

United States Department of the Interior

DRAFT

Invasive Species Strategic Plan



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Key Terms

Invasive species: With regard to a particular ecosystem, a non-native organism, whose introduction causes or is likely to cause economic or environmental harm or harm to human, animal, or plant health.

Invasive species management: Activities including but not limited to planning (identification and inventory, prioritization, establishing action thresholds), monitoring, prevention, early detection, rapid response, eradication, control, restoration, research, and regulatory approaches used to minimize the threat of invasive species.

United States: The 50 States, the District of Columbia, the territories of American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands, and U.S. insular possessions, including Midway Island, Wake Island, Palmyra Island, Howland Island, Johnston Island, Baker Island, Kingman Reef, Jarvis Island, and other U.S. islands, cays, and reefs that are not part of the 50 States.

Executive Summary

Invasive species pose a significant threat to the ecological, economic, and cultural integrity of America's lands and waters and the communities they support. Their control can be complex, expensive, and often conducted indefinitely. In some cases, their harm may appear to be irreversible. Strategic solutions advanced in collaboration with others can often successfully resolve or forestall invasive species impacts.

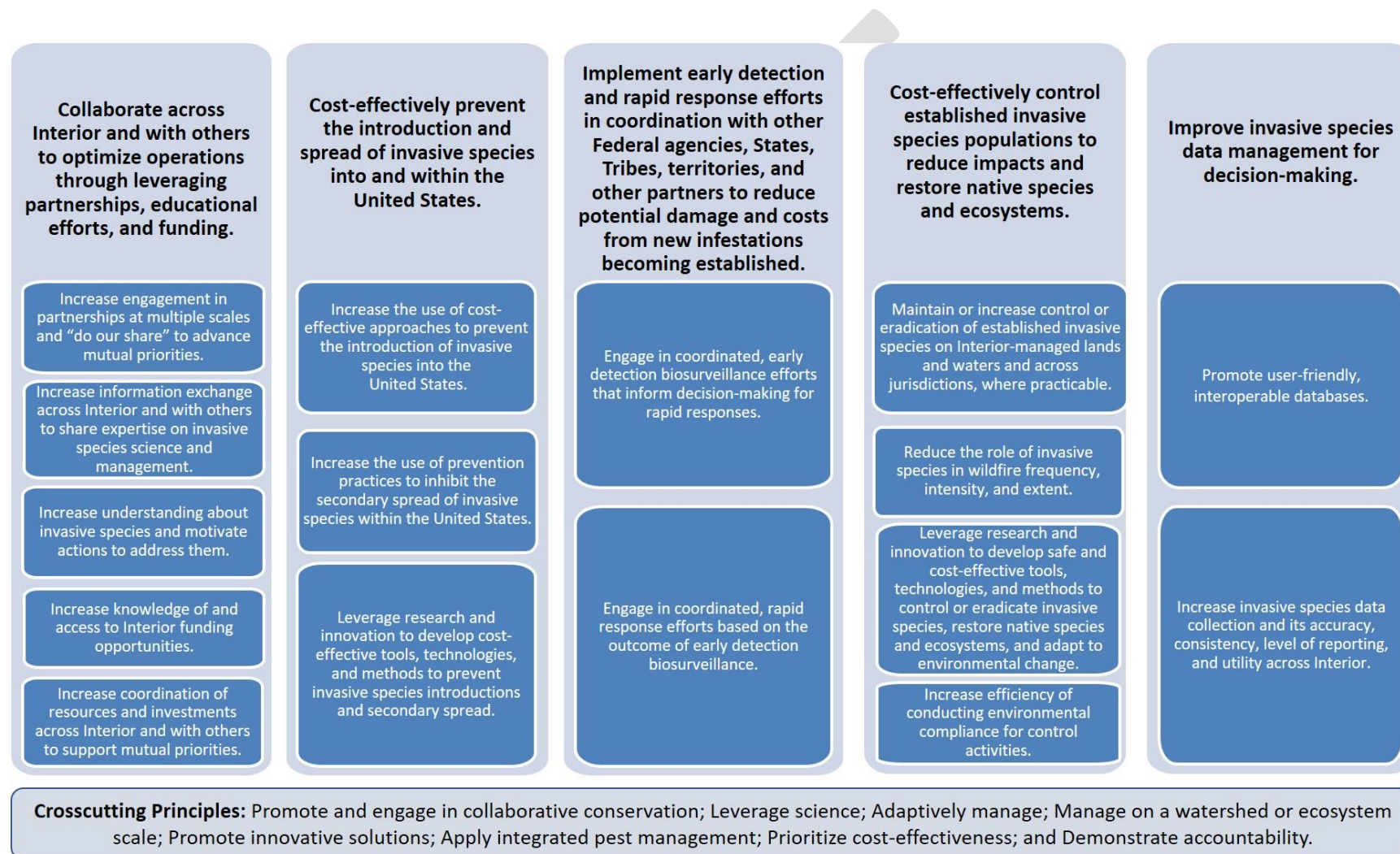
The Department of the Interior's (Interior) Invasive Species Strategic Plan (Plan), developed pursuant to the John D. Dingell, Jr., Conservation, Recreation, and Management Act (Public Law 116-9), provides an overarching framework for the broad spectrum of activities that are performed by ten of Interior's Bureaus and multiple offices. The Plan includes goals, objectives, strategies, and metrics. The strategies reflect both work that is ongoing and opportunities to focus on emerging priorities. While Bureaus often have their own invasive species management plans, this Plan, for the first time, outlines a comprehensive approach across Interior that both builds upon existing plans and serves as an overarching strategy.

Interior identified the following five goals to advance invasive species management:

1. Collaborate across Interior and with others to optimize operations through leveraging partnerships, educational efforts, and funding.
2. Cost-effectively prevent the introduction and spread of invasive species into and within the United States.
3. Implement early detection and rapid response efforts in coordination with other Federal agencies, States, Tribes, territories, and other partners to reduce potential damage and costs from new infestations becoming established.
4. Cost-effectively control established invasive species populations to reduce impacts and restore native species and ecosystems.
5. Improve invasive species data management for decision-making.

Interior's invasive species priorities will vary regionally based on the priorities of Governors and other partners to remain as flexible as possible to address current and emerging needs. The Plan underscores the importance of integrating efforts across a diverse array of stakeholders at multiple scales. It emphasizes coordination, communication, and partnerships, science-based decision-making, and strategic on-the-ground action to reduce the threat of invasive species. Implementation of the Plan will require effective and cost-efficient strategies to prevent the introduction and inhibit the spread of invasive species and help protect the Nation's lands and waters, as well as the livelihoods that rely upon them.

Invasive Species Strategic Framework at a Glance



Introduction

Invasive species are non-native organisms whose introduction to a particular ecosystem causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health (Executive Order 13751). They are a significant threat to the ecological, economic, and cultural integrity of America's lands and waters and the communities they support. While the scale of the problem is daunting, opportunities exist for the Department of the Interior (Interior) to take a more coordinated approach to managing invasive species.

Interior's Invasive Species Strategic Plan (hereafter referred to as the Plan) recognizes invasive species management as an important endeavor and critical factor in Bureau missions to protect and manage natural, cultural, historic, and tribal resources. The Plan outlines activities that Interior is currently undertaking and those that it will pursue in the future to strengthen invasive species management efforts. It calls for promoting partnerships to bolster mutual priorities, raising awareness to motivate action, strengthening prevention practices to avoid invasive species introductions and spread, improving the coordination of early detection and rapid response efforts across jurisdictions, leveraging opportunities for targeted control and eradication, and improving data collection and data management to facilitate more effective decision-making. It also calls for a more strategic, coordinated approach to leverage resources and ensure that programs and policies are aligned and applicable to all invasive species taxonomic groups including plants, animals, and pathogens across aquatic and terrestrial ecosystems. Importantly, the Plan promotes flexibility to be responsive to priorities of Governors and other partners, as policy and program needs will vary across geographies.

Managing invasive species reduces their threats to Interior's mission and thereby advances a number of Interior's broader Government Performance and Results Act strategic plan goals such as utilizing science in land, water, species and habitat management to support decisions and activities, fostering partnerships to achieve balanced stewardship and use of our public lands, managing grazing resources, expanding hunting, fishing, and other recreation on Interior-managed lands and waters, managing wildland fire to reduce risk and improve ecosystem and community resilience, and reducing administrative and regulatory burden.

It is worth noting that not all non-native species are invasive. Many non-native species have been intentionally introduced for beneficial uses such as food production or landscape restoration. Most species are also benign in their native range, yet when introduced into a different ecosystem they may become problematic as habitat and biological interactions, such as competition, predation, and disease, are no longer present to regulate their populations. In some cases, a non-native species may be viewed as beneficial by one sector of society yet considered invasive by another sector in the same geography. For instance, striped bass, introduced from the East Coast, are a popular sport fish in the San Francisco Bay-Delta of California, yet their predation on the threatened Delta smelt and endangered and non-endangered salmonids marks them as invasive by California water and other interests. Conflicting management objectives require careful consideration of legal mandates and jurisdictional priorities in addition to effective communication among affected entities to establish and pursue mutually satisfactory outcomes.

New invasive species continue to enter the United States, and invasive species already present are expanding their ranges, increasing their populations, and in some cases hybridizing with native species. Management options for addressing invasive species can be thought of in terms of their relationship to the stages of the invasion process, with fewer and more costly management options available as an invasion progresses (Figs. 1, 2). Coordinated efforts are essential to protect natural and cultural resources. Many of Interior's programs have made advances in invasive species management, and opportunities exist to expand this work to ensure the most effective and efficient use of available resources.

