DEVIL CANYON PROJECT RELICENSING
FERC PROJECT NUMBER 14797

AQUATIC INVASIVE SPECIES MANAGEMENT PLAN

November 2019

State of California
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
Hydropower License Planning and Compliance Office

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Governor	Secretary for	Director
State of California	California Natural Resources	Department of Water Resources

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COMMONLY USED TERMS, ACRONYMS AND ABBREVIATIONS

AIS	aquatic invasive species
APAP	Aquatic Pesticide Application Plan
Application for New License	DWR's Application for a New License for Major Project – Existing Dam for the Devil Canyon Project Relicensing, FERC Project Number 14797
BMP	Best Management Practice
CDFW	California Department of Fish and Wildlife
DNA	deoxyribonucleic acid
DPR	California Department of Parks and Recreation
DWR	California Department of Water Resources
FERC	Federal Energy Regulatory Commission
MIB	2-Methylisoborneol
MWD	Metropolitan Water District
NFS	National Forest System
O&M	operations and maintenance
Plan	Aquatic Invasive Species Management Plan
PM&E measures	Protection, Mitigation, and Enhancement measures, are operation and management activities to: (1) protect resources against impacts from continued operations and maintenance of the Project; (2) mitigate any impacts from continued operations and maintenance of the Project (if the resource cannot be fully protected); and (3) enhance resources affected by continued Project operations and maintenance
Project	Devil Canyon Project Relicensing, FERC Project Number 14797
Project boundary	The area to which DWR requires access for normal Project operations and maintenance; the boundary is shown in Exhibit G of DWR's Application for New License
Project vicinity	The area within and surrounding the FERC Project boundary on the order of a USGS 1:24,000 quadrangle
RWQCB	Regional Water Quality Control Board
SBNF	San Bernardino National Forest
SRA	State Recreation Area
SWP	State Water Project

SWRCB	State Water Resources Control Board
U.S.	United States
USFS	U.S. Department of Agriculture, Forest Service

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1.0 INTRODUCTION

In November 2019, the California Department of Water Resources (DWR), pursuant to Title 18 of the Code of Federal Regulations, Subchapter B (Regulation under the Federal Power Act), Part 4, Subpart F (Application for License for Major Project – Existing Dam) (Traditional Licensing Process), filed with the Federal Energy Regulatory Commission (FERC) an Application for a New License for Major Project – Existing Dam (Application for New License) for DWR's Devil Canyon Project Relicensing, FERC Project Number 14797 (Project).

DWR included this Aquatic Invasive Species Management Plan (Plan) in its November 2019 Application for New License. For the purpose of this Plan, aquatic invasive species (AIS) include aquatic organisms that invade ecosystems beyond their natural, historic range and may harm native ecosystems or commercial, agricultural, or recreational activities; algal blooms that generate undesirable taste and odor compounds; and algal blooms that can create unhealthy conditions through the production of cyanotoxins. The list of AIS of concern for this Plan includes species known or with the potential to occur on the Project, as follows:

- Cyanobacteria
- Aquatic Plants
  - curly leaf pondweed (*Potamogeton crispus*)
  - Eurasian watermilfoil (*Myriophyllum spicatum*)
  - coontail (*Ceratophyllum demersum*)
  - sago pondweed (*Potamogeton pectinatus*)
  - hydrilla (*Hydrilla verticillata*)
  - water hyacinth (*Eichhornia crassipes*)
  - parrot's feather milfoil (*Myriophyllum aquaticum*)
- Mollusks
  - New Zealand mudsnail (*Potamopyrgus antipodarum*)
  - Asian clam (*Corbicula fluminea*)
  - channeled apple snail (*Pomacea canaliculata*)
  - European ear snail (*Radix auricularia*)

- Crustaceans
  - Red swamp crayfish (*Procambarus clarkii*)
- Amphibians
  - American bullfrog (*Lithobates catesbeianus*)
  - African clawed frog (*Xenopus laevis*)
- Reptiles
  - red-eared slider (*Trachemys scripta elegans*)
- Fish
  - Shimofuri goby (*Tridentiger bifasciatus*)
  - Inland silverside (*Menidia beryllina*)

Of the above AIS, at this time, cyanobacteria, curly leaf pondweed, Eurasian watermilfoil, coontail, sago pondweed, Asian clam, channeled applesnail, red-eared slider, Shimofuri goby, and inland silverside are reported to occur in Silverwood Lake. The other AIS in the preceding list have a known risk of being introduced to Project impoundments. Additional AIS may be added to the above list in this Plan if they are reported to occur or if there is good reason to suspect that they occur or will occur in Project impoundments.

In addition to the above AIS, the following 11 species of non-native fish are reported to occur in Silverwood Lake: (1) largemouth bass (*Micropterus salmoides*); (2) bluegill (*Lepomis macrochirus*); (3) black crappie (*Pomoxis nigromaculatus*); (4) striped bass (*Morone saxatilis*); (5) channel catfish (*Ictalurus punctatus*); (6) white catfish (*Ameiurus catus*); (7) American shad (*Alosa sapidissima*); (8) threadfin shad (*Dorosoma petenense*); (9) Sacramento blackfish (*Orthodon microlepidotus*); (10) hitch (*Lavinia exilicauda*); and (11) tule perch (*Hysterocarpus traskii*). In addition, the California Department of Fish and Wildlife (CDFW) has stocked non-native rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) in the reservoir. DWR does not consider these non-native fish to be AIS for purposes of this Plan. Earlier in this section, we defined AIS as aquatic organisms that invade ecosystems beyond their natural, historic range, and that may harm native ecosystems or commercial, agricultural, or recreational activities. More details of these non-native fish in Silverwood Lake can be found in Section 5.3, Fish and Aquatic Resources, of Exhibit E in the Application for New License.

All elevation data in this exhibit are in U.S. Department of Commerce, National Oceanic and Atmospheric Association, National Geodetic Survey Vertical Datum of 1929, unless otherwise stated.

1.1 BACKGROUND

1.1.1 Brief Project Description

The Project is part of a larger water storage and delivery system, the State Water Project (SWP), which is the largest state-owned and operated water supply project of its kind in the United States. The SWP provides southern California with many benefits, including affordable water supply, reliable regional clean energy, opportunities to integrate green energy, accessible public recreation opportunities, and environmental benefits.

The Project, which is on the East Branch of the SWP in San Bernardino County, has a FERC-authorized installed capacity of 280 megawatts. Project facilities range in elevation from 3,378 feet to 1,778 feet, and include: Cedar Springs Dam and Silverwood Lake; San Bernardino Tunnel; Devil Canyon Powerplant Penstocks and Surge Chamber; Devil Canyon Powerplant and Switchyard; Devil Canyon Afterbay and Devil Canyon Second Afterbay; Silverwood Lake-associated recreation facilities; and appurtenant facilities and features. The California Department of Parks and Recreation (DPR), on behalf of DWR, maintains and operates the Silverwood Lake-associated Project recreation facilities as part of the Silverwood Lake State Recreation Area (SRA). Non-Project facilities (e.g., the Pacific Crest National Scenic Trail) traverse or are located in the Silverwood Lake SRA but are not Project facilities. The Project does not include any open water conduits or transmission lines. DWR operates the Project in a run-of-release mode using SWP water as the water is delivered to downstream SWP water users.

The Project boundary comprises 2,079.2 acres, of which 125.7 acres are National Forest System (NFS) lands managed by the U.S. Department of Agriculture, Forest Service (USFS), as part of the San Bernardino National Forest (SBNF). USFS administers the SBNF in conformance with the SBNF Land Management Plan (USFS 2005), as subsequently amended.

DWR will continue to operate the Project as it has been operated historically, with the addition of a number of Protection, Mitigation, and Enhancement (PM&E) measures, which are operation and management activities to: (1) protect resources against potential impacts from continued operations and maintenance (O&M) of the Project; (2) mitigate any impacts from continued O&M of the Project (if the resource cannot be fully protected); and (3) enhance resources affected by continued Project O&M. This Plan is one of those PM&E measures.

Figure 1.1-1 shows the Project vicinity. Figure 1.1-2 shows primary Project facilities, including DWR's Project boundary.

