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If you have any questions or require additional information regarding any of the following items, please contact NSC Alliance director of public policy Dr. Robert Gropp at 202-628-1500 x 250 or at [rgropp@aibs.org](mailto:rgropp@aibs.org).

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### **NASEM: Biological Collections Need National Strategy, Increased Investment**

According to a new report from the National Academies of Sciences, Engineering, and Medicine (NASEM), biological collections – living and natural history specimens, biological materials, and data in museums, stock centers, research centers, and universities – are in need of long-term financial sustainability, digitization, recruitment and support of a diverse workforce, and infrastructure upgrades.

The report, *[Biological Collections: Ensuring Critical Research and Education for the 21st Century](#)*, which was sponsored by the National Science Foundation (NSF), argues that biological collections are an “invaluable, and often irreplaceable, component of the nation’s scientific enterprise.” Collections provide a wide range of benefits for the scientific community, including important resources for formal and informal education. Collections research is also responsible for many basic science discoveries and innovations, including advancing our understanding of biodiversity loss, global change, and human diseases.

“Many biological collections are at a critical juncture,” said Dr. James Collins, co-Chair of the committee that authored the report and Virginia M. Ullman Professor of Natural History and the Environment at Arizona State University. “Our study found that biological collections need increased investment to serve us in the way we expect, while at the same time expanding their potential for new uses related to science and society.”

The committee articulated the following vision for the biological collections community in the next decade: “To provide long-term support for collections-based scientific research, instill a culture of proper stewardship for and access to biological specimens, build and grow biological collections to better represent global biodiversity in space and time, promote access to biological collections as important educational resources for the general public, and encourage the exchange of biological resources and knowledge.”

In order to achieve this vision, curators, collection managers, directors, and users of biological collections will need to address four interrelated issues: upgrading and maintaining the physical infrastructure and the growth of collections; developing and maintaining of the tools and processes needed to transform digital data into an easily accessible, integrated platform; recruiting, training, and supporting a diverse workforce of the future; and ensuring long-term financial sustainability.

According to the report, “sustained support will be paramount in keeping collections open, supporting their growth, and ensuring they are available for research.” The report recommends that NSF continue to provide long-term funding for infrastructure maintenance and upgrades. The report suggests that individual collections should explore new revenue streams, such as pay-for-use models, licensing systems, or charging for custom datasets. To secure financial sustainability, the collections community needs to collaborate with professional societies, business strategists, and communications experts to develop management training programs and strong business models.

The panel also suggests that professional societies and associations should “collaborate and combine efforts aimed at addressing community-level infrastructure needs of the nation’s biological collections,” including creating a national registry to document the location, size, and holdings of the collections in the U.S.

The report suggests that the workforce pipeline for biological collections is underdeveloped and calls for cultivating a highly skilled workforce. This requires collections, host institutions, professional societies, and funders to collaborate to develop and strengthen the pipeline. “The skill sets of collections managers and directors in particular should be broadened to include strategic leadership, fundraising and donor relations, personnel management, informal education, and public communication.”

To ensure access to collections, specimens and their data need to be digitized. The report calls for the NSF Directorate for Biological Sciences, in partnership with other directorates and federal agencies, to fund the digitization of biological collections and the development of a “permanent national cyber infrastructure” to connect all types of biological collections.

According to Dr. Shirley Pomponi, co-Chair of the panel and research professor at Florida Atlantic University Harbor Branch Oceanographic Institute, “Strategic planning, coordination, and knowledge-sharing are critical for the community of collections directors, managers, and curators as they work to meet complex needs of society and the scientific community.”

NSF, the largest supporter of biological collections in the country, has a critical role to play. According to the report, “NSF should lead efforts to develop a national vision and strategy, such as a Decadal Survey, for the growth of biological collections, their infrastructure, and their ability to serve a range of scientific and educational needs.” NSF should also help establish a permanent National Action Center for Biological Collections, the report states, to coordinate action, knowledge, resources, and data-sharing.

## **Relief Negotiations Stall, Congress Plans to Avoid Shutdown with Stopgap Measure**

The latest pandemic relief package introduced by Senate Republicans failed to move forward in the Senate after failing to capture the 60 votes needed to close debate. The chamber voted 52-47 – along party lines.

