

Report to the Committees on Appropriations

A summary of the U.S. Fish and Wildlife Service's support of the next generation of landscape conservation.

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2021 Report to the Committees on Appropriations on the U.S. Fish and Wildlife Service's Support of the Next Generation of Landscape Conservation

EXECUTIVE SUMMARY

Conserving and Restoring America the Beautiful: *The Biden Administration has committed to working collaboratively to conserve and restore the lands, waters, and wildlife that support and sustain the Nation and has developed a locally led and voluntary nationwide conservation goal to conserve 30 percent of U.S. lands and waters by 2030.*

Landscape-scale conservation efforts are critical to restoring functioning ecosystems that provide myriad benefits to the American people through purifying air and water, protecting biodiversity, producing fish and wildlife, and making natural and built environments more resilient to climate change. Landscape conservation designs (LCDs) are the manifestation of the collaborative goals agreed upon in a geography by partners and are often represented by a geospatial tool that aids decision making. Linked across landscapes, these landscape conservation designs have the potential to create a network of connected lands and waters for thriving ecosystems and thriving communities.

Landscape Conservation Cooperatives (LCCs) were originally envisioned as units of organization for landscape-scale conservation in the United States: a way to start this important conversation and focus the work of the U.S. Fish and Wildlife Service (Service) and the conservation community. The 22 LCCs were not well received by all State partners, and a lack of support from the previous Administration necessitated a reconsideration of the LCC framework.

The Service's current approach to supporting and improving landscape-scale conservation efforts starts with our State and Tribal partners and underscores our collective responsibility for the management of fish, wildlife, plants, and their habitats in the United States. This approach still supports important work envisioned for the 22 LCCs and is consistent with past budget justifications in providing the science and technical expertise needed to support conservation planning at landscape scales—beyond the reach or resources of any one organization—through stakeholder collaboration. Specifically, we continue to engage stakeholders that were involved in the LCCs, building collaborative landscape designs that support both wildlife and people.

An important point—and because we are not tied to a single geography, habitat, or species taxa—is that this approach also builds on and expands our work under Migratory Bird Joint Ventures, Fish Habitat Partnerships, Nature's Network, the Southeast Conservation and Adaptation Strategy, the Midwest Landscape Initiative, Alaska's Northern Latitudes partnership (originating from three former LCCs), and the California Landscape Conservation Partnership by expanding and strengthening partnerships as part of President Biden's America the Beautiful initiative.

In the fiscal year 2021 appropriations bill, the Service was directed to submit a report outlining how this program deviates from what was presented to Congress in the annual budget justifications. The report must include how the Service will engage previous stakeholders and how conservation efforts are aligned with partners, especially what would be done to ensure collaborative conservation on a landscape scale in fiscal year 2021. The following report details those efforts.

Introduction

Science Applications was established as a non-regulatory U.S. Fish and Wildlife Service (Service) program in 2009 to address complex conservation challenges using a landscape conservation approach, work to understand and mitigate climate change, and help to manage the organization's science and data management needs. Although Migratory Bird Joint Ventures (JV) and Fish Habitat Partnerships (FHP) already existed as landscape-scale programs, they were focused on taxa-specific (birds and fish) needs rather than a holistic ecosystem approach. Science Applications supports JV and FHP efforts and expands their work to more inclusively build a network of connected lands and waters. A special emphasis of the program's work was placed on distilling climate science to help natural resource managers implement climate adaptation strategies. The program's purpose has been consistent since its inception. With the start of the Biden Administration, the program has become a key member of the teams working on Conserving and Restoring America the Beautiful and climate change issues in the Department of the Interior (DOI).

Executive Order (EO) 14008 seeks to catalyze climate change action and establishes biodiversity conservation goals now articulated in the Conserving and Restoring America the Beautiful campaign. This EO is supported by the Science Applications program as we collaboratively work to address threats to fish, wildlife, plants, and their habitats. We do this through coordination with a wide array of stakeholders to build a shared vision around a network of connected lands and waters that support functioning ecosystems, thriving fish and wildlife populations, and thriving communities.

Science Applications provides the Federal convening structure and leadership needed to advance conservation science and collaboration among Tribes, States, private landowners, nongovernmental organizations (NGOs), and local communities. The Service, through the Science Applications program, embodies all principles of the America the Beautiful approach. For example, the Science Applications program supports *Principle 1: Pursue a Collaborative and Inclusive Approach to Conservation*. Many private partnerships and State agencies have identified Science Applications as the logical coordinating and funding program to bring conservation organizations together to codevelop conservation strategies that promote biodiversity and ecosystem outcomes.

The Biden Administration has set ambitious goals so that all Americans can benefit from the numerous ecosystem services nature provides, whether for recreation, carbon sequestration, or

preservation of the natural heritage of our country. Science Applications was founded on the ideal that, for conservation to be successful, we must reach across boundaries and proactively engage with partners. This bedrock principle guides all that we do, and it is why we are poised to serve others in support of these conservation priorities.

Background

LCCs were established by DOI Secretary Ken Salazar, under the Obama Administration, on September 14, 2009, through Secretarial Order (SO) No. 3289, to organize capacity and expertise across a broad array of external organizations using a national framework to respond to landscape-scale threats, including climate change. From 2010 through 2017, the Service, through Science Applications, provided significant funding support and personnel to coordinate the network of 22 distinct LCCs. That support changed in May of 2017, when a Secretarial memo on Boards and Commissions paused the coordination of LCCs. Further, President Trump's 2018 budget request did not support Cooperative Landscape Conservation. DOI's fiscal year (FY) 2018 Budget Justification stated that, "FWS will continue to work with external stakeholders to support conservation efforts, share information, and help natural communities thrive but will no longer provide staff or funding to the 22 active cooperatives." Congressional appropriations continued annual funding, and, in FY 2018, directed the Service to work more closely with States and Tribes and focus on where partnerships were strong.

Science Applications continues to play a vital national leadership and coordination role in the implementation of large-scale landscape conservation, although no longer taking the form of the LCC Network. The original participants in the LCCs continue to work together and have established new collaboratives, with their own priorities, governance, and funding support. As authorized, the program works with States, Tribes, the Network for Landscape Conservation, and other partners to identify and address shared conservation priorities across the country, recognizing that different geographies, conservation challenges, and needs require a tailored approach. Although the Service was no longer able to coordinate and directly support the LCC organizational structure, Science Applications continued to provide capacity and funding support for a number of these next-generation landscape-scale conservation efforts across the country (see Appendix I, Current Status of Landscape Scale Collaboration). Moving forward, Science Applications remains focused on collaborative landscape conservation and science support.

Consistency with Budget Justification and Stakeholder Engagement

In the past three fiscal years, Science Applications has supported regional conservation partnerships that evolved out of the discontinuation of the LCCs. As the only Federal program established to coordinate collaborative conservation efforts and the accompanying science planning at the landscape scale, we worked with our core partners to develop a new, more powerful approach to landscape conservation. Instead of dictating structure and governance to 22 LCCs, we are customizing our leadership or support to best meet the needs of programs and partners. As a result, we, the Service, are currently experiencing our strongest working

relationships with State natural resource agencies to date. The timeliness of our approach is met with the urgency of environmental threats such as climate change and habitat fragmentation and degradation. Our leadership and expertise will be essential if the conservation community is to succeed with building a national conservation framework as called for in America the Beautiful.

Science Applications moved away from its rigid staffing structure of a coordinator and science coordinator for each LCC and now comprises partnership coordinators, biologists, data managers, social scientists, administrative support, and geospatial information specialists across the country who are able to assist with collaborative efforts where they are needed the most. Like other Service programs, we have staff presence in Headquarters and all eight regional offices. Science Applications staff are also embedded at various field offices throughout the country. This comprehensive approach gives the program national reach and the ability to support regional, national, and international conservation projects and initiatives for the Service and our partners. Science Applications still provides the supporting infrastructure that enables large, diverse partnerships to thrive, but we are now more nimble and better able to support the needs associated with existing and emerging priorities. The common thread throughout our work is that each project or initiative focuses on an environmental challenge that is urgent, is complex, occurs across a large geographic area, and involves a wide array of stakeholder groups. The program's long-term vision is to shift the conservation paradigm away from reactive management. Through the work of partnerships we convene, lead, or support, we are using proactive and collaborative conservation measures to help preclude the need to list at-risk species.

