

## *Rapid Response to Invasive Species: Federal Agency Roles*

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The ability to detect and respond rapidly to new invasive species is critical for government agencies and their non-governmental partners; it is vital to limit invasive species spread and prevent their adverse impacts. The early detection of and rapid response (EDRR) to new biological invasions is a multi-faceted process involving a variety of different actors as well as scientific, technical, and institutional capacities. Attention to EDRR has increased in recent years at state, regional, and national levels and has involved significant attention to cooperation across agencies and institutions working at different levels. In the context of such collaboration, this paper focuses on the roles federal agencies play in rapid response to invasive species that are new to the country or a particular geography.

The National Invasive Species Council (NISC) Annual Work Plans for FY2020 and FY2021 included a priority activity on rapid response tools and lessons learned, with a focus on the roles and responsibilities of federal agencies and their partners (NISC 2019, 2020). This paper is designed to complement previous efforts to develop a national EDRR framework as outlined in *Safeguarding America's Lands and Waters from Invasive Species: A National Framework for Early Detection and Rapid Response* (USDOI 2016). These elements were explored further under the National Invasive Species Council 2016-2018 Management Plan. Key areas of analysis included the roles of information management, watch lists, risk screening, target analysis, legal authorities, the incident command system (ICS), and technological innovations, as well as experiences from regional and local efforts (Special Issue: Early Detection and Rapid Response 2020, Garner and Lakes 2019, Frey 2018, MISC 2018, NISC 2016).

Rapid response is not a single action, but instead involves several ongoing and sequential activities moving from an assessment of the situation to action, to the consideration of plans and protocols for follow-up monitoring and restoration. From an institutional perspective, federal agency roles and activities in this process vary with each agency's particular

authority and mission, the species being addressed, and the jurisdictions and geography involved. To better describe these roles, this paper outlines and describes the key stages and steps involved in rapid response initiatives. It then examines the broader context of authorities under which federal agencies operate across three categories: primary emergency authorities; land, water, and asset management responsibilities; and partnering or supporting roles. In the context of these roles, the paper outlines which rapid response steps different federal agencies are authorized to implement.

This analysis is intended to clarify the various authorities federal agencies can exercise in different rapid response scenarios. The aim is to inform engagement and collaborative efforts by non-federal partners to better complement federal capacities and capabilities. This paper was developed for NISC by an interagency task team facilitated by NISC staff and cleared by the following agencies Department of the Interior, Department of Agriculture, Department of Defense, Department of Health and Human Services, and the Environmental Protection Agency.

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# Background

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Rapid response to a newly detected invasive species is a complex endeavor involving a series of actions by multiple partners often across multiple jurisdictions. These actions can involve highly technical processes. In the context of EDRR, Reaser et al. (2019a) define detection as “the process of observing and documenting an invasive species” and response as “the process of reacting to the detection once the organism has been authoritatively identified and response options have been assessed.” The notion of “rapid” connotes the conduct of this process in an expedited, yet effective and cost-efficient manner. It should be noted that the terminology used by different agencies may vary according to their stated authorities and the types of invasive species-related “emergencies” to which they respond.

Several national and regional models have explored conceptual renderings of the various components of EDRR (see FICMNEW 2003, NISC 2003, Locke and Hanson 2009, Simpson 2006, Waugh 2009, USDOJ 2016). Additionally, some federal agencies have developed operational guidance detailing the range of actions that they can take in specific emergency response contexts. For example, the U.S. Department of Agriculture Animal and Plant Health Inspection Service has operational emergency response frameworks for plant health (USDA-APHIS-PPQ 2017) and animal health (USDA-APHIS-VS

2017) emergencies. The Environmental Protection Agency analyzed the intersection of invasive species rapid response and management plans with legal requirements under the Clean Water Act and the Federal Insecticide, Fungicide, and Rodenticide Acts (USEPA 2005). At a regional level, the Columbia River Basin Team detailed rapid response actions specifically within the context of introductions of invasive *Dreissenid* mussels (Columbia River Basin Team 2014). With a more topical focus, response protocols were identified and subsequently implemented around the movement of biofouled marine debris onto U.S. shores caused by the 2011 earthquake off the coast of Tohoku, Japan, and the ensuing tsunami (NOAA et al. 2012).

Building on these conceptual and operational frameworks for EDRR, this paper outlines a series of stages and steps involved in rapid response actions. This includes a framing of three sequential stages (rapid assessment, deployment of eradication and control measures, post-response monitoring) and four ongoing areas of activity that underpin these stages (resource provision, environmental compliance and regulatory controls, communications and outreach, information systems and data management). The following section provides a general overview of these elements.

## Elements of Rapid Response

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Drawing from conceptual models and agency guidance, rapid response can generally be divided into stages that can be mapped onto several kinds of ongoing activities. For the purposes of this exercise, the stages are:

1. Rapid assessment and site delineation
2. Deployment of eradication and control measures, and
3. Post-response monitoring and follow-up.

Ongoing activities include:

4. Resource provision,
5. Environmental compliance and regulatory controls,
6. Communications and outreach, and
7. Information systems and data management.

Each of these stages includes more specific steps or actions that are described below. This level of detail is useful as federal agencies play different roles and have different authorities with regard to rapid response to invasive species detections. The roles will be detailed in Section III on federal agency roles, as well as in Appendix I.

### PREPAREDNESS AND EARLY DETECTION

Before rapid response measures are deployed, a range of planning and other activities conducted in advance of a new detection are fundamental for preparing agencies and their partners in advance of when the need arises. Elements of preparedness can include response plans, targeted species lists, coordination networks, tools, training, and necessary resources for deployment of detection, rapid assessment, and rapid response actions (DOI 2016). This level of capacity underpins agency rapid response activities as further discussed in this paper.

Effective rapid response action is often contingent on the discovery of a species new to the target area during the early detection phase of EDRR through horizon scanning and surveillance activities. A targeted invasive species list can help ensure that practitioners focus early detection surveillance on invasive species that are likely to be introduced into their particular location (Reaser et al 2020). For example, APHIS uses the Objective Prioritization of Exotic Pests (OPEP) process to evaluate potential pest impacts. This list, along with other criteria, helps inform the National Priority Pest List.

Stakeholders can submit pests for evaluation and consideration against this model. Ultimately, OPEP provides a framework to encourage cooperators to establish the foundations for a rapid response program through the nurturing of an early detection pest surveillance infrastructure. An effective surveillance system that leads to early detection of an invasive species increases the likelihood of a successful rapid response.



## THE STAGES AND THEIR COMPONENT ACTIONS

Many elements of rapid response to an invasive species detection can be modeled as a stepwise process. Some assumptions underlie the stepwise articulation of these stages. The stages outlined in this section start from the presumption a lead agency with the appropriate jurisdiction and authority has been determined. This determination can be complicated by overlapping authorities or gaps in coverage (see Section III). Additionally, a federal agency's role may be context-specific and will be determined on a case-by-case basis. Finally, while the descriptions of the stages outline steps in a sequential fashion, some steps may be executed concurrently and there is often an iterative approach to incorporating new information into the process.

### **Stage 1 – Rapid assessment and site delineation:**

After detection of an invasive, steps are taken to confirm its identity, evaluate the species' risk, prevent its spread through quarantine or containment measures, and develop a plan for eradication and control. The species needs to be authoritatively identified by a recognized expert with the relevant taxonomic expertise. While seemingly straightforward, Lyal and Miller (2019) describe the challenges with this step, including lack of taxonomic expertise and differing naming conventions, and recommend the development of a coordinated identification process. Notifying appropriate authorities and points of contact about the detection is essential to ensure that relevant actors are involved (Reaser et al. 2019a, DOI 2015). With advanced planning, communication trees and protocols can be in place to facilitate this process, particularly where there may be sensitive situations as with detections using environmental DNA (Morissette et al. 2021).

At the site of the detection, responders need to confirm the presence of the species and delineate the extent of the existing population. Actions may need to be taken to prevent further spread, which could include quarantining the area, limiting the movement of people, goods, or vehicles, or implementing other pathway controls.

Following the detection of a potential invasive species, a critical early step is evaluation of the risk posed by the invasive species (Marshall Meyers, et al 2020). Not all invasive species present the same risk of establishment, spread, and harm. When resources are limited, it is critical that expenditures focus on species with the greatest potential for harmful impacts. An

initial assessment should be conducted on the risks posed by the species, control options, and other environmental, legal, and social issues. Depending on the situation and authority and expertise of the lead agencies, a preliminary risk assessment might occur early in the process in conjunction with the species identification and quarantine efforts. The assessment can be updated as rapid response efforts proceed and more is learned. The information generated by this assessment process can be used in the development of a tactical response action plan that is implemented in Stage 2.

### **Stage 2 – Deployment of eradication and control measures:**

Based on the assessment and planning efforts, this stage reflects the actions taken on site to eradicate the target species or achieve other specified management outcomes (e.g., containment). From a legal perspective, there may be an official order or declaration of emergency that triggers the release of funding, engagement of specific agencies, and establishment of an operational structure such as the incident command system (ICS) to coordinate resources across agencies and jurisdictions (Burgiel 2019). Response activities will involve the mobilization of resources including equipment, supplies, personnel, and technical information. The logistics of the response will be specific to the species and geography in question, which is more detail than can be provided here. Actions may include treatment or trapping of the target species, survey of surrounding areas, monitoring of the population and effectiveness of control efforts, and follow-up treatment or trapping as needed. At the conclusion of the control actions, personnel and resources are demobilized and hazardous materials or debris are disposed of appropriately. Depending on the scale or complexity of the targeted invasion, eradication measures may not be immediately successful and longer-term quarantine and control activities may be required.

### **Stage 3 – Post-response monitoring and follow-up:**

Following the successful treatment of the target species and demobilization of the response team, additional measures may be needed at the site. This would include restoration and mitigation measures for any off-target adverse impacts from the treatments. Additionally, monitoring for remaining individuals is necessary over a period of time determined by the biology of the invasive organism to ensure that the response objectives were met. Additional long-term biosecurity protocols or measures may need to be put in place to prevent re-invasion of the site. Finally, required reporting and "after action" evaluations may be used to document activities and lessons learned.

If treatments are unsuccessful at eradication or eradication is deemed infeasible, long-term control or containment at the site may be deployed. These efforts may take many different forms but could include regulatory measures to prevent movement of the invasive species, seasonal treatments to contain population growth, or surveillance activities.

