

U.S. DEPARTMENT OF THE INTERIOR

NEPA-INVASIVE SPECIES GUIDANCE QUESTIONNAIRE SUMMARY

The U.S. Department of the Interior distributed the *NEPA-Invasive Species Guidance Questionnaire* to national invasive species program leads as well as to NEPA specialists within each of the Department's bureaus and offices. Each bureau and office subsequently distributed the questionnaire to appropriate staff at various operating levels, consolidating responses for submission to the Department.

The Department's bureaus and offices comply with various levels of NEPA review (e.g., Categorical Exclusions (CE), Environmental Assessments (EA), and Environmental Impact Statements (EIS)) on a range of projects to address numerous invasive species (i.e. plants, animals, and other organisms) at multiple scales in both terrestrial and aquatic systems. Additional NEPA guidance in the context of invasive species would promote efficiencies when implementing invasive species prevention and management activities. Furthermore, bureaus identified that additional technical guidance on coordination, project management, and integrated pest management (IPM) would be of use.

Themes outlined below reflect a sample of key points described in bureau submissions; this is not an exhaustive list. Specific details are included in the submissions provided by each bureau and office that responded.

- Applicability
 - NEPA analysis can apply to 1) actions for which prevention/control of invasive species is the primary purpose of the action, and 2) actions for which the purpose of the action is to execute program or projects, such as operations, maintenance or construction activities, during which invasive species prevention/control may not be the primary purpose but invasive species risks should be considered and minimized.
- Challenges to NEPA Compliance
 - Lack of training in NEPA compliance and access to technical support;
 - Limitations of data availability / data accessibility (e.g., site specific information, distribution and life history information, impacts, control techniques);
 - Reductions in funding and staffing; and,
 - Insufficient policy and guidance to the field.
- Solutions to Overcome Challenges
 - Provide additional training and guidance to appropriate staff on NEPA compliance;
 - Support research for new methods of controls/eradication that are effective, efficient, and less damaging to non-target habitats/species;
 - Improve methods of data sharing and make information centrally accessible;
 - Promote coordination with other agencies;
 - Update policy, guidance, and templates, including best management practices (BMPS) for the type of activities conducted; ensure that those BMPS can be used by all agencies;

- Develop Agency-wide / Regional / Large-scale plans and guidance (e.g., Programmatic EA, Programmatic EIS) from which EAs/EISs for projects can be tiered; and,
 - Develop more options for categorical exclusion that benefit the environment (esp. for early detection and rapid response (EDRR) and control).
- Timeframe to Prepare NEPA Review
 - The NEPA process ranges from several weeks/months to several years or more to complete, depending on the extent and complexity of the project.
- Budget to Prepare NEPA Review
 - Bureaus do not have accounting codes to track the costs of completing NEPA review.
- Budget for Proposed Actions
 - Bureaus generally do not have accounting codes for specific invasive species management projects. Estimates for implementing proposed actions range from several thousand dollars to millions of dollars.

U.S. DEPARTMENT OF THE INTERIOR

NEPA-INVASIVE SPECIES GUIDANCE QUESTIONNAIRE CONSOLIDATED RESPONSES

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BUREAU OF LAND MANAGEMENT RESPONSE

1. Name/position/contact info: Gina Ramos, Bureau of Land Management, Senior Weeds Specialist – 202.912-7226

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action? The goal of the invasive species management program is to implement a course of action that includes one or more of the following measures: Prevention, Early Detection and Rapid Response (EDRR), Control, Management, and Restoration. Depending upon the proposed action, one or more of these measures would be considered in the analysis and implemented within the management action.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews? When considering the proposed action, invasive species issues are considered at the beginning of the NEPA process. The Invasive Species Specialist is part of the interdisciplinary team conducting the NEPA review.

c. What level of NEPA review (e.g., CE, EA, and EIS) is being/was prepared for the invasive species management action or proposed action? The level of analysis is dependent upon the level of significance and can range from preparing an Environmental Assessments (EA's) to an Environmental Impact Statements (EIS). The BLM completed the 2007 Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS) and Programmatic Environmental Report (PER) to address invasive vegetation and their treatments. The NEPA analysis is broad and provides the flexibility so that BLM state and field offices (FO's) may tier their site-specific level EA's back to the national PEIS. Some field offices have tiered their Environmental Assessments (EA's) directly from the Final PEIS while other BLM Districts and FO's have developed programmatic field office-wide Environmental EA's that tier to the Final PEIS, so that as individual projects occur in subsequent years, the programmatic analysis is complete, the field office is able to complete an individual project and may make a "Determination of NEPA Adequacy" (DNA). If it is adequate, an individual EA is not necessary. In areas not covered under the Vegetation Treatments PEIS, individual NEPA analysis is required. In cases where pesticides are required, and were not evaluated in the Final PEIS, appropriate information on human health and ecological pesticide risk assessments can be incorporated by reference by the appropriate federal agency that has completed the risk assessments. Otherwise, the proposed action cannot be completed until the appropriate analysis is completed.

Categorical Exclusions are not ever used when applying pesticides for any projects on public lands.

c. Which target species are being/were considered? Each BLM Management Plan (Resource Management Plan, Allotment Management Plan, etc.) includes the goals for the field office weed and invasive species management program e.g., Prevention, Early Detection and Rapid Response (EDRR), Control, Management, and Restoration. The BLM also has a list of "Weeds of Concern" The list has a total of 138 weeds that are either on Federal, State, or county Noxious Weed Lists or are considered invasive. Other invasive species e.g., aquatics, insects, pathogens, etc. are considered as they occur on the public lands and waters.

d. How is/was the ecosystem/location defined and spatially bounded? The PEIS breaks the public lands down by vegetation types and ecoregions. Invasive species infestation, survey, and

treatment locations information is captured spatially within ArcGIS. Information gathered on the ground is inputted into the BLM's national invasive species data base. The National Invasive Species Information Management System (NISIMS) houses all of the BLM's invasive species data.

e. How are/were non-target effects/adverse impacts defined and spatially bounded? NISIMS does not currently capture monitoring data. It does, however, have the ability to capture presence and absence of any species (not limited to invasive species, special status species, etc.), so inferences can be made on non-target effects based on species identified in the presence/absence process.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

The annual BLM weed and invasive species program funding is \$15.9 million including funding from other BLM resource programs e.g., Riparian, Forestry, Fire, etc. annually. Each state receives funding and coordinates with other resource programs and allocates its funding by BLM priorities. Field offices fund and budget those funds based on the priority of proposed projects (proposed actions). Base funding may be allocated for current programs and long-term program activities. A budget increase e.g., climate change, Sage-grouse, would prioritize a proposed action with a timeframe for achieving the goal. (Number of projects is BLM-wide for the 13 state offices)

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action? Proposed Actions are part of the budget cycle (3-years) and is dependent upon the total cost of the proposed action, the NEPA review may be broken down by fiscal year for full implementation of the project e.g., planning, analysis, review, implementation, restoration, and monitoring. Some proposed actions may receive funding for the analysis and not receive funding for implementation and will "sit on the shelf" until funding becomes available. Other proposed actions may receive funding the same year and implemented immediately if the funding is available the same fiscal year.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review? Inadequate policy and guidance to the field for NEPA review. A reduction in funding and manpower will immediately reduce NEPA compliance and limit NEPA preparation and review. Weed spraying project where policy is dated and NEPA and analysis and may be insufficient. Project is a high priority, but the funding does not exist.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action? A reduction in funding and manpower has limited the amount of NEPA preparation review and analysis that the bureau is able to complete within a given fiscal year. Subsequently, it has limited the agency's ability to achieve all of the invasive species management goals that have been set by the agency and the department. Shifting priorities for the bureau and the Dept. also play a part in NEPA compliance and can lead to long-term impacts to the invasive species program.

7. How have the specific challenges identified in questions 5 and 6 been addressed? It has only been through initiatives and mandated requirements that funding and manpower have been addressed in the short-term.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

- Dedicated funding for the invasive species program is needed for the long-term along with consistent policy and guidance from the department and the bureau that is specific to invasive species management. OMB & DOI
- Updated policy and handbooks for the bureau and the Dept. is needed. - DOI
- Categorical Exclusions for Early Detection and Rapid Response (EDRR) – with parameters e.g., acreage limits, etc. – CEQ & DOI

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

- In order to be consistent within the federal government, Invasive Species (IS) Management should be incorporated into all NEPA analysis.
- Identify consistent measures for analysis for IS that is general and specific by taxonomy e.g., pathogens, insects, plants, etc.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total):

(a) Invasive species prevention; Implement consistent prevention measures throughout the DOI Bureau's for land management and aquatic management activities and proposed actions.

(b) Invasive species eradication; Define eradication

(c) Invasive species control;

- Require Integrated Pest Management/Vegetation Management practices for all DOI Bureaus' that include Best Management practices for all control and management activities.
- Require an annual report submitted to the DOI on accomplishments.
- Include a monitoring and restoration component in the control and management proposed action.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

Sec. 2. Federal Agency Duties.

(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) Identify such actions; Actions are identified by each proposed action on the ground

(2) Subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; in the absence of available appropriations, the BLM utilizes best management practices to prevent the introduction and spread of invasive species in bureau practices; **(ii) Detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;** The BLM uses cost-effective best management practices to prevent the introduction and spread of invasive species in bureau practices; **(iii) Monitor invasive species populations accurately and reliably;** Monitoring is a factor when evaluating the proposed action (project) to measure the success or failure of the outcome.

(iv) Provide for restoration of native species and habitat conditions in ecosystems that have been invaded; Restoration is considered when evaluating whether or not the proposed action (project) will be able to restore naturally or will require restoration efforts. In proposed actions that include Emergency

Stabilization Rehabilitation (ESR) actions following wildfire. Control and restoration measures are proposed and analyzed using native species to keep an ecosystem intact. **(v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species;** The BLM works cooperatively with the US Geological Survey (USGS), the research arm of the Department of the Interior and Cooperative Extension Service to evaluate new technologies to prevent the introduction of invasive species. The BLM conducts research and demonstration evaluations of controls of invasive species to evaluate their effectiveness prior to full-scale implementation on the public lands; **(vi) promote public education on invasive species and the means to address them;** The BLM promotes education and outreach both internally and externally to raise awareness of the threats and impacts of invasive species to the public lands and waters, and to incorporate prevention, early detection and rapid response, so that agency personnel and partners can recognize IS and take the appropriate action to prevent the introduction and spread.

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions. An evaluation of the proposed action is part of the NEPA analysis to determine if the bureau's action is likely to cause or promote the introduction or spread of invasive species on public lands or waters. Based on the NEPA analysis, it is up to the BLM official to determine if the benefit of the proposed action outweighs the risk caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations. The BLM coordinates with the NISC at the national level, implementing the Invasive Species Management Plan at the State and local level.

BUREAU OF OCEAN ENERGY MANAGEMENT RESPONSE

1. Name/position/contact info: Brian Hooker, Biologist, brian.hooker@boem.gov, 703-787-1634

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action? BOEM does not have an invasive species management plan. Invasive species management is not under BOEM's purview. However, through BOEM's Environmental Studies Program there have been some invasive species studies funded. BOEM also analyzes the impact of potential invasive species on the affected environment in all NEPA documents. BOEM has an obligation to assess the potential environmental impacts of its proposed actions, which may include providing habitat that may be colonized by invasive species. BOEM may require monitoring of offshore foundations for a variety of objectives and require reporting of any observed invasive species.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews? Programmatically and at project-specific stages, BOEM addresses invasive species for programmatic and site specific NEPA documents whenever they are relevant. BOEM also works to ensure that all the activities that result from its authorization comply with other applicable Federal laws such as the USCG Ballast Water Management Program regulations to prevent introduction of invasive species. (33 CFR 151 Subparts C and D).

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action? The topic of invasive species is discussed in our NEPA documents, which, for leasing and development of OCS resources, start with programmatic documents like the Programmatic Five-Year EIS and continue through more site specific plans and Lease Sale NEPA documents.

c. Which target species are being/were considered? For these NEPA documents and the studies BOEM conducts, this depends on the program area of the action. For the Gulf of Mexico Region, two invasive species are considered: the lionfish (*Pterois volitans*) and the orange cup coral (*Tubastrea coccinea*). While no new oil and gas activities are planned in the Pacific Region, studies on the presence of a bryozoan (*Watersipora sp.*) on existing oil platforms are being conducted. In the Atlantic, BOEM has generally considered invasive tunicates (*Didemnum sp*) in evaluating monitoring plans. However as projects move further south in the Atlantic other species like lionfish (*Pterois volitans*) may be considered.

d. How is/was the ecosystem/location defined and spatially bounded? Northern Gulf of Mexico invasive species are associated with impacts, which are not related to OCS oil and gas activities, to the affected environment (topographic features and live bottoms). Pacific *Watersipora* studies were bounded by oil platforms where the species had been detected. In the Atlantic the ecosystem for assessments is the Northeast US Continental Shelf large marine ecosystem (LME).

e. How are/were non-target effects/adverse impacts defined and spatially bounded? Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review. The analysis of indirect impacts of the proposed action is bounded by the spatial extent of the impact producing factor itself. As mentioned BOEM does not have an explicit invasive species management plan that it evaluates under NEPA.

However, some impacts are discussed in BOEM documents, for instance, threats to indigenous species by competition for food and space.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

BOEM's proposed actions are mostly the leasing and management of energy and mineral resources of the OCS. The timeframe for these proposed actions are 40-50 years (programmatically) and 5 years per lease sale for the oil and gas program. Renewable energy projects lease terms are generally around 30 years.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action? NA

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review? NA

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action? NA

7. How have the specific challenges identified in questions 5 and 6 been addressed? NA

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need? NA

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control? NA

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control? (a) (b): (c):

(a): Guidance on the appropriate invasive species monitoring and determination of significance.

(b): N/A

(c): N/A

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

BOEM programs do not have formal invasive species management programs. Generally BOEM identifies actions resulting from its activities that could result in transporting or creating habitat for invasive species. BOEM has required the monitoring of offshore foundations to include, among other things, the monitoring of invasive species. BOEM also works to ensure lessees' compliance with all applicable laws including the USCG Ballast Water Management Program regulations to prevent introduction of invasive species from vessels (33 CFR 151 Subparts C and D) and through consultations with other agencies under other statutes. For example, in the essential fish habitat assessment consultation with the National Marine Fisheries Service on a renewable energy

demonstration project offshore Virginia, BOEM required:

The lessee must provide BOEM with visual inspection reports of the IBGS foundation within 45 calendar days following the inspection schedule described in the RAP (e.g., six-month intervals for the first year, and 12 month-intervals thereafter). These monitoring reports must include the type and thickness of marine growth on the IBGS foundation and within 5 meters of the piles on the seabed identified to the lowest taxonomic group possible.

Measures such as these will ensure that BOEM is notified if the colonization of foundations by invasive species becomes an issue and, if necessary, corrective actions such as eradication or control, may be implemented.

Additionally, BOEM has an environmental studies program that has funded research on invasive species. Examples of studies include:

- Genetic Affinities in Populations of the Invasive Indo-Pacific Coral *Tubastraea micranthus* on northern Gulf of Mexico Platforms: Multiple Invasions? (underway- expected completion 2016)
- NEW INVASIVE MARINE SPECIES COLONIZING ENERGY PLATFORMS IN THE NORTHERN GULF OF MEXICO: VERIFICATION, AND EXAMINATION OF SPREAD (completed 2015) Report is here: <http://marinecadastre.gov/epis/#/search/study/27184>

BUREAU OF RECLAMATION RESPONSE

1. Name(s)/position(s)/contact info: Jolene Trujillo, Invasive Species/IPM Program, Coordinator, Environmental Compliance Division, Policy and Administration, US Bureau of Reclamation, 303-445-2903; Cathy Cunningham, NEPA Policy Coordinator, Environmental Compliance Division, Policy and Administration, US Bureau of Reclamation, 303-445-2875

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action? We note that generally there are two types of activities that apply to how Reclamation conducts NEPA reviews involving invasive species. For purposes of this response, we will call them “primary actions” and “non-primary actions.” Primary Actions include activities for which control of invasive species is the very purpose of the action (e.g., the *Controlling Quagga Mussels in the Cooling Water System at Davis Dam Using Zequanox* Environmental Assessment (EA) and Finding of No Significant Impact (FONSI); and formal integrated pest management (IPM) plans).

Non-primary Actions includes activities for which the purpose of the action is to execute programs or projects, such as operations, maintenance, or construction activities associated with Reclamation lands and facilities and authorized activities. For these, invasive species management is almost always a consideration and is included as part of a proposed action, best management practices (BMPs), and/or mitigation.

For both types, invasive species are managed within the framework of Reclamation’s IPM policy (ENV P02). The goal of the IPM program is to safely manage pests by the most economical means with the least possible hazard to humans, property, and the environment. As a water and land management bureau, the management of pest species that directly affect water delivery and control systems is of utmost importance. Additionally, goals for Primary Actions include implementing IPMs for facilities, nonnative eradication to sustain native species populations, and control of target species in facilities or water delivery systems.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews? For Primary Actions, invasive species management actions are the same as the Proposed Action under NEPA. For this reason, the stages in which invasive species management actions apply are from the beginning (establishing the purpose and need and developing the project description) through the end (final documentation, such as a categorical exclusion (CE) checklist, environmental assessment (EA)/finding of no significant impact (FONSI), or environmental impact statement (EIS)/record of decision (ROD) and follow-up mitigation and/or monitoring).

For Non-primary Actions, where invasive species management is not the proposed action subject to NEPA review, existing invasive species infestations are analyzed and discussed throughout the NEPA documentation, commensurate with the significance of the invasive species or the significance of the effects of invasive species on various resources. This analysis varies and may include discussion in any or all of the typical NEPA documentation sections, including Proposed Action, Alternatives, Affected Environment, Environmental Consequences, and Mitigation.

c. What level of NEPA review (e.g., CE, EA, and EIS) is being/was prepared for the invasive species management action or proposed action? Which target species are being/were considered? All three levels of NEPA documentation (CE, EA, or EIS) have been applied to pest management activities. Target species are numerous. They include a range of aquatic and terrestrial vegetation, as well as aquatic and terrestrial animals (insects, small mammals, mollusks, etc.).

d. How is/was the ecosystem/location defined and spatially bounded? The spatial bounding of invasive species and their impacts is determined on a case-by-case basis. The following factors are some of our typical considerations:

- The boundary of the Reclamation Project, as it relates to a specific species. This could be terrestrial or a canal/drain/or other waterway depending on the species.
- Surface waters within a watershed; or adjacent areas subject to overspray, drift, runoff, etc.
- IPM management areas.

e. How are/were non-target effects/adverse impacts defined and spatially bounded? Non-target effects and adverse impacts generally are defined as potential harm to non-target native/desirable vegetation within and adjacent to the herbicide treatment areas. These include overspray, drift, runoff, direct or indirect human and wildlife exposure to herbicides, transport of invasive species seeds and vegetative parts on or off site by vehicles and heavy equipment, erosion of exposed soils after weed removal and from mowing prior to herbicide treatments, air quality (dust, herbicide odor, exhaust fumes), and equipment noise.