The LCCs provided a framework to address complex and multijurisdictional conservation issues, such as at-risk species conservation. The Service still supports conservation frameworks that are tailored to fit regional desires and needs. In support of landscape conservation and Conserving and Restoring America the Beautiful, the Science Applications program is working with the next generation of landscape conservation efforts that are tailored to the needs of the geographies and partnerships found therein. Science Applications also continues to work closely with the Association of Fish and Wildlife Agencies (AFWA), regional associations, member States, Tribes, and other organizations on shared landscape conservation priorities. We continue to invest the majority of our resources in regional conservation collaboratives whose foundation and governance is based on the shared management responsibilities among States and the Service. With our continued vision and support, these regional collaboratives are identifying shared priorities, developing desired outcomes, and creating plans to achieve collaborative goals. Although these collaboratives differ in approach and priorities, they share several common themes, such as forecasting future conditions to help make better decisions for the future; maximizing limited resources by focusing on conservation areas with the greatest need; supporting local priorities with a regional perspective; and finding opportunities to adapt and work together. The Southeast Conservation Adaptation Strategy (SECAS) is the most mature of these collaboratives, having evolved from the five LCCs in the Southeast region. Science Applications provides coordination, technical expertise, and other support of collaborative efforts, some of which are described below, and a more extensive list is included in appendix I.

- SECAS:** Science Applications provides technical expertise to the State-led SECAS and the corresponding Southeast Conservation Blueprint to design and support a network of connected lands and waters that supports thriving fish and wildlife populations and improves the quality of life for people across the 15 States of the Southeast. The Southeast Conservation Blueprint, a living spatial plan for shared action across the 15 southeast states, is being used by more than 70 different organizations and has helped secure more than \$21 million in conservation funding, with 99 percent of that funding supporting on-the-ground conservation actions. SECAS is so important to the State fish and wildlife agencies that, with the support of Science Applications and other Federal agencies, they created and adopted a governance structure in the spring of 2021 to ensure that SECAS continues to evolve and drive conservation in the Southeast.
- Nature's Network:** Science Applications facilitates [Nature's Network](#), a collaborative effort by the 13 Northeast states that brings partners together to identify the best opportunities for conserving and connecting intact habitats and ecosystems and support imperiled species to help ensure the future of fish and wildlife across the region. Nature's Network has brought geospatial information to local conservation planning efforts and represents the shared vision for the Delaware River Basin conservation and restoration efforts. Like the Southeastern states, in October the Northeast fish and wildlife agencies adopted a governance structure for wildlife and landscape conservation and included the Fish and Wildlife Service Regional Director as a member.
- Midwest Landscape Initiative:** Science Applications cochairs the [Midwest Landscape Initiative \(MLI\)](#) with leadership from the 13 member States of the Midwest Association of Fish and Wildlife Agencies (MAFWA) and provides overall coordination to identify shared conservation and management priorities that require the development of scalable, collaborative solutions to achieve healthy, functioning ecosystems in the Midwest.
- Crucial Habitat Assessment Tool:** Science Applications continues to support the Western Association of Fish and Wildlife Agencies (WAFWA) and the State wildlife agencies in development of the [Crucial Habitat Assessment Tool](#) (CHAT), including creating common definitions of crucial wildlife habitat and corridors and guidelines to help each State prioritize habitat within its boundaries to meet its specific conservation objectives. The West-wide definitions support compatibility and consistency across State boundaries and address certain discrepancies that may exist in identifying habitat and natural features along State borders. This broad-based, collaborative effort across 16 States has resulted in a West-wide crucial habitat data layer derived from important habitat and connectivity input layers.
- State Wildlife Action Plans:** Our commitment to building collaborative, peer-to-peer relationships with our State partners has led to many proactive efforts to improve cross-jurisdictional management actions. Science Applications was invited to cochair a State Wildlife Action Plan (SWAP) and Landscape Working Group with AFWA in 2021. The goal of this working group was to better use the information in SWAPs for cross-jurisdictional decision making. The 56 SWAPs are foundational to conservation actions within all States, Territories, and the District of Columbia, focused within each State's

geography. Because wildlife does not recognize State lines or borders, the lack of collaboration across State boundaries results in disconnected and potentially less efficient conservation efforts. This working group of 20 State, Federal, and NGO partners created five recommendations and five guiding principles to promote collaboration at meaningful scales across landscapes rather than within political boundaries. Those recommendations, unanimously adopted by State fish and wildlife agency directors in September, enhanced the ability of the Service and its partners to collaboratively set and achieve shared conservation goals, uniting agencies, and diverse partners around shared, proactive conservation of native species, connecting habitats across the landscapes and increasing conservation efficiency and efficacy. Science Applications is providing resources that States would not otherwise have to work together, implement the recommendations of the working group, and regionalize their SWAPs.

- **Conservation Without Conflict:** The Service emphasizes building coalitions with States, landowners, industry, and others to conserve at-risk and listed species. Science Applications provides critical leadership and capacity to these collaborations via coordination, science support, and technical expertise. Science Applications is partnering with private landowners such as the National Alliance of Forest Owners, industry partners such as Bayer, and NGOs such as Pheasants Forever to meet biological outcomes that can reduce or eliminate the need for a regulatory approach. We also work with private landowners to proactively conserve species and preclude the need to list them.
- **Wildlife Disease:** Working closely with the National Wildlife Refuge System staff, Science Applications is developing and administering the \$27 million grant program for zoonotic disease for States and Tribes, as called for in the American Rescue Plan Act. Working with States and Tribes, Science Applications established objectives for the grant program: (1) States will have a current wildlife disease plan; (2) States and Tribes are required to connect to an interjurisdictional network of practitioners; (3) wildlife managers have access to diagnostic services for wildlife diseases; and (4) recipients have the capacity to manage wildlife health data, data sharing, and communication.
- In the Western United States, collaboration starts with the landscapes and the issues. Of the many factors negatively affect the **Sagebrush Biome**, the most significant is invasive annual grasses and the associated fire cycle. Science Applications provides key staff support for the collaborative **Sagebrush Ecosystem Conservation Strategy** with the Western Association of Fish and Wildlife Agencies, Federal agencies, Tribes, private landowners, and NGOs. The program also funded the **Sagebrush Science Initiative** to resolve knowledge gaps for priority species and habitat conservation across the 13-State expanse of the sagebrush biome. In developing a coordinated approach, Science Applications obtained input from the Intermountain West Joint Venture and Western Association of Fish and Wildlife Agencies to provide support in three critical areas: (1) the current and future threat of invasive annual grasses; (2) management effectiveness; (3) and assessing the cost versus benefit of fuel breaks with invasion. Science Applications has since funded the invasive species economic cost/benefit assessment that

will provide economic information to demonstrate the need for financial and human capital to address invasive grasses biome-wide. This assessment, due in September 2022, will also evaluate the discrepancy between the costs of firefighting and post-fire rehabilitation compared with the cost savings of addressing the prevention of wildland fire through early, aggressive invasive annual grass management. This work will help direct program and management investments that align with the Administration's interests of landscape wildlife conservation. We are now leading an LCD for the biome. Outcomes include protecting resilient lands for America the Beautiful, fostering climate resiliency, stemming the three-billion-bird decline, and addressing capacity needs by employing members of a civilian climate change conservation corps.

- Inadequate capacity creates a challenge for many Tribes to engage with peer wildlife agencies. In FY 2022, Science Applications will provide funding to the **Native American Fish and Wildlife Society** to hire much-needed staff that can work with the Service and States to begin identifying the highest shared conservation priorities, on which we can work together.
- Science Applications has provided funding, coordination support, and science resources to 11 Western States to **improve Western big game habitat and migration corridors**. As a result, each State has developed migratory corridor plans and collected much-needed data on wildlife corridors. We currently serve as a member of the WAFWA Wildlife Movement and Migration Working Group, and we have compiled all S.O. 3362 resources in one place for WAFWA members to access ([Secretarial Order 3362 – WAFWA](#)). Our work has been repeatedly praised by WAFWA members.