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## ONGOING ACTIVITIES

An effective rapid response requires a basic level of preparedness and attention to needs or activities that are necessary throughout the rapid response process. As mentioned above, the potential for a successful response effort is enhanced by having the required financial resources, tools, personnel, and coordination structures in place (USDOJ 2015). Additionally, several matters, including resources, legal and policy issues, communications, and data management, may relate to each stage of rapid response and thereby need to be appropriately coordinated and streamlined.

### **Ongoing A – Resource provision**

A response effort requires funding, personnel, and equipment. Depending on the scale of the planned action, rapid response efforts can be expensive and require immediate access to funding, which may be drawn from agency budgets or other funding mechanisms. Long-term arrangements such as memoranda of understanding and mutual aid agreements in place prior to the rapid response can streamline efforts to secure support from partnering agencies and institutions when time is of the essence. Examples include the Mutual Aid Agreement for Combating Aquatic Invasive Species Threats to the Great Lakes – St. Lawrence River Basin and the Interagency MOU to Support Rapid Response Actions for Zebra and Quagga Mussels in Western Waters of the United States (State of Illinois et al. 2014, USDOD-ACE et al. 2020). While requesting funds from appropriators or external entities can provide necessary resources, those mechanisms may also entail delays that preclude or hinder a rapid response. Avoiding delays in funding has increased focus on the need for development of a rapid response fund available to federal, state, tribal, territorial, and local governments (NISC 2022).

Aside from financial resources, technical information, qualified and trained personnel, equipment, and supplies may be needed for the initial assessment, deployment of the response, and post-response. Information needs may include taxonomic/authoritative identification, risk assessment, survey and trapping protocols, data management, and monitoring protocols. Coordinating the logistics of what is needed and when is critical to the planning and implementation of a rapid response.

### **Ongoing B –**

#### *Environmental compliance and regulatory controls*

Agency activities and response actions must adhere to internal policies as well as relevant federal, state, and local regulations that may require analysis of potential environmental impacts of the response. At the federal level some of the key legal obligations to consider include: the National Environmental Policy Act; the Federal Insecticide, Fungicide, and Rodenticide Act; the Endangered Species Act; the Clean Water Act; and the National Historic Preservation Act (Burgos-Rodriguez and Burgiel 2019, USEPA 2005).

Maintaining proper environmental compliance can be time intensive, although there may be allowances for expedited assessments or emergency approvals. There may also be opportunities to conduct analyses in advance of an anticipated action, such as by including evaluation of possible treatments in agency land management plans. Other examples include the U.S. Army Corps of Engineers' Final Finding of No Significant Impact (FONSI): Dreissenid Mussel Rapid Response Action Plan – Idaho, Montana, Oregon, and Washington (USACE 2019); the Dreissenid Mussel Rapid Response in the Columbia River Basin: Recommended Practices to Facilitate Endangered Species Action Section 7 Compliance (DeBruyckere 2019); and emergency exemptions for the use of pesticides under Section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act (see USEPA 2020).

Some important response actions require the exercise of legal authorities and promulgation of regulations to establish quarantine areas and control of access points, restrict pathways, and seize contaminated goods. After Dreissenid mussels were found in foreign-origin moss balls in US commerce in early 2021, USDA-APHIS, DHS-CBP, and DOI-USFWS coordinated a response that included restricting importation to two ports of entry through an APHIS import-permit, enhanced inspection by CBP, and seizure of materials by USFWS. Promulgation of regulations must adhere to the requirements of the Paperwork Reduction Act and the Administrative Procedure Act.

APHIS has the authority to issue a Federal Order to protect agriculture or prevent the introduction or dissemination of a plant pest into or within the United States. A Federal Order is a legal document issued in response to an emergency under the authority of the Plant Protection Act of June 20, 2000, as amended (Section 412(a), 7 U.S.C. 7712(a)), which authorizes the Secretary of Agriculture to prohibit or restrict the importation or entry of any plant, plant part, or article if the Secretary determines that the prohibition or restriction is necessary to prevent the introduction or dissemination of a plant pest into or within the United States. Federal orders remain in effect until they are revised by another Federal Order or until a regulatory action (rule or notice) on the subject is published.

### **Ongoing C – Communications and outreach**

Efficient and clear communications are essential for coordinating across different agencies and partners, particularly if they have different areas of expertise and employ different terminologies. ICS provides a framework for communication and operations in executing emergency responses. The Federal Emergency Management Agency's National Incident Management, which encompasses ICS, includes common terminology and integrated communications as two of its central core concepts (FEMA 2017, Burgiel 2019).

In addition to internal communications and coordination, external outreach to stakeholders and the public is critical for alerting them to the situation and informing them

about response actions, ongoing activities, and potential risks. External outreach can gain stakeholder acceptance and compliance with regulatory aspects of response like prohibitions on movement of infested items, necessary boat inspections, public health advisories, etc. Again, the ICS structure includes the function of a public information officer in the core command staff for an emergency response. Careful consideration needs to be given to media outreach, message development, and means of delivery to provide consistent information and address perceived risks (Burgiel 2019).

**Ongoing D – Information systems and data management**

Finally, the collection, transmission, and analysis of data are critical at all stages of rapid response to evaluate management options and improve the efficacy and efficiency of response

measures. Information and data management systems serve as the basic infrastructure for data that is accessed, collected, and used. In many cases there is not a single information system; therefore, data and information must be shared across systems. This requires adherence to applicable data standards and interfaces that will enable system interoperability, rapid data transmission, and access to targeted information by key user groups (Wallace et al. 2019). A broader discussion of EDRR data needs and relevant federal databases and information tools is included in Reaser et al. (2019b).

Data collected on invasive species occurrence on private property must adhere to federal privacy laws that protect personal information about the property owners. This may require establishment of a systems of records and publication of a systems of record notice (SORN).

## Federal Agency Roles

By their nature, federal agencies have different responsibilities, capabilities, and capacities based on their missions and underlying authorities. In the context of invasive species, these differences could relate to their topical focus (e.g., agriculture, public health, natural resource management, land management), geographic focus (e.g., national forests, national parks), or skill sets (e.g., research, information management). Recognizing these differences, this paper uses three broad categories to compare federal agency roles within and across these different areas. These include:

- Primary emergency authority,
- Management of federal lands, waters, and other assets, and
- Partnering and supporting roles and activities.

This structure serves as the basis for the delineation of what actions different federal agencies can take in rapid response as

detailed in Appendix I and provided for in the federal agency authorities listed in Appendix II.



### PRIMARY EMERGENCY AUTHORITY

Primary emergency authority refers to instances where a federal agency has the lead role for addressing new biological invasions, which, depending on the circumstances and basis for federal authority, may preempt state and local jurisdictions. This would include situations such as a first detection of a non-native species that could pose a significant national threat (e.g., to food security or public health). There are a few areas where federal agencies have this broad authority. Even when exercising that authority, they often work with state, local, territorial, and tribal governments as well as with other stakeholders including industry and the research community.

**Table 1: Agencies with primary emergency authorities**

AGENCY	USDA/APHIS/PPQ	USDA/APHIS/VS	USFWS	HHS (INC. CDC)
<b>Protected Resource</b>	Plants or plant products	Livestock	Wildlife	Public health
<b>Target Introduction or Event</b>	Plant pests or noxious weeds, new to or not known to be widely distributed in the United States	Pests and animal diseases	Listed injurious wildlife (limited to wild mammals, wild birds, amphibians, reptiles, fishes, crustaceans, and mollusks)	Infectious human diseases and pathogenic agents of bioterrorism potential
<b>Available Actions (see Appendix I for more detail)</b>	Emergency declarations, quarantine, seizure, survey, treatment, regulatory prohibitions for domestic movement and/or import, other pathway controls	Emergency declarations, quarantine, seizure, treatment, regulatory prohibitions for domestic movement and/or import, other pathway controls	Regulatory listings	Emergency declarations, quarantine, treatment, pathway controls

Table 1 depicts the circumstances where federal agencies have primary emergency authorities and actions they make take. These include:

- USDA's Animal and Plant Health Inspection Service – Plant Protection and Quarantine (APHIS-PPQ) is responsible for safeguarding U.S. agriculture and natural resources against economically and ecologically significant invasive species that threaten plant health. This primarily relates to quarantine pests, which are pests that may present an economic threat to an area but are not yet present there (alternatively they may be present but not widespread and under official control) (see FAO 2019). APHIS-PPQ's responsibilities include pest exclusion and prevention of threats, preparedness for emergency response, as well as actual responses to a significant invasive plant pest incident or outbreak (USDA-APHIS-PPQ 2017 and 2010, 7 USC §7701 et seq. 2004). Examples of invasive species addressed under this authority include northern giant hornet (*Vespa mandarinia*), spotted lanternfly (*Lycorma delicatula* [White]), and Asian longhorned beetle (*Anoplophora glabripennis*).
- USDA APHIS – Veterinary Services (APHIS-VS) plays a primary role in protecting domestic livestock from emerging animal diseases, which may also have impacts on the economy, food security, and public health. APHIS-VS is authorized to restrict the importation, entry, or further movement of regulated articles and order the destruction or removal of animals, conveyances, and/or facilities to prevent the introduction or spread of livestock pests or diseases (USDA-APHIS-VS 2017 and 2016, 7 USC §8301 et. seq. 2008). Examples of animal diseases falling under this authority include high path avian influenza, foot and mouth disease, and porcine epidemic diarrhea virus.
- The Department of Health and Human Services (HHS) is authorized to declare, fund, respond, and take appropriate action to address public health emergencies caused by disease, outbreak of infectious diseases, or pathogenic agents of bioterrorism potential. The most direct role that invasive species play in threatening human health is by hosting or serving as mechanical vectors of infectious diseases.<sup>1</sup> HHS can deploy emergency response teams, prohibit the entry of persons, animals, and other goods into the country, as well as conduct necessary treatments

to address the introduction, transmission, or spread of communicable diseases from foreign countries (for example, see the Pandemic and All-Hazards Preparedness Act of 2006 and the Public Health Security and Bioterrorism Preparedness and Response Act of 2002). Examples include vector borne diseases<sup>2,3</sup> that may be transmitted by non-native species, such as Zika virus and West Nile virus. Other non-communicable invasive agents of public health concern would include toxins that might be released during harmful algal blooms caused by invasive dinoflagellates/diatoms, algae or cyanobacteria.

