



U.S. DEPARTMENT OF  
**ENERGY**

# Conservation Action Plan



Report to the  
White House Council on Environmental Quality  
December 2021

U.S. Department of Energy  
2021 Conservation Action Plan

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*Photos used with permission. Cover photo credits clockwise: leaping salmon, Bonneville Power Administration; endangered Desert Tortoise (Gopherus agassizii) inside its burrow, Derek Hall for Nevada National Security Site; sagebrush habitat, Idaho National Laboratory; Hanford Reach National Monument, DOE Richland Site Office.*

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## 1. Table of Acronyms

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AIP	Agreement in Principle
ANL	Argonne National Laboratory
BLM	U.S. Bureau of Land Management
BMP	Best Management Practices
BNL	Brookhaven National Laboratory
Bonneville	Bonneville Power Administration
CAP	Conservation Action Plan
CEQ	Council on Environmental Quality
CRESO	Clinch River Environmental Studies Organization
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
DOE	Department of Energy
E.O.	Executive Order
EBCI	Eastern Band of Cherokee Indians
ELM	Ecological Land Management
EM	Environmental Management
EPA	Environmental Protection Agency
ESA	Endangered Species Act
Fermilab	Fermi National Accelerator Laboratory
ID	Idaho Operations Office
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
LM	Legacy Management
NERP	National Environmental Research Park
NNSS	Nevada National Security Site
NPS	National Park Service
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
RM&E	Research, Monitoring, and Evaluation
S&K	Salish and Kootenai
SAMAB	Southern Appalachian Man and the Biosphere
SR	Savannah River Operations Office
SREL	Savannah River Ecology Laboratory
SRS	Savannah River Site
SWPA	Southwestern Power Administration
TEK	Tribal Ecological Knowledge
TWRA	Tennessee Wildlife Resources Agency
UMTRA	Uranium Mill Tailings Remedial Action
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WDFW	Washington Department of Fish and Wildlife
WIPP	Waste Isolation Pilot Plant

## 2. Table of Projects

DOE Site	Project Name
Argonne National Laboratory	<a href="#">Argonne Natural Resources Program</a>
Bonneville Power Administration	<a href="#">Bonneville Fish and Wildlife Program</a>
Bonneville Power Administration	<a href="#">Right of Way Revegetation for Pollinators</a>
Bonneville Power Administration	<a href="#">Columbia Basin Water Transactions Program</a>
Bonneville Power Administration	<a href="#">Tributary Habitat Improvement Program</a>
Bonneville Power Administration	<a href="#">Columbia Estuary Ecosystem Restoration Program</a>
Bonneville Power Administration	<a href="#">Research Monitoring and Evaluation Program</a>
Brookhaven National Laboratory	<a href="#">Natural Resources Stewardship and Upton Reserve</a>
Brookhaven National Laboratory	<a href="#">Educational Programs</a>
Fermilab National Accelerator Laboratory	<a href="#">Fermilab Ecological Land Management</a>
Hanford Site	<a href="#">Hanford Reach National Monument (Stewardship)</a>
Hanford Site	<a href="#">Umatilla Tribes Revegetation (Project)</a>
Hanford Site	<a href="#">Umatilla Desert Buckwheat Recovery</a>
Hanford Site	<a href="#">Burrowing Owl Habitat Restoration</a>
Hanford Site	<a href="#">Bat Habitat Protection</a>
Hanford Site	<a href="#">Hanford Reach Public Access</a>
Hanford Site	<a href="#">Habitat Assessment and Prioritization</a>
Idaho National Laboratory	<a href="#">Shoshone-Bannock: Resource Protection</a>
Idaho National Laboratory	<a href="#">Vegetation Monitoring</a>
Idaho National Laboratory	<a href="#">Native Vegetation Restoration and Wildland Fire Minimization</a>
Idaho National Laboratory	<a href="#">Bat Protection Plan</a>
Idaho National Laboratory	<a href="#">Sage-Grouse Conservation Program</a>
Idaho National Laboratory	<a href="#">Sagebrush Ecosystem Reserve</a>
Legacy Management	<a href="#">Dolores River Restoration</a>
Legacy Management	<a href="#">Sage-Grouse Protections</a>
Legacy Management	<a href="#">Pollinator Habitat</a>
Legacy Management	<a href="#">Fernald Preserve: Ecological Restoration</a>
Legacy Management	<a href="#">Fernald Preserve: Public Access to Nature Trails</a>
Legacy Management	<a href="#">Paddys Run Conservation Project</a>
Legacy Management	<a href="#">Regenerative Grazing Study</a>
Legacy Management	<a href="#">Las Colonias Park</a>
Los Alamos National Laboratory	<a href="#">Forest Health Program</a>
Los Alamos National Laboratory	<a href="#">Trails Management Plan</a>
Moab Site	<a href="#">Colorado River Aquatic Habitats and Revegetation</a>
Moab Site	<a href="#">Job Creation at Moab</a>
National Environmental Research Parks	<a href="#">National Environmental Research Parks</a>
Nevada National Security Site	<a href="#">Tribal Revegetation Project</a>
Nevada National Security Site	<a href="#">Ecological Monitoring and Compliance Program</a>
Oak Ridge National Laboratory	<a href="#">Southern Appalachian Man and Biosphere Cooperative</a>
Oak Ridge National Laboratory	<a href="#">Oak Ridge National Laboratory Arboretum</a>
Oak Ridge National Laboratory	<a href="#">Regional Wildlife Corridor Connectivity Expansion</a>
Oak Ridge National Laboratory	<a href="#">Reservation Trails, Greenways, and Game Hunt</a>
Oak Ridge Reservation	<a href="#">Public Recreation Opportunities at ETPP</a>
Oak Ridge National Laboratory	<a href="#">Oak Ridge Career Development Funding</a>
Pantex Plant	<a href="#">Pantex Plant Wildlife Research and Habitat Protection</a>
Pantex Plant	<a href="#">Grassland Prescribed Fire Rotation at Pantex Plant</a>
Sandia National Laboratories	<a href="#">Sandia Green Space Development</a>
Savannah River Site	<a href="#">Forest Management</a>
Savannah River Site	<a href="#">Crackerneck Wildlife Preserve</a>
Savannah River Site	<a href="#">Research Set-Aside Areas</a>
Sustainable Climate-Ready Sites	<a href="#">Sustainable Climate Ready Sites Initiative</a>
Southwestern Power Administration	<a href="#">Interior Least Tern Habitat</a>
Southwestern Power Administration	<a href="#">Bird Collision and Electrocutions Protection</a>
Waste Isolation Pilot Plant	<a href="#">Land Management Plan and Enhanced Ecology</a>

### 3. Statement from the Secretary and Topline Goals

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This Conservation Action Plan (CAP) affirms the Department of Energy’s (DOE) commitment to support the White House’s goal to conserve 30 percent of the United States (U.S.) lands and waters by 2030, as established in Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, and further developed in the 2021 report, *Conserving and Restoring America the Beautiful*, jointly issued by Federal resource agencies and the White House Council on Environmental Quality. DOE is pleased to present its CAP in furtherance of the America the Beautiful goals and principles and in the context of its mission.

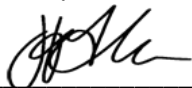
DOE has been entrusted with and conducts operations on 2.4 million acres in 24 states, taking its place as the fourth largest land-managing federal agency. The DOE mission is to ensure America’s security and prosperity by addressing energy, environmental, and nuclear challenges through transformative science and technology solutions. The complexity and sensitivity of the DOE mission, past and present, has resulted in geographic areas across the nation that have remained free from private development and human encroachment. These areas provide unique opportunities for both conservation of sensitive species and ecosystems. Additionally, DOE has established National Environmental Research Parks to conduct research on the effects of site operations and the ecological impacts of a changing climate.

The Department recently issued its Climate Adaptation and Resilience Plan, which complements the conservation objectives of the President’s America the Beautiful initiative and this CAP. Both DOE plans highlight the opportunities to further land and water conservation and resilience initiatives while fulfilling DOE’s energy and security missions.

Although this CAP cannot capture every DOE project and program that serves the principles and goals of the America the Beautiful initiative, it provides a summary of ongoing and planned conservation projects and initiatives across Departmental operations. In particular, DOE’s larger, western sites, managed by the Office of Environmental Management, Office of Nuclear Energy, and National Nuclear Security Administration, represent substantial opportunities for fish and wildlife habitat conservation, ecological research, and engagement with tribal nations on conservation and cultural resource stewardship. In all, more than 50 projects and programs are highlighted in this CAP.

The Department takes seriously its responsibilities to the American public and will continue to collaborate with tribal, state and local governments, and other stakeholders to achieve the conservation objectives outlined in this CAP. DOE will continue to leverage its scientific and engineering capabilities and National Environmental Research Parks to continuously improve our conservation strategies. Pursuant to the requirement in Section 216 of Executive Order 14008 for annual updates, the CAP will be updated annually to capture new information to better support the Administration’s goals to conserve 30 percent of U.S. lands and waters by 2030, DOE’s operational and scientific missions, and the health of the ecosystems on which our Nation depends.

**DOE Climate Action Resilience Plan**  
*“DOE will continue to advance its ecological and land use management practices as a tool to enhance resilience...and to mitigate [greenhouse gas] emissions. DOE will coordinate with ...Tribes and stakeholders to promote effective management of ecosystems on contiguous lands, and to collaborate and share knowledge.*”



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**Jennifer Granholm**  
**Secretary of Energy**

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12/10/21

**Date**

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## 4. America the Beautiful Focus Areas and Summary Matrix

This DOE CAP provides information on conservation projects and programs supportive of the America the Beautiful campaign. The White House Council on Environmental Quality (CEQ) requested that Federal agency Conservation Action Plans (CAPs) address seven focus areas for early action:

Focus Area 1: Create More Parks and Safe Outdoor Opportunities in Nature-Deprived Communities

Focus Area 2: Support Tribally Led Conservation and Restoration Priorities.

Focus Area 3: Expand Collaborative Conservation of Fish and Wildlife Habitats and Corridors

Focus Area 4: Increase Access for Outdoor Recreation

Focus Area 5: Incentivize and Reward the Voluntary Conservation Efforts of Fishers, Ranchers, Farmers, and Forest Owners

Focus Area 6: Create Jobs by Investing in Restoration and Resilience

Focus Area 7: Other Actions Supportive of the America the Beautiful Campaign

This CAP is organized into short-term and longer-term projects, as required by CEQ. Short-term projects are defined as those specific actions, investments, or strategies planned to occur within the next 6 months to 1 year. Longer-term initiatives may take additional coordination, partnerships, or authorities to achieve success. The Summary Matrix of Planned Actions below reflects DOE’s individual short-term actions.