Enhancing Existing Service Programs Through Partnership and Collaboration

Science Applications is a nonregulatory program within the U.S. Fish and Wildlife Service that tackles conservation issues no single Service program or partner can address alone. We bring together partners that would not have otherwise connected to identify shared conservation priorities and deliver scientific information and tools these partnerships need to achieve conservation goals more effectively and efficiently across the landscape. With a foundation of climate adaptation, our work sits at the nexus of landscape conservation, inclusive collaboration, and science support. Internally, Science Applications provides unique functions to the Service that support (1) specific resource management decision making of Service programs (e.g., listing under the Endangered Species Act, National Wildlife Refuge land acquisition, and climate adaptation best management practices); (2) linking and integrating independent management actions into a coordinated whole for species and ecosystem sustainability; and (3) science-based tools for at-risk species conservation in a nonregulatory context. Following are a few examples of how Science Applications provides science and coordination to enhance our existing programs.

- **Climate Change:** Science Applications coordinates a team of Service staff that created the Climate Change Action Program (CCAP). The CCAP spans every program and region and provides expertise internally and externally on adaptation, resilience, and climate science tools. The CCAP has mapped out the Service's necessary adaptation strategies for the next 5 years. In addition, we have expanded partnerships with regional

Tribal, First Nation, indigenous, and working lands groups and empowered the Service and partners to engage in climate mitigation and expand climate policy and capacity building more effectively. We also partnered with U.S. Geological Survey (USGS) Climate Adaptation Science Centers (CASC) leadership to reconvene other DOI Bureau climate leads, which led to streamlined inclusive development of DOI's Climate Action Plan, mandated by Executive Order.

Science Applications regional staff hold seats on CASC Stakeholder Advisory Committees and Science Support Teams, serve on review panels for Request for Proposals funding opportunities for many of the CASCs, and participated in the establishment of the newest Midwest Region CASC. The CASCs look to Science Applications to provide convening of partners, identifying shared science needs the CASCs can fill, and then translating the science they produce and developing tools our partners need to best use the science in their work. By facilitating close coordination with the CASCs, Science Applications helps to ensure that high-quality science projects and products, tailored to the needs of our partners, are considered and funded through the CASCs. We then translate that science into tools that can be used by managers in their conservation actions. Further, the Science Applications team represents and coordinates with Service programs, ensuring that priority Service science needs are addressed and well represented at CASC meetings. Working with USGS CASCs, AFWA, the National Oceanic and Atmospheric Association, other Federal agencies, and NGOs, we are helping to re-energize the National Fish, Wildlife, and Plants Climate Adaptation Network. This collaborative effort among a diverse team of technical, scientific, and management experts recently published a [white paper](#) identifying needed updates to the [National Fish, Wildlife, and Plants Climate Adaptation Strategy](#), which is now being revised to incorporate the suggested updates. This Strategy has provided unified guidance for adaptation efforts by the Service and partners for the past decade.

- **Conserving and Restoring America the Beautiful:** In August 2021, Science Applications led the Service's response to the Conserving and Restoring America the Beautiful campaign by forming a cross-programmatic team to harness the talents and perspectives found throughout the agency that support the campaign. More than 100 individuals from across the Service applied to be on the team. Through this team, Science Applications is leading the way for cross-programmatic work by developing an annual workplan for the Service. The plan will integrate ongoing efforts, identify new actions and activities that address climate change and promote landscape scale conservation, support healthy communities and thriving economies, and help remedy historical racial inequities in access to and benefits from nature. In addition, the team is supporting development of a nationwide conservation and stewardship atlas.
- **North American Pollinator Conservation:** In 2015, Science Applications, with the National Fish and Wildlife Foundation and other partners, launched the Monarch Butterfly and Pollinators Conservation Fund. The fund has awarded approximately \$14.9 million to 98 projects that are helping conserve and recover the imperiled monarch butterfly and other pollinators. Grantees have matched that investment with an additional \$24.6 million, for a total on-the-ground impact of more than \$39.5 million. Science Applications supported development of the Mid-America Monarch Conservation

Strategy, working closely with the Midwest Association of Fish and Wildlife Agencies and the 2019–2069 Western Monarch Butterfly Conservation Plan with the Western Association of Fish and Wildlife Agencies, which will be the backbone to conservation efforts moving forward.

The Service’s National Pollinator team, created and supported by Science Applications, is coordinating all Service pollinator work and is actively implementing 15 projects around the country. Innovation, such as identifying pollinator presence by extracting insect DNA from plants, is a hallmark of Science Applications. If successful, this DNA pilot program has the potential to save time and the cost of field collection in documenting the presence of pollinator species in a given geography. Science Applications also initiated and facilitates a pollinator community of practice within the Service that numbers more than 200 employees who exchange information, techniques, and questions related to the precipitous decline of pollinators and their habitats. Science Applications staff has trained more than 1,000 people across the country in bee identification, building capacity within the agency to document pollinator populations. Science Applications is also working with private landowners, agriculture, and industry to promote and implement conservation actions that benefit pollinators and the Western population of the monarch butterfly. We continue to coordinate and facilitate the Service’s work on pollinators, bringing innovation, shared learning, and coordination with external partners to help stem the decline of pollinators across the country.

- **Grasslands:** Temperate grasslands across the North American Great Plains are among the most imperiled ecosystems on earth. Since the mid-19th century, 80 percent of these grasslands have been cultivated or plowed. Science Applications developed an outcome-based adaptive management planning process to strategically direct the Service’s conservation resources to priority species in priority landscapes. Working in collaboration with the [Joint Venture 8](#) (JV8) and other Service programs, Science Applications is helping implement relevant portions of [the Central Grasslands Roadmap](#) to reverse the staggering loss of more than 700 million grassland birds, nearly one-fourth of the 3 billion birds lost since 1970. Science Applications appropriations support the JV8 Coordinator, and we provide technical support for grassland conservation through our expertise in spatial analysis, design, and planning.
- **Species Status Assessments:** Working closely with Ecological Services and State partners, Science Applications proactively collects data to assist with species status assessments (SSAs) for species that are candidates for listing under the Endangered Species Act. Our goal is to identify conservation measures that, when implemented, may preclude the need to list some species, thereby taking a proactive and collaborative approach to the conservation of at-risk species. We are actively assisting in the golden cheeeked warbler, Three Forks spring snail, narrow-headed and Northern Mexican garter snakes, spotted turtle, and at least another dozen SSAs this year.
- **Data Management:** To improve data management in the Service and meet the new Federal requirements, Science Applications led Service teams in creating and finalizing two Service manual chapters in 2021. We hosted two week-long data management workshops attended by more than 500 staff. To make data management more accessible

to all staff, we developed a data management handbook. In close partnership with the Service's Information Resources and Technology Management program, we are now recruiting volunteers from staff across the Service to serve as data management ambassadors and who will help regions and programs appropriately manage and document all scientific data collected by the Service.

- **Science Integrity:** We provide leadership to the Service in upholding DOI policy and the Scientific Code of Conduct. Science Applications supports the Service's Science Integrity Officer, who provides training, promotes awareness of relevant DOI policy and the Scientific Code of Conduct, conducts informal and formal investigations, and coordinates with Service leadership to maintain and enhance agency credibility with respect to science and the policies and regulations it informs.

Next Steps

Over the past 2 years, we have observed numerous, unconnected private-sector, State, and Federal organizations recognizing the strong need for coordinated conservation collaboration and a concerted effort to strive toward better diversity, inclusion, equity, and justice. A number of these groups—the Association of Fish and Wildlife Agencies relevancy efforts, Network for Landscape Conservation, Western Landowners Alliance, Conservation Without Conflict, the Center for Large Landscape Conservation, and the National Wildlife Federation's Creating Safe Spaces—have independently been convening and developing ideas. We envision a future that brings all these efforts together. To accomplish that goal, we have been working since early summer 2021 with the Network for Landscape Conservation, AFWA, USGS, the Native American Fish and Wildlife Society, and others to develop a coordinated strategic approach to ensuring collaborative development of a national framework for conservation, starting with a Future of Conservation Forum. On January 25 and 27, 2022, the Service and over 200 Federal, State, non-profit partners, convened the forum. A virtual event, the forum brought together leaders from across the country representing diverse groups with a goal of creating a connected network of lands, waters, and people that foster healthy wildlife populations and vibrant communities. Participants built an actionable national framework for landscape conservation in the era of climate change. Following the forum, a report will be produced for discussion at the North American Wildlife and Natural Resources Conference in March 2022 and at a later call to action this year.