- The U.S. Fish and Wildlife Service (USFWS) may designate injurious wildlife by rulemaking, which prohibits the importation and some transport into the United States of particular species of wildlife that are prescribed by regulation to be injurious to the health and welfare of humans, the interests of agriculture, horticulture or forestry, or the welfare and survival of wildlife resources under the Lacey Act injurious wildlife provisions (18 USC §42; 50 C.F.R. part 16).<sup>4</sup> Such listings are often used in the context of preventing new introductions, but recent USFWS actions regarding the import of aquarium “moss” balls contaminated with zebra mussels has shown how the Lacey Act's injurious wildlife provisions can be used to screen and restrict imports containing listed injurious wildlife. Another more targeted example includes the Department of the Interior's (DOI) Office of Insular Affairs and U.S. Geological Survey, which are authorized to take rapid response measures against the introduction and spread of the brown tree snake (*Boiga irregularis*; Brown Tree Snake Control and Eradication Act, 7 USC §§8501-8507).

The coverage of primary emergency authorities among federal agencies is not comprehensive for all potential invasive species. Invasive species that impact infrastructure as well as certain aspects of wildlife health are potential gaps (ISAC 2018 and 2016, GAO 2010). Under the injurious provisions of the Lacey Act, USFWS can list injurious wildlife species that are wild mammals, wild birds, amphibians, reptiles, fishes, crustaceans, and mollusks. There is no authority in USFWS, APHIS, or HHS to directly regulate pathogens and parasites that impact wildlife unless there is a direct linkage to production animals (APHIS) or human health (HHS); this lack of authority is a significant gap in the federal government's ability to protect wildlife health (ISAC

1—Some invasive species may have indirect impacts on human health, such as the link between impacts that forest pests might have on urban tree canopies and associated air quality and respiratory issues. Such indirect linkages are outside the scope of this exercise.

2—In response to the Kay Hagan Tick Act of 2019, HHS is collaborating across the federal government to create an interagency national vector-borne disease strategy that is expanding on the National Vector-Borne Disease Framework, published by the Centers for Disease Control and Prevention (CDC) in September 2020. This framework identified seven goals with strategic priorities and federal agency roles, providing a preliminary high-level framework with essential vector-borne guidance.

3—The HHS Office of the Assistant Secretary for Health (OASH) oversees Presidential and Secretarial advisory committees that may play a role in the assessment of risk before or during response to an emerging vector threat impacting public health such as the Tick-Borne Disease Working Group. The Tick-Borne Disease Working Group was established by Congress in 2016 as part of the 21st Century Cures Act to provide subject matter expertise, review federal efforts related to tick-borne diseases, ensure interagency coordination and examine research priorities.

4—These provisions are limited to importation into the United States and transport between the continental United States, the District of Columbia, Hawaii, the Commonwealth of Puerto Rico, or any possession of the United States. Additionally, covered species are limited to wild mammals, wild birds, fish, mollusks, crustaceans, amphibians, and reptiles.

2018). Additionally, there may be cases where an agency has the authority to act but does not have the necessary resources to do so for financial, programmatic, or other reasons.

The Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990 is an interesting case of ambiguous authorities as the act provides broad authority to the Aquatic Nuisance Species Task Force (ANSTF) to develop and implement a program for U.S. waters to “to prevent introduction and dispersal of aquatic nuisance species; to monitor, control, and study such species; and to disseminate related information” (16 USC §4721). Unfortunately, little detail is paid to any kind of rapid response except emergency response strategies under the ANSTF’s Western Regional Panel; thus, some ambiguity remains as to the role of ANSTF as an interagency body, any authorities extended to its federal agency members, and specific rapid response actions that could be included under a national program (Burgos-Rodriguez and Burgiel 2019).

Other more specific examples where issues of jurisdiction have arisen include:

- Tawny crazy ant (*Nylanderia fulva*): Soon after it was detected in Houston, Texas in 2002, representatives of federal and state governments, as well as private citizens, called for an urgent response. USDA APHIS did not categorize it as a regulated quarantine pest given questionable impacts on agriculture at the time. Its current introduced range in the United States includes Texas, Louisiana, Mississippi, Alabama, and Florida. It has become a major nuisance to homeowners and businesses. It infests electrical equipment causing shorts circuits and mechanical failures that can result in expensive repairs and substantial extermination bills. (Texas Invasive Species Institute 2020, UF-IFAS 2020, Vissichelli 2018).
- Monkey pox: In 2003, there was the first outbreak of monkeypox outside of Africa. This virus was transmitted to people by prairie dogs (*Cynomys*) sold in pet shops. The prairie dogs had been in contact with infected small mammals imported from Ghana prior to sale. The Centers for Disease Control and Prevention ultimately took the lead in partnership with the public health departments in affected states and multiple federal agencies, including USDA, and FDA (see testimony from U.S. Senate Environment and Public Works Committee 2003 and CDC 2020).
- Horseshoe crabs: In 2013, IUCN’s Horseshoe Crab Specialist Group alerted the USFWS about the import of Southeast Asian horseshoe crabs (*Carcinoscorpius rotundicauda*) into the United States for use in the bait industry. Of particular concern was that the import of this species could introduce tetrodotoxin, a powerful neurotoxin, or other pathogens, into U.S. waters with consequent impacts on native horseshoes and other biodiversity. Despite the request to address this threat to wildlife, the USFWS could not act under the Lacey Act’s injurious wildlife provisions as horseshoe crabs cannot be listed as injurious under 18 U.S.C §42.

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MANAGEMENT OF FEDERAL LANDS, WATERS,  
AND OTHER ASSETS

Many federal agencies are responsible for managing assets within their authorities such as federal lands or critical infrastructure. While specific agencies have primary authority over these resources, they often collaborate with neighboring jurisdictions and agencies (whether federal, state, local, tribal, or territorial) to address common invasive species threats to the area.

- Public lands: A number of land management agencies, including the Bureau of Land Management (BLM), National Park Service (NPS), USFWS, and U.S. Forest Service (USFS), are tasked with managing terrestrial and aquatic resources in National Parks, Wildlife Refuges, National Forests, and other public lands for a range of ecological, recreational, and economic purposes. Capacity for rapid response varies across these agencies, but NPS and USFWS both have invasive species response teams that can be deployed in various regions (NPS 2020, USFWS 2020). The USFS has both National Invasive Species Issue Teams and Regional Invasive Species Issue Teams (NISIT and RISIT) to coordinate response (including EDRR) to invasive species on federal, state, and private forest lands. Appendix III contains a conceptual diagram for how NPS undertakes rapid response decisions, which tracks the stages of rapid response outlined in Section I and is illustrative of rapid response by land management agencies.
- Infrastructure: Some agencies are responsible for managing critical infrastructure that may be compromised or otherwise threatened by invasive species. For example, the Bureau of Reclamation and the U.S. Army Corps of Engineers both actively work to address invasive species that may impact dams and hydropower facilities, as well as water distribution and transportation networks. Other agencies such as the Department of Defense, National Aeronautics and Space Administration, and the Department of Energy manage installations, other facilities, and associated lands that could be impacted by invasive species. Finally, infrastructure could also include preservation of historic buildings and structures, such as those managed by the NPS.

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PARTNERING/SUPPORTING ROLES AND  
ACTIVITIES

In many rapid responses, federal agencies are not the lead agencies in charge of the effort. Often state agencies lead the response because of their authorities to manage fish, wildlife, and other resources of the state or because of where the response effort is needed. Similarly, a tribal government may lead where rapid response is needed on tribal or co-managed lands. Cross-jurisdictional coordination is critical, including,

but not limited to, local and federal agencies, as well as with other stakeholders and is one of the key reasons many response efforts use ICS as an organizational model for operations. For example, during the 2009 and 2010 responses to reports of invasive carp in the Chicago Sanitary and Shipping Canal, the Illinois Department of Natural Resources was the lead agency, but the broader interagency team included involvement of the Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (USACE), USFWS, and other government agencies (Burgiel 2020).

Federal agencies might be directly involved in the response through the provision of equipment, vehicles, personnel, funding, or other onsite resources. Alternatively, they may contribute more indirectly through the provision and maintenance of data resources and information systems, training materials and exercises, and other efforts designed to support the capacity of direct responders. Supporting roles can also include legal and policy aspects as assistance may be required to facilitate regulatory compliance and identify areas where an emergency may allow for exceptions. For maximum effectiveness and efficiency, these supporting roles and resources should be identified prior to an emergency along with the development of any protocols or agreements for their use during a response. It should be noted that the determination of an official emergency and related processes will likely vary by agency and context.

Federal agencies have supported state and local requests for assistance in numerous rapid response situations. A few indicative examples include:

- **California:** In the fall of 2019, a newly detected ambrosia beetle (*Xyleborus monographus*) native to Europe was found infesting oak trees in Napa County, California (Rabaglia et al. 2020). The USFS Forest Health Protection program partnered with the California Department of Food and Agriculture, CALFIRE, and University of California Riverside to test traps and lures to detect the beetle, conduct surveys to delimit the infestation, assess impacts to the oak resource, and identify fungal associates of the beetle. By the middle of 2020, the beetle was found in three counties in the Napa area, an effective trap and lure were developed for use, and new fungal associates (some potentially damaging to tree health) were identified.
- **Georgia:** In 2019, Northern snakehead (*Channa argus*) were discovered in a small private urban pond in Gwinnett County. Using specimens collected by Georgia's Department of Natural Resources (GDNR), the USFWS Conservation Genetics Lab at Auburn University performed genetic analyses of fin clips that indicated the population consisted of a combination of juveniles from a breeding pair of captured adults and other unsampled adults (Roop et al. 2020). The USFWS Northeast Fishery Center in Lamar, PA conducted subsequent eDNA analyses of water samples collected from the pond, adjacent wetlands, tributaries, and the Yellow River. USGS is assisting with additional monitoring.

- **Michigan:** With the detection of red swamp crayfish (*Procambarus clarkii*) in July 2017, USFWS directed over \$1.4 million in Great Lakes Restoration Initiative funding since Fiscal Year 2018 to Michigan's Department of Natural Resources (MDNR) for implementation of its response plan. USGS has supported MDNR through laboratory and mesocosm experiments into new control technologies, leading to Michigan-based field testing of one control method in 2018 and another method planned for 2021 (Rabaglia et al. 2020).

