2003

A workshop designed for those who are already familiar with the basics. We will teach advanced material such as automated survey design, adaptive sampling, incorporating covariates into the detection function, methods for cases in which $g(0)<1$, and spatial modeling of density. Participants will learn the more advanced features of Distance version 4.0.

For both workshops, participants are encouraged to bring their own data sets, and can expect to do some preliminary analyses of their own data.

Distance (Thomas et al. 2002) is a Windows-based computer package for the design and analysis of distance sampling surveys of wildlife populations. Distance 4.0 and older versions may be downloaded at no cost <http://www.ruwpa.st-and.ac.uk/distance/>. Concepts and methods used by Distance are described by Buckland et al. (2001), an essential companion to the software.

Literature cited

Buckland, S. T., D. R. Anderson, K. P. Burnham, J. L. Laake, D. L. Borchers, and L. Thomas. 2001. Introduction to distance sampling: estimating abundance of biological populations. Oxford University Press, Oxford, UK.

Thomas, L., J. L. Laake, S. Strindberg, F. F. C. Marques, S. T. Buckland, D. L. Borchers, D. R. Anderson, K. P. Burnham, S. L. Hedley, and J. H. Pollard. 2002. Distance 4.0. Release "x"1. Research Unit for Wildlife Population Assessment, University of St. Andrews, UK. [Online, URL: <http://www.ruwpa.st-and.ac.uk/distance/>.]

Frontiers In Polar Biology In The Genomic Era

As we enter the 21st century, the polar biological sciences stand well poised to address numerous important issues, many of which were unrecognized as little as 10 years ago. At the same time, the era of "genome-enabled" biology is upon us. Genomic approaches, in concert with other existing technologies, allow us to examine polar biological questions of unprecedented scope and to do so with extraordinary depth and precision. The National Research Council report, *Frontiers in Polar Biology in the Genomic Era*, identifies polar ecosystems biology and human impact of polar ecosystems as two of the four main areas (the other two areas are evolution and polar physiology and biochemistry) that could benefit from genomic sciences.

The report also assesses impediments to the conduct of polar genomic research and emphasizes the importance of ancillary technologies to the successful application of genomic technologies to polar studies. The development of a new initiative in polar genome sciences that emphasizes collaborative multidisciplinary research is recommended to facilitate genome analyses of polar organisms and coordinate research efforts.

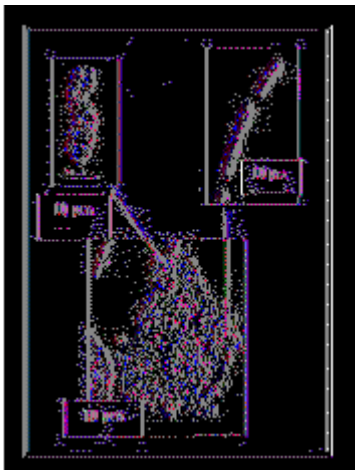


Fig. 1. Bacteria living on a sediment particle, seen with a confocal laser microscope, reveal information about how microbes aggregate. In this image, blue is cyanobacteria, red is light emitted by chlorophyll, and gray is sediment particles.

Examples of research that can benefit from genomic technologies

Polar ecosystems and global warming

Climate modeling and direct experimental measurement indicate that environmental change, including warming, will be most extreme in the polar regions.

New genetic and genomic technologies, such as transcriptional profiling using microarrays and protein turnover studies via two-dimensional electrophoresis and mass spectrometry, can be leveraged to understand the impact of such change on individual species and on community structure.

Microbial community ecology

Polar microbial consortiums, that is, virus–bacteria–cyanobacteria (see Fig. 1), have been described within the permanent ice covers of the McMurdo Dry Valley lakes. Organisms within these consortiums are thought to operate in a syntrophic relationship, in which the presence of one type enhances the activity of another. Close spatial and temporal coupling of metabolite exchange among producers and consumers of organic matter within the ice appears to be the enabling factor that allows microorganisms to coexist in what appears to be an otherwise inhospitable environment (Fig. 2). Genomic and proteomic analysis of these communities would reveal the organisms involved and would provide important information on the related processes that control their composition and productivity.