The pared-down COVID-19 relief proposal was introduced on September 8, after relief negotiations between Democratic leadership and the Trump Administration have been [stalled](#) for weeks as a result of disagreement over the size of the package. Republicans in the Senate had introduced a \$1 trillion package, entitled the Health, Economic Assistance, Liability Protection and Schools Act ([HEALS Act](#)) in late July. The House passed a broader \$3 trillion measure - the [Heroes Act](#) - in May. House Speaker Nancy Pelosi (D-CA) was pushing for the White House to increase its offer for the package from \$1 trillion to \$2.2 trillion.

The “skinny” relief proposal from Senate Republicans, estimated to cost \$500 billion – about half of the HEALS Act – included additional funds for the Paycheck Protection Program; funds for schools and testing; liability protections for schools and businesses; and \$300 in increased weekly federal unemployment benefits through December 27, 2020.

The bill included provisions that the Democrats did not support, including liability protections for businesses. “The cynical Republican bill was emaciated, inadequate, and designed to fail. Americans need help now, and Congress needs to respond in a way that meets the nation's very real and urgent needs,” stated Minority Leader Chuck Schumer (D-NY) and urged Republicans “to come to the table, meet us halfway, and negotiate in good faith on a bipartisan comprehensive bill that will benefit the entire country.”

According to *E&E News*, a number of Senators do not expect a deal to be reached before the November election, although some lawmakers are still hopeful. Appropriations Chairman Richard Shelby (R-AL) said the relief push “looks” dead, but added that the situation could change. “You never know around here, sometimes things look bleak and they revive, and so forth,” said Shelby. “But we thought the scaled-down version was a good bill, a good timing and everything else. The Democrats obviously thought otherwise.” The Senate is scheduled to be in session the first week of October before going into recess until after the elections. Speaker Pelosi said she’ll keep the House in session this fall until a deal is reached on an aid package.

Although relief negotiations have reached an impasse, lawmakers on both sides of the aisle plan to pass a continuing resolution to keep the government open in the new fiscal year starting October 1. Speaker Pelosi and Treasury Secretary Steven Mnuchin have reached an agreement

to pursue a clean stopgap spending bill – free of controversial policy riders – to avoid a government shutdown. Reports indicate that the short-term funding bill will run through December 11. Senate Majority Leader Mitch McConnell (R-KY) has expressed support for a continuing resolution lasting until December, but some Democrats have called for the funding to last until February.

## **USFWS Proposes Revisions to Critical Habitat Designations**

The U.S. Fish and Wildlife Service (USFWS) has issued a new proposed rule that would modify the process of designating critical habitats under the Endangered Species Act (ESA). If finalized, the new regulation could potentially shrink critical habitats, which are areas essential for recovery of a species.

Under ESA, critical habitats are to be designated “on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact.” The law allows exclusion of certain areas if “the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat” unless the exclusion “will result in the extinction of the species concerned.”

With the [proposed regulation](#), USFWS intends to clearly lay out when and how it will undertake an analysis of whether to exclude certain lands from critical habitat. This includes identifying a “non-exhaustive list of categories of potential impacts” for USFWS to consider. Among the categories of “other relevant impacts” that may be considered, the proposed rule includes public health and safety; community interests; and the environment, such as increased risk of wildfire or pest and invasive species management. According to USFWS, the “benefits of exclusion may include avoidance of additional permitting requirements, time delays, or additional cost requirements to the community development project...due to the designation of critical habitat.”

The new proposal could also make it easier to keep federal lands out of future critical habitat designations: “We will now consider whether to exclude ... Federal lands on which non-Federal entities have a permit, lease, contract or other authorization for use where the benefits of exclusion outweigh the benefits of inclusion, so long as the exclusion of a particular area does not cause extinction of a species.”

USFWS Director Aurelia Skipwith explained that the the proposed rule “would provide greater transparency for the public, improve consistency and predictability for stakeholders affected by ESA determinations and stimulate more effective conservation on the ground.”

The proposed rule has received swift criticism from conservation groups. According to *E&E News*, Jamie Rappaport Clark, President and CEO of Defenders of Wildlife, said that the new proposal “puts a heavy thumb on the scale in favor of developers and industry, making it even easier to exclude areas from designation as critical habitat.” Ya-Wei Li, Director for Biodiversity at the Environmental Policy Innovation Center, stated that the proposal “does increase the likelihood that FWS will exclude an area from critical habitat.”

USFWS is inviting public comments on the proposed rule until October 8, 2020.

This is the latest effort by the Trump Administration to reconfigure how the ESA is enforced. In August 2019, the Administration [finalized](#) significant changes to the regulations that implement the ESA by making it easier for regulators to delist species from the endangered species list and remove automatic protections for threatened species.