Effects and impacts typically are spatially bound by areas within and adjacent to the treatment sites where the direct, indirect, and cumulative effects are expected to occur. Considerations include the potential for herbicide drift/overspray/migration, toxicity and recommended application concentrations of herbicides used, use of distance buffers around water bodies, soil types, application methods (use of herbicide spot treatments or wipe-on applications when appropriate instead of broadcast treatments), distances from residences and public use areas, use of public outreach including warning signs and temporary site closures, and use of BMPs (wind speed application limits, dust control, vehicle and heavy equipment cleaning, etc.).

3. What is/was the budget and timeframe required for achieving the goal of the proposed action? Budgets for specific actions are difficult to address, as there is significant variation in the goals and decisions from one project to the next. Further, this type of information is often part of the overall project budget and is not broken out as a separate line item.

Likewise, timeframes for achieving goals of the action are also difficult to address because they vary widely, from temporary construction measures to annual monitoring. Treatments also range widely, from months to the life of the project.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action? Reclamation does not typically track information on budget and timeframes for preparing NEPA documentation on any of its actions, including those for invasive species Primary or Non-primary Actions. Generally, CEs may take as little as 2 weeks and EISs may take up to several years to complete.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review? The following were identified by regional staff:

- Determining the appropriate level of NEPA review (CEC, EA, or EIS) for IPM plans.
- Limitations of data, given range of scientific challenges, such as climate change, availability of data, and complexity of natural systems.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action? The following were identified by regional staff:

- Coordination challenges with other agencies (for example, being subject to other agencies' timing and capabilities regarding IPM activities).

- Controlling invasives is challenging because of the physical, chemical, and structural characteristics of our waterways and lands.
- Limitations of data, given range of scientific challenges, such as climate change, availability of data, and complexity of natural systems.

7. How have the specific challenges identified in questions 5 and 6 been addressed? The following were identified by regional staff:

- Employ MOUs/MOAs with partnering agencies to help establish the roles and responsibilities.
- Provide funding to partnering agencies to implement the IPM plans, as appropriate.
- Regional review of IPM plans to provide comments and consistency across our facilities.
- Establish and maintain an open line of communication with our partners (i.e. O&M managers; State, local & tribal governments) and cooperating agencies.
- Provide training to staff regarding the NEPA process and IPM plans.
- Provide assistance to staff in prioritization of resources and allocation of staff.
- Monitor contracts and contractors.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

- Additional funding for research and improved methods for data sharing to better understand the complexities of natural systems. While there is a wide range of sources already available, a more user-friendly, searchable in-house and/or government-wide “clearinghouse” of data and information would be useful and beneficial to leverage current efforts (e.g., www.data.gov, www.nepanode.anl.gov, etc.).
- Explore the development of large-scale IPM plans within an agency or bureau and across agencies, as appropriate.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control? We believe adequate regulation, policy, and guidance for NEPA already exist. Therefore, the following suggestions, with the exception of the last item, are not directly related to NEPA. Rather, they are guidance areas specific to other coordination, project management, and technical IPM considerations.

- Employ standard project management methodologies to thoroughly understand and execute work activities associated with the NEPA process.
- Efficient and appropriate collaboration and communication within and among agencies.
- To streamline the NEPA process, consider viability of establishing a Department of the Interior and/or Reclamation category (ies) of actions for certain IPM activities, for which additional NEPA analysis is not necessary to conduct certain actions under CEs, as appropriate.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): Again, we believe adequate regulation, policy, and guidance for NEPA already exist. Therefore, the following suggestions are not directly related to NEPA. Rather, they are guidance areas specific to other coordination, project management, and technical IPM considerations.

A) Invasive species prevention

- 1) Continue to follow established BMPs: Limiting open ground on projects, cleaning equipment, controlling seed mixes and other imported materials.
- 2) Continue to educate the public, employees, and contractors on how to prevent spread of invasive species through outreach and information on BMPs, equipment sanitation, and other prevention methods, through personal, training, enforcement, and media outlets, including brochures, bulletins, kiosk, signs, travel restrictions (times of year or type of vehicle, etc.).

3) Make better use of technology for education regarding an invasive species issue – i.e, phone apps or website that is mobile friendly.

B) Invasive Species Eradication

- 1) Suggest several methods of treatment for the particular species you are trying to eradicate. Often combined methods may work better than one method for eradication especially when there might be sensitive species in the area.
- 2) Conduct a plan review when an eradication project is initiated.
- 3) Ensuring adequate funding and resources for NEPA compliance.

C) Invasive species control

- 1) Regular monitoring of sensitive wildlife/vegetation/fish species and noxious weed species across the Reclamation Area Office.
- 2) Look at project landscape and determine different approaches for preventing an invasive species from entering an area.
- 3) Promote coordination of NEPA actions with other public authorities' actions to achieve better coverage and a more holistic and concerted effort to increase efficacy of invasive species control.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112?

Reclamation conducts multiple activities in response to EO 13112's requirements for 1) prevention, 2) early detection and monitoring, and 3) rapid response and control. Across all three activities, there is coordination with other Federal, state, and local agencies, as well as Indian tribes, in working to achieve the goal stated in #1. Below are responses for each:

- a) Prevention. The major activity has been to work toward preventing the spread of two non-indigenous aquatic invasive species within the genus *Dreissena* (quagga and zebra mussels).
 - b) Early detection and monitoring. One region reported that its most intensive efforts are detection and monitoring of *Dreissenid* mussels. Sampling protocols have been established with other management partners, and there are plans detailing how the work would be completed. There is also ongoing monitoring of state-listed noxious weeds. These monitoring efforts are based more on ongoing field observations than a sampling plan.
 - c) Rapid response and control. Reclamation uses IPM framework and plans to guide management of invasive species. These plans all include mechanical or physical control methods applied first, followed by cultural, biological, or chemical controls. In the future, Reclamation will do more work on retrofitting water projects for infestation by *Dreissenid* mussels. New water pipeline intakes, new screening methods, and other infrastructure investments will be required.
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NATIONAL PARK SERVICE RESPONSE

The NPS received feedback from seven parks in the Northeast Region. Comments have been compiled and summarized and are included below.

1. Name/position/contact info: Contact information for each of the eight parks is listed below.

- Input from parks compiled by Terri Hogan (terri_hogan@nps.gov, 970-267-7306)

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

- To have coordinated and comprehensive planning for treatment of invasive, non-native gaps particularly in forest gaps to promote native plant regeneration
- Eliminate wherever possible invasive exotic species
- Protect native plant communities threatened by invasive species. I do not use limited resources on vegetative communities that are already highly disturbed or degraded. I try to keep invasive plants under control at areas where native resources are still plentiful and worth saving.
- Ecosystem restoration via invasive plant species control.
- Varied—from attempted eradication of a newly established species to control/suppression of established plants in priority areas. Basic prevention/best management practices are also included in reviews done of vegetation and ground-disturbing actions.
- Control Forest Pests (e.g., Gypsy Moth, Hemlock Woolly Adelgid, Emerald Ash Borer, Southern Pine Beetle, etc.); Control Invasive Plants (terrestrial) 32 species on the park's "Hit" list; Control Invasive Aquatic animals and plants [e.g. clams, fish, crayfish, nutria, hydrilla, watermeal & duckweed (sewage treatment ponds), milfoil, coontail,]; Control Structural Pests (e.g. mice, rats, squirrels, raccoons, cockroaches, bedbugs, ants, carpenter ants, carpenter bees, birds, bats, snakes) molds/mildew/algae.; Control pathogens (west Nile virus, rabies, butternut canker, Dutch elm disease; Other pests: groundhogs (civil war earthworks), black bears (picnic areas, camp grounds, and gov't quarters), feral cats/dogs/horses/pigs (2 commenters)

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

- Invasive plant mgt. is being incorporated into the park's draft Vegetation & Deer Mgt. Plan/EIS
- Throughout the process
- We do not have an approved invasive species management plan to work from so EVERY invasive species project undergoes NEPA and NHPA review. A PEPC project is opened when the work is proposed. These NEPA documents go back to before 2002. They number in the dozens. Generally, now the park reviews one plant and one animal pest project every two years; T&E state and federal clearances are limited to two years from response date.
- It has varied. For larger more discrete projects the review has been up front during initial planning; for regular, smaller-scale, ongoing work it has not been clear when/how/if to do individual NEPA review or to wait for a comprehensive invasive plant control management planning document to conduct NEPA review.
- We generally start the process for weed management in winter, before the first season of work.

- Anytime native species were involved IPM action may affect an individual or population of rare, threatened, or endangered species: action may affect aquatic ecosystems; introduction of biological controls (e.g., insects to control tree-of-heaven, mile-a-minute vine, purple loosestrife, hemlock woolly adelgid, emerald ash borer, gypsy moth, etc.); IPM Action may affect native non-targets (e.g. gypsy moth spraying of Bt, Bt use to control black fly larvae, neonicotinoids effect on bees) (2 SHEN commenters)

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

- EIS
- Cat Ex
- For invasive plants, projects undergo the state T&E clearance screening and project information is submitted to state and federal agencies if indicated by the screening tool (Pennsylvania Natural Heritage Program PNDI Screening Tool). For invasive pests, Cat Ex has been used in past and a Hemlock Woolly Adelgid (HWA) IPM Plan and EA are underway for long-term control of this pest to protect Eastern hemlock, a culturally historic and naturally important species in some of our five parks. The intent is to tier off the APHIS biocontrol EAs/EISs. For pathogens such as raccoon rabies vaccine that was dropped by helicopter years ago, the park tiered off the national EA/EIS.
- Thus far only Cat Ex. Presumably a park-wide Invasive Species (IS) mgt. plan would be at EA level.
- All weed management to date has been covered under a CE. Prevention has received consideration in a few recent EA documents.
- Here are some examples: gypsy moth spraying EIS (USFS) & EA (park specific); oral rabies vaccine EA; groundhog control (EA); *Laricobius nigrinus* beetle to control HWA [Categorical Exclusion (CE), EA]; Implementation Plan for Managing Invasive Exotic Vegetation (CE) (2 commenters)

d. Which target species are being/were considered?

- There is a list of 37 invasive species that are being considered for removal. At the top of the list are Japanese barberry, Multiflora rose, Oriental photinia, Wineberry, Siebold's viburnum, and Black Swallowwort.
- All invasive vegetation
- Plants – whichever plants pose the biggest threat to natural resources or that interfere with park visitor/recreation (trails)/cultural landscape goals. The species change over the years. In the early 2000s they included Giant/ Japanese knotweed, barberry, shrub honeysuckle, multiflora rose, garlic mustard, oriental bittersweet, garlic mustard were problems in the past but efforts have shifted to Japanese stiltgrass, mile-a-minute weed, and now mugwort. These invasions are worse than the ones the park contended with in early 2000's. Animal/insect pests targeted include those that threatened the dominant or co-dominant tree species such as HWA, Asian long-horned beetle, pine and walnut beetle pests. Hemlock and beech scales and tree fungal pathogens are also a concern.
- Approximately 20 species. These include *Phragmites australis*, *Ailanthus altissima*, *Cynanchum louiseae*, *Rosa multiflora*, *Rosa rugosa*, *Lepidium latifolium*, *Acer platanoides*, *Celastrus orbiculatus*, *Fallopia japonica*, *Lonicera morrowii*, and *Lythrum salicaria*.

- Many – the park has a list of about three dozen target spp.
- See (c) above (2 commenters)

e. How is/was the ecosystem/location defined and spatially bounded?

- By forest stands
- Virginia, Mid-Atlantic; Piedmont/Coastal Plain
- Forests, fields/meadows and wetland areas are identified within the park. Limited resources are then applied in a site-specific manner, with the project boundaries defined by the problem itself and the goal/objective (for example, natural plant community protection, visitor aesthetics, or trail maintenance).
- For individual projects the area has been defined by the target IS populations, as mapped and integrated into park GIS.
- Priority areas for control are defined by a buffer (typically 500 m) around resources to be protected. Work on species targeted for containment or eradication is dictated by the known distribution of the target species.
- GIS using a variety of databases. GPS instruments are used in the field. (2 commenters)

f. How are/were non-target effects/adverse impacts defined and spatially bounded?

- They have not been defined or spatially bounded yet.
- In spray areas.
- We most often use spot treatments, but non-target effects are an issue when broadcast spraying large swaths of plants. We try to use herbicides that are specific to the plant pest (grammacides, etc.) and the EPMT is our biggest advisor in selecting these.
- Methods for us are usually manual and/or cut-paint herbicide, as opposed to spraying. Non-target effects are thus minimized, and are mentioned in ESF. No particular effort has been made to spatially bound the non-target effects.
- Priority areas for control are defined by a buffer (typically 500 m) around resources to be protected. Work on species targeted for containment or eradication is dictated by the known distribution of the target species.
- They've only been considered within the proposed control/work area.
- Gypsy moth Bt spray operations can affect many non-targets; HWA and EAB insecticide treatments are done on individual trees with minimal threat to non-targets.; Foliar herbicide treatments are more likely to threaten non-targets. The park has 91 rare plant species that consist of hundreds of populations. Each known population is mapped, including a qualitative/weighted value assigned for each known location. For example, a rare plant location with an accurate GPS point (determined by park GPS standards) is given a point location in GIS which is accurate to a meter or two. Historic records (e.g., some old herbarium specimens) may only list a location description as an island, drainage, distance from a landscape feature, etc. These records are still valuable records that are placed in GIS with a circle-polygon that varies in size based on the accuracy of the individual location description, lat/long, etc.; Rare species, sensitive habitat (e.g.

forest seep, cliff ecosystem), etc. are “spatially bounded” using defined buffers, and/or conducting field surveys to pin-point non-target locations to be avoid by IPM actions.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

- Budget & time frame will be incorporated into park’s Vegetation & Deer Plan/EIS.
- As long as it takes.
- The budget is irrelevant. I apply whatever is available to the highest priority problems. I have many more invasive species than I will ever be able to fund for control/suppression. USFS funds are our only money source for trees (HWA) and I use as much of my park division budget to match the Northeast EPMT project visits.
- Budget \$500-\$5000 out of park base / salaries, timeframe 6-12 months (5 reviews); Budget \$10-\$20K from project funds, timeframe 3-5 years (1 review).
- Nearly all control work is project funded, with a 3 to 5 year time frame, and a budget (not including in-kind park contributions) of \$100K over three years.
- Environmental Assessments generally cost thousands of dollars in park staff time and take approximately six months to complete.; Examples: Implementation Plan for Managing Invasive Exotic Vegetation (CE). NEPA cost approx. \$4,000 and took four months.; Biological Control Beetle Release to Control Hemlock Woolly Adelgid, *Laricobius nigrinus*, was a CE and cost approx. \$4,000 and took 2 months for internal review.; Ground Hog Control Program (EA) cost approximately \$8,000 and took approximately 6 months.
- This is very variable. Some projects have money set aside for control work, others do not. On large construction projects we ask for up to three years of follow-up, but typically only get about one. It is complicated to add these requirements after the project design and contracting is complete. (300+ projects reviewed)

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

- There is not a separate line item in the Vegetation & Deer Plan budget for NEPA review. Timeframe is the end of FY 16.
- Catex – not much, not long
- The parks cannot afford to pay a contractor. NR staff for five parks consists of one person. So, some invasive project EAs have been shelved since 2009. NR staff will try to complete the HWA biocontrol EA again this winter. No easy task.
- No budget. Timeframe for small-scale discrete projects = 20-40 hours. Timeframe for larger project 80+ hours.
- To date, both have been minimal. The park has started including a compliance add-on in the PMIS process of a few percent of the first-year component cost.

- See previous (#3)
- NEPA review work is a collateral duty of staff subject matter specialists. Some money is available from Fee projects to offset costs of the NEPA review process. At this time, no financial support is provided by any other types of projects. Staff get anywhere from about 1 month to two years notice about upcoming projects that have invasive plant implications. Unless expedited, it typically takes a project 3 – 9 months to make it through our review process. (300+ projects reviewed)

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

- Invasive plant management actions were not originally part of the Vegetation & Deer Plan. Incorporation of invasive plant actions have delayed completion of the Vegetation & Deer Mgt. Plan.
- Nothing, as long as a CatEx is available for the project.
- For Cat Exs, it is identifying the compliance need about 3 or 4 months in advance to get the required state and federal clearances. Planned EPMT work has been cancelled when agency letters were not sent out in time. Also, the decline of bats due to White-nose Syndrome has been the biggest impediment and has limited IS treatment. Park staff was limited to winter spraying for HWA but it freezes so is an equipment issue and there is snow cover for the time bats hibernate, so is not possible to use some methods. New labels for soil injection have helped some as that is less threat to bats in tree bark, but is more expensive to apply.
- Lack of clarity on how regular ongoing work should be handled in NEPA.
- With no park compliance specialist, and other specialist vacancies, reviews sometimes take quite a while.
- WASO IPM coordinator was always helpful with answering technical questions concerning NEPA, but neither she nor the NER IPM Coordinator ever assisted with NEPA preparation. There needs to be more coordination with Region and WASO IPM Coordinators. In some cases, these entities are probably better suited to taking the lead on preparing NEPA documents, especially if multiple parks are addressing the same issues (e.g., Asian long-horned beetle, bedbugs, southern pine beetle, mountain pine beetle, cheat grass, etc.). Funding NEPA compliance is often the burden of the park, where underfunded resource mgmt. divisions just don't have the money. PMIS projects are not the means to fund NEPA compliance since PMIS project money arrives at the same time work is to commence. NEPA should have already been completed before the project money arrives. The burden of preparing NEPA documents often falls on the park staff to complete and most parks only have one staff person responsible for IPM. Can the Environmental Quality Division assist parks, with both staffing and money to complete complicated NEPA actions?
- NEPA reviews are often delayed because we are not given enough specific information about the exact techniques and equipment to be used, and the exact location of the work. (300+ projects reviewed)

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

- Although not originally in the Veg & Deer Plan, incorporating invasive species mgt. actions allows for a more efficient process because public meetings & review are needed for the Veg. & Deer Plan/EIS.
- None (Cat Ex used)
- Lack of money to hire contractors to write EAs and multiple positions being removed from our org chart to save \$\$\$ and balance our budget so there is more work to do in less time. So, if it needs an EA, it probably does not get done in a timely manner.
- None – limitations are more on the staff / budget side of things. If more projects were to receive NEPA review it would further limit our ability to have our small staff out in the field.
- NEPA isn't really a limiting factor in achieving weed management. Funding is the problem. With prevention activities, the challenge has been in ensuring that best management practices are followed.
- Lack of more programmatic Categorical Exclusions
- Weed management actions typically move through NEPA relatively quickly. Our problem is with ensuring that weed management and restoration is done / done correctly after large soil disturbing construction projects. (300+ projects reviewed)

7. How have the specific challenges identified in questions 5 and 6 been addressed?

- By incorporating potential invasive plant control actions into Veg & Deer Plan alternatives, NEPA requirements such as public notification can be incorporated into one streamlined process.
- Non-issues (Cat Ex used)
- We Cat Ex what we can and do not complete the projects that require EAs.
- Not addressed.
- The park will soon have a compliance specialist to oversee the process.
- No response
- We will soon have a compliance specialist to assist project managers with PEPC, expedite the review process, and assist with ensuring that NEPA mitigations are followed. (300+ projects reviewed)

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

- Finding time to deal with writing plans & meeting requirements of NEPA along with regular park duties.
- No challenges (Cat Ex used)
- Money for EAs, or NPS-wide EAs for pest biocontrols that parks can tier off of or Memo to File.
- Guidance at National/regional level, including sample IS management plans and associated NEPA processes would help facilitate. Having access to technical support for these tasks from EPMT

and/or IPM program staff would help. Specifically, most IS projects are long term – what is the best way to address that effort in a NEPA context?

