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American Society of Parasitologists Newsletter, v. 34, no. 1, Spring 2012

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The American Society of Parasitologists

Newsletter

Usually Published Quarterly by the American Society of Parasitologists

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From the *Editor*

Consider publishing your parasite poems, posting a link to your favorite "parasite lecture," providing an actual parasite lecture, or otherwise send "something" in to the editor.
Your contribution is valuable and anything sent in to me will be considered for publication.
For example, on page3, see the cool **bot fly essay by Tim Goater** from Vancouver Island University, BC, Canada.

Sincerely,

Scott Lyell Gardner, Ph.D.

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MEETING DATA

Gear up for the exciting Annual Meeting of the ASP in Richmond Virginia. The 87th Annual Meeting of the ASP will be at the -Omni Richmond Hotel- Richmond, VA -- July 13-16, 2012.

From the ASP web site: The state that will play host to the 87th annual ASP meeting is a history buff's mecca. Virginia is the birthplace of many of our country's founding fathers, including 8 U.S. presidents, notably George Washington, our first president, and Thomas Jefferson, our third president and the principal writer of the Declaration of Independence. Richmond, the state capital and our host city, also has a history as storied as the state. Situated on the James River, Richmond served as a port for many of the agricultural products that were produced in our young country and is still today a booming port for many products coming from the Tidewater areas of eastern Virginia. And as we all know, Richmond was the seat of the confederacy during the Civil War. It is also the site of the St. John's Church where Patrick Henry made his famous speech that included the phrase, "Give me liberty or give me death". There are several other sites worth seeing in the city including Belle Isle and Brown's Island, two islands located in the James River, the Edgar Allan Poe Museum, the Hollywood Cemetery where 2 U.S. presidents are buried, the Virginia Museum of Fine Arts where you can see the largest collection of Fabergé Eggs outside of Russia and the Reconciliation statue, built in 2007, which recognizes the city's period of slavery.

You can stroll through downtown Richmond to many of the shops, museums and eateries, visit Jackson Ward, which was called the "Wall Street of Black America" because of the financial acumen of people such as Maggie L. Walker, who started the St. Luke Penny Savings Bank for African Americans, tour the Arthur Ashe Athletic center that honors our nation's first nationally recognized African American tennis star, visit the Lewis Ginter Botanical Gardens in nearby Henrico county, shop in Carytown or stroll through Shochoe Bottom, formerly a Powhatan Native American fishing village. Whatever your choice, Richmond provides a wide array of experiences and opportunities for a fun meeting. The meetings will be held at the Omni Hotel and the Chairperson of the local arrangements committee is Dr. Ghislaine Mayer, from Virginia Commonwealth University (gmayer@vcu.edu). See you in Richmond on July 13-16, 2012.

Botfly Parasitism in Belize!

By Tim Goater
Biology Department
Vancouver Island University
Nanaimo, BC V9R 5S5
e-mail: Tim.Goater@viu.ca

Figure 1. Tim Goater meets a fun new friend in Belize.

This article was originally published in the Bulletin of the Entomological Society of Canada, March 2008.

Each spring my Malaspina colleagues and I teach a 6-week fled school in Belize, Central America. It is a fantastic opportunity to introduce students to the marvelous diversity and ecological and evolutionary complexity of the New World subtropical rainforest and coral reef ecosystems. However, each year, some of the students and teachers come away from Belize with more than a deep appreciation of the country and its diverse wildlife and people; they return home after becoming the unwitting host to one of possibly, nature's most hideous creatures – a botfly maggot (**See Figure 2**)! For many of my students getting a botfly is a rite of passage – a bizarre contest in which they actually look forward to, and are hopeful of acquiring one or two during our stay in Belize! There are past students who actually go so far as to name their 'pet' botfly. For most 'normal' people, however, there is a serious 'grossness factor' and I (as a parasitologist and entomologist) am the one called on for removal of botflies from my students. Every time I get a botfly myself, or remove one, the students get an impromptu lecture on their fascinating parasitic adaptations and natural history; even the 'disgusting' botfly maggot has a lot to teach us of the intricacies of nature. This past fled school year was truly memorable as one of my students, Chris Duncan, returned home, having 'incubated' his Belizean botfly for six weeks. It inspired what must have been the first of its kind – a 'botfly extraction party', the photos from which are shown accompanying this article! Most of the students and Chris' family attended, but I must say my friends and neighbors chose to stay away.