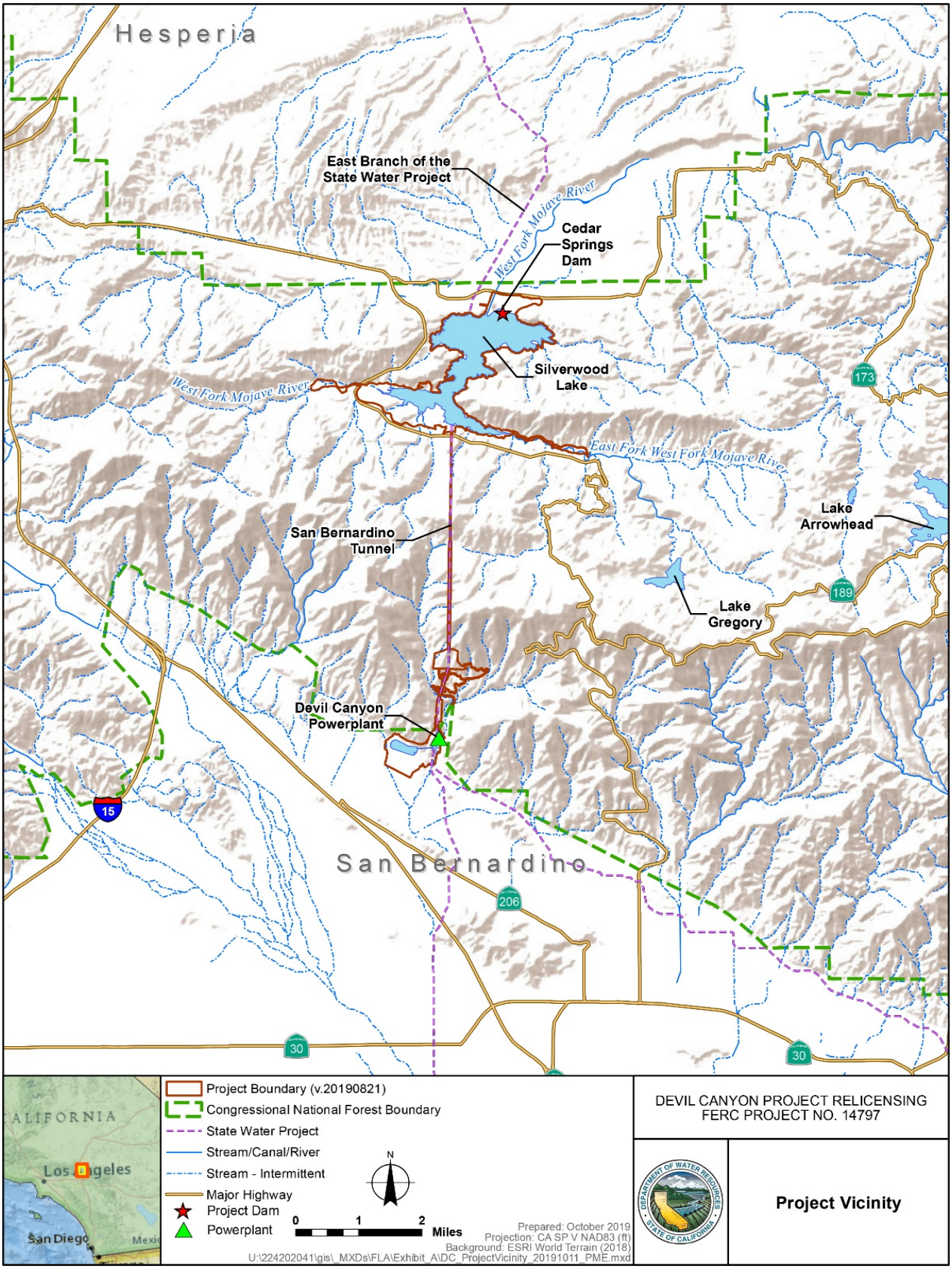

Figure 1.1-1. Devil Canyon Project Vicinity

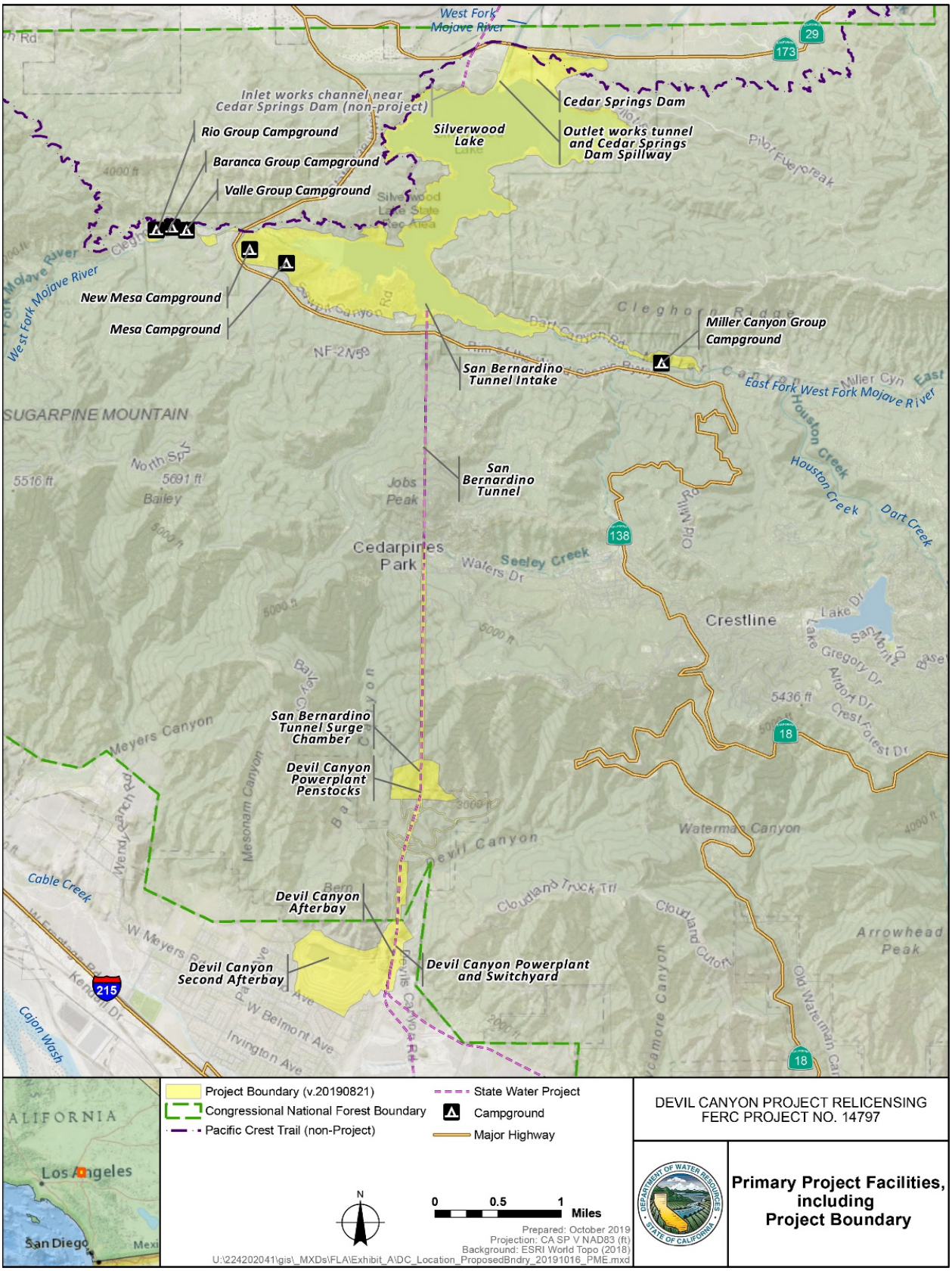

Figure 1.1-2. Devil Canyon Project Boundary

1.2 PURPOSE OF THE PLAN

The purpose of this Plan is to minimize the risk of introduction and spread of AIS due to Project O&M. To the extent appropriate, DWR will coordinate the efforts required under this Plan with other Project resource efforts, including implementation of other resource management plans and measures included in the license.

1.3 GOALS AND OBJECTIVES OF THE PLAN

The goal of this Plan is to provide guidance for managing AIS. The objectives of the Plan are to describe activities related to minimizing the risk of introduction and spread of AIS into and throughout Project-affected waters.

1.4 MANAGEMENT OF AIS SPECIES

1.4.1 Management Activities Performed by DWR

DWR actively monitors and manages for algal blooms that generate undesirable taste and odor compounds, and algal blooms that can create unhealthy conditions through the production of cyanotoxins.

DWR monitors and manages for the reduction of algae that produce taste and odor compounds and cyanobacteria that produce cyanotoxins through the application of aquatic algaecides, which is the most effective direct treatment. DWR plans to continue to manage for cyanobacteria through National Pollutant Discharge Elimination System permits for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications (SWRCB 2013).

1.4.2 Management Activities Not Performed by DWR

DWR does not manage for aquatic plants, Asian clam, channeled applesnail, American bullfrogs, African clawed frogs, or red-eared slider.

Management techniques for aquatic plants include mechanical removal, bottom barriers, dredging, water drawdown and some biological controls. Each of these techniques has drawbacks and are differentially successful, depending on species.

Currently, there are no effective treatments for long-term management of Asian clam. Mechanical dredging and barriers have had some success with short-term reduction in occurrences, but these methods are expensive, require intensive efforts and can harm native species and habitat. There is new experimentation with freezing Asian clam occurrences, but that is purely in a test phase at this time (Coughlan et. al 2018).

There are also currently no effective management techniques for channeled applesnail, especially for large occurrences. No chemical treatments have been identified for the species. Intensive hand removal and crushing and inundating of egg masses have been somewhat effective on reducing the size of small occurrences (University of Florida 2017).

Trapping, pesticide application, water drawdown and hunting/hand removal control methods have been moderately successful on small populations of American bullfrogs and African clawed frogs. However, no treatment methods for large populations or those in larger bodies of water have been developed.

Red-eared slider management is also time-consuming and difficult. The majority of effort is through hand capture of by trapping, primarily through fyke nets or baited cages. In some areas, sniffer dogs are being used to detect nesting red-eared sliders and eggs (CABI 2018). For smaller water bodies, water drawdown has also been used as a management tool (IUCN 2010).

1.5 CONTENTS OF THE PLAN

This Plan includes the following:

- Section 1.0. Introduction. This section includes introductory information, including the purpose, goals, and objectives of the Plan.
- Section 2.0. Aquatic Invasive Species Management and Monitoring. This section includes a description of preventative and monitoring guidelines for AIS.
- Section 3.0. Consultation, Reporting, and Plan Revisions. This section describes consultation between DWR, CDFW, and SBNF; reporting; and Plan revisions.
- Section 4.0. References Cited. This section includes the resource documents cited in this Plan.

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2.0 AQUATIC INVASIVE SPECIES MANAGEMENT AND MONITORING

2.1 STANDARDS AND BEST PRACTICES

This Plan identifies feasible and relevant actions to reduce or prevent introduction, infestation, or spread of AIS into or within Silverwood Lake, the Project afterbays, and Project-affected stream reaches caused by Project activities. Some of these actions are currently performed by DWR or DPR.