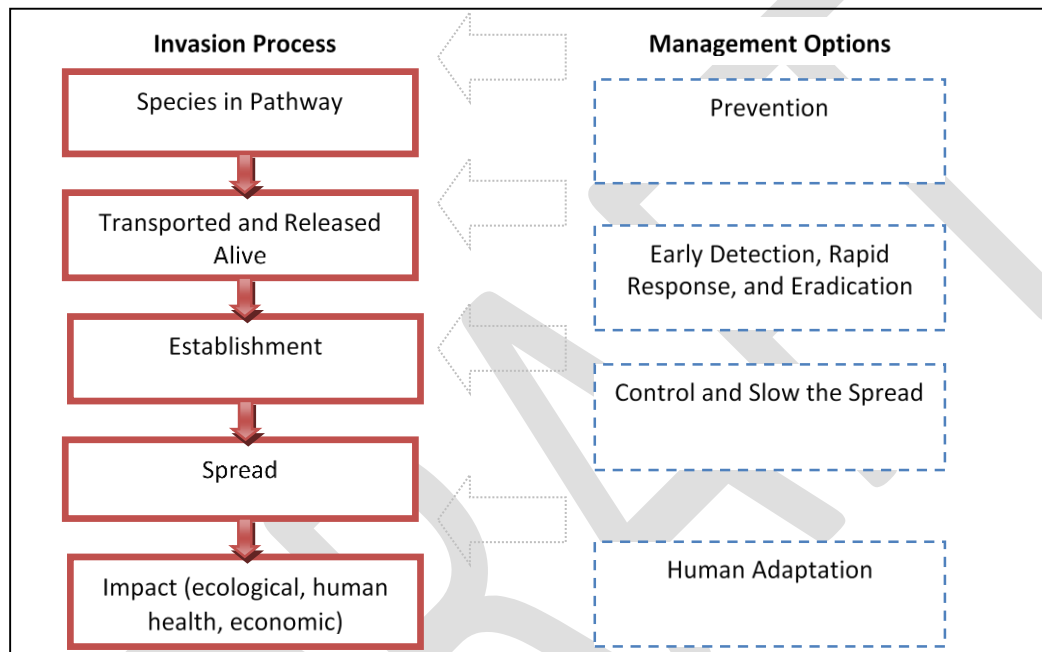


Figure 1. Invasion Process and Management Options (Adapted from Lodge et al. (2006)). Stages common to all invasions by non-native species (left column) and general management options (right column) associated with each stage of invasion.

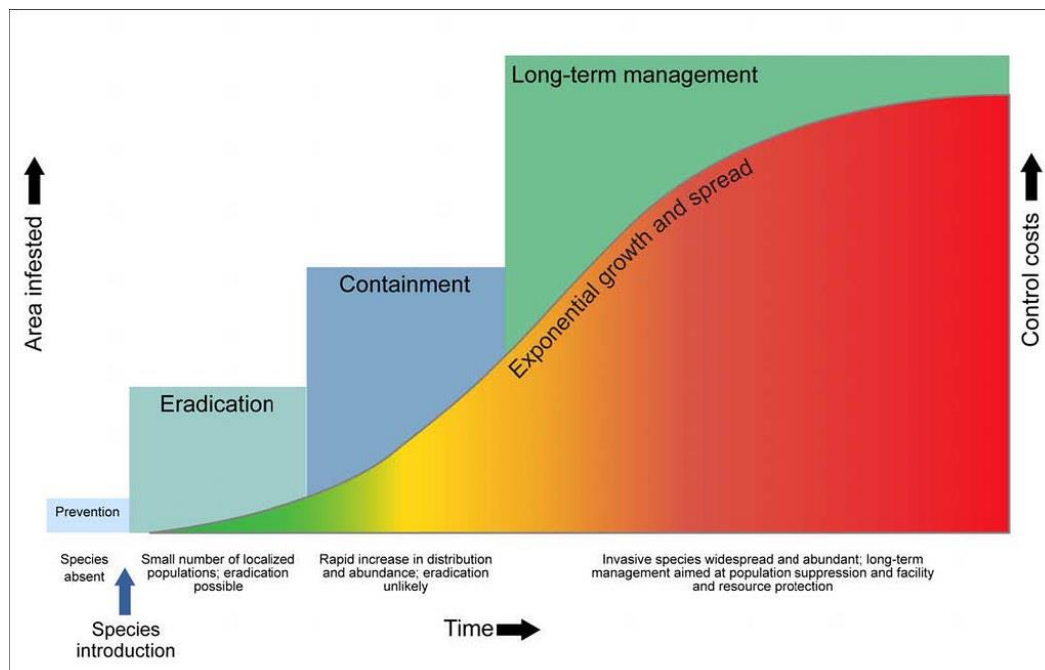


Figure 2. Phases of the Invasion Curve (Rodgers, Adapted from *Invasive Plants and Animals Policy Framework*, State of Victoria, Department of Primary Industries, 2010). Preventing the introduction of invasive species is the first and most cost-effective defense against biological invasion. The second line of defense is eradication, where the approach is to eliminate founding populations of invasive species while doing so is feasible. Early detection and rapid response actions are generally necessary to achieve eradication. When eradication is no longer feasible, then containment or long-term control of an invasive species population is the remaining management option. Long-term control programs often require substantial financial investments indefinitely.

Economic Impact of Invasive Species






Invasive species impose substantial costs on society. For example, they can drive native species onto the Endangered Species list with associated regulatory costs, exacerbate the threat of wildland fire that destroys property and threatens lives, increase the cost of delivering water and power, damage infrastructure, and degrade recreation opportunities and discourage tourism. They also disrupt ecosystem functions including pollination, water filtration, pest control, and protection from erosion, wildfires, and other natural hazards. Invasive species cause damages that impact the global economy, including an estimated \$120 billion in environmental damages and losses annually in the United States.¹ In Fiscal Year 2019, Interior alone invested an estimated \$117 million to manage invasive species.

Table 1 presents examples of economic impacts and management costs estimated for various high-profile invasive species. These estimates may not include certain losses resulting from the ecological degradation caused by invasive species. This includes losses that are difficult to quantify but that can negatively impact and ultimately impose costs on economic activities as well as on human health and property.²

¹ Pimentel, D. et. al, 2005. Update on the environmental and economic costs associated with alien-invasive species in the United States.

² For example, cheatgrass or downy brome, an invasive weed that can significantly increase fire hazards. Fires in cheatgrass areas are more intense and frequent than rangelands with native vegetation resulting in increased hazards to structures and human health.

Table 1. Examples of estimated economic impacts of selected invasive species. Estimates represent a wide range of regions, time periods, and types of impacts and costs. Dollar values are presented in nominal terms and have not been adjusted to a constant dollar-year. For these reasons, it is not appropriate to sum these values.

Invasive Species	Impacted Sectors	Estimated Economic Impacts	Estimated Management Expenditures
Zebra, Quagga Mussels 	Agriculture, Electric Power, Recreation, Tourism, Water Infrastructure	\$1 billion per year (includes both estimated economic impacts and management expenditures in the Great Lakes and Pacific Northwest) ³	
Asian Carps 	Fisheries, Recreation, Tourism	\$102 million over ten years (Great Lakes commercial fishery); \$2.4 billion over ten years (Great Lakes recreational fishery) ⁴	\$58 million in 2017 (Ohio and Upper Mississippi River Basins) ⁵
Brown Treesnake 	Electric Power, Recreation, Tourism, National Security	\$4.5 million per year (Guam) ⁶	\$4 million per year (Guam)
Feral Swine 	Agriculture, Infrastructure, Livestock	\$190 million in 2014 (crop production losses across ten States) ⁷ ; \$40 million in 2017 (livestock damages across 13 States) ⁸	<i>Not available</i>
Nutria 	Agriculture, Recreation	\$2.9 million per year (Maryland Chesapeake Bay commercial fishing, sportfishing, hunting, and wildlife viewing)	<i>Not available</i>

(continued on next page)

³ Represents recreational fishery losses, controls, and other costs in the Great Lakes and Pacific Northwest areas, as well as cleaning of water intake pipes, filtration equipment, power generating equipment, damage to docks and recreational or commercial boats.

⁴ Includes estimated impacts of grass carp only as a result of reduced catches, reduced quality, diversity, and population size of native fish species, increased operational costs from commercial harvesters needing to travel greater distances, and decreased demand for recreational fishing



⁵ Includes Federal and State agency expenditures related to prevention and control; research and development; monitoring, early detection and rapid response; interagency coordination; outreach; and law enforcement and regulatory actions. Although \$58 million is spent in the Ohio and Upper Mississippi River Basins, \$53 million is related to expenditures for Great lakes protection primarily in the Chicago Area Waterway System and Illinois Water Way.

⁶ Represents the annual costs to Guam's economy over a seven-year period due to electrical power outages caused by the brown treesnake. This estimate does not include repair costs, damage to electrical equipment, or lost revenues.

⁷ Represents crop production losses for corn, soybeans, wheat, rice, sorghum, and peanuts in AL, AR, CA, FL, GA, LA, MS, MO, NC, SC, and TX.

⁸ Represents the direct costs in terms of deaths and medical expenditures resulting from feral swine presence for livestock producers in AL, AK, CA, FL, GA, LA, MS, MO, NC, OK, SC, TN, and TX.