Figure 2. Third-stage larva of a human bot fly, *Dermatobia hominis,* showing hooked mouthparts and many rows of holdfast spines.

So, how does one get infected with the human skin botfly, *Dermatobia hominis*, when they visit countries such as Belize and Costa Rica? The life cycle details are indeed fascinating. It starts when an egg-laden female botfly captures a female mosquito (usually members of the genus *Psorophora*) in the air and glues fertile eggs onto the mosquito's abdomen and then releases her. When the mosquito next takes a blood meal, the body heat of the mammalian host triggers the hatching of the botfly egg and the tiny microscopic larva immediately burrows into the host. The 'bot' creates its own burrow in the host's skin and develops through a series of molts for 6-8 weeks, converting human meat into botfly flesh, and growing larger at each molt. The botfly maggot is an air breather and has a snorkel-like siphon with a respiratory spiracle, which it pokes through the skin. It turns out that botflies may engage in microbial warfare and secrete an antibiotic into its burrow, an adaptation that prevents competition from contaminating bacteria and fungi. After their 2-month period of development, the larvae exits the host, pupates in the soil, and metamorphoses into adults to reproduce and begin the life cycle again. The infection of live vertebrate hosts by fly larvae is referred to as myiasis **See Figure 3**. There is no doubt that *Dermatobia hominis* causes some discomfort as it feeds and grows in its mammalian host's musculature. However, in some species the myiasis-causing flies can cause extensive tissue damage and be responsible for significant mortality in the host's population. Such lethal parasitism is known from a diversity of vertebrate hosts in nature, including certain frogs, chipmunks, ground squirrels and birds. Myiasis-causing flies can also be a significant pest of livestock, especially cattle and horses.

Figure 3. Lethal myiasis of a squirrel, *Spermophilus richardsoni*, caused by the sarcophagid fly, *Neobellieria citellivora*.

For the first three weeks of the field school we are not in the botfly habitat of the subtropical rainforest. Soon after visiting this paradise students show me possible botfly infections. Many are disappointed when they turn out not to be infected. All manner of suspicious looking potential botfly wounds turn out to be pimples or infected insect bites. You know for sure you have a botfly when you see the tell-tale sign - a maggot's siphon emerging from its burrow to breathe! Another indicator is pain. If the maggot happens to feed on flesh adjacent to a nerve it can create a sudden pain similar to a wasp sting. When we later snorkel in the Belizean mangroves and coral reefs we have learned that our botfly guests do not appreciate prolonged swims in salt water. They constantly wriggle under the skin in response to the lack of air, often causing discomfort in the process. At this stage, there is no doubt that the little red serum-seeping wound is in fact caused by a botfly and the larva will continue to grow if something is not done to remove it. Very few people are willing to let nature take its course and have a 2-3 cm maggot emerge from their skin! So how do we eventually remove these unwelcome guests? They cannot be squeezed out alive because they have exquisite morphological adaptations, including a series of backwards pointing spines on their cuticle. These function as holdfasts. They hold the maggot tenaciously in place in their burrows and prevent the host from manually removing them so that they can continue their larval development. Of course, they can be surgically removed by a physician. However, the local Belizean people have developed several techniques for removing botflies from themselves and/or their domestic pets or livestock without the need of medical or veterinary intervention. One of the techniques the native Belizeans has taught us is the one we have used successfully over the years, even for the removal of Chris's large, almost fully developed botfly maggot. Nail polish is liberally applied to the botfly wound and then it is

sealed over tightly with duct tape in order to poison and suffocate the larva. After 24 hours of this nail polish/duct tape treatment the maggot is dead and can be very gently but firmly squeezed out, intact. We have never had a problem with infection and the procedure leaves no scar; all signs of the bot's presence are gone in about two weeks. **See next page, Figures A-F.** As an interesting aside to the human botfly angle, it turns out that botflies may prove useful in estimating population sizes of mountain lions (pumas) in Belize. In the Cockscomb Basin Wildlife Sanctuary jaguar research is ongoing and population estimates of this magnificent animal are based on motion sensing cameras set up on remote wilderness trails. Photographs can then be retrieved and individual jaguars can be recognized by differences in the stripe patterns of their coats to estimate population size. This is not the case for pumas and it is impossible to determine how many individuals of these cats pass by the cameras in a given fled season. It turns out that mountain lions are particularly susceptible to botfly parasitism and the nasty scars left be-hind on their coats after botflies emerge may be used to recognize individuals. This may allow a unique approach to estimate the population size of pumas in this spectacular sanctuary – a unique biological tag, indeed!