2.1.1 Best Management Practices for Project Activities

DWR will develop and implement specific Best Management Practices (BMP) for future Project O&M and construction activities that have the potential to introduce AIS into Silverwood Lake, the Project afterbays, and Project-affected stream reaches. BMPs for such activities may include the following, as applicable:

- A list of AIS with the potential to be introduced or spread
- Measures to reduce the potential for introduction or spread of AIS
- Identification of critical control points for prevention of AIS
- Actions that will be taken if an introduction of AIS is found during the O&M activity

2.2 MONITORING

2.2.1 Species-specific Monitoring

2.2.1.1 Cyanobacteria Blooms

Cyanobacteria are distributed worldwide and are prevalent throughout California in many types of freshwater waterbodies (lakes, rivers, streams, wetlands, estuaries). Certain species of cyanobacteria can produce toxins that are potentially harmful to human health if present in high concentrations. While cyanobacteria are not introduced species, cyanobacteria can become nuisance species when present in high abundance and form harmful algal blooms.

DWR routinely monitors for cyanotoxins produced by cyanobacteria through microscopic examination and chemical analysis of water samples. Samples are collected in the lake on a monthly basis from spring through fall. When sampling results indicate that concentrations of cyanotoxins are at or reaching a level of concern, DWR water quality staff determine the location of the source (in-lake production versus upstream production) and feasibility of control. If the location of the algal source is identified and cyanotoxin levels threaten water supply safety, DWR staff develop a plan for applying aquatic herbicides to control the harmful algal bloom. The control plan would be in compliance with the Aquatic Pesticide Application Plan (APAP) for the

SWP, as approved by the Lahontan Regional Water Quality Control Board (RWQCB) and the State Water Resources Control Board (SWRCB).

2.2.1.2 Taste and Odor Algal Blooms

Algae can produce compounds that cause unpleasant taste and odors in finished drinking water. In cooperation with DWR, Metropolitan Water District of Southern California (MWD) routinely monitors taste and odor compounds (i.e., geosmin and 2-Methylisoborneol [MIB]) produced by algae through chemical analysis of water samples. When sampling results indicate that concentrations of taste and odor compounds exceed a pre-determined level, MWD determines the source and requests DWR to manage the algal bloom and prevent further production of geosmin and MIB compounds. If an algal source is identified, DWR staff develop a plan for applying aquatic herbicides to control the specific algae associated with elevated taste and odor compound concentrations. Control measures include the application of aquatic herbicides as approved by the Lahontan RWQCB and the SWRCB and as outlined in the APAP for the SWP.

2.2.2 Incidental Observations Monitoring

During aquatic monitoring specified by this Plan and other implementation plans that are required as part of the new license, DWR will record incidental observations of AIS on field data sheets. The purpose of this effort is to opportunistically gather additional data for AIS, not to expand the specific AIS monitoring required by the Plan or conduct a focused survey (i.e., no survey effort in addition to the specific field tasks identified for the specific monitoring). Field personnel performing the implementation plan monitoring will be trained in the identification of AIS, but they are not expected to be experts on those species.

3.0 CONSULTATION, REPORTING, AND PLAN REVISIONS

3.1 CONSULTATION AND REPORTING

DWR will annually review AIS management activities on NFS lands that were completed in the previous calendar year, as well as any activities to be located on SBNF lands planned for the upcoming calendar year.

If DWR plans to apply aquatic herbicides in Silverwood Lake to control algae associated with elevated taste and odor compound concentrations or elevated cyanotoxin concentrations, DWR will notify DPR prior to application of the herbicide.

If any AIS that are not already known in the Project are detected by DWR anywhere within the Project boundary, DWR will notify the SBNF, CDFW, SWRCB and DPR.

If DWR identifies hydrilla within any waterbody in the Project boundary, DWR will notify California Department of Food and Agriculture by calling its Pest Hotline at 1-800-491-1899.

3.2 PLAN REVISIONS

DWR, in consultation with the SBNF (to the extent the Plan applies to NFS lands), CDFW, and SWRCB, will review, update, and/or revise this Plan, as needed (e.g., if new AIS are located in Silverwood Lake or if new, effective treatments/management techniques for known AIS are developed). Any updates to the Plan will be prepared in coordination and consultation with the SBNF (as updates apply to NFS lands), CDFW, and the SWRCB. DWR will allow 60 days for the SBNF, CDFW, and SWRCB to provide written comments and recommendations before filing the updated Plan with FERC for approval. DWR will include documentation of all relevant coordination and consultation associated with the updated Plan filed with FERC. If DWR does not adopt a particular recommendation from SBNF, CDFW, or SWRCB, the filing will include DWR's reasons for not doing so. DWR will implement the Plan as approved by FERC. The Plan will not be considered revised until FERC issues its approval.

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4.0 REFERENCES CITED

CABI. 2018. Invasive Species Compendium- *Trachemys scripta elegans* (red-eared slider). Available online: https://www.cabi.org/isc/datasheet/61560#topreventionAndControl. Accessed August 28, 2019. Last updated September 27, 2018.

Coughlan, N.E., D.A. Walsh, J.M. Caffrey, Eithene Davis, F.E. Lucy, R.N. Cuthbert and J.T.A. Dick. 2018. Cold as Ice: a Novel Eradication and Control Method for Invasive Asian Clam, *Corbicula fluminea*, Using Pelleted Dry Ice. *Management of Biological Invasions.* Volume 9, Issue 4: 463-474.

International Union for Conservation of Nature (IUCN), Invasive Species Specialist Group. 2010. *Trachemys scripta elegans* (Red-eared Slider) Management Information, Available online: http://issg.org/database/species/reference_files/trascr/trascr_man.pdf. Accessed July 2, 2018.

State Water Resources Control Board (SWRCB). Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications. SWRCB WQ Order No. 2103-0002-DWQ, General Permit No. CAG990005. Available online: https://waterboards.ca.gov/board_decision/adopted_orders/water_quality/2013/wqo2013_0002dwq. Accessed October 19, 2019. Last updated October 9, 2019. California Water Boards, State of California.

University of Florida, Institute of Food and Agriculture.2017.Applesnails of Florida. Available online: https://entnemdept.ifas.ufl.edu/creatures/misc/gastro/apple_snails.htm. Accessed August 28, 2019. Last updated December 2017. University of Florida, Gainesville, FL.

U.S. Department of Agriculture, Forest Service. 2005. San Bernardino National Forest Land and Resource Management Plan. Department of Agriculture. San Bernardino, California. Available online: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev7_007719.pdf. Accessed: June 25, 2018.

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Appendix A

Forest Service Manual 2900, Invasive Species Management

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FOREST SERVICE MANUAL
NATIONAL HEADQUARTERS (WO)
WASHINGTON, DC

FSM 2900 - INVASIVE SPECIES MANAGEMENT

CHAPTER - ZERO CODE

Amendment No.: 2900-2011-1

Effective Date: December 5, 2011

Duration: This amendment is effective until superseded or removed.

Approved: JAMES M. PEÑA
Associate Deputy Chief, NFS

Date Approved: 11/21/2011

Posting Instructions: Amendments are numbered consecutively by title and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document.

New Document	2900_zero_code	28 Pages
Superseded Document(s) by Issuance Number and Effective Date		

Digest:

2900_zero_code - Establishes code and a new manual, FSM 2900, Invasive Species Management, which sets forth National Forest System policy, responsibilities, and direction for the prevention, detection, control, and restoration of effects from aquatic and terrestrial invasive species (including vertebrates, invertebrates, plants, and pathogens). This new chapter replaces FSM 2080 (noxious weed management).

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2901 - AUTHORITY

The Forest Service authority to manage aquatic and terrestrial invasive species (including vertebrates, invertebrates, plants, and pathogens) on all areas of the National Forest System is derived from laws enacted by Congress that authorize the Secretary of Agriculture (Secretary) to administer the National Forest System and other resources and to issue necessary regulations. Many of these authorities have subsequently been delegated from the Secretary to the Chief of the Forest Service.

2901.01 - Laws

The principal statutes governing or supporting the management of aquatic and terrestrial invasive species on the National Forest System include but are not limited to, the following statutes. Except where specifically stated, these statutes apply to the entire National Forest System.

1. Organic Administration Act of 1897 (16 U.S.C. §§473 *et seq*.). Authorizes the Secretary to establish regulations governing the occupancy and use of national forests and to protect national forests from destruction.

2. Knutson-Vandenberg Act of June 9, 1930 (16 U.S.C. 576, 576a-576b). Section 3 of the Act, codified at 16 U.S.C. 576b. Provides that the Secretary may require any purchaser of national forest timber to make deposits of money in addition to the payments for the timber, to cover the cost to the United States of planting, sowing with tree seeds, and cutting, destroying or otherwise removing undesirable trees or other growth, on the national forest land cut over by the purchaser, in order to improve the future stand of timber, or protecting and improving the future productivity of the renewable resources of the forest land on such sale area.

3. Bankhead-Jones Farm Tenant Act of 1937 (7 U.S.C. §§1010 *et seq*.) Title III of the Act. Authorizes the Secretary to develop a program of land conservation and land utilization in order to correct maladjustments in land use. This statute applies only to national grasslands and land utilization projects.

4. Anderson-Mansfield Reforestation and Revegetation Act of October 11, 1949 (16 U.S.C. 581j (note), 581j, 581k). Requires the agency to accelerate and provide a continuing basis for the needed reforestation and re-vegetation of National Forest System lands and other lands under Forest Service administration or control.

5. Granger-Thye Act of 1950 (16 U.S.C. §§580h). Authorizes the Secretary to use a portion of grazing fees for range improvement projects on National Forest System lands. Specific projects mentioned are artificial re-vegetation, including the collection or purchase of necessary seed and eradication of poisonous plants and noxious weeds, in

order to protect or improve the future productivity of the range. Section 11 of the Act authorizes the use of funds for rangeland improvement projects outside of National Forest System lands under certain circumstances.