Polar regions as extraterrestrial analogues

The cryptoendolithic and lake-dwelling organisms of the McMurdo Dry Valleys have long been recognized as potential analogues of life (if any) on Mars, just as permafrost formations in the Arctic provide useful frozen habitat analogues. Similarly, the long-isolated (~20 million years), microbial communities of Lake Vostok in Antarctica and the severely chilled microorganisms in winter Arctic sea ice might serve as models for evaluating the potential for life on Europa. Genome analyses of these organisms will provide us with an understanding of their origins and of genetic traits that might be expected in extraterrestrial life.

Assessment and remediation of human impact on polar ecosystems

Human impacts are widespread in polar ecosystems, ranging from direct impacts of activities such as fishing and harvesting of marine ecosystems to indirect consequences of atmospheric modifications by greenhouse gases and ozone-destroying chemicals.

Human-manufactured chemicals have been destroying the ozone layer, which serves as a filter for UV-B light. As a result of the thinning ozone layer, terrestrial and marine organisms of the photosphere experience levels of ultraviolet radiation that are much higher than those present during the evolution of these species. What are the impacts of this exposure on organismal fitness and community structure? Microarrays, proteomics, and metabolomics can yield quantitative indicators of ecological impact.

The warming of the oceans as a result of increased greenhouse emissions is threatening salmon populations. According to some predictions, if present warming trends continue throughout the century, sockeye salmon could be excluded from the Pacific Ocean. The economic and cultural consequences of this change would be severe. Genetic tools could test whether all salmon populations are similarly threatened by warming.

The Polar Genome Science Initiative

Effective strategies for exploring polar ecosystems using approaches based on genetic science and other