Another intriguing natural history lesson involving botflies stresses the complexity of ecological interactions in the Neotropics. This fascinating story revolves around four key players: a species of botfly (*Philornis* sp.), the giant cowbird, birds known as oropendolas, and finally venomous and aggressive social bees and wasps. *Philornis* is a devastating parasite and can be a significant source of mortality among oropendola nestlings. Oropendolas can avoid botfly parasitism, as well as mammalian and snake predation of their young, by building their pendulous nests in trees in proximity to the aggressive wasp or bee colonies. Any disturbance by botflies or predators triggers attack by the wasps and the nestlings are protected until they fledge. A particularly remarkable feature of this system is that the oropendolas that nest in wasp less trees, and are thus subject to botfly attack, are protected if a giant cowbird nestling, parasitic on the oropendolas brood, is present. In other words, the host oropendola bird benefits from being parasitized! Avian brood parasites are those birds that lay their eggs in other bird species nests; the foster host parent birds raise the brood parasite offspring as if they were their own. Usually the brood parasite is truly parasitic, reducing the fitness of the host bird. However, in this case, paradoxically, when a cowbird nestling is present in the nest more oropendola nestlings fledge! This is because the cowbird nestling preens and eats the botfly or its eggs and/or larvae on its host nest mates before they invade the host and cause irreversible tissue damage. Thus, in wasp less trees when the risk of botfly parasitism is high, oropendola behavior is altered and they do not chase cowbirds away; moreover, they accept the cowbird brood parasite's eggs even though the eggs do not resemble their own. In effect, the parasite acts as a mutualist in some ecological circumstances because of its impact on controlling another parasite - the giant cowbird offers its oropendola hosts parasite protection in exchange for foster care! See next page for Images of

Send in your essay and photos for inclusion in the ASP Newsletter.

Botfly extraction party at Lantzville, BC. **A** - Malaspina University-College students in attendance. **B** - Inflammation and breathing hole in the skin created by botfly (located on lower back). **C** - Gentle squeezing to remove recently killed botfly, and start of emergence. **D** - Posterior region of botfly emerged, showing respiratory siphon and a row of midbody spines. **E** - Intact third-stage larva of human skin botfly, *Dermatobia hominis*. **F** - Chris Duncan proudly showing off his 6-week old maggot.

Field and Parasitology PHOTOGRAPHY
- *A CONTINUING FEATURE OF THE ASP NEWSLETTER*

Figure 4. Dr. Gerald D. Schmidt, University of Northern Colorado. SLG took this photo of Jerry in Grand Junction, Colorado. Jerry had just about finished the manuscript copy of the CRC Press Key to Tapeworms. It was about 2.5 feet high when printed!

Figure 5. Statue of Jean Baptiste Lamarck, Founder of the Doctrine of Evolution. This is in the Jardin de Plantes of the National Museum of Natural History in Paris and behind can be seen the Gallerie de Zoologie before its renovation.

NSF Slashes Collections Support for Museums in USA

At a time when the planet is under siege from overpopulation and well curated collections of specimens are becoming more important, the NSF has decided to cut funding by at least ½ to the biological systematics and collections based research endeavors in the USA.

The Natural Science Collections Alliance sent out an alert to Natural History and other Collections in the USA in March indicating that the National Science Foundation has decided to slash by half funding for scientific collections in the USA. The program that is being cut is the Collections in Support of Biological Research (CSBR) program in the Division of Biotic Infrastructure at the NSF.