SUMMARY MATRIX OF PLANNED ACTIONS (Implementation within 6 months to one year)								
Project/Action	Conservation Objective	Focus Area						
		#1	#2	#3	#4	#5	#6	#7
<i>Sustainable Climate Ready Sites Initiative</i>	<i>Restore and/or enhance ecosystem health while enhancing resilience and achieving energy, water, and emissions-related sustainability goals via incentives and rewards.</i>							X
<i>Soil Restoration and Revegetation of a Disturbed Landscape in Moab, Utah</i>	<i>Enhance wildlife habitat by establishing native vegetation that provides food and shelter for wildlife.</i>			X				
<i>Educational Programs at Brookhaven National Laboratory</i>	<i>Encourage public participation in nature-oriented activities and natural resource management education.</i>				X			

## 5. Long-Term DOE Programs and Projects

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The overwhelming majority of DOE's projects that support the America the Beautiful Campaign Focus Areas are longer term plans and programs, often multiple decade remediation and land restoration efforts. These are described below, organized by Focus Area. The Department will track progress on those long-term projects and highlight additional efforts in annual updates to the CAP. In both the short-term and the long-term, DOE strives to maximize conservation as a component of resilience, good governance, and mission support.

### 5.1 Focus Area 1: Create More Parks and Safe Outdoor Opportunities in Nature-Deprived Communities

Due to the unique hazards of the operations conducted and materials used at DOE sites, and the National security aspects associated with the DOE mission, many laboratories and sites are deliberately located in remote, rural locations. Public access is necessarily limited for the safety and security of entrusted National assets, employees, visitors, and the public. For these reasons, DOE has no immediate or long-term plans or changes related to this focus area.

### 5.2 Focus Area 2: Support Tribally Led Conservation and Restoration Priorities

DOE is actively engaged with tribal nations on several initiatives to leverage their unique perspectives and long history of environmental stewardship. The success of existing tribal engagement serves as a progressive model for building strong, collaborative relationships and addressing ecological and climate change challenges together. DOE looks to continue those partnerships to enhance conservation and restoration activities and meet future climate change challenges. The following are long-term and ongoing projects that engage tribes and other stakeholders on various conservation efforts:

**Project 1:** U.S. Department of the Interior's U.S. Fish and Wildlife Service (USFWS)-DOE Joint Hanford Reach National Monument (Monument) Stewardship and Tribal Consultation.

**Location:** Hanford Reach, Washington.

**Area/Acreage:** 195,000-acre Monument, comprised of the Saddle Mountain, Wahluke Slope, Arid Lands Ecology Reserve Unit, Columbia River Corridor, McGee Ranch, and Riverlands Units.

**Timeframe:** Ongoing.

**Project Description:** The Hanford Site and the USFWS jointly manage the Monument in consultation with the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe and the Wanapum Band. The USFWS manages 165,000 acres as a unit of the National Wildlife Refuge System pursuant to two DOE permits and a Memorandum of Understanding. DOE manages approximately 31,000 acres primarily located adjacent to the Hanford Site's nine former nuclear reactors along the Columbia River. The Monument includes Rattlesnake Mountain and other sacred areas identified the tribes named above. DOE is committed to ensuring, with USFWS, that tribal interests related to ancestral and culturally significant land are honored, while natural resource management projects are conducted to maximize resource protection, maintain connectivity of wildlife habitat corridors, and provide for high quality public hunting, fishing, wildlife observation, and hiking opportunities.

**Conservation Objective:** Protect and maintain the Monument's continuing value as an ecological and cultural treasure by preserving its riparian, aquatic, and upland shrub-steppe habitats and host of increasingly uncommon native plant and animal species, including migrating salmon, birds, and

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hundreds of other native plant and animal species dependent on the Monument's ecosystems. Maintain robust tribal consultation programs, opportunities for public engagement, and coordination with tribal, federal, state and local government organizations to assure appropriate environmental protections and habitat management for the Monument, including the 51-mile Hanford Reach portion of the Columbia River, the nation's last free-flowing nontidal stretch of the Columbia River and spawning ground to the Pacific Northwest's largest run of Chinook salmon.

**Collaboration and Partnerships:** Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and the Wanapum Band, and USFWS.

**Measuring Progress:** Progress will be gauged by the implementation of the USFWS Hanford Reach National Monument Comprehensive Conservation Plan, providing congressionally mandated access to Rattlesnake Mountain, implementation of the DOE Comprehensive Land Use Plan, and timely responsiveness of DOE and the USFWS to tribal concerns regarding the incorporation of ecological and cultural stewardship principles into ongoing management actions.

**Project 2:** Idaho National Laboratory (INL) Site Agreement in Principle (AIP) and Funding Provided to Shoshone-Bannock Tribes for Environmental Restoration and Cultural Resource Protection.

**Location:** Idaho Falls, Idaho.

**Area/Acreage:** 890 square miles (569,600 acres).

**Timeframe:** Ongoing, five-year AIP renews in 2022.

**Project Description:** DOE, through its Idaho Operations Office (ID) managed by the Office of Nuclear Energy (NE), provides annual funding to the Shoshone-Bannock Tribes under a renewable AIP. The AIP supports tribal engagement and oversight of DOE operations at INL affect the original Shoshone-Bannock Tribes ancestral territory and tribal lands, particularly the ecosystems of the Salmon River and Snake River regions. Funding enables tribal involvement in DOE-ID planning and implementation of environmental restoration, long term stewardship, and waste management operations. The AIP also supports tribal oversight of cultural resource activities at the INL site, including participation in archaeological surveys, and evaluation of eligibility of historic sites. Additionally, ID hires tribal students as summer interns for the INL cultural resource program.

**Conservation Objective:** Protect the natural and cultural resources affecting the Shoshone-Bannock Tribes ancestral lands and territory, consistent with the principles of ecosystem management and resource protection. The AIP ensures tribal engagement and oversight as critical partners in environmental monitoring and restoration activities.

**Collaboration and Partnerships:** Shoshone-Bannock Tribes.

**Measuring Progress:** Progress will be measured through direct and consistent feedback and input on matters of mutual conservation interest as they arise across the INL site.

**Project 3:** The Bonneville Power Administration (Bonneville) Fish and Wildlife Program.

**Location:** Washington, Oregon, Idaho, and Montana.

**Area/Acreage:** Not applicable.

**Timeframe:** Ongoing.

**Project Description:** Bonneville coordinates conservation actions with federal partners and the States of Washington, Oregon, Idaho, and Montana as well as non-governmental organizations. Bonneville also collaborates with 19 treaty and non-treaty tribes to implement conservation and restoration actions.



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**Conservation Objective:** Protect, mitigate and enhance ecologies primarily through working with partners, including tribal partners, to implement activities such as habitat restoration, land and water acquisitions, and hatchery production to support species conservation and tribal fisheries, predation management activities, and associated research, monitoring and evaluation.

**Collaboration and Partnerships:** U.S. Federal Departments and Agencies such as the Department of the Interior, Bureau of Land Management (BLM), U.S. Bureau of Reclamation, U.S. Army Corps of Engineers (USACE), National Marine Fisheries Service, USFWS, U.S. Geological Survey (USGS), U.S. Forest Service (USFS), and several other federal agencies. State agencies including the Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife (WDFW), Idaho Department of Fish and Game, and the Montana Department of Fish, Wildlife and Parks. Tribal partners include the Confederated Tribes of the Colville Reservation, Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of Warm Springs, Nez Perce Tribe, Shoshone-Bannock Tribe, Spokane Tribe of Indians, the Kootenai Tribe of Idaho, and several others.

**Measuring Progress:** Bonneville, USACE and the U.S. Bureau of Reclamation report annually on progress involving the Endangered Species Act (ESA) and other conservation objectives. The Northwest Power and Conservation Council (the Council) was authorized by Congress in 1980 to oversee restoration of fish and wildlife adversely impacted by the federal Columbia River Power System, including in particular, Bonneville-administered hydropower assets. The Council reports on Bonneville Fish and Wildlife Program progress in its annual Columbia River Basin Fish and Wildlife Program Governor's report.

**Project 4:** Nevada National Security Site (NNSS) DOE Office of Environmental Management (EM) Tribal Revegetation Project.

**Location:** Area 5, NNSS, Nye County, Nevada.

**Area/Acreage:** 43 acres within the "92-Acre Project Area."

**Timeframe:** Completed in 2021, ongoing monitoring.

**Project Description:** This project combined Tribal Ecological Knowledge (TEK) with Western scientific ecological methods to create a vegetative cover within test plots located at the Radioactive Waste Management Complex within NNSS. The revegetation effort included preparing and planting seeded plots, some of which also included outplants atop a waste cell cover. The Tribal Revegetation Committee and the project team creatively adapted TEK with Western scientific methods and successfully implemented revegetation using native plant germination.

**Conservation Objective:** Solve unique challenges at the NNSS site using TEK and collaborative efforts to revegetate portions of the site's complex terrain. Expand approaches coupling tribal knowledge and tools from Western science to address a complex problem of revegetating soil covering low-level radioactive waste cells.

**Collaboration and Partnerships:** The Tribal Revegetation Committee, ethnoecologists and cultural anthropologists from Portland State University and biologists from the Desert Research Institute guided design, planning, seeding and outplant selection, spiritual land preparation, and methodology. The Tribal Revegetation Committee represented the views of the 16 Native American tribes with cultural and historical ties to NNSS.

**Measuring Progress:** EM published the project's Tribal Revegetation Project Final Project Report: *92-Acre Area, Area 5 Radioactive Waste Management Complex*. EM will use this report to help determine the path forward for waste cell cover at the Radioactive Waste Management Complex, as well as future revegetation applications at the NNSS.

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**Project 5:** Oak Ridge Reservation: Participation in the Southern Appalachian Man and the Biosphere (SAMAB) Cooperative.

**Location:** Oak Ridge, Tennessee.

**Area/Acreage:** 32,900 acres.

**Timeframe:** Ongoing.

**Project Description:** The Oak Ridge Reservation (ORR) participates in the SAMAB Cooperative, a collaborative group of land management agencies that work to promote communication on issues important to Southern Appalachians with a focus on decision-making to foster sustainability. The ORR is unique among DOE locations because it includes three DOE sites spanning three DOE program offices: Oak Ridge National Laboratory (ORNL) within DOE's Office of Science; the East Tennessee Technology Park (ETTP) within DOE's Office of Environmental Management (EM); and the Y-12 National Security Complex within the National Nuclear Security Administration (NNSA).

**Conservation Objective:** Leverage the SAMAB Cooperative to further tribal stakeholder interests in conservation of land and cultural resources at the ORR.

The Eastern Band of Cherokee Indians (EBCI) has particular interest in the conservation of culturally significant plants present on ORR through the Culturally Significant Plant Species Initiative. The CSPSI is a collaboration between EBCI and the SAMAB Cooperative that seeks, as a principal goal, a balance of access, utilization, and restoration of human-nature interrelationships in Southern Appalachia. A Caves and Culture initiative enables ORR to engage the EBCI, and the southeast caving community to increase awareness of cultural resources that often go unnoticed by the caving community, such as Cherokee syllabary sometimes incorrectly assumed to be graffiti. ORR plans to apply its expertise and partnerships to participate in the Extended Cultural Corridor initiative, which is focused on raising awareness of Cherokee cultural resources through recreational opportunities that expose people to Cherokee culture and foster interconnectedness of nature and culture. Natural area protection, low-impact use, and set-aside of protected areas are important components of the broader initiative.

**Collaboration and Partnerships:** Environmental Protection Agency (EPA), USFWS, USFS, National Park Service (NPS), North Carolina State Parks. In addition, the SAMAB Cooperative is the avenue for the ORR National Environmental Research Park (NERP) to engage in cooperative conservation efforts with the EBCI.