6. Sikes Act (Fish and Wildlife Conservation) of September 15, 1960 (16 U.S.C. 670g-670l, 670o, P.L. 86-797), as amended. Section 201. Directs the Secretary of Agriculture to plan, develop, maintain, coordinate, and implement programs for the conservation and rehabilitation of wildlife, fish and game species, including specific habitat improvement or species management [including invasive species management] projects, on lands and waters under the Secretary's jurisdiction. The Act also provides for carrying out wildlife and fish conservation programs on Federal lands and waters including authority for cooperative State-Federal plans and authority to enter into agreements with States to collect fees to fund the programs identified in those plans.

7. Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. §§528 et seq.). Authorizes the Secretary to: administer National Forest System lands for outdoor recreation, range, timber, watershed, and wildlife and fish purposes; to develop the surface renewable resources for multiple use and sustained yield of several products and services to be obtained from these lands, without impairment of the productivity of the land; and, to cooperate with interested State and local governmental agencies and others in the development and management of the national forests. The Act also recognizes and clarifies Forest Service authority and responsibility to manage wildlife and fish on national forests.

8. The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§1531 et seq.). Provides for the conservation of threatened and endangered species of plants and animals. Section 7 of the Act requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of the species' critical habitat. This section also requires Federal agencies to consult with the U.S. Fish and Wildlife Service (for non-marine species) or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service whenever an agency action is likely to affect a threatened or endangered species or result in the destruction or adverse modification of its critical habitat.

9. Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 as amended by the National Forest Management Act (NFMA) of 1976. Section 6 of the Act codified at 16 U.S.C. §§1600 et seq. Provides for the Secretary to promulgate regulations, under the principles of the Multiple-Use Sustained-Yield Act of 1960, specifying guidelines for land management plans developed to achieve the goals of the Program. The guidelines should provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives.

Further, within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan.

10. Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201, 1201 (note), 1236, 1272, 1305). Section 515. Directs the establishment on the mined areas, and all other lands affected, of a diverse, effective and permanent vegetative cover of the same seasonal variety native to the area of land to be affected and capable of self-regeneration and plant succession at least equal in extent of cover to the natural vegetation on the area; except that introduced species may be used in the re-vegetation process where desirable and necessary to achieve the approved post mining land use plan.

11. Cooperative Forestry Assistance Act of 1978 (16 U.S.C. 2101 (note), 2101-2103, 2103a, 2103b, 2104-2105. Section 3 (16 U.S.C. 2102). Details the assistance that may be given to State foresters or equivalent State officials and State extension directors, in the form of financial, technical, educational, and related assistance. Section 8 (16 U. S. C. 2104) details actions that may be taken directly on the National Forest System, in cooperation with other Federal departments on other Federal lands, and in cooperation with State foresters, or equivalent State officials, subdivisions of States, agencies, institutions, organizations, or individuals on non-federal lands to: enhance the growth and maintenance of trees and forests; promote the stability of forest related industries and employment associated therewith through the protection of forest resources; aid in forest fire prevention and control; conserve forest cover on watersheds, shelterbelts, and windbreaks; protect outdoor recreation opportunities and other forest resources; and extend timber supplies by protecting wood products, stored wood, and wood in use.

12. The North American Wetland Conservation Act 1989 (16 U.S.C. 4401 (note), 4401-4413, 16 U.S.C. 669b (note)). Section 9 (U.S.C. 4408). directs Federal agencies to cooperate with the Director of the U.S. Fish and Wildlife Service to restore, protect, and enhance the wetland ecosystems and other habitats for migratory birds, fish and wildlife within the lands and waters of each agency to the extent consistent with the mission of such agency and existing statutory authorities.

13. Consolidated Appropriations Resolution, 2003. Section 323 of the Act, codified at 16 U.S.C. 2104. Provides authority to the Forest Service to enter into stewardship contracts with public or private entities or persons to perform services to achieve land management goals for the National Forest System lands that meet local and rural community needs. Stewardship agreements may be entered into for other land management goals such as the following: removal of vegetation or other activities to

promote healthy forest stands, reduction of fire hazards; watershed restoration and maintenance; restoration and maintenance of wildlife and fish habitat; prevention and control of invasive species; and reestablishing native plant species.

14. Healthy Forests Restoration Act of 2003 (H.R. 1904), (16 U.S.C. 6501-6502, 6511-18, 6541-42, 6571-78). Provides improved statutory processes for hazardous fuel reduction projects on certain types of at-risk National Forest System and Bureau of Land Management lands and also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships.

15. The National Historic Preservation Act of 1966 (16 U.S.C. §§470 et seq.). Requires agency heads to assume responsibility for the preservation of historic properties owned or controlled by the agency and to develop a preservation program for the identification, evaluation, and nomination of historic properties to the National Register. Management activities to protect and preserve historic properties and cultural sites may include actions to prevent and control invasive species threatening or impacting those areas. The Act requires agency heads to evaluate the effects of an undertaking on property that is included or eligible for inclusion in the National Register and to afford the Advisory Council a reasonable opportunity to comment on the undertaking. Defines undertaking to include permitting activities or Federal financial assistance under the jurisdiction of an agency.

16. The Plant Protection Act of 2000 (7 U.S.C. 7701 et seq) as amended by the Noxious Weed Control and Eradication Act of 2004 (P.L. 108-412). Among other provisions, the Plant Protection Act authorizes the Secretary of Agriculture to prohibit or restrict the importation, entry, exportation, or movement in interstate commerce of any plant, plant product, biological control organism, noxious weed, article, or means of conveyance, if the Secretary determines that the prohibition or restriction is necessary to prevent the introduction into the United States or the dissemination of a plant pest or noxious weed within the United States. The Act defines the term “Noxious Weed”.

17. Wyden Amendment (P.L. 109-54, Section 434). Authorizes the Forest Service to enter into cooperative agreements to benefit resources within watersheds on National Forest System lands. Agreements may be with willing Federal, Tribal, State, and local governments, private and non-government entities, and landowners to conduct activities on public or private lands. Under this authority, the Forest Service may enter into agreements to support or conduct invasive species management activities on aquatic and terrestrial areas owned by local and State governments, Tribes, other Federal agencies, and private individuals or organizations, to benefit and protect the National Forest System and other resources within a watershed at risk from invasive species.

18. Clean Water Act of 1977 (33 U.S.C. 1251, 1254, 1323, 1324, 1329, 1342, 1344; 91 Stat. 1566). This act amends the Federal Water Pollution Control Act of 1972. Section 313 is strengthened to stress Federal agency compliance with Federal, State and local substantive and procedural requirements related to the control and abatement of pollution to the same extent as required of nongovernmental entities. Invasive species management to improve watershed condition supports the Act's charge to maintain the ecological integrity of our nation's waters, including the physical, chemical and biological components.

19. National Environmental Policy Act of 1969 (16 U.S.C. 4321). Requires agencies to analyze the physical, social, and economic effects associated with proposed plans and decisions, to consider alternatives to the action proposed, and to document the results of the analysis. The provisions of NEPA and the Council on Environmental Quality implementing regulations apply to invasive species management (FSM 1950; FSH 1909.15).

20. Wilderness Act of 1964 (16 U.S.C. §§1131 et seq.). Authorizes the Secretary to administer certain congressionally designated National Forest System lands as wilderness. Directs the protection and preservation of these wilderness areas in their natural state, primarily affected by nature and not man's actions. Integrated pest management actions [including aquatic and terrestrial invasive species] in Wilderness are authorized to meet provisions of the Act and consistent with Forest Service policy and guidance for Wilderness management.

21. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), (7 U.S.C. s/s 136 et seq.). Describes pesticide regulations and requirements related to hazardous material use and worker protection standards for employees in the planning and application of pesticides.

2901.02 - Regulations

The authority to manage for invasive species on National Forest System lands and other lands under Forest Service control is delegated from the Secretary of Agriculture to the Under Secretary for Natural Resources and Environment at Title 7, Code of Federal Regulations (CFR), section 2.20 (7 CFR 2.20). This authority has been delegated in turn from the Under Secretary for Natural Resources and Environment to the Chief of the Forest Service at Title 7, Code of Federal Regulations, section 2.60 (7 CFR 2.60). Title 36, Code of Federal Regulations (including Parts 221, 222, 228, 241, 251, 261, 290, 292, 293, 296, and 297) provides additional authorities to manage and regulate invasive species across the National Forest System, including establishing requirements and prohibitions to prevent and control aquatic and terrestrial invasive

species. In addition, Forest Service regulations at 36 CFR 222.8 acknowledge the Agency's obligation to work cooperatively in identifying invasive species (including noxious weeds) problems and initiating control programs in aquatic and terrestrial areas of the National Forest System.

1. Policy on Noxious Weed Management. Departmental Regulation 9500-10 (DR 9500-10) (January 18, 1990)). Establishes U.S. Department of Agriculture (USDA) policy to manage and coordinate noxious weed activities among USDA agencies in order to improve the quality and ecological conditions of crop and rangeland in the United States.

2. Policy on the Management of Wildlife, Fish, and Plant Habitat. Departmental Regulation 9500-4 (DR 9500-4). Guides the management of Wildlife, Fish, and Plant Habitat on public lands.

3. Gypsy Moth Policy (USDA) of 1990. Departmental Regulation 5600-001 (DR 5600-001). This regulation establishes the Departmental Gypsy Moth Policy. It assigns responsibilities to USDA agencies and defines agency roles to avoid unnecessary duplication and to provide maximum coordination of USDA activities dealing with the gypsy moth. The Forest Service plays a significant role in the management of Gypsy Moths in the United States.

