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AIBS News: Presidents' Summit details

The first-ever AIBS Presidents' Summit took place 11-14 Novem ber 1999 at the Airlie Conference Center, in Warrenton, Virginia. Presidents and other leaders from almost all of AIBS's member societies and organizations (now numbering 69) attended the historic 4-day event. The Summit's goal was to facilitate discussions and resolutions on common topics affecting all areas of organismal and integrative biology and on ways to interact effectively with other areas of biology, science, and society at large.

The Summit, which was funded by AIBS, the David and Lucile Packard Foundation, and several AIBS member societies, focused on public policy, education, and research. Each topic was the subject of a half day of plenary discussions, an interactive resource panel discussion, intensive breakout groups, and a full group synthesis session. Professional facilitators from Resolve, Inc., an environmental mediation firm, helped focus the meeting on the group's shared priorities.

In the opening keynote address (see page 199), National Science Foundation Director Rita Colwell spoke about NSF's biocomplexity initiative, which emphasizes the interrelatedness of scientific elements across all disciplines and all sciences, from the subatomic to the astronomical. This multidisciplinary concept came to symbolize the meeting's purpose.

The Summit officially got underway with an address by Gregory J. Anderson, 1999 AIBS president, who ex pressed his hope that this Summit will be the historic occasion that marks the turning point in the history of our collective action as biologists. Anderson noted that we cannot wait for someone else to organize us; we have to find that common ground and do it ourselves, or we will lose a lot of opportunities for the future. He encouraged the Summit participants to use the meeting to identify common ground to make us more effective to promote the things we believe in in our societies.

Thomas Lovejoy, an AIBS past president, Counselor to the Secretary for Biodiversity and Environmental Affairs for the Smithsonian Institution, and Chief Biodiversity Advisor for the World Bank, told the group that it is timeóindeed, that time is overdueóto get it together as a profession and as society as a whole. The way to accomplish that, he said, is to establish one major science goal that is carried out by lots of individual scientists contributing to the overall exercise, a sentiment that was echoed repeatedly by participants during the remainder of the meeting. We have to move away from not thinking big enough and look forward to the millennium of biology, Lovejoy said. It is already historic that we are meeting here. The issue is whether it is going to be significant.

Public policy was the first formal agenda item for the Summit. The provocative, spirited discussion set the stage for the interactive approach that was to characterize the rest of the meeting. In his plenary address, Martin Apple, president of the Council of Scientific Society Presidents, advocated the biology community's creation of top priority research mega-projects, reiterating Lovejoy's concept of establishing major science goals with many contributed pieces. Apple urged the attendees to remember what he called the biologists' challenge for the twenty-first century each

time they looked at an American coin with the phrase e pluribus unum stamped on the back. Your most important goal in this meeting is to develop synergy, he said. In these times of rising anti-intellectualism and impending threats to science support, the AIBS community, like all scientific communities, must hang together, lest it hang separately.

The subsequent brainstorming exercise by four breakout groups resulted in ideas such as societies' working together to create a system for providing scientific expertise to legislators and regulators, to develop a working-with-Congress training program for the scientific community, and to track public pe rceptions to science policy issues and respond to such feedback. A number of participants expressed interest in exploring how their groups could help to expand the AIBS Public Policy Office in Washington and thereby create a stronger and more fully staffed resource for the use of all AIBS members. The participants suggested specific issues on which they believed AIBS member societies might reach consensus and thus be able to address with a unified voice. These issues included communicating the importance of understanding and preserving biodiversity, safeguarding biological collections and import permits, defending the teaching of evolution and broader aspects of science education, counteracting climate change, and balancing economic forces with ecological sustainability.

The breakout groups also produced some questions about implementing the program ideas they had sketched out. These were addressed by a resource panel of public policy experts. Sidney Golub, executive director of the Federation of American Societies for Experimental Biology, and David Kaufman, FASEB president, explained that, like the member organizations of AIBS, FASEB's 19 member societies function independently of the umbrella group and have their own individual priorities. The FASEB structure differs from the AIBS structure, however, in that the FASEB societies authorize the organization to function on their behalf in particular capacities, especially public policy. Delegates of the FASEB member societies come together in Consensus Conferences to work out terms of agreement on specific issues that the FASEB membership has identified and wants to act on collectively. Golub said that this format allows the participants to proactively define the issues and use those definitions as part of their subsequent public policy actions, thereby allowing the organization to do more than simply react to outside issues.

AIBS Public Policy Representative Ellen Paul and Committee for the National Institute for the Environment Senior Scientist David Blockstein noted the importance of tracking regulatory issues within federal agencies and responding during official comment periods. They said that such issues can be even more important than legislative issues when it comes to practicing science because regulations are the implementation of previous legislation. David Applegate, Director of Government Affairs at the American Geological Institute, added that an effective means to address both regulatory and legislative issues is by reaching out to regional chapters and involving members in local issues.