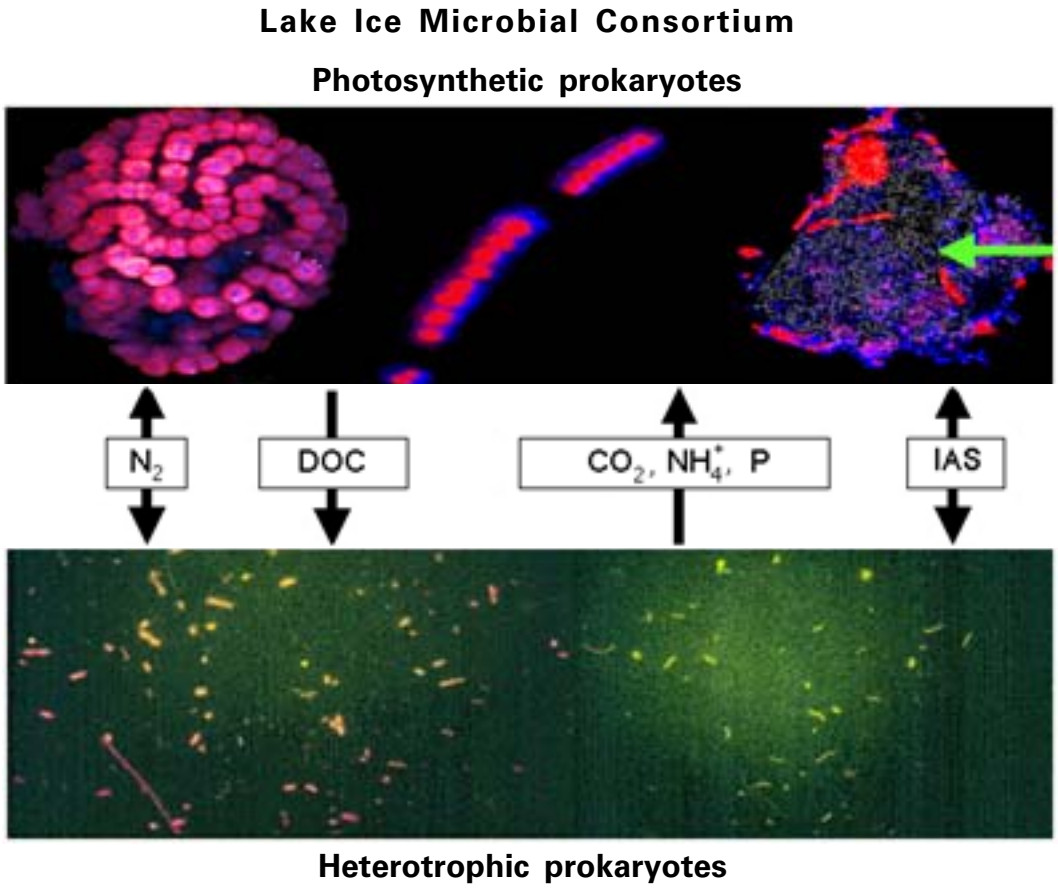


Fig. 2. Photosynthetic microorganisms thrive in the permanent ice covers of Antarctic lakes by forming "microbial consortiums," which are close groupings of organisms that mutually exchange nutrients and other substances needed for survival. In the upper panel, the green arrow on the right indicates the close spatial arrangement on the lithic surface.

technologies can rapidly advance our understanding of all aspects of polar biology. The establishment of a Polar Genome Science Initiative will help to coordinate efforts to better understand why polar species are different, what genetic mechanisms allow them to survive extremes in temperature, and how Arctic and Antarctic species compare with each other and with relatives in temperate environments.

Monitoring physiological and biochemical processes in ecosystems is the key to linking data generated by the Initiative to understanding and predicting species' response to abrupt environmental change. The advancement and success of future polar genetics research depends not only on the new technologies available and the expertise of individual researchers, but also on the quality and availability of equipment, infrastructure, and facilities that will enable researchers to do their work. Improved procedures for collecting and shipping specimens are required, as are improved facilities in key locations. Also important is the establishment of a "freezer farm" to serve as a repository for frozen samples.

The National Research Council Committee on Frontiers in Polar Biology made the following recommendations to the National Science Foundation (NSF) for exploring polar ecosystems:

• Develop a major new initiative in polar genomic sciences, emphasizing collaborative multidisciplinary research.

• Capitalize on data from existing Long-Term Ecological Research sites and Microbial Observatory sites in developing this polar initiative to take advantage of the data sets and geographical distribution of these sites. Ideally, ensure that research can be conducted at sites with comparable conditions at both poles.

• Form a Scientific Standing Committee to establish priorities and coordinate large-scale efforts for genome-enabled polar science. The need for research coordination involves increased communication among both polar scientists and nonpolar scientists who might lend support, particularly in high-tech areas.

• Support some mechanism such as a virtual genome science center to facilitate gene sequencing and related activities beyond the budget of any individual principal investigator. New infrastructure is not needed—rather some type of coordinating body.

• Develop ancillary technologies such as observatories, ice drilling, remote sensing, mooring and autonomous sensors, and isotope approaches to support the application of genetic technologies to polar studies.

• Improve biological laboratories and research vessels in the polar regions and provide year-round access to field sites.

Integration of research activities

The integration of research activities and the synthesis of knowledge on the genomes, physiologies, and biochemistries of polar species and the biogeochemical and physical character-

istics of polar ecosystems are important challenges that must be addressed if polar biology is to realize its full potential. Every effort, therefore, must be made to encourage collaborative research as well as conferences and workshops to unite the scientific community both within the United States and internationally. The Committee recommends the following actions:

• Remove impediments to cross-directorate funding. Because integrated polar science requires interagency cooperation, NSF should lead by example, forming partnerships with NASA and others as relevant.

• Establish international research partnerships and facilitate collaborative efforts.

• Survey researchers and research groups who would potentially work at both poles to identify impediments to bi-polar studies, and take steps to address them.

Education and outreach

Finally, an effort should be made to increase the flow of knowledge about polar biology to a broader audience because polar ecosystems play an important role in global-scale phenomena. The key mechanism for reaching nonscientists is the mass media. Education and outreach should especially target the indigenous communities that are part of the arctic ecosystem. This local effort should be two-way, with scientists communicating what science is being conducted and why, while also inviting the contributions and learning experiences of local residents.