- Our new compliance specialist should help with any hurdles the NEPA process presents. This individual and park staff specialists are best positioned to address any challenges.
- Something that would help is for WASO to conduct the NEPA analysis for IPM actions on a particular species that affects several parks, e.g., hemlock woolly adelgid. This analysis would address all appropriate treatment actions on the pest, sensitive resources, etc. Parks would provide all necessary resource data for the NEPA analysis, but the WASO contractor would prepare the EA or EIS. Current management practices are piecemealed approach to NEPA that has park's conducting individual NEPA compliance that is very similar. This management practice is very inefficient and extremely onerous on park's small resource management staffs.
- A compliance specialist working in concert with park staff subject matter specialists involved in the NEPA review process. (300+ projects reviewed)

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

- An invasive plan template that includes regulatory aspects of control would be helpful.
- Rework / rewrite the Cat Ex E2 to break out the elimination and/or control of exotic species into a separate Cat Ex – so it clearly states control and/or elimination of exotic species is permitted.
- Eradication is not possible. Control and limiting spread need to be the goals. This cannot be achieved without training Maintenance/Facility Management Divisions in how they are spreading plant propagules and insect pests from one area of a park to another area or to another park.
- See 8
- Though NEPA hasn't really hindered eradication/control, any service wide standards related to weed management could potentially improve the process.
- No response
- Standard mitigations (tailored to each ecoregion of the US and available in PEPC) that address ways to prevent spread of invasive species. Ideally these mitigations would be grouped so that they did not have to be individually selected in PEPC. That process takes a LOT of time when you are trying to review 80+ projects per year in your "spare" time. (300+ projects reviewed)

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

(a)

- a. Collaboration, communication and coordination with public & neighboring landowners; eradication
- b. Train maintenance and facility management staff in least disturbing methods and prevention of propagule spread; encourage portable vehicle/equipment wash stations; educate contract personnel on how to put language in contracts to limit introduction or spread of invasive species(for example, must use weed-free certified seed, etc)

- c. Early detection protocols, including use of mobile apps
- d. General BMPs for ground and vegetation disturbance could potentially be useful, though the USFS guidance based on the Wisconsin BMP manual provides good info
- e. WASO could assist in preparing blanket NEPA documents to address Early Detection actions for multiple parks or regions.
- f. Equipment cleaning, ground disturbance limitations, regionally appropriate native plant restoration guidelines.

(b)

- a. Determine non-target effects & impacts, determine strategies & goals for eradication, developing monitoring plan; control
- b. Not possible
- c. 1) IS mgt. planning integrated with archaeological protection procedures, 2) Parkwide IS mgt. plans, 3) herbicide use; Guidance on when eradication should even be attempted is hard to find
- d. WASO may need to set priorities for species eradication, for instance, a newly introduced pest that can do great damage but is easily controlled before it expands its range, e.g., Asian long-horned beetle.
- e. Correct/verified species identification, rapid response (after verification!), guidance on when to attempt eradication vs control.

(c)

- a. Determine non-target effects & impacts, determine strategies & goals for control, developing monitoring plan; prevention
- b. Acquire funds or EPMT help (volunteer projects have never worked well for us, not intensive enough, I received complaints of too much walking – but I cannot move the plants to the VC)
- c. Target limited resources to most threatening species
- d. Follow up for three to five years with spot control
- e. Same as list for b
- f. Service-wide guidance on acceptable techniques for long-term suppression/control of established species might be useful
- g. WASO needs to ensure that every park with invasive species has a NEPA document in place to cover IPM actions for invasive plant and animal pests. For example, the National Fire Program prepares Fire Mgmt. Plans for parks with burnable vegetation, which frees-up the park staff to focus on individual prescribed fire plans.
- h. Guaranteed treatment and restoration follow-through by project managers after soil disturbing projects, adequate funding and staff time, realistic objectives and work-rate calculations.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

- By incorporating invasive plant actions into the Vegetation & Deer Mgt. Plan, NEPA compliance will be completed. Due to the extent of invasive plants, strategic park-wide removal of certain invasive species is needed to restore native plant populations. Monitoring of park vegetation including invasive species is accomplished by the Northeast Temperate Monitoring Network. Twenty five years of research completed concerning park vegetation was the justification for funding a Vegetation & Deer Mgt. Plan. Invasive plant education is incorporated into park interpretive programs. Native plants are utilized in gardens and landscapes.
 - Scoping out areas of exotic species and working on controlling and eradication where appropriate and feasible
 - The NRM Specialist and park NEPA advisor remind all project leaders of the need to minimize disturbance, clean equipment and other mitigations to reduce invasions or spread. Advice is not always heeded so this information was added as "Mitigation" in PEPC. This becomes part of the official record and is included on the Cat Ex which is given to all project leaders. With the prevalence of IS in parks and adjacent lands, maintenance work cannot be conducted without raising the risk of new or worsened infestations.
 - The park has an active, albeit small, program to control invasive plants. Prevention is also given consideration during the review process for projects that may result in disturbance. No resources are typically available, however, to ensure that mitigations are being followed.
 - Parks use only native plant species on park projects and requires cooperators to do the same, e.g., WVDOH, utility companies, etc. The Invasive Species Crew is a member of the West Virginia Invasive Species Working Group that meets biannually to discuss IPM affecting multiple agencies across the state. In the recently adopted 5-Year Strategic Plan, a primary goal is the establishment of a Cooperative Invasive Species Management District that would manage invasive species inside and outside the park. A similar area in West Virginia is the Potomac Highlands Cooperative Weed and Pest Management Area www.phcwpma.org. This is an ambitious project that will require technical assistance and monetary support from IPM personnel in WASO and Region. A Scoping Workshop was recently hosted by The Nature Conservancy.
 - The problem is MUCH larger than can be addressed with park staff and the EPMT. It seems like very little is done to prevent the introduction of invasive plants despite mitigations being added to every soil disturbing project done in the Park. Weed prevention is also given consideration during the review process for projects that may result in disturbance. No resources are typically available, however, to ensure that mitigations are being followed.
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OFFICE OF INSULAR AFFAIRS RESPONSE

1. **Name/position/contact info:** Esther Kia’aina, Assistant Secretary for the Insular Areas, esther_kiaaina@ios.doi.gov

2. **With regards to your current and/or past NEPA reviews involving invasive species issues:**

a. **What is/was the goal of your proposed invasive species management action?**

The Office of Insular Affairs (OIA) has primarily focused on our brown tree snake program. The primary objectives of brown tree snake activities are to control and ultimately eradicate the brown tree snake from the island of Guam and prevent the spread of the brown tree snake to other locations, particularly Hawaii, the Commonwealth of the Northern Mariana Islands, and other areas in Micronesia.

b. **At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?**

OIA provides funding to other agencies and grantees to carry out activities to control the brown tree snake. OIA has a broader EA that covers general actions that are funded. In addition, grantees may have their own EA for brown tree snake control and interdiction efforts.

c. **What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?**

There is a general EA for brown tree snake control activities but individual funding recipients may also cover their actions with a CE, EA, or EIS specific to their activity.

d. **Which target species are being/were considered?**

The brown tree snake, *Boiga irregularis*.

e. **How is/was the ecosystem/location defined and spatially bounded?**

Activities occur in Guam, Hawaii, the Commonwealth of the Northern Mariana Islands, and occasionally other areas in the Pacific.

f. **How are/were non-target effects/adverse impacts defined and spatially bounded?**

The same geographic scope listed in 2(e) was used.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. **What is/was the budget and timeframe required for achieving the goal of the proposed action?**

OIA typically funds five to six projects annually with a budget of \$3.5 million. Projects are ongoing and vary by project. The overall objectives of the brown tree snake control efforts are long-term and ongoing.

4. **What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?**

The budget information for the EA of the overall brown tree snake control effort is not available.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

One challenge for OIA is how to ensure that the appropriate OIA staff have proper training in NEPA compliance. Another challenge has been getting OIA's NEPA guidance incorporated into the Departmental Manual.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

Working under the general EA, OIA has not faced specific challenges but departmental partners in the brown tree snake control efforts have had issues identifying and working with stakeholders to complete compliance efforts.

7. How have the specific challenges identified in questions 5 and 6 been addressed?

With regard to question #5, a previous OIA staff member went to NEPA training but has since left the office. OIA could enroll OIA staff in future NEPA related training courses but currently contracts with the U.S. Army Corps of Engineers to assist OIA in NEPA compliance. We are also working with the Office of Environmental Policy and Compliance to have OIA's NEPA guidance incorporated into the Departmental Manual. For question #6, ongoing discussions are required with grant recipients.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

Occasional training offered by the department for any interested subagency or office could help provide knowledge and training for offices who infrequently or sporadically deal with NEPA, yet still need to be aware of how to comply with the law. OIA is also considering establishing a position specifically to handle natural and cultural resources management, which would be the appropriate position to address NEPA and other environmental issues.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

Whatever NEPA guidance is disseminated, it would be helpful to ensure the information is distributed to all parts of the department and that all are aware of the existence of general guidance.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

OIA proposes the same three priorities for each of the three categories:

- Proper education on the application of NEPA
- Development of templates for use by agencies
- Disseminating general standards and guidelines to all parts of the department

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

OIA, using its current program authorities, is working to improve the efficacy and cost-effectiveness of the

brown tree snake program by supporting an automated bait delivery system.

Additionally, OIA will be strengthening our capacity to address other invasive species issues beyond brown tree snakes and is supportive of proposed actions in the *2015 Biosecurity Plan for Hawaii and Micronesia* and other invasive species eradication efforts. In order to assist with these actions, OIA has requested a \$1 million increase in its 2017 budget for its Coral Reef and Natural Resources program. The increase would augment control and eradication efforts of two particular invasive species, the Coconut Rhinoceros Beetle and the Little Fire Ant.

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT RESPONSE

1. Name/position/contact info: Robin Ferguson, 202-208-2802

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action? The Office of Surface Mining Reclamation and Enforcement (OSMRE) is not a land management agency and, therefore, has not established a proposed invasive species management action. OSMRE is a regulatory agency and has no direct management responsibilities or authorities to undertake management actions to address invasive species on public or private lands. However, OSMRE's regulations implementing the Surface Mining Control and Reclamation Act of 1977 (SMCRA or the Act) at Title 30 Parts 700 through 999 of the Code of Federal Regulations (CFR) contain requirements for operators to reclaim coal mining sites during and after mining. Pertinent to this question, these regulations define "noxious plants" to mean species that have been included on official State lists of noxious plants for the State in which the surface coal mining and reclamation operation occurs. 30 CFR 701.5. Most importantly, the performance standards for revegetation of regraded and disturbed areas require that permittees use plant species that meet requirements of applicable State and Federal laws and regulations concerning noxious plants and introduced species. 30 CFR 816/817.111(b)(5).

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews? There are numerous stages in the planning processes for both active mining with a Federal nexus and abandoned mine land (AML) projects where invasive species may be addressed in NEPA analyses. Invasive species management actions would be reviewed under NEPA in the context of reclamation plans for active mining permit applications with a Federal nexus and in plans developed for reclamation of abandoned mine lands.

Projects to address areas affected by past coal mining under the AML program can include reclamation and restoration of abandoned surface mine areas, abandoned coal processing areas, and abandoned coal refuse disposal areas; sealing and filling abandoned deep mine entries and voids; planting of land adversely affected by past coal mining to prevent erosion and sedimentation; prevention, abatement, treatment, and control of water pollution created by coal mine drainage, including restoration of stream beds and construction and operation of water treatment plants; prevention, abatement, and control of burning coal refuse disposal areas and burning coal in situ; and prevention, abatement, and control of coal mine subsidence.

For active mining, OSMRE conducts the review of coal mining activities through NEPA analysis for a specific subset of operations depending on the ownership of the land and coal and the identification of the SMCRA regulatory authority. SMCRA provides that any State may obtain primary jurisdiction over the regulation of surface coal mining and reclamation operations on non-Federal and non-Indian lands through submission of a program for administration and enforcement of the provisions of the Act. A State's program becomes effective after review and approval by the Secretary of the Interior. To date, all but two of the 26 states where coal mining is currently occurring have achieved approval to serve as the regulatory authority over their state programs. OSMRE maintains a limited role in a State with an approved program. In general, OSMRE retains direct regulatory authority over the Act in the two coal-producing states, Washington and Tennessee, which do not have approved state programs and on Indian lands. In these two states and on Indian lands where OSMRE is the regulatory authority, OSMRE prepares NEPA documentation regarding permits and permit revisions for active mining.

Prior to mining federal coal, a lessee/applicant must traverse a three step process: the Bureau of Land Management (BLM) must issue a coal lease, the SMCRA regulatory authority must issue a coal mining permit, and the Department of the Interior (DOI) must approve a mining plan. DOI, but not exclusively OSMRE, conducts one or more NEPA reviews before federal coal can be mined. Additionally, when federal coal is mined on lands where the surface is managed by a federal agency, OSMRE is required to consult with the federal land managing agency

during the permit application review. Mining of federal coal on lands where the surface is managed by a federal agency not within the DOI requires OSMRE to consult with the managing agency to obtain consent on the terms of the mining plan prior to approval by DOI. Where the federal land is within a National Forest, certain findings must be made before a permit for conducting surface coal mining operations on these lands may be issued. Each of these steps in the process provides opportunities for the respective agencies and decision makers to consider the implications of the proposed action on invasive species and opportunities to insert management and mitigation efforts where appropriate.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action? As explained above, OSMRE does not conduct programs to directly address invasive species but instead considers invasive species within NEPA analyses in the context of other primary actions (e.g., reclamation of abandoned mine lands or mining plan approvals). Therefore, the primary action determines the appropriate level of NEPA review; OSMRE has had no circumstance where invasive species dictated the appropriate level of NEPA review.

d. Which target species are being/were considered? OSMRE has not established target species. The location of the proposed activity dictates what species would need to be considered; in the case of nationwide regulatory rules or revisions, a specific target species would be inappropriate. OSMRE is, however, working very hard on regulatory revisions under its Stream Protection Rule that would provide additional requirements and measures relating to the identification and control of invasive species. These measures would include requirements that permit applicants identify the presence of invasive species in assessing the baseline condition, and requirements to revegetate with native species and to salvage and replace soil and organic matter to improve the success of revegetation with native species.

e. How is/was the ecosystem/location defined and spatially bounded? Boundaries are determined on a project-specific/permit-specific basis.

f. How are/were non-target effects/adverse impacts defined and spatially bounded? Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review. This question is not particularly relevant to OSMRE actions. For example, OSMRE does not carry out herbicide eradication programs where it would need to address non-target effects. Non-target effects for actions that OSMRE would be reviewing under NEPA would include the promotion of some species to the disadvantage of others, from reclamation activities within a SMCRA permit boundary or during the reclamation of an abandoned mine site. These effects would typically be considered in coordination during the project/permit planning and review by managers within the SMCRA regulatory authority in consultation with the appropriate state or federal fish and wildlife agency, and, in some cases, by OSMRE during the mining plan approval process for federal coal.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action? OSMRE does not receive any appropriations for the control of invasive species.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action? OSMRE does not receive any appropriations for the control of invasive species.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review? The delegation of primary SMCRA authority to most coal-producing states, as SMCRA intends, limits the extent of OSMRE's NEPA review, including the analysis of invasive species.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action? OSMRE's ability to address invasive species is limited by the scope of its authority under SMCRA and the Mineral Leasing Act for mining plan approvals of federal coal.

7. How have the specific challenges identified in questions 5 and 6 been addressed? As mentioned above, OSMRE is currently working on its Stream Protection Rule; the proposed rule contains provisions that would provide additional requirements and measures to address invasive species concerns.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need? The rulemaking process and any resulting litigation contain challenges, some of which are not totally within OSMRE's control. If finalized as proposed, requirements in the proposed Stream Protection Rule would increase the degree to which invasive species are addressed in the implementing regulations for SMCRA.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control? None, from OSMRE's perspective. Invasive species eradication efforts must be site specific and therefore general guidance on NEPA for these actions would not be particularly helpful. For example, general guidance would not be helpful in determining whether to control invasive species through prescribed burning or herbicide application (i.e., the range of reasonable alternatives) because these alternatives would depend on a large list of site specific variables that would not be addressed in a general guidance document.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total):

- (a) invasive species prevention;**
- (b) invasive species eradication; and**
- (c) invasive species control?**

Not applicable; general guidance under NEPA for invasive species eradication and control would not be helpful to OSMRE. Specific guidance from agencies with regulatory authority and expertise over issues related to the control and eradication of these species would be helpful. For example, a specific guide from USDA would be helpful in determining methodologies and best products for specific invasives. A guide from EPA on secondary effects from herbicides or burning and what toxicological factors to consider would be helpful. A guide from the USFWS with recommendations on things to consider when listed species are in the area of direct or indirect effects of measures taken to prevent, eradicate, and control invasive species would also be very helpful.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

As required by Section 2 of Executive Order 13112, OSMRE has prepared a program of regulatory oversight that contains requirements for coordination regarding revegetation of mine sites and restoration of abandoned mine lands to ensure that all surface coal mining and reclamation operations, to the extent possible using the best technology currently available, minimize disturbances and adverse impacts of the operation on fish, wildlife, and related environmental values, and achieve enhancement of such resources where practicable. This includes requirements within the reclamation plan approval and coordination process to ensure that OSMRE does not authorize actions that are likely to cause or promote the spread of invasive species.

OSMRE continues to oversee the implementation of existing requirements at 30 CFR 816.111. Under these regulations, revegetation of mine sites would continue to be performed using native species or introduced species selected to support the postmining land use. OSMRE's existing regulations would continue to prevent approval of revegetation plans proposing to use species identified as noxious.

Additionally, OSMRE is actively pursuing changes to its regulatory program to improve the success of native species restoration on mine sites, in accordance with the requirement of EO 13112 to “provide for restoration of native species and habitat conditions in ecosystems that have been invaded.” OSMRE has recognized that maintenance, restoration, or establishment of riparian corridors or buffers, comprised of native species, for streams is a critical element of stream protection. OSMRE’s proposed rule emphasizes revegetation with native species, restoration of natural plant communities whenever there is no conflict with implemented postmining land uses, and the protection or establishment of riparian corridors along streams to promote protection, restoration, and enhancement of fish, wildlife, and related environmental values.

In particular, the proposed Stream Protection Rule would:

- Require use of noncompetitive and non-invasive species as cover crops and hay mulch that is free of weed and noxious plant seeds.
- Require permit applicants to describe measures they will take to avoid the establishment of invasive species on reclaimed areas or to control those species if they do become established.
- Require selection of non-invasive native species within the revegetation plan.
- Require revegetation of reclaimed minesites with native species unless and until a conflicting postmining land use, such as intensive agriculture, is implemented.
- Require planting native species, including, when appropriate, species adapted to and suitable for planting in riparian zones, within a corridor at least 100 feet in width on each side of perennial, intermittent, or ephemeral streams proposed to be disturbed during an operation.