In many ways, the public policy issue is tied to research funding, which was the next item on the Summit agenda. The Summit participants used the structure of the breakout groups to discuss specific ideas on how to illustrate and articulate the importance of federal support for basic research. The idea garnering the greatest support was using specific examples to showcase the value of fundamental research in biology as a way to counteract what one attendee referred to as the medicine versus everything else problem. Another idea was to create an electronic portal (a

Web site or shared database) to guide scientists to funding opportunities, agencies and institutions offering grants, and information on successful grant-writing strategies. Summit participants also suggested forming a coalition with groups representing other hard sciences as well as social sciences to maximize the NSF biocomplexity opportunity and to rise to the Lovejoy/Apple challenge of coordinating a big ticket project.

Panelists from NSF, the US Department of Agriculture, the US Geological Survey, and philanthropic foundations provided attendees with information about funding opportunities and priorities in the public and private spheres. Plenary speaker Jaleh Daie, director of the science program at the David and Lucile Packard Foundation, described in further detail some of the primary alternatives to federal research fundingóphilanthropic foundations, corporations, and other private funders. She noted that although federal investment in fundamental research is crucial to the scientific enterprise (providing approximately $70 billion per year in research dollars), industry contributes approximately $170 billion (mostly toward development) and private foundations disburse almost $2 billion per year.

Daie said that of the Packard Foundation's $13.5 billion in assets, $84.7 million is dedicated to all disciplines of science research, excluding disease-related biomedical research. She ex plained that foundations can often be more responsive than federal agencies as new research opportunities arise, taking bigger risks and acting more rapidly. She encouraged scientists to submit a letter of inquiry to a foundation after researching that foundation's priorities and before submitting a proposal because doing so would likely elicit some guidance that would en hance the proposal's success. The Foundation Center (www.fdncenter. org) and the Council on Foundations (www.cof.org) were identified by Daie as excellent sources of information about private funding sources and priorities.

Following the day's events, an evening gathering took place to discuss the recruitment of members of underrepresented minorities to the field of biology. Several existing initiatives from AIBS member societies (see feature story, page 191) were mentioned as possible opportunities for collaboration, especially those facilitating the attendance of undergraduate students at joint scientific society meetings.

The minority recruitment discussion was followed by broader discussions of biological education and career training. Plenary talks from AIBS Past President Diana Wall, of Colorado State University, and Jules LaPidus, president of the US Council of Graduate Schools, addressed education from the precollege level to graduate school and beyond. Wall said that the biggest problem with the traditional ap proach to teaching biology by levels of organization and along disciplinary lines, is that, for many students, the relevance is missing from the higher levels of organization; we don't tell the student how what they're learning relates to anything locally, regionally, or globally. She recommended that biologists support integrative science at the K-12 level, work with other scientists to make biology relevant in a broad context, and illustrate how the parts fit together to become a whole.

LaPidus, who discussed graduate education, said that the answers to demographic questions, such as who attends graduate school, why they attend, and what they want from their education are important in determining the connection between graduate education and careers and in predicting

and responding to the job market. He noted that the new American graduate student is a woman in her mid-30s with a family, who works and goes to school part time.

Immediately following the plenary addresses, an education resource panel was convened to answer questions from the audience. Panelist Patricia Morse, a professor of zoology at the University of Washington and AIBS's principal investigator for a Packard Foundation-funded project to review high school biology teaching materials, emphasized the importance of providing all children with access to quality science education, especially at the K-12 level, because to be science literate is part of being a good citizen in this country, she said. The panelists agreed that another significant and effective way to develop good citizens is by encouraging scientists to work closely with liberal arts college and community college educators.

When the participants broke for the last time into smaller groups, they discussed opportunities for collaboration in education. There was widespread consensus that science educators must agree on a precollege and undergraduate curriculum for biology, perhaps by forming an accreditation body, a topic seen as especially critical because of the recent attacks onthe teaching of evolution in Kansas, Oklahoma, and other states.

Most part icipants also agreed that cross-disciplinary education initiatives should be encouraged. They emphasized that hands-on activities are the key to sparking a lifelong interest in science. Some noted that biological field stations are an invaluable yet largely underutilized educational resource and that modeling software for biological phenomena is readily accessible for all education levels. Others suggested preparing workshops for teacher education and providing mentoring and internship opportunities for students. Several attendees pointed out that this last suggestion was also relevant with regard to careers in biology. They suggested that internships in interdisciplinary science, science policy, and international science are an effective method of expanding scientists' career tracks.