February 24, 2012

Dr. John Wingfield
Assistant Director for Biological Sciences
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

Dear Dr. Wingfield:

In recent years, the National Science Foundation (NSF) and more specifically the Biological Sciences Directorate (BIO) have supported important new initiatives to advance digitization of our nation's biological collections and improve our understanding of biological diversity. For these efforts, we offer our sincere gratitude. We write today, however, to express our concern with a provision in the President's fiscal year (FY) 2013 budget request for NSF that we feel would harm our nation's biological specimen collections. We note with concern that the budget request proposes changing the Collections in Support of Biological Research (CSBR) from an annual to a biennial competition and that the funding for this program would effectively be cut by half.

The CSBR program provides vitally important support to our nation's biological sciences research collections. We respectfully urge you to consider the negative consequences of this proposed change to the program and the funding level.

As you are aware, biological science collections are a vital component of our nation's research infrastructure and warrant a sustained investment from the NSF, in the same way that other components of our scientific research and education infrastructure are supported. Whether held at a national museum or in a university science department, these scientific resources contain genetic, tissue, organismal, and environmental samples that constitute a unique and irreplaceable

library of Earth's history. The specimens and their associated data drive cutting edge research on the significant challenges facing modern society, such as improving human health, food

security and availability, and climate change, and inspire novel interdisciplinary research that drives innovation and addresses some of the most fundamental questions related to biodiversity,

including:

• How are species distributed in geographical and ecological space?

• What is the history of life on Earth?

• How are major groups of organisms related to one another?

• What factors lead to speciation, dispersal, and extinction?

• What are the impacts of climate change likely to be?

• What information is needed for effective conservation strategies?

The federal Interagency Working Group on Scientific Collections recognized the value of scientific collections in their 2009 report, which found that "scientific collections are essential to supporting agency missions and are thus vital to supporting the global research enterprise." In light of the importance of scientific collections to U.S. research, Dr. John Holdren, director of the White House Office of Science and Technology Policy, issued a memorandum in October 2010 directing federal agencies to budget for proper care of collections. The NSF is the primary federal agency that provides support for non-governmental collections. Thus, at the same time federal agencies are being tasked with supporting governmental collections, we would hope that NSF would sustain its support for non-governmental research collections.

In addition to preserving important biological specimens for ongoing and future research, CSBR awards are an important source of financial support to American-owned companies that specialize in cabinetry and supplies used by museums and universities. CSBR awards also directly employ researchers and curators, and are used to train the next generation of biological scientists and collections specialists.

Given the current financial strain at many museums and universities, CSBR funding is a critical lifeline that helps to ensure proper curation of specimens. We urge you to reconsider the proposed change to the CSBR program.

If you have any questions or require additional information, please do not hesitate to contact us or Dr. Robert Gropp, AIBS Director of Public Policy, at 202-628-1500 x 250 or

rgropp@aibs.org.

Sincerely,

Larry Page, Ph.D. Christopher Norris, Ph.D.
President President-Elect
Natural Science Collections Alliance Society for the Preservation of Natural
History Collections

Ford W. Bell, DVM
President
American Association of Museums

Richard O'Grady, Ph.D.
Executive Director
American Institute of Biological Sciences

Bonnie Styles, Ph.D.
President
Association of Science Museum Directors

Another letter was recently sent by Mike Mares, former president of NSCA and current president of the American Society of Mammalogists. That letter is shown below:

March 15, 2012

Dr. John Wingfield
Assistant Director for Biological Sciences
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230
jwingfie@nsf.gov

Dear Dr. Wingfield:

As President of the American Society of Mammalogists and former member and chair of the Biological Sciences Advisory Committee for NSF (BIO-AC), I am very concerned about a provision in the President's fiscal year (FY) 2013 budget request for NSF that will negatively impact the nation's collections of biological specimens now and in the future. The budget request proposes changing the Collections in Support of Biological Research (CSBR) program from an annual to a biennial competition, which means that the funding for this program would effectively be cut in half.