Table 1. Examples of estimated economic impacts of selected invasive species (continued)

Invasive Species	Impacted Sectors	Estimated Economic Impacts	Estimated Management Expenditures
Cheatgrass 	Agriculture, Energy, Infrastructure, Healthcare	Smoke impact from wildfire. Regulatory impact from wildfire destruction of habitat for an ESA-candidate-species	\$18 million from 2015-2019 (Interior-managed lands) ⁹
Emerald Ash Borer 	Agriculture, Electric Power, Forestry	\$130 million per year (timber losses, nationwide) ¹⁰ ; \$830 million per year (residential property value losses, nationwide) ¹¹ , especially in Midwestern States	\$10.7 billion over ten years (nationwide) ¹²

Sources:

Pacific States Marine Fisheries Commission and Pacific Northwest Economic Region. 2015. Advancing a regional defense against *Dreissenids* in the Pacific Northwest;

Hayder, S. (Fisheries and Oceans Canada). 2019. Socio-economic risk assessment of the presence of grass carp in the Great Lakes Basin;

U.S. Fish and Wildlife Service. 2017. Annual Report to Congress: Annual summary of activities and expenditures to manage the threat of Asian carp in the Upper Mississippi and Ohio River Basins;

Fritts, T. H. 2002. Economic costs of electrical system instability and power outages caused by snakes on the Island of Guam;

Corn, M. L. and R. Johnson (Congressional Research Service). 2013. Invasive Species: Major law and the role of selected Federal agencies;

Southwick Associates for Maryland Department of Natural Resources. 2004. Potential economic losses associated with uncontrolled nutria populations in Maryland's portion of the Chesapeake Bay;

Anderson, A. et. al. 2016. Economic estimates of feral swine damage and control in 11 States;

Anderson, A. et. al. 2019. Predation and disease-related economic impacts of wild pigs on livestock producers in 13 States;

Aukema, J. E., Leung et. al. 2011. Economic impacts of non-native forest insects in the continental United States;

Kovacs, K. F. et. al. 2010. Cost of potential emerald ash borer damage in U.S. communities, 2009 - 2019.

Interior Involvement in Addressing Invasive Species

Interior manages the Nation's public lands and minerals, including providing access to more than 480 million acres of Federal lands, 700 million acres of subsurface minerals, and 2.5 billion acres of the Outer Continental Shelf. It is the steward of about 20 percent of the Nation's lands, including national parks, national wildlife refuges, and other public and tribal lands, and; manages resources that supply 18 percent of the Nation's energy; supplies and manages water in the 17 Western States and supplies 15 percent of the Nation's hydropower energy;¹³ and upholds Federal trust responsibilities to 574 federally-recognized Indian Tribes. The lands, waters, and facilities that Interior manages are vulnerable to biological invasions and can in turn be a source for invasive species introductions to adjacent non-federal lands.

Each of Interior's Bureaus has a role in invasive species management and influences the introductions and spread of invasive species (Appendix A). Activities by employees, contractors, partners, and visitors to Interior-managed lands and waters can unintentionally act as pathways, including the use and transport of vehicles and use and transport of equipment and materials.

⁹ This estimate is based on a keyword search of the Interior fuels treatment database and associated planned costs of projects that involved the reduction, prevention, and monitoring of cheatgrass for the purposes of wildland fire management on Interior-managed lands. Thus, this likely represents a lower-bound estimate. In addition, planned costs may not reflect the actual costs and the accuracy of planned cost estimates is not known. Does not include non-fire cheatgrass expenditures.

¹⁰ Includes damages from all phloem and wood borers, of which emerald ash borers are the most damaging.

¹¹ Includes damages from all phloem and wood borers, of which emerald ash borers are the most damaging.

¹² Represents the mean discounted cost of treating, removing, and replacing 17 million ash trees across 25 states over ten years.

¹³ U.S. Department of the Interior 2020/2021 Annual Performance Plan & 2019 Report (APP&R)

Coordination and collaboration across Bureaus and across jurisdictions are crucial to strategically stem the spread of invasive species.

Interior has been actively engaged in managing invasive species for more than 60 years. Due in large part to Interior's action, sea lamprey populations in the Great Lakes have been reduced by more than 90 percent from peak levels observed during the 1960s. This is in part responsible for the remarkable recovery of fisheries, including the restoration of self-sustaining lake trout stocks in Lake Superior and recently, for the first time since the 1800s, landlocked Atlantic salmon have successfully spawned in tributaries of Lake Champlain. Recovery of seabird and lizard populations has been documented in places like Channel Islands National Park and is due to the success of programs to eliminate invasive species such as black rats and feral swine. U.S. Geological Survey research on pythons, brown treesnakes, and other invasive species has helped inform solutions for reducing the spread of these species and has provided quantitative data on invasive species impacts on native ecosystems. The Bureau of Reclamation is leading research efforts to control quagga and zebra mussels in hydroelectric and irrigation facilities to ensure continued economical renewable power generation and water delivery to cities and farms. These examples are among numerous other efforts underway by Interior to combat invasive species.

Significant challenges remain in managing existing and new invasive species. Less than one percent of invasive plant populations and approximately 10 percent of invasive animal populations on Interior-managed lands are currently under control, and challenges are on the rise.¹⁴ Between Fiscal Years 2016 and 2020, Interior spent an average of \$116 million to manage invasive species. These investments are largely directed to field-based programs to address invasive species on the ground, while approximately only 1 percent supports administration. Invasive species and their impacts will likely increase in the coming decades as the global movement of people and materials and increased tourism and trade will further disperse species around the world. The impact of climate change and associated alterations in weather patterns, precipitation, and extreme weather events disrupts ecosystems and makes them more susceptible to biological invasions.

Given these challenges, coordination among Interior Bureaus and with Federal, State, tribal, territorial, and local partners and other stakeholders is needed, and Interior is responding accordingly. Its policy on invasive species in the Departmental Manual provides guidance for applying a more consistent and comprehensive management approach across Interior and emphasizes collaborative conservation.¹⁵ In addition, experience indicates the need for a coordinated Federal role in developing and maintaining invasive species geospatial distribution information and other information and making it available to others. In response, a concerted effort is underway by Interior and its partners to standardize data and promote common technology platforms for sharing information that aids in managing biological invasions. Interior also established 12 standard regions to strengthen coordination and efficiency across Bureaus and better serve partners, which will help achieve invasive species management goals across public and private lands at multiple scales.

¹⁴ U.S. Department of the Interior 2020/2021 Annual Performance Plan & 2019 Report (APP&R)

¹⁵ The Departmental Manual Chapter on invasive species provides guidance to Interior Bureaus and Offices on invasive species management approaches and associated practices, which will be instructive in the implementation of the strategies included in this Plan. The chapter is available online at <https://www.doi.gov/sites/doi.gov/files/elips/documents/524-dm-1-508.pdf>.

Understanding biological invasions and the consequences of world-wide species movements is a rapidly evolving science and management discipline. These and other efforts underway are critical to successfully prevent the next invasion, and to more effectively manage established invasive species.

Plan Development, Implementation, and Reporting

Interior developed the Plan in response to the John D. Dingell, Jr. Conservation, Management, and Recreation Act [Act] of 2019. Title VII section 7001 of the Act directed the Secretary of the Interior to, “develop a strategic plan that will achieve, to the maximum extent practicable, a substantive annual net reduction of invasive species populations or infested acreage on land or water managed by the Secretary.” It also directed that the plan be developed in coordination with States, political subdivisions of States, in consultation with federally-recognized Indian Tribes, and in accordance with the priorities of State governors. Furthermore, the Act directed that the plan take into consideration the economic and ecological costs of action or inaction, as applicable.

While Interior’s Bureaus have numerous invasive species management plans and other planning documents at multiple geographic and organizational levels, often developed with input from stakeholders, Interior did not have an enterprise invasive species strategic plan prior to this Plan.

At the onset of planning, Interior conducted eight teleconference listening sessions with federally-recognized Indian Tribes, States, counties, territories, the Commonwealth of Puerto Rico, Alaska Native Corporations, and the Native Hawaiian Community. The issues raised in these sessions and through their written comments substantively influenced the Plan. For example, collectively, the Governors’ representatives in their listening session asked Interior to have this Plan be adaptable and fit to purpose, rather than be too prescriptive in identifying specific invasive species to address; in response, the Plan emphasizes strengthening partnerships, promoting cross-boundary collaborative conservation, and advancing mutual priorities.

The Plan goals, objectives, and strategies will guide Interior’s activities going forward. The Plan reflects both core activities that are in progress across Interior and emerging priority areas. It promotes coordination and collaboration among Bureaus and offices and their programs, in the allocation of resources, and with partners and stakeholders. Recognizing that Interior’s efforts are among many underway across the Federal government, to optimize implementation, Interior’s work through the Plan will inform priorities for interagency coordination and planning by the National Invasive Species Council, the Aquatic Nuisance Species Task Force, and other interagency coordinating bodies. Likewise, the priorities of these interagency bodies will also inform Interior’s activities (Appendix B).

Interior intends to revisit the Plan every five years to ensure that it stays relevant to current issues and priorities. Interior will track implementation of the Plan through current reporting metrics and selectively add new metrics in coordination with Bureaus (Appendix C).

Implementation of activities in the Plan are subject to budgetary and statutory authorization constraints and assumes only the set of Federal legal authorities in place as of its writing (Appendix D).

Invasive Species Management Mission and Vision

Mission

To manage resources and partner with others to cost-effectively protect the Nation's economy, environment, public health, infrastructure, natural resources, and cultural heritage from the harmful impacts of invasive species for the benefit of current and future generations.