**Measuring Progress:** ORR will continue to pursue cooperative efforts and research opportunities with EBCI and its partners.

**Project 6:** Office of Environmental Management (EM) Funding to the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) for Revegetation Projects at the Hanford Nuclear Reservation.

**Location:** Hanford Site, Washington.

**Area/Acreage:** 40 acres.

**Timeframe:** Completed in 2019; ongoing monitoring until 2024.

**Project Description:** EM provided funding for the CTUIR to grow plants to produce seeds as part of a series of ongoing revegetation projects. Between 2018 and 2019, EM planted 25,000 new shrubs, which supplemented over 40 acres of restored habitat. The restoration plantings are complete but will be monitored for success until 2024.

**Conservation Objective:** Restore and revegetate culturally significant land on the Hanford Site. The primary objectives for native plant revegetation are to establish cover that protects soil from wind and water erosion, mitigate the spread of invasive species, and improve and protect species diversity. This

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collaboration between EM and CTUIR enhances the recovery of the native plant community suitable to the soil, elevation and climate.

**Collaboration and Partnerships:** CTUIR.

**Measuring Progress:** EM will compare monitoring results with the predetermined criteria for the site based on the desired future conditions. EM will compare measured values such as cover, density, and diversity with the predefined values to determine whether the plant community is developing along the desired trajectory or if interim corrective actions are necessary.

### 5.3 Focus Area 3: Expand Collaborative Conservation of Fish and Wildlife Habitats and Corridors

DOE sites maintain natural resource management plans and programs to prioritize habitat restoration and enhancement as part of environmental stewardship practices. DOE sites are located within major ecoregions of the U.S., including Shrub-Steppe, Desert Shrub, Juniper-Pinyon and Grassland, South Rockies Conifers, Tallgrass Prairie, Eastern Deciduous Forest, and Southeast Mixed Forest. DOE sites and Power Marketing Administrations span major watersheds, elevations, and varying climate zones; the projects and programs to restore, maintain, or expand fish and wildlife habitat on those sites and territories are described below.

**Project 7:** Los Alamos National Laboratory (LANL) Forest Health Program.

**Location:** East Jemez Mountains, New Mexico.

**Area/Acreage:** 36 square miles.

**Timeframe:** Ongoing.

**Project Description:** The LANL Forest Health Program implements the Wildfire Hazard Reduction and Forest Health Improvement Program through integration with the LANL Wildland Fire Program. Regional and local projected climate change and related tree mortality research studies predict an increased loss of forest cover, an increase in the amount of fuel, continued high risks of severe wildland fire, and higher soil erosion rates in the southwestern U.S. Areas affected by the Cerro Grande and the Las Conchas fires have regrown into shrublands. Where fire and thinning have not occurred, dense forests remain that are vulnerable to disturbances such as high-severity fire, drought, and insect outbreaks.

**Conservation Objective:** Ensure healthier forests at LANL and increase scientific understanding of forest management in the East Jemez Mountains while reducing wildland fire risk.

**Collaboration and Partnerships:** NPS Bandelier National Monument, Los Alamos County, USFS Region 3

**Measuring Progress:** Tracking the number of acres with wildland fire mitigation and forest health improvement treatments.

**Project 8:** Hanford Site (Hanford) Species Recovery Plan for the Umtanum Desert Buckwheat Plant.

**Location:** Hanford, Washington.

**Area/Acreage:** 2,000 acres.

**Timeframe:** 2021-2026.

**Project Description:** DOE established the Umtanum Desert Buckwheat Working Group to support the Species Recovery Plan for the Umtanum Desert Buckwheat plant which only grows on the Hanford Site and is designated as a threatened plant under ESA. DOE is working to improve fire breaks, restore the

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surrounding habitat, reduce invasive species both within and outside of the designated critical habitat, and support monitoring, pollinator research, and restoration activities by partners in conservation.

**Conservation Objective:** Recovery and conservation of Umtanum Desert Buckwheat.

**Collaboration and Partnerships:** Local tribal nations, USFWS, and the University of Washington.

**Measuring Progress:** Progress will be measured by the number of acres treated for invasive species, number of acres of native shrub steppe habitat restored around the Umtanum Desert Buckwheat population, maintenance of population numbers, and successful establishment of plant seedlings.

**Project 9:** Argonne National Laboratory (ANL) Natural Resources Program.

**Location:** DuPage County, Illinois.

**Area/Acreage:** 1,000 acres.

**Timeframe:** Ongoing.

**Project Description:** Two thirds of ANL, about 1000 acres, is in a natural state which is itself a wildlife corridor. The site is surrounded by a nature preserve and river corridor. Developed areas that have been released from programmatic use are restored to a natural condition and increase wildlife habitat and corridors. The sites are typically restored to a grassland of prairie grasses and forbs benefitting grazers and pollinators.

**Conservation Objective:** Restore land to an early successional grassland matrix of native prairie grasses and forbs to increase natural habitat. The vegetation will be managed to progress to a climax plant community.

**Collaboration and Partnerships:** ANL is completely surrounded by the 3,000-acre Waterfall Glen Forest Preserve of DuPage County, managed by the County Forest Preserve District. The ANL habitat management and restoration efforts are closely coordinated with the regional management activities supporting the greater wildlife corridor. ANL contributes to and is an honorary member of the Chicago Wilderness, a regional consortium of conservation agencies. This organization helps to coordinate member agency activities in the shared mission of regional conservation. ANL also collaborates with the USFWS for the welfare of threatened and endangered species found on the site.

**Measuring Progress:** ANL measures success of management of wildlife corridors, its primary natural resources, by the stability and biodiversity of the individual corridors. Identified as ecosystem management units, each has a measure of vegetation stability and quality compared over time using the Floristic Quality Assessment method. The entire site is measured the same way—as a projection of the individual ecosystem management units.

**Project 10:** Fermi National Accelerator Laboratory (Fermilab) Ecological Land Management (ELM) Committee.

**Location:** Batavia, Illinois.

**Area/Acreage:** 4,000 acres.

**Timeframe:** Ongoing.

**Project Description:** The director of Fermilab established the ELM Committee to recommend management practices based on sound ecological principles that enhance the natural resources of the laboratory. Fermilab is restoring over half of its 4,000 acres of natural areas, including tallgrass prairie, oak savanna, open-water marsh, sedge meadow, buttonbush swamp, and floodplain forest, among others. Stewardship activities include prescribed burning, controlling invasive species, monitoring threatened and endangered species, surveying plants and wildlife, and collecting seeds from over 200

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native species to spread into recently restored areas. Fermilab also maintains a small herd of American Plains bison. The herd is part of the Fermilab program to recognize Illinois history and prairie heritage.

**Conservation Objective:** Increase biodiversity of native flora and fauna while enhancing functional services of these ecological systems.

**Collaboration and Partnerships:** Fermilab Natural Areas organization, (a nonprofit volunteer network dedicated to restoring, managing and enhancing the natural areas and resources of Fermilab in order to maintain and improve their ecological health and biodiversity) and community volunteers.

**Measuring Progress:** Fermilab employs a variety of ecological monitoring activities to evaluate the effectiveness of natural area restoration and associated conservation practices.

**Project 11:** Idaho National Laboratory (INL) Site Vegetation Monitoring.

**Location:** Idaho Falls, Idaho.

**Area/Acreage:** 569,600 acres.

**Timeframe:** Ongoing.

**Project Description:** The INL maintains several vegetation data sets that are central to understanding how sagebrush steppe habitat changes through time in response to various stressors or threats. The vegetation monitoring program supports ongoing habitat assessments using three approaches: 1) defining current vegetation (habitat) spatial distribution, 2) monitoring annual vegetation (habitat) condition in terms of ecological health, and 3) maintaining a long-term vegetation dataset that helps the INL understand current conditions within the longer-term dynamics of the ecosystem.

**Conservation Objective:** Understanding the condition, threats and stressors to species habitat is central for proactive land stewardship and restoration and conservation projects especially with respect to species that have been or could be considered for listing as threatened or endangered.

**Collaboration and Partnerships:** Boise State University and Idaho State University

**Measuring Progress:** Metrics are applied to three aspects of the revegetation program:

The INL vegetation map was developed using a framework established by the NPS inventory and monitoring program, and it utilizes the National Vegetation Classification (a common language for the effective management and conservation of U.S. plant communities) to define the conservation status of various vegetation types. This standardized approach allows the comparison of map products (like sagebrush habitat distribution) at the INL with those of neighboring agencies and landowners.

The sagebrush habitat condition monitoring program includes annual monitoring of vegetation species abundance and composition within 75 permanent vegetation plots and monitoring of an additional 150 on a five-year rotation. The program was designed to monitor condition of sagebrush steppe habitat, as well as areas that have been affected by wildland fire and are recovering to sagebrush steppe habitat. These plots are currently assessed for habitat condition metrics specific to sage grouse and for overall ecological resilience. However, the study design is robust enough that the data can be analyzed for assessing emerging threats to or optimal habitat requirements for species other than sage grouse.

The Long-term Vegetation Transects (extensive land plots dedicated to vegetation abundance data collection) bisect the entire INL and include 89 active plots that have been sampled for vegetation abundance and composition approximately once every five years since 1950. This data set is invaluable in providing perspective for interpreting other data sets and is often used to provide a historical range of variability against which the INL compares the results of the annual habitat condition monitoring data.

The data also give insight as to certain abundance/composition patterns from the past and the subsequent trajectory of those plant communities. The INL has learned a lot about invasion dynamics of

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cheatgrass and crested wheatgrass and potential management strategies for these species from this data set.

**Project 12:** Savannah River Site (SRS) Forest Management.

**Location:** Aiken, South Carolina.

**Area/Acreage:** 178,509 acres.

**Timeframe:** Ongoing.

**Project Description:** The USFS- Savannah River (USFS-SR) conducts a comprehensive natural resource management program for SRS including wildland fire suppression, threatened and endangered species restoration, invasive species control, habitat management, watershed management, boundary maintenance, management of secondary roads, and related research. Ninety percent of SRS is natural forest, inhabited by approximately 250 species of birds, 1,500 species of plants, 100 species of reptiles and amphibians, 50 species of mammals, 100 species of fish, and 600 species of aquatic insects. Among those species are the endangered red-cockaded woodpecker, and the Savannah River Operations Office (SR) manages 65,000 acres of red-cockaded woodpecker habitat. The Natural Resources Wildlife Program safeguards SRS forest habitat from non-native plant species and damaging animals such as feral hogs to protect and conserve wildlife through careful habitat planning and management. The land is monitored by the Savannah River Ecology Laboratory (SREL) University of Georgia to provide opportunities for ecological research.

**Conservation Objective:** Ensure that ecological systems are sustained, protected, and returned to their natural resilience.

**Collaboration and Partnerships:** SR, SREL, USFWS, and USFS-SR.

**Measuring Progress:** SR maintains an active ecological monitoring program to ensure the effectiveness of habitat management and restoration methods. Notably, between 1985 and 2020, active red-cockaded woodpecker potential breeding groups increased from 1 to 145 due to successful habitat restoration. The growth rate over the past five years at SRS has been an average of twelve percent. SR continues to monitor 175 woodpecker cluster.

**Project 13:** Bonneville Power Administration (Bonneville) Right of Way Revegetation Program for Pollinator Habitat and Development of Best Management Practices (BMP) for Right of Ways with Xerces Society.