U.S. GEOLOGICAL SURVEY RESPONSE

1. Name/position/contact info: Esther Eng, Chief, Environmental Management Branch, eeng@usgs.gov, 703-648-7550

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

The goal of our actions will be to produce scientific information relevant to the ecological impact. Scientists research factors contributing to introduction and spread, and prevention, control, and restoration techniques pertaining to invasive species. This research sometimes involves either:

- handling and manipulation of invasive species of interest as a focus within the research program; or
- invasive species-related matters as sequelae to biosecurity concerns in our field-based research efforts.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

If the USGS is the lead agency for these research studies, NEPA is initiated before new studies are initiated. Otherwise, the lead agency defines the timing.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

The U.S. Geological Survey (USGS) engages in ecological research addressing invasive species. Most activities are categorically excluded under:

- 516 DM 9.5 B. Collection of data and samples for geologic, paleontologic, hydrologic, mineralogic, geochemical, and surface or subsurface geophysical investigations, and resource evaluation, including contracts therefor, and
- 516 DM 9.5 N. Other actions where USGS has concurrence or co-approval with another Department of the Interior bureau and the action is a categorical exclusion for that bureau.

c. Which target species are being/were considered?

Target species include, but not limited to:

- cheat grass (*Bromus tectorum*),
- medusahead (*Taeniatherum caput-medusae*),
- woolly adelgid (*Adelges tsuga*),
- crayfish (*Procambarus clarkii* and *Orconectes n. neglectus*),
- brook trout (*Salvelinus fontinalis*),
- common carp (*Cyprinus carpio*),
- bullfrog (*Lithobates catesbeianus*),
- Jewelfish,
- Cichlids,
- swamp eels,
- Lionfish,
- Amphibians (Cuban Tree Frogs), and
- Reptiles (Boa Constrictors)

d. How is/was the ecosystem/location defined and spatially bounded?

This will vary according to the scale and design of each study. The lead agencies define the ecosystem/location and spatial boundary.

e. How are/were non-target effects/adverse impacts defined and spatially bounded?

Impacts are defined and spatially bounded according to the scale, design, and methods proposed for each study. Lead agencies also provide these bounds.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

N/A

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

N/A

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

N/A

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

The USGS is not normally the lead agency on these actions. This creates a lack of knowledge base and pool of expertise within the bureau.

7. How have the specific challenges identified in questions 5 and 6 been addressed?

Generally, the USGS is not the lead agency on NEPA evaluations. However, the USGS identifies the risks of activities and develops plans, procedures, protocols, and countermeasures to limit the spread in invasive species. It is critical to protect our experimental organisms and many of the methods employed have the additional effect of eliminating the risk of transporting, culturing, and potentially releasing invasive species.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

Regulations should be reevaluated to ensure they keep up with the latest research, and keep the public better informed of invasive species (such as GMO grass, corn, and soybeans) and the corresponding harm (e.g. damage to riparian zones).

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

- Provide easy to understand guidance.
- Develop a standardized checklist.
- Provide a tool that relates the risk analysis and abatement to monetary benefits. For example, by leaving some of the land relatively wild, the money and time saved on lawn care and irrigation is \$1000/month, while increasing biodiversity and natural beauty.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

(a): Sanitize experimental animals and effluent before disposal.

(b): Monitor for invasive species and cull them from facility grounds.

(c): Sanitize wild-caught animals and effluent before cultivation.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

Normal practices and procedures for managing risk of spread of invasive species include:

- Performs risk analysis and develops actionable plans prior to conducting research work on and off site,
- Sanitizes wild-caught animals and effluent before cultivation,
- Monitor for invasive species and cull them from the facility,
- Regularly sanitize equipment used for cultivation,
- Sanitizes experimental animals and effluent before disposal, and
- Sanitizes equipment before and after field deployment.

Restricted non-native species cultured outdoors may only be held in a water body which has the lowest point of its levee, dike, bank, or tank at an elevation at least one foot above the 100 year flood elevation as determined by elevation maps issued by the National Flood Insurance Program of the Federal Emergency Management Agency (FEMA).

No live, restricted non-native aquatic species or their hybrids may be sold, loaned, given away, or otherwise transferred to persons who are not specifically permitted to receive them.

All live, restricted non-native aquatic species or their hybrids that leave the facility must be accounted for through records that are maintained at the facility and made available upon request by the Department.

The production facility shall have no water discharge or shall be constructed with a barrier system designed to prevent the escape of restricted aquatic species.

Any modifications to the culture system containing restricted non-native aquatic species or their hybrids must be reviewed for approval by the Department.

The Department's Division of Aquaculture makes periodic on-site inspections to ascertain compliance with the specific containment criteria and record keeping referenced in the Best Management Practices. Inspections occur every three months.

Biosecurity standards are put in place to minimize the potential for translocation of any invasive species in the aquatic environment. An example of the standard (*Biosecurity Guidelines for Practices Associated with Field Operations Leetown Science Center*) is below.

When working with invasive species, scientists are trained to be aware of any potential hazards or risks related to potential inadvertent introductions or escapes and to incorporate safeguards against such occurrences in their proposed research. If an invasive species is the focus of a research study at the Center, then the biosecurity measures that will be in place to deal with this species in either a field or laboratory environment will be described in the accompanying study documentation, which would include one or more of the following: (1) the approved study plan that accompanies each project, (2) the animal use protocol which is approved prior to the onset of the research, or (3) the biosecurity protocol which may accompany a research project which merits elevated biosecurity measures.

Attachment – LSC Biosecurity protocol (2011):

Biosecurity Guidelines for Practices Associated with Field Operations Leetown Science Center

Field work carries the unavoidable risk of pathogen or exotic species introductions into uninfected/unoccupied waters and/or laboratory facilities. Likewise, field operations and animal transport involve the risk of exposing wild populations of aquatic animals to disease agents from laboratory stocks. The objective of this policy is to define a set of standard biosecurity protocols applicable to all branches and components of the Leetown Science Center that maintain aquatic animals and/or conduct field operations as part of their research programs. Specific guidelines and instructions applicable to individual facilities or work stations may also accompany this document to provide further clarification regarding mandated protocols.

A. Boat Disinfection Practices for All Waters

Boat transfer guidelines have been widely distributed to the public through a variety of publications and pamphlets, signs, etc. The guidelines consist of a nationally-accepted set of prevention steps to prevent the spread of invasive species such as the zebra mussel, Asiatic clam, water milfoil and *Didymo* algae (“rock snot”). It is also important that LSC staff follow the same guidelines to insure that we are not contributing to the spread of invasive aquatic species through our work activities. In general, these guidelines are as follows:

Before moving a boat from one body of water to another or returning a boat to dry storage following field use:

1. **Inspect** and **remove** aquatic plants, animals, mud, and other debris from your boat, trailer and equipment.
2. **Drain** all water from your motor, live well, bilge, transom wells, etc.
3. **Wash** your boat and equipment with hot (>104° F) and/or high pressure water, particularly if moored for more than one day, **OR**
4. **Dry** your boat and equipment thoroughly for 5 days.

Steps 1 and 2 of this procedure should be accomplished at the point at which the boat is removed from the water. If working at a marina check to see if the facility has a wash down area or hose at the launching ramp. Steps 3 & 4 should be completed when the boat is returned to the facility for storage.

B. Gear Disinfection Practices for all waters

1. Nets

Organic debris should be rinsed or washed off nets in the field as much as possible. Upon return to the field station, the remaining organic debris should be removed (garden hose or power washer spray) prior to disinfection. Nets should be placed in the disinfection solution for the appropriate contact time for the solution being used (see Table 1 for times). After rinsing, the nets can be used immediately, or hung to dry. Due to the difficulty inherent in thoroughly cleaning and disinfecting nets in the field, use separate nets for each distinct water body.

2. Personal protective gear, including rain gear, gloves, boots/waders

In the field, rinse and scrub protective gear with water to remove any organic material. Upon return to the field station, scrub personal protective gear with the disinfection solution. After scrubbing, the gear should be kept wet with the disinfection solution for the appropriate contact time (see Table 1 for times) and rinse with clean water.

3. Dip nets, measuring boards and other aquatic animal sampling gear

Remove any organic material from sampling gear in the field before applying any disinfecting agent. While there are a number of disinfectants with good activity against a variety of pathogens, parasites, and invasive organisms, the most preferable options for field use are also environmentally friendly. This includes disinfectants that are either readily biodegradable or may be inactivated in field settings. The most preferable of these options for field use are outlined in Table 1. Regarding general methods of small gear disinfection for field work, there are a few options, as follows:

- Option one: The gear can be rinsed to remove any visible debris, then sprayed or otherwise treated with the disinfection solution and a wet surface maintained for the appropriate contact time (see Table 1 for time). The gear should be rinsed with clean water before it is used again. If a “clean” water source is not available, the gear can alternatively be pre-rinsed with water from the first water body, treated with disinfectant, and rinsed with water from the second water body following land transport and prior to reuse. This option is unlikely to be practical for large items or dip nets, and should be reserved only for the smaller gear that can be easily and safely cleaned in the field.
- Option two: Fill a tub with disinfection solution and place all equipment in the tub for the appropriate contact time (see Table 1 for time). The gear should be rinsed with clean water or water from the next water body before it is used again, and disinfectant should be transported back to the field station for proper disposal. This option is only practical if disinfectant and rinse water are environmentally safe and can be kept out of surface waters on site.
- Option three (preferred): Use a completely new set of gear for each water body during the work day and disinfect all gear at the end of the day using option one or two. Again, every effort should be made to keep the disinfection solution and rinse water out of surface waters.

4. Biological samples, aquatic animals, and sampling equipment

- Secure all biological samples and specimens (living animals, dead animals, tissue specimens) in closed containers to prevent unintentional release of animals or infectious agents from one water body to another.
- Dispose of unwanted biological samples appropriately (biohazard containers, etc). Never release specimens into a different water body, transfer aquatic animals or release tank water from one water body to another.
- Intentional release of any aquatic animals into natural bodies of water or any other waters continuous with natural water bodies should only be performed with full knowledge and consent of any pertinent regulatory authorities (local, state, or federal) and in full compliance with any required permits or prerequisite procedures.
- Non-disposable equipment should be disinfected as for B-3 above. Disposable items should be secured in closed, leak-proof containers and returned to the laboratory facilities for further decontamination, as appropriate. Sampling vessels (tubes, vials, containers, etc) should be labeled as to contents and site of origin. Sampling vessels and containers should be disinfected externally with an appropriate disinfectant spray.

C. Additional measures for boats and gear used in waters known to harbor endemic or exotic pathogens or invasive species of concern

Please note – Boats, motors, and associated gear should not be taken from one body of water to another until this disinfection process is completed.

1. Boats gear, trailers, and live wells

Remove organic material from boats, trailers, and live wells. Drain water from live wells, bilges and pumps and wash down the inside and outside of the boat at the field site if practical. Upon returning to the field station, the outside and inside of the boat, trailer, live wells, bilges, and pumps should be sprayed with the disinfection solution and left wet for the appropriate contact time (see Table 1). The inside of the live wells, bilges and pumps should be made to contact the solution for the appropriate contact time as well. Run pumps so they take in some of the disinfection solution and make sure that the solution comes in contact with all parts of the pump and hose. The boat, trailer, bilges, live well, and pumps should be rinsed with clean water after the appropriate contact time.

2. Motors

For outboard motors, rig up a short (6-foot) piece of garden hose to lower unit water intakes with a garden hose adaptor. Fasten a large funnel to the other end of the garden hose and pass a pail of the disinfectant through the hose by gravity to the lower unit to run the disinfectant through the lower unit of the motor. The funnel must be held high enough above the motor water discharge to allow the system to work. If gravity flow is insufficient, the motor should be run in neutral for enough time to produce a flow. **BE CERTAIN THAT NO PERSONNEL ARE NEAR THE PROPELLER.** Allow solution to remain in motor for the appropriate contact time (see Table 1). The hose will need to be primed to start the gravity flow because the lower unit does not create enough suction to prime the hose. A non-corrosive (Virkon - S or Peroxigard/Accel) should be used to protect the impeller and internal seals. If the motor is not going to be immediately used the lower unit should be flushed with clean water. Do this by attaching a garden hose under pressure to the lower unit intakes and running the motor in neutral for several minutes.

D. Movement of Vehicles On and Off Station

1. Disinfection stations

Each facility should have a designated vehicle and boat disinfection area or station. If possible, this station should be located near the entrance to the facility and away from ponds and water supplies. Disinfection stations should have access to ample supplies of appropriate disinfectants and running water. Portable hand pump sprayers may be used to disinfect vehicle tires at designated disinfection stations.

2. Fish transport trucks and tanks

All trucks and tanks used to transport fish from the field or from one holding facility to another are to be disinfected after they are used to haul fish and between uses to haul fish from different water bodies or river systems. Additionally, following transfer of fish to holding facilities, water from the transport tank must be disinfected before dumping to avoid contamination. Care must be taken to run all recirculation pumps and aerators during disinfection and neutralization/rinsing.

E. General Practices

- 1.** Organize your sampling so the work in waters harboring known pathogens/invasives of concern is always done last.

2. If a high percentage of your work is done in waters harboring such pathogens or invasive species, consider dedicating certain gear to be used only in those waters.
3. Depending on the type of work you are doing, it may be possible to work with collaborators that work exclusively within select bodies of water or river systems. Using their boats to collect samples means that LSC personnel need only attend to disinfection of gear and equipment.
4. Keep a log that indicates details of the field work including, at a minimum the date, site, purpose, equipment used, disinfection method(s), and the initials of the personnel completing the log.
5. Use disinfectant solutions at appropriate concentrations to accomplish disinfection, but avoid overuse. When treating vehicles, boats, and other large equipment, use disinfectant agents like chlorine bleach (sodium hypochlorite) that may be neutralized (and do neutralize them appropriately after application) to minimize run-off and discharge of active solutions.

Protocol prepared by the LSC Institutional Animal Care and Use Committee with thanks to Wisconsin DNR (Steve AveLallemant and Sue Marcquenski), the Lamar Fish Health Station (Patricia Barbash), and the Richard Cronin National Salmon Station for their input and use of their biosecurity protocols as templates.

Table 1. Some of the more commonly available and most highly recommended disinfectants for field applications.

<i>Trade name(s) (if applicable)</i>	<i>Chemical Name</i>	<i>Effective Concentration</i>	<i>Minimum Contact Time</i>	<i>Target Organism (Pathogen Parasite, or Invasive)</i>	<i>Safety and Environmental Considerations</i>
Virkon Aquatic	Peroxygen	1:100 dilution	20-30 min	Viruses Gm + and Gm - Bacteria Molds and fungi	This is a powdered disinfectant in the peroxygen (hydrogen peroxide) family. It is 99.9% biodegradable and breaks down to water and oxygen. It is not corrosive at the working dilution. Wear eye protection, rain gear and gloves if spraying. Stay upwind of spray.
Betadine, Argentyne, Ovadine	Iodophor	250 ppm	10 min	Viruses Gm + and Gm – bacteria Molds and fungi Protozoa	Wear eye protection, rain gear, and gloves if spraying. Stay upwind of the spray. Will stain surfaces brown. Will break down in sunlight and when in contact with organic material. Is corrosive to metal and rubber. Is toxic to fish at these concentrations so rinse well after disinfection or neutralize with sodium thiosulfate**.
(many commercially available brands @ 5.25%)	Chlorine bleach (hypochlorite)	200 ppm 1100 ppm* 2200 ppm**	10 min	Viruses Gm + and Gm – bacteria Molds and fungi Protozoa Zebra mussels and zooplankton * Didymo **Heterosporis	Wear eye protection, rain gear, gloves if spraying. Stay upwind of the spray. Will break down in sunlight and when in contact with organic material. Is corrosive to metal and rubber. Is toxic to fish at these concentrations so rinse well after disinfection or neutralize with sodium thiosulfate ¹ .
	Salt	1% 5%*	24 hrs 10 min*	Zebra mussels Zooplankton * Didymo	Due to the long contact time, salt may only be used as a bath solution (not sprayed)
	Vinegar	100%	20 min	Zebra mussels Zooplankton	Wear eye protection, rain gear, gloves if spraying. Stay upwind of the spray. Is corrosive to metal. Is toxic to fish at these concentrations so rinse well after disinfection.
	Glacial Acetic Acid	6%	20 min	Zebra mussels Zooplankton	Wear eye protection, rain gear, gloves if spraying. Stay upwind of the spray. Is corrosive to metal. Is toxic to fish at these concentrations so rinse well after disinfection. This is a very viscous, concentrated acid. Rinse all measuring and mixing equipment well. Remember to always add acid to water (not water to acid).
	Steam cleaning			Viruses	True steam cleaning (212 °F) will inactivate rhabdoviruses within seconds. This may be an option when chemical disinfection is difficult.

When mixing any of these chemicals, wear eye and skin protection (goggles or face shields, gloves, etc). Use a dust mask when handling any powdered disinfectants. ¹For neutralizing chlorine or iodine based disinfectants, spray sodium thiosulfate in an 800 ppm solution (3 grams per gallon of water) on all surfaces after the disinfection period is over. Following thiosulfate treatment, rinse with clean water before use, as described in Section B3.

Table 2. Volume of disinfectant needed to make solutions.

<i>Final Volume in Gallons (or Liters)</i>	Liquid chlorine bleach (5.25 %) @ 200 ppm	Liquid chlorine bleach (5.25 %) @1100 ppm	Liquid chlorine bleach (5.25 %) @ 2200 ppm	HTH granular chlorine (70%) @ 200 ppm	Virkon Aquatic @ 1:100	1% Iodophor solution @ 250 ppm	1% salt (sodium chloride)	5% salt (sodium chloride)	6% Glacial Acetic Acid
1 (3.78)	15 ml	85 ml	165 ml	1.2 g	38 g	95 ml	38 g	190 g	2360ml
2 (7.57)	30 ml	165 ml	330 ml	2.4 g	76 g	190 ml	76 g	380 g	460 ml
5 (18.92)	75 ml	415 ml	825 ml	6 g	190 g	475 ml	190 g	950 g	1150 ml (1.15 L)
20 (75.7)	300 ml	1650 ml (1.65 L)	3300 ml (3.3 L)	24 g	760 g	1900 ml (1.9 L)	760 g	3800 g (3.8 kg)	4600 ml (4.6 L)
100 (378.5)	1500 ml (1.5 L)	8250 ml (8.25 L)	16500 ml (16.5 L)	120 g	3800 g (3.8 kg)	9500 ml (9.5 L)	3800 g (3.8 kg)	19000 g (19 kg)	23000 ml (23 L)

Sources of disinfectants

Chlorine- household bleach (5.25 % chlorine) can be purchased from a grocery or convenience store. HTH is granular chlorine (70% calcium hypochlorite) and can be purchased from a pool supply company.

Sodium Thiosulfate- is commonly used to neutralize chlorine and iodine. It should be available at a pool supply company or from a chemical supply company.

Glacial Acetic Acid – is a viscous concentrated acetic acid (vinegar). It should be available from a chemical supply company or from Fisher Scientific. The phone number for Fisher is 1-800 766 7000 and the catalog number for 2.5 liters of acetic acid, glacial, is A490-212.

Iodophor- a 1 % solution (Argentyne or Betadine) is available from Argent, an aquaculture supplier. The phone is 1-800- 426-6258. It may also be available from drug stores as a 1% surgical prep or scrub solution. The scrub solution can be used as a disinfectant for gear and hard surfaces, but should not be used to disinfect fish eggs because it may contain a detergent that is detrimental to eggs. Western Chemical sells Ovadine which is also a 1% iodine solution used to disinfect fish eggs or gear. Their phone is 1 800 283 5292.