Vision

The Department of the Interior strives to fulfill a vision to:

- Prevent invasive species from entering the United States;
- Collaborate with partners in establishing early detection and rapid response capabilities to prevent introduced invasive species from becoming established;
- Manage established invasive species to limit their spread and reduce negative impacts;
- Support and use scientific and technological innovation that make the management of invasive species more feasible;
- Help avoid having Interior-managed lands and waters become a source of invasive species that damage the lands, waters, and resources of our neighbors;
- Share information and raise awareness to mobilize action to address invasive species;
- Manage lands and waters so they are resistant to invasive species infestations and are resilient to disturbance;
- Integrate the invasive species work and other assets among our Bureaus on regional and national levels to promote effectiveness and efficiency;
- Engage with partners to address mutual invasive species priorities, including those identified by State, tribal, territorial, and local governments and other Federal agencies; and
- Incorporate cost-effectiveness in all actions we undertake to achieve Interior's invasive species management mission.

Crosscutting Principles

The following crosscutting principles are fundamental to successful invasive species management and are to be applied in the implementation of the Plan's activities.

Promote and engage in collaborative conservation: Coordinate and cooperate across Interior and with other Federal agencies; the National Invasive Species Council, Aquatic Nuisance Species Task Force, and other interagency bodies; tribal, State, local, and territorial governments, Alaska Native Corporations, and the Native Hawaiian Community; and other entities such as academic institutions, industry sectors and businesses, landowners, sportsmen, ranchers and farmers, local invasive species cooperatives, non-governmental organizations, and others. Leverage staff and funding across these groups to manage invasive species effectively and efficiently.

Leverage science: Use relevant and reliable science, without bias or regard to the source of that science, to inform and influence understanding of invasive species, their impacts, and how to manage them.

Adaptively manage: Use adaptive management, as appropriate, to improve invasive species management and policies. Use management outcomes, monitoring, evaluation, research, and innovation to inform adjustments to the strategies implemented in this Plan.

Manage on a watershed or ecosystem scale: Use a systems approach that emphasizes the importance of maintaining ecological processes to restore or recover ecological communities previously invaded or to maintain the resistance and resilience of relatively intact ecological communities, while balancing economic, cultural, and environmental priorities.

Promote innovative solutions: Encourage innovative science and technologies to address the most difficult challenges in invasive species management.

Apply integrated pest management: Apply integrated pest management principles in a manner that balances risks to human health and the environment from invasive species management activities with the related consequences of failure to act expeditiously to control invasive species.

Prioritize cost-effectiveness: Prioritize the use of cost-effective methods that manage invasive species.

Demonstrate accountability: Develop specific, measurable, achievable, results-oriented, and time-fixed (SMART) performance metrics to evaluate invasive species management activities. Aim for substantive annual net reduction of invasive species populations or infested acreage on Interior-managed lands and waters. Report annually on performance results and share with Federal and non-federal partners.

Goals, Objectives, and Strategies

Each goal in the Plan has objectives that provide detail about how to accomplish that goal. Each objective has a list of strategies, or specific activities, to achieve that objective. The order of the goals, objectives, and strategies does not reflect relative priority. When the Plan refers to collaborating “with others,” this includes working with State, tribal, territorial, and local governments, other Federal agencies, academia, industry, non-profit organizations, land managers, landowners, the public, and other stakeholders.

Goal 1: Collaborate across Interior and with others to optimize operations through leveraging partnerships, educational efforts, and funding.

Invasive species are not constrained by jurisdictional boundaries. The most successful efforts to combat invasive species are those that enlist a broad coalition of partners working across jurisdictions toward mutual goals. Numerous interagency coordinating bodies and partnerships are operating at all levels—international to local—across the Nation to advance appropriately

scaled strategies. Collectively, these interagency bodies and partnerships create a network of concerted action, information sharing, and planning that strengthens the ability to manage invasive species.

This goal emphasizes having effective coordination and communication mechanisms for identifying mutual priorities and sharing information across Interior and with others, promoting invasive species education campaigns, and working closely across Interior Bureaus and with our partners.

Objective 1.1 Increase engagement in partnerships at multiple scales and “do our share” to advance mutual priorities and promote efficiency and cost-savings.

Strategies:

- a. Leverage existing interagency bodies, partnerships, and networks and establish new collaborative efforts, as needed and appropriate, to manage invasive species.
- b. Develop and implement interjurisdictional management plans, in collaboration with others, that advance mutual priorities.
- c. Use Memoranda of Understanding, cooperative agreements, or other instruments, as appropriate, to strengthen collaboration to advance efficient management activities.
- d. Incentivize partnerships that work across jurisdictions to address mutual priorities.

Objective 1.2 Increase information exchange across Interior and with others to share expertise on invasive species science and management and promote efficiency and cost-savings.

Strategies:

- a. Use and enhance current mechanisms for coordination, communication, and reporting, including leveraging information technology for elements such as geospatial mapping and authoritative databases to expedite information-sharing.
- b. Offer and expand, as needed, invasive species training opportunities.
- c. Share a nationwide network of Interior subject matter experts that could provide training or technical assistance on invasive species management activities.
- d. Increase engagement with Tribes and indigenous communities to understand how culture, subsistence, and traditional ecological knowledge can be incorporated into management goals and activities.

Objective 1.3 Increase understanding about invasive species and motivate actions to address them.

Strategies:

- a. Leverage national invasive species education and outreach campaigns and websites to educate the public and provide informational resources for managers.
- b. Leverage Interior capabilities to inform target audiences about invasive species, including information on distribution, impacts, and management solutions.

- c. Promote coordination among State, tribal, territorial, and Federal invasive species and communication experts to ensure the public receives accurate and actionable messaging about invasive species.

Objective 1.4 Increase knowledge of and access to Interior funding opportunities.

Strategies:

- a. Ensure that Interior staff and partners are aware of Interior financial assistance programs (e.g., grants) that may be available to fund invasive species management activities.
- b. Optimize financial assistance programs for invasive species management activities so that they are efficient, effective, and meet programmatic objectives.

Objective 1.5 Increase coordination of resources and investments across Interior and with others to support mutual priorities.

Strategies:

- a. Improve reporting and analysis of Interior's invasive species investments and other, related investments, particularly those allocated to high impact species.
- b. Identify mutual priorities across Interior and with others and leverage investments and resources to address those priorities.
- c. At the regional level, coordinate through Secretarial Field Special Assistants and their respective regional executive leadership teams in interagency priority-setting and budget execution on invasive species management activities of programmatic interest to more than one Bureau.
- d. At the national level, coordinate through Interior's Office of Policy Analysis to work with Bureaus to establish a select set of national program priorities, and advise the Assistant Secretary for Policy, Management and Budget on a select set of invasive species issues for consideration in the annual budget formulation process.

Goal Metrics: *Appendix C*

Goal Outcome: Effective partnerships use best available information and leverage resources to address national and regional invasive species priorities efficiently and effectively.

Goal 2: Cost-effectively prevent the introduction and spread of invasive species into and within the United States.

Preventing the introduction of invasive species is the first line of defense against biological invasion and is the most cost-effective approach. Prevention includes efforts to stop the introduction of invasive species *into* the United States and efforts to stop the secondary spread *within* the United States from an infected area to an uninfected area. Science-based decision support tools are essential to determine which species are likely to become invasive and their

pathways of spread, so that resources can be focused accordingly. Outcomes of these assessments inform both regulatory and nonregulatory approaches.

This goal emphasizes working with partners to identify mutual priorities for prevention, particularly at the regional level, and promotes the use of Interior's authorities for prevention, the implementation of best prevention practices, and the pursuit of research and innovation to develop new prevention measures.

Objective 2.1 Increase the use of cost-effective approaches to prevent the introduction of invasive species into the United States and reduce long-term economic impacts.

Strategies:

- a. Use horizon-scanning, predictive modelling, and other tools to identify high-risk species and pathways of introduction into the United States.
- b. Leverage existing statutory authorities, such as the injurious provisions of 18 USC 42 and the wildlife trafficking provision of 16 USC 3372, to manage pathways of invasive species introductions and prevent new invasive species from becoming established.
- c. Ensure Interior staff are aware of relevant authorities that can be used for prevention and encourage their implementation at all organizational levels.
- d. Through the National Invasive Species Council, support other agencies in their efforts to implement their own statutory authorities to reduce the risk of invasive species introductions through pathways not regulated by Interior.

Objective 2.2. Increase the use of prevention practices to inhibit the secondary spread of invasive species within the United States and reduce long-term economic impacts.

Strategies:

- a. Develop and implement site specific prevention and containment practices for pathways that are likely to introduce or spread invasive species onto and off of Interior-managed lands.
- b. Inform visitors to Interior-managed lands and waters of pertinent invasive species laws and regulations and cooperate closely with appropriate Federal and non-federal law enforcement personnel to ensure compliance.
- c. Collaborate with partners to identify mechanisms to reduce interstate movement of invasive species.
- d. Leverage Interior's regional structure to bolster coordination across Interior and coordination with partners to address regional prevention priorities.

Objective 2.3 Leverage research and innovation to develop cost-effective tools, technologies, and methods to prevent invasive species introductions and secondary spread.

Strategies:

- a. Enhance decision-support tools to conduct risk analyses that identify high-risk species and high-risk pathways that are likely to negatively impact Interior-managed resources.

- b. Leverage Interior expertise and external partners to increase efficacy of tools, designs, or practices to prevent the introduction and spread of invasive species.

Goal Metrics: Appendix C

Goal Outcome: Effective biosecurity measures reduce the number of invasive species that arrive, establish, and spread within the United States.

Goal 3: Implement early detection and rapid response efforts in coordination with other Federal agencies, States, Tribes, territories, and other partners to reduce potential damage and costs from new infestations becoming established.