**Location:** From Canadian border to Northern California.

**Area/Acreage:** 21,913 acres.

**Timeframe:** Ongoing.

**Project Description:** Bonneville's vegetation management practices on its transmission line rights of way provide food, shelter, and habitat for pollinators. Bonneville's revegetation program ensures the planting of low-growing plants and flowering species to support pollinator habitat. Additionally, in 2018, the Xerces Society for Invertebrate Conservation partnered with Bonneville to develop pollinator best management practices (BMPs) including revegetation with pollinator-friendly native species. Bonneville communicates with local landowners to recommend pollinator BMPs.

**Conservation Objective:** Protect pollinators, preserve, enhance, or restore existing high-quality pollinator habitat, and encourage plant diversity, and minimize pollinator threats.

**Collaboration and Partnerships:** The Xerces Society for Invertebrate Conservation.

**Measuring Progress:** Bonneville's pollinator-friendly revegetation acreage includes:

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- Vegetation management (clear, lop, scatter tall woody vegetation) – 19,154 acres
- Vegetation management (mow to maintain early seral community) – 2,750 acres
- Eugene-Longview native seed - 7 acres
- City of Tacoma native seed - 1 acre
- Midway-Benton weed control - 0.82 acre

**Project 14:** Bonneville Power Administration (Bonneville) Columbia Basin Water Transactions Program.

**Location:** Washington, Oregon, Idaho, and Montana.

**Area/Acreage:** Over 200 cubic feet per second of water flow protected and over 20,000 acre-feet of water flow enhanced in tributary streams.

**Timeframe:** Ongoing, targets set for 2021-2025.

**Project Description:** The Bonneville Fish and Wildlife Program includes a water lease and acquisition program. The Columbia Basin Water Transactions Program was developed in 2002 to address chronically diminished stream flows in tributaries of the Columbia River through voluntary, market-based water transactions.

**Conservation Objective:** Provide an effective and fair way to balance out-of-stream water uses with the need to maintain stream flow for imperiled fish.

**Collaboration and Partnerships:** The Columbia Basin Water Transactions Program through the National Fish and Wildlife Foundation works with locally based entities to acquire water rights voluntarily from landowners. Using temporary and permanent water rights acquisitions and other incentive-based approaches, the program supports grantees in Oregon, Washington, Idaho, and Montana to assist landowners who wish to voluntarily restore flows to key fish habitat.

**Measuring Progress:** Water transaction targets are included in the Bonneville Prospective Implementation Plan for Tributary Habitat Actions in Priority Basins (2021-2025).

**Project 15:** Bonneville Power Administration (Bonneville) Tributary Habitat Improvement Program.

**Location:** Oregon, Washington, Idaho, and Montana.

**Area/Acreage:** 140 miles of accessible habitat for anadromous salmon and steelhead, over 40 miles of additional stream complexity, and over 1,300 acres of improved riparian habitat.

**Timeframe:** Ongoing; targets set for 2021-2025.

**Project Description:** Bonneville annually funds numerous tributary habitat improvement actions throughout the Interior Columbia River Basin and has achieved significant accomplishments since program inception in 2005.

**Conservation Objective:** Implement tributary habitat improvement actions to create biological benefits for endangered species through tributary habitat improvement. Improve population, abundance, productivity, spatial structure, and diversity of anadromous species. Improve data management, long-term research, monitoring, and evaluation (RM&E) of program data, and technological improvements.

**Collaboration and Partnerships:** Federal, State, and local tribal communities.

**Measuring Progress:** Prospective Implementation Plan for Tributary Habitat Actions in Priority Basins (2021-2025) includes around 200 activities to implement and track for progress.

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**Project 16:** Bonneville Power Administration (Bonneville) Columbia Estuary Ecosystem Restoration Program.

**Location:** Oregon and Washington.

**Area/Acreage:** 4,500 acres.

**Timeframe:** 15-year program cycle starting 2021.

**Project Description:** Bonneville has committed to habitat improvements in the Lower Columbia River and estuary with a goal to reconnect an average of 300 acres of floodplain habitat to the mainstem annually for the next fifteen years. In 2021, the restoration goal includes restoration of the Burlington Bottoms/Palensky Wildlife Area (208 acres) and Elochoman #3 – Nelson Creek swamp (105.5 acres). Additional restoration projects at the Steigerwald National Wildlife Refuge will contribute an additional 591 acres when complete. Project partners will continue to work with landowners to develop and implement projects in future years as well.

**Conservation Objective:** Increase the capacity of estuarine and tidal-fluvial ecosystems, increase access for aquatic organisms to shallow-water habitats, and improve ecosystem for juvenile salmonids. Habitat improvements in the estuary benefit all migrating salmon and steelhead.

**Collaboration and Partnerships:** USACE, USFS, Lower Columbia River Estuary Partnership, Columbia River Estuary Study Taskforce, Columbia Land Trust, the state of Washington, and local landowners.

**Measuring Progress:** Action Effectiveness Monitoring and Research, a programmatic monitoring approach involving locally intensive sampling at restoration sites to characterize ecosystem structures, processes, and functions, will involve data collection at 19 restoration projects in the lower Columbia River and estuary. In addition, research, monitoring, and evaluation for vegetation, juvenile salmon, food web dynamics, and routine status and trends monitoring will be conducted under the Lower Columbia Estuary Partnership's Ecosystem Monitoring Program.

**Project 17:** Brookhaven National Laboratory (BNL) Natural Resources Stewardship and Upton Ecological and Research Reserve (Upton Reserve).

**Location:** Upton, New York.

**Area/Acreage:** 3,445 acres, including 530 acres for the Upton Reserve.

**Timeframe:** Ongoing.

**Project Description:** BNL manages and promotes stewardship of onsite natural resources and integrates resource protection with the Laboratory's science mission. As part of the BNL Natural Resources Management Plan, BNL maintains the Upton Reserve, located on the eastern edge of the BNL property and straddling the Peconic River. The Upton Reserve is designated as an area for the protection of sensitive habitats and a place where researchers can study local ecosystems.

**Conservation Objective:** Stewardship, sustainability, ecosystem services, adaptive ecosystem management, compliance, integration with other plans and requirements, and community involvement.

**Collaboration and Partnerships:** Several agencies and organizations provide technical expertise and staffing on a cooperative or paid basis to reach natural resource management goals. Among the current partners are USDA, USFS, USDA Animal Plant Health Inspection Service – Division of Wildlife Services, USDA Natural Resources Conservation Service, NPS, USFWS, Cornell Cooperative Extension, New York State Department of Environmental Conservation, Central Pine Barrens Commission, the Ridge and Manorville Fire Departments, the Long Island Invasive Species Management Area, the Long Island Native Plant Initiative, Audubon Society, the North Atlantic Fire Science Exchange, the Seatuck Environmental Association, and other state and local land management agencies. The Foundation for Research and Stewardship in the Long Island Pine Barrens Maritime Reserve is a key partner for the Upton Reserve.



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**Measuring Progress:** The BNL Natural Resource Management Program establishes environmental objectives and performance indicators on an annual basis to guide these efforts and measure progress.

**Project 18:** Oak Ridge National Laboratory (ORNL) Arboretum.

**Location:** Oak Ridge, Tennessee.

**Area/Acreage:** 26 acres.

**Timeframe:** Ongoing.

**Project Description:** The ORNL Arboretum is certified by ArbNet and contains 52 of the 62 native tree species in the area. Native trees support local insects, birds and mammals, in contrast to non-native species. The project also established “no mow” areas that have resulted in increased native vegetation establishments from the existing seed bank.

**Conservation Objective:** Eliminate air pollution, sequester carbon, improve water and soil quality, contribute to stormwater management, provide research and recreational opportunities. Provide pollinator habitat in the form of multiple sources of milkweed (the host plant for monarch caterpillars) in the grasslands and landscaping as well as numerous species of wildflowers, shrubs and trees for ample nectar sources.

**Collaboration and Partnerships:** There are multiple strategic partnerships between ORNL divisions, state and federal programs, and non-government organizations that benefit from the Arboretum. Participants include ORNL Facilities and Operations Directorate, Environmental Sciences Research Divisions, and Environmental Protection Services. Other partners include the Tennessee Division of Forestry, Tennessee Wildlife Resources Agency, and independent specialists. ORNL’s commitment to urban forestry and certification of the Arboretum enables new opportunities to work closely with community partners such as the City of Oak Ridge, the University of Tennessee, Tennessee Department of Agriculture, and the Tennessee Urban Forestry Council.

**Measuring Progress:** The estimated gross carbon sequestration of ORNL Arboretum trees is estimated at 9.5 tons per year, and the trees store an estimated additional 320.6 tons of carbon as biomass. The trees in this project are estimated to intercept 4,711 m<sup>3</sup> (1,244,620 gallons) of water and help to mitigate runoff by an estimated 1,035 m<sup>3</sup> (273,418 gallons) per year. Multiple monarch butterflies have been caught and tagged within the ORNL Arboretum, adding data to an international study on monarch migration, and included as part of ORNL’s pollinator habitat efforts supporting the Presidential Memorandum on Pollinator Health.

**Project 19:** Office of Legacy Management (LM) Dolores River Restoration Partnership.

**Location:** Southwestern Colorado.

**Area/Acreage:** LM manages 3 miles of the Dolores River corridor.

**Timeframe:** Ongoing.

**Project Description:** LM conducts weed control, revegetation activities, and habitat improvement along 3 miles of the Dolores River on its C-SR-13 uranium lease tract.

**Conservation Objective:** Improve riparian habitat with long-term objectives of reducing the cover of noxious weeds, increasing the cover of desirable or native species to over 80 percent of relative cover, and increasing total foliar cover to no less than 30 percent.

**Collaboration and Partnerships:** BLM, USFWS, San Miguel County, Southwest Conservation Corps, private landowners, and local ecology groups.

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**Measuring Progress:** LM monitors the success of its efforts by conducting annual plant cover assessments. Progress is measured by comparing monitoring data to success criteria and is documented in annual monitoring reports.

**Project 20:** Office of Legacy Management (LM) Sage-Grouse Protection and Habitat Improvements.

**Location:** Colorado and Wyoming.

**Area/Acreage:** Four right-of-way agreements; 6.3 miles of fence flagged (at three sites).

**Timeframe:** Ongoing.

**Project Description:** LM restricts human entrance into specific areas during the birds' nesting and early brood-rearing seasons. Additionally, the agency has installed fence flagging to help the birds avoid deadly collisions with barbed-wire fences.

**Conservation Objective:** Protect and improve habitat of the federally threatened Gunnison sage-grouse and the species-of-concern, Greater sage-grouse.

**Collaboration and Partnerships:** BLM, USFWS, state wildlife agencies, conservations districts, local land managers.

**Measuring Progress:** Progress is measured by the number of right-of-way agreements and miles of fence flagged.

**Project 21:** Legacy Management (LM) Weldon Spring Prairie Restoration.

**Location:** Weldon Spring, Missouri.

**Area/Acreage:** 150 acres.

**Timeframe:** Ongoing.

**Project Description:** LM actively manages a 150-acre native prairie to increase habitat for migratory birds, monarch butterflies, and other pollinator species. It is one of the largest plantings of its kind in the St. Louis region. LM provides ongoing monitoring and management activities to maintain the prairie and uses the prairie setting for educational and public outreach purposes. LM includes this prairie acreage in its annual tracking of pollinator-friendly best management practices on all its sites.