Collections of biological specimens are vital to the study of ecology, evolution, and conservation of the world's biota, both past and present. Descriptions of species new to science rely on such specimens. Natural history collections support studies of some of the most important problems of our time, including invasive species, emerging diseases, cascading extinction, and the effects of climate change. For example, The Museum of Vertebrate Zoology (MVZ) at the University of California, Berkeley, recently demonstrated the effect of climate change in the Sierra Nevada Mountains of central California. This essential study could not have been carried out without the collection of historical and contemporary specimens and associated data housed at, and cared for, by the MVZ. Various U.S. museums are the sources of accurate (and much needed) identifications of vertebrates that may be hosts to some of the world's most serious health risks, such as the Ebola virus, West Nile virus, Lyme disease, or bird flu. Collections of bird specimens

were used to determine what forced Captain Sullenberger to put Flight 1549 into the Hudson River, and generated data to help prevent similar occurrences in the future. Collections are used thousands of times each day to strengthen research in a vast number of disciplines.

Natural History collections serve a basic educational function as well. Whether providing the data needed for a doctoral dissertation or instilling a sense of wonder in a high school intern, collections are the training ground for budding scientists. The biodiversity data generated by the study and curation of collections is increasingly being shared by various museums and is made available to scientists around the world. The global impact of these data cannot be understated. However, the specimens (the primary source of the information) must be maintained permanently for accurate verification and availability for testing future hypotheses. The range of uses of collections expands, and their scientific value increases, with the passage of time. Collections are clearly the basic data of nature across time and space, an irreplaceable and irrefutable record of life present and past.

Vouchered specimens serve a basic tenet of the scientific method, allowing for repeatability of studies and providing the opportunity for future studies to verify results. Every single specimen is unique, offers matchless and exclusive data, and cannot be replaced. Many came from habitats that have been permanently altered. Given how important and irreplaceable these collections are, it is vital that adequate resources be made available to care for them so that they continue to be available to future generations. However, many such specimens are under severe threat because of poor housing conditions in some of the nation's older collections and museums, or because institutions lack the funding necessary for basic care and maintenance of the collection. Too often we are faced with administrative decisions that mandate that the collections be dispersed to other institutions, if not disposed of entirely, with the subsequent irreplaceable loss of the primary data of life. Unfortunately these trends are increasing. The cost of maintaining collections requires long-term commitment, which must include federal support. Many, if not most, of the collections were developed with federal support or to meet federal needs in specimen-based research. The CSBR program is the most important source of government funding to rescue, maintain, and enhance such vitally important resources. Reducing the program funding by half would be a tragic blow to our ability to deal with serious issues facing society and keep our finger on the pulse of the planet as reflected in the biological data of specimens across both space and time.

The American Society of Mammalogists—the oldest and largest organization of mammalian biologists in the world—has long supported the natural science collections of this nation, many of which resulted from research by mammalogists and their graduate and undergraduate students. Indeed, ASM members have served as directors of the US Biological Survey, the Smithsonian Natural History Museum, and many other museums and collection repositories in the United States. The contribution of biological specimens toward meeting numerous needs of the nation cannot be overstated. Today, as species decline in abundance and diversity across the globe, as introduced species continue to cost the United States as much money each year as the Iraq War, as threats of bioterrorism involving living organisms continue to be possible, and as ecosystem integrity is threatened by an increasing numbers broken links in food webs, the nation's biological collections continue to provide the bedrock of information required by scientific disciplines across a broad spectrum.

I urge you to reconsider the proposed cuts to the CSBR program.

Sincerely,

Michael A. Mares, Ph.D.
President, American Society of Mammalogists
(mamares@ou.edu)

cc. Dr. Subra Suresh, Director NSF (ssuresh@nsf.gov)
Dr. Joann Roskoski, Deputy Assistant Director, Biological Sciences (jroskosk@nsf.gov)
Dr. Daphne Fautin, Program Director, DBI Collections (dfautin@nsf.gov)
Dr. Anne Maglia, Program Director, DBI Collections (amaglia@nsf.gov)
Dr. Jose Nelson Onuchic, Chair, BIOAC (jonuchic@rice.edu)

A letter in response to the NSCA joint letter was received by the NSCA from Wingfield and is reprinted below:

NSF BIO Responds to Community Concerns about Collections Care

On 5 March 2012, Dr. John Wingfield, head of the Biological Sciences Directorate at the National Science Foundation, responded to concerns raised by the collections community about the Collections in Support of Biological Research (CSBR) program. NSC Alliance and several other scientific organizations wrote to Wingfield in late February regarding NSF's proposal to change the CSBR program from an annual to biennial competition, effectively cutting the program's funding in half.