## **Global Biodiversity Goals Not Being Met, Says UN Report**

A new report from the United Nations (UN) concludes that the world has not met any of the targets set 10 years ago by the Convention on Biological Diversity for protecting nature.

The [Global Biodiversity Outlook 5](#), published by the UN Convention on Biological Diversity (CBD) on September 15, 2020, serves as a final report card on progress on the 20 global biodiversity targets, known as the Aichi biodiversity targets, established in 2010 with a ten year deadline. The report found that despite some progress, natural habitats have continued to shrink, large numbers of species remain threatened by extinction from human activities, and environmentally harmful government subsidies have not been eradicated.

Although none of the 20 targets have been fully achieved, six targets have been partially achieved, including those related to protected areas and invasive species. Protected areas have increased substantially from 10 percent to at least 15 percent terrestrially, and from 3 percent to 7 percent of the ocean. These figures, however, are still short of the targets of 17 percent and 10 percent, respectively. Forty-four percent of key biodiversity areas are now protected, compared with 29 percent 20 years ago. Good progress has been made on identifying, prioritizing, and eradicating invasive alien species. The rate of deforestation has fallen globally by about a third compared to the previous decade. On average, countries report that more than a third of all national targets are on track to be met.

The report found that although the use of fertilizers and pesticides has stabilized globally, biodiversity continues to decline in landscapes used to produce food and timber. Food and agricultural production remains among the main drivers of global biodiversity loss. Furthermore, despite the recent rate of deforestation being lower than the previous decade, deforestation may be accelerating again in some areas. “Loss, degradation and fragmentation of habitats remains high in forest and other biomes, especially in the most biodiversity-rich ecosystems in tropical regions,” the report states. “Wilderness areas and global wetlands continue to decline. Fragmentation of rivers remains a critical threat to freshwater biodiversity.”

\$500 billion in harmful government subsidies for agriculture, fossil fuels, and fishing are particularly of concern. “We are still seeing so much more public money invested in things that harm biodiversity than in things that support biodiversity,” said David Cooper, lead author of the report and Deputy Executive Secretary of the Convention on Biological Diversity.

The report calls for moving away from “business as usual” across a range of human activities, including agriculture and industry. It emphasizes the need to bring biodiversity into mainstream decision making and policies across all economic sectors.

### **Report Lays Out Plan for Strengthening Scientific Integrity at Federal Agencies**

The Union of Concerned Scientists (UCS) has released a new report, *Strengthening Scientific Integrity at Federal Agencies: Recommendations for 2021 and Beyond*, which outlines a road map for the next Administration to enhance scientific integrity across federal agencies.

“Independent science is under attack in government decisionmaking and its integrity must be restored,” states the [report](#). “Government decisions affect our public health and safety and must be rooted in strong, independent science,” argues the report. “But the safeguards protecting government science have broken down significantly, with the Trump administration in particular laying bare the inherent weaknesses in existing scientific integrity standards, policies, and practices.”

The document cites multiple instances since 2017 in which political appointees “stalled scientific research, rolled back science-based public protections and policies, retaliated against government scientists, weakened and disbanded science advisory committees, failed to fill a large number of critical scientific positions, and undermined career staff.”

The report graded current scientific integrity policies across the federal government and found that the protections available to federal scientists and their work varied widely by agency. The analysis found, for example, that the National Science Foundation’s (NSF) media and social media policies are missing, with previous links now dead; the National Oceanic and Atmospheric Administration has a suite of scientific integrity policies and resources, while the Department of Commerce does not; and the National Aeronautics and Space Administration has been certified for ensuring its employees are aware of their whistleblower protections, while the Department of Agriculture has not.

UCS provides several recommendations for federal agencies to advance scientific integrity policies and practices, including ensuring open communication with the press and the public, enforcing clearance and review policies that protect scientific independence, preventing interference in data collection and research funding, and minimizing conflicts of interest in government science. The report recommends appointing officials to oversee scientific integrity, form intra-agency committees, and report annually on the state of scientific integrity within agencies. UCS also recommends educating and training federal workers on their rights and responsibilities. Finally, the report calls for providing safe and meaningful procedures to report and investigate scientific integrity violations and for establishing mechanisms to protect scientists from retaliatory actions and threats.

