

Invasive Species. —*The Committee recognizes the critical importance of early detection and rapid response (EDRR) of invasive species to mitigate the threats and impacts of invasive species and expects the Department of the Interior and the Forest Service to prioritize EDRR and control of invasive species that imperil endangered, threatened, or candidate species. In particular, the Committee supports efforts to prioritize EDRR in areas with large populations of invasive species. The agencies shall provide the Committee with a report on their efforts to prioritize EDRR as part of their expected program of work for fiscal year 2019, including details on how the agencies plan to protect specific native species and natural resource values on public lands across the Nation. (Senate Report 115-276)*

Introduction

Invasive species pose one of the greatest threats to the health, functionality, biodiversity, and productivity of aquatic and terrestrial ecosystems across North America. Exclusion—preventing the introduction of invasive species—is the most effective strategy, and is considered the first line of defense in invasive species management. However, some invasive species inevitably escape detection and become established, triggering the critical ‘second-line of defense’ approach known as Early Detection and Rapid Response (EDRR). Protecting important resources threatened by invasive species is at the heart of our invasive species prevention and EDRR work.

USDA Forest Service EDRR Policy and Direction

The USDA Forest Service’s national policy on invasive species management prioritizes prevention and EDRR as standard approaches against all types of water-borne and land-dwelling invasive species. The Forest Service’s *National Strategic Framework for Invasive Species Management* (2013) further emphasizes our agency-wide approach for collaboratively addressing invasive species across the landscape, and recognizes EDRR as the greatest opportunity for eradication and cost-effective management of newly-established invasive species. In addition, the Forest Service was instrumental in the development of *Safeguarding America’s Lands and Waters from Invasive Species – A National Framework for Early Detection and Rapid Response* (2016), an interagency framework that was developed to promote EDRR government-wide. All Forest Service EDRR activities are aligned with national policy, our strategic framework, and the interagency EDRR framework.

Our work spans all landownerships – local units of government, State, tribal, Federal, as well as private lands. Prioritizing EDRR activities results in lower costs and less resource damage than implementing a long-term control program after the species is established. For those invasive species that are federally-regulated, we work closely with agencies such as the USDA Animal and Plant Health Inspection Service (APHIS) and the U.S. Fish and Wildlife Service (USFWS), as applicable, to coordinate detection, quarantine, and management activities. When species are regulated at the State level, we work closely with State regulatory agencies to coordinate our response to address the invasive species threat on the lands and waters we manage in that respective State. At each step of the EDRR process, we work closely with local, State, tribal, and Federal partners, as applicable.

Examples of USDA Forest Service Priority EDRR Activities in 2019

In FY 2019, the Forest Service is continuing priority EDRR activities for emerging invasive forest insects and pathogens, as well as other high-risk species of invasive vertebrates, invertebrates, and plants. We are funding projects for the detection and management of emerald ash borer, sudden oak death, gypsy moth, invasive bark beetles, beech leaf disease, hemlock woolly adelgid, rapid o'hia' death, and thousand cankers disease. The Forest Service also plays an important EDRR role in the national threat from feral swine, white-nose syndrome pathogen, and implementing prevention and emergency EDRR against high-risk invasive mussels.

Forest Service research and development activities advance EDRR strategies, tools, and technologies. Containment and eradication responses, economic investment, and prioritization require risk and impact assessments. Risk and impacts from invasion have proven difficult to forecast reliably, complicating the ability to prioritize responses. Researchers at the Forest Service are actively working to refine and improve forecast models. We are also enhancing tools to detect and survey invasive plants. Remote sensing applications (e.g., Modis and Landsat) are being used to locate plants, and eDNA and molecular diagnostic tools are being used to detect aquatic invasive species. Creating more cost-effective control methods for invasive species is a priority. During 2018, scientists and Forest Service staff worked with partners (Federal agencies, universities, and others) to conduct a National Assessment of Invasive Species. This sector-wide scientific assessment of the current state of invasive species science and research in the U.S. is under review.

Sudden Oak Death

The Forest Service works closely with APHIS on sudden oak death, a forest disease that resulted in the widespread decline of several tree species in California and Oregon forests. In 2017, the Forest Service, working with State partners, APHIS, and the Bureau of Land Management (BLM), used EDRR techniques to detect the sudden oak death pathogen in streams before it is evident in forest trees. Although U.S. infestations are found only in California and Oregon, it is of great concern to land managers in the eastern United States, where, in 2018, seven States participated in surveying multiple locations along 47 high-risk streams. Addressing sudden oak death is critical to protect specific native species and natural resource values on public lands across the nation.