For invasive species that fail to be excluded through prevention efforts, early detection and rapid response (EDRR)—a coordinated set of actions to find and eradicate initial invasive species infestations before they spread and cause harm—can avoid the long-term costs and economic burden that invasive species cause. This goal emphasizes the importance of coordinating EDRR activities across Interior and with State, tribal, and territorial governments, which are often the lead agencies for response. It also promotes the capabilities necessary to detect and eradicate new invasive species occurrences before they become widely established.

Objective 3.1 Engage in coordinated, early detection biosurveillance efforts that inform decision-making for rapid responses and promote efficiency and cost-savings.

Strategies:

- a. Delineate Interior's roles, responsibilities, and contributions within the broader intergovernmental community in implementing coordinated early detection biosurveillance efforts.
- b. Develop and enhance early detection biosurveillance capacity, tools, techniques, and technologies, including molecular methods.
- c. Prioritize early detection biosurveillance where Interior has a mandate and there is the greatest risk of introduction of high impact invasive species.
- d. Selectively strengthen Interior taxonomic expertise and ability to verify species identification for programs where Interior has a mandate (e.g., fish and wildlife health and wildlife inspection at designated wildlife ports of entry).
- e. Use existing Interior inventory and monitoring programs, where appropriate, to assist with early detection biosurveillance.
- f. Inform rapid responses actions to recent introductions by rapidly assessing risks, including using streamlined geospatial mapping and data from authoritative databases.

Objective 3.2 Engage in coordinated, rapid response efforts based on the outcome of early detection biosurveillance to promote efficiency and cost-savings.

Strategies:

- a. Delineate Interior's roles, responsibilities, and contributions within the broader intergovernmental community in implementing coordinated rapid response efforts.
- b. Use or develop response frameworks to facilitate response actions, including coordination, information flow, analysis, decision-making, goal setting, resource-sharing, and implementation.
- c. Streamline regulatory processes (e.g., where appropriate under the National Environmental Policy Act, Endangered Species Act, and National Historic Preservation Act) so that rapid response actions occur in a timely manner.
- d. Promote and enhance the use and capacity of interjurisdictional teams to implement coordinated rapid response actions.
- e. Evaluate the effectiveness of rapid response actions and share results to improve subsequent actions.

Goal Metrics: *Appendix C*

Goal Outcome: Detect and eradicate invasive species early in the invasion process.

Goal 4: Cost-effectively control established invasive species populations to reduce impacts and restore native species and ecosystems.

Once invasive species are established, managers must determine which invasive species to control and where geographically to focus effort. Priorities can be set based on evaluating which species pose the greatest threat to human health, Interior's resource management objectives, and the economy. Feasibility of control considers criteria such as available control techniques, cost-effectiveness, likelihood of reinvasion, public support, complexity of environmental compliance, and availability of resources.

Interior promotes the use of integrated pest management, an approach that uses biological, cultural, physical, and chemical tools in a way that reduces health, environmental, and economic risks. It is a science-based, decision-making process that incorporates management goals, consensus building, biology, monitoring, environmental factors, and selection of the best available technology to achieve desired outcomes while managing effects on non-target species and the environment and preventing unacceptable levels of damage.

Because invasive species are not constrained by jurisdictional boundaries, working across those boundaries to control invasive species in collaboration with partners often is paramount for success. This goal emphasizes the importance of identifying mutual priorities for a coordinated approach to control invasive species in a given geographic area and increase effectiveness. It also stresses opportunities to focus on those areas where eradication – the complete removal of the invasive species – is most likely and sustainable in the long-term.

This goal leverages science and innovation to develop tools and methods to control or eradicate invasive species and restore native species and ecosystems to enhance resilience to future disturbance.

Objective 4.1 Maintain or increase control or eradication of established invasive species on Interior-managed lands and waters and across jurisdictions, where practicable.

Strategies:

- a. Develop and use decision-support tools in setting priorities for control or eradication (including prioritizing geographic areas and invasive species), establishing goals for population suppression or eradication, and determining where success can be maintained long-term and when control or eradication is no longer practicable.
- b. Sustain and expand, as practicable, efforts to control or eradicate priority invasive species using integrated pest management approaches.
- c. Restore impacted species and habitats to enhance their resilience to disturbance and resistance to future invasive species infestations.
- d. Coordinate with adjacent land managers or landowners for a unified approach to control or eradicate invasive species that cross jurisdictional boundaries.
- e. Use social science tools to assist with planning where there may be differences in goals or approaches to control or eradicate invasive species.
- f. Evaluate the effectiveness of control or eradication actions and share results to improve subsequent efforts.

Objective 4.2 Reduce the role of invasive species in wildfire frequency, intensity, and extent.

Strategies:

- a. Coordinate between fire management and invasive species management programs across Interior and with the U.S. Department of Agriculture, Department of Defense, and others.
- b. Promote community-based partnerships that coordinate actions and leverage resources to achieve regional goals.
- c. Develop a shared wildfire and invasive species response strategy to focus management on areas where mutual success is likely and resistance to invasive species and resilience to fire can be enhanced.
- d. Work with land management agencies in rural communities to leverage outcome-based grazing using livestock as a tool to both manage invasive plants and reduce fuel loads.

Objective 4.3 Leverage research and innovation to develop safe and cost-effective tools, technologies, and methods to control or eradicate invasive species, restore native species and ecosystems, and adapt to environmental change.

Strategies:

- a. Develop and promote new tools and technologies to control or eradicate invasive species and to restore native species and ecosystems.
- b. Use tools to cultivate awareness, understanding, and support for the development and implementation of new technologies.
- c. Collaborate across Interior and with partners to satisfy regulatory requirements for application of new tools and technologies.
- d. Develop and promote decision-support tools and best practices to aid managers in planning for and responding to climate and other environmental change, including extreme weather events, that may increase the risk of invasive species introductions.

Objective 4.4. Increase efficiency of conducting environmental compliance for control activities.

Strategies:

- a. Develop templates and pursue other options to more efficiently and effectively comply with the National Environmental Policy Act and sections 7 and 10 of the Endangered Species Act (e.g., programmatic section 7 consultations).
- b. Use National Environmental Policy Act Categorical Exclusions, wherever applicable, for implementing invasive species management activities.
- c. Strengthen Interior's capacity to maintain and register products for which Interior is responsible for invasive species control or eradication.
- d. Promote and enhance the ability of Interior employees to apply effective products and techniques within Federal standards.

Goal Metrics: *Appendix C*

Goal Outcome: Control projects are implemented using management tools that substantively reduce the impact of priority invasive species on Interior resources and those of its neighbors and partners.

Goal 5: Improve invasive species data management for decision-making.

Data is fundamental to effective decision-making. Whether it be recording the identification of an invasive species, the location or size of an infestation, the type of control being used, or the result of that control: information is crucial for geospatial mapping, modeling, and evaluating effectiveness of actions taken. This goal highlights the importance of data collection, data storage, data analysis, and data sharing. Consistent with the broader societal efforts at promoting open science and transparency of data, Interior and its partners are elevating awareness about the value of having access to data and data analysis capabilities to aid in invasive species decision-

making. This goal promotes equipping managers with the information and technological and analytic tools needed to make informed, science-based decisions.

Objective 5.1 Promote user-friendly, interoperable databases to increase efficiency and cost-savings.

Strategies:

- a. Enhance and promote the use of Federal and non-federal databases that support invasive species information needs and maximize data sharing and availability.
- b. Improve the quantity and quality of data sharing, including legacy data, in authoritative databases across Interior and with data aggregators.
- c. Maintain and enhance invasive species database services and tools, such as providing geospatial occurrence data, mapping capabilities, risk analysis, early detection alert notifications, and tracking of management actions and their effectiveness, and ensure these data and tools remain accessible to Interior and others.
- d. Respond to feedback from managers on the tools and datasets that would aid managers in data collection and decision-making.

Objective 5.2 Increase invasive species data collection and its accuracy, consistency, level of reporting, and utility across Interior.

Strategies:

- a. Adopt and expand the use of the North American Invasive Species Management Association minimum mapping standards for invasive species across Interior, with the future aim of establishing Federal Geographic Data Committee geospatial standards.
- b. Enhance Interior's capacity to collect data on management actions and to analyze patterns of success to increase effectiveness.
- c. Establish, in collaboration with others, standards for environmental DNA and adhere to those standards across Interior.
- d. Develop and use quality assurance and quality control practices and processes for accurate and precise data management for use in integrated authoritative databases.
- e. Define the role of citizen science in Interior's invasive species data collection efforts and, where appropriate, promote consistent citizen science training, data collection, and online data submission.

Goal Metrics: *Appendix C*

Goal Outcome: Robust, accessible databases and decision-making tools satisfy managers and data users.

Conclusion

As the largest land and water manager in the United States, Interior has an important role in the management of invasive species. The coordinated approach outlined in the Plan will leverage resources more effectively and bolster programs, practices, and services necessary to reduce the negative impacts of invasive species. Interior is committed to working across the Federal family and with States, Tribes, territories, local governments, and other partners to collectively manage invasive species to conserve the Nation's resources for the benefit of current and future generations.

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Appendix A: Bureau and Office Missions and Roles in Invasive Species Management



Bureau of Indian Affairs (BIA)

Mission: To enhance the quality of life, to promote economic opportunity, and to carry out the responsibility to protect and improve the trust assets of American Indians, Indian Tribes, and Alaska Natives.

Responsibilities for Invasive Species:

- Oversees monitoring, compliance, and enforcement of grazing permits and agricultural leases with respect to invasive species on tribal range and agricultural lands held in trust for Indian Tribes.
- Receives Federal allocation funds for invasive species (vegetative treatment of noxious weeds) on federally-recognized tribal lands under the trust responsibility of the Secretary of Interior, which are disbursed through a competitive project process.
- Supports tribal participation in 12 Interior regions for early detection and rapid response, local, State and regional Cooperative Weed Management Areas and collaborative restoration projects, including the Great Lakes Restoration Initiative, Missouri River Water Coalition, San Juan Woody Watershed Initiative and the Southwest Tamarisk Coalition.