The discussion of education was not limited, however, to academia. Educating the general public was of particular concern to many attendees. We need to take biology education beyond our own community, said Gary Polis, president of the American Society of Naturalists. The attendees saw a need to translate the more esoteric nature of their work into practical concepts that nonscientists can understand. Moreover, they agreed that it is important to conveyóthrough the media, speakers networks, and hands-on science experiences such as those available in children's museumsóthe message that science is both important and interesting. Vernon Cardwell, president of the American Society of Agronomy, observed that when it comes to understanding science, it's been a ëwe/they' instead of an ëus,' situation, which another participant described as a fatal flaw to the future of biology as a whole.

The remaining day and a half of Summit activities was devoted to synthesizing the wealth of ideas spawned by the previous days' events into what is now known as the Airlie Accords. Altogether, the groups identified 11 initiatives appropriate for collaboration among AIBS's member societies and organizations:

* Make the case for biological sciences. Demonstrate biological successes with crucial case examples to increase the level of biological awareness and literacy of the voting public and government decision-makers.

* Facilitate member societies' awareness of funding opportunities for multidisciplinary bioscience research. Educate all interested parties about research-funding opportunities and calls for comments on agency proposals via newsletters and other communication vehicles to increase the input of the scientific community in the political process and result in better proposals from the widest possible audience.

* Exploring life on Earth: Initiate new funding opportunities for mega-projects. Expand the pool of available research funding by producing a new major funding initiative, equivalent to the Human Genome Project for the biomedical sciences.

* Establish a public issues council. Establish a coordinating body for public policy issues to represent the interests of all AIBS constituents.

* Expand public policy functionality. Expand societies' current public policy initiatives to collectively inform, strategize, and respond to Congressional, federal agency, and society members' interests and needs.

* Integrate member society science to address emerging issues in public policy. Bring integrated science to the attention of the public by developing a forum to address two target issues of high social and biological relevance each year.

* Promote citizen scientist/member organization public policy participation with a training and support program. Improve members' capabilities to participate in policy formation by providing 1-day training sessions on policy processes, intervention, and leadership.

* Launch evolution initiative: Evolution is the fundamental principle of biology. Educate the public to counteract efforts to remove evolution from K-12 curriculum standards by sending a strong message to textbook publishers, parent/teacher groups, school boards, and teachers.

* Establish AIBS millennium fellows. Increase the number of minorities who consider a career related to organismal biology by providing exposure to scientific meetings where biologists can serve as role models.

* Create collaborative biological re sources for K-12 teachers. Develop crucial resources for the enhancement of biological instruction by bringing teachers together with AIBS members and facilitators in regional focus groups.

* Evaluate and propose models of undergraduate curricula in biology. Develop means by which to evaluate biology programs and curricula, ensuring education excellence and active learning in lab and field experiences.

Near the close of the Summit, each of the attending member society and organization leaders indicated which of these 11 initiatives they would commit to take back to their members for approval and further exploration with AIBS. The attendees agreed to help advance their priority initiatives by meeting again on 25 March 2000, following the 51st Annual Meeting of AIBS at the Smithsonian Institution on 22-24 March.

In a closing keynote address, Harvard University's Edward O. Wilson spoke of the evolution of the science of biology from a vertically oriented science in the first half of the century to the golden age of reductionism characterized by the search for general phenomena. According to Wilson, biology continues to evolve as great strides are made at the organismal level; in the 1980s and 1990s, he said, the thematic orientation of biology shifted again into both horizontal and vertical planes, becoming both analytical and comparative and manifesting the first signs of maturity. Molecular and other reductionist areas of biology cannot make sense without taking into account organismal and integrative phenomena, he said, while organismal and integrative biology would be remiss for excluding consideration of molecular and other reductionist phenomena. Wilson believes that reduction from one level of organization to the next remains the first tool of choice but that the twenty-first century promises the assembly of what can be learned from such analysis into larger pictures by means of synthesis. The two primary modes of biological explanationóthe functional and the evolutionaryóhave converged to fit into a single continuum of space and time. That's the key to the future of biology, he said.

Following the Summit, Mycological Society of America President Linda Kohn commented that the Summit really brought to the surface the communication problem that our science has historically faced on so many different levelsóamong disciplines of biology, between biomedical and nonbiomedical biology, across departments within our own institutions, and through the media outlets to the public. We are now better able to create the linkages we need to work for positive change.

The real winner is society, added AIBS Executive Director Richard O'Grady. AIBS's societies have always been in the business of servingótheir constituency just got a lot bigger! Anderson concluded, The Airlie Accords' are the beginning of structural and visionary changes in how AIBS societies can develop a shared plan for collective action in support of biological research and education, a view reiterated by AIBS 2000 President Alan P. Covich in his January 2000 BioScience editorial, A View from the Summit.

Further Summit updates will be provided in the pages of BioScience, on the AIBS Web site, and through direct communication to individual AIBS members.