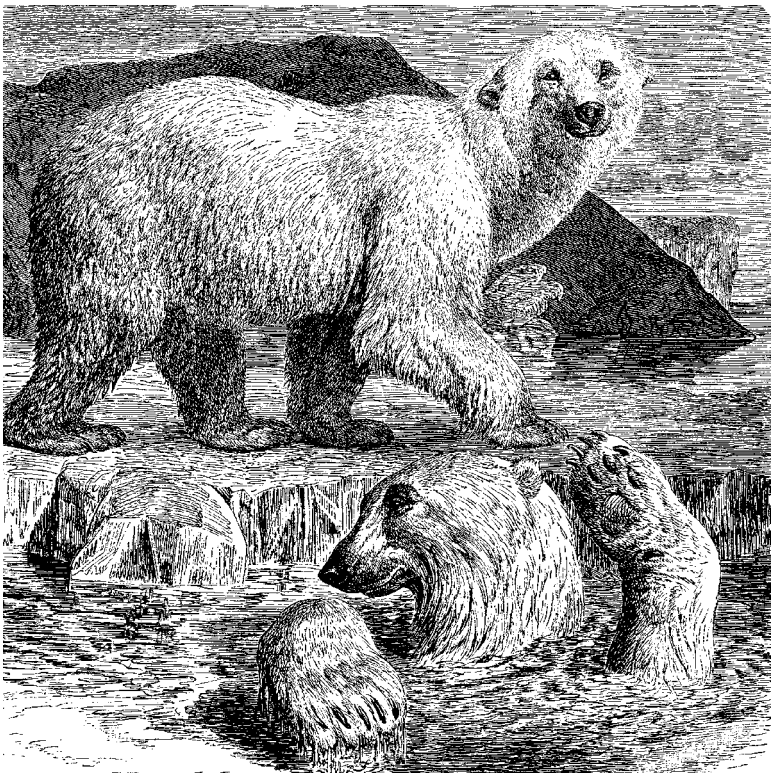
The Committee recommends that the NSF develop short- and long-term plans for increasing public awareness of polar biology. Plans should include the incorporation of polar biology in K–12 curricula, undergraduate, and graduate studies. At the postdoctoral level, fellowships could encourage young scientists to engage in this field of research.

For more information, please contact Evonne Tang, of the National Academies' Committee on Frontiers in Polar Biology, at (202) 334-3648; <ETang@nas.edu>. *Frontiers in Polar Biology in the Genomic Era* is available from the National Academies Press, 2102 Constitution Avenue, N.W., Washington, DC 20055; phone (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area); <http:///www.nap.edu>.

Committee on Frontiers in Polar Biology

Members of this Committee are: H. William Detrich, III (Chair), Northeastern University; Jody W. Deming, University of Washington; Claire Fraser, The Institute for Genomic Research; James T. Hollibaugh, University of Georgia; William W. Mohn, University of British Columbia; John C. Priscu, Montana State University; George N. Somero, Stanford University; Michael F. Thomashow, Michigan State University; Diana H. Wall, Colorado State University; Evonne Tang (Study Director), Committee on Frontiers in Polar Biology.

This report is sponsored by the Office of Polar Programs and the Directorate for Biological Sciences at the National Science Foundation.



Ann Bartuska, President of the Ecological Society of America, 2002–2003

Dr. Ann M. Bartuska is Executive Director of the Invasive Species Initiative within The Nature Conservancy. She came to that position in September 2001 from the Forest Service, where she was Director of the Forest and Rangelands staff in Washington, D.C. She is an ecosystem ecologist with degrees from Wilkes College (B.S.), Ohio University (M.S.), and West Virginia University (Ph.D). Her past research has focused on ecosystems processes in landscapes disturbed by coal mining. From 1982 to 1989 she managed research, development, and assessment programs associated with the effects of acid rain and air pollution under the National Acid Precipitation Assessment Program. She did this first at North Carolina State University and then as an employee of the USDA Forest Service.