**Conservation Objective:** Provide quality habitat for migrating birds, pollinator species, and local wildlife.

**Collaboration and Partnerships:** EPA, local pollinator specialists, Missouri Department of Natural Resources, Missouri Department of Conservation, Missourians for Monarchs, Missouri Master Naturalists, Missouri Master Gardeners, St. Charles County Parks and Recreation, Ameren, Great Rivers Greenway, local schools, and the North American Butterfly Association.

**Measuring Progress:** Progress is measured by pollinator visitation counts and total number of pollinators tagged yearly, and in any future expansion of pollinator-friendly best management practices at the Weldon Spring site.

**Project 22:** Office of Legacy Management (LM) Ecological Restoration: Fernald Preserve.

**Location:** Hamilton County, Ohio.

**Area/Acreage:** 1,050 acres.

**Timeframe:** Ongoing.

**Project Description:** Following an environmental cleanup and ecological restoration, the Fernald Preserve is now one of the largest man-made wetland communities in the State of Ohio with large tracts of upland forests, tallgrass prairies in early stages of growth, and a lengthy riparian corridor. LM

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manages the habitat for mammals, birds, and insects, including the federally endangered American burying beetle.

**Conservation Objective:** Maintain and improve wetland, prairie, and forest habitats, increase wildlife diversity through ongoing active education, outreach programs, and cooperative agreements.

**Collaboration and Partnerships:** USFWS and the Cincinnati Zoo.

**Measuring Progress:** The Fernald Preserve measures its success through continued and increasing presence of wildlife, as documented by staff and visitors to the site.

**Project 23:** Office of Environmental Management (EM) Conservation and Restoration of Colorado River Aquatic Habitats and Revegetation.

**Location:** Moab, Utah, Colorado River Corridor.

**Area/Acreage:** 483 acres.

**Timeframe:** Ongoing.

**Project Description:** EM works to conserve and protect aquatic habitats via groundwater remediation along the Colorado River corridor, through groundwater extraction, contaminant mass removal, and freshwater injection. Additionally, EM has worked to salvage native plants and soil from Canyonlands National Park to restore the disturbed ecosystem at the Moab site.

**Conservation Objective:** Protect native endangered fish aquatic habitat from site contaminants and restore native vegetation to the Moab site.

**Collaboration and Partnerships:** NPS, USFWS, Southeast Utah Riparian Partnership, USGS, Western Colorado University, Utah Division of Forestry, Fire, and State Lands, and Rim to Rim Restoration.

**Measuring Progress:** Progress in the aquatic habitat will be determined by monitoring ammonia concentrations in the surface water. Observations of wildlife near the Colorado River corridor will be tracked and reported to actively manage local wildlife habitat areas. Objectives for native plant and soil restoration are outlined in a Revegetation and Weed Control Plan. Updates are made to this plan annually and reflect current conditions as well as future milestones.

**Project 24:** Southwestern Power Administration (SWPA) Interior Least Tern Habitat Conservation.

**Location:** Oklahoma, Arkansas, and Texas.

**Area/Acreage:** 1,002 river miles (collaboratively with USACE).

**Timeframe:** Ongoing.

**Project Description:** In partnership with USACE, SWPA supports monitoring and conservation strategies for Interior Least Tern habitat, including habitat maintenance and assisting USACE with monitoring bird counts in five-year increments. SWPA coordinates weekly with USACE and USFWS during least tern nesting season to determine hydropower generation schedules that will be most beneficial to least tern nesting habitat and fledgling survival.

**Conservation Objective:** Protect the Interior Least Tern Habitat corridors and existing habitats in accordance with the Migratory Bird Treaty Act and the USACE Interior Least Tern Habitat Conservation Plan.

**Collaboration and Partnerships:** USACE.

**Measuring Progress:** USACE-Tulsa District conducts Interior Least Tern surveys every five years. The five-year average is 1,698 adults and 378 fledglings; the goals are 1,343 adults and 336 fledglings.

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**Project 25:** Pantex Plant (Pantex) Wildlife Research and Habitat Protection Strategies.

**Location:** Carson County, Texas.

**Area/Acreage:** 18,000 acres.

**Timeframe:** Ongoing.

**Project Description:** DOE collects important species-habitat relationship information for Pantex, and has contributed to general research on wind energy impacts on bird populations. Pantex has installed protective devices on over 500 utility poles to protect raptors from receiving electric currents, and capped dozens of open-topped pipe fence posts to protect small birds from entrapment. Pantex also has carried out ecological research projects on western burrowing owls in rural and urban areas; avian reliance on prairie dog colonies for dens or food; influences of wind farms on avian populations; annual ecology and conservation needs of Swainson's Hawks; and the migration, wintering, and breeding habitat of purple martins.

**Conservation Objective:** Protect the wildlife habitat by managing grasslands through grazing and prescribed fire and identifying areas of risk to habitat.

**Collaboration and Partnerships:** West Texas A&M University, Texas Tech University, USGS, Texas Cooperative Fish and Wildlife Research Unit, University of Manitoba, and University of Oklahoma.

**Measuring Progress:** Pantex research has resulted in 21 scientific and 10 popular articles, furthering the information base on wildlife and habitats in the southern Great Plains.

**Project 26:** Nevada National Security Site (NNSS) Ecological Monitoring and Compliance Program.

**Location:** Nye County, Nevada.

**Area/Acreage:** 864,869 acres.

**Timeframe:** Ongoing.

**Project Description:** NNSS maintains a comprehensive ecological monitoring program consisting of biological surveys of sites and sensitive and protected species and potential habitat disturbance. The monitoring program is the basis for developing recommendations for the protection of the threatened desert tortoise. NNSS also conducts ecosystem monitoring for native and invasive vegetation, reptiles and water sources; monitoring of sensitive and protected plants and animals; and habitat restoration monitoring, particularly of revegetation. Ecological monitoring also supports NNSS's Adaptive Management Plan for Sensitive Plant Species. NNSS also conducts surveys of sensitive and protected animal species including birds, bats, feral horses, mule deer, pronghorn antelope, desert bighorn sheep, and mountain lions. The program documents the status and trend of existing biological resources and provides information that can be used to predict and evaluate potential impacts of proposed projects on these resources.

**Conservation Objective:** Provide the basis for biological resource management at NNSS as well as the development and implementation of conservation or protection measures.

**Collaboration and Partnerships:** NNSS biologists participate in an Interagency Task Force comprised of the Center for Large Landscape Conservation, Western Transportation Institute, Federal Highway Administration, Nevada Department of Transportation, BLM, Clark County Desert Conservation Program, and the Tortoise Group, convened to address issues regarding effects of transportation infrastructure on desert tortoise recovery and develop measures to minimize road mortality and increase connectivity for tortoise populations. NNSS biologists also collaborate with and contribute to various groups/agencies such as the Mojave Native Plant Working Group, Nevada Native Plant Society, Southern Nevada Interagency Partnership, Nevada Division of Natural Heritage, Nevada Department of Wildlife, USFWS, USFS, Western Bat Working Group and Nevada Bat Working Group. Other collaborations include USGS

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and Arizona State University on data collation from a study site on the NNSS for a Strategic Environmental Research and Development Program funded project entitled “Forecasting Dryland Ecosystem Vulnerability to Climate Change: A Cross-Systems Assessment of Vegetation and Process Responses to Disturbance and Climate Variability on DoD/DOE Lands.”

**Measuring Progress:** Success will be measured by the degree of minimization of adverse impacts to important biological resources including the desert tortoise, raptors, game species, candidate species, and species of concern.

**Project 27:** Oak Ridge National Laboratory (ORNL) Regional Wildlife Corridor Connectivity Expansion.

**Location:** Oak Ridge, Tennessee.

**Area/Acreage:** 32,900 acres.

**Timeframe:** Ongoing.

**Project Description:** ORNL maintains and improves the connectivity of regional wildlife corridors to expand the Southern Appalachian Vitality Index and gather data on biodiversity, wildlife corridors, and cultural resources.

**Conservation Objective:** Habitat management, wetland restoration, invasive species control, and other wildlife-related research and monitoring.

**Collaboration and Partnerships:** The City of Oak Ridge, local municipalities, state parks, Tennessee Wildlife Resources Agency (TWRA), Great Smoky Mountains National Park, the Clinch River Environmental Studies Organization (CRESO), National Ecological Observatory Network, and SAMAB Cooperative.

**Measuring Progress:** ORNL monitors existing wildlife corridors and the establishment of additional corridors.

**Project 28:** Hanford Site (Hanford) Restoration of the Burrowing Owl Habitat.

**Location:** Hanford, Washington.

**Area/Acreage:** Over 60 artificial nesting habitats.

**Timeframe:** Ongoing.

**Project Description:** Install artificial burrows throughout the Hanford site.

**Conservation Objective:** Increase and restore the Burrowing Owl population back to historical levels by creating and restoring nesting habitats with Artificial Burrow Systems.

**Collaboration and Partnerships:** The Global Owl Project, USFWS, and WDFW.

**Measuring Progress:** Over 60 artificial burrows were installed at over 25 locations around Hanford. Burrowing owl use of the artificial burrows, including occupation and nest success, is monitored annually and owls are banded for regional tracking. The data compiled from this effort is shared with the Global Owl Project, USFWS, and WDFW for tracking and measuring purposes.

**Project 29:** Hanford Site (Hanford) Bat Habitat Protection.

**Location:** Hanford, Washington.

**Area/Acreage:** 3.8 acres of facility footprint added or modified for use as bat habitat.

**Timeframe:** Ongoing.

**Project Description:** Hanford and the WDFW are working to protect regional bat habitats and have initiated periodic testing of the Hanford Site bat colonies for White Nose Syndrome. Hanford dedicated

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two 53,000 square foot underground legacy water storage facilities that provide roosting habitat for one of the largest Yuma myotis colonies in the state. Hanford constructed a bat roost specific tower, mounted dozens of bat boxes, preserved a legacy underground tunnel, and plans to modify a second tunnel, during 2022, to provide roosting habitat.

**Conservation Objective:** Restore and protect bat habitat.

**Collaboration and Partnerships:** WDFW.

**Measuring Progress:** The Yuma myotis colony is monitored annually to determine population numbers and detect changes in abundance. Testing for White Nose Syndrome occurs periodically to ensure bat populations are healthy. Continued use and reproduction within the protected and constructed habitats will be the measure of success.

**Project 30:** Idaho National Laboratory (INL) Site Native Vegetation Restoration and Wildland Fire Minimization.

**Location:** Idaho Falls, Idaho.

**Area/Acreage:** 539.7 acres.

**Timeframe:** Ongoing.

**Project Description:** This program includes native vegetation restoration and invasive species management activities to address the impacts of wildland fire on the INL.

**Conservation Objective:** Minimize the impact of habitat loss due to wildland fire and firefighting activities.

**Collaboration and Partnerships:** Wildland Fire Management Committee, USFWS, BLM, and Idaho Fish and Game.

**Measuring Progress:** The program's success will be measured by the degree to which it meets its conservation objectives in terms of avoidance of habitat loss from wildland fire.