- **Western waters:**

- In 2020, the U.S. Army Corps of Engineers (USACE), USFS, and six Department of the Interior bureaus signed a memorandum of understanding (MOU) to *Support Rapid Response Actions for Invasive Zebra and Quagga Mussels in Western Waters of the United States* (USDOD-ACE et al. 2020). The MOU recognizes that states and tribes are often the lead agencies that determine how to proceed during rapid response events, and federal agencies often play an important support role in preparing for and responding to these events. Federal agency activities could include coordinating with the lead agency, supporting development of rapid response plans and mutual aid agreements, sharing data and information, conducting monitoring, and leveraging resources to promote preparedness planning and efficient implementation, such as conducting tabletop or in-field exercises, caching gear and equipment, pursuing environmental compliance, and contributing funding to response efforts.
- USFWS supports a western "mussel response" dive team trained and certified by USGS to dive and detect invasive mussels. The team has responded quickly to veliger detection requests to dive in Utah, South Dakota, and Montana. In partnership with Montana Fish Wildlife and Parks and the USACE, the team has installed and monitors settlement samplers in Fort Peck Reservoir in Montana.
- **West coast:** In 2011, a 9.0 magnitude earthquake struck the coast of Japan, creating a devastating tsunami that sent 5 million tons of marine debris into the ocean, raising concerns about the introduction of non-native and potentially invasive species to the West Coast of the United States, Hawaii, and Canada. Accordingly, a Regional Preparedness and Response Workshop to Address Biofouling and Aquatic Invasive Species on Japan Tsunami Marine Debris was held in 2012 in Oregon and sponsored by the National Oceanic and Atmospheric Administration, USFWS, Portland State University, National Sea Grant, Oregon Sea Grant, Oregon State University, and Oregon Department of Fish and Wildlife. The workshop convened marine-debris and invasive-species experts, managers, and communicators to create a coherent framework for risk assessments, management, outreach and engagement, policy, and research related to the introduction of invasive



species by marine debris (NOAA et al. 2012). These protocols and information were critical for informing subsequent response actions, particularly to two large floating docks that washed up on an Oregon state beach and the Olympic National Park in Washington.

• **Pacific Islands:**

- The USFWS Pacific Islands Fish and Wildlife Office (PIFWO) is engaged with island-based invasive species committees and projects dealing with localized or incipient invasive species populations in the Pacific Islands. Depending on the level of threat specific taxa pose and the resources available, support rendered varies but may include initial species identification, guidance on survey protocol and response formulation, as well as financial or in-kind staffing or equipment support. In 2020, PIFWO marine biologists with taxonomic expertise and SCUBA certifications assisted Hawai’ian state agencies with delimitation surveys of unusual *Montipora* corals, as well as characterization of their pathway of introduction and potential risk to the ecosystem. In 2018, little fire ants (*Wasmannia auropunctata*) were detected for the first time in American Samoa. PIFWO provided financial assistance to the American Samoa Community College to support detection and response efforts on Tutuila Island given the well-documented ecological impacts of little fire ants (Clark et al. 1982; Walker 2006; Le Breton et al. 2008).
- USFS has also provided financial and technical assistance to local governments for rapid response efforts to combat little fire ants in America Samoa, Guam, and Yap, and coconut rhinoceros beetle in Guam and Rota.
- The Coconut Rhinoceros Beetle (CRB) is of significant concern throughout the Pacific. USDA-APHIS identified CRB as one of the most damaging invasive insect pests of coconut and other palm species that could cause significant economic damage upon introduction. USDA-APHIS has provided support for the Coconut Rhinoceros Beetle Program on Oahu, Hawaii since 2013 when a breeding population was first detected at Joint Base Pearl Harbor and the adjacent Daniel K. Inouye International Airport (HNL). Initially, funding and emergency teams were provided by the USDA to set up a rapid response that was organized using ICS. As CRB response transitioned to a longer-term effort, the Hawaii Department of Agriculture took over coordination. The eradication program includes support from several state and federal agencies such as the USDA, US Navy, Hawaii Department of Agriculture, University of Hawaii, Hawaii Invasive Species Council, and the Hawaii Department of Land and Natural Resources. USDA supports CRB response activities with funding provided through Section 7721 of the Plant Protection Act.

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TABLES OF FEDERAL AGENCY ROLES

While each response is fact-specific, a general understanding of the roles and responsibilities of various federal agencies can be useful when engaging with federal agencies and non-federal entities in preparatory efforts for planning, coordination, training, and resource identification. Appendices I and II provide an overview of these roles and responsibilities in tabular form.

Building on the rapid response stages and different federal agency roles examined above, the tables in Appendix I cross-reference these attributes in a matrix format. The tables provide a broad perspective on how and where different federal agencies have the authority to act in a rapid response event. It is important to note that there may be specific conditions or requirements that shape how agencies are able to implement a particular action. For example, their authority may be taxa or geographically specific, or their actions may depend on the resources they manage.

Federal agencies that provided information for the tables in Appendix I, include:

- Department of the Interior
  - Bureau of Indian Affairs
  - Bureau of Land Management
  - Bureau of Reclamation
  - National Park Service
  - Office of Insular Affairs
  - U.S. Fish and Wildlife Service
  - U.S. Geological Survey
- Environmental Protection Agency
- U.S. Department of Agriculture
  - Agricultural Research Service
  - Animal and Plant Health Inspection Service – Plant Protection and Quarantine
  - Animal and Plant Health Inspection Service - Veterinary Services.
  - National Resource Conservation Service
  - U.S. Forest Service

The tables and related authorities detailed in Appendix II belong to federal agencies that are more likely to play supporting roles in rapid response activities, including:

- Department of Homeland Security
  - Customs and Border Protection
  - U.S. Coast Guard
- National Aeronautics and Space Administration
- U.S. Department of Agriculture
  - U.S. Forest Service

# Findings and Considerations for Future Rapid Responses

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Identifying the roles federal agencies inhabit during rapid responses to invasive species highlights the legal and institutional underpinnings of a national EDRR framework that is comprehensive, efficient, and effective across taxa and geographies. First, this identification clarifies the actions the listed federal agencies can and cannot take regarding rapid response efforts. Second, this understanding of authorities and capabilities can facilitate cooperative efforts among federal and non-federal partners. Third, this identification unearths potential gaps, and areas of ambiguity across federal agency jurisdictions. Finally, the description of agency roles presents a useful breakdown of the different stages and cross-cutting elements involved in rapid response actions.

Some gaps in federal agency ability to regulate new introductions into the United States are well-known; these gaps in nationwide coverage leave federal, state, and other agencies responsible for responding to introductions that impact their assets at the site level. The impact of invasive species on natural resources, including wildlife health, is a key area of concern. For instance, the Lacey Act's injurious wildlife provisions are limited in their taxonomic scope as well as their focus on imports into the United States via the organisms in trade pathway. Similarly, the extent of agency authorities to act on aquatic invasive species under the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) is unclear, and the degree to which APHIS PPQ and VS can act on threats to fauna and flora in natural areas may be limited by their authorities, policies, or available resources. There may be ways to exercise legal authority designed to protect public health and agricultural production to emphasize any side effects of such exercise that result in protection of natural resources; however, such efforts may suffer from inefficiencies, incomplete or partial responses, or lower prioritization.

Moving forward, it would be useful for federal agencies to consider:

- Clarification of agencies' jurisdictional scope, capabilities, and capacities for rapid response in identified areas of ambiguity and where interagency cooperation may help address these ambiguities;
- Identification, use, and improvement of interagency mechanisms to maintain regular communication and coordination with relevant federal, state, and tribal agencies and partners on potential threats across geographic scales, including through the conduct of tabletop exercises and the development of MOUs and cooperative agreements; and
- Engagement with non-federal partners such as non-governmental organizations and industry groups to improve communication and enhance coordination with federal efforts.

Such efforts should be considered from an outreach and in-reach perspective that clearly details agency roles and responsibilities, available response plans, clear thresholds for emergency action, and directories of contact information accessible to non-federal partners.

In addition to those listed above, more specific next steps related to the different agency roles could include:

## Primary emergency authorities

- Clarification of authorities, policies, and priorities to address new incursions into the United States versus secondary spread within the United States;
- Examination of capacity constraints in agencies to lead and support rapid response efforts; and
- Exploration of the extent to which NANPCA justifies a role for ANSTF and its member agencies in the response to new introductions of aquatic invasive species introductions into the United States.

## Management of federal lands, waters, and other assets

- Assessment of the capacity and efficacy of agency rapid response activities, including the use of designated response teams to address new introductions to federal lands and waters;
- Enhanced use of partnerships between federal agencies managing lands and assets with neighboring jurisdictions to prevent incursions across borders; and
- Integration of invasive species and rapid response considerations into broader federal priorities including climate change and infrastructure.

## Partnering/supporting roles and activities

- Increased federal collaboration with state, tribal, and local governments, including the use of interjurisdictional response teams, resource sharing, and joint regulatory enforcement building on existing state and regional examples; and
- Development of guidance on how best to engage with state, tribal, territorial, or other governments during a rapid response where a federal agency is in a supporting role, including availability of federal technical assistance, data, and resources that could be provided to support local response efforts.

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# Acronyms

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**ANSTF.....Aquatic Nuisance Species Task Force**

**CWA ..... Clean Water Act**

**DHS .....Department of Homeland Security**

CBP ..... Customs and Border Protection

FEMA..... Federal Emergency Management Agency

**DOI .....Department of the Interior**

BIA ..... Bureau of Indian Affairs

BLM..... Bureau of Land Management

BOR ..... Bureau of Reclamation

NPS ..... National Park Service

OIA..... Office of Insular Affairs

USFWS ..... Fish and Wildlife Service

*ES.....Ecological Services*

*FAC.....Fish and Aquatic Conservation*

*IA .....International Affairs*

*OLE.....Office of Law Enforcement*

*MigBirds.....Migratory Birds*

*NCTC .....National Conservation Training Center*

*WSFR.....Wildlife Sport Fish Restoration*

USGS ..... U.S. Geological Survey

**EDRR .....Early Detection and Rapid Response**

**EPA.....Environmental Protection Agency**

**FAO .....Food and Agriculture Organization of the United Nations**

**FICMNEW .....Federal Interagency Committee on the Management of Noxious and Exotic Weeds**

**FIFRA.....Federal Insecticide, Fungicide and Rodenticide Act**

**FONSI .....Finding of No Significant Impact**

**GAO .....Government Accountability Office**

**ICS .....Incident Command System**

**MOU.....Memorandum of Understanding**

**NASA .....National Aeronautics and Space Administration**

ESD ..... Earth Science Division

**NISC.....National Invasive Species Council**

**OMB.....Office of Management and Budget**

**T&E Species ... Threatened and Endangered Species**

**USACE .....U.S. Army Corps of Engineers**

**USDA .....U.S. Department of Agriculture**

APHIS..... Animal and Plant Health Inspection Service

*PPQ.....Plant Protection and Quarantine*

*VS.....Veterinary Services*

NRCS ..... National Resources Conservation Service

USFS..... U.S. Forest Service

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# Appendix I – Federal Agency Roles in Rapid Response (Tables)

The following tables identify actions federal agencies can take according to their different roles: primary emergency authorities; federal land, water, and assets management; and partnering and supporting activities. Listed agencies can take the specific actions listed under the stages of rapid response (rapid assessment and site delineation, deployment of eradication and control measures, and post-response monitoring and follow-up), as well as ongoing activities (resource provision, environmental compliance and regulatory controls, communications and outreach, and information systems and data management). Conditions for agency engagement may be clarified in the notes column.