Links: <https://www.bia.gov>



Bureau of Land Management (BLM)

Mission: To sustain the health, diversity, and productivity of America's public lands for the multiple use and enjoyment of present and future generations.

Responsibilities for Invasive Species:

- Helps control expansion of invasive plants and other invasive taxa across public lands.
- Works cooperatively to manage invasive species across landscapes.
- Manages for preservation and restoration of native ecosystems.
- Manages public lands to provide for energy and mineral development oil, gas, coal, and alternative, while minimizing the introduction and spread of invasive species.

Links: <https://www.blm.gov/weeds>, <https://www.blm.gov/programs/fish-and-wildlife/fisheries-and-aquatics/about-the-program>



Bureau of Ocean Energy Management (BOEM)

BUREAU OF OCEAN ENERGY MANAGEMENT

Mission: BOEM manages development of renewable and conventional energy and mineral resources of the Outer Continental Shelf in an environmentally and economically responsible way.

Responsibility for Invasive Species:

- BOEM assesses potential impacts of invasive species and mitigation strategies and assesses and monitors the spread of some invasive species through BOEM's Environmental Studies Program.
- Considers invasive species through its environmental program to ensure that environmental protection informed by science and law is considered in BOEM's decision-making.

Links: <https://www.boem.gov/environment>, <https://marinecadastre.gov/espis/#>



— BUREAU OF —
RECLAMATION

Bureau of Reclamation

Mission: To manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Responsibilities for Invasive Species

- Conducts aquatic invasive zebra/quagga mussel monitoring at nearly 400 water bodies.
- Supports partners' watercraft inspection and decontamination efforts.
- Develops tools to manage invasive species, specifically quagga and zebra mussels, in hydroelectric facilities.
- Creates tools to guide management of invasive species on Reclamation land and facilities, such as Reclamation's *Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species*, the *Integrated Pest Management Manual* and *Facility Vulnerability Assessments*.

Links: <https://www.usbr.gov/mussels>



Bureau of Safety and Environmental Enforcement (BSEE)

Mission: To promote safety, protect the environment, and conserve resources offshore through vigorous regulatory oversight and enforcement.

Responsibility for Invasive Species:

- Mitigates, as appropriate, negative environmental impacts on marine ecosystems and coastal communities, primarily through Notices to Lessees (NTLs) and lease stipulations.

Links: <https://www.bsee.gov>



National Park Service (NPS)

Mission: To preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations.

Responsibilities for Invasive Species:

- Conserves the scenery and the natural and historic objects and the wild life therein and provides for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations, including the prevention and management of invasive species (NPS Organic Act of 1916, as amended and Management Policies 2006).
- Cooperates with stakeholders and partners to control and manage invasive species in and around NPS units.
- Provides technical support and training in invasive species management methods to NPS staff, volunteers, and partners.
- Inventories and monitors the introduction, spread, management, and impact of invasive species in parks.
- Supports 17 Invasive Plant Management Teams (IPMTs) that work to prevent, monitor, and control invasive plants and restore native plant communities in the national park system.
- Serves on numerous invasive species task forces and working groups to increase coordination and information sharing.

Links: <https://www.nps.gov/subjects/invasive/index.htm>,
<https://www.nps.gov/orgs/1103/epmt.htm>



Office of Insular Affairs (OIA)

Mission: To carry out the administrative responsibilities of the Secretary of the Interior and the Assistant Secretary for Insular and International Affairs in coordinating Federal policy for the territories of American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands. The Office is also responsible for administering and overseeing U.S. Compact assistance to the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau. The office of the Assistant Secretary also manages the Department's Oceans, Great Lakes, and Coastal Program, which co-chairs the U.S. Coral Reef Task Force (USCRTF) with the National Oceanic and Atmospheric Administration. The USCRTF monitors and promotes eradication of invasive species that attack coral reefs.

Responsibilities for Invasive Species

- Provides financial assistance and award management for brown treesnake (BTS) research and eradication. The primary goals of OIA's BTS efforts are to: 1) prevent the establishment of BTS in other U.S.-affiliated insular areas and 2) support the

development and implementation of techniques to control BTS populations on Guam. OIA also provides financial support to combat other invasive species, such as the coconut rhinoceros beetle, little fire ant, crown of thorns starfish, red tiled boa constrictors, and African tulip and rubber trees,

Links: <https://www.doi.gov/oia>



Office of Surface Mining Reclamation and Enforcement (OSMRE)

Mission: To carry out the requirements of the Surface Mining Control and Reclamation Act (SMCRA) in cooperation with States and Tribes.

Responsibilities for Invasive Species

- Works in cooperation with partner States, industry, environmental groups, academia, and others to replant legacy or abandoned mine lands with native species and control or eradicate invasive plants as required by the site.
- Promotes and recommends the use of native hardwoods and succession species through the Appalachian Regional Reforestation Initiative Forestry Advisories.

Links: <https://www.osmre.gov>



U.S. Fish and Wildlife Service (FWS)

Mission: To work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people.

Responsibilities for Invasive Species:

- Co-chairs and provides administrative support to the Aquatic Nuisance Species Task Force composed of 13 Federal and 13 non-federal members, six regional panels, and issue specific committees
- Oversees national aquatic invasive species program
- Oversees the Injurious provisions of title 18 USC 42 and the wildlife trafficking provision of 16 USC 3372.
- Directs the inspection of wildlife shipments at staffed wildlife ports and enforces wildlife laws against trafficking in interstate and foreign commerce of injurious and invasive species.
- Addresses invasive species threats to the persistence of Trust Resources.
- Incorporates invasive species management actions into section 7 Endangered Species Act consultations as well as conservation and species recovery plans.
- Supports Invasive Species Strike Teams that work across the National Wildlife Refuge System to carryout prevention and early detection and rapid response activities on and within the vicinity of refuge lands and waters; and individual refuges implement a variety of practices at the local level to manage invasive species.

- Implements an annual competitive \$1 million “Large Invasive Species Allocation” awarded to one refuge to eradicate one or more invasive species.

Links: <https://www.fws.gov/invasives>, <https://www.fws.gov/fisheries/ans/ANSLaws.html>, <https://www.fws.gov/injuriouswildlife/index.html>, <https://www.anstaskforce.gov/default.php>



U.S. Geological Survey (USGS)

Mission: To serve the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

Responsibilities for Invasive Species:

- Conducts research and develops methods and technologies to prevent the introduction of invasive species;
- Identifies, reports and develops new technologies to detect invasions and assess risk to natural areas and waters;
- Assesses change in populations and distribution of established invaders;
- Determines effects of invasive species and susceptibility of habitats to invasion;
- Provides approaches and control technologies to contain, reduce, and eliminate populations of invasive species and restore habitats and native species; and
- Provides and coordinates collection, synthesis, and accessibility of invasive species information.

Links: <https://www.usgs.gov/ecosystems/invasive-species-program>



Departmental Offices

Office of Policy Analysis

- Provides cross-cutting analysis and coordination to support decision-making and policies across Interior.
- Provides expertise and leadership to evaluate Interior programs, develop and coordinate new programs, conduct studies of policies and programs, and conduct relevant economic analyses.
- Coordinates and guides inter-agency and multi-bureau program development and policy analysis tasks and undertakes issue analysis and decision documents on behalf of the Secretary, Deputy Secretary, and Assistant Secretary for Policy, Management, and Budget.

- Serves as Interior’s point of contact on invasive species issues for Bureaus and other Federal and non-federal entities.
- Coordinates Interior’s cross-cutting plans and activities related to invasive species.

Links: <https://www.doi.gov/ppa/program-areas>

National Invasive Species Council

- Provides the vision and national leadership to coordinate, sustain and expand efforts to safeguard the U.S. against invasive species through the prevention, eradication, and control of invasive species, and through the restoration of ecosystems and other assets impacted by invasive species.
- Established under Executive Orders 13112 and 13751.
- Comprised of 12 Departments and four White House offices.
- Co-chaired by the Secretaries of the Interior, Agriculture and Commerce.
- Implements priority activities in line with Annual Work Plans.
- Facilitates the institutional leadership and priority setting by Council members.
- Achieves effective interagency coordination and cost efficiency.
- Raises awareness and motivate action.
- Removes institutional and policy barriers.
- Assesses and strengthen capacities.
- Fosters scientific, technical, and programmatic innovation.

Links: <https://www.doi.gov/invasivespecies/guidance-documents>,
<https://www.doi.gov/invasivespecies>

Office of Wildland Fire

- Oversees Interior’s Wildland Fire Management Program.
- Develops and executes budgets.
- Coordinates workloads across Interior.
- Establishes wildland fire management policy.
- Manages program oversight.
- Pursues technological innovation.
- Management of invasive species intersects with the wildland fire program through fuels management, wildlife response, and post-fire activities.