In 1989, Dr. Bartuska was named Assistant Station Director for Continuing Research at the Southeastern Forest Experiment Station, where she was responsible for research in Georgia and Florida. She relocated to the U.S. Forest Service's Washington Office–Forest Environment Research staff in 1991 as Wetlands Specialist, with specific responsibilities to develop a National Wetlands Research Program. She became the first Director of Ecosystem Management when that staff was created in 1992. Dr. Bartuska spent 1993 as Forest Service Liaison to the National Biological Survey of the U.S. Department of Interior. She then returned to the Forest Service as Director of Forest Health Protection in October 1994. In January 1999, she became the first woman and first ecologist to be named Director of Forest Management. In 2000, she also became responsible for the Range Management program and began integrating forest and rangelands into an all-vegetation focus. She is active in the Ecological Society of America, having served as Vice President for Public Affairs from 1996 to 1999. She also is a member of the Society of American Foresters. Ann's husband, Dr. Mark R. Walbridge, is Chair of the Department of Biology, West Virginia University, and her daughter, Jessica, is pursuing her MBA at Wharton School of Business.

Resolution of Respect

Francis C. Evans

1914–2002

Francis Evans, Professor Emeritus at the University of Michigan, died on 16 August 2002 in Ann Arbor, Michigan, following a short illness. Francis belonged to the generation of ecologists whose lives and careers spanned the transformation of their discipline from early, pioneering efforts to its present expansive scope. In joining in the transformation, Fran made his contributions in a characteristically unassuming fashion. As a member of the ESA, he took special interest in helping others to publish their work and ideas. He served as sole zoological editor for *Ecological Monographs* from 1955 to 1961, and as Chair of the Publications Committee from 1978 to 1981. Forty years after he himself first published with the Society, he served as its President in 1983–1984. He enjoyed these opportunities to contribute, and greatly appreciated the honor of receiving the Distinguished Service Award from the Society in 1987.

Fran Evans' interests in ecology began early. He was born and raised a Quaker in Philadelphia. The Quaker community took much interest and pleasure in nature and natural history. Fran spent summers and school vacations away from the city, exploring forests, fields, and seashores up and down the East Coast. Even in Philadelphia he had good opportunities for natural history outings, as his family lived close to, and later in, Awbury Arboretum. There he birded from an early age with friends and cousins. At 10, he joined the "Bug Club" organized for children by Philadelphian Margaret Cary, and he spent his youth thereafter collecting and studying insects, especially butterflies and moths. His enthusiasm for Lepidoptera matured in later years into a variety of studies and publications on insect ecology.

Following well-worn family footsteps, Fran attended Germantown Friends School and Haverford College. At Haverford, he was encouraged to apply for a Rhodes Scholarship for graduate study at Oxford. He had read with great interest and excitement the slim volume of fresh ideas on animal ecology and "scientific natural history" published a few years earlier by the young Charles Elton. He was awarded the scholarship, and he sailed for England in the summer of 1936 to join Elton and his recently formed Bureau of Animal Population at Oxford.

Fran's three years at Oxford with Elton and his group set the research interests for his career. With his mentor's thoughtful and scholarly guidance, he pursued a thesis on the topic of habitat selection of small mammals at Bagley Wood. The Bursar of St. John Baptist College issued a pass, with a copy sent to the Head Woodman, declaring that "Mr. F. C. Evans, Oriel College, and two assistants have permission to catch mice in Bagley Wood, during the period October 13th 1937 until September, 1938, *during the hours of daylight.*" Thus, although many of the mysteries of ecology after dark would have to remain beyond the pale, the young researchers were nonetheless enabled to get on with the business of catching mice. Fran also made two field expeditions under the auspices of the Oxford University Exploratory Club to the then-remote Faeroe Islands (in 1937, with H. G. Vevers) and to Iceland (in 1939). These expeditions resulted in reports in the *Journal of Animal Ecology*, Fran's first scientific publications, on the biology of the Faeroe mouse and breeding gannets.