The goal of the March meeting, hosted by several foundations, is to capitalize on the substantial financial resources of the private sector for landscape conservation efforts. Private-sector efforts should be paired with Federal investments. Our goal is to develop a conservation compact for the Nation that all partners support (Federal, State, and local government; NGOs; and private landowners) and to share responsibility for implementation to create a network of connected lands and waters for thriving ecosystems and thriving communities. This is the important work Science Applications was created to accomplish: connecting disparate efforts by creating a shared vision greater than any one entity can accomplish. Working collaboratively, the conservation community is on the cusp of connecting the disparate efforts of the past with the collaborative vision of the future to overcome the biodiversity and climate challenges facing our Nation.

Conclusion

Addressing 21st-century conservation challenges—from the impacts of climate change to large-scale habitat loss and alteration—requires a unifying and shared conservation vision. This vision is difficult to achieve given the scope and scale of environmental stressors and the diversity of partner jurisdictions, values, and needs. Science Applications’ established purpose is to bring partners together in pursuit of a shared conservation vision and to coordinate conservation planning and implementation across jurisdictions. Despite the loss of LCCs, the program has never strayed from its established purpose. Science Applications still works with myriad conservation partners across the country to develop regional conservation goals that support local collaborations and decision making. This scaled and collaborative approach to conservation weaves local conservation and planning efforts into larger, landscape-scale collaboratives. Conservation at the scale that is needed in this country to meet biodiversity goals cannot rely on isolated efforts of agencies or organizations. Science Applications works with national and regional entities and with local and underserved communities to incorporate local needs into the larger conservation framework.

Science Applications has always embraced the principles established in *Conserving and Restoring America the Beautiful*. We are coordinating and leading the Service’s action plans on climate change, *America the Beautiful*, and wildlife corridors. Science Applications also integrates and supports other collaborative landscape efforts, such as the Migratory Bird Joint Ventures, National Fish Habitat Partnerships, and the Network for Landscape Conservation. Science Applications continues to be a unique Federal program—one that is sorely needed as we stem the biodiversity and climate crisis.

Appendix I: Current Status of Landscape-Scale Collaboration

A regional breakdown of landscape-scale collaborations Science Applications is currently supporting.

Legacy Region	Name of Collaborative	Additional Notes
R1 (Pacific Region)	Western Association of Fish & Wildlife Agency's Western Monarch Butterfly Working Group	The Service, as the only Federal agency participating, helps fill gaps left by lack of State fish and wildlife management authority for insects in five of the seven States within the species' range. With less than 1% of the historical migratory population remaining, Science Applications (SA) plays a critical role in supporting the science needed to recover the species.
R1	Cascades to Coast Landscape Collaborative	Focused on lands west of the Cascade Mountains extending to the Pacific Coast in Oregon and Washington, this collaborative of States, Tribes, Federal agencies, private landowners, and NGOs develops strategies to design and manage resilient landscapes for people, ecosystems, biodiversity, and working lands. SA provides technical and financial support.
R1	Oregon Connectivity Assessment and Mapping Project (OCAMP)	The Oregon Connectivity Assessment and Mapping Project (OCAMP) is a collaborator with the Cascades to Coast Landscape Collaborative. It includes State and Federal agencies, NGOs, and academic institutions. OCAMP focuses on developing habitat connectivity maps for 54 species across western Oregon that will enable Federal and State agencies, Tribes, private landowners, and NGOs to identify and prioritize management actions as they develop their planning efforts across the region. SA provides financial support.
R1	Washington Connected Landscapes Project: Cascades to Coast Analysis	The Washington Connected Landscapes Project is a collaborator with the Cascades to Coast Landscape Collaborative. It includes State and Federal agencies and NGOs. It is focused on developing habitat connectivity maps for six distinct habitat types across western Washington State that will enable Federal and State agencies, Tribes, private landowners, and NGOs to identify and prioritize management actions as they develop their planning efforts across the region. SA provides technical support.
R1	Pacific Regional Invasive Species and Climate Change Management (Pacific RISCC)	The Pacific RISCC is co-organized by Science Applications, United States Geological Survey (USGS) Pacific Island Climate Adaptation Science Center (PI-CASC), East-West Center, State of Hawai'i, and Coordinating Group on Alien Pest Species. Pacific RISCC brings together natural resource managers, scientists, and the invasive species community to discuss challenges and solutions to incorporating climate change into invasive species management.
R1	Landscape Planning for Threatened and Endangered	A collaborative, analysis-intensive effort to help Hawai'i develop and implement a climate-resilient spatial plan to conserve more than 200 species (listed and at-risk) on the

Legacy Region	Name of Collaborative	Additional Notes
	Species Recovery on Maui Nui	islands of Maui, Moloka'i, and Lana'i. SA funds the facilitator and USGS analyst and participates in the steering committee.
R1	Hawaii Conservation Alliance	A decades-old collaboration among all land management and conservation agencies and organizations in Hawai'i. SA participates in the steering committee and chairs the climate change subcommittee.
R1	USGS Pacific Islands Climate Adaptation Science Center	SA coordinates closely with the PI-CASC, whose geographic scale includes all the U.S.-affiliated Pacific Islands. SA is currently co-funding three projects with this CASC.
R1	Hawaii Fish Habitat Partnership	SA is a member of the steering committee.
R1	Pacific Birds Habitat Joint Venture	This collaboration includes both island-specific partners and the larger Pacific flyway in North America.
R1	Hawai'i Landscape-scale Mosquito Control Program	This multiagency collaboration is aimed at developing and implementing a novel solution to the extinction crisis of Hawaiian forest birds. SA is funding research, group facilitation, permit planning, and development of public outreach products.
R1	Hawai'i Marine 30x30 Initiative	The State of Hawai'i has a stated goal of effective management of 30% of nearshore waters by 2030. SA is assisting in community-based planning for this by funding the application and evaluation of a participatory geospatial planning framework.
R1	Hakalau Forest Regional Restoration Initiative	The Hakalau Forest National Wildlife Refuge is a focal point of reforestation for the recovery of Hawaiian forest birds and is surrounded by lands managed by State entities for a variety of purposes. This collaboration is developing a climate-smart restoration plan to enhance the ability of all entities to restore ecosystem function in a climate-resilient manner. SA is funding development of this plan.
R2 (Southwest Region)	JV 8 Grassland Conservation Initiative	Science Applications is supporting the development of a Grassland Conservation Implementation Strategy and provides support for capacity building (Grassland Conservation Director).
R2	Invasive Aquatics Species Initiative	Through the Invasive Aquatics Species Initiative, Science Applications is working with other Federal agencies and State partners to advance treatment of nonnative aquatic species in the Southwest.
R2	USGS CASC Engagement and Collaboration	Science Applications Staff and Assistant Regional Directors hold seats on CASC stakeholder advisory committees, science support Teams, and review panels for request for proposals funding opportunities in both the South-Central and South-West Climate Adaptation Science Centers.
R2	USGS Cooperative Fish and Wildlife	SA supports identification and pursuit of shared science priorities by leveraging the cooperators network, which includes the Service, State fish and wildlife agencies, USGS

Legacy Region	Name of Collaborative	Additional Notes
	Unit Engagement and Collaboration	Cooperative Fish and Wildlife Unit, NGOs, and academic institutions.
R3, R4, R5, R1, R2, R8	NAFO-FWS Wildlife Conservation Initiative	Science Applications is working with the National Alliance of Forest Owners (NAFO) to quantify the distribution, abundance, and population status of at-risk species on managed forest landscapes and the contribution of those lands to conservation outcomes. SA also facilitates relationships between NAFO and Service programs—including Ecological Services, Migratory Birds, refuges, and others—toward an integrated landscape conservation approach.
R3 (Great Lakes Region)	Kirtland’s Warbler Conservation Team	SA is collaborating with the Kirtland’s Warbler Conservation Team to sustain the population recovery of Kirtland’s Warbler and other priority species in northern Midwest forests.
R3	Monarch and Pollinator Collaboration with Pheasants Forever & Quail Forever	SA is working with Pheasants Forever and Quail Forever to implement hunter recruitment, retention, and reactivation and to conserve at-risk pollinator species.
R3	Southwest Wisconsin Grasslands Partnership	SA provides cost-share support of conservation coordination that brings together local, State, and Federal partners working together on citizen science, education, and technical support to deliver grassland conservation across the southwest Wisconsin grasslands.
R3	Tri-national Monarch Conservation Science Partnership	SA participates in this partnership between Canada, Mexico, and the United States.
R3	National Fish and Wildlife Foundation Monarch Butterfly and Pollinators Conservation Fund	The Monarch Butterfly and Pollinators Conservation Fund is a public-private partnership administered by the National Fish and Wildlife Foundation to protect, conserve, and increase habitat for the monarch butterfly and other pollinator insect species.
R3	Great Lakes Commission and Blue Accounting Coordination	SA observes Great Lakes Commission activities and engages on shared Great Lakes fish and wildlife conservation issues. SA also coordinates cross-program efforts in responses to the International Joint Commission and other Great Lakes coordinating bodies.
R3	Great Lakes Coastal Assembly	Science Applications staff coordinated the development of the Great Lakes Coastal Assembly, a local, State, and Federal partnership establishing and pursuing coastal conservation goals around the Great Lakes coastal areas.
R3	Midwest USGS Cooperative Fish and Wildlife Research Studies Unit Steering Committees	SA coordinates Service participation and participates directly on five CFWRU executive committees across the region.