4. Departmental Regulation 9500-4. USDA policy on wildlife, fish, and plant habitat management on National Forest System lands and waters. This regulation provides that the Department will promote the concept and use of integrated pest management practices in carrying out its responsibilities for pest control, and will seek to alleviate damage by plant and animal pests to farm crops, livestock, poultry, forage, forest and urban trees, wildlife, and their habitats. Departmental agencies, through management and research programs, will develop or assist in developing new techniques and methodologies for the prevention of damage to agricultural or forestry production. The agencies also will strive to reduce potential depredation through improved management of USDA programs. Pest control techniques and considerations will be incorporated into appropriate management and education programs.

5. Native Plant Materials Policy (FSM 2070). Forest Service manual direction on the use of native plant materials in re-vegetation, rehabilitation, and restoration of both aquatic and terrestrial ecosystems across the National Forest System.

6. Pesticide Use Management and Coordination Policy (FSM 2150). Provides agency policy and guidance on the use of pesticides as part of an integrated pest management approach. Additional guidance provided in the Pesticide Use Management Handbook (FSH 2109).

2901.03 - Executive Orders

1. Executive Order 13112 issued February 3, 1999 (E.O. 13112). Directs Federal agencies to: (1) identify actions that may affect status of an invasive species; (2)(a) prevent introduction of such species; (b) detect and control such species; (c) monitor population of such species; (d) provide for restoration of native species; (e) conduct research on invasive species and develop technologies to prevent introduction of such species; (f) promote public education of such species; and (3) not authorize, fund, or carry out actions likely to cause the introduction or spread of invasive species in the United States or elsewhere unless the benefits of the action clearly outweigh the harm and the agencies take steps to minimize the harm.

2. Executive Order 10046 issued March 24, 1949 (E.O. 10046). Permanently withdrew all public domain lands within Land Utilization Projects (many in the West are now national grasslands) boundaries from all forms of appropriation under the public land laws, except the mining and mineral leasing laws, and reserved them for use, administration, and disposition by the U.S. Department of Agriculture in accordance with provisions of Title III of the Bankhead-Jones Farm Tenant Act.

3. Executive Order 11246 issued September 24, 1965 (E.O. 11246). Requires entities doing business on behalf of the Forest Service to comply with Title VI of the Civil Rights Act and applicable USDA regulations.

2902 - OBJECTIVES

Management activities for aquatic and terrestrial invasive species (including vertebrates, invertebrates, plants, and pathogens) will be based upon an integrated pest management approach on all areas within the National Forest System, and on areas managed outside of the National Forest System under the authority of the Wyden Amendment (P.L. 109-54, Section 434), prioritizing prevention and early detection and rapid response actions as necessary. All National Forest System invasive species management activities will be conducted within the following strategic objectives:

1. Prevention. Take proactive approaches to manage all aquatic and terrestrial areas of the National Forest System in a manner to protect native species and ecosystems from the introduction, establishment, and spread of invasive species. Prevention can also include actions to design public-use facilities to reduce accidental spread of invasive species, and actions to educate and raise awareness with internal and external audiences about the invasive species threat and respective management solutions.

2. Early Detection and Rapid Response (EDRR). Inventory and survey susceptible aquatic and terrestrial areas of the National Forest System so as to quickly detect invasive species infestations, and subsequently implement immediate and specific actions to eradicate those infestations before they become established and/or spread. Coordinate

detection and response activities with internal and external partners to achieve an effective EDRR approach across all aquatic and terrestrial areas of the National Forest System. EDRR actions are grouped into three main categories: early detection, rapid assessment, and rapid response. EDRR systems will be consistent with guidance from the National Invasive Species Council, such as the 'Guidelines for Early Detection and Rapid Response'.

3. Control and Management. Conducting integrated invasive species management activities on priority aquatic and terrestrial areas of the National Forest System will be consistent with guidance from the National Invasive Species Council, such as the 'Control and Management Guidelines', to contain, reduce, and remove established infestations of aquatic and terrestrial invasive species, and to limit the adverse effects of those infestations on native species, human health, and other National Forest System resources.

4. Restoration. Pro-actively manage aquatic and terrestrial areas of the National Forest System to increase the ability of those areas to be self-sustaining and resistant (resilience) to the establishment of invasive species. Where necessary, implement restoration, rehabilitation, and/or revegetation activities following invasive species treatments to prevent or reduce the likelihood of the reoccurrence or spread of aquatic or terrestrial invasive species.

5. Organizational Collaboration. Cooperate with other Federal agencies, State agencies, local governments, tribes, academic institutions, and the private sector to increase public awareness of the invasive species threat, and promote a better understanding of integrated activities necessary to effectively manage aquatic and terrestrial invasive species throughout the National Forest System. Coordinate National Forest System invasive species management activities with other Forest Service programs and external partners to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of aquatic and terrestrial invasive species. Coordinate and integrate invasive species research and technical assistance activities conducted by Forest Service Research and Development, and State and Private Forestry programs with National Forest System programs to increase the management effectiveness against aquatic and terrestrial invasive species infestations impacting or threatening the National Forest System.

2903 - POLICY

The following describes Forest Service's policy for the management of aquatic and terrestrial invasive species (including vertebrates, invertebrates, plants, and pathogens), based on an integrated pest management approach, throughout the National Forest System:

1. Initiate, coordinate, and sustain actions to prevent, control, and eliminate priority infestations of invasive species in aquatic and terrestrial areas of the National Forest System using an integrated pest management approach, and collaborate with stakeholders to implement cooperative invasive species management activities in accordance with law and policy.

2. When applicable, invasive species management actions and standards should be incorporated into resource management plans at the forest level, and in programmatic environmental planning and assessment documents at the regional or national levels.

3. Determine the vectors, environmental factors, and pathways that favor the establishment and spread of invasive species in aquatic and terrestrial areas the National Forest System, and design management practices to reduce or mitigate the risk for introduction or spread of invasive species in those areas.

4. Determine the risk of introducing, establishing, or spreading invasive species associated with any proposed action, as an integral component of project planning and analysis, and where necessary provide for alternatives or mitigation measures to reduce or eliminate that risk prior to project approval.

5. Ensure that all Forest Service management activities are designed to minimize or eliminate the possibility of establishment or spread of invasive species on the National Forest System, or to adjacent areas. Integrate visitor use strategies with invasive species management activities on aquatic and terrestrial areas of the National Forest System. At no time are invasive species to be promoted or used in site restoration or re-vegetation work, watershed rehabilitation projects, planted for bio-fuels production, or other management activities on national forests and grasslands.

6. Use contract and permit clauses to require that the activities of contractors and permittees are conducted to prevent and control the introduction, establishment, and spread of aquatic and terrestrial invasive species. For example, where determined to be appropriate, use agreement clauses to require contractors or permittees to meet Forest Service-approved vehicle and equipment cleaning requirements/standards prior to using the vehicle or equipment in the National Forest System.

7. Make every effort to prevent the accidental spread of invasive species carried by contaminated vehicles, equipment, personnel, or materials (including plants, wood, plant/wood products, water, soil, rock, sand, gravel, mulch, seeds, grain, hay, straw, or other materials).

   a. Establish and implement standards and requirements for vehicle and equipment cleaning to prevent the accidental spread of aquatic and terrestrial invasive species on the National Forest System or to adjacent areas.

b. Make every effort to ensure that all materials used on the National Forest System are free of invasive species and/or noxious weeds (including free of reproductive/propagative material such as seeds, roots, stems, flowers, leaves, larva, eggs, veligers, and so forth).

8. Where States have legislative authority to certify materials as weed-free (or invasive-free) and have an active State program to make those State-certified materials available to the public, forest officers shall develop rules restricting the possession, use, and transport of those materials unless proof exists that they have been State-certified as weed-free (or invasive-free), as provided in 36 CFR 261 and Departmental Regulation 1512-1.

9. Monitor all management activities for potential spread or establishment of invasive species in aquatic and terrestrial areas of the National Forest System.

10. Manage invasive species in aquatic and terrestrial areas of the National Forest System using an integrated pest management approach to achieve the goals and objectives identified in Forest Land and Resource Management plans, and other Forest Service planning documents, and other plans developed in cooperation with external partners for the management of natural or cultural resources.

11. Integrate invasive species management funding broadly across a variety of National Forest System programs, while associating the funding with the specific aquatic or terrestrial invasive species that is being prioritized for management, as well as the purpose and need of the project or program objective.

12. Develop and utilize site-based and species-based risk assessments to prioritize the management of invasive species infestations in aquatic and terrestrial areas of the National Forest System. Where appropriate, use a structured decisionmaking process and adaptive management or similar strategies to help identify and prioritize invasive species management approaches and actions.

13. Comply with the Forest Service performance accountability system requirements for invasive species management to ensure efficient use of limited resources at all levels of the Agency and to provide information for adapting management actions to meet changing program needs and priorities. When appropriate, utilize a structured decisionmaking process to address invasive species management problems in changing conditions, uncertainty, or when information is limited.

14. Establish and maintain a national record keeping database system for the collection and reporting of information related to invasive species infestations and management activities, including invasive species management performance, associated with the

National Forest System. Require all information associated with the National Forest System invasive species management (including inventories, surveys, and treatments) to be collected, recorded, and reported consistent with national program protocols, rules, and standards.

15. Where appropriate, integrate invasive species management activities, such as inventory, survey, treatment, prevention, monitoring, and so forth, into the National Forest System management programs. Use inventory and treatment information to help set priorities and select integrated management actions to address new or expanding invasive species infestations in aquatic and terrestrial areas of the National Forest System.

16. Assist and promote cooperative efforts with internal and external partners, including private, State, tribal, and local entities, research organizations, and international groups to collaboratively address priority invasive species issues affecting the National Forest System.