## Stage 1: Rapid Assessment and Site Delineation

	AGENCY ROLES			
	PRIMARY EMERGENCY AUTHORITIES	FEDERAL LAND, WATER, & ASSETS MANAGEMENT	PARTNERING & SUPPORTING ACTIVITIES	NOTES
<b>a.</b> Notification of appropriate authorities and partners	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (FAC, NWRS), NPS, BOR, BLM, BIA* <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, NWRS, OLE), USGS, BLM, NPS* <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), USFS	<b>NPS:</b> As a global note, in addition to enforcing its own regulations on NPS lands, NPS may partner with states to enforce state invasive species laws where applicable.  <b>BIA:</b> BIA may partner with tribal governments where necessary to co-manage invasive species issues on tribal lands.
<b>b.</b> Verification and authoritative identification	<b>DOI:</b> FWS (ES) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS	<b>DOI:</b> FWS (FAC, OLE, ES), USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ)	
<b>c.</b> Demarcation and monitoring,	<b>DOI:</b> FWS (ES) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (FAC, NWRS), NPS, BLM <b>USDA:</b> USFS	<b>DOI:</b> FWS (ES, FAC, NWRS, WSFR), USGS, BLM <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), NRCS, USFS	
<b>d.</b> Quarantine, and emergency containment	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, OLW, WSFR), NPS* <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), USFS	
<b>e.</b> Risk assessment	<b>DOI:</b> FWS (FAC) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS, BOR, BLM <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, NWRS, WSFR), USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), NRCS, USFS	
<b>f.</b> Assessment of risk management options	<b>DOI:</b> FWS (FAC) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (FAC, NWRS), NPS, BOR, BLM <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, NWRS, WSFR), USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), NRCS, USFS	
<b>g.</b> Development of tactical response action plan, including treatment selection, design, and permitting process and the use of ICS or otherwise specifying roles and responsibilities	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS, BLM <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, NWRS, OLE, WSFR), BLM, BOR, NPS, USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), USFS	

**Stage 2: Deployment of Eradication and Control Measures**

	AGENCY ROLES			
	PRIMARY EMERGENCY AUTHORITIES	FEDERAL LAND, WATER, & ASSETS MANAGEMENT	PARTNERING & SUPPORTING ACTIVITIES	NOTES
<b>a.</b> Official order, declaration of emergency, or equivalent decision to proceed	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS* <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC) <b>EPA</b> <b>USDA:</b> USFS	<b>DOI:</b> The nature of an agency's emergency powers depends upon the statute under which an emergency is declared.  <b>NPS:</b> May be able to request assistance of another agency (e.g., the state, FEMA, etc.)
<b>b.</b> Deployment of response plan (via Incident Command System/Unified Command if and as warranted by Step 1f)	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (FAC), NPS <b>USDA:</b> USFS	<b>DOI:</b> BOR, FWS (NWRS), NPS, USGS  <b>EPA</b> <b>USDA:</b> APHIS (PPQ), USFS	<b>DOI:</b> Agencies may rely on their organic statutes to control invasives on lands under their jurisdiction, and may in some cases take action on non-federal property with specific authorization
<b>c.</b> Acquisition and mobilization of resources (technical information, personnel, equipment, supplies, training, funding)	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, FWS (FAC), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, BOR, FWS (FAC, NWRS, WSFR), NPS, USGS <b>USDA:</b> APHIS (PPQ), USFS	
<b>d.</b> Treatment (and re-treatments)	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (FAC), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, NWRS, WSFR), NPS, USGS <b>USDA:</b> NRCS, USFS	
<b>e.</b> Monitoring and documentation of treated population(s)	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, BOR, FWS (FAC, NWRS, WSFR), NPS, USGS <b>USDA:</b> NRCS, USFS	
<b>f.</b> Assessment of treatment efficacy and retreatment	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, NWS, WSFR), NPS, USGS <b>USDA:</b> USFS	
<b>g.</b> Disposal of hazardous materials and viable debris	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (WSFR), USGS <b>USDA:</b> USFS	
<b>h.</b> Demobilization	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, WSFR), NPS <b>USDA:</b> USFS	

**Stage 3: Post-response Monitoring and Follow-up**

	AGENCY ROLES			
	PRIMARY EMERGENCY AUTHORITIES	FEDERAL LAND, WATER, & ASSETS MANAGEMENT	PARTNERING & SUPPORTING ACTIVITIES	NOTES
<b>a.</b> Restoration & mitigation activities		<b>DOI:</b> BLM, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, NWRS, WSFR), NPS, USGS <b>USDA:</b> NRCS, USFS	
<b>b.</b> Biosecurity controls to prevent reintroduction	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, OLE, WSFR) <b>USDA:</b> NRCS, USFS	
<b>c.</b> Monitoring for efficacy of treatment (re-emergence, re-introduction)	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, BOR, FWS (FAC, NWRS, WSFR), NPS, USGS <b>USDA:</b> NRCS, USFS	
<b>d.</b> Reporting, including after-action evaluations	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, NWRS, WSFR), USGS, BLM <b>USDA:</b> USFS	



Ongoing A: Resource Provision

AGENCY ROLES				
	PRIMARY EMERGENCY AUTHORITIES	FEDERAL LAND, WATER, & ASSETS MANAGEMENT	PARTNERING & SUPPORTING ACTIVITIES	NOTES
<b>a. Technical information development and provision</b>				
<b>i.</b> Taxonomic/ authoritative identification	<b>DOI:</b> FWS (ES) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, FWS (FAC, NWRS), NPS	<b>DOI:</b> BLM, FWS (ES, FAC, OLE, NWRS, WSFR), USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), ARS	
<b>ii.</b> Risk assessment and risk management information	<b>DOI:</b> FWS (FAC) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, WSFR), USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), NRCS, USFS	
<b>iii.</b> Monitoring protocols	<b>DOI:</b> FWS (FAC) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, WSFR), USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), NRCS, USFS	
<b>b.</b> Personnel, equipment, and supplies	<b>DOI:</b> FWS (ES*) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, BOR, FWS (ES*, FAC, OLE, NWRS, WSFR), NPS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), USFS	<b>FWS:</b> Funding may be “partner specific” (e.g., funding for states if there are impacts on Species of Greatest Conservation Need). Relevant to ES if a species poses a threat to T&E species.
<b>c.</b> Training (e.g., risk assessment, Incident Command System)	<b>DOI:</b> FWS (FAC, NCTC) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, FWS (NWRS, NCTC), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, NCTC, NWRS, WSFR), NPS, USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), USFS	
<b>d.</b> Funding	<b>DOI:</b> FWS (ES*), OIA <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BIA, BLM, FWS (ES*, FAC*, NWRD, WSFR), NPS, OIA*, USGS <b>USDA:</b> APHIS (PPQ, VS), NRCS, USFS	<b>FWS:</b> Relevant to ES if a species poses a threat to T&E species. FAC is actively engaged in providing personnel, equipment, and supplies to aid in rapid response efforts at the national, regional, state, and local levels. Some circumstances may increase FAC involvement and leadership, such as invasions of interjurisdictional waterways or invasion by injurious wildlife species. OIA: OIA provides annual funding for EDRR-related work on the brown tree snake in Guam and the surrounding region.

**Ongoing B: Environmental Compliance and Regulatory Controls**

	AGENCY ROLES			
	PRIMARY EMERGENCY AUTHORITIES	FEDERAL LAND, WATER, & ASSETS MANAGEMENT	PARTNERING & SUPPORTING ACTIVITIES	NOTES
<b>a.</b> Compliance with environmental and public safety regulatory requirements (e.g., NEPA, ESA, FIFRA, CWA, MBTA, CZMA, OSHA)	<b>DOI:</b> FWS (ES, FAC, IA) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, BOR, FWS (ES, FAC, IA, Mig Birds, NWRS, OLE, WSFR) <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), NRCS, USFS	<b>FWS</b> (ES and FAC): Authority may be limited to a taxa (e.g., Salmonids) or with a particular statute (e.g., ESA Section 7 consultations).
<b>b.</b> Enforcement of environmental and public safety regulatory requirements	<b>DOI:</b> FWS (OLE) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (OLE, NWRS, WSFR) <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), USFS	
<b>c.</b> Monitoring for compliance	<b>DOI:</b> FWS (ES, IA) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (ES, FAC, IA*, NWRS, WSFR) <b>USDA:</b> APHIS (PPQ, VS), USFS	<b>FWS:</b> IA issues injurious wildlife permits for importation and transport across enumerated jurisdictions.
<b>d.</b> Seizure of contaminated items	<b>DOI:</b> FWS (OLE) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (OLE) <b>USDA:</b> USFS (LEI)	<b>DOI:</b> FWS (OLE) <b>USDA:</b> USFS (LEI)	
<b>e.</b> Establishment of quarantine areas and controls on access points to infested areas	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (FAC, NWRS), NPS <b>USDA:</b> USFS	<b>USDA:</b> APHIS (PPQ, VS), USFS	
<b>f.</b> Restrictions on pathways of introduction	<b>DOI:</b> FWS (FAC) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> FWS (FAC, NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, OLE) <b>USDA:</b> APHIS (PPQ, VS), USFS	
<b>g.</b> Emergency approvals (pesticide applications)	<b>DOI:</b> FWS (ES)	<b>DOI:</b> FWS (NWRS), NPS, BLM <b>USDA:</b> USFS	<b>DOI:</b> FWS (ES, NWRS) <b>EPA</b> <b>USDA:</b> USFS	