**Project 31:** Idaho National Laboratory (INL) Site Bat Protection Plan.

**Location:** Idaho Falls, Idaho.

**Area/Acreage:** 569,600 acres.

**Timeframe:** Ongoing.

**Project Description:** The INL provides bats with a mosaic of high-quality, shrub-steppe foraging and roosting habitat overlying near-surface basalt deposits in the Snake River Plain Axial Volcanic Zone, which the INL secures and protects by prohibiting public access and by actively monitoring bat populations using passive acoustical bat call monitoring stations at caves and facilities. To date, the INL has collected over seven million ultrasonic call files—the largest continuous dataset of its kind in the western United States. The INL provides habitat for a variety of resident and transient bat species (including several with heightened conservation concern) which together comprise over 30 percent of mammal species at the INL. There are 23 confirmed caves on the INL, which serve as important summer foraging or roosting sites, or both. Nine caves are considered important bat hibernation sites and are monitored. Monitoring has shown that almost the entire the INL provides bat habitat.

**Conservation Objective:** Document the natural history and bat ecology on the INL to better conserve and manage these mammals and their habitat.

**Collaboration and Partnerships:** USFWS, Idaho Department of Fish and Game, and BLM.

**Measuring Progress:** Success will be measured by demonstrated improvement of the conservation of bat species. Monitoring results continuously advance bat and bat habitat conservation efforts.

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**Project 32:** Bonneville Power Administration (Bonneville) Research, Monitoring, and Evaluation (RM&E) Program.

**Location:** Oregon, Washington, Idaho, and Montana.

**Area/Acreage:** Not applicable.

**Timeframe:** Ongoing.

**Project Description:** Bonneville funds an extensive RM&E program that supports implementation programs by investigating action effectiveness and informing adaptive management, both at the action level and the program level. Other types of RM&E include status and trend monitoring for species, this includes census or statistically designed monitoring of fish or wildlife population and environmental conditions to assess the current status and changes over time. Bonneville also funds uncertainty research for resolving scientific uncertainties regarding the relationships between fish or wildlife health, population performance, habitat conditions, life history, and genetic conditions.

**Conservation Objective:** Provide critical information needed to track and effectively manage habitat restoration activities and monitor priority species status and trends.

**Collaboration and Partnerships:** U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, National Marine Fisheries Service, the USFWS, USGS, USFS, Oregon Department of Fish and Wildlife, WDFW, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife and Parks, Northwest Power and Conservation Council, and several other Federal agencies. Tribal partners include the Columbia River Inter-Tribal Fish Commission, Confederated Tribes of the Colville Reservation, Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of Warm Springs, Nez Perce Tribe, Shoshone-Bannock Tribe, Spokane Tribe of Indians, the Kootenai Tribe of Idaho, and several others.

**Measuring Progress:** All activities associated with the RM&E Program require indicators and metrics that tie to key management questions in the most efficient and effective manner possible. In addition, accessibility to data is an important component of ensuring data is utilized, analyzed, and applied. The development of regional databases and repositories is an important measure of success, as well as annual reporting to relevant agencies, such as National Marine Fisheries Service, USFWS and other public reporting mechanisms.

**Project 33:** Idaho National Laboratory (INL) Site Sage-Grouse Conservation Program.

**Location:** Idaho Falls, Idaho.

**Area/Acreage:** 569,600 acres.

**Timeframe:** Ongoing.

**Project Description:** The INL continues to serve as a refuge from human-caused factors that threaten sage-grouse and sagebrush habitats in the upper Snake River Plain. Sage-grouse monitoring and research has been conducted on the INL for over 30 years and show that the populations are decreasing. When sage-grouse were petitioned for listing under the ESA, and therefore became a candidate species for being listed as either threatened or endangered, The DOE Idaho Operations Office (ID) recognized the need to reduce impacts to existing and future mission activities. In 2014, ID entered into a Candidate Conservation Agreement for Greater Sage-grouse with the USFWS to identify threats to the species and its habitat and develop conservation measures and objectives to avoid or minimize threats to sage-grouse. As part of Sage-grouse Conservation Program, the INL provides funding to conduct surveys of raven nests and to install deterrents because ravens prey on Sage-grouse eggs. ID provides funding to support collaborations with researchers to develop methods for deterring raven nesting on utility and site facility structures.

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**Conservation Objective:** The effort established a Sage-grouse Conservation Area and ID committed to implementing 13 conservation measures that were established to mitigate threats identified to sage-grouse populations on the INL. Each measure has an associated objective.

**Collaboration and Partnerships:** USFWS, BLM, Idaho Fish and Game, other federal, state, and private stakeholders.

**Measuring Progress:** The INL annually monitors the effectiveness of each of the 13 detailed conservation measures.

**Project 34:** Idaho National Laboratory (INL) Site Sagebrush Ecosystem Reserve.

**Location:** Sagebrush Steppe Ecosystem Reserve, Idaho.

**Area/Acreage:** 73,600 acres.

**Timeframe:** Ongoing.

**Project Description:** The INL lies within the largest sagebrush-steppe region within North America. Sagebrush Steppe Ecosystem Reserve (Reserve) was established in 1999 by the then Secretary of Energy, William Richardson. The Reserve is a valuable ecological resource unique to the intermountain west and contains lands that have had little human contact for over 50 years. The Sagebrush Steppe Ecosystem across its entire range was listed as a critically endangered ecosystem by the National Biological Service in 1995, having experienced greater than a 98 percent decline since European Settlement.

**Conservation Objective:** Improve the steppe ecosystem and increase native habitats. The inherent ecological benefits of such a large tract of protected and relatively undisturbed habitat make the reserve an excellent opportunity for research. It is managed as a laboratory where native ecosystem components, cultural resources and Native American tribal values are conserved while providing opportunities for scientific investigation of its unique resources.

**Collaboration and Partnerships:** BLM, USFWS, and Idaho Department of Fish and Game.

**Measuring Progress:** Continuous maintenance of the reserve as an undisturbed ecosystem via research and monitoring of all potential impacts, and presentation of results in research documents and the INL Site Annual Site Environmental Report.

**Project 35:** Waste Isolation Pilot Plant (WIPP) Land Management Plan: Community Involvement and Enhanced Ecology.

**Location:** Eddy County, New Mexico.

**Area/Acreage:** 10,240 acres.

**Timeframe:** Ongoing.

**Project Description:** DOE collects important species-habitat relationship information for WIPP and identifies resource values, promotes the concept of multiple-use management, and identifies long-term goals for the management of WIPP lands until the culmination of the decommissioning phase. This plan also provides the opportunity for public participation in the land use planning process, as well as local, state, and federal agencies. WIPP staff have developed best management practices for mowing access road rights-of-way. These practices support DOE's Pollinator Protection Plan, which is part of a national strategy to protect pollinators and enhance their habitats. Additionally, WIPP helps ensure protection of wild ungulates (i.e., pronghorn antelope) by applying fencing that meets BLM protective standards.

**Conservation Objective:** To maintain and enhance recreational opportunities and the ecological condition of wildlife habitat within the WIPP Land Withdrawal Act area.



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**Collaboration and Partnerships:** Bureau of Land Management, State of New Mexico, and local governmental entities.

**Measuring Progress:** WIPP monitors wildlife populations in accordance with its Land Management Plan.

#### 5.4 Focus Area 4: Increase Access for Outdoor Recreation

As a component of its conservation efforts, DOE converts its former sites to nature preserves, environmental study areas, reclamation activities, and redevelopment of previously restricted areas to restricted or unrestricted access, when appropriate. The Fernald Preserve and Hanford Reach are examples of nature preserve development following cleanup actions at former DOE weapons production sites. In addition, more than 100 sites formerly used to support weapons development are now used for environmental sciences, study, or recreation.

**Project 36:** Brookhaven National Laboratory (BNL) Educational Programs.

**Location:** Long Island, New York.

**Area/Acreage:** 3,400 acres, plus 11 river systems, and numerous open space areas on Long Island.

**Timeframe:** Long-term, over 1 year.

**Project Description:** DOE and its partners develop and administer regional nature and natural resource educational programs. Every year, interns conduct ecological and wildlife research, the results of which directly impact management decisions at the Laboratory.

**Conservation Objective:** Encourage public participation in nature-oriented activities, and natural resource management education.

**Collaboration and Partnerships:** BLM Office of Educational Programs within the Stakeholders and Community Relations Directorate work with numerous schools, universities, and governmental entities.

**Measuring Progress:** Progress is measured by the extent of participation. Currently more than 3,000 students and teachers, 70 organizations, and 50 schools working on 11 rivers and multiple open space areas are participating in this project.

**Project 37:** Sandia National Laboratories - New Mexico (SNL-NM) Site Green Space Development.

**Location:** Albuquerque, New Mexico.

**Area/Acreage:** 10 acres.

**Timeframe:** Over 1 year.

**Project Description:** SNL-NM is actively working on a plan to set aside a secondary conservation for a habitat restoration project. The area is adjacent to primary conservation areas of the site and would increase the contiguous habitat area. The SNL-NM plans to leverage infrastructure employing Low Impact Development techniques to manage stormwater, utilize native and pollinator landscaping, and create places for people and wildlife. Sandia plans to add green areas as pedestrian access to other facilities and amenities while respecting the boundaries of environmentally sensitive land.

**Conservation Objective:** Provide green space for pedestrians, protect the environment through energy conservation, heat island reduction, limiting impermeable surfaces, and using bird-safe windows. SNL-NM plans to add green areas as pedestrian access to other facilities and amenities while respecting the boundaries of environmentally sensitive land.

**Collaboration and Partnerships:** There are currently no partnerships established as the project is in planning phases.

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**Measuring Progress:** Progress metrics are not available at this time. An update on the efforts will be provided with the next update to the CAP.

**Project 38:** Oak Ridge Reservation (ORR) Game Hunt and Expansion of Trails and Greenways.

**Location:** Oak Ridge, Tennessee.

**Area/Acreage:** 32,900 acres.

**Timeframe:** Ongoing.

**Project Description:** ORR maintains numerous trails on or with connections to the site that offer outdoor opportunities for the public, including the Black Oak Ridge Conservation Easement (14 miles of trails), Gallaher Bend Greenway (4.5 miles of greenway), and North Boundary Greenway (7 miles of greenway), in conjunction with other off-site resources including Haw Ridge Park (30 miles of trails), and the 2,259 acres under University of Tennessee Forest Experiment Station and Arboretum. Additionally, the TWRA organizes annual deer and turkey hunts on the ORR that are open to the public.

**Conservation Objective:** Increase conservation of natural resources and encourage public appreciation for conservation efforts through public access programs.

**Collaboration and Partnerships:** The City of Oak Ridge, Community Reuse Organization of East Tennessee, TWRA, Tennessee Department of Environment and Conservation, and NERP.

**Measuring Progress:** ORR measures its progress by the increased number of major public greenways, trail mileage, public attendance at game hunting events, and the 7-10 public nature walk opportunities offered each year.

**Project 39:** Enhanced Public Recreation Opportunities at East Tennessee Technology Park.

**Location:** Knoxville, Tennessee.

**Area/Acreage:** 3,500 acres.

**Timeframe:** An Agreement in Principle (AIP) has been drafted and is awaiting signatures. The transfer process requires approvals from the EPA and the Tennessee Department of Environment and Conservation, and generally takes about two years to complete.