17. Coordinate as needed with Forest Service Research and Development and State and Private Forestry programs, other agencies included under the National Invasive Species Council, and external partners to identify priority/high-risk invasive species that threaten aquatic and terrestrial areas of the National Forest System. Encourage applied research to develop techniques and technology to reduce invasive species impacts to the National Forest System.

18. As appropriate, collaborate and coordinate with adjacent landowners and other stakeholders to improve invasive species management effectiveness across the landscape. Encourage cooperative partnerships to address invasive species threats within a broad geographical area.

2904 - RESPONSIBILITY

The Chief delegates the authority and responsibility for the overall administration of the National Forest System invasive species management program in conformance with applicable Federal law, regulation, and policy, to the Deputy Chief, National Forest System (NFS). This delegated authority is reserved to the Deputy Chief, NFS, except for the delegations to the Director of Rangeland Management, regional foresters, forest/grassland supervisors, and/or district rangers. National Forest System invasive species management responsibilities and activities are integrated and coordinated with parallel and overlapping invasive species program activities conducted under the policies of the Deputy Chief, State and Private Forestry (FSM 3000-3900) and the Deputy Chief, Research and Development (FSM 4000-4900).

2904.01 - Chief

The responsibility of the Chief is to:

1. Retain overall authority over and responsibility for establishing national policy for the management of invasive species threatening aquatic and terrestrial areas of the National Forest System.

2. Promote cooperation and coordination between other Federal agencies, State agencies, Tribes, and local governments, and other public and private sector partners for the management of terrestrial and aquatic invasive species.

3. Provide coordination across all Forest Service program areas to ensure program activities are integrated and overall management effectiveness against aquatic and terrestrial invasive species is maximized.

2904.02 - Deputy Chief, National Forest System

The responsibility of the Deputy Chief for the National Forest System is to:

1. Ensure overall coordination and oversight of National Forest System invasive species management activities and associated program budget and performance integration, and coordination with the Deputy Chief, State and Private Forestry, and the Deputy Chief, Research and Development.

2. Issue national policy, direction, guidelines, protocols, and standards for the integrated management of invasive species on all aquatic and terrestrial areas of the National Forest System. Integrate invasive species management direction across programs within the National Forest System.

3. Promote coordination across all National Forest System program areas within the Deputy area to ensure program activities are integrated and overall management effectiveness against aquatic and terrestrial invasive species is maximized. Facilitate multi-disciplinary, cross-programmatic teams to coordinate National Forest System invasive species management activities with other Forest Service programs.

4. Represent the Chief on national committees, coalitions, teams, and ad hoc groups concerned with invasive species management and research relevant to, or affecting, the National Forest System, when necessary. Coordinate NFS participation and representation as needed with Deputy Chief, State and Private Forestry and the Deputy Chief, Research and Development.

5. Ensure that invasive species management activities and funding are integrated broadly across all National Forest System programs to meet requirements in law, policy, strategic plan objectives, and to increase overall management effectiveness against terrestrial and aquatic invasive species threatening the National Forest System.

6. Promote the development and use of a national recordkeeping database system for the collection and reporting of National Forest System information related to invasive species infestations and management activities, and associated program performance and accountability. Ensure national standards, protocols, and program requirements for record keeping and reporting are met across the National Forest System.

7. Promote cooperation and coordination between the National Forest System invasive species management program and other Federal agencies, State agencies, tribes, local governments, and other public and private sector partners for the management of aquatic and terrestrial invasive species across the landscape.

2904.03 - Deputy Chief, State and Private Forestry

The responsibility of the Deputy Chief for State and Private Forestry is to:

1. Approve funding requests recommended by the Director of Forest Health Protection for eradication, prevention, suppression, and restoration projects related to invasive forest insects and pathogens on the National Forest System, in coordination with the Deputy Chief, National Forest System.

2. Promote coordination between programs within State and Private Forestry and other Forest Service programs to ensure program activities are integrated and overall effectiveness against aquatic and terrestrial invasive species is maximized across the National Forest System.

3. Facilitate participation by State and Private Forestry programs on multi-disciplinary, cross-programmatic teams at the local, regional, and national levels to improve invasive species research and management activities across the agency.

2904.04 - Washington Office, Director of Rangeland Management

The responsibility of the Washington Office, Director of Rangeland Management is to:

1. Establish and support a National Invasive Species Program Coordinator to oversee all National Forest System invasive species management activities, including: invasive species program budget and performance integration; oversight and development of policies and regulations; development and oversight of invasive species management program requirements and standards; interagency and interdepartmental coordination; development and expansion of partnerships; promoting collaboration with other Forest

Service programs; reviewing invasive species management programs at the regional and field levels, providing technical and scientific support on invasive species issues; promoting and supporting technology development and research accomplished in the Forest Service State and Private Forestry and Research and Development programs, and sources outside the agency; and the development and review of plans, strategies, policies, and proposals relevant to the management of aquatic and terrestrial invasive species.

2. Coordinate national invasive species management activities across all programs and offices within the National Forest System, including but not limited to coordination with Washington Office staff directors, regional office staff directors, and other programs and offices across the National Forest System.

3. Collaborate with Forest Service State and Private Forestry programs, International programs, Research and Development, and other Forest Service programs conducting invasive species management activities and associated projects and partnerships.

4. Coordinate with other Federal agencies, the National Invasive Species Council, and national and international invasive species organizations, State government organizations, tribal government organizations, and other stakeholders in the establishment, application, and use of collaborative, proactive and integrated approaches for the management of invasive species affecting, or potentially affecting, the National Forest System.

5. Provide for National Forest System representation on internal interdisciplinary Forest Service teams, such as the Washington Office, National Invasive Species Issue Team (WO-ISIT), to facilitate cross-deputy area, cross-programmatic, and multi-disciplinary collaboration on invasive species management issues relevant to, or affecting the National Forest System.

6. Represent the Forest Service Chief or National Forest System Deputy Chief on external national committees, coalitions, teams, and ad hoc groups concerned with invasive species management and research relevant to, or affecting, the National Forest System, when necessary.

7. Coordinate with other Forest Service invasive species programs managed under the Deputy Chief, State and Private Forestry, International Programs, and the Deputy Chief, Research and Development to ensure the full spectrum of Forest Service invasive species management and research issues are represented on national or regional committees, coalitions, teams, and ad hoc groups.

8. Develop, review, establish, and implement national-level agreements or memorandums of understanding with other Federal agencies, national-level State organizations, national non-government organizations, tribal governments, and other partners concerning invasive species issues affecting the National Forest System.

9. Ensure that invasive species management activities, funding, and performance are integrated across all National Forest System programs to meet requirements in law, policy, the objectives in strategic plans, and to increase overall management effectiveness against terrestrial and aquatic invasive species threatening the National Forest System.

10. Provide oversight and guidance on the development and use of a national record keeping database system for the collection and reporting of National Forest System information related to invasive species infestations and management activities, and associated program performance and accountability.

11. Develop and issue national standards, protocols, business rules, and related invasive species program record keeping and reporting requirements associated with National Forest System invasive species management.

12. Monitor compliance with applicable law, policy, and other program requirements and guidance associated with the management of aquatic and terrestrial invasive species across the National Forest System. When requested, compile, summarize, and report National Forest System invasive species management performance results, financial information, and other National Forest System invasive species program records.

13. Maintain contact with the Forest Service research organizations, and other external research and development organizations to review invasive species research programs, identify additional research needs, set priorities, and help coordinate research efforts for management of invasive species affecting national forests and grasslands.

14. Coordinate with Forest Service regions, forests, and other program areas to establish and issue nationwide standards and requirements for invasive species management training for Agency personnel, including but not limited to training associated with pesticide use, integrated pest management planning, record keeping, invasive species identification and ecology, and inventory and monitoring activities. Ensure that training is developed and implemented consistent with national program objectives, policy, and law.

2904.05 - Washington Office, Director of Forest Health Protection

The responsibility of the Director, Forest Health Protection for State and Private Forestry is to:

1. Administer the functions of section 8 of the Cooperative Forestry Assistance Act as amended, codified at 16 U.S.C. 2104, in support of the management of invasive forest insects and forest pathogens conducted on the National Forest System.

2. Provide leadership, technical advice, and guidance to national forests and grasslands on the management of invasive forest insects and forest pathogens, including activities to survey and detect, evaluate, prevent, and suppress forest invasive insects and pathogens, and the restoration of lands damaged by those invasive species.

3. Provide leadership, technical advice, and guidance on the use of chemical and biological pesticides to prevent or control aquatic and terrestrial invasive species on national forests and grasslands.

4. Review and recommend to the Deputy Chief for State and Private Forestry all funding requests submitted by National Forests and Grasslands for eradication, prevention, suppression, and restoration projects related to invasive forest insects and forest pathogens, in accordance with FSM 3400 and other relevant guidance.

2904.06 - Regional Foresters

The responsibility of regional foresters is to:

1. Appoint at least one coordinator for all National Forest System invasive species management activities within the region and formally establish a multi-disciplinary regional Invasive Species Issue Team to collaborate on invasive species issues across Forest Service program areas within the region.

2. Provide National Forest System representation on the Regional Invasive Species Issue Team, and other agency or interagency committees, task forces, coalitions, teams, and ad hoc groups concerned with invasive species management relevant to, or affecting, the national forests or national grasslands within that region.

3. Ensure Forest Land and Resource Management plans, Regional Environmental Management System plans, and other regional resource and programmatic plans include objectives, desired conditions, guidelines, and specific elements and activities to address the management of aquatic and terrestrial invasive species, including but not limited to inventory, monitoring, prevention, and control of invasive vertebrates, invertebrates, plants, and pathogens.