AIBS elects new Board of Directors members

Judith S. Weis, a professor of biological sciences at Rutgers University, has been voted president elect of AIBS for 2000 by the membership. She will succeed Alan Covich as president of AIBS on 1 January 2001. In addition to being a faculty member, Weis has served as Asso ciate Dean for Academic Af fairs at Rut gers University. She is a fellow of the American Association for the Advancement of Science and served as an AAAS/American Society of Zoologists Congressional Science Fellow on the Senate Environment and Public Works Committee and as Program Director

for Undergraduate Science Education at the National Science Foundation. Weis has also been a visiting scientist for the Environmental Protection Agency and worked extensively on review panels and advisory committees for EPA and for the National Oceanic and At mospheric Administration, where she serves on the National Sea Grant Review Panel. She served on the Marine Board of the National Research Council, the Boards of Directors of AIBS and the Society of Environ mental Toxicology and Chemistry, and is currently the chair of the AAAS Section on Biological Sciences and an editor of the Bulletin of Environmental Contamination and Toxicology. Weis received her PhD from New York University. She studies estuarine or gan ism response to stresses, including contaminants.

Another addition to the AIBS Board by general election is Marvalee H. Wake, Chancellor's Professor and Chair of the Department of Integrative Biology at the University of California-Berkeley, who was elected to a 3-year term. Wake has been a member of several AIBS-affiliated societies, served on the AIBS Meetings Com mittee, and has been an author and reviewer for BioScience. She was voted president elect for the Society for Integrative and Comparative Biology in 1999 and has served as a fellow, nominating committee member, and chair of the AAAS Section on Biological Sciences. Wake was president of the American Society of Ichthyologists and Herpetologists in 1984 and was also a member of the society's Board of Governors. She was also a fellow, member of the Board of Trustees (1992- 1998), and an Honorary Trustee for the California Academy of Sciences. A national lecturer for Sigma Xi (1989-1991), she also served on the Executive Committee (1990-1997) and as Secretary General (1994-1997) for the World Congress of Herpetology. In 1994 she was elected Secretary General of the International Union of Biological Sciences (IUBS), where she served on the IUBS United States National Committee and as the IUBS representative for the DIVERSITAS (International Biodiversity Science Program) Scientific Steering Committee. In addition, Wake was the IUBS liaison for the Declining Amphibian Populations Task Force and the Species Survival Commission/World Conservation Union. She serves on the Board on Sustainable Development for the National Academy of Sciences/National Research Council and on the Directorate for Biological Sciences Advisory Committee for NSF. Wake received her PhD from the University of Southern California. Her research interests include evolutionary biology, morphology, development, reproductive biology, and biodiversity issues.

In accordance with AIBS bylaws, council members elected one of their own members, Gary S. Hartshorn, to the Board of Directors. He will serve a 3-year term beginning 1 January 2000. Hartshorn is currently the president and chief executive officer of the Organization for Tropical Studies, Inc. (OTS), a professor of the Practice of Trop ical Ecology at the Nicho las School of the Environment, and Adjunct Professor of Botany, all at Duke University. Hartshorn is a long-time member of AIBS and is currently the AIBS council representative for OTS. He served as president of the Association for Tropical Biology in 1989 and has been a member of the Ecological Society of America, AAAS, the International Dendrology Society, the International Society for Tropical Ecology, the International Society of Tropical Foresters, the New York Academy of Sciences, and the Society for Conservation Biology. He has held several trustee and director positions for such organizations as the General Service Foundation, the Institute of Current World Affairs, the Tropical Forest Foundation, the Tropical Science Center, and the World Forestry Center. Hartshorn was a Forest and Man Fellow from 1978-1982 for the Institute of Current World Affairs. He has served on an advisory committee for the University of Missouri-St. Louis International Center for Tropical Ecology (1991-present), on the Technical Advisory Group of the International Center for

Research on Women (1994- 1996), and on the Scientific Advisory Board of the Scientific Certification Systems (1992-present). In 1991, he was appointed by President Bush as US Commissioner to the Joint Commission on the Environment, with reappointments to the Commission in 1995 and 1999, and he served as chairman for two terms (1993-1994 and 1998-1999). Hartshorn was honored in 1993 with the Comenius Award as an outstanding alumnus from Moravian College. He received his PhD from the University of Washington in 1976. He studies tropical forest ecology, biodiversity conservation, forest management, and education.

Plenary speaker Diana Wall, with MSA President Linda Kohn and OBFS Past President Jack Stanford, make time for fun at the Summit (top left); the participants on the steps of Airlie House (top right); plenary speakers Thomas Lovejoy speaks with plenary speaker Jaleh Daie (middle); plenary speaker Martin Apple illustrates his e pluribus unum mnemonic (bottom left); public policy resource panelists David Applegate, David Blockstein, Christopher D'Elia, Sidney Golub, Ellen Paul, and David Kaufman (bottom right).