The letter, addressed to Robert Gropp, NSC Alliance director of public policy, is reprinted in its entirety below.

Dear Rob,

Please feel free to forward this response to your comments and the letter from the Association of Science Museum Directors, AIBS, American Institute of Biological Sciences, Society for the Preservation of Natural History Collections, and the Natural Science Collections Alliance.

The Directorate for Biological Sciences (BIO) appreciates your interest in its ongoing activities and programs, and especially your support for the new biodiversity programs launched in the last two years, namely, Dimensions of Biodiversity (DoB) and the Advancing Digitization of Biological Collections (ADBC). These programs are being supported at an annual level of nearly $30 million (combined) and represent a significant investment by the Biology Directorate in biodiversity research. As you know, Advancing the Tree of Life (AToL), which began in fiscal year 2003, was originally intended as a ten-year program (ending in 2012). However, instead of ending the program, BIO used 2012 AToL funds to support the Assembling, Visualizing and Analyzing the Tree of Life (AVAVToL) Ideas Lab (part of the AToL program). The AVAToL projects are expected to result in outcomes that can be used to creatively revision the AToL program in a way that will set the stage for the future of systematics, taxonomy and related

fields. Consequently, the next AToL competition will be in FY2014 with its focus guided by the early results of the AVAToL projects.

As we are all well aware, challenging financial times often translate into challenging funding priorities that require hard decisions. Nonetheless, BIO strives to sustain support for its disciplinary programs since they are the foundation of the biological sciences and the source of some of its most innovative and transformative discoveries. Where other Directorates have eliminated programs, BIO has chosen both to support new priorities (such as DoB, ADBC and AVAToL) and to preserve core disciplinary programs. It has done this by staggering and/or reducing but not eliminating some non-core competitions, such as Collections in Support of Biological Research (CSBR). Creative management of BIO's resources will help insure that the biological research supported by the NSF remains strong, vibrant and always at the leading edge.

BIO looks forward to your continued support in this endeavor.

Sincerely,

John C. Wingfield
Assistant Director for Biological Sciences
National Science Foundation

Visit and "Like" the ASP FACEBOOK Page.

The ASP has a FACEBOOK page. Stop in and check it out. Like it and make it a place that is useful for parasitology and sharing data about parasites. The Manter Laboratory has a FACEBOOK page too, and many other collections are using social media to keep others informed. You can get to the FACEBOOK page by visiting the home page of the ASP.

Journal of Parasitology ON LINE at UNL Digital Commons.

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The Journal is there in addition to many scientific papers by Manter Laboratory Associates and collaborators. Feel free to look around.

Comparative Parasitology ON LINE at Peru State College.

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This is an on-going project designed to archive the society's publications preceding those distributed through BioOne. Volumes 1-21 (1934-1954) are currently available. Additional issues will be uploaded for distribution as they are completed.

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AIBS Public Policy Report

AIBS Public Policy Report, Volume 13, Issue 9, April 23, 2012

- Congressional Panels Approve Increases for NSF
- Senate, House Appropriators Disagree on NOAA Satellites
- Anti-Evolution Legislation Enacted in Tennessee
- Deadline Approaching for Graduate Student Science Policy Internship
- From the Federal Register
- Become an Advocate for Science: Join the AIBS Legislative Action Center

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Congressional Panels Approve Increases for NSF

The National Science Foundation (NSF) could receive $7.3 billion next year if legislation approved by the House and Senate Appropriations Committees is enacted. The proposals were approved with bipartisan support last week.

A bill (S. 2323) endorsed by Senate appropriators would increase funding for NSF by $240 million, a 3.4 percent increase over the current spending level. The House Appropriations Subcommittee with jurisdiction over NSF unanimously approved a proposal that would increase funding for NSF by $59 million more than the level proposed by the Senate Appropriations Committee.