4. Collect, maintain, and report regional information related to National Forest System invasive species management activities (including inventory, prevention, treatment, cost, needs assessments, and treatment efficacy information), and associated program performance and accountability information, in compliance with national protocols, rules, and requirements.

5. Develop, establish, and implement regional-level agreements or memorandums of understanding with other Federal and State agencies, non-government organizations, tribal governments, and other partner organizations to address invasive species issues at a forest or regional level. Foster collaborative efforts such as "cooperative weed management areas", "cooperative invasive species management zones", and similar collaborative partnerships.

6. Collaborate with internal and external partners to develop and implement National Forest System invasive species management training, consistent with national requirements, including training programs associated with record keeping, integrated pest management techniques, restoration, and other invasive species program training.

7. Collaborate with internal and external partners to develop public information and education programs to improve awareness and understanding of invasive species, their biology, impacts, and management. Projects should utilize expertise from the broad array of Forest Service program areas as appropriate.

8. Cooperate with State governments and Tribes to implement and enforce applicable regulations, plans, and guidance on invasive species management on national forests and grasslands across the region, including but not limited to:

a. State regulations related to prevention and control of aquatic and terrestrial invasive species (and noxious weeds);

b. State regulations associated with utilizing, storing, transporting, or certifying invasive species-free (and/or noxious weed-free) straw, hay, mulch, gravel, forage, seed, or other materials; or

c. Statewide aquatic nuisance species management plans, fish and wildlife management plans, early detection and rapid response plans, or other statewide or regionwide invasive species management plans within the respective Forest Service region.

9. Issue orders, rules, or other regulations under the authority of 36 CFR (Parts 221, 222, 228, 241, 251, 261, 290, 292, 293, 296, and 297), Departmental Regulation 1512-1, and consistent with national or regional Forest Service policy, to prevent and control the introduction and spread of aquatic and terrestrial invasive species (including noxious weeds) on the National Forest System, when necessary.

2904.07 - Forest and Grassland Supervisors

The responsibility of forest and grassland supervisors is to:

1. Appoint forest staff to coordinate the forest or grassland invasive species management program in accordance with law and policy, and other national and regional requirements.

2. Develop and implement a forest or grassland invasive species management program that is consistent with this chapter, annual program requirements, and the objectives, desired conditions, and guidelines identified in Forest Land and Resource Management plans, Environmental Management System plans, and the Forest Service and Departmental strategic plans.

3. Ensure all Forest Land and Resource Management plans, Forest Environmental Management System plans, and other resource and project-level plans are updated to include objectives, desired conditions, guidelines, specific elements and activities to manage aquatic and terrestrial invasive species, including but not limited to prevention, control, inventory and monitoring of invasive vertebrates, invertebrates, plants, and pathogens.

4. Establish agreements and memorandums of understanding with other Federal and State agencies, non-government organizations, tribal governments, and other partner organizations to address invasive species issues as appropriate. Foster collaborative efforts such as “cooperative weed management areas”, “cooperative invasive species management zones”, and similar collaborative partnerships to address invasive species.

5. Collect, maintain, and report information related to invasive species infestations, impacts, and management activities (including inventories, surveys, assessments, treatments, and treatment efficacy) occurring on the national forest or grassland and associated program performance and accountability information, in compliance with national invasive species program protocols, criteria, rules, and requirements.

6. Identify and record the spatial extent of site-specific invasive species treatment activities, and monitoring invasive species treatments to determine efficacy and evaluate impacts to effected resources. Collect and maintain treatment records and associated spatial information in the national database of record in compliance with national invasive species program protocols, rules, and requirements.

7. Provide opportunities for staff training for invasive species identification and management, consistent with national and regional requirements, including training associated with invasive species record keeping, integrated pest management techniques, invasive species inventory and treatment monitoring, and other invasive species program training.

8. Collaborate with internal and external partners to develop public information and educational materials/ programs to increase the awareness and understanding of aquatic and terrestrial invasive species, their biology, impacts, and management.

9. Cooperate with State governments and Tribes to implement and enforce applicable regulations, plans, and guidance on invasive species management across the national forest or grassland, including but not limited to:

a. State regulations related to prevention and control of aquatic and terrestrial invasive species (and noxious weeds);

b. State regulations associated with utilizing, storing, transporting, or certifying invasive species-free (and/or noxious weed-free) straw, hay, mulch, gravel, forage, seed, or other materials;

c. Statewide aquatic nuisance species management plans, fish and wildlife management plans, early detection and rapid response plans, or other statewide or regionwide invasive species management plans affecting the respective Forest or Grassland.

10. Issue orders, rules, or other regulations under the authority of 36 CFR (Parts 221, 222, 228, 241, 251, 261, 290, 292, 293, 296, and 297), Departmental Regulation 1512-1, and consistent with national and regional policy, to prevent and control the introduction and spread of aquatic and terrestrial invasive species (including noxious weeds) on the forest or grassland, when necessary.

11. Coordinate and cooperate with State and county agencies, Tribes, non-government organizations, and adjacent landowners in invasive species prevention, early detection and rapid response, control and containment, restoration and rehabilitation, and inventory and monitoring activities.

12. Ensure that contracts and permits contain clauses and specifications requiring the implementation of measures to prevent, control, and/or contain aquatic or terrestrial invasive species (including noxious weeds). Oversee contract and permit administration to ensure compliance with the provisions.

2904.08 - District Rangers

The responsibility of district rangers is to:

1. Appoint staff to coordinate invasive species management activities in accordance with law and policy.

2. Maintain working relationships with the State or local invasive species or noxious weed management committees, districts or boards, and other invasive species stakeholder organizations.

3. Establish, as appropriate, agreements and memorandums of understanding with other Federal and State agencies, non-government organizations, Tribes, and other partner organizations to address invasive species issues. Foster collaborative efforts such as "cooperative weed management areas", "cooperative invasive species management areas", and similar collaborative partnerships to address invasive species across the landscape.

4. Prevent the introduction and establishment, as well as providing for the containment and suppression, of aquatic and terrestrial invasive species, and coordinating with State and local agencies, Tribes, and landowners in the prevention, control, and restoration efforts associated with the management of invasive species. Outbreaks and newly detected infestations should be reported promptly.

5. Collect, maintain, and report information related to invasive species infestations, impacts, and management activities (including inventories, surveys, assessments, treatments, and treatment efficacy) occurring on the national forest or grassland and associated program performance and accountability information, in compliance with national invasive species program protocols, criteria, rules, and requirements.

6. Identify and record the spatial extent of site-specific invasive species treatment activities, and monitoring invasive species treatments to determine efficacy and evaluate impacts to effected resources. Collect and maintain treatment records and associated spatial information in the national database of record in compliance with national invasive species program protocols, rules, and requirements.

7. Implement the elements, activities, and measures associated with invasive species management in Forest Land and Resource Management plans, Forest Environmental Management System plans, and other resource management and project-level plans.

8. Determine the risk of invasive species introduction or spread as part of the project planning and analysis process for proposed actions, especially for ground disturbing and site altering activities, and public use activities.

9. Ensure that staff are properly trained on invasive species management consistent with national and regional, and State requirements, including training programs associated with invasive species record keeping, integrated pest management techniques, invasive species inventory and treatment monitoring, and other invasive species related training.

10. Collaborate with internal and external partners to develop public information and educational materials/ programs to increase the awareness and understanding of aquatic and terrestrial invasive species, their biology, impacts, and management.

11. Cooperate with State governments and Tribes to implement and enforce applicable regulations, plans, and guidance on invasive species management across the forest or grassland, including but not limited to:

a. State regulations related to prevention and control of aquatic and terrestrial invasive species (and noxious weeds);

b. State regulations associated with utilizing, storing, transporting, or certifying invasive species-free (and/or noxious weed-free) straw, hay, mulch, gravel, forage, seed, or other materials;

c. Statewide aquatic nuisance species management plans, fish and wildlife management plans, early detection and rapid response plans, or other statewide or regionwide invasive species management plans affecting the respective forest or grassland.

12. Issue orders, rules, or other regulations under the authority of 36 CFR (Parts 221, 222, 228, 241, 251, 261, 290, 292, 293, 296, and 297), Departmental Regulation 1512-1, and consistent with national or regional policy, to prevent and control the introduction and spread of aquatic and terrestrial invasive species (including noxious weeds), when necessary.

13. Coordinate and cooperate with State and county agencies, Tribes, non-government organizations, and adjacent landowners in invasive species prevention, early detection and rapid response, control and containment, restoration and rehabilitation, and inventory and monitoring activities.

14. Ensure that contracts and permits contain clauses and specifications requiring the implementation of measures to prevent, control, and/or contain aquatic or terrestrial invasive species (including noxious weeds) and restoration measures to offset associated impacts. Oversee contract and permit administration to ensure compliance with the invasive species provisions.

2905 - DEFINITIONS

Adaptive Management. A system of management practices based on clearly identified intended outcomes and monitoring to determine if management actions are meeting those outcomes; and, if not, to facilitate management changes that will best ensure that those outcomes are met or reevaluated. Adaptive management stems from the recognition that knowledge about natural resource systems is sometimes uncertain.

Control. With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), control is defined as any activity or action taken to reduce the population, contain, limit the spread, or reduce the effects of an invasive species. Control activities are generally directed at established free-living infestations, and may not necessarily be intended to eradicate the targeted infestation in all cases.

Early Detection. The process of finding, identifying, and quantifying new, small, or previously unknown infestations of aquatic or terrestrial invasive species prior to (or in the initial stages of) its establishment as free-living expanding population. Early detection of an invasive species is typically coupled with integrated activities to rapidly assess and respond with quick and immediate actions to eradicate, control, or contain it.