Virkon-Aquatic- is available in 10 pound pails from Western Chemical. Their phone is 1 800 283 5292.

BUREAU OF INDIAN AFFAIRS – EASTERN REGION RESPONSE

- 1. Name/position/contact info:** Chet McGhee, Regional Environmental Scientist, 615.564.6830, Chester.mcghee@bia.gov

- 2. With regards to your current and/or past NEPA reviews involving invasive species issues:**
 - a. What is/was the goal of your proposed invasive species management action?** Tribal program development
 - b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?** Prior to modifying Indian Self-Determination Act contract
 - c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?** Categorical exclusion review
 - c. Which target species are being/were considered?** Feral hogs, pythons,
 - d. How is/was the ecosystem/location defined and spatially bounded?** Limited to reservation boundaries
 - e. How are/were non-target effects/adverse impacts defined and spatially bounded?** Limited to reservation boundaries

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

- 3. What is/was the budget and timeframe required for achieving the goal of the proposed action?**
Ranged from 19k – 250,000k and from 1 year to multiple years

- 4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?** Funding was placed in an existing Indian Self Determination Act (ISDA) Contract, so a categorical exclusion review was performed

- 5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?** I haven't experienced any challenges

- 6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?** N/A

- 7. How have the specific challenges identified in questions 5 and 6 been addressed?** N/A

- 8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?** N/A

- 9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?** none

- 10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?**

- 11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?** All activities funded or approved go through a NEPA review. As part of the review impacts to biological resources are considered. Categorical exclusion reviews specifically reference 13112

BUREAU OF INDIAN AFFAIRS – WESTERN REGION RESPONSE

1. Name/position/contact info: Patricia Wright, Regional Soil Scientist (Noxious Weed Coordinator), Bureau of Indian Affairs, Western Regional Office, 2600 N. Central Avenue, Suite 400 (Mail-room), Phoenix, AZ 85004, 602-379-6789 Ext 1202

NEPA Document completed: Bureau of Indian Affairs, Western Region, Integrated Noxious Weed Management Plan and Programmatic Environmental Assessment for Weed Control Projects on Indian Lands, Sept 2014.

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action? BIA Western Region and Western Region Tribes desire a cooperative and coordinated management process to actively monitor and control noxious weeds. The desired outcomes of the proposed action are healthy natural ecosystems to support tribal goals of protecting rangeland, agriculture, riparian systems, roads and forests for human health and safety, wildlife habitat, traditional cultural practices and economic and social well-being.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews? A programmatic noxious weed plan and environmental assessment was initiated in 2010 and completed in Dec 2014. Prior to that tribes did their individual plans and NEPA or did not have the resources to complete it and it was not done.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action? Programmatic EA

c. Which target species are being/were considered? Multiple target species. Western Region Noxious Weed list is available upon request.

d. How is/was the ecosystem/location defined and spatially bounded? The affected environment for the PEA consists of all the reservations within the jurisdictional boundary of the BIA Western Region. The first section evaluated the components of each Ecological Region (Ecoregion) as defined by EPA within reservation boundaries in BIA Western Region.

e. How are/were non-target effects/adverse impacts defined and spatially bounded? Non-target effects were evaluated for watersheds, reservations and communities within or adjacent to where the proposed action was taking place.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action? The work on the PEA was completed in-house over a 4 year period. Direct hours were not tracked but a conservative estimate would be that it took 30-40% of the lead author's time and 2-5% of reviewers' time. Cost would have been around \$150K, including travel costs to conduct public meetings in 2010.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action? Only one NEPA review for invasive species management was completed.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review? A) Received little input from other federal agencies on the draft PEA but did rely heavily on BLM Vegetation Treatments EIS. B) Although many tribes did submit comments, full participation from all Western Region tribes was not achieved. C) It did not seem that the full implications and coverage of the action and review was processed by all tribes in the region. D) Another challenge was making sure that tribes signed off on ESA and Cultural Resource impacts but in the second grant cycle after completion, this has been more successful.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action? I don't think any challenges to NEPA compliance affected the goal of invasive species management.

7. How have the specific challenges identified in questions 5 and 6 been addressed? Yes, in part, as noted in question 5.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need? A) Other agencies could have been contacted by Noxious Weed coordinator/author earlier in the process, but am not sure if they would have participated or provided comments. B) Continued communication by Noxious Weed coordinator with tribes on the need to complete the ESA and Cultural Clearance forms for individual projects.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control? I think the way we did it worked pretty well. Producing a programmatic EA to cover all western region tribes was an efficient way to conduct NEPA analysis instead of each tribe doing their individual analysis, when many did not have the resources to do so. Having one person do nearly all the writing, GIS maps and analysis while carrying out other job duties was relatively cost effective but it was consuming for one person to achieve and that is probably why it took 4 years.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): Not 100% sure I understand this question but will take the priorities we had in the EA.

(a) invasive species prevention;

The key components of the integrative method that are part of prevention are listed below:

1. Inventory and Monitoring-Knowing type and extent of weed infestation.
2. Prevention- Keeping weeds out in the first place.

Prevention

- Determine activities occurring on the reservation that might be a source of weed introduction.
- Establish preventative policies and laws, including local quarantine and closure.
- Incorporate education and awareness programs on new and/or invading species

Our evaluation included a matrix evaluation of control methods and it was concluded that based on the matrix, prevention and revegetation would have the most positive effects with a balanced approach of the other methods.

(b) invasive species eradication When eradication of small acreage of new invaders is possible, it is rewarded through the grant proposal rating process.

(c) invasive species control Eradication of some of these species is not always feasible, due to either the rapidly expanding distribution or constraints of the tools. Many exotic plants cause significant economic damage to agriculture on Indian reservations and it must be recognized that the species can only be controlled.

The remaining components of the integrative method that include control methods are listed below:

3. Chemical- Using chemicals such as herbicides that control or retard the growth of weeds.
4. Biological Control- Using beneficial creatures such as insects or fungi that damage the weeds.

5. Mechanical- Tilling (plowing) or hand pulling the weeds.
6. Controlled Burning- Safely burning the weeds.
7. Grazing- Using grazing animals such as sheep or goats that will eat the weeds.
8. Revegetation- Reseeding a disturbed site to block or choke out the weeds

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

Sec. 2. Federal Agency Duties. (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) identify such actions; Provide funding and oversight for noxious weed projects on Indian reservations.

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: All of the below have been encouraged in program criteria and funding except for research. Just heard recently that research is now being encouraged but have not implemented any funding for this in Western Region.

(i) prevent the introduction of invasive species; This is encouraged in grant criteria and the Programmatic EA and Management Plan. Education programs on weed species and control has been implemented by most tribes. More needs to be done with prevention, such as weed control ordinances, cooperation with other programs such as roads, irrigation and forestry, and other preventative measures such as washing vehicles or limiting access.

(ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; Many noxious weed inventories are being conducted with recent funding.

(iii) monitor invasive species populations accurately and reliably; Tribes who apply for funding have all been monitoring weed infestations.

(iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; Many tribes who apply for funding include a restoration component in their projects.

BUREAU OF INDIAN AFFAIRS – SOUTHWESTERN REGION RESPONSE

1. Name/position/contact info: Michelle Dela Cruz, Environmental Protection Specialist (Fuels), BIA Southwest Region – Division of Environmental, Safety, and Cultural Resources Management (DESCRM), michelle.delacruz@bia.gov, 505-563-3406

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action? Removal of invasive riparian species as part of the fuels management program to prevent wildfire spread.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews? NEPA reviews were completed via management plans (EAs) and project specific Categorical Exclusions prior to project implementation.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action? EAs for reservation-wide Forestry or Fuels Management Plans and CEs for specific projects.

c. Which target species are being/were considered? Salt cedar and Russian olive

d. How is/was the ecosystem/location defined and spatially bounded? Species mainly occur along riparian corridors.

e. How are/were non-target effects/adverse impacts defined and spatially bounded? Work was completed outside the avian breeding season to avoid impacts to nesting birds. Mixed native-exotic stands were generally treated by hand while exotic stands could be treated by machine.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

Budget varies per project and timeframes depend on if re-treatments are needed, which they usually are needed for removal of exotic riparian species. Many of our projects are in the initial or middle stage of treatment where exotics are not fully contained.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action? Budget for NEPA review varies with the project. Costs are higher if endangered species surveys are required. Cultural clearances for ground disturbing projects (via machinery) will take longer and increase costs than non-ground disturbing projects.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review? The need to appropriately time biological surveys and bad weather can delay the NEPA review but the review always gets completed, though maybe not as quickly as the project proponents would like. New proposals and listings on the ESA have delayed completing NEPA compliance because of potential consultation and survey. Also, working with different collaborators (tribal, BIA agency, BIA region, other federal agencies) to review NEPA documents (primarily EAs) can delay the process.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action? After NEPA compliance is completed, funding for project implementation is often unavailable during optimal implementation times.

7. How have the specific challenges identified in questions 5 and 6 been addressed? NEPA specialists need to collaborate with project proponents to remind them that NEPA compliance completion can be variable depending on the challenges stated above. Project proponents need to prioritize projects. Setting timelines for collaborators to review NEPA documents keeps everyone on an agreed schedule to complete NEPA compliance

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need? The NEPA Specialist needs to communicate well at the start of the project and have all the collaborators agree on roles and timelines so that the NEPA compliance is completed timely. Funding for fuels management is currently for 1 year and needs to be at least 2 year monies.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control? Organization and communication is the key to completing NEPA compliance for any project.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control? I asked the DESCRM chief to respond and he recommended that Natural Resources or Range Management would be the best to answer this.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)? I asked the DESCRM chief to respond and he recommended that Natural Resources or Range Management would be the best to answer this.

BUREAU OF INDIAN AFFAIRS – NORTHWESTERN REGION RESPONSE

1. Name/position/contact info: Dr. BJ Howerton, MBA, DOI, BIA, Environmental Services Manager, Northwest Regional Office, Portland, OR (503) 231-6749. BJ.howerton@bia.gov

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

Answer: Goal - In consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan, and in cooperation and collaboration with tribal governments on a government to government basis and other stakeholders, as appropriate, protect tribal trust assets through preventing introduction of invasive species; detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; monitor invasive species populations accurately and reliably; provide for restoration of native species and habitat conditions in ecosystems that have been invaded; conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and promote tribal/public education on invasive species and the means to address them; and not authorize, fund, or carry out actions that may be likely to cause or promote the introduction or spread of invasive species unless, the BIA has determined and made public, in consultation with tribal governments, its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the planned actions.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

Answer: NEPA starts when the funding is made available (financial support) and administrative actions are planned. For example, on small projects or maintenance type projects categorical exclusion checklists are used after the plan is developed. On larger projects, EA and EIS are utilized to further develop the scope of a particular project.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

Answer: Depends on level of effort/proposed action, timing of action, and location of action, i.e., if proposed action involves a small number of acres for maintenance then a CE may be appropriate, however, a EA would be required if the level of effort/action and location could adversely impact cultural resources.

d. Which target species are being/were considered?

Answer: Cheatgrass (downy brome, *Bromus tectorum*), Medusahead (*Taeniatherum caput-medusae*), Jointed goatgrass (*Aegilops cylindrica*), wild oats, Vententa grass, bulbous bluegrass, rattail fescue, annual bluegrass, several other emerging annual grass weeds, Canadian thistle (*Cirsium arvense*), Scotch broom (*Cytisus scoparius*).

e. How is/was the ecosystem/location defined and spatially bounded?

Answer: In cooperation and collaboration with other federal agencies, tribal governments, and State and local governments, the goal is treat invasive species by ecosystem when possible, otherwise location was defined by Indian reservation.

f. How are/were non-target effects/adverse impacts defined and spatially bounded?

Answer: Non-target effects/adverse impacts are project specific and defined and spatially bounded by Indian reservation boundaries or boundaries of other federal agencies jurisdiction or state and local jurisdiction. We have conducted multiple NEPA reviews in the context of invasive species management. Level of NEPA review depended on level of proposed project effort, time of year, location, and whether proposed project fit a particular Categorical Exclusion Checklist

(CatX/CEER) item. Environmental Assessments (EA) were the most utilized NEPA review document. EISs were utilized on larger projects that had broad application and impacted a larger land base.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

Answer: Funding was not provided by DOI, BIA, Environmental Services. Budgets were not known and timeframes were project specific.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

Answer: Budgets are project specific and depend on level of effort required. Timeframe for developing NEPA review documents depends on whether the proposed action falls within a categorical exclusion checklist item or whether an EA/EIS needs to be developed. EAs can take 90 to 120 days to complete. NEPA review is usually less than 60 days.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

Answer: N/A.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

Answer: Lack of available bioherbicides (weed-suppressive bacteria) which are inexpensive and can be used to limit adverse impact to culturally sensitive plants, e.g., the bacterium, *Pseudomonas fluorescens* strain ACK55 (P.f. ACK55), inhibits only: cheatgrass (downy brome, *Bromus tectorum*), medusahead (*Taeniatherum caput-medusae*) and jointed goatgrass (*Aegilops cylindrica*).

7. How have the specific challenges identified in questions 5 and 6 been addressed?

Answer: Stay in contact with EPA, USDA, BLM, and BIA central office for any updates on new bioherbicides coming on the market.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

Answer: Getting new and inexpensive bioherbicides on the market. In collaboration with BLM and USDA, EPA is best positioned to approve and get new bioherbicides on the market. Bioherbicides are low cost.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

Answer: Develop a Categorical Exclusion Checklist (CatX/CEER) item that allows for application of bioherbicides anytime in accordance with EPA regulations. Bioherbicides can be used on post-wildfire revegetation efforts and mixed in with fire suppression chemicals and applied directly on a wildland fire (some bioherbicide will be lost to the fire). Bioherbicides can be applied to shrub steppe to prevent fuels for wildland fires and enhance native vegetation.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total):

(a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

(a) Because of their low cost, use of bioherbicides under categorical exclusion checklist (CatX/CEER) to prevent invasive species or reduce possibility of invasive species.

(b): Use of bioherbicides under categorical exclusion checklist (CatX/CEER) as part of an eradication effort and in combination with other herbicides.

(c): Use of bioherbicides under categorical exclusion checklist (CatX/CEER) to control invasive species.

U.S. FISH AND WILDLIFE SERVICE – AQUATIC INVASIVE SPECIES RESPONSE

1. Name/position/contact info: Susan Jewell, Injurious Wildlife Listing Coordinator; 703-358-2416, susan_jewell@fws.gov

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

I don't work on invasive species management per se. I work in the regulatory field. We prepare regulations to prohibit the importation and interstate transportation of invasive wildlife (under the Lacey Act; 18 USC 42, as amended; limited to wild mammals, wild birds, fishes, reptiles, amphibians, mollusks, and crustaceans). Our goal, therefore, is to prevent high-risk species from entering the United States, or if already present, from moving to other parts of the country. For the purposes of this questionnaire, I will consider it management.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

Until October 2015, when we finalized a categorical exclusion (CE) for injurious wildlife listing, we were preparing draft environmental assessments for each proposed rule and finalizing them for each final rule.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

See 2.b. We prepared 7 EAs on 12 species; all resulted in FONSI. We never prepared EISs because we determined they were not necessary.

c. Which target species are being/were considered?

We are currently targeting mostly freshwater aquatic vertebrates, mollusks, and crustaceans that are not yet found in the United States but have a history of invasiveness elsewhere and a high climate match in at least some parts of the U.S. Previously, we considered species in those classes that we were petitioned to list, as well as congeneric and confamilial species, and species that we were not petitioned on. These included mammals, fishes, reptiles, and crustaceans.

d. How is/was the ecosystem/location defined and spatially bounded?

The Lacey Act statute sets our boundaries. We must list nationwide, meaning a species is designated as injurious in all parts of the country. We can list foreign species (most listings are of foreign species).

e. How are/were non-target effects/adverse impacts defined and spatially bounded? We believe that, by keeping nonnative species out of the United States and out of parts of the United States where they don't naturally occur, there should be no nontarget effects.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

Our injurious wildlife budget has been utilized only for staff to prepare the documents for the listing. We have also found one-time funding for certain economic analyses and risk assessments. The timeframe has been from 1 to 7 years (the 1-year rule utilized the recently approved categorical exclusion, the others took 2-5 years).

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

We have no budget for NEPA reviews. Environmental assessments have been prepared in-house. I estimate preparing the environmental assessments for listing rules took several months. We now have a categorical exclusion that we hope will preclude the need for doing environmental assessments, but obtaining approval for that CE took parts of 6 years (in between competing priorities). During those 6 years, we prepared EAs for each rule.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

FWS has not had a national NEPA Coordinator for at least 2 years. This has hampered the process of obtaining our CE. In the meantime, we needed to prepare environmental assessments that we thought were unnecessary (and for which we did not have dedicated funding or staff), and we did not have a NEPA expert to ask questions about those. We did obtain excellent assistance from DOI's OEPC, but we did not go to them every time we had a question.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

Until we obtained the CE, we had to prepare EAs with minimal expertise and scarce resources. Any delay in preparing the supporting materials for a listing rule means a delay in listing, which could open the door for an invasive species to enter the country or expand its range to another State. Also, FWS's NEPA handbook is still in draft form and needed to be finalized.

7. How have the specific challenges identified in questions 5 and 6 been addressed?

Our two challenges were that we had to prepare EAs when we believed they should be categorically excluded and that we do not have a national NEPA coordinator. We addressed the first challenge by obtaining approval for a CE for listing species as injurious. I am now coaching someone in another program on how to go through the approval process for obtaining a CE, based on my one-time experience. I have also offered to help our regional AIS coordinators, who want a CE for rapid response and other management responses. I am happy to help them, but it will take me away from my role in preventing the next high-risk species from entering the country. As I understand, there are some regional NEPA coordinators, but I think that role is only part of their duties.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

I believe the FWS needs a National NEPA Coordinator (or at least an HQ coordinator). I have also heard from the Regions that the regional coordinators have had their time directed toward other things, so we are also losing regional NEPA expertise. Given the organizational structure of the agency, the two people best positioned to address the National role is the FWS Director and the Assistant Director under whose program the NEPA responsibility lies (AD for Ecological Services). One of the roles a National NEPA Coordinator can have is to finalize the draft NEPA handbook. Another is to update the Department Manual on Categorical Exclusions, which is very outdated and does not contain all the current CEs.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

More CEs would be useful, such as one for rapid response and one for control. For example, a CE should be considered for Rapid Response if: 1) the target invasive species (or population) is contained within a

limited amount of habitat (that is, habitat area is small enough that one or several management actions can exterminate the population), 2) the target species (or population) is not spreading quickly or widely outside that habitat (that is, there is reason to believe that an action can exterminate the entire population), 3) the action is attempting to exterminate the entire target species (or population) in the habitat, and 4) there is not a high risk of reinvasion of the target species into the invaded habitat.

A CE should be considered for control for, for example: 1) such physical measures as manual removal and physical destruction of eggs, seeds, juveniles, and mature plants or adult animals, 2) such physical barriers as measures to restrain the spread of invasive species, 3) such chemical measures as application of registered biocides, and 4) such biological measures as introduction of native predators, nonnative predators for which environmental impacts have been evaluated (such as EA or EIS), and introduction of sterile adults of the target invasive species.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

(a): prevention: 1) I believe we need a national coordinator or an HQ coordinator (or both) to advise us on the application of our new CE (such as when we might have an extraordinary circumstance) and for other situations that arise. 2) We need to foster better public understanding of what the CE does and does not do regarding an action (we find that the public misunderstands the role of the NEPA analysis, which can lead to lack of support for the action; for example, EAs do not need to be as detailed and lengthy as ones we have prepared, and CEs do not mean that a NEPA assessment was not performed).