Legacy Region	Name of Collaborative	Additional Notes
R3	Advisory Committee for the Northeast/Midwest USGS Climate Adaptation Science Centers	Science Applications represents Service science needs on Climate Adaptation Science Center stakeholder advisory committees and regional working groups.
R3	AFWA Task Force on Shared Science and Landscape Conservation Priorities	SA participates on the AFWA Task Force, representing region and shared conservation efforts implemented via the Midwest Landscape Initiative.
R3	MAFWA Wildlife Diversity Committee	Science Applications joins State Wildlife Action Plan and Diversity Program coordinators from across the States to recommend and work on conservation challenges of shared interests.
R3	PFAS Great Lakes Task Force	SA is coordinating science efforts with State and Federal participants around the impacts of per- and polyfluoroalkyl substance (PFAS) chemicals on fish and wildlife resources.
R3	Monarch Joint Venture Board of Directors	SA serves as a Service representative on the Monarch JV's board of directors.
R3	Commission on Environmental Cooperation Trilateral Pollinator Conservation	This collaboration includes partners from Mexico, Canada, and the United States.
R3	Internship Program with University of Texas at San Antonio and Chicago Field Museum	Science Applications implemented a memorandum of understanding (MOU) with the University of Texas at San Antonio to provide internship opportunities for diverse students, provide exposure to the field of wildlife conservation, and share the Service mission.
R4 (Southeast Region)	Southeast Aquatic Resources Partnership	The Southeast Aquatic Resource Partnership's (SARP's) work to develop the information and decision support behind the Barrier Inventory and Removal Prioritization Tool is a showcase conservation resource in the Southeast. SARP provides information available through the tool and supports on-the-ground conservation delivery through its State-led Aquatic Connectivity Teams.
R4	Southeast Aquatic Resources Partnership	Science Applications is working with SARP to improve the consistency and accuracy of aquatic indicators and condition assessments used by SECAS in the Southeast Blueprint, as well as by the Service and its contractors, in development of species status assessments.
R4	Lower Mississippi Valley Joint Venture, Central	With these partners, SA performed exploratory modeling to guide the design of a full annual cycle study of declining grassland birds in the Midcontinent United States. The

Legacy Region	Name of Collaborative	Additional Notes
	Hardwoods Joint Venture, East Gulf Coastal Plain Joint Venture, Oaks & Prairies Joint Venture	objectives of this project are to determine necessary sample sizes ahead of field work at sites across the Midwest and Southeast.
R4	Mississippi State University and the Water Institute of the Gulf	This project seeks to integrate Mid-Southeast Blueprint indicators with the flexible framework of the Strategic Conservation Assessment (SCA) tool. This flexible framework will allow users to develop their own map products by selecting their focal species and ecosystem measures, weighting those measures according to their relevance to the user's decision, and choose directionality of relationships via utility functions (e.g., avoid urbanization or "get there first").
R4	Lower Mississippi Valley Joint Venture, Central Hardwoods Joint Venture, East Gulf Coastal Plain Joint Venture, Oaks & Prairies Joint Venture	SA is mapping the distribution and abundance of grassland birds across four Joint Ventures in the Southeastern United States. The objectives of this work are to better define current distributions of declining grassland birds to inform grassland condition assessments and conservation/restoration actions.
R4	Lower Mississippi Valley Joint Venture, Central Hardwoods Joint Venture, East Gulf Coastal Plain Joint Venture, Oaks & Prairies Joint Venture	SA is performing the Southeast Conservation Adaptation Strategy blueprint and joint venture planning assessment. The Southeast Conservation Adaptation Strategy (SECAS) and the suite of bird-habitat Joint Ventures (JVs) both strive to support sustainable populations of priority/trust resources across the Southeast. The objective of this work is to conduct a formal review of the two efforts through a series of workshops, particularly in (but not limited to) the Lower Mississippi Valley Joint Venture.
R4	FWS South Atlantic-Gulf and Mississippi Basin/U.S.G.S. Cooperative Research Unit Relationship	Science Applications is committed to supporting the mission of the Service by strengthening science development and delivery through increased collaboration with USGS Cooperative Fish and Wildlife Research Units (Coop Units). One way we are doing so is by coordinating a Service Coop Unit Liaison effort that gathers and brings forth Service science information needs for discussion with State partners and Coop Unit staff.
R4	Southeast Natural Resources Leadership Group (SENRLG)	The SENRLG is a group of Federal agencies with natural resource conservation and management responsibilities in the Southeastern United States. They have been actively collaborating since before the MOU between the 13 agencies was signed in 1955. Science Applications staff serve on the executive committee, which gathers issues and topics for the meetings of agency principals.
R4	Strategic Conservation of	The Strategic Conservation of Gulf Coast Landscapes project provides a suite of tools to assist land conservation planners in

Legacy Region	Name of Collaborative	Additional Notes
	Gulf Coast Landscapes (SCA)	(1) understanding existing priorities of conservation plans, (2) evaluating ecological and socioeconomic co-benefits of proposed land conservation projects, and (3) prioritizing areas for land conservation within the U.S. Gulf of Mexico coastal region. The SCA team works Gulf-wide and is currently engaged in more than eight use-cases to show the tools' utility for land trust organizations working on Sentinel Landscape and National Estuarine Research Reserve designation proposals. This project also interfaces with SECAS and the Florida Blueprint efforts, which are led by Science Applications.
R4	Northern Gulf of Mexico (NGOM) Sentinel Site Cooperative (SSC)	The Northern Gulf of Mexico Sentinel Site Cooperative (NGOM SSC) is one of the five Sentinel Site Cooperatives within the broader National Oceanic and Atmospheric Administration (NOAA) Sentinel Site Program (SSP). The NGOM SSC is a partnership focused on sea-level rise and inundation in the northern Gulf of Mexico. SA staff work on the executive committee. This program won the 2020 Climate Adaptation Leadership Award for Natural Resources under the "Broad Partnerships" category.
R4	Ocala to Osceola Wildlife Corridor (O2O)	The Ocala to Osceola (O2O) Partnership is an unprecedented regional partnership of public agencies and private organizations working together toward a common goal: land conservation and protection of military mission in the O2O.
R4	Avon Park Air Force Range Sentinel Landscape Cooperative	Located in south-central Florida, the Avon Park Air Force Range Sentinel Landscape covers almost 1,700,000 acres of land and is known for its rich biodiversity and abundance of private ranches. The Sentinel Landscape is anchored by the Air Force's largest primary air-to-ground training range east of the Mississippi River, which is used by every branch of the armed forces. The Sentinel Landscape is also home to portions of the Everglades Headwaters National Wildlife Refuge and Conservation Area, a 900-acre parcel that buffers the installation from incompatible development and offers excellent opportunities for hunting, fishing, camping, and other outdoor activities. In 2016, local partners forged the Avon Park Air Force Range Sentinel Landscape to preserve the region's ecological assets and strengthen military readiness by helping private landowners manage their properties sustainably.
R4	Southeast Regional Partnership for Planning and Sustainability (SERPPAS)	The partners of SERPPAS include Southeastern State and Federal environmental and natural resource agencies joining with the Department of Defense to encourage compatible resource-use decisions and mutual mission accomplishment at the nexus of sustaining local economies, conserving natural resources, and supporting national defense. Science Applications works collaboratively with SERPPAS around shared priorities for collective action. SA led the effort to develop technical and geospatial applications supporting the