Eradication. With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), eradication is defined as the removal or elimination of the last remaining individual invasive species in the target infestation on a given site. It is determined to be complete when the target species is absent from the site for a continuous time period (that is, several years after the last individual was observed). Eradication of an infestation of invasive species is relative to the time-frame provided for the treatment procedures. Considering the need for multiple treatments over time, certain populations can be eradicated using proper integrated management techniques.

Integrated Pest Management (IPM). A pest (in this context an invasive species) control strategy based on the determination of an economic, human health, or environmental threshold that indicates when a pest population is approaching the level at which control measures are necessary to prevent a decline in the desired conditions (economic or environmental factors). In principle, IPM is an ecologically-based holistic strategy that relies on natural mortality factors, such as natural enemies, weather, and environmental management, and seeks control tactics that disrupt these factors as little as possible. Integrated pest management techniques are defined within four broad categories: 1) Biological, 2) Cultural, 3) Mechanical/Physical, and 4) Chemical techniques.

Invasive Species. Executive Order 13112 defines an invasive species as “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.” The Forest Service relies on Executive Order 13112 to provide the basis for labeling certain organisms as invasive. Based on this definition, the labeling of a species as “invasive” requires closely examining both the origin and effects of the species. The key is that the species must cause, or be likely to cause, harm and be exotic to the ecosystem it has infested before we can consider labeling it as “invasive”. Thus, native pests are not considered “invasive”, even though they may cause harm. Invasive species infest both aquatic and terrestrial areas and can be identified within any of the following four taxonomic categories: Plants, Vertebrates, Invertebrates, and Pathogens. Additional information on this definition can be found in Executive Order 13112.

Invasive Species Management. Activities to prevent, control, contain, eradicate, survey, detect, identify, inventory, and monitor invasive species; includes rehabilitation and restoration of affected sites and educational activities related to invasive species. Management actions are based upon species-specific or site-specific plans (including forest plans, IPM plans, watershed restoration plans, and so forth), and support the accomplishment of plan goals and objectives and achieve successful restoration or protection of priority areas identified in the respective plan(s).

Inventory. Invasive species inventories are generally defined as the observance and collection of information related to the occurrence, population or infestation of the detected species across the landscape or with respect to a more narrowly-defined area or site. Inventory attributes and purposes will vary, but are typically designed to meet specific management objectives which need information about the extent of an invasive species infestation. Inventories are typically conducted to quantify the extent of, and other attributes related to, infestations identified during survey activities.

Memorandum of Understanding. A written agreement between the Forest Service and local, State, or Federal entities, or private organizations, entered into when there is no exchange of funds from one organization to another.

Monitoring. For the purposes of invasive species program performance and accountability, the term “monitoring” refers to the observance and recording of information related to the responses to treating an invasive species infestation, and reported as treatment efficacy. By monitoring the treatment results over time, a measure of overall programmatic treatment efficacy can be determined and an adaptive management process can be used in subsequent treatment activities.

Noxious Weed. The term “Noxious Weed” is defined for the Federal Government in the Plant Protection Act of 2000 and in some individual State statutes. For purposes of this chapter, the term has the same meaning as found in the Plant Protection Act of 2000 as follows: The term “noxious weed” means any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment. The term typically describes species of plants that have been determined to be undesirable or injurious in some capacity. Federal noxious weeds are regulated by USDA-Animal and Plant Health Inspection Service under the Plant Protection Act of 2000, which superseded the Federal Noxious Weed Act of 1974. State statues for noxious weeds vary widely, with some States lacking any laws defining or regulating noxious weeds. Depending on the individual State law, some plants listed by a State statute as “noxious” may be native plants which that State has determined to be undesirable. When the species are native, they are not considered invasive species by the Federal Government. However, in most cases, State noxious weed lists include only exotic (non-native) species.

Prevention. Prevention measures for invasive species management programs include a wide range of actions and activities to reduce or eliminate the chance of an invasive species entering or becoming established in a particular area. Preventative activities can include projects for education and awareness as well as more traditional prevention activities such as vehicle/equipment cleaning, boat inspections, or native plant restoration plantings. Restoration activities typically prevent invasive species infestations by improving site resilience, and reducing or eliminating the conditions on a site that may facilitate or promote invasive species establishment.

Priority Area Treated. Program or project plans (primarily at the district or forest level) will identify priority areas on which to focus integrated management actions to directly prevent, control, or eradicate a priority/high-risk aquatic or terrestrial invasive species. Priority areas indentified for invasive species treatments may include any specifically-delineated project area. Examples include, but are not limited to: a fuels treatment area, a developed recreation area, a transportation corridor, a facility, a sensitive habitat for rare species, a wetland, a river, a lake, a stream, an irrigation ditch, a grazing allotment, a stock pond, a fire camp, wildlife winter range, a burned area, a fire-break, a timber sale area, a wilderness area, a Research Natural Area, an energy transmission right of way, and so forth). The size of the priority area treated will typically be measured in acres. For linear features (such as a stream/river, trail, roadway, power-line, ditch, and so forth) the area size can be calculated from the length and average width. In some cases, a smaller portion of a delineated project area infested by invasive species may be prioritized for treatment over the larger infestation. Guidance on determining and establishing priorities for invasive species management is provided in the Forest Service Invasive Species Management Handbook (FSH 2900).

Rapid Response. With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), rapid responses are defined as the quick and immediate actions taken to eradicate, control, or contain infestations that must be completed within a relatively short time to maximize the biological and economic effectiveness against the targeted invasive species. Depending on the risk of the targeted invasive species, rapid response actions may be supported by an emergency situation determination and emergency considerations would include the geographic extent of the infestation, distance from other known infestations, mobility and rate of spread of the invasive species, threat level and potential impacts, and available treatments.

Restored. With respect to performance specifically, the invasive species program is driven by an outcome-based performance measure centered on ‘restoration’. An area treated (see “treatment” definition) against invasive species has been ‘restored’ when the targeted invasive species defined in the project plan was controlled or eradicated directly as a result of the treatment activity. In some instances, actions taken across particular areas to prevent the establishment and spread of specific invasive species are also included in this treatment definition. ‘Restored’ acres are a subset of ‘treated’ acres,

which are tracked annually to determine the effectiveness of treatments. Preventing, controlling, or eradicating invasive species assists in the recovery of the area's resilience and the capacity of a system to adapt to change if the environment where the system exists has been degraded, damaged, or destroyed (in this case by invasive species); and helps to reestablish ecosystem functions by modifying or managing composition and processes necessary to make terrestrial and aquatic ecosystems sustainable, and resilient, under current and future conditions (as described in FSM 2020). In most cases, this is a performance measure defined in the project plan, and project managers have the flexibility to set the parameters for determining when the treated areas have been restored. Absence of an individual invasive species organism, whether through eradication or prevention efforts, is most often the criteria used to determine when acres have been restored. Monitoring treatment efficacy is critical to reporting invasive species management performance.

Resilience. The capacity of an ecosystem to absorb disturbance and reorganize while undergoing change, so as to still retain essentially the same function, structure, identity, and feedbacks. By working toward the goals of diverse native ecosystems that are connected and can absorb disturbance, it is expected that over time, management would create ecological conditions that support the abundance and distribution of native species within a geographic area to provide for native plant and animal diversity.

State Agency. A State Department of Agriculture, State Department of Natural Resources, other State agency, or subdivision thereof, responsible for the administration or implementation of State laws pertaining to invasive species, noxious weeds, exotic species, or other pest/undesirable species.

Structured Decision Making (SDM). A general term for carefully-organized analysis of problems in order to reach decisions that are focused clearly on achieving fundamental objectives. Based in decision theory and risk analysis, SDM encompasses a simple set of concepts and helpful steps, rather than a rigidly-prescribed approach for problem solving. Key SDM concepts include making decisions based on clearly articulated fundamental objectives, dealing explicitly with uncertainty, and responding transparently to legal mandates and public preferences or values in decision making; thus, SDM integrates science and policy explicitly. Every decision consists of several primary elements, management objectives, decision options, and predictions of decision outcomes. By analyzing each component separately and thoughtfully within a comprehensive decision framework, it is possible to improve the quality of decision making. The core SDM concepts and steps to better decision making are useful across all types of decisions: from individuals making minor decisions to complex public sector decisions involving multiple decision makers, scientists and other stakeholders.

Survey. An invasive species survey is a process of systematically searching a geographic area for a particular (targeted) invasive species, or a group of invasive species, to determine if the species exists in that area. It is important to know where and when surveys have occurred, even if the object of the survey (target species) was not located. Information on the absence of an invasive species can be as valuable as information on the presence of the species, and can be used as a foundation to an early detection system. Unlike inventories, surveys typically do not collect additional detailed attributes of the infestation or the associated site.

Targeted Invasive Species. An individual invasive species or population of invasive species, which has been prioritized at the project-level for management action based upon risk assessments, project objectives, economic considerations, and other priority-setting decision support tools.

Treatment. Any activity or action taken to directly prevent, control, or eradicate a targeted invasive species. Treatment of an invasive species infestation may not necessarily result in the elimination of the infestation, and multiple treatments on the same site or population are sometimes required to affect a change in the status of the infestation. Treatment activities typically fall within any of the four general categories of integrated management techniques: Biological treatments, Cultural treatments, Mechanical treatments, or Chemical treatments. For example, the use of domestic goats to control invasive plants would be considered a biological treatment; the use of a pesticide to control invasive fishes would be characterized as a chemical treatment; planting of native seeds used to prevent invasive species infestations and restore a degraded site would be considered a cultural treatment technique; developing an aquatic species barrier to prevent invasive species from spreading throughout a watershed would be considered a physical treatment; cleaning, scraping, or otherwise removing invasive species attached to equipment, structures, or vehicles would be considered a mechanical treatment designed to directly control and prevent the spread of those species.