**Ongoing C: Communications and Outreach**

	AGENCY ROLES			
	PRIMARY EMERGENCY AUTHORITIES	FEDERAL LAND, WATER, & ASSETS MANAGEMENT	PARTNERING & SUPPORTING ACTIVITIES	NOTES
<b>a.</b> Communications team establishment	<b>USDA:</b> APHIS (PPQ)	<b>DOI:</b> BLM, FWS (NWRS), NPS, BIA* <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, NWRS, WSFR), NPS, USGS <b>USDA:</b> USFS	<b>BIA:</b> May be involved in outreach to tribes.
<b>b.</b> Internal communications content and conduct	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS, BIA <b>USDA:</b> USFS	<b>DOI:</b> BLM, BOR, FWS (FAC, WSFR), NPS, USGS <b>EPA</b> <b>USDA:</b> USFS	
<b>c.</b> External communications content and conduct (e.g., media outreach, message development and delivery)	<b>DOI:</b> FWS (FAC) <b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), BIA <b>USDA:</b> USFS	<b>DOI:</b> BLM, BOR, FWS (FAC, NWRS, WSFR), USGS <b>EPA</b> <b>USDA:</b> USFS	

**Ongoing D: Information Systems and Data Management**

	AGENCY ROLES			
	PRIMARY EMERGENCY AUTHORITIES	FEDERAL LAND, WATER, & ASSETS MANAGEMENT	PARTNERING & SUPPORTING ACTIVITIES	NOTES
<b>a.</b> Information/data management	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, OLE, NWRS, WSFR), NPS, USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), USFS	<b>Information</b> sharing is subject to applicable federal regulations.
<b>b.</b> Identification and standardization of data requirements	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, NWRS, WSFR), USGS <b>EPA</b> <b>USDA:</b> USFS	
<b>c.</b> Data collection and dissemination	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> BLM, FWS (FAC, NWRS, WSFR), USGS <b>USDA:</b> APHIS (PPQ, VS), USFS	
<b>d.</b> Maintenance of information systems (identification, occurrences, past results)	<b>USDA:</b> APHIS (PPQ, VS)	<b>DOI:</b> BLM, BOR, FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (FAC, WSFR), USGS <b>EPA</b> <b>USDA:</b> APHIS (PPQ, VS), NRCS, USFS	
<b>e.</b> Interconnectivity across information systems (inc. standards)	<b>USDA:</b> APHIS (PPQ)	<b>DOI:</b> FWS (NWRS), NPS <b>USDA:</b> USFS	<b>DOI:</b> FWS (WSFR), USGS <b>USDA:</b> APHIS (PPQ), USFS	

## Appendix II –

# Relevant Primary Federal Authorities and Supporting Activities

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The sections below provide detail on the primary authorities relevant to management of invasive species for the agencies referenced in the Appendix I tables, as well as brief narrative descriptions for other federal agencies that engage in activities supporting invasive species management initiatives.

### PRIMARY FEDERAL AUTHORITIES

#### DEPARTMENT OF THE INTERIOR

The following laws are generally applicable to DOI bureaus:

- National Environmental Policy Act of 1969 (NEPA)
- Endangered Species Act of 1973 (ESA)
- Fish and Wildlife Coordination Act of 1934
- Migratory Bird Treaty Act of 1918
- Sikes Act of 1960, as amended (16 USC §§670-670(f); 16 USC §670g et seq.)
- Wilderness Act of 1964
- Wyden Amendment (P.L. 105-277, §323 as amended by P.L. 109-54 §434)
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980
- Clean Water Act of 1972 (CWA)
- Plant Protection Act of 2000
- Occupational Safety and Health Act of 1970 (OSHA)
- Federal Insecticide, Fungicide, and Rodenticide Act of 1910 (FIFRA)
- 44 U.S.C. 3101-3107 – Records Management by Federal Agencies

In addition, the following Executive Orders, Secretary's Orders, and OMB Circulars generally apply to all DOI bureaus:

- Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments
- Executive Orders 13112 and 13751 – Invasive Species
- OMB Circulars
  - A-16 – Coordination of Geographic Information and Related Spatial Data Activities
  - A-130 – Management of Federal Information Resources
- Secretary's Order 3175 – Departmental Responsibilities for Indian Trust Resources

#### Bureau of Indian Affairs (BIA)

- 30 BIA Manual, Supplement 10 – Integrated Resources Management Plan
- BIA Manual 54 Agricultural Resources: Chapter 5
- Consultation and Coordination with Indian Tribal Governments. 65 Fed. Reg. 67249
- 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 C.F.R § 166

#### Bureau of Land Management (BLM)

- Federal Land Policy and Management Act of 1976 (FLPMA)
- Public Rangelands Improvement Act of 1978
- Taylor Grazing Act of 1934

#### Bureau of Reclamation (BOR)

- Fish and Wildlife Coordination Act of 1934
- Reclamation Act of 1902

#### National Park Service (NPS)

- NPS Organic Act of 1916 (54 U.S.C. §100101 et seq)
- Consolidated Natural Resources Act of 2008 (P.L. 110-229)
- Homeland Security Presidential Directive 5 (HSPD 5)
- Lacey Act of 1900
- National Parks Omnibus Act of 1998
- Stafford Disaster Relief and Emergency Assistance Act of 1988
- 54 U.S.C. 100707 – Resource Management
- 36 CFR § 1.5 – Closures and public use limits
- NPS Policies
  - 1.9.2 – Managing Information
  - 4.1.2 – Natural Resources Information
  - 4.4.4 – Management of Exotic Species
  - 8.2.5.2 – Emergency Preparedness and Emergency Operations

#### Office of Insular Affairs (OIA)

- Brown Tree Snake Control and Eradication Act
- 48 USC §1469d – General Technical Assistance

### **U.S. Fish and Wildlife Service (USFWS)<sup>5</sup>**

- Lacey Act (16 USC §§3371-3378; 18 USC §42)
- North American Wetland Conservation Act 1989 (16 USC §4401 et seq.; 16 USC §669b (note))
- National Wildlife Refuge System Administration Act (16 USC §§668dd-ee, regulated through 50 C.F.R.)
- Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (P.L. 101-646, 104 Stat. 4761) as reauthorized and amended by the National Invasive Species Act of 1996 (P.L. 104-332).
- Water Resources Reform and Development Act of 2014 (P.L. 113-121)

### **U.S. Geological Survey (USGS)**

- Brown Tree Snake Control and Eradication Act
- Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990
- Nutria Eradication and Control Act

### *ENVIRONMENTAL PROTECTION AGENCY*

- Federal Insecticide, Fungicide, and Rodenticide Act, as amended (40 CFR §166)

### *U.S. DEPARTMENT OF AGRICULTURE*

### **Animal and Plant Health Inspection Service**

- Agriculture Bioterrorism Protection Act of 2002
- Animal Health Protection Act of 2002
- Cooperation with State agencies in the Administration and Enforcement of Certain Federal Laws Act, approved September 28, 1962
- Endangered Species Act (ESA), 1973
- Federal Noxious Weed Act of 1974
- Federal Seed Act, issued March 1940
- National Environmental Policy Act (NEPA), 1969
- Noxious Weed Control and Eradication Act of 2004
- Plant Protection Act of 2000
- Privacy Act of 1974
- Public Health Security and Bioterrorism Preparedness and Response Act of 2002

### **Natural Resource Conservation Service**

- Bankhead-Jones Farm Tenant Act of 1937, as amended (7 USC §1000 and §1010–1011)
- Executive Order 13112 – Invasive Species, dated February 3, 1999
- Federal Noxious Weed Act of 1974, as amended (7 USC §2814)
- Food Security Act of 1985, as amended (16 USC §3801-3862)
- National Environmental Policy Act of 1969, as amended (42 USC §4321-4347)
- Soil and Water Resources Conservation Act of 1977, as amended (16 USC §2001-2009)
- Soil Conservation and Domestic Allotment Act of 1935, as amended (16 USC §590a-590f, 590q)
- (Former) USDA Policy of Noxious Weed Management, Departmental Regulation 9500–010, January 18, 1990

### **U.S. Forest Service<sup>6</sup>**

- Organic Administration Act of 1897 (16 U.S.C. §§473 et seq.)
- Knutson-Vandenberg Act of June 9, 1930 (16 U.S.C. 576, 576a-576b). Section 3 of the Act, codified at 16 U.S.C. 576b
- Bankhead-Jones Farm Tenant Act of 1937 (7 U.S.C. §§1010 et seq.)
- Anderson-Mansfield Reforestation and Revegetation Act of October 11, 1949 (16 U.S.C. 581j (note), 581j, 581k)
- Granger-Thye Act of 1950 (16 U.S.C. §§580h)
- Sikes Act (Fish and Wildlife Conservation) of September 15, 1960 (16 U.S.C. 670g- 670l, 670o, P.L. 86-797), as amended. Section 201
- Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. §§528 et seq.)
- The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§1531 et seq.)
- Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 as amended by the National Forest Management Act (NFMA) of 1976. Section 6 of the Act codified at 16 U.S.C. §§1600 et seq
- Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201, 1201 (note), 1236, 1272, 1305). Section 515
- Cooperative Forestry Assistance Act of 1978 (16 U.S.C. 2101 (note), 2101-2103, 2103a, 2103b, 2104-2105. Section 3 (16 U.S.C. 2102)
- The North American Wetland Conservation Act 1989

<sup>5</sup>—USFWS authorities are often taxa specific. For example, the Non-indigenous Aquatic Nuisance Species Prevention and Control Act, as amended by the National Invasive Species Act of 1996, is specific to aquatic invasive species. The injurious wildlife provisions of the Lacey Act are specific to wild mammals, wild birds, fish (including mollusks and crustacea), amphibians, and reptiles. The USFWS Branch of Fish and Aquatic Conservation manages health certifications for salmonids being imported into the United States. Aquatic animal health biologists operating at six Fish Health Centers detect, monitor, and mitigate disease-causing pathogens that threaten aquatic species and investigate emerging health issues, such as invasive species that can be vectors for disease, to help prevent the introduction or spread of dangerous aquatic pathogens. For the State Wildlife Grant Program, funding can be used for any taxa of invasive species that poses a threat to a species of greatest conservation need identified in a State Wildlife Action Plan. USFWS authority under the Migratory Bird Treaty Act creates regulatory tools that are used for managing species that are protected by the Act when outside their range and when they are deemed invasive. The National Wildlife Refuge Program has authority for all species taxa that may invade Refuge properties.