Links: <https://www.doi.gov/wildlandfire>

Appendix B: Examples of Invasive Species Plans and Related Plans

Interior and Bureau Plans

- Department of the Interior
 - [Strategic Plan for Fiscal Years 2018 - 2022](#)
 - [Safeguarding the West from Invasive Species: Actions to Strengthen Federal, State, and Tribal Coordination to Address Invasive Mussels](#)
- National Park Service
 - [Invasive Plant Program Strategic Plan](#) (2016)
 - [Invasive Plant Management Planning: Technical Considerations](#) (2018)
 - [Quagga Zebra Mussel Strategic Plan for Western Parks](#) (2020)
- U.S. Fish and Wildlife Service
 - [National Wildlife Refuge System National Strategy for the Management of Invasive Species](#)
 - [Strategic Plan for the U.S. Fish and Wildlife Service Fish and Aquatic Conservation Program: FY2016-2020](#)
 - [Office of Law Enforcement Strategic Plan 2016 – 2020](#)

Interagency Plans

- [National Invasive Species Council Guidance Documents](#)
- [Aquatic Nuisance Species Task Force Strategic Plan \(2020-2025\)](#)
- Aquatic Nuisance Species Task Force Approved Plans
 - [Quagga-Zebra Mussel Action Plan for Western U.S. Waters](#)
 - [Management and Control Plan for Bighead, Black, Grass, and Silver Carps](#)
 - [Brown Treesnake Control Plan](#)
 - [National Management Plan for the Genus *Calerpa*](#)
 - [Management Plan for the European Green Crab](#)
 - [National Management Plan for the Genus *Eriocheir* \(Mitten Crabs\)](#)
 - [Ruffe Control Program](#)
 - [Snakehead Control and Management Plan](#)
 - [State and Interstate ANS Plans](#)
 - [National Invasive Lionfish Prevention and Management Plan](#)
- [Pulling Together: National Strategy for Invasive Plant Management](#) (1998)
- [A National Early Detection and Rapid Response System for Invasive Plants in the United States](#) (2003)
- [Asian Carp Control Strategy Framework and Annual Action Plan](#) (2013, 2020)
- [Regional Biosecurity Plan for Micronesia and Hawaii](#) (2015)
- [National Seed Strategy](#) (2015)
- [Safeguarding America's Lands and Waters from Invasive Species: A National Framework for Early Detection and Rapid Response](#) (2016)
- [National Wildfire Coordinating Group Publication Management System 444, Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations](#) (2017)
- [National Wildlife Coordinating Group Publication Management System 317, Resource Advisor Guide, Appendix K: Invasive Species Management](#) (2017)

- [Arctic Invasive Alien Species Strategy and Action Plan](#) (2017)
- [Western Weed Action Plan](#) (2019)
- [APHIS National Feral Swine Damage Management Program](#)

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Appendix C: Invasive Species Strategic Plan Metrics

Metrics for the Plan are still under development. Some are included here while others will be incorporated in the final Plan because additional refinement is needed. Others may be selectively added during the Plan's implementation.

Goal 1: Collaborate across Interior and with others to optimize operations through leveraging partnerships, educational efforts, and funding.

- Percentage of Interior invasive species spending involving non-Interior funding or in-kind cost-sharing.
- *Additional measures under consideration.*

Goal 2: Cost-effectively prevent the introduction and spread of invasive species into and within the United States.

- Percent of species listed as injurious under the Injurious provisions of title 18 USC 42 not established in the United States at time of listing that remain not established. (Reporting Bureau: USFWS)
- Number of injurious animals interdicted. (Reporting Bureau: USFWS)
- *Additional measures under consideration.*

Goal 3: Implement early detection and rapid response efforts in coordination with other Federal agencies, States, Tribes, territories, and other partners to reduce potential damage and costs.

- *Measures in development.*

Goal 4: Cost-effectively control established invasive species populations to reduce impacts and restore native species and ecosystems.

- Percent of baseline acres infested with target invasive plant species that are under control on Interior-managed lands and waters (current Governmental Performance and Results Act measure).
- Percent of invasive animal species populations that are under control on Interior-managed lands and waters (current Governmental Performance and Results Act measure).
- *Additional measures under consideration.*

Goal 5: Improve invasive species data management for decision-making.

- *Measures in development.*

Appendix D: Laws and Policies Guiding Invasive Species Management at the Department of the Interior

Federal Laws

- [**Brown Tree Snake Control and Eradication Act 2004**](#) (Pub. L. No. 108-384) provides for the control and eradication of the invasive brown trees snake on the Island of Guam and the prevention of the introduction of the brown tree snake to other areas of the United States.
- [**Endangered Species Act**](#) (Pub. L. No. 93-205) protects and recovers imperiled species and the ecosystems upon which they depend. Many listed species are listed in part due to the impact of invasive species on them.
- [**Federal Insecticide, Fungicide and Rodenticide Act**](#) (Pub. L. No. 95-396) establishes procedures for the registration, classification and regulation of all pesticides, some of which are used to control invasive species.
- [**Federal Noxious Weed Act**](#) (Pub. L. No. 93-629) section 15 of the Federal Noxious Weed Act of 1974 (7 U.S.C. 2801 et seq.), the first section and section 15 of that Act (7 U.S.C. 2801 note and 7 U.S.C. 2814). Federal Noxious Weed Act of 1974, as amended by Sec. 15 – Management of Undesirable Plants on Federal Lands, 1990 - Authorizes the Secretary “to cooperate with other Federal and State agencies, and others in carrying out operations or measures to eradicate, suppress, control, prevent, or retard the spread of any noxious weed. Many noxious weeds are also considered invasive species.
- [**Fish and Wildlife Coordination Act**](#) (U.S.C. § 661 et seq., as amended by [**John D. Dingell, Jr. Conservation, Management, and Recreation Act**](#), sec. 7001(b)(2), Pub. L. No. 116-9, 133 Stat. 580, 779-784 (2019)) makes recommendations to agencies to conserve trust resources including recommendations regarding invasive species.
- [**Hawaii Tropical Forest Recovery Act of 1992**](#) (Pub. L. No. 102-574) establishes the Hawaii Tropical Forest Recovery Task Force to draft a plan for rejuvenating Hawaii’s tropical forests, which are threatened by invasive species.
- [**Injurious provisions of title 18 USC 42 of the Lacey Act**](#) prohibits importation of wild vertebrates and other animals listed in the Act or declared by the Secretary of the Interior to be injurious to humans or agriculture, horticulture, forestry, wildlife, and wildlife resources except under certain circumstances and pursuant to regulations. The wildlife trafficking provision of 16 USC 3372 of the Lacey Act prohibits the import, export, transport, sale, receipt, acquisition, or purchase of any fish or wildlife that was taken, possessed, transported, or sold in violation of any law or regulation of any State, tribal, or foreign law; this includes invasive species laws.
- [**National Invasive Species Act of 1996**](#) (Pub. L. No. 104-332) amends the Nonindigenous Aquatic Nuisance Prevention and Control Act to mandate regulations to prevent introduction and spread of aquatic nuisance species into Great Lakes through ballast water; authorizes funding for research on aquatic nuisance species prevention and control (Chesapeake Bay, Gulf of Mexico, Pacific Coast, Atlantic Coast, and San Francisco Bay-Delta Estuary); requires ballast water management program to demonstrate technologies and practices to prevent nonindigenous species from being introduced; modifies composition of the Aquatic Nuisance Species Task Force; and

requires the Task Force to develop and implement a comprehensive program to control the brown treesnake in Guam.

- [**Nonindigenous Aquatic Nuisance Prevention and Control Act**](#) (Pub. L. No. 101-646) assigns responsibilities to the U.S. Fish and Wildlife Service, the U.S. Coast Guard, the Environmental Protection Agency, the Army Corps of Engineers, and the National Oceanic and Atmospheric Administration to develop a program of prevention, monitoring, control, and study to prevent introduction of and to control the spread of introduced aquatic nuisance species and the brown treesnake, including membership on an Aquatic Nuisance Species Task Force.
- [**Noxious Weed Control and Eradication Act of 2004**](#) (Pub. L. No. 108-412) establishes a program to provide assistance through States to eligible weed management entities to control or eradicate harmful, nonnative weeds on public and private lands.
- [**Nutria Eradication and Control Act of 2003**](#) (Pub. L. No. 108-16) authorizes the Secretary of the Interior to provide financial assistance to the State of Maryland and the State of Louisiana for a program to implement measures to eradicate or control invasive nutria and restore marshland damaged by nutria.
- [**Plant Protection Act of 2000**](#) (Pub. L. No. 106-224) includes management of undesirable plants on Federal lands and authorizes the Bureau of Land Management to manage noxious weeds and to coordinate with other Federal and State agencies in activities to eradicate, suppress, control, prevent, or retard the spread of any noxious weeds on Federal lands
- [**Wild Bird Conservation Act of 1992**](#) (Pub. L. No. 102-440) regulates importation of foreign wild birds, some of which may become invasive species.

Administrative Policies

- [**Executive Order 13112, as amended by Executive Order 13751**](#) on December 8, 2016 directs Federal agencies to prevent the introduction of invasive species and provide for their control, and to minimize the economic, plant, animal, ecological, and human health impacts that invasive species cause.

Department of the Interior Manual

- [**Chapter 524: Invasive Species Management**](#) – Provides policy to cost-effectively prevent the introduction, establishment, and spread of invasive species; detect and rapid respond to invasive species; eradicate or control populations of invasive species that are established, and implement these actions in collaboration with States, Tribes, territories, and others as appropriate.
- [**Chapter 517: Integrated Pest Management Program**](#) – Provides policy for the use of pesticides on the lands and waters under its jurisdiction, and for compliance with the Federal Insecticide, Fungicide, and Rodenticide Act, as amended.