**Project Description:** DOE is planning for the Tennessee Wildlife Resources Agency (TWRA) to acquire hundreds of acres from DOE that will become greenspace that can be used for public recreation as wildlife management areas and greenways. Two canoe launch areas on Poplar Creek have also been identified for transfer. The integration of greenspace into the private-sector industrial park will make the park a federal land reuse project. Potential plans include starting an educational STEM camp, managing invasive exotic plants, replanting native vegetation, conducting controlled burns, and increasing recreation opportunities.

**Conservation Objective:** Enhance public recreation opportunities at the park and maximize the area's natural assets.

**Collaboration and Partnerships:** TWRA.

**Measuring Progress:** Completion of transfer and successful establishment of public outdoor recreation and wildlife management areas.

**Project 40:** Crackerneck Wildlife Management Area and Ecological Reserve.

**Location:** Aiken, South Carolina.

**Area/Acreage:** 10,600 acres.

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**Timeframe:** Ongoing.

**Project Description:** DOE has set aside 10,600 acres for the Crackerneck Wildlife Management Area and Ecological Reserve to play a critical role in conserving fish, wildlife, and other natural resources. The area offers diverse recreational opportunities for hunting, fishing, and non-consumptive uses such as driving, biking, equestrian, hiking, canoeing, wildlife or other natural resource observation, photography, environmental education, and environmental interpretation.

**Conservation Objective:** Provide high-quality, outdoor recreational opportunities with an emphasis on public hunting and fishing, and non-consumptive recreation, such as bird watching and hiking; promote conservation and restoration; provide research and educational opportunities; and enhance wildlife habitat through silviculture and wildlife management practices. This wildlife management area consistently provides a safe and natural resource on SRS for the outdoor community.

**Collaboration and Partnerships:** State and natural resource and conservation organizations, South Carolina Department of Natural Resources, and Heritage Preserves.

**Measuring Progress:** Progress is measured by tracking the number of visitors. During the 2020 season, 2,921 hunters, fishermen, and other members of the public visited the Crackerneck Wildlife Management Area.

**Project 41:** Office of Legacy Management (LM) Fernald Preserve: Public Access to Trails.

**Location:** Hamilton County, Ohio.

**Area/Acreage:** 1,050 acres.

**Timeframe:** Ongoing.

**Project Description:** The Fernald Preserve provides free access to 7 miles of walking trails that take visitors through prairies, wetlands, and woodlands. Several overlooks and a boardwalk are open for wildlife observation.

**Conservation Objective:** Provide opportunities for birding and wildlife observation and educate the visiting public about successful ecological restoration efforts.

**Collaboration and Partnerships:** Ohio EPA, USEPA Region 5, Fernald Residents for Environmental Safety and Health, Fernald Community Alliance, Cincinnati Zoo, USFWS, University of Cincinnati, and local stakeholders.

**Measuring Progress:** The Fernald Preserve is one of the most popular birding sites in southwest Ohio with thousands of visitors each year. Progress is measured by visitation counts.

**Project 42:** Hanford Reach National Monument Public Access.

**Location:** Hanford, Washington State.

**Area/Acreage:** 65,000 acres.

**Timeframe:** Ongoing.

**Project Description:** The Hanford Site has provisions for hunting, fishing, wildlife observation, and hiking opportunities on the Hanford Reach National Monument that are open for public access through a permit with the USFWS.

**Conservation Objective:** Provide opportunities for wildlife-dependent recreation, interpretation and education, and maintain support for ecological resource conservation.

**Collaboration and Partnerships:** USFWS, WDFW.

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**Measuring Progress:** Past visitor surveys have indicated that there are thousands of visitor days annually, especially from anglers on the Columbia River, representing a positive impact to the local economy.

**Project 43:** Los Alamos National Laboratory (LANL) Trails Management Plan.

**Location:** Los Alamos, New Mexico.

**Area/Acreage:** Approximately 50 miles of trails.

**Timeframe:** Ongoing.

**Project Description:** DOE is currently implementing the LANL Trails Management Plan which involves cultural resource protection, biological resource protection, user safety, trail maintenance, and security. The plan allows trails to be accessible by the workforce and the public while protecting sensitive environmental areas and resources.

**Conservation Objective:** Maintain outdoor access while supporting cultural resource protection.

**Collaboration and Partnerships:** Los Alamos County, USFS (Santa Fe National Forest), and NPS (Bandelier National Monument).

**Measuring Progress:** The Trails Management Program tracks progress by monitoring trail use and conditions within LANL borders. Additionally, laboratory trails in the White Rock area are actively patrolled by Bandelier National Monument rangers through an agreement between the NPS and DOE.

**Project 44:** Office of Legacy Management (LM) Las Colonias Park.

**Location:** Grand Junction, Colorado.

**Area/Acreage:** 140 acres.

**Timeframe:** Completed in 2020; city of Grand Junction plans additional habitat restoration and natural park enhancements.

**Project Description:** DOE supported the transformation of the Grand Junction, Colorado, Processing Site into Las Colonias Park. Following remediation of the former uranium-processing facility, ownership of the site transferred to the city of Grand Junction. LM issued a grant and after years of effort, the site transformed into a public space that includes a 15-acre business park, a 5,000-seat amphitheater, a riverfront park, a boat ramp, and an arboretum. The completed park development includes a concrete-paved riverfront trail with various connecting trails and public river access.

**Conservation Objective:** Transform, through remediation and restoration, a former uranium processing facility on contaminated land into a vibrant riverfront park.

**Collaboration and Partnerships:** City of Grand Junction, Colorado Department of Public Health and Environment, Great Outdoors Colorado, Grand Junction Economic Partnership, Grand Junction Area Chamber of Commerce, Colorado Mesa University, and the One Riverfront Board.

**Measuring Progress:** Although the park may continue to grow and change, the initial, planned portion of the project is complete.

## 5.5 Focus Area 5: Incentivize and Reward the Voluntary Conservation Efforts of Fishers, Ranchers, Farmers, and Forest Owners

DOE partners with cities and states, non-profit land redevelopment entities, and conservationists to embark on sustainable site redevelopment (discussed in 5.4) and partners with individual owners as appropriate to reward conservation efforts. In particular, LM is responsible for more than 100 sites

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formerly used to support weapons production and incentivizes and rewards voluntary conservation efforts.

**Project 45:** Office of Legacy Management (LM) Paddys Run Conservation Project at Fernald Preserve.

**Location:** Hamilton County, Ohio.

**Area/Acreage:** 4,687 acres.

**Timeframe:** Ongoing.

**Project Description:** This project provides funding to purchase development rights through agriculture and conservation easements from landowners in the Fernald area. The easements help protect water quality in the Paddys Run watershed and the Great Miami Aquifer. LM actively tracks the expansion of the protected areas within the preserve.

**Conservation Objective:** Protect working farms and the environment.

**Collaboration and Partnerships:** Ohio EPA, the USFWS, and Three Valley Conservation Trust.

**Measuring Progress:** In 2019, 4,687 acres of land were marked as protected with more than 125 acres converted into a public nature preserve. Future progress will be measured by increases in the amount of protected acreage.

**Project 46:** Office of Legacy Management (LM) Regenerative Grazing Study.

**Location:** Shirley Basin South Disposal Site, Wyoming.

**Area/Acreage:** 1,527 acres.

**Timeframe:** Three years.

**Project Description:** The Regenerative Grazing Study is a result of DOE's commitment to sustainable management. The purpose of the study is to determine whether there are differences in soil carbon concentrations between grazed and un-grazed lands with various vegetation diversities. Recent studies suggest that healthy land management practices, such as regenerative grazing, allow soils to capture and store more carbon than land in poor condition, thus promoting healthier vegetation and ecological systems.

**Conservation Objective:** Improve the condition of the land from sustainability and conservation standpoints and demonstrate that healthy grazing practices allow soils to capture more carbon.

**Collaboration and Partnerships:** Medicine Bow Conservation District, University of Wyoming, BLM, Pathfinder Mines Corporation, and LM's grazing lessee.

**Measuring Progress:** Results of the study will be documented in a University of Wyoming report and presented to LM by December 23, 2023.

## 5.6 Focus Area 6: Create Jobs by Investing in Restoration and Resilience

DOE sites are often major employment hubs. The following projects are examples of employment of local residents for remediation and restoration work, and generalized career development in the conservation field.

**Project 47:** Job Creation at Moab Site.

**Location:** Grand County, Utah.

**Area/Acreage:** 435 acres.

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**Timeframe:** Ongoing (as per contract term).

**Project Description:** The Technical Assistance Contract for the Moab Uranium Mill Tailings Remedial Action (UMTRA) Project is maintained by Salish and Kootenai (S&K) Logistics Services, a tribally owned company in western Montana. The Moab UMTRA Project is one of the leading employers in the area, providing both long-term and short-term employment in a remote area with limited employment opportunities. On average, the Moab UMTRA Project employs 83 Moab residents. Remediation activities include relocating uranium tailings to the disposal cell in Crescent Junction, groundwater extraction, contaminant mass removal, and freshwater injection. Restoration activities include revegetation with native plants.

**Conservation Objective:** Employ residents through a tribally owned company, for remediation and restoration work.

**Collaboration and Partnerships:** S&K Logistics Services, local stakeholders, local restoration professionals, NPS, USGS, BLM, and Utah Department of Natural Resources.

**Measuring Progress:** Progress is measured by contract term and compliance.

**Project 48:** Career Development Funding at the Oak Ridge National Laboratory (ORNL).

**Location:** Oak Ridge, Tennessee.

**Area/Acreage:** 32,900 acres.

**Timeframe:** Ongoing.

**Project Description:** ORNL provides postdoctoral opportunities, graduate student opportunities for interns, and post-graduate technical staff.

**Conservation Objective:** Provide internships and research opportunities for undergraduates and post-graduates and support additional environmental education programs in the Oak Ridge conservation field.

**Collaboration and Partnerships:** University of Tennessee, the Oak Ridge Institute for Science and Education, Science Undergraduate Laboratory Internships, Higher Education Research Experiences, Clinch River Environmental Studies Organization.

**Measuring Progress:** ORNL tracks the number of staff in relevant fields, post-doctorate researchers, and internships on a yearly basis as a metric for job resiliency.

## 5.7 Focus Area 7: Other Actions Supportive of the America the Beautiful Campaign

Much of the DOE environmental science portfolio, including wildlife surveys and environmental and ecological monitoring, fall into Focus Area 7. Field research is critical for adaptive management of ecosystems and environmental quality at DOE sites and is the basis for remediation, restoration, and habitat management decisions. Additionally, environmental stewardship incentives, renewable energy and net-zero energy projects, and avian power line protections are among the myriad projects that support the America the Beautiful campaign.

### 5.7.1 Short-Term Programs

**Project 49:** Sustainable Climate-Ready Sites Initiative.

**Location:** Complex-wide.

**Area/Acreage:** Approximately 2.4 million acres of DOE managed land not committed to operations.

**Timeframe:** 6 months to 1 year for program pilot and launch; ongoing program thereafter.

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**Project Description:** The DOE Sustainable Climate-Ready Sites Initiative is a consensus-based, voluntary initiative that provides recognition for participating sites for excellence in natural resource and habitat conservation, improvements in adaptation and resilience to climate change, and efficiencies in energy and water consumption while minimizing waste generation and emissions.