Both the versions of the legislation would direct new funding to NSF's research directorates,

which would receive a 4.5 percent increase under the House bill and a 3.4 percent bump under the Senate plan. Education funding would increase by 5.6 percent. The Major Research Equipment and Facilities Construction account would remain essentially flat at the fiscal year 2012 level. Funding for agency operations and grant administration would also remain flat.

Although the $7.3 billion proposed for NSF is less than President Obama requested, the mark is notable because other agencies and programs are facing the prospect of budget cuts under the House and Senate spending plans.

“This legislation roots out extraneous, duplicative and unnecessary programs to save the taxpayers $300 million while prioritizing some of the most critical aspects of government,” said House Appropriations Committee Chairman Hal Rogers (R-KY) at the subcommittee mark-up of the draft bill. “Within the overall reductions, strategic increases are included for … those which promote the scientific research that will help America continue to lead the world in innovation.”

“The bill invests more than $13 billion in scientific research and high-impact research and technology development, to create new products and new jobs for the future,” Senator Barbara Mikulski (D-MD) said of the Senate bill. Mikulski is chairwoman of the Senate subcommittee responsible for drafting the appropriations bill that funds NSF.

Senate, House Appropriators Disagree on NOAA Satellites

Last week the Senate and House Appropriations Committees considered draft legislation that would fund the National Oceanic and Atmospheric Administration (NOAA) in fiscal year (FY) 2013. The panels approved different spending plans for the agency.

The Senate proposal would fund NOAA at $3.4 billion, a mark $1.5 billion below the FY 2012 level. House appropriators approved a $5.0 billion budget. At this level, NOAA would receive a $68 million increase, but would still receive less than the President sought in his FY 2013 budget.

The main difference is funding for procurement of NOAA’s weather satellites. The Senate plan would transfer NOAA’s satellite acquisition authority and the associated $1.6 billion satellite acquisition budget to NASA. House appropriators did not include this change in their legislation.

Senator Barbara Mikulski (D-MD), who chairs the Subcommittee on Commerce, Justice, Science and Related Agencies, argues that the change would save $117 million next year by consolidating redundant management. Under the proposal, NOAA would continue to operate the weather satellites and process associated data, but NASA would assume the lead role in managing the procurement process.

The escalating costs of the satellite program have long been a concern within NOAA, on Capitol Hill, and to stakeholders. In 2012 alone, NOAA will spend nearly a billion dollars on the Joint Polar Satellite System. NOAA had proposed spending 37 percent of the $5.1 billion it requested for FY 2013 on satellites. In recent years, budget increases for the satellite programs have been partially offset by cuts to research and conservation programs.

Regarding other NOAA programs, the House bill would trim $54 million of just below 2 percent from NOAA's research, operations and facilities in order to increase funding for satellite acquisition. Conversely, the Senate bill increases funding for this budget line by $117 million, which would prevent cuts proposed by the Administration in the areas of fish habitat conservation, coastal restoration, and marine mammal rescue grants, as well as the closure of several research facilities.

Anti-Evolution Legislation Enacted in Tennessee

Under a new Tennessee law, teachers could be encouraged to present the "scientific strengths and scientific weaknesses" of "controversial" topics, including "biological evolution, the chemical origins of life, global warming, and human cloning." The bill became law despite the fact that it did not receive the signature of Governor Bill Haslam (R), who did not sign or veto the legislation.

Although the law would not require the teaching of creationist ideas, it would provide protections to educators who help students critique the "scientific weaknesses" of evolution.

Deadline Approaching for Graduate Student Science Policy Internship

The American Society of Mammalogists (ASM) and American Institute of Biological Sciences (AIBS) are pleased to announce the availability of a paid internship in the Washington, DC, AIBS Public Policy Office. The internship is open to ASM members who are currently enrolled in a graduate program or who have completed a program within a semester of application, and who are engaged in research that will contribute to the understanding and conservation of

mammals. The internship is for three months during fall 2012, and carries a generous monthly stipend. Selection criteria include demonstrated interest in the public policy process, strong communications skills, and excellent academic record. The deadline to apply is 1 May 2012. For details and requirements, please visit http://www.aibs.org/public-policy/student_opportunities.html.

From the Federal Register

The following items appeared in the Federal Register from 9 to 20 April 2012. For more information on these or other recent items, please visit the AIBS Federal Register Resource at www.aibs.org/federal-register-resource/index.html.