(b): eradication: 1) We need a CE for rapid response, which could result in eradication. 2) We need greater public support and awareness of how such CEs would work.

(c): control: 1) We need a CE for certain control measures that would be appropriate for a CE (because they would routinely have no significant effect). 2) We need a CE for certain rapid responses that would be appropriate for a CE (those that would routinely have no significant effect). 3) We need greater public support and awareness of how such CEs would work.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

Sec. 2. Federal Agency Duties.

(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,

(1) identify such actions; Under injurious wildlife listing, our action of listing invasive species prohibits the importation and interstate transportation of said species.

(2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: **(i) prevent the introduction of invasive species:** We evaluate and prioritize the risk of invasive or injurious species and (to the extent our resources allow) list high-risk species as injurious, thus prohibiting their importation (prevention); **(ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner:** Once FWS Regional Aquatic Invasive Species (AIS) Coordinators provide evidence of high-risk species, we try (to the extent our resources allow) to promulgate rules to list high-risk species as injurious, thus prohibiting their interstate transportation (control); **(iii) monitor invasive species populations accurately and reliably:** FWS Regional AIS Coordinators monitor invasive species in their respective regions; **(iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded:** FWS's Branch of Aquatic Habitat and Species Conservation helps to restore aquatic habitat; **(v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species:** FWS technically does not do research; Regional AIS Coordinators work with other Federal, regional, State, and local agencies as well as

academic and conservation entities to provide for control of invasive species ; and **(vi) promote public education on invasive species and the means to address them:** FWS gives presentations at meetings, provides educational materials at conference exhibitor booths, provides several websites on invasive species (including aquatic invasives and injurious wildlife listing); and

(3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions: FWS promotes the Stop Aquatic Hitchhikers and Clean, Dry, Drain campaigns at exhibitor booths and presentations; FWS supports (financially, with technical assistance, etc.) revising industry standards for the boating industry to design boats and associated equipment that is less prone to transporting invasive species .

(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations. We assisted one of our Regional AIS Coordinators with developing and completing a screening process (Ecological Risk Screening Summaries) to evaluate invasiveness of terrestrial and aquatic nonnative wildlife (for example, fish, mollusks, crustaceans, mammals, birds, reptiles and amphibians) moving in trade under Objective P. 1 of NISC management plan).

U.S. FISH AND WILDLIFE SERVICE – AQUATIC INVASIVE SPECIES
RESPONSE Con't

1. Name/position/contact info: Susan Pasko/ Executive Secretary, Aquatic Nuisance Species Task Force / susan_pasko@fws.gov, 703.358.2466

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

- a. What is/was the goal of your proposed invasive species management action?**
- b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?**
- c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?**
- c. Which target species are being/were considered?**
- d. How is/was the ecosystem/location defined and spatially bounded?**
- e. How are/were non-target effects/adverse impacts defined and spatially bounded?**

N/A - ANSTF does not directly conduct activities that would be subjective to NEPA processes.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

N/A - ANSTF does not directly conduct activities that would be subjective to NEPA processes.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

N/A - ANSTF does not directly conduct activities that would be subjective to NEPA processes.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

ANSTF does not directly conduct activities that would be subjective to NEPA processes; however, several of Federal agencies do perform activities (e.g., dam removal, opening fish passage) that require environmental assessment. These agencies have previously expressed challenges to the NEPA process and asked for guidance from the ANSTF. Some of these challenges include:

- 1) There are certain circumstances in which the NEPA provisions apply and invasive species issues may exist, but the specific statutory requirement to prepare an environmental assessment (EA) or environmental impact statement (EIS) do not apply. For example, when considering if a proposed activity qualifies for categorical exclusion (CE), invasive species analysis is either not performed or grant recipients are asked to respond to simplified question(s) (e.g., is the proposed action expected to result in the introduction or spread of a nonindigenous, potentially invasive species?) to determine if the proposed activity qualifies for CE status.
- 2) Consequently, the risk of introducing invasive species as a result of the proposed projects is often underestimated and not thoroughly examined.
- 3) Staff conducting or reviewing the NEPA analysis often do not have a vast knowledge of invasive species issues, thus threat from a particular species or pathway may be overlooked.

- 4) Many Federal agencies do not have compiled information available to NEPA staff that can be used to inform about the risk of particular species / pathways, risk of introduction, or options to control / eradicate.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

In addition to challenges in Questions 5:

- 1) Resources for post-project monitoring are often not available. If new species were introduced during the activity, they are often not detected soon enough for them to be effectively contained and eradicated.
- 2) Often invasive species management is assumed by many to significantly increase project expense. Improved awareness is needed over the value of prevention as opposed to control. Also, some control options are inexpensive and do not require extensive training; a comprehensive manual or clearinghouse should be developed to allow for preventive and control options to be searched and evaluated to identify the option that best meets the need of a specific project.

7. How have the specific challenges identified in questions 5 and 6 been addressed?

Although ANSTF does not directly conduct activities that would be subjective to NEPA processes, its members and Regional panels are available for technical assistance. In addition, the ANSTF website includes an Experts Database for Aquatic Invasive Species (AIS). The database puts individuals in contact with local professionals who can provide assistance in invasive species issues including species identification, preventative operations, control techniques, monitoring, outreach, and local legislation. The existing Invasive Species Experts Database can be found at:
<http://www.anstaskforce.gov/experts/search.php>

ANSTF also encourages Hazard Analysis and Critical Control Point (HACCP) planning methods for all natural resource management activities. HACCP Planning is an international standard ([ASTM E2590 - 09](#)) for reducing or eliminating the spread of unwanted species during specific processes or practices or in materials or products. HACCP utilizes five integrated steps that enables resource managers to identify potential pathways for invasive species and identifies control measures and can be used to reduce the risk of introducing invasive species to an acceptable level.

For research related activities, the ANSTF has developed a Federal Aquatic Nuisance Species Research Risk Analysis Protocol to establish a protocol “to ensure that research activities carried out under this subchapter do not result in the introduction of aquatic nuisance species to waters of the United States.” It applies to research involving aquatic nonindigenous species (ANS) and is designed to reduce the risk that research activities may cause introduction or spread of such aquatic species. The Federal ANS Research Risk Analysis Protocol consists of a risk assessment to evaluate proposed research for its potential to result in the introduction or spread of aquatic nonindigenous species to or within the waters of the United States. The results of the risk assessment may encourage development of a containment plan that specifies standard operating procedures that will be used throughout the research project to prevent escape or unintentional transfer of aquatic nonindigenous organisms by the research activities conducted under the project.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

- 1) Federal agencies should augment NEPA procedures to ensure that that invasive species are taken into account as part during the review process of CEs and other circumstances that may prompt exemption from NEPA requirements
- 2) Invasive species consultations should be conducted, including reaching out to other stakeholders including State and Federal agencies, non-governmental organizations, and affected tribes, with expertise and experience in dealing with invasive species issues. NEPA analysts and project managers should ensure the appropriate range of local, state, and federal public health authorities and/or independent invasive species experts are consulted about the project. These experts can aid in the early identification of impacts and help focus subsequent steps in the NEPA process.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

- 1) A checklist or a list of questions to be considered in preparing, reviewing, and processing environmental analyses pursuant to NEPA, regardless if the proposed activity qualifies for a CE or must be analyzed using an EA or an EIS.
- 2) Federal agencies should develop new, or update existing, best management practices for invasive species that are relevant to the type of activities they conduct. Such documents should be regularly reviewed and compiled on a public site as a clearinghouse for standardized procedures used to prevent invasive species introductions.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

(a) – Prevention:

- 1) Improved understanding for the threat of invasive and their pathways. Many are unaware that natural resource management activities, including species monitoring, collections, natural resource surveys, stocking of fish, and re-vegetation are all potential pathways for moving invasive species.
- 2) Baseline data / monitoring that indicated what native and non-native species are present in the project areas. Data and risk assessment of invasive species that may introduced or spread during the proposed activity.
- 3) Improved access to invasive species and/or taxonomic experts who are willing and able to assist with question regarding the identification, origin, and risk of species encountered during all proposed activities.

(b) – Eradication:

- 1) Eradication is usually feasible and/or cost effective only if action is taken soon after detection of a new species; as such, a greater emphasize should be placed on post-project monitoring, development of rapid response plans, and identifying responses that could be used for an emergency rapid response fund.
- 2) High priority habitats should be identified as areas to concentrate eradication efforts
- 3) Emphasis that restoration is an essential component to eradication and should be used to guard against future invasions or to minimize harm to native ecological communities and other public interests.

(c) – Control:

- 1) List of BMPS and guidance documents readily available that are applicable for a variety of activities, habitats, and species.
- 2) Increase the number of training workshops and total number of personnel and volunteers trained in control measures for invasive species.
- 3) Building of networks and partnerships that can work together to achieve management goals by sharing responsibility, resources, and expertise.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

The Aquatic Nuisance Species Task Force (ANSTF) was established by Congress with the passage of the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) in 1990 and reauthorized with the passage of the National Invasive Species Act (NISA) in 1996 (collectively, the Act). The ANSTF is an interagency committee established by Section 1201 of the Act and serves to develop and implement a program for waters of the United States that:

- Prevents the introduction and dispersal of ANS;
- Monitors, controls and studies such species;
- Conducts research on methods to monitor, manage, control and/or eradicate such species;
- Coordinates ANS programs and activities of ANSTF members and affected State agencies; and
- Educates and informs the general public and program stakeholders about the prevention, management, and control of these species

To meet the challenges of developing and implementing a coordinated and complementary Federal program for ANS activities, the ANSTF members include 13 Federal agency representatives, in addition to 13 representatives from ex-officio member organizations. These members work in conjunction with Regional Panels and issue-specific committees to coordinate efforts amongst agencies as well as efforts of the private sector and other North American interests. Responsibilities assigned to specific agencies, are assumed by those specified in line with their specific mandates, priorities, expertise, and funding.

U.S. FISH AND WILDLIFE SERVICE – AQUATIC INVASIVE SPECIES
RESPONSE Con't

1. **Name/position/contact info:** Robyn Draheim, Pacific Region (R1) AIS Coordinator, Regional Office
911 NE 11th Ave., Portland OR 97232, Robyn_draheim@fws.gov, 503-736-4722

2. **With regards to your current and/or past NEPA reviews involving invasive species issues:**

a. What is/was the goal of your proposed invasive species management action?

R1 is involved in a long-term planning conversation with multiple partners to prepare rapid response options that might follow a positive finding of dreissenid mussels in Pacific Northwest waters such as the Columbia River Basin. Potential response actions (or BMPs) that have been drafted include both physical and chemical control options as well as potentially disruptive quarantine and staging efforts.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

We have not officially initiated the planning process or consultation and as such invasive species management actions have not yet been the subject of NEPA review but, as the entire process under consideration will be an invasive species management action, it is likely that this could be seen as subject to NEPA review from the start.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

Although the action may qualify as for emergency consultation it is likely that an EA would be drafted for the response effort although response to a new invader with non-target effects to ESA listed species may require an EIS.

d. Which target species are being/were considered?

Target species would be dreissenid mussels.

e. How is/was the ecosystem/location defined and spatially bounded?

This will not be known until an infestation is reported and documented.

f. How are/were non-target effects/adverse impacts defined and spatially bounded?

Non-target effects of greatest concern will be those to salmonids, especially listed salmon and trout, as well as other ESA listed species. The spatial bounds of project locations include the footprint of the action plus the area of habitat physically influenced in a detectable manner over the life of the action. The FWS ECOS-IPaC tool (<http://ecos.fws.gov/IPAC/>) is often used to capture the numeric dimensions of the spatially bounded area of influence. For non-target effects to aquatic ESA listed species we will consider downstream effects as well as habitat impacts and take occurring within the footprint of the control effort.

Impacts to non-target organisms will be inferred from available literature sources and from data collected from similar past actions. At this juncture no similar actions have taken place in locations with ESA listed species so we are using SSP funds to research acute and chronic toxicity of potassium chloride (the top proposed chemical application) to similar salmonid species. The number of non-target species affected is often not quantifiable (aquatic habitats are difficult to access; resources are not available to census entire populations of non-target species

before/after treatments). In such cases area of suitable habitat is commonly used as a surrogate.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

Unknown

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

Unknown

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

We can't anticipate either the location or timing of a future event and so specifics with regard to location, seasonal timing and best available technology will be limited to non-existent. Site specific information may be lacking and both funds and time to collect such information may be limited. Few prior dreissenid control actions have taken place and limited to no data on toxicity and effects thresholds to non-target species exist for chemical control agents such as Zeaquanox and potassium chloride

Additional conversations between agencies exist with regard to classifying such action as an "emergency" and which agency will act as the lead federal agency is also still in process.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

Funding and staff time are limited for *a priori* efforts. Other challenges are likely to emerge once an action is in progress

7. How have the specific challenges identified in questions 5 and 6 been addressed?

Challenges in 5 are being addressed through a draft BNP document updated as additional information becomes available.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

Unknown

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

Continue to fund research into new methods of control/eradication that are effective, efficient, and less damaging to non-target habitats/species.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

Unknown

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

1. Each of our state Fish and Wildlife Offices participates in, and represents the FWS interests on State Invasive Species Councils in our four partner states.
2. We oversee State Aquatic Nuisance Species Plan funds to states that qualify for and apply for state

plan funds from the FWS.

3. We provide funding to entities such as Pacific States Marine Fisheries Commission to expand regional capacity for AIS prevention and detection with specific focus on preventing/detecting the introduction of dreissenid mussels.

4. We provide technical assistance to partners in the planning for and implementation of invasive species responses (including terrestrial species as many pose significant threats to aquatic habitat).

5. We develop and disseminate invasive species information as both inreach within the service and outreach to the general public using tools such as *Invasives Quarterly*, coordinated outreach efforts, invited lectures, etc.

6. We provide project specific review and invasive species recommendations to federal agencies and their non-federal representatives for proposed federal actions in R1.

7. R1 field offices develop and implement HACCP plans for FWS facilities in R1 and instruct and review HACCP plan development for partners upon request.

8. We provide annual training and EDRR species list development assistance for partners doing field work in the region.

9. We work internally with our regional invasive species team (PRIST) to develop regional priorities and tools for addressing prevention, control and awareness of invasive species issues in the Pacific Region.

U.S. FISH AND WILDLIFE SERVICE – AQUATIC INVASIVE SPECIES
RESPONSE Con't

1. Name/position/contact info: Robert (Bob) Kibler, Idaho AIS Coordinator/F&W L Biologist, Idaho Fish and Wildlife Office, 1387 South Vinnell Way, Room 368, Boise, Idaho 83709, Phone: (208) 378-5255, Fax: (208) 378-5262, Email: bob_kibler@fws.gov

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

The management goals for invasive species management that I typically encounter include: 1) Developing a cheaper, more effective, and more targeted means to control an invasive species outbreak; 2) Removing an established infestation prior to an anticipated habitat disturbance associated with a proposed construction action; 3) Precluding the accidental transport of an invasive species between work sites via equipment and/or supplies; and 4) Stabilizing a newly disturbed site using native species to minimize the opportunity for invasive species to colonize the site.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

In my role as an AIS Coordinator, I typically find myself providing technical assistance to the State of Idaho for state led AIS management actions; for such actions, no NEPA action is required (No Federal Action). The exception to this includes when I find myself involved in science support program research actions for AIS management with the USGS. In those cases I typically find myself engaged in invasive species management early in the planning process; well in advance of the stage of NEPA documentation. NEPA typically begins midway thru the planning process, and is initiated when I submit my permit applications to the USEPA and/or the USACE.

In my role as an Ecological Services biologist, I may find myself either reviewing federal actions of other agencies; or proposing/facilitating federal actions for the FWS.

- When reviewing the actions of other federal agencies, the FWS is not in control of the timelines for NEPA consideration. Instead, invasive species management considerations via NEPA typically begin as soon as we receive a notice from the federal action agency requesting a review of a specific proposal for an action. Some agencies, such as the USFS, are proactive, and have asked for FWS assistance to developed Best Management Practices that are incorporated into actions such as emergency wildfire response. When proposing/facilitating a federal action for the FWS (i.e. the FWS is the lead federal agency), I find that invasive species management action is often given consideration during early action planning prior to the public NEPA process. This early consideration of invasive species management is necessary due to the need to budget for the added costs involve, and the need to appropriately schedule invasive species management actions with other components of the intended action. Actual public NEPA consideration occurs midway in the planning process, as it requires us to have identified a preferred alternative, and have enough information available to demonstrate the consideration of a full range of alternatives. NEPA is usually the last step completed prior to the documentation of a final decision.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

The level of environmental review required for actions that include invasive species management are dependent upon the significance of the potential unavoidable impacts anticipated from the entire action, and also the level of sensitivity of the general public to the proposed action. Factors affecting the significance of the action typically include project location, timing, scope, duration, and magnitude of impacts; and sensitivity of non-target species/habitats to the associated effects.

As most invasive species management actions impact non-target species/habitats to some extent, categorical exclusions are the least common form of NEPA effort and outcome. These events typically occur in research situations where the actions can be limited in temporal and spatial scope, and the methods and effects can be closely controlled and contained to ensure no measurable non-target impacts will ever be realized.

Environmental Assessment level NEPA documentation is the most common level of NEPA review, especially when managing well established populations of invasive species. Most invasive species management of this type involves at least some level of non-target habitat/species impacts that must be assessed. Thus at a minimum, an EA is needed. Where there is sufficient flexibility available in project timing and a sufficient range of “environmentally neutral” methods available for implementation, minimization and/or avoidance of significant non-target impacts is often achievable, and NEPA assessment beyond an EA and FONSI is not necessary.

An EA leading to and EIS level assessment is quite common when management of new invasive species is involved. For such species, control methods have not been well tested, but must be quickly deployed without the benefit of assurance that non-target organisms/habitats will not be adversely affected. Also, EIS level assessments are common for situations where the habitats affected by the control action are known to be occupied by ESA listed species; or where the affected habitat is designated a Resource Category 1 (irreplaceable) habitat type via the FWS Mitigation Policy.

d. Which target species are being/were considered?

In Idaho, our most common invasive species being targeted for management include cheatgrass, medusa-head rye, smooth brome, yellow-star thistle, salt cedar, skeleton weed, Russian olive, purple loosestrife, water hyacinth, Eurasian watermilfoil, Asian clams, flowering rush, Hydrilla, brook trout, lake trout, New Zealand mudsnail, bull frogs and quagga and zebra mussels.

e. How is/was the ecosystem/location defined and spatially bounded?

The spatial bounds of project locations include the footprint of the action plus the area of habitat physically influenced in a detectable manner over the life of the action. The FWS ECOS-IPaC tool (<http://ecos.fws.gov/IPaC/>) is often used to capture the numeric dimensions of the spatially bounded area of influence.

f. How are/were non-target effects/adverse impacts defined and spatially bounded?