With war approaching, Fran defended his D.Phil. in 1939 and returned home to become a Claypole Memorial Fellow at the University of California at Berkeley. There he worked as a Research Assistant with the epidemiologist Karl Meyer at the University's Hooper Foundation for Medical Research in San Francisco. Developing further his interests in

animal population dynamics, he engaged in fieldwork throughout California and the Pacific Northwest to assess the relationships of vertebrates, ectoparasites, and disease. The work focused on the role of ground squirrels, Burrowing Owls, and fleas in the maintenance and transmission of plague. In 1942, he moved to the University of California–Davis and worked as an Assistant Zoologist with Tracy I. Storer at the Agricultural Experiment Station. Together with F. G. Palmer, they published in *Ecological Monographs* an account of rodent populations of the Sierra Nevada.

Fran married Rachel W. Brooks in June 1942, and they spent at UC–Davis the first of 60 years together. When the University of California closed the Davis campus in 1943 and turned it over to the U.S. Army Signal Corps, Fran and Rachel returned to Haverford. There Fran served as an instructor in biology, especially to train medical personnel for the war. He also continued his studies of parasitic insects, collecting data on the human louse. He later published these data with colleague Fred Smith in the *American Naturalist* (1952) in an early analysis of a population's intrinsic rate of natural increase. To maintain proper temperature while gathering data, he incubated his study subjects by placing them in a packet that he strapped to his armpit. He always chuckled in remembering the shock and considerable consternation that this caused friends who had less natural inclination for biology.

In 1948, Fran joined Lee R. Dice at the University of Michigan in Ann Arbor as an Assistant Biologist in the Laboratory of Vertebrate Biology directed by Dice, and as Assistant Professor of Zoology. Dice was another mentor with much influence, and his intellectual independence and originality, sound common sense, and quiet, steadying manner deeply impressed Fran. When Dice retired in 1957, Fran succeeded him as Director of the laboratory. He remained at Michigan for the rest of his career, becoming Professor in 1959 and Professor Emeritus in 1982.

One special duty particularly engaged Fran at Michigan. From 1959 to 1982, he served as Associate Director and oversaw the operation of the E. S. George Reserve, a protected tract of fields, ponds, and forests near Ann Arbor. Donated to the university, the Reserve was dedicated to ecological research. It has served as the site of many outstanding research projects by generations of Michigan ecologists. These include Fran's own graduate students, in whom he took great personal interest and of whom he was very justly proud.

Inspired by Elton's comprehensive research program in community ecology at Wytham Woods, Fran initiated diverse studies of an old-field community at the George Reserve when he arrived at the University of Michigan in 1948. He continued to collect data at the old field well into his retirement. Fran's goal, over the years, was no less lofty than to understand the key patterns and processes that underlie the dynamics of natural communities and succession. He recognized well the great scope of the challenge, and took much pleasure in collaborating with others in the attempt. Over the years, Fran worked especially closely and published with S. A. Cain, E. Dahl, and R. G. Wiegert on vegetation and primary production of the old field, with P. J. Clark and R. H. Brand on statistical analyses of spatial patterns and species richness, with W. R. Dawson on bird populations (the two were awarded the Harry R. Painton Award from the Cooper Ornithological Society in 1963 for their collaborative research), and with U. N. Lanham, D. F. Owen, S. K. Gangwere, and W. W. Murdoch on insect communities. Fran's old-field studies also spurred essays, as in his promotion of the concept of the ecosystem (in *Science*, 1956). He devoted his final years of fieldwork, in particular, to the study of bee–flower interactions in the old field. Although Fran published only a brief account of his bee work before age overtook him, he left behind meticulously documented records for others <http://insects.ummz.lsa.umich.edu/fauna/esgrbees.html>.

Francis Evans felt keenly that he led a privileged life as a research ecologist and a university professor, and took great satisfaction in helping students and colleagues. He felt lucky to have come of age in ecology when the field was young, with high sense of collegiality in a shared grand adventure. He admired others for their varied and special talents in enlarging the more mathematical and theoretical realms of ecology. He himself always remained true to his conviction that the richest rewards in ecology lay first and foremost, as Elton had said, in scientific natural history. His greatest professional pleasures came in observing organisms in their natural settings and in sharing in the endeavor with others to place such observations in broad ecological context.

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