Week Ending 20 April 2012

Commerce:

- Petition To List 83 Species of Coral as Threatened or Endangered Under the Endangered Species Act (ESA)

Executive Office of the President:

- Executive Order 13605--Supporting Safe and Responsible Development of Unconventional Domestic Natural Gas Resources

Interior:

- Deepwater Horizon Oil Spill; Final Phase I Early Restoration Plan and Environmental Assessment
- Endangered and Threatened Wildlife and Plants; Special Rule for the Polar Bear
- Invasive Species Advisory Committee
- Invasive Species Advisory Committee; Request for Nominations

National Science Foundation:

- Advisory Committee for Education and Human Resources; Notice of Meeting

Week Ending 13 April 2012

Agriculture:

- National Forest System Land Management Planning

Commerce:

- NCAnet: Building a Network of Networks in Support of the National Climate Assessment (NCA)

Education:

- Notice of Submission for OMB Review; Application for Grants Under the Upward Bound Math and Science Program

Environmental Protection Agency:

- Notification of a Public Teleconference of the Science Advisory Board Ecological Processes and Effects Committee

Interior:

- Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Sixteenth Regular Meeting: Taxa Being Considered for Amendments to the CITES Appendices
- Notice of Public Meeting, North Slope Science Initiative--Science Technical Advisory Panel

National Science Foundation

- National Science Board; Sunshine Act Meeting

Become an Advocate for Science: Join the AIBS Legislative Action Center

Quick, free, easy, effective, impactful! Join the AIBS Legislative Action Center today! (www.aibs.org/public-policy/legislative_action_center.html)

The AIBS Legislative Action Center is an online resource that allows biologists and science educators to quickly and effectively influence policy and public opinion. Each day lawmakers must make tough decisions about science policy. For example, what investments to make in

federal research programs, how to conserve biodiversity, how to mitigate climate change, or under what circumstances to permit stem cell research. Scientists now have the opportunity to help elected officials understand these issues. This exciting new advocacy tool allows individuals to quickly and easily communicate with members of Congress, executive branch officials, and selected media outlets.

This new tool is made possible through contributions from the Society for the Study of Evolution, American Society for Limnology and Oceanography, Association of Ecosystem Research Centers, and the Botanical Society of America.

AIBS and our partner organizations invite scientists and science educators to become a policy advocate today. Simply go to http://capwiz.com/aibs/home/ to send a prepared letter or to sign up to receive periodic Action Alerts.

- Give your society or organization a voice in public policy. See http://www.aibs.org/public-policy/funding_contributors.html.

- Become an AIBS Individual Member and lend your voice to a national effort to advance the biological sciences through public policy, education, and science programs. Visit http://www.aibs.org/individual-membership/ to join AIBS.

- Become an advocate for science, visit the AIBS Legislative Action Center at http://capwiz.com/aibs/home/.

- Know the news as it happens, sign-up to receive AIBS press releases and policy statements (http://www.aibs.org/mailing-lists/mediaisu.html).

The American Institute of Biological Sciences is a nonprofit 501(c)(3) scientific association dedicated to advancing biological research and education for the welfare of society. AIBS works to ensure that the public, legislators, funders, and the community of biologists have access to and use information that will guide them in making informed decisions about matters

that require biological knowledge.

Founded in 1947 as a part of the National Academy of Sciences, AIBS became an independent, member-governed organization in the 1950s. Today, AIBS has nearly 160 member organizations and is headquartered in Reston, VA, with a Public Policy Office in Washington, DC. Its approximately 40 staff members work to achieve its mission by publishing the peer-reviewed journal *BioScience* and the education Web site ActionBioscience.org, by providing scientific peer-review and advisory services to government agencies and other clients, and by collaborating with scientific organizations to advance public policy, education, and the public understanding of science.

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Note to Members -
The ASP Newsletter welcomes news stories, articles, poetry. Please send your text electronically to the editor as an e-mail and attach as an MS Word document. Drawings, photographs, charts, or tables can be sent as B/W TIF files at 300 dpi. Please send TIF files one at a time. A general rule is to limit photograph size to 3x5". You may attach both text and graphic files to your email message.

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