Bureau of Indian Affairs

- Title 25 U.S. Code 3701, et. seq. American Indian Agricultural Resource Management Act (Pub. L. No. 103-177)
- Title 25 U.S. Code 466 Indian Forestry Units; rules and regulations
- Executive Order 13175 of November 6, 2000. Consultation and Coordination with Indian Tribal Governments. 65 Fed. Reg. 67249

- Secretarial Order 3175, Departmental Responsibilities for Indian Trust Resources
- Department of the Interior Policy on Consultation with Indian Tribes
- Department of the Interior Policy on Consultation with Alaska Native Claims Settlement Act Corporations
- Grazing Permit Regulations 25 CFR 166
- BIA Manual 54 Agricultural Resources: Chapter 5
- 30 BIA Manual, supplement 10 - Integrated Resources Management Plan (IRMP)

Bureau of Land Management

- [**Carlson-Foley Act of 1968**](#) (Pub. L. No. 90-583) – Directs agency heads to enter upon lands under their jurisdiction with noxious plants and destroy noxious plants growing on such land.
- [**Federal Land Management Policy Act**](#) (Pub. L. No. 94-579) – Directs the BLM to “take any action necessary to prevent unnecessary and or undue degradation of the public lands.”
- [**Public Rangelands Improvement Act**](#) (Pub. L. No. 95-514) – Improves the range conditions of the public rangelands.
- [**BLM Manual 9011**](#) and [**Handbook H-9011-1**](#) – Provides policy for conducting chemical pest control program under an integrated pest management approach.
- [**BLM Manual 9014**](#) – Provides guidance and procedures for planning and implementing biological control in integrated pest management programs.
- [**BLM Manual 9015**](#) – Provides policy relating to the management and coordination of noxious weeds activities among BLM, organizations, and individuals.
- [**BLM Manual 1626**](#) – Travel and Transportation Manual. Provides policy, direction, and guidance to establish a comprehensive program for travel and transportation planning within the BLM process citing the Executive Order 13112 (Invasive Species) not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species on transportation corridors.
- [**BLM Manual 1601**](#) – Land Use Planning. Provides policy to the BLM to not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species based under Executive Order 13112 (Invasive Species) unless, pursuant to guidelines that the BLM has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk or harm will be taken in conjunction with the actions.
- [**BLM Manual 1740**](#) – Renewable Resource Improvements and Treatments. Provides policy to identify objectives, policies, and standards that are common and apply to planning, analyzing, constructing, maintaining, replacing, and/or modifying renewable resource improvements and treatments for BLM’s renewable resource programs including invasive species.
- [**Manual Section 1745**](#) – Introduction, Transplant, Augmentation and Reestablishment of Fish, Wildlife and Plants. Provides policy for invasive species management when introducing, transplanting, augmenting fish, wildlife, and plants, and provides policy for the use of native plant materials.

- [BLM Manual 6100](#) – National Landscape Conservation System Management Manual. Provides policy to the extent consistent with the designating legislation or proclamation, the BLM will manage weeds and other invasive species through an integrated pest and vegetation management approach using methods that minimize disturbance to NLCS units.
- [BLM Manual 6340](#) – Management of Designated Wilderness Areas (Public). Provides policy to control non-native species, and for restoration actions where natural processes alone cannot recover the area from past human intervention.
- [BLM Manual 6400](#) – Wild and Scenic Rivers. Provides policy for invasive species management. Terrestrial and aquatic invasive species should be prevented and controlled, consistent with direction in the local land use plans, and other authorities.
- [BLM Manual 9211](#) – Fire Planning Manual. Provides policy for implementing a set of actions that promotes plant community diversity and structure that allows plant communities to be more resilient to disturbance and invasive species over the long term (Great Basin Restoration Initiative).

Bureau of Reclamation

- [Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species](#) (short title Reclamation Equipment Inspection and Cleaning Manual) Technical Memorandum No. 86-68220-07-05, June, 2012. DiVittorio, J., M. Grodowitz, and J. Snow.
- [Bureau of Reclamation's Acquisition Contract Guide Specifications](#) adopts the Reclamation Equipment Inspection and Cleaning Manual as the Reference Standard to prevent the spread of invasive species and pests onto worksites.
- [Integrated Pest Management Manual](#) (short title Reclamation's IPM Manual) introduces the IPM subject matter and serves as a reference tool for Reclamation IPM practitioners.
- [Facility Vulnerability Assessments](#) provide planning documents for facility operators should an invasive mussels infestation occur.
- [Reclamation Manual ENV P02 \(Policy\)](#) Pest Management, December 23, 1996. Provides policy that Reclamation is responsible for the identification and proper management of pests on Reclamation lands and at Reclamation-owned facilities in accordance with the national policies set out in Federal Insecticide, Fungicide and Rodenticide Act and other applicable Federal, State and local laws and standards.
- [Reclamation Manual ENV 01-01 \(Directives and Standards\)](#) – Pest Management – Resource Protection (Integrated Pest Management) Program, October 17, 1996. Provides directives and standards for Reclamation personnel involved with the implementation of Pest Management/Resource Protection plans for the operation and maintenance of Reclamation lands and facilities.
- [Reclamation Manual PEC 10-29 \(Directives and Standards\)](#) – Reclamation Standard Water-Related Contract Articles, Article 29: Pest Management, PEC 10-29, December 21, 2006. Requires contractors to effectively control undesirable plants and animals on Federal project lands, project waters, and project works for which they have operation and maintenance responsibilities.

National Park Service

- [**The National Park Service Organic Act \(16 U.S.C. 1 et seq \[1988\], August 25, 1916, sc. 408, 39 Stat. 535\)**](#) (Pub. L. 64-235) mandates parks to “conserve the scenery and the natural and historic objects and the wild life therein... [to] leave them unimpaired for the enjoyment of future generations.”
- [**The Consolidated Natural Resources Act of 2008**](#) (Pub. L. 110-229) provides the National Park Service with authority to use its resources and funds collaboratively on land outside park boundaries for activities benefiting park natural resources including control of invasive species.
- [**National Park Service Management Policies \(2006\)**](#)
 - 4.4.4.1 – Directs the National Park Service not to introduce exotic species in parks except in rare situations where it is non-invasive and needed to preserve a cultural or historic resource. Invasive species are managed so they will not spread or become a pest on park or adjacent lands.
 - 4.4.4.2 – Allows and identifies the responsibility of parks to manage nonindigenous, alien plant and animal species and to cooperate with other agencies with jurisdictions in their management.
 - 4.4.5.3 – Directs the agency to minimize pesticide use and manage pest using an Integrated Pest Management Approach. Provides guidance on the use of pesticides in units of the National Park Service

Office of Insular Affairs

- [**Brown Treesnake Control and Eradication Act of 2004**](#) (Pub. L. No. 108-384) provides for the control and eradication of the brown treesnake on the island of Guam and the prevention of the introduction of the brown treesnake to other areas of the United States.

Office of Surface Mining Reclamation and Enforcement

- [**Surface Mining Reclamation and Control Act**](#) (Pub. L. No. 95-87) establishes minimum Federal environmental performance standards for the regulation of coal mining activities and reclamation. Requires the Secretary of the Interior to approve any State program that meets or exceeds the Federal standard, which grants those States primacy. Environmental protection performance standards require native species (except where introduced species are used to achieve an approved post-mining land use plan) be used to re-vegetate and reclaim areas affected by mining.

U.S. Fish and Wildlife Service

- [**Alien Species Prevention Enforcement Act of 1992**](#) (Pub. L. No. 102-393) requires the Secretary of Agriculture to work with the Department of the Interior, the Postal Service, and the State of Hawaii to operate a program to protect the State of Hawaii from the introduction of prohibited plants, plant pests, and injurious animals that may be contained in the mail.
- [**Clean Vessel Act of 1992**](#) (Pub. L. No. 102-587) allows the Secretary of the Interior to issue grants to coastal and inland States for pump out stations and waste reception facilities to dispose of recreational boater sewage.

- **National Wildlife Refuge System Administration Act of 1966** (Pub. L. No. 97-95) regulates through 50 C.F.R. and establishes the Fish and Wildlife Refuge System. This act requires the agency to administer lands to provide for the conservation of fish, wildlife, plants, and their habitats and to ensure that biological integrity and diversity is maintained (16 USC 668dd).
 - 50 C.F.R. § 27.52. Introduction of plants and animals. Plants and animals or their parts taken elsewhere shall not be introduced, liberated, or placed on any national wildlife refuge except as authorized.
 - 50 C.F.R. § 27.21. General provisions. No person shall take any animal or plant on any national wildlife refuge, except as authorized under 50 C.F.R. 27.51 and parts 31, 32, and 33 of this subchapter C. The Service regulates the removal of plants and animals.
 - 50 C.F.R. § 30.11 Control of feral animals. (a) Feral animals, including horses, burros, cattle, swine, sheep, goats, reindeer, dogs, and cats, without ownership that have reverted to the wild from a domestic State may be taken by authorized Federal or State personnel or by private persons operating under permit in accordance with applicable provisions of Federal or State law or regulation.
 - 50 C.F.R. § 30.12 Disposition of feral animals. Feral animals taken on wildlife refuge areas may be disposed of by sale on the open market, gift or loan to public or private institutions for specific purposes, and as otherwise provided in section 401 of the act of June 15, 1935 (49 Stat. 383, 16 U.S.C. 715s).
 - 50 C.F.R. § 31.14 Official animal control operations. (a) Animal species which are surplus or detrimental to the management program of a wildlife refuge area may be taken in accordance with Federal and State laws and regulations by Federal or State personnel or by permit issued to private individuals. (b) Animal species which are damaging or destroying Federal property within a wildlife refuge area may be taken or destroyed by Federal personnel.
- **National Wildlife Refuge System Improvement Act of 1997** (Pub. L. 105-57) amends the National Wildlife Refuge System Administration Act of 1966 in a manner that provides an “Organic Act” for the Refuge System. Requires that the Secretary of the Interior maintain the biological integrity, diversity, and environmental health of the Refuge System.