Legacy Region	Name of Collaborative	Additional Notes
		Good Map project to describe shared priorities to target resources and action.
R4	Gulf of Mexico Alliance (GOMA)	Thirteen Federal agencies committed to supporting GOMA came together as a Federal workgroup under the leadership of NOAA, EPA Gulf of Mexico Program, and DOI. The goals of the Federal workgroup are to support the Gulf States and to coordinate an integrated Federal response to priority regional issues identified by GOMA.
R4	Gulf of Mexico Federal Working Group	This working group, with 173 Federal members, has monthly calls and discussion on topics related to Federal interests in the Gulf of Mexico restoration. Science Applications is a member of the executive committee, which gathers topics and issues for the group discussions.
R4	Florida Coastal Resilience Forum	The Florida Coastal Resilience Forum provides a statewide platform for sharing or asking for ideas, news, and information on resilience to the effects of sea level rise on coastal communities, coastal flooding, ecosystem changes, erosion, etc.
R4	Co-development and Implementation of a State-Federal Blueprint for Conservation and Streamlined Regulation for Florida (Florida Blueprint Project)	The goal of this project is to continue to focus on increasing the efficiency and effectiveness of aligned, collaborative, and consistent conservation actions in Florida by the Service, the Florida Fish and Wildlife Conservation Commission, and other partners. The foundation for this collaborative conservation framework is a shared statewide Florida Conservation Blueprint. The information, tools, and products developed in the design phase will be used to help conservation practitioners working at different scales to contribute to regional conservation goals.
R4	Southeastern Association of Fish and Wildlife Agencies (SEAFWA)—Wildlife Diversity Committee	The SEAFWA Wildlife Diversity Committee works on issues and matters regarding non-game species and species listed or proposed for listing under State or Federal species listing criteria throughout the Southeast. Science Applications works with the Wildlife Diversity Committee on projects to advance the understanding of the status of species and to implement approaches to recover, downlist, delist, or prevent listing of considered species. Science Applications supported development of a list of Regional Species of Greatest Conservation Need (RSGCN). This project promotes cross-state collaboration and focuses resources on shared priorities in consideration of more than 6,500 species identified in 15 Southeastern State wildlife action plans.
R4	Eastern North Carolina Sentinel Landscape Partnership (ENCSLP)	The ENCSLP was established in support of natural resource conservation, sustaining local economies, and supporting the extensive military mission footprint in eastern North Carolina. Specifically, the partnership works to optimize the benefits of Federal, State, local, and other assistance to private landowners whose working and natural lands also serve to protect the military mission. Science Applications is a charter signatory to the ENCSLP and maintains a leadership role in accomplishing

Legacy Region	Name of Collaborative	Additional Notes
		a statewide project to identify priority areas for conservation and sustaining military readiness, focusing on the “spaces between the bases.”
R4	Gulf of Mexico Avian Monitoring Network (GOMAMN)	The Gulf of Mexico Avian Monitoring Network has working groups structured around each of the functional taxa groups of birds (seabirds, shorebirds, wading birds, marshbirds, waterfowl, landbirds, and raptors), as well as a working group focused on the utility and application of decision theory to the establishment of bird monitoring objectives and priorities.
R5 (Northeast Region)	Chesapeake Bay Program/Partners in the Bay Program	This partnership comprises collaborative, goal-driven restoration and protection programs whose work results in improved water quality and economic recovery in the basin.
R5	Chesapeake Watershed Investments for Landscape Defense (WILD) Program	A States-Federal-private partnership that implements the Chesapeake Watershed Investments for Landscape Defense Act, the Chesapeake Watershed Investments for Landscape Defense (WILD) framework was initiated in February 2021 at the WILD stakeholder engagement session and convened by Science Applications. The report “Chesapeake WILD: A Network in Action for Wildlife Conservation and Environmental Equity” was completed in July 2021 and submitted to Congress. The report synthesizes ideas, actions, and strategies to inform the Chesapeake WILD program framework with the intent of bringing together various stakeholders to build capacity, develop networks, and create greater efficiency and focus watershed-wide. The framework provides structure for identifying opportunities to align effort and leverage resources among various organizations.
R5	Delaware River Watershed Conservation Collaborative	This partnership was established to identify shared priorities and goals among stakeholders in the watershed and to accelerate conservation to achieve those goals together. Collaborative actions occur in four strategic areas: <ol style="list-style-type: none"> 1. Conserving and restoring fish and wildlife habitat. 2. Improving and sustaining water quality. 3. Upgrading water management and reducing flood damage. 4. Enhancing recreational opportunities and public access.
R5	At-Risk Species Conservation	Priority at-risk species were identified through an employee-driven process incorporating the best available science, a series of prioritization considerations, and State wildlife agency recommendations. Those species will receive attention focused across programs and land ownership, facilitated by Science Applications.
R5	Connect the Connecticut	This collaborative of more than 30 partners from State and Federal agencies and private organizations has developed a conservation design for the watershed using the best available science, where important species, habitats, and natural processes will be sustained into the future.
R5	Atlantic Coast Joint Venture	This partnership works to protect saltmarsh sparrows and other native birds across the region and land ownerships.

Legacy Region	Name of Collaborative	Additional Notes
R5	Marsh Recovery	The purpose of this effort is to increase the resiliency of tidal marsh habitats and species in the face of storms and sea-level rise. Existing data, models, and tools are integrated with foundational data and impact assessments to guide decisions about where to conduct tidal marsh restoration, conservation, and management.
R5	Building a Stronger Coast	This collaborative effort works to restore and strengthen coastal marshes, wetlands, and shoreline; connect and open waterways to increase fish passage and improve flood resilience; and bolster local efforts to protect communities from future storms.
R5	Service Watershed Investment Map (SWIM)	SWIM strategically focuses investments in aquatic connectivity across Service programs and States to improve the effectiveness and efficiency of our aquatic connectivity restoration work.
R5	Eastern Brook Trout Joint Venture	This partnership between State and Federal agencies, regional and local governments, businesses, conservation organizations, academia, scientific societies, and private citizens works toward protecting, restoring, and enhancing brook trout populations and their habitats across their native range.
R6 (Mountain-Prairie Region)	Crown of the Continent Partnership	<p>The Crown of the Continent is a remote, transboundary landscape encompassing 13 million hectares that supports at-risk species such as grizzly bear, bull trout, Canada lynx, and wolverine. Science Applications is supporting the collaborative work among 42 partners and stakeholders (State, Federal, provincial, Tribal, community-based, and nongovernmental) to develop a landscape conservation design for this critical ecosystem. The design process addresses landscape themes, science support, and collaborative conservation, including shared ecological and social values of stakeholders. Outcomes include a spatial design that synthesizes dozens of well-managed input data and optimization modeling approaches and a strategic design coproduced with researchers and managers that identify the who, how, when, and what conservation actions can most efficiently achieve shared goals.</p> <p>Outcomes will be a participatory, voluntary, and nonregulatory roadmap to sustain and achieve desired conditions for ecological integrity, at-risk wildlife populations, and human communities across the Crown landscape.</p>
R6	High Divide Collaborative	(Includes central Idaho [R1]) The High Divide landscape is critical to wildlife movements throughout the northern Rockies. Because it is a patchwork of private and public land, collaborative landscape approaches are key to sustaining local communities, traditional lifestyles, and ecological integrity. High Divide Collaborative fosters a trust-based conservation forum of private landowners, agency personnel, land trusts, and NGOs and has convened biannually since 2012. More than 50 stakeholders of the High Divide Collaborative are now working