<sup>6</sup>—The Forest Service authority to implement EDRR activities against aquatic and terrestrial invasive species (including vertebrates, invertebrates, plants, microbes/pathogens, algae, and fungi) across National Forests and National Grasslands is derived from laws enacted by Congress that authorize the Secretary of Agriculture (Secretary) to administer the National Forest System and other resources and to issue necessary regulations. Many of these authorities have subsequently been delegated from the Secretary to the Chief of the Forest Service. Except where specifically stated, these statutes apply to the entire National Forest System. Included are key Presidential Executive Orders.

- (16 U.S.C. 4401 (note), 4401- 4413, 16 U.S.C. 669b (note)). Section 9 (U.S.C. 4408)
- Consolidated Appropriations Resolution, 2003. Section 323 of the Act, codified at 16 U.S.C. 2104
  - Healthy Forests Restoration Act of 2003 (H.R. 1904), (16 U.S.C. 6501-6502, 6511- 18, 6541-42, 6571-78)
  - The National Historic Preservation Act of 1966 (16 U.S.C. §§470 et seq.)
  - The Plant Protection Act of 2000 (7 U.S.C. 7701 et seq) as amended by the Noxious Weed Control and Eradication Act of 2004 (P.L. 108-412)
  - Wyden Amendment (P.L. 109-54, Section 434)
  - Clean Water Act of 1977 (33 U.S.C. 1251, 1254, 1323, 1324, 1329, 1342, 1344; 91 Stat. 1566)
  - National Environmental Policy Act of 1969 (16 U.S.C. 4321)
  - Wilderness Act of 1964 (16 U.S.C. §§1131 et seq.)
  - Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), (7 U.S.C. s/s 136 et seq.)
  - Executive Order 13112 issued February 3, 1999 (E.O. 13112)
  - Executive Order 13751 issued December 5, 2016 (E.O. 13751)
  - Executive Order 10046 issued March 24, 1949 (E.O. 10046)
  - Executive Order 11246 issued September 24, 1965 (E.O. 11246)

#### Regulations/Policies Applicable to the USFS<sup>7</sup>:

- Policy on Noxious Weed Management. Departmental Regulation 9500-10 (DR 9500- 10) (January 18, 1990)).
- Policy on the Management of Wildlife, Fish, and Plant Habitat. Departmental Regulation 9500-4 (DR 9500-4).
- Gypsy Moth Policy (USDA) of 1990. Departmental Regulation 5600-001 (DR 5600- 001).
- Departmental Regulation 9500-4.
- Native Plant Materials Policy (FSM 2070).
- Pesticide Use Management and Coordination Policy (FSM 2150). Additional guidance provided in the Pesticide Use Management Handbook (FSH 2109).



## PARTNERING/SUPPORTING ROLES

### *U.S. DEPARTMENT OF AGRICULTURE*

#### **U.S. Forest Service**

The U.S. Forest Service is involved in rapid response activities in the general categories of “Federal Land, Water, Assets Management” through the National Forest System and

“Partnering and Supporting Activities” primarily through the divisions of Forest Service Research and State and Private Forestry. Components of USFS’s EDRR activities include the following types of actions:

- Conducting an annual survey of more than 238 million acres of Federal and tribal forest land and 493 million acres of cooperative land for damage caused by forest insects and pathogens.
- Cooperating with federal agencies within the Department of Defense and Department of the Interior to address the spread of invasive mussels through a collaborative EDRR effort designed to protect the Western waters of the United States.
- With APHIS and other partners, establishing an EDRR system for invasive insects in urban forests in 10 states each year.
- With partners, conducting emergency research that developed EDRR technology for bark beetles.
- Cooperating with State fish and wildlife agencies to implement EDRR activities addressing invasive vertebrates, invertebrates, pathogens/microbes, and other high risk invasive species impacting Forest Service lands and waters and surrounding landscapes.
- Providing weed management funding to States for use in EDRR programs on State and private land.
- Responding to nationwide threats to forest ecosystems from outbreaks of invasive species by developing risk hazard maps for national monitoring efforts and by helping to guide detection, control, and eradication efforts.
- Collaborating with partners to implement invasive species EDRR components of the National Fish and Aquatic Ecology Strategy across the National Forest System.
- With partners, disseminating materials designed to educate the public on identification, proper handling, notification, avoidance procedures, and eradication of aquatic and terrestrial invasive plants, vertebrates, invertebrates, animal diseases, and other invasive species.
- Establishing partnerships with volunteers and others to conduct surveys and eradication programs for new infestations on national forests, grasslands, and associated areas (USDA-USFS 2004).

### *DEPARTMENT OF HOMELAND SECURITY*

#### **Customs and Border Protection**

When the Department of Homeland Security (DHS) was established under the Homeland Security Act in 2002, a

<sup>7</sup>— Forest Service invasive species management policy (Forest Service Manual 2900) identifies specific regulatory authorities to manage aquatic and terrestrial invasive species on National Forest System lands and other lands under Forest Service control; delegated from the Secretary of Agriculture to the Under Secretary for Natural Resources and Environment at Title 7, Code of Federal Regulations (CFR), section 2.20 (7 CFR 2.20). These authorities have been delegated in turn from the Under Secretary for Natural Resources and Environment to the Chief of the Forest Service at Title 7, Code of Federal Regulations, section 2.60 (7 CFR 2.60). Title 36, Code of Federal Regulations (including Parts 221, 222, 228, 241, 251, 261, 290, 292, 293, 296, and 297) provides additional authorities to manage and regulate invasive species across the National Forest System, including establishing requirements and prohibitions to prevent and control aquatic and terrestrial invasive species. In addition, Forest Service regulations at 36 CFR 222.8 acknowledge the Agency’s obligation to work cooperatively in identifying invasive species (including noxious weeds) problems and initiating control programs in aquatic and terrestrial areas of the National Forest System.

Memorandum of Agreement was signed between DHS and USDA to delineate their separate functions, including responsibilities for Customs and Border Protection (DHS) and Plant Protection and Quarantine (USDA/APHIS) around pest interception and tracking. Specifically,

“CBP agrees to collect and prepare interceptions and submit to PPQ identifiers for identification. PPQ agrees to prepare and analyze interceptions, determine quarantine response and communicate options to CBP; PPQ agrees to provide pest identification training to CBP” (Available at [https://www.aphis.usda.gov/plant\\_health/moa\\_dhs/downloads/article1.pdf](https://www.aphis.usda.gov/plant_health/moa_dhs/downloads/article1.pdf))

Herein, CBP’s role is limited to prevention in the detection and interception of potential pests at ports of entry. Regarding rapid response activities, CBP may act in a supportive or collaborative capacity assisting other governmental agencies who have regulatory authority when appropriate.

#### **U.S. Coast Guard**

Under the Vessel Incidental Discharge Act of 2018, the U.S. Coast Guard is charged with developing an intergovernmental response framework to address aquatic nuisance species risks related to ballast water discharges. The effort is to be coordinated with the Aquatic Nuisance Species Task Force and specifically calls for “a risk assessment and response framework using ballast water discharge data and aquatic nuisance species monitoring data for the purposes of—

- I. identifying and tracking populations of aquatic invasive species;
- II. evaluating the risk of any aquatic nuisance species population tracked under subclause (I) establishing and spreading in waters of the United States or waters of the contiguous zone; and
- III. establishing emergency best management practices that may be deployed rapidly, in a local or regional manner, to respond to emerging aquatic nuisance species threats.” (Section 903)

At the time of this report’s release, the U.S. Coast Guard was still determining how to best operationalize such a framework.

#### *NATIONAL AERONAUTICS AND SPACE ADMINISTRATION*

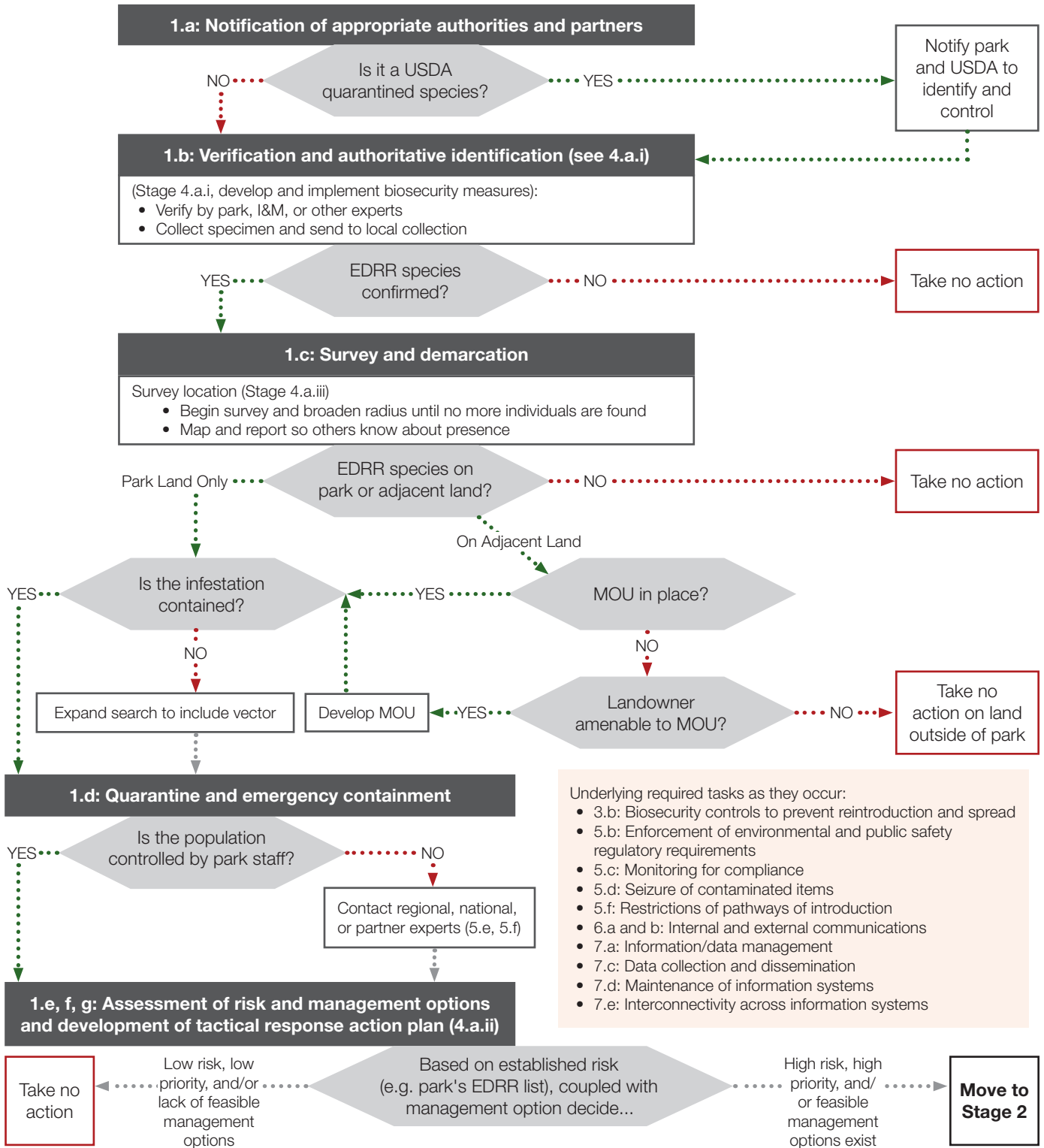
NASA solicitation [A.28 Rapid Response and Novel Research in Earth Science](#) seeks proposals that advance the goals and objectives of NASA’s Earth Science Division by conducting unique research to investigate 1) unforeseen or unpredictable Earth system events and opportunities that require a rapid response, and 2) novel ideas of potential high merit and relevance for ESD science to advance Earth remote sensing that have not otherwise been solicited by NASA in the past three years. While this program element has not previously awarded invasive species work, an emerging invasive species threat could fit within the solicitation requirements for award.