### **Certain Endangered Species Susceptible to SARS-CoV-2, Study Predicts**

A new computational study predicts that several critically endangered primate species are at a very high risk of contracting the SARS-CoV-2 virus, which is responsible for the ongoing COVID-19 pandemic.

The [research](#), which was published in *Proceedings of the National Academies of Sciences* this month, assessed the susceptibility of 410 species of vertebrates, including 252 mammals, to the virus and identified a number of mammals that can potentially be infected via their ACE2 proteins (angiotensin converting enzyme-2) – the main receptor for the virus.

The species identified by the study that are at “very high” risk of infection include the critically endangered Western lowland gorilla and Sumatran orangutan, as well as the endangered chimpanzee and bonobo. White-tail deer, Chinese hamster, muskrat, giant anteater, and marine mammals such as killer whale and common bottlenose dolphins are at a “high” risk of infection, while the Siberian tiger, sheep, cat, and cattle are at a “medium” risk of infection.

The results of this study can potentially help in the identification of intermediate hosts for the virus and therefore reduce the opportunity for a future outbreak of COVID-19. The researchers suggest that the species at highest risk for infection represent an opportunity for spillover of the virus from humans to other susceptible animals. According to a report in *The Scientist*, Dr. Harris Lewin, Professor of Evolution and Ecology and at the University of California, Davis and an author on the paper, argues that if there is an intermediate species between bats and humans it is likely in the two highest risk categories, which include fewer than 100 species. Dr. Lewin thinks wild hamsters might be worth looking into as possible intermediate hosts for transmission of SARS-CoV-2 from bats to humans.

Although these results still need to be confirmed empirically, they may potentially help to identify animal models of COVID-19 and assist the conservation of animals both in native habitats and in human care.

## **NSF Requests Information on STEM Education**

In coordination with the National Science and Technology Council's (NSTC's) Committee on STEM Education (CoSTEM) and the White House Office of Science and Technology Policy (OSTP), the National Science Foundation (NSF) is soliciting input on the implementation of the Federal STEM Education Strategic Plan, *Charting a Course For Success: America's Strategy for STEM Education*.

This Request for Information (RFI) addresses changes in education systems that have been impacted by the COVID-19 pandemic. Information collected from this solicitation may be used to guide future Federal STEM education resource development.

The questions included in this RFI focus on the following elements of the Federal STEM Education Strategic Plan:

- Future opportunities in STEM education;
- Develop STEM education digital resources;

- Increase diversity, equity, and inclusion in STEM;
- Engage students where disciplines converge;
- Develop and enrich strategic partnerships;
- Build computational literacy; and
- Community use and implementation of the Federal STEM Education Strategic Plan.

Comments can be submitted online to [CoSTEM@nsf.gov](mailto:CoSTEM@nsf.gov) until October 19, 2020. Further details about this RFI can be found at <https://www.govinfo.gov/content/pkg/FR-2020-09-04/html/2020-19681.htm>

## **2020 Virtual ADBC Summit**

The 2020 Advancing Digitization of Biodiversity Collections (ADBC) conference will be held on September 22-25, 2020 at 1:00 PM Eastern. This year's virtual format will allow a unique opportunity for all interested members within the ADBC community to be able to attend and participate in this yearly event. The annual ADBC Summit brings together representatives from TCNs, PENs, NSF, iDigBio, and other initiatives related to the U.S. National Science Foundation's ADBC program. The Summit inspires collaboration and focuses discussions on shared goals, challenges, and opportunities.

September 22: New TCN Orientation and Existing TCN Networking Opportunities

September 23: Keynote Speakers: Ian Owens and Rebecca Johnson, Smithsonian's National Museum of Natural History & New TCN Presentations

September 24: TCN Presentations

September 25: National Academy of Sciences' Survey Report, Looking forward with NSF Panel, and Panel Discussion/Q&A

For additional agenda details and daily Zoom Registration information, please visit:

[https://www.idigbio.org/wiki/index.php/ADBC\\_Summit\\_2020](https://www.idigbio.org/wiki/index.php/ADBC_Summit_2020)

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The Natural Science Collections Alliance is a Washington, D.C.-based nonprofit association that serves as an advocate for natural science collections, the institutions that preserve them, and the research and education that extend from them for the benefit of science, society, and stewardship of the environment. NSC Alliance members are part of an international community of museums, botanical gardens, herbariums, universities, and other institutions that house natural science collections and utilize them in research, exhibitions, academic and informal science education, and outreach activities. Website: [www.NSCAlliance.org](http://www.NSCAlliance.org).

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