Legacy Region	Name of Collaborative	Additional Notes
		on an LCD to conserve and restore lands of importance for local communities and to protect ecological integrity in an area straddling the Idaho/Montana border. With the support of Science Applications, this private-public partnership is finalizing the LCD geography in which they will achieve outcomes for eight shared priorities, including linkages of core habitat areas to conserve fish and wildlife populations that are resilient to climate change.
R6	WAFWA CHAT Initiative	The WAFWA CHAT Initiative is a multiple-State partnership collaboration that benefits a large geography—a landscape-scale tool to facilitate pre-project planning and other CHAT uses. Its data management priority is data planning, acquisition, maintenance, access, and evaluation key components. Its at-risk species priority is as a tool to access State terrestrial and aquatic species of concern and economic and recreational importance.
R6	Rainwater Basin Joint Venture	In the wetlands of the Rainwater Basin and across Nebraska’s mixed-grass prairies, Rainwater Basin Joint Venture partners achieve habitat conservation through cooperation and sound science. Science Applications provides funding for projects.
R6	Northern Great Plains Joint Venture (NGPJV)	The NGPJV was established in 2004 to catalyze bird habitat conservation through the collaborative power of diverse public-private partnerships. It operates across all or parts of four States and encompasses a diverse landscape, including some of the most intact mixed-prairie landscapes in the United States. SA provides funding to support projects.
R6	Prairie Pothole Joint Venture	The Prairie Pothole Joint Venture (PPJV), established in 1987 as one of the original six priority joint ventures under the North American Waterfowl Management Plan, protects, restores, and enhances high-priority wetland/grassland habitat to help sustain populations of waterfowl, shorebirds, waterbirds, and prairie landbirds. Science Applications provides funding to support projects.
R6	WAFWA Sagebrush Conservation	Part of a multi-region cooperative agreement with WAFWA established the Sagebrush Science Initiative to identify and resolve gaps in knowledge relative to the sagebrush system and priority species conservation. The collective information has informed development of a Sagebrush Ecosystem Conservation Strategy, a science-based guide that will enable Federal and State agencies, Tribes, private landowners, and NGOs to identify and prioritize management actions through their own planning efforts to ensure that the sagebrush and associated at-risk species continue to thrive.
R6	Grasslands SHC Initiative	In November 2019, multiple Service regions initiated a cross-programmatic Grassland Conservation Team to develop a coordinated response to the continuing grassland loss. The Grassland Team was charged with developing an outcome-based adaptive management planning process (Strategic

Legacy Region	Name of Collaborative	Additional Notes
		Habitat Conservation, or SHC) to strategically direct Service conservation resources to priority species in priority landscapes.
R6	Sagebrush SHC Initiative	The Sagebrush SHC Initiative is a strategic, cross-programmatic, multiregional approach to focus our investments on priority migratory bird species and associated sagebrush habitats. This effort builds on decades of work by our partners and our programs and prioritizes how the Service will invest our human, technical, and fiscal resources in sagebrush country.
R6	Central Grasslands Roadmap	The roadmap is a collaborative guide to increase conservation of North America’s Central Grasslands. Science Applications’ participation ensures alignment with regional Grasslands work and contributes to a shared, collective vision and set of goals that spans North America’s grasslands.
R7 (Alaska Region)	Aleutian and Bering Sea Initiative	This initiative addresses the following Service priorities: improved relationships with Alaska Native and rural partners; collaboration on sustainable use of natural resources; an improved relationship with the State of Alaska; better availability, sharing, and use of data; attention to at-risk and listed species/habitats; and diversity, equity, and inclusion (DEI) within Science Applications. Service funding for projects is leveraged with other agency and foundation funding. Service staff are project co-principal investigators and steering committee members.
R7	Northwest Boreal Partnership	This partnership addresses the following Service priorities: better availability, sharing, and use of data; landscape coordination and planning; attention to at-risk and listed species/habitats; an improved relationship with the State of Alaska; and improved relationships with Alaska Native and rural partners. Service funding is leveraged with other agency and foundation funding. Service staff are project co-principal investigators and steering committee members.
R7	Western Alaska Partnership	The Western Alaska Partnership addresses the following Service priorities: improved relationships with Alaska Native and rural partners; collaboration on the sustainable use of natural resources; an improved relationship with the State of Alaska; better availability, sharing, and use of data; attention to at-risk and listed species/habitats; and diversity, equity, and inclusion (DEI) within Science Applications. Service staff are project co-principal investigators and steering committee members.
R8 (Pacific Southwest Region)	Species to Landscapes: Frogs to Forests	Recognizing the tight linkage between conservation of individual species and the landscapes in which they reside, we frequently use a “species to landscapes” approach when collaborating on at-risk species so that landscapes can continue to support resident at-risk species. Our “Frogs to Forest Collaboration” in California is one such example. The foothill

Legacy Region	Name of Collaborative	Additional Notes
		yellow-legged frog (FYLF) is currently being reviewed by the Service to determine its status. In 2018, Science Applications convened species experts and partners to solicit input on research and conservation priorities for FYLF. We subsequently worked collaboratively to invest in science to better understand and manage the species. Using funding from the USGS Southwest Climate Adaptation Science Center, we are now scaling up those efforts to the landscape level by designing a network of climate refugia for aquatic at-risk species in the Tuolumne and Merced watersheds in partnership with the Stanislaus National Forest and Yosemite National Park.
R8	Advancing Klamath Basin Collaboration	The Klamath Basin of Northern California and Southern Oregon is often a contentious place for conservation due to long-standing conflicts over water. In recent years, various stakeholders have filed lawsuits in the Basin, dimming the prospects for compromise and long-term solutions as they relate to fish, agriculture, and water. We are working to bring conservation partners together in the Klamath Basin on a number of fronts including the following: (1) We continue to engage Tribes, States, Federal agencies, and local watershed groups and landowners to develop the final two phases of the Klamath Basin Integrated Fisheries Restoration and Monitoring Plan (IFRMP). The plan is a stakeholder-driven process that is prioritizing habitat restoration activities throughout the Klamath Basin. (2) We are working with the DOI to bring together dozens of local stakeholder entities to resolve several natural resource conflicts in the Basin.
R8	Science to Support ROGER	In early 2016, a group of Nevada ranchers with a proven record of ecologically sound management across millions of acres of sagebrush habitats came together with Federal and State agencies to improve ecological resilience, landscape health, and productivity on public lands through more flexible grazing practices. The group calls itself ROGER (Results-Oriented Grazing for Ecological Resilience). In our role as a key partner in the ROGER collaborative, our staff continue to foster science development and delivery with a research team consisting of university and agency scientists. In FY 2022, SA continues to coordinate the research team and assess research activities to date, tracking of research objectives, and determination of funding needs to deliver this project through completion. SA fosters integration of completed science products into tools that support conservation-oriented management of sagebrush landscapes.
R8	Implementing S.O. 3362, Improving Habitat Quality in Western Big-Game	S.O. 3362 seeks to improve habitat quality, western big game winter range, and priority migration corridors for antelope, elk, and mule deer as identified by State wildlife agencies. Our staff have and will continue to coordinate with multiple States to

Legacy Region	Name of Collaborative	Additional Notes
	Winter Range and Migration Corridors	implement S.O. 3362. We will continue to coordinate with the Service's Partners for Fish and Wildlife program and with State wildlife agencies to develop conservation actions with willing private landowners that can maintain or improve these big game migration corridors.
R8	Intermountain West Joint Venture Science Support	Our staff continue to engage and provide capacity to support activities with the Intermountain West Joint Venture (IWJV) science program. In FY 2021, SA served as technical advisors in a recently funded science project to promote integrated landscape management focused on timing of water and waterbirds from the Klamath Basin to the Central Valley. Our staff will also coordinate closely with the IWJV to showcase Water 4 and its science-based tools used to strategically implement this initiative.
R8	Nevada Invasives Treatment and Restoration Initiative (NITRI)	The Nevada Invasives Treatment and Restoration Initiative (NITRI) is an initiative that began in FY 2020 with partners in sagebrush landscapes to capitalize on existing programs and projects to address the complex challenge of invasive plants and wildfire. To be strategic and value added, we are working collaboratively through NITRI to address challenges in Nevada's Great Basin Sagebrush using an actionable science framework that (1) tests promising methods and treatments for invasive annual grasses; (2) increases the availability of native seed, working with private landowners; (3) enhances and restores areas with this appropriate seed; and (4) develops a native seed management plan for landowners and land management agencies so restoration efforts will be more effective.
R8	Sagebrush Fire and Invasives Initiative	Beginning in FY 2020, cross-regional funding from Science Applications, Headquarters, was provided for fire and invasives science support. This funding is supporting science to better understand the costs and benefits of fuelbreaks in sagebrush habitats and to examine integrated restoration techniques for restoration of public-private rangelands. The research evaluated a variety of management options for improving rangeland health and productivity for the ranching community and wildlife across multiple States.
R8	California Forest/Fuels Management Science Initiative	Increases in the frequency, severity, and size of fire outbreaks in forested ecosystems in California have resulted in destructive mega-fires that threaten human communities, ecosystems, and resident species. Recognizing this challenge, Science Applications is working with the National Fish and Wildlife Foundation, the U.S. Forest Service, California Department of Forestry and Fire Protection, and private forest owners (Sierra Pacific Industries and others) to (1) synthesize existing science to inform implementation of future forest-fuels projects; (2) monitor the impact and benefit of those projects on