**Conservation Objective:** Reward and reinforce an integrated and deliberate approach to decision-making and resource allocation for the preservation of ecosystem and habitat values as an aspect of site-wide climate resilience and sustainability planning.

**Collaboration and Partnerships:** The DOE Office of Sustainable Environmental Stewardship, DOE Departmental Elements, federal and state agencies, and partner nonprofit conservation organizations.

**Measuring Progress:** DOE has incorporated program feedback mechanisms into its overall program plan and has solicited its operating sites for input on conservation projects metrics and programs affecting wetlands, forest and soil health, watersheds and other ecosystems to incorporate into the pilot phase of the program.

### 5.7.2 Long-Term Programs

**Project 50:** National Environmental Research Parks (NERPs or Research Parks).

**Location:** Illinois, Washington, Idaho, New Mexico, Nevada, Tennessee, and South Carolina.

**Area/Acreage:**

- Fermi National Accelerator Laboratory, Batavia, Illinois - 6,795 acres;
- Hanford Site, Benton and Franklin Counties, Washington - 365,716 acres;
- Idaho National Laboratory, Butte, Bingham, Bonneville, Clark and Jefferson Counties - 568,342 acres;
- Los Alamos National Laboratory: Sandoval and Santa Fe Counties, New Mexico - 28,417 acres on the Pajarito Plateau between the Jemez Mountains to the west and the Rio Grande Valley to the east;
- Nevada National Security Site, Nevada within the NNSS borders - 864,869 acres;
- Oak Ridge National Laboratory, portions of Anderson and Roane Counties, Tennessee - 20,000 acres; and,
- Savannah River Site: Aiken, SC, portions of Aiken, Barnwell and Allendale Counties - 195,213 acres.

**Timeframe:** Ongoing.

**Project Description:** The DOE Research Parks were designated under the auspices of the Energy Reorganization Act of 1974, which mandates DOE to engage in environmental research related to the development of energy sources to advance the goals of restoring, protecting and enhancing environmental quality. The Research Parks were developed to function as field laboratories set aside for ecological research, for study of the environmental impacts of energy development, and for informing the public of environmental and land-use options open to them. Associated programs address various ecological and energy-related problems unique to each Research Park; however, at all DOE Research Parks, the collaborative involvement of ecological, compliance, and cultural resources personnel develop data to help inform DOE operational program planning and execution.

**Conservation Objective:** The purpose of the Research Parks is to: 1) develop quantitative methods continuously to assess and monitor the environmental impact of human activities; 2) develop methods to estimate or predict the environmental response to proposed and ongoing activities; and 3) demonstrate the impact of various activities on the environment and evaluate methods to minimize

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adverse impacts. Scientific collaboration within and across DOE Research Parks serves DOE operational and conservation goals, particularly in light of the acceleration of pressures on habitat and ecosystems from climate change. Research Parks can contribute significantly to the efforts under the DOE Climate Adaptation and Resilience Plan to promote effective management of ecosystems on contiguous lands, advance ecological and land use management practices as a tool to enhance resilience and mitigate GHG emissions.

**Collaboration and Partnerships:** Academic institutions, DOE Office of Scientific and Technical Information, and tribes with interest in ecological stewardship and monitoring.

**Measuring Progress:** Metrics specific to research and conservation goals vary by the research and ecological monitoring agenda of individual Research Parks. Outcomes may include publication of substantive research across DOE sites, increased coordination and shared knowledge across DOE Research Parks and with federal, state and tribal partners, and the development of datasets to contribute to the body of climate science and related condition of U.S. land and natural resources.

**Project 51:** Savannah River Site (SRS) Research Set-Aside Areas.

**Location:** Aiken, South Carolina.

**Area/Acreage:** 14,005 acres (approximately 7 percent of the SRS).

**Timeframe:** Ongoing.

**Project Description:** Designated as the first of seven National Environmental Research Parks by DOE, SRS is an important ecological component of the Southeastern Mixed Forest Ecoregion. Some of the set-asides also protect significant archaeological sites and provide natural settings for educational and public outreach activities. The 30 set-aside research reserves are maintained in a natural state and represent the eight major vegetation communities that are characteristic of the SRS: old fields, fall-line sandhills, upland hardwoods, pine forests, bottomland hardwood forests, swamp forests, Carolina bays, and freshwater streams and impoundments. Many long-term ecological studies in scientific disciplines from archaeology to zoology are conducted in these Set-Aside Areas. The Savannah River Ecology Laboratory (SREL) administers the SRS Set-Aside Program and coordinates activities within and around the Set-Aside Areas.

**Conservation Objective:** Provide protected areas for ecological research.

**Collaboration and Partnerships:** SREL and Battelle Savannah River Alliance (Battelle, the University of Georgia, Georgia Tech University, Clemson University, the University of South Carolina, and South Carolina State University).

**Measuring Progress:** The depth and scope of SREL activities have increased steadily in recent years and are reflected by a significant growth in SREL's graduate student population and a greater volume of high-impact scientific publications and competitive external funding awards. Over the past five years, SREL has increased the numbers of scientific publications produced by more than 30 percent, and the number of trained graduates has increased by more than 80 percent, highlighting the enormous value that SREL brings to both DOE missions on the SRS and to the members of the public who live in communities surrounding the site. To date, SREL has more than 3,000 peer-reviewed publications. SREL is planning for research expansions and several collaborations with other colleges (i.e., College of Veterinary Medicine and the Franklin College of Arts and Sciences at UGA) and universities, to expand their faculty; and a newly formed partnership with Battelle Savannah River Alliance.

**Project 52:** Hanford Site (Hanford) Conservation Habitat Assessment and Mitigation Prioritization.

**Location:** South-Central Washington.



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**Area/Acreage:** 201,000 acres.

**Timeframe:** Ongoing.

**Project Description:** Provide a landscape-level approach to identifying areas of highest priority for conservation and restoration of the Hanford Site. The habitat assessment and prioritization use mathematical modeling to evaluate current condition, size, and status of native habitats and species. Biologists use the results to determine areas for conserving, restoring, mitigating, and connecting habitats.

**Conservation Objective:** Integrate key ecological data from the Hanford Site with data from other research partners to improve the conservation of the Hanford Site and the greater Columbia Plateau Ecoregion.

**Collaboration and Partnerships:** USFWS, WDFW, Arid Lands Initiative, and Yakima Training Center.

**Measuring Progress:** The Hanford Site has and continues to use results from this program to inform land use decisions and conservation actions.

**Project 53:** Southwestern Power Administration (SWPA) Bird Collision and Electrocutions Protection.

**Location:** Arizona, Missouri, Oklahoma, and Texas.

**Area/Acreage:** 82 acres.

**Timeframe:** Ongoing.

**Project Description:** SWPA provides bird deterrents on powerlines, flashing lights on communication towers, and modified transmission lines structures to maintain bird population. Using the SWPA Cultural Resources Database, DOE identified Trail of Tears sites for the Cherokee Nation and actively consults with the tribes to address bird collision and electrocution concerns within the site areas.

**Conservation Objective:** Provide protection for bird populations and their habitats and reduce the amount of bird fatalities on powerlines structures, powerlines, communication sites, substations, and site buildings.

**Collaboration and Partnerships:** Cherokee Nation, Camp Gruber Army National Guard, Dardanelle State Park, USFWS, and Oklahoma Military Department.

**Measuring Progress:** Bird nests are monitored and recorded annually in Migratory Bird reporting. SWPA updates the Southwestern Avian Protection Plan annually with current mandates and directives.

**Project 54:** Grassland Prescribed Fire Rotation at the Pantex Plant (Pantex).

**Location:** Amarillo, Texas.

**Area/Acreage:** 2,700 acres.

**Timeframe:** Ongoing.

**Project Description:** Pantex practices ongoing grazing and prescribed fire rotation of the surrounding grasslands, considering the biodiversity of the land. The site also focuses on conservation efforts for the black-tailed prairie dogs and other dependent species within the 549.1 acres occupied by these keystone species.

**Conservation Objective:** Support the habitat for the black-tailed prairie dogs and other dependent species within the area, reduce accumulated litter, and decrease wildfire risk.

**Collaboration and Partnerships:** Texas Tech University Research Farm, Natural Resources Conservation Service, and Texas State Soil and Water Conservation Board.

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**Measuring Progress:** Maintenance or increase of black-tailed prairie dog population and other dependent species.

## 6. Conclusion

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Almost a century ago, the predecessor agency to DOE led the vanguard of world-changing science to combat the greatest existential peril to the planet and to humanity at the time—World War II and the ensuing Cold War with its attendant threat of nuclear war. The development of those weapons systems left lasting scars on the land, leading to not only the most extensive environmental cleanup operation in the world, but paradoxically, the opportunity to restore and preserve environmental resources on 2.4 million acres of relatively untouched land. Today, climate change is among the foremost threats to the planet, with associated increase in extreme weather and loss of natural resources and biodiversity.

DOE is ready to meet this modern challenge. Transformative science remains at the center of the Department’s missions. By galvanizing DOE’s considerable scientific resources through its National Laboratories, National Environmental Research Parks, expert natural resource personnel, and through partnerships with tribal, state, and local governments and communities, DOE is prepared to contribute substantially to restoration and preservation of habitat and ecosystems to further the President’s ambitious goal of conserving 30 percent of U.S. land and water by 2030.

The DOE Conservation Action Plan provides a broad sense of the scale and scope of environmental stewardship projects and programs underway across its operations. These projects and programs will provide the basis for a future coordinated departmental approach to serve the priorities outlined in E.O. 14008 and the Focus Areas for early action. Additionally, the CAP will enable the Department to leverage data collection and analysis to help characterize the condition of DOE-managed land and the ecosystems that they affect, while determining the effectiveness of restoration methodologies. In taking stock of the progress of its conservation activities relative to the baseline condition of its land and water, DOE can reinforce community and intergovernmental partnerships and better balance its responsibilities to its national security and scientific missions, its neighbors, and its obligations to ensure healthy ecosystems in the face of climate change and operational pressures on natural systems.

Successful implementation of these actions will require collaboration and coordination across DOE, with other Federal agencies, with Native American Tribes, and with non-Federal stakeholders. The priority actions and activities discussed within the Focus Areas of this plan will be incorporated into DOE’s planning and operations. The incorporation of CAP actions into DOE’s planning processes includes integration within other departmental plans, such as DOE’s Climate Adaptation and Resilience Plan, habitat and biological resource management plans of component DOE programs, long-term stewardship and land-use plans, and laboratory planning documents, to ensure consistency of planned conservation goals as well as tracking year over year progress. Furthermore, the Department will continue to collaborate with other Federal agencies as appropriate through interagency working groups associated with the America the Beautiful campaign, as well as investigate new opportunities for collaboration, as appropriate. Finally, DOE will continue to leverage its unique modeling and engineering capabilities and its NERPs, in collaboration with other agencies and institutions, including Tribal Nations, to continuously reinforce collaborative and high impact research and strategies that support ecological stewardship and conservation principles in an era of increasing uncertainty presented by climate change.

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