# Appendix III –

## NPS Conceptual Diagram and Decision Tree for Rapid Response

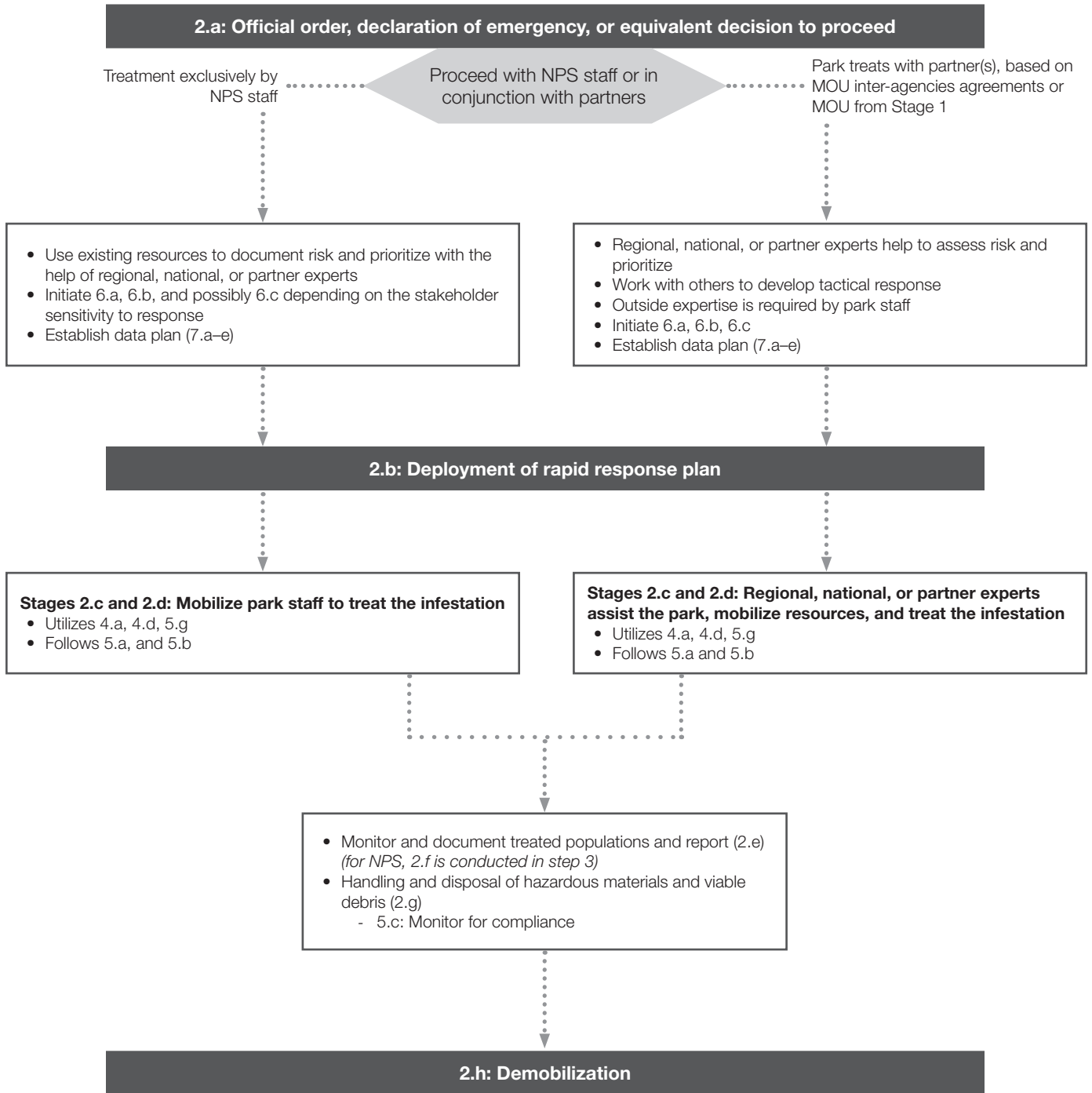
The diagram below provides a visual representation of the NPS decision process for rapid response to an invasive species and can serve as a generic model for response at other land management agencies.

### Stage 1 EDRR Species Found



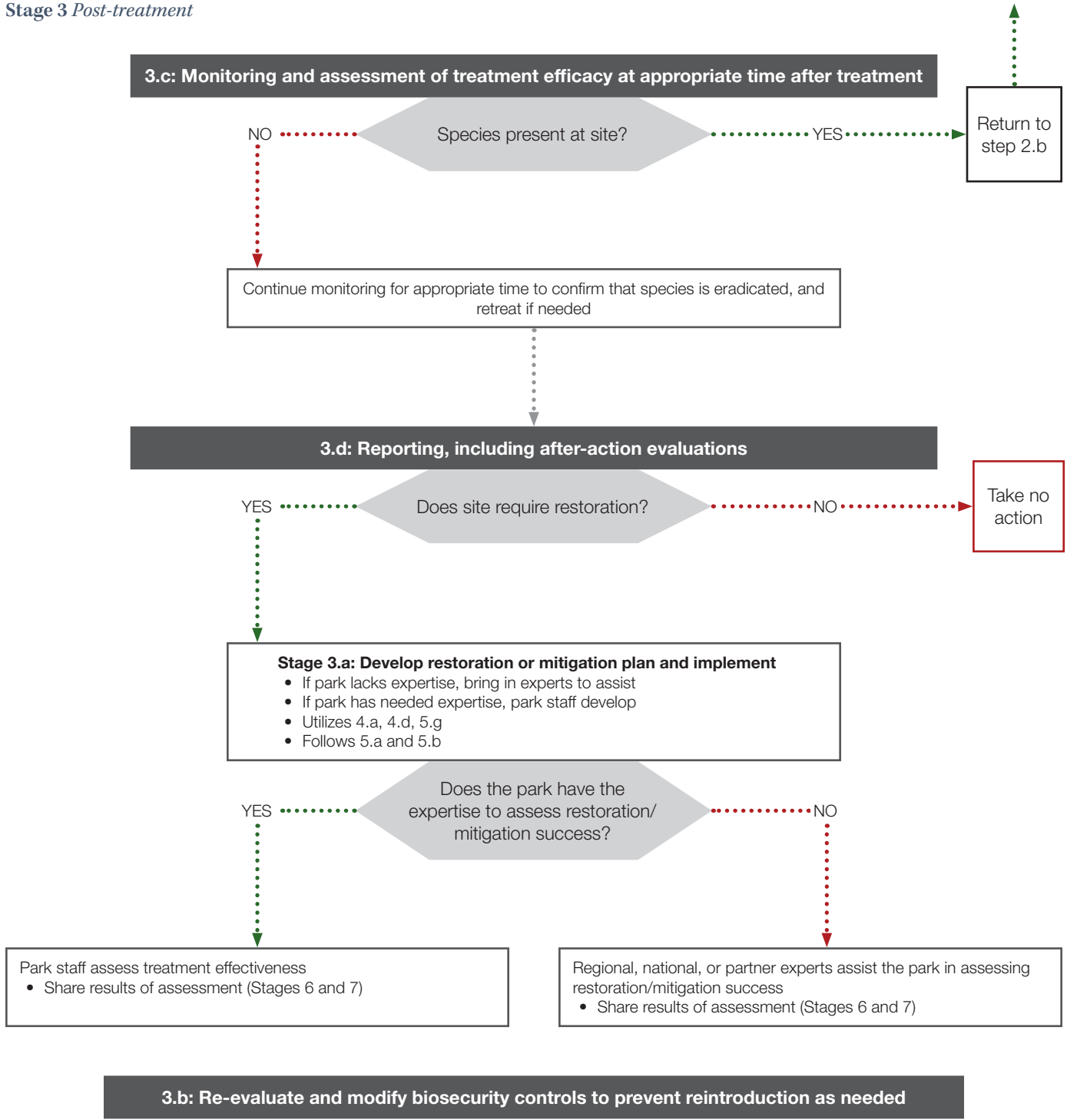


Stage 2 Deployment of Rapid Response Framework



Underlying required tasks as they occur:

- 3.b: Biosecurity controls to prevent reintroduction and spread
- 5.d: Seizure of contaminated items
- 5.f: Restrictions of pathways of introduction



- Underlying required tasks as they occur:
- 3.b: Biosecurity controls to prevent reintroduction and spread
  - 5.b: Enforcement of environmental and public safety regulatory requirements
  - 5.c: Monitoring for compliance
  - 5.d: Seizure of contaminated items
  - 5.f: Restrictions of pathways of introduction
  - 6.a and b: Internal and external communications
  - 7.a: Information/data management
  - 7.c: Data collection and dissemination
  - 7.d: Maintenance of information systems
  - 7.e: Interconnectivity across information systems