Legacy Region	Name of Collaborative	Additional Notes
		resident biodiversity; and (3) ultimately allow for adaptive management.
R9 (Headquarters)	Network for Landscape Conservation	Staff serve as coordinating committee members and provide funding for policy forums that bring diverse communities together to improve collaborative landscape conservation.
R9	Association of Fish and Wildlife Agencies	Science Applications supports a number of coordinating positions at AFWA, including Wildlife Health Coordinator, Climate Adaptation Scientist, and Science Coordinator. Staff play leadership roles in the AFWA SWAP/Landscape Working Group to develop recommendations that strengthen State Wildlife Action Plans so they can guide and/or contribute to regional and/or national landscape conservation priorities and help ensure the next generation of State Wildlife Action Plans are even more effective, accessible, and relevant to agencies, partners, stakeholders, and others involved in conservation of fish and wildlife.

ATTACHMENT A: AFWA President’s Task Force on Shared Science and Landscape Conservation Priorities: Final Report, Executive Summary

Mawdsley, J. R., D. P. Scott, P. R. Johansen, and J. R. Mason, eds. 2020. *AFWA President’s Task Force on Shared Science and Landscape Conservation Priorities: Final Report*. Washington, DC: Association of Fish and Wildlife Agencies: 5–6.

Executive Summary

This report provides recommendations from the “AFWA President’s Task Force on Shared Science and Landscape Conservation Priorities” in the following three thematic areas:

1) Establishing Shared National Science Priorities for Fish and Wildlife Conservation and Management

We recommend the AFWA Science and Research Committee solicit information on a periodic basis regarding current and future anticipated science and research priorities from: SFWA directors; other AFWA committees with science and research interests; regional AFWAs; regional conservation partnerships (e.g., MLI, SECAS, Nature’s Network, WNTI); and national science partners (e.g., FWS, USGS, CRUs, USFS, NOAA, NPS, APHIS, etc.). The Committee will also continue to conduct a more formal survey of SFWA science needs (the State Science Needs Survey) on a 2- to 4-year timeframe, or as otherwise needed. Committee members will review any new science priorities and compare and align these with existing national priorities identified through the State Science Needs Survey and any previous iterations of national priority-setting exercises. Based on the information collected and synthesized, the Committee will report regularly to the AFWA Executive Committee on any changes or new developments regarding national science priorities. These updates are meant to assist the AFWA Executive Committee in the identification and establishment of priorities as a whole.

2) Strengthening Regional Science-Based Conservation Partnerships

We recommend regional science-based fish and wildlife conservation partnerships consider aligning their operations and activities to the extent possible with the guidance contained in the 2018 AFWA Resolution on Fish and Wildlife Conservation at Landscape Scales and the accompanying Guiding Principles document. We further recommend that new and existing regional partnerships establish strong structural and operational relationships with their regional AFWAs, and that these partnerships work collaboratively with the regional associations to identify and promote shared science priorities and conservation actions.

3) State Wildlife Action Plans as a Framework for Regional Coordination and Collaboration

In recognition of the ever-changing nature of wildlife and habitat conservation, we recommend that AFWA convene a diverse work group to assess and develop recommendations on how SWAPs can improve range-wide conservation of SGCN) and contribute to regional and/or national landscape conservation priorities. These recommendations would help ensure the next generation of SWAPs are even more effective, accessible, and relevant to agencies, partners, stakeholders and others involved in conservation of fish and wildlife. Specifically, we recommend that AFWA:

- i.** Review the eight required elements for SWAPs and Best Practices for State Wildlife Action Plans: Voluntary Guidance to States for Revision and Implementation (November 2012) and make recommendations that would improve their ability to take on regional and landscape conservation challenges.
- ii.** Identify and promote the use of methods or best practices to overcome barriers to multi-jurisdictional, multi-sectoral landscape collaboration, including inconsistent terminologies, data standards, geospatial products and tools, and organizational barriers.
- iii.** Recommend steps to assure that SWAPs can better meet the needs of partners and are accessible to landscape conservation practitioners so that strategies to conserve SGCN are relevant and integrated into broader conservation efforts.
- iv.** Identify tools or models that foster development of regionally integrated SWAPs, including approaches such as identification of regional priorities, increased consistency, geospatial tools, and grants programs, that might support implementation of integrated plans.

The complete report can be accessed online at

https://www.fishwildlife.org/application/files/5316/0107/3126/AFWA_Presidents_Task_Force_Science_Landscapes_Final_Report_08262020_CLEAN.pdf.

ATTACHMENT B: Climate Change Action Program: Overview of the Framework and Implementation Plan



U.S. Fish & Wildlife Service

Climate Change Action Program

Overview of the Framework and Implementation Plan

Overview

The 2021 Climate Change Action Program (CCAP) provides a foundation for Service-wide actions related to climate adaptation, mitigation and resilience. With an emphasis on cross-program coordination, the CCAP seeks to:

- Employ a whole-Service strategy
- Build on strong climate science foundation and demonstrated delivery of resiliency and mitigation
- Accelerate and scale up on-the-ground implementation of interventions to manage, restore, and conserve
- Coordinate cross-programmatic assessment and action of climate risks and opportunities
- Amplify “co-benefits” of climate actions internally and with stakeholders to benefit trust resources, sequester carbon, and provide community ecosystem services

Climate Change Action Program Vision

The U.S. Fish and Wildlife Service (Service) will rise to the challenge of transforming landscapes and waters with focused skill, creativity, and innovation, guided by sound science and conservation practice in the fulfillment of our Mission. We will question assumptions based on past conditions, develop and use new tools to guide decisions, support our employees, and integrate climate adaptation as a guiding principle throughout the agency as we confront a new and uncertain future. The Service will be a leader for effective, collaborative conservation in a rapidly changing world.

The 7 Elements of the Climate Change Action Program

1. Adaptation & Resilience – Help ensure conservation activities have a lasting impact.

- Identify, revise or develop tools for Landscape Conservation Design planning and delivery
- Expand implementation strategies on and off Service lands using green infrastructure and the Resist-Accept-Direct Framework

• Develop an information management system

2. Climate Science - Interpret and collaborate on climate science for conservation implementation.

- Work with science partners to identify climate science and spatial planning needs and gaps
- Develop guidance and training on climate change science and climate adaptation principles
- Develop monitoring and evaluation processes, and performance metrics

3. Adaptation Strategy - Develop a national strategy using existing models and shared conservation priorities.

- Build on collaborative conservation adaptation planning with partners for a national strategy
- Enhance collaborative Landscape Conservation Designs and shared goal setting across boundaries
- Incorporate watershed and regional partnership priorities into planning efforts

4. Partnerships – Collaborate with attention to social and environmental justice.

- Work with national and regional Tribal, First Nation and Indigenous groups on shared priorities
- Cultivate expanded partnerships with working lands organizations and others

5. Climate Mitigation – Achieve zero net emissions and increase our carbon sequestration capacity.

- Pursue energy conservation and renewable energy
- Zero emission fleet and supporting infrastructure
- Promote natural climate mitigation solutions that leverage co-benefits
- Track and reduce Service’s carbon footprint

6. Policy - Review, revise and create new regulations and policies.

- Use policy to promote whole Service approach to coordinated climate change response
- Address policy gaps (e.g., assisted migration, ecological transformation)

7. Capacity – Provide needed capacity and resources to secure our vision.

- Expand capacity to implement on-the-ground adaptation, resiliency, and mitigation projects

For more information on the CCAP, please reach out to Jason Goldberg (Jason_Goldberg@fws.gov) and Kurt Johnson (Kurt_Johnson@fws.gov)

U.S. Fish & Wildlife Service
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October 2021