Impacts to non-target organisms are commonly inferred from available literature sources and from data collected from similar past actions. Where possible, the area of habitat affected is typically estimated and quantified. The number of non-target species affected is often not quantifiable (aquatic habitats are difficult to access; Resources are not available to census entire

populations of non-target species before/after treatments). In such cases area of suitable habitat is commonly used as a surrogate.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

The most recent science support research project I oversaw involving invasive species had a budget of approximately \$23,000, and a goal of approximately 1.5 years in which to conduct and summarize the research findings. Funding for NEPA preparation was provided by the Ecological Services office via 1136 AIS Coordination funding, 1112 ESA Consultation funding, and 1122 Project Planning funding, rather than by use of any of the SSP funds.

The Ecological Services Office reviews hundreds of federal action proposals each year. We have no AIS budget. Funding and time frames for specific goals vary widely and are not specifically known to the FWS. FWS staffing for project review is provided via 1112 consultation, and 1122 Project Planning accounts. Invasive species consideration is included in our recommendations to the federal action agencies as each biologist deems appropriate.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

-NEPA related tasks for the SSP permit applications required approximately 8 days of staff effort (~64 hours). Costs were covered by existing funding sources rather than via the SSP grant budget, as we had no means to accurately predict the overall cost of NEPA at the time the SSP grant application was submitted.

-Review and records management for the review of federal agency actions typically requires a minimum of 1 hour. Complex actions require multiple days of meetings, telephone calls, and exchanges of correspondence. We have no AIS budget. Budgets for the staffing of federal project reviews is allocated via 1112 ESA consultation and 1122 Project Review funding. Invasive species tasks are included in our trust resource considerations, but are not specifically itemized or tracked, thus I am unable to provide an estimate of effort expended solely towards invasive species management.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

Challenges typically include; 1) A lack of funding and/or staff to conduct the field work needed to quantify/describe baseline conditions; 2) As the lead federal agency, a large portion of NEPA time must be allocated to learning the specific methods, formats, and data standard of each partnering agency to meet their specific NEPA requirements.

6. What are/were the specific challenges to NEPA compliance that have limited your capacity to achieve the goal(s) of the invasive species management action?

NEPA compliance challenges to achieving invasive species management goals typically include 1) lack of site specific information and the resources required to collect such information; 2) lack of data regarding the toxicity/effect thresholds for many non-target species for exposure to chemical agents; 3) knowledge that available surrogate species data may not be useful even within common genera; lack of new effective and efficient control options that have reduced non-target effects.

7. How have the specific challenges identified in questions 5 and 6 been addressed?

-Staff are reallocated from other tasks to attend to NEPA needs. (other tasks have been dropped

or delayed)

- Inferences are made using existing data while clearly describing the threshold of uncertainty
- The USEPA has been encouraged to conduct toxicity threshold testing using a wider range of species.
- We have encouraged the State of Idaho to invest in research of new control options.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

- A clearly earmarked Invasive Species cost code (USFWS)
- Redirection of funding towards toxicity studies for new control methods (USFWS/USEPA/USDA/NOAA/USGS/States).

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

- Development of standardized BMPs that can be used by all agencies
- Include Invasive Species Management on NEPA review checklists of other Federal Agencies
- Maintain a national tracking/mapping system (such as the USGS NAS Web site) that includes both aquatic and terrestrial invasive species distribution and life history information.
- Continue to fund research into new methods of control/eradication that are effective, efficient, and less damaging to non-target habitats/species.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

I have no response to provide for this item. Additional clarification is required prior to being able to answer this question.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112?

Examples of implementation of Section 2 of EO 13122 in Idaho include the following:

1. We participate in, and represent the FWS interests, in the Idaho Invasive Species Council.
2. We offer grant money assistance to the Idaho Invasive Species Council.
3. We compete for, and implement AIS grant funded research with the USGS, University of Idaho, Boise State, and other partners, and publish results of research findings for public consumption.
4. We provide technical assistance to the State of Idaho during the planning of and implementation stages of invasive species responses.
5. We develop and disseminate invasive species information and outreach to the general public of Idaho.
6. We provide project specific review and invasive species recommendations to federal agencies and their non-federal representatives for proposed federal actions in Idaho.
7. We develop and implement HACCP plans for FWS facilities in Idaho.
8. We are collaborating with the Idaho State Department of Agriculture to frontloading ESA consultation and environmental reviews in anticipation of state led EDRR actions.
9. We are working with, and encourage our partners to test new methods of chemical, mechanical, and biological controls of invasive species to aid in the restoration and recovery of habitats for species that are listed, proposed, or candidates for listing via the Endangered Species Act.

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U.S. FISH AND WILDLIFE SERVICE – REGION 2 (OK) RESPONSE

1. Name/position/contact info: John Hendrix, Assistant Field Supervisor, Partners for Fish and Wildlife State Coordinator. 918.382.4506

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

-To improve wildlife habitat or native ecosystems in Oklahoma

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

-We complete the NEPA reviews before the project is officially funded and before work is completed.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

-Most of the Partner Programs projects are handled with a CE.

c. Which target species are being/were considered?

-This depends on the location of the proposed project. We review and determine if any T&E species are within the project and then complete the section 7 processes.

d. How is/was the ecosystem/location defined and spatially bounded?

-Usually using arc-map polygon locations and or prepared maps.

e. How are/were non-target effects/adverse impacts defined and spatially bounded?

-A short description in the project file, when needed.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

-Usually agreements are completed within a two year time frame, but can be up to five years. (4-15 reviews, depending on the number of agreements prepared for the Partners program)

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

-employee's salary, just built into the daily processes. The Partner agreements are usually on smaller acreages and or not required to go through an extensive review processes. We do complete the NEPA review and follow the processes, which usually is straight forward.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

-it would be nice to have species data bases in one location, be able to give a lat. & long, maybe by section township and range, then having a polygone of species, or other concerns drop into a map of the project location. Then depending on type of project being completed, you could highlight a tab to drop in species information, or concerns to avoid per project needs. Just one thought at this time.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

-none really at this time

7. How have the specific challenges identified in questions 5 and 6 been addressed?

-we usually find a way to work through the process at our local level

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

-maybe good Arc-map software for each state, training to use the information, and people who are specially assigned this duty to help across the nation.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

-just make the process and easily as possible, most invasive species project at the end of the day, should provide a better situation for the species or ecosystem.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

(a): Easily reviewable process, for all categories

(b): Easily reviewable process, for all categories

(c): Easily reviewable process, for all categories

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

-not sure, this is the first process I have completed regarding this action.

U.S. FISH AND WILDLIFE SERVICE – REGION 2 (TX) RESPONSE

1. Name/position/contact info: E. Dawn Gardiner, Assistant Field Supervisor, Texas Coastal Ecological Services Field Office, Dawn_Gardiner@fws.gov, (361) 994-9005

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action? To slow and control the spread of exotic grasses and insects.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews? All

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action? EA or EIS

c. Which target species are being/were considered? Kleberg bluestem, King Ranch bluestem, black mangrove, Chinese tallow, deep rooted sedge, water hyacinth, red exotic fire ants, raspberry crazy ants, cattle fever ticks,

d. How is/was the ecosystem/location defined and spatially bounded? Generalized geographic county by county area

e. How are/were non-target effects/adverse impacts defined and spatially bounded? Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review. Not considered in our recommendations.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action? Undefined, whatever the other agency is willing to do.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action? We typically review other agencies NEPA documents and provide comments to them to include invasive species control. So the timeframe is relatively short.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review? None

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action? Don't know how to effectively control the species.

7. How have the specific challenges identified in questions 5 and 6 been addressed? Have not been

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need? Interagency coordination and funding of eradication efforts.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control? Include invasive species considerations.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control? (a) (b): (c):

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)? Sec. 2. Federal Agency Duties. (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law, (1) identify such actions; (2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions. (b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

Working well on Federal Lands but we need to do more for invasive control when federal actions are taking place on private lands.

U.S. FISH AND WILDLIFE SERVICE – REFUGES RESPONSE

1. Name/position/contact info:

John Klavitter/National Invasive Species Coordinator/US Fish and Wildlife Service, National Wildlife Refuge System, 5275 Leesburg Pike, MS:NWRS, Falls Church, VA 22041. John_Klavitter@fws.gov, 703-358-2063.

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

(Approximate number of NEPA reviews this applies to: 300).

Our goal is to prevent the establishment of invasive species on refuge lands or to contain, suppress, or to eradicate newly discovered or already established invasive species on refuge lands in order to:

- a. Fulfill our statutory duty to achieve refuge purpose(s) and further the System mission.
- b. Conserve, restore where appropriate, and enhance all species of fish, wildlife, and plants that are endangered or threatened with becoming endangered.
- c. Perpetuate migratory bird, interjurisdictional fish, and marine mammal populations.
- d. Conserve a diversity of fish, wildlife, and plants.
- e. Conserve and restore, where appropriate, representative ecosystems of the United States, including the ecological processes characteristic of those ecosystems.
- f. Foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use. Such use includes hunting, fishing, wildlife observation and photography, and environmental education and interpretation.

Specific example for Categorical Exclusion: Suppressing the invasive plant cheatgrass on a 40-acre upland area of Camas National Wildlife Refuge using glyphosate herbicide. Goal is to remove cheatgrass so native plants can be planted to restore the native ecosystem.

Specific example for Environmental Assessment: Rabbit and marmot eradication for island restoration on Tangik, Poa and Sud Islands within the Alaska Maritime National Wildlife Refuge. Goal is to eradicate rabbits and marmots from the island so seabirds and the native ecosystem can recover.

Specific example for an Environmental Impact Statement: Eradication of rats at Palmyra National Wildlife Refuge using helicopters to broadcast aerially rodenticide. Goal is to eradicate rats so seabirds, the lagoon, the coral reef, terrestrial habitat, and the native ecosystem can recover.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

(Approximate number of NEPA reviews this applies to: 300).

NEPA review occurs early in the invasive species project planning and before the project is officially funded and the work is initiated.

Specific example for Categorical Exclusion: Suppressing the invasive plant cheatgrass on a 40-acre upland area of Camas National Wildlife Refuge using glyphosate herbicide. NEPA review occurred before the project was officially funded and the work initiated.

Specific example for Environmental Assessment: Rabbit and marmot eradication for island restoration on Tangik, Poa and Sud Islands within the Alaska Maritime National Wildlife Refuge. NEPA review occurred

before the project was officially funded and the work initiated.

Specific example for an Environmental Impact Statement: Eradication of rats at Palmyra National Wildlife Refuge using helicopters to broadcast aerially rodenticide. NEPA review occurred before the project was officially funded and the work initiated.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

(Approximate number of NEPA reviews this applies to: 300).

The level of NEPA review is variable and depends upon the complexity of the invasive species management action. We have a NEPA Guidance handbook that was recently completed for the National Wildlife Refuge System that guides us through the process. The majority of the actions within the refuge system typically have Categorical Exclusions such as using non-restricted herbicides to spray invasive plants with backpack sprayers in terrestrial portions of a refuge. The eradication of invasive rats from island refuges using helicopters to aerially broadcast rodenticides throughout the island have undergone either an Environmental Assessment or and Environmental Impact Statement.

Specific example for Categorical Exclusion: Suppressing the invasive plant cheatgrass on a 40-acre upland area of Camas National Wildlife Refuge using glyphosate herbicide.

Specific example for Environmental Assessment: Rabbit and marmot eradication for island restoration on Tangik, Poa and Sud Islands within the Alaska Maritime National Wildlife Refuge.

Specific example for an Environmental Impact Statement: Eradication of rats at Palmyra National Wildlife Refuge using helicopters to broadcast aerially rodenticide.

c. Which target species are being/were considered?

(Approximate number of NEPA reviews this applies to: 300).

The invasive target species are variable including plants, insects, rodents, and ungulates. The majority of the targets are plants.

Specific example for Categorical Exclusion: Suppressing the invasive plant cheatgrass on a 40-acre upland area of Camas National Wildlife Refuge using glyphosate herbicide.

Specific example for Environmental Assessment: Rabbit and marmot eradication for island restoration on Tangik, Poa and Sud Islands within the Alaska Maritime National Wildlife Refuge.

Specific example for an Environmental Impact Statement: Eradication of rats at Palmyra National Wildlife Refuge using helicopters to broadcast aerially rodenticide.

d. How is/was the ecosystem/location defined and spatially bounded?

(Approximate number of NEPA reviews this applies to: 300).

The location is usually a national wildlife refuge or a portion of a refuge as indicated by detailed GIS maps.

Specific example for Categorical Exclusion: Suppressing the invasive plant cheatgrass on a 40-acre upland area of Camas National Wildlife Refuge using glyphosate herbicide. Area defined on a map.

Specific example for Environmental Assessment: Rabbit and marmot eradication for island restoration on Tangik, Poa and Sud Islands within the Alaska Maritime National Wildlife Refuge. Area defined by the entire islands.

Specific example for an Environmental Impact Statement: Eradication of rats at Palmyra National Wildlife Refuge using helicopters to broadcast aerially rodenticide. Area defined by the entire atoll.

e. How are/were non-target effects/adverse impacts defined and spatially bounded?

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

Specific example for Categorical Exclusion: Suppressing the invasive plant cheatgrass on a 40-acre upland area of Camas National Wildlife Refuge using glyphosate herbicide. Non-target effects defined by the 40-acre upland area.

Specific example for Environmental Assessment: Rabbit and marmot eradication for island restoration on Tangik, Poa and Sud Islands within the Alaska Maritime National Wildlife Refuge. Non-target effects defined by the terrestrial portions of each of the islands.

Specific example for an Environmental Impact Statement: Eradication of rats at Palmyra National Wildlife Refuge using helicopters to broadcast aerially rodenticide. Non-target effects defined by the terrestrial and lagoon portions of the atoll.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

Specific example for Categorical Exclusion: Suppressing the invasive plant cheatgrass on a 40-acre upland area of Camas National Wildlife Refuge using glyphosate herbicide. Budget: <\$50k. Timeframe: ~ 3 years.

Specific example for Environmental Assessment: Rabbit and marmot eradication for island restoration on Tangik, Poa and Sud Islands within the Alaska Maritime National Wildlife Refuge. Budget: <\$1 million. Timeframe: ~ 3 years.

Specific example for an Environmental Impact Statement: Eradication of rats at Palmyra National Wildlife Refuge using helicopters to broadcast aerially rodenticide. Budget: \$2.2 million. Timeframe from using the helicopters to drop bait (~ 1 month) and monitoring to declare the atoll rat free ~ 2 years.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

Specific example for Categorical Exclusion: Suppressing the invasive plant cheatgrass on a 40-acre upland area of Camas National Wildlife Refuge using glyphosate herbicide. Budget: <\$3k. Timeframe: ~ 3 months.

Specific example for Environmental Assessment: Rabbit and marmot eradication for island restoration on Tangik, Poa and Sud Islands within the Alaska Maritime National Wildlife Refuge. Budget: <\$100k. Timeframe: ~ 1 year.

Specific example for an Environmental Impact Statement: Eradication of rats at Palmyra National Wildlife Refuge using helicopters to broadcast aerially rodenticide. Budget: <\$300k. Timeframe < 3 years.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

Due to flat or declining budgets, the number of biologists (who have the technical expertise to prepare NEPA documents) stationed on our 563 national wildlife refuges has decreased. The biologists that are stationed on refuges have increased duties because the number of bio-technicians assisting them has decreased. Therefore, we have diminished personal and time to complete NEPA documents.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

Second to preventing invasive species from establishing on a refuge, is to monitor and find new infestations of invasive species early on and respond quickly to suppress, contain, or eradicate them. Because of our current capacity limitation as expressed in answer 5, it often takes many months to comply with NEPA and this inhibits our ability to respond quickly to a new invasive species infestation. This time lag is critically important for some invasive species. For example, if a fishing vessel infested with invasive rats accidentally wrecks on an island within a National Wildlife Refuge, we need to respond with days to prevent the rats from establishing on the island. Complying with NEPA as well as with Section 7 of the Endangered Species Act typically delays the immediate response.

7. How have the specific challenges identified in questions 5 and 6 been addressed?

The National Wildlife Refuge System recently completed a NEPA handbook specific to the refuge system which is very helpful to employees to be able to more efficiently go through the NEPA process. We have also begun to use or to investigate the use of "Programmatic NEPA" where NEPA for particular action is covered over a large geographical area. The specific refuge needing to implement an invasive action can then point to this programmatic document which helps to reduce the amount of time needed for an individual field station NEPA document.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

Additional capacity within the Refuge system and more programmatic NEPA documents to cover activities such as rodent eradications.

Many of our individual refuges have nonprofit "Friends Groups" that can help convey to decision makers the need for additional capacity within the refuge system.

The Cooperative Alliance for Refuge Enhancement (CARE) is a national coalition of 23 wildlife, sporting, conservation, and scientific organizations. Together, these organizations represent a national constituency numbering more than 16 million Americans. Working together, and with the support of more than 230 refuge Friends groups, CARE educates Congress, the Administration and the public about America's magnificent National Wildlife Refuge System and our capacity need.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

Most of the invasive species projects within the National Wildlife Refuge follow established Best Management Practices that will help enhance the environment and native biodiversity. As much as the NEPA process could be streamlined to reduce the time involvement in fulfilling all requirements would be extremely helpful.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

(a) invasive species prevention:

1. Streamlined process.
2. More options for Categorical Exclusions that benefit the environment.
3. More options so FWS can respond immediately to new, small infestations of invasive species on islands (i.e. shipwreck with rats) to prevent their establishment on fragile ecosystems with many threatened endangered species.

(b): invasive species eradication:

1. Streamlined process.
2. More options for Categorical Exclusions that benefit the environment.
3. More options so FWS can respond immediately to new, small infestations of invasive species on islands (i.e. shipwreck with rats) to prevent their establishment on fragile ecosystems with many threatened endangered species.

(c): invasive species control:

1. Streamlined process.
2. More options for Categorical Exclusions that benefit the environment.
3. More options so FWS can respond immediately to new, small infestations of invasive species on islands (i.e. shipwreck with rats) to prevent their establishment on fragile ecosystems with many threatened endangered species.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

We have created the following policy within our US Fish and Wildlife Service and National Wildlife Refuge System Manuals:

Refuge Manual Chapter 7 RM 8. Exotic Species Introduction and Management.

- The policy of the Service is to prevent further introduction of exotic species on refuges except where an exotic species would have value as a biocontrol agent and would be compatible with the objectives of the refuge.

Refuge Manual Chapter 7 RM 6.1. Feral Horses and Burros.

- Describes the role and management of feral horses and burros within the National Wildlife Refuge System. Feral horses and burros shall not be introduced, established, or allowed to become established on any national wildlife refuge. Specific policy related to Sheldon, Hart Mountain, Kofa, Cibola, Imperial, and Havasu NWRs.

Service Manual 601 FW 3. Biological Integrity, Diversity, and Environmental Health.

- 3.14 F. We do not introduce species on refuges outside their historic range or introduce species if we determine that they were naturally extirpated, unless such introduction is essential for the survival of a species and prescribed in an endangered species recovery plan, or is essential for the control of an invasive species and prescribed in an integrated pest management plan.
- 3.16 A. We prevent the introduction of invasive species, detect and control populations of invasive species, and provide for restoration of native species and habitat conditions in invaded ecosystems. We develop integrated pest management strategies that incorporate the most effective combination of mechanical, chemical, biological, and cultural controls while considering the effects on environmental health. B. We require no action to reduce or eradicate self-sustaining populations of non-native, noninvasive species (e.g., pheasants) unless those species interfere with accomplishing refuge purpose(s). We do not, however, manage habitats to increase populations of these species unless such habitat management supports accomplishing refuge purpose(s).