Invasive Bark Beetles

EDRR helps the Forest Service detect new infestations of invasive bark beetles. For example, the redbay ambrosia beetle in the southeastern U.S. and shot hole borers in southern California have caused extensive tree mortality in environmentally sensitive areas. The Forest Service works closely with State partners to identify sites at high risk for the introduction and establishment of these potentially damaging pests. In 2019, the Forest Service is working with 10 States to use EDRR techniques in more than 100 high-risk locations to search for new infestations of potentially damaging species. A recent publication summarizing 10 years of this project reports that three species new to North America were found during EDRR surveys. The infested areas have been identified, and impacts and response plans assessed.

Invasive Plants

The Forest Service is one of the primary Federal land management agencies working in collaboration with partners to address invasive plants and regulated noxious-weeds under State and Federal statutes. The Forest Service provides technical and financial support to State agencies and national forests and grasslands to help implement invasive plant EDRR and control programs nationwide. We have been instrumental in establishing and sustaining Cooperative Weed Management Areas (CWMAs), Cooperative Invasive Species Management Areas (CISMAs), and EDRR programs to address high-risk invasive plants that threaten local economies, the environment, and human health. The Forest Service is the only USDA agency that funds a national grant program to establish and expand CWMAs/CISMAs nationwide. The Forest Service works closely with States and local communities to build CWMA/CISMAs capacity for EDRR against high-risk invasive plants. A key component of these efforts involves mapping new invasive plant detections and compiling findings into standardized databases (e.g., The University of Georgia's Early Detection and Distribution Mapping System – EDDMapS) for rapid and widespread data sharing.

Recent controversial and high-risk invasive species issues, such as the impact of invasive plants on the survival of the greater sage-grouse across the West, and invasive annual grasses and perennial forbs that increase the frequency and intensity of wildfires and impact the entire sagebrush biome, have accelerated the Forest Service's efforts to expand cooperative EDRR efforts with State, tribal, Federal, and local partners. The Forest Service is actively involved with the Department of Interior's Integrated Rangeland Fire Management Strategy, including development of the Science Framework related to sagebrush conservation. These and other Forest Service efforts against invasive plants impacting terrestrial and aquatic ecosystems will continue to be a major component of the agency's efforts against invasive species.

Gypsy Moth

EDRR is an important part of the Forest Service's fight against gypsy moths. Working closely with APHIS and States, the Forest Service uses traps to detect new infestations in uninfested States to allow quick and efficient eradication. These efforts will continue in FY 2019. The Forest Service and APHIS also use EDRR to find new infestations of the Asian gypsy moth, a potentially more damaging relative of the gypsy moth already established in the U.S. In 2015, both USDA agencies cooperated with the States of Washington and Oregon to quickly detect and eradicate infestations around Seattle and Portland. This quick response saved millions of dollars and protected native forests and natural resource values by preventing the spread of the infestations.

Invasive Zebra Mussels

The recent *Dreissenid* mussel invasion in western Montana poses a significant danger to all waters in the State, including waters on eight national forests, and other important lakes, rivers, and streams in Montana. This new invasion represents a significant westward spread of these aquatic invasive species into the upper Missouri River watershed, and is potentially poised to invade the entire Columbia River Basin and other major river systems in the West. In FY 2019, the Forest Service continues to provide financial and technical support to local, State, and Federal partners to implement prevention and EDRR activities against these invaders. The Forest Service serves on the national Federal interagency Aquatic Nuisance Species Task Force (ANSTF) and is represented on six ANSTF Regional Panels working on EDRR for invasive mussels.

Wild Spotter™ Program – Mapping Invasives in America's Wild Places

One of our most recent efforts to expand our capacity for EDRR is the development of a comprehensive citizen science volunteer invasive species detection and mapping program known as WILD SPOTTER™. Wild Spotter™ helps connect dozens of public and private organizations to find and map aquatic and terrestrial invasive species nationwide, prioritizing hard to reach backcountry areas that necessitate stronger EDRR capabilities. It is important to pinpoint infestations in places such as Wilderness Areas, Wild and Scenic Rivers, and other wild places early so treatments can be prioritized and implemented. The Wild Spotter™ program has been developed in collaboration with the aforementioned University of Georgia's EDDMapS, a nationwide data-sharing system that supports EDRR at local, regional, and national levels.

Interagency EDRR Incident Command System

Forest Service experts are collaborating with other Federal agencies to help strengthen EDRR capacity nationwide by incorporating basic incident command system (ICS) approaches into the EDRR program design across jurisdictions. Meetings between USDA, Forest Service, Department of Interior agencies, State agencies, Wildfire management experts, and others are underway to evaluate ICS options and build capacity to support EDRR nationwide. In many cases, however, small-scale EDRR efforts do not require elaborate incident command structures that cross jurisdictional boundaries. Simply stated, we can often find and stop a new invader before it becomes established or spreads using an integrated approach within the areas we work. In other cases, we work cooperatively with our local stakeholders to detect and manage new infestations as swiftly as possible within the capacity limits of all the partners involved. Supporting this work comes from our promotion of CISMAs and CWMAs across the U.S.