Service Manual 750 FW 1. Managing Invasive Species Pathways.

- Establishes policy to help prevent the spread of invasive and non-target species by developing and implementing a quality-control planning process in all Service operations within the Fisheries Program through Hazard Analysis and Critical Control Point (HACCP) Plans. Policy helps the Fisheries Program to better protect, secure, and maintain the ecological viability of our nation's fish and wildlife resources by reducing the movement of invasive and non-target species. Our policy is to reduce or prevent the spread of invasive and non-target species by implementing HACCP plans.

Service Manual 569 FW 1. Integrated Pest Management.

- Establishes policy, procedures, and responsibilities for pest management activities on and off Service lands. It is consistent with the Department of the Interior Integrated Pest Management policy (517 DM 1) and other applicable authorities. Adopts Integrated Pest Management (IPM) as our method for making pest management decisions. Provides guidance to employees on how to implement IPM for all pest management activities. The Service's pest management policy is to promote and adopt pest prevention as the first line of defense by using a pathway management strategy such as Hazard Analysis and Critical Control Point (HACCP) planning to prevent unintended spread of species and biological contamination (See 750 FW 1 for more information on HACCP planning).

Service Manual 603 FW 2. Compatibility.

- Provides policy for determining compatibility of proposed and existing uses of national wildlife refuges. Policy applies to all proposed and existing uses of national wildlife refuges where we have jurisdiction over such uses. The refuge manager will not initiate or permit a new use of a national wildlife refuge or expand, renew, or extend an existing use of a national wildlife refuge unless the refuge manager has determined that the use is a compatible use.

Service Manual 603 FW 1. Appropriate Refuge Uses.

- Provides a national framework for determining appropriate refuge uses. Provides the policy and procedure for refuge managers to follow when deciding if uses are appropriate on a refuge. This policy also clarifies and expands on the compatibility policy (603 FW 2.10D), which describes

when refuge managers should deny a proposed use without determining compatibility. When we find a use is appropriate, we must then determine if the use is compatible before we allow it on a refuge. This policy applies to all proposed and existing uses in the National Wildlife Refuge System (Refuge System) only when we have jurisdiction over the use.

In addition, we have also created:

National Wildlife Refuge System National Strategy for the Management of Invasive Species. From Fulfilling the Promise. National Invasive Species Management Strategy Team. April 23, 2003. 56pp.

- This document sets forth a comprehensive strategy for dealing with the critical problem of invasive species in the United States. Developed within the context of the National Invasive Species Management Plan (as called for by *Presidential Executive Order 13112*), and with the support of regional chiefs and representatives of the *Fulfilling the Promise* team, this National Strategy will provide clear guidance to regional and field offices as they conduct invasive species management efforts. It will also make us better neighbors to our external partners at the local, state, and federal level.

U.S. FISH AND WILDLIFE SERVICE – REFUGES RESPONSE Con't

1. Name/position/contact info:

Bill Pyle, Supervisory Wildlife Biologist, USFWS/Kodiak National Wildlife Refuge, 907-487-0228, Bill_Pyle@fws.gov

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

“The U.S. Fish and Wildlife Service (Service) proposes to adopt an adaptive Integrated Pest Management (IPM) approach, including allowance for use of aminopyralid and glyphosate herbicides as appropriate, for prevention, control, and eradication of invasive plants on Kodiak National Wildlife Refuge (Refuge) and vicinity (2010 FONSI).”

“The purpose of this Preliminary Supplemental Environmental Assessment (SEA) is to implement tactical changes employed to maintain and increase the effectiveness of our invasive plant management strategy in the Kodiak Archipelago. These changes would augment the Service-approved strategy for management of invasive plants described in a 2010 Environmental Assessment...” (2014 FONSI)

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

The Service at Kodiak National Wildlife Refuge (Refuge) initiated planning for invasive species management in 2003. During 2003-2007 three integrated pest management plans (IPM) were prepared, reviewed and revised internally, and approved by management. None, however, were subject to NEPA review. Concurrently, invasive management concerns and proposed actions were described in the Refuge’s Comprehensive Conservation Plan/Environmental Impact Statement (EIS). The Record of Decision for the EIS was approved in February 2007. In 2008, the Regional Director of the Service’s Alaska Region was sued regarding use of herbicides in integrated pest management (IPM) of invasive plant species on National Wildlife Refuges of Alaska. The plaintiffs’ complaints and allegations pertained exclusively to the use of herbicide by the Service in its IPM program at Kodiak Refuge. The lawsuit was dropped after the Regional Director of the Service’s Alaska Region suspended use of herbicides on Alaska NWRs, including Kodiak Refuge, pending completion of NEPA review. In response Kodiak Refuge suspended IPM of invasive plants including use of herbicide pending completion of NEPA review. Subsequently the Service at Kodiak Refuge prepared a programmatic IPM plan for its invasive plant management in an environmental assessment (EA) and conducted extensive NEPA review. The actions proposed in the EA by the Service at Kodiak Refuge were approved in a FONSI, November 2010. The FONSI decision supported use of selected herbicides, where appropriate to manage invasive plants, in concert with other IPM actions by the Service at Kodiak Refuge. Following implementation of its programmatic plan, the Service at Kodiak Refuge identified several additional invasive management needs and determined to address these needs via additional NEPA process including preparation of a supplementary EA and plan in 2013-14. The actions proposed in the supplementary EA were approved in a FONSI in May 2014.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

EA and Supplementary EA

c. Which target species are being/were considered?

Targeted species are listed below, in accordance with the Service’s (Kodiak Refuge) 2010 EA and 2014 EA Supplement:

Species
Bohemian knotweed (<i>Polygonum X bohemicum</i>)
Giant knotweed (<i>Polygonum sachalinensis</i>)
Reed canarygrass (<i>Phalaris arundinacea</i>)
Orange hawkweed (<i>Hieracium aurantiacum</i>) ²
Canada thistle (<i>Cirsium arvense</i>) ²
European bird cherry (<i>Prunus padus</i>)
Common toadflax (<i>Linaria vulgaris</i>)
Siberian pea shrub (<i>Caragana arborescens</i>)
Yellow alfalfa (<i>Medicago sativa ssp. falcata</i>)
Oxeye daisy (<i>Leucanthemum vulgare</i>) ²
Bull thistle (<i>Cirsium vulgare</i>)
European mountain ash (<i>Sorbus aucuparia</i>) ²
Common tansy (<i>Tanacetum vulgare</i>) ²
Creeping buttercup (<i>Ranunculus repens</i>)
Splitlip hempenettle (<i>Galeopsis bifida</i>)

d. How is/was the ecosystem/location defined and spatially bounded?

The project area encompassed lands of the Kodiak Archipelago with emphasis on Service lands of Kodiak Refuge. The area was delineated in GIS using land surface status data layers prepared by the Service’s Alaska Region coupled with other data layers available in the public domain.

e. How are/were non-target effects/adverse impacts defined and spatially bounded?

Potential non-target impacts associated with alternative approaches to IPM of invasive plants were thoroughly described and discussed in the environmental consequences sections of the EA (2010), EA Supplement (2014), and associated FONSI.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

2010 EA: 1.5 years and \$70K (author B. Pyle)
2014 EA Supplement: 0.5 years and \$20K (author B. Pyle)

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

Same as response to question #3

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

a. In 2008 and 2009 the Service at Kodiak Refuge suspended previously authorized IPM that included use of herbicide to manage infestations of highly invasive plant species in several areas. Additionally, the suspension included prohibition on IPM including herbicide use by the Kodiak Soil and Water Conservation District, whose IPM with herbicide use had been approved and partly paid through Service grant programs administered by the Anchorage Field Office of Ecological Services. The suspension in Refuge and District IPM including herbicide use diminished IPM effectiveness in 2008 and 2009 and prompted expansion of infestations in the Kodiak area.

b. The Refuge completed a NEPA review to address its IPM programmatic needs. Meanwhile, Ecological Services had limited ability to undertake NEPA review on behalf of the District and, therefore, use of Service funds supporting IPM with herbicide use was indefinitely suspended. Despite its limited capacity, the Kodiak Refuge complied with the NEPA review directives, which addressed the Refuge's specific needs, as well as the District's needs. Moreover, the programmatic plans associated with the EA and EA supplement covered the entire scope of Service-supported IPM in the Kodiak area. Alternatively, the Service's Alaska Region could have determined, before or after the 2008 lawsuit, to undertake the NEPA programmatic IPM planning including herbicide use covering all Alaska NWRs. Such regional-scale planning including NEPA review has been taken by other federal agencies of the U.S. (e.g., USDA Forest Service) including Dept. Interior agencies in Alaska (U.S. National Park Service).

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

Same as response to question #5

7. How have the specific challenges identified in questions 5 and 6 been addressed?

Service approvals of Kodiak Refuge's 2010 EA and 2014 EA Supplement have supported the Refuge's programmatic and site-specific needs, as well as most of the District's needs, for IPM of highly invasive plant species. On the other hand, several other Alaskan NWR's, as well as a Field Office of the Ecological Services (Juneau) have identified invasive plant problems, expressed interest in IPM management including herbicide use, and were directed to undertake NEPA review to address their area-specific needs. However, to date regional-scale planning and NEPA review have not been conducted. It appears that due to an incremental approach to invasives management Service resources are not efficiently applied, potentially effecting implementation of IPM, including herbicide use resulting in an increase of invasive plants.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

Through NEPA scoping and other opportunities for comment, public concerns about invasives management are primarily (1) management of invasive plants pertaining to inclusion of herbicides as an IPM tool, and (2) the sufficiency of the NEPA process regarding use of herbicides as an IPM tool.

Development of a regional programmatic plan, including NEPA review, by a designated a planning team is needed. To accomplish this additional staff in the Refuge Planning Branch is needed in the form of one primary planner (i.e., 1 FTE, GS-12 or GS-13). The scope of planning and associated NEPA review would focus on IPM, including herbicide uses as warranted, on Alaska NWRs. It would also address IPM applications on non-refuge lands where Service funds or personnel are used to support IPM involving herbicide use, and non-refuge landowners have approved the application. The Service's approved 2010 EA and 2014 supplement for Kodiak Refuge identifies a process for addressing conditions and requirements for Service-supported IPM involving herbicide use on non-refuge lands. Copies of these documents may be downloaded from the following website:

http://www.fws.gov/refuge/Kodiak/what_we_do/resource_management.html

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

Refer to response to question #8

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

All three categories should be simultaneously addressed in Regional-scale programmatic plans for IPM of highly invasive plants. Although NEPA review is not required to prepare and implement a prevention plan, it likely will be needed to prepare and implement eradication and control plans. To complete this planning process, guidance and some additional funding would be need to be conveyed from the Service's Washington Office to the Alaska Regional Office.

Provided approval of a regional plan, field offices and stations would address area-specific IPM involving herbicide use via preparation of Pesticide Use Proposals (PUPs). A PUP must be reviewed and approved by station manager (line officer) and the Regional Office before it may be implemented. PUPs do not require NEPA review; however, IPM actions proposed in PUPs should be covered by an approved programmatic plan that has completed the NEPA review process.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

The Service at Kodiak Refuge is in compliance with Section 2 of Executive Order 13112 as well as Service IPM policy 569fw1. As described in responses to preceding questions, the framework of the Refuge's IPM program is described in an approved programmatic plan that has met NEPA review requirements. For more information, please refer to these plans: http://www.fws.gov/refuge/Kodiak/what_we_do/resource_management.html

U.S. FISH AND WILDLIFE SERVICE – REFUGES RESPONSE Con't

1. Name/position/contact info:

John Martin/Regional Refuge Ecologist/john_w_martin@fws.gov

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. what is/was the goal of your proposed invasive species management action?

To address invasive species considerations related to climate change in all regional planning contexts, specifically under Executive Order National Strategy for the Arctic Region and Conservation of Arctic Flora and Fauna (CAFF) Arctic Biodiversity Assessment – include vascular and nonvascular plants, invertebrates, vertebrates, and pathogens.

b. at what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

Presently under affected (existing) environment, environmental consequences, and cumulative impacts, particularly regarding future, climate change scenarios.

f. what level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

All levels.

g. which target species are being/were considered?

Depends on vulnerability assessments and risk management – to be determined.

h. how is/was the ecosystem/location defined and spatially bounded?

As defined by Landscape Conservation Cooperatives – 5 for Alaska but also CAFF Circumpolar Vegetation Map (CBVM).

i. How are/were non-target effects/adverse impacts defined and spatially bounded?

Administratively problematic and approach evolving. There could be hybridization occur between invasive species with congeners in Arctic and subarctic regions that may create a new aggressive, adaptable variant (i.e., competitively plastic and durable under environmental extremes); future ecosystems may not resemble anything currently known but rather novel and unique. It is an underlying presumption due to remoteness and limitations of management response, that future Arctic region will not be free of invasive species.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

Although considerable time and effort has been invested in the NEPA review of vertebrate eradication accurate costs are not available at this time. The project to date has taken approximately 2 years.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

The timeframe planned for completing the NEPA review was 2.5 to 3 years.

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

Lack of staff on the refuge with NEPA training and breadth of experience with NEPA to be project leader or fully participate as a core team member on an interdisciplinary team.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

See above.

7. How have the specific challenges identified in questions 5 and 6 been addressed?

NEPA training was conducted fall 2015 and will be offered again in fall 2016

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

Realization that regional guidance and an EIS addressing broad regional issues from which EAs for specific projects can be tiered from is needed. The Regional Planning Branch is best positioned to address this need. To do this additional staff in the Refuge planning branch is needed.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

Achievement of the tenets of the CAFF ABA and National Strategy for the Arctic Region.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

- Investment in a seamless agency vulnerability assessment and risk management plan for Alaska; better baseline inventories particularly for plants and invertebrates; better agency investment in invasive species considerations beyond token efforts.
- A vulnerability assessment and risk management plan, plus better baseline inventories (noted above), would establish focused monitoring locations, pathways, and priorities of invasive species; monitoring and initial attack would be ranked as to high priority, moderate and low efforts based on actual or potential of pioneering species impacts of ecological services and human health-lifestyles; and, networking among agencies, State, local

governments and industry to ensure a comprehensive approach.

- Control would be continuous, repeated, or occasional as warranted by the invasiveness of species with regard to impacts of ecological services and human health-lifestyles; create adequate feedbacks to assure engagement with known invasive species but also uncertainties related to further pioneering.

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

Little investment regarding strategic engagement and relevant invasive species consideration updates under CAFF and National Strategy for the Arctic Region.

U.S. FISH AND WILDLIFE SERVICE – REFUGES RESPONSE Con't

1. Name/position/contact info:

Steve Ebbert, Wildlife Biologist, Alaska Maritime NWR, 95 Sterling Hwy #1, Homer, AK 99603

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

Restore natural biodiversity by eradicating invasive species on refuge islands.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

Refuge CCP described invasive (“alien”, “introduced”) species impacts on native wildlife on the refuge.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

The appropriate level of NEPA documents (Environmental Actions Statements, EA, EIS) were prepared for each project and two are currently in progress, that address invasive species issues on the refuge.

d. Which target species are being/were considered?

Invasive predators, ungulates, European rabbits and hoary marmots.

e. How is/was the ecosystem/location defined and spatially bounded?

The refuge is defined in five units. Projects were spatially bounded by island shoreline.

f. How are/were non-target effects/adverse impacts defined and spatially bounded?

Nontarget effects were generally limited to observations on the target island. Additionally, an endemic subspecies of migratory geese was also monitored at their wintering areas.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

Budgets vary between a few thousand dollars to \$3.5 million. Eradication of invasive species on refuge islands has been ongoing since 1949, or 21 years prior to the signing of NEPA into law. The majority of efforts were seasonal. Often eradication success was achieved in one season. In other cases, more than one field season was needed to take every target individual on the island.

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

The NEPA process takes longer than the on-the-ground proposed action. The range of time for preparing the NEPA for a proposed action is 2 .5 months to 6 years (at least, because current preparation for a current project is ongoing).

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

A significant challenge is lack of studies specific to the target island relative to environmental effects of the proposed action.

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

Historically, we were successful at achieving invasive species management actions. Recently, appeals of NEPA reviews has limited our capacity to achieve the goals of the invasive species management action.

7. How have the specific challenges identified in questions 5 and 6 been addressed?

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

An agency NEPA workshop focused on invasive species projects – past, ongoing and proposed.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

U.S. FISH AND WILDLIFE SERVICE – REFUGES RESPONSE Con't

1. Name/position/contact info:

Mike Buntjer/ Regional Fish and Wildlife Biologist/ Michael_buntjer@fws.gov

2. With regards to your current and/or past NEPA reviews involving invasive species issues:

a. What is/was the goal of your proposed invasive species management action?

Complete eradication of *Elodea* spp. (Elodea), an aquatic invasive plant.

b. At what stage during the planning process are/were invasive species management actions the subject of NEPA reviews?

When Elodea was found in more densely populated areas with high fish and wildlife resource value, and where risk of spread was highest.

c. What level of NEPA review (e.g., CE, EA, EIS) is being/was prepared for the invasive species management action or proposed action?

EA

d. Which target species are being/were considered?

Elodea spp.

e. How is/was the ecosystem/location defined and spatially bounded?

Discrete water bodies in Anchorage, Alaska

f. How are/were non-target effects/adverse impacts defined and spatially bounded?

With the proposed treatments there was minimal to no adverse effects to non-target species in the identified water bodies.

Note: If you have conducted multiple NEPA reviews in the context of invasive species management, you may provide a general response to each question. After stating the general answer, please note in parentheses the approximate number of NEPA reviews the response applies to, and then provide one or two specific examples for each level of NEPA review.

3. What is/was the budget and timeframe required for achieving the goal of the proposed action?

\$110,800; a 3-year time frame

4. What is/was the budget and timeframe required for preparing the NEPA review for the proposed action?

Staff time; approximately a 4-month time frame

5. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to prepare the NEPA review?

Securing the necessary state herbicide permits and preparing the federal Pesticide Use Proposal

6. What are/were the specific challenges to NEPA compliance that have/are limited your capacity to achieve the goal(s) of the invasive species management action?

Time to secure the necessary state permits

7. How have the specific challenges identified in questions 5 and 6 been addressed?

Collaboration and close cooperation between all entities involved; and the potential to exempt some treatments from the state permitting process under certain conditions.

8. What is needed to overcome these challenges and who do you believe is best positioned to address that need?

Having experienced staff dedicated to working with invasive species issues and continuing to work closely and cooperatively with all entities involved to find ways to streamline the entire process.

9. What general guidance would be useful for making NEPA compliance more efficient/effective in the context of invasive species eradication and control?

Possibly have invasive species staff with NEPA experience and NEPA training to address issues. Potentially develop templates for dealing with various invasive species and issues. Educate the public on the need and means to prevent invasive species introductions and to minimize their potential spread.

10. List three priorities for targeting NEPA guidance for each of the following categories (9 total): (a) invasive species prevention; (b) invasive species eradication; and (c) invasive species control?

(a): Public awareness and education.

(b): Develop invasive species management plans to identify threats from high priority invasive species and implement measures to minimize risk of introductions from potential vectors.

(c): Early Detection and Rapid Response (EDRR)

11. What is your agency currently doing to implement Section 2 (Federal Agency Duties) of Executive Order 13112 (reprinted below)?

Working with and funding, where possible, our state partners and others to monitor and address invasive species issues, including EDRR.