



Guidance for Updating and Enhancing Amphibian and Reptile Sections of Integrated Natural Resources Management Plans

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Introduction

This document provides general guidance that will assist military installation natural resources managers and/or contractors when updating Integrated Natural Resources Management Plan (INRMP) sections pertaining to herpetofauna (amphibians and reptiles). An INRMP is a long-term planning document designed to help installations manage natural resources to support the mission while protecting and enhancing resources for multiple use, sustainable yield, and biological integrity. INRMPs and the National Environmental Policy Act (NEPA) process constitute the principal tools for effectively integrating military mission needs with ecosystem-based natural resources management and serve to ensure compliance with applicable natural resources-related laws and regulations.

The Department of Defense Partners in Amphibian and Reptile Conservation (DoD PARC) network developed the following guidance to help enhance those sections within INRMPs pertaining to herpetofauna conservation and management. An objective of this guidance is to support installation-specific herpetofauna management and conservation goals that will contribute to no net loss in military mission capability for installation lands, while enhancing training and testing capabilities to the maximum extent practicable.

I. Information You Will Need

- 1. A current inventory of amphibian and reptile species on your installation**
 - a. DoD PARC maintains a database of the herpetofauna species on over 400 military sites and can provide you these data. It is important to have knowledge of which species are confirmed present and those that are unconfirmed (and have the potential to be present). It is also critical to know which species have a conservation status ranking (at-risk, species of greatest conservation need [SGCN], state-listed, and federal-listed), as well as the current taxonomy of the herpetofauna species (which has changed recently for many species); the DoD PARC database includes this essential information. DoD PARC has personnel to provide additional subject matter expertise upon request.
- 2. Knowledge of any potential conflicts between common/conservation status ranking herpetofauna species and installation mission activities**
 - a. DoD PARC recommends that you define any existing or potential conflicts between common and/or conservation priority herpetofauna species and installation mission requirements. It is important to understand potential conservation/installation conflicts, their significance, and available strategies for de-conflicting or mitigating these issues.

- b. Typical conflicts may include: the presence of conservation status species in military training areas; interactions with venomous snake species; military actions that degrade wetland quality; and road mortality.
- 3. Installation-specific conservation and management objectives/goals pertaining to herpetofauna and their habitats**
- a. DoD PARC recommends clearly defining your herpetofauna conservation goals specific to the herpetofauna species and habitats on your installation.
 - b. DoD PARC recommends planning specific INRMP projects that will help you reach your management goals (see Project Development below for examples of projects).

II. Guidance on Updating and Enhancing INRMPs

Using these data and information you gathered, update the various INRMP sections pertaining to herpetofauna conservation and management. Since INRMPs are generally standardized across the Military Services, we reference section headings that are typically found in most INRMPs.

INRMP Section - *Current Conditions and Use*

- ***Wildlife or Fauna:***
 - DoD PARC recommends a brief summary of all herpetofauna inventories/surveys (or lack of surveys) conducted on the installation to date (survey reports to be referenced in the literature cited) and a table of the species confirmed and unconfirmed (and with the potential to be present) on your installation. As an alternative, a species list can be included in an appendix of the INRMP.
 - DoD PARC recommends a general discussion of the installation's herpetofauna species (confirmed present and with the potential to occur) based on surveys and/or desktop analysis. Include site-specific species pictures if available. Include information on non-native herpetofauna, conservation status ranking species (see below), and venomous species (if present) due to their ecological importance and potential impact with installation personnel and mission readiness.
 - DoD PARC recommends a description of the installation's habitat types occupied by herpetofauna on your installation, and as appropriate, the broader role and significance that the herpetofauna play in structuring and maintaining the ecosystems and natural communities on your installation.
 - DoD PARC recommends including guidelines to identify venomous snakes and/or rare or conservation priority species, if present, on your installation.
- ***At-Risk, State-listed or Federally-listed Herpetofauna Species:***

- DoD PARC recommends a discussion of the installation’s herpetofauna species (confirmed and potential) that are at-risk, state-listed, or federally-listed (if applicable). List any surveys or studies conducted on these species and their distribution on the installation. Specifically address the habitats in which these species are present and potential threats to these species and the habitats in which they occur (see below). Additionally, discuss the installation’s involvement in partnerships with state, federal, or non-governmental organizations (zoos, universities, nonprofits) that are working to manage or conserve these species.
 - Identify and discuss potential or existing conflicts between herpetofauna species with a conservation status ranking and installation mission requirements. Describe the conservation/installation conflicts, their significance, and how implementing the INRMP will de-conflict or mitigate these issues.
 - Identify and discuss potential benefits that military training and other operations and land management actions may have on herpetofauna species with a conservation status ranking (e.g., the selective thinning of thickly forested, fire-excluded areas to enhance vehicular maneuverability and line of sight, which also favors the survival of species that require more open habitats).
- ***Invasive Species:***
 - DoD PARC recommends a discussion on invasive/non-native herpetofauna species and the habitats they occupy on your installation. Describe any impacts on military training, equipment, and/or facilities in addition to impacts to native species. Lastly, DoD PARC recommends a discussion on treatment options and current and past control actions.

INRMP Section - *Natural Resources Management Actions*

DoD PARC recommends that your INRMP identify the conservation and management measures for common and conservation priority herpetofauna on your installation. Text should describe how actions improve existing habitat, create new habitat, enhance degraded habitat, improve conditions for herpetofauna, and/or support other stakeholder efforts within your physiographic region. These measures may include protecting wetlands; maintaining and enhancing forest buffers; eliminating feral animals (including feral cats and hogs); reducing or eliminating harmful grazing practices; and implementing appropriate invasive species controls to prevent establishment or reduce presence of species that negatively impact amphibians and reptiles.

- ***Forest/Vegetation Management or Wetlands Management Actions:***
 - DoD PARC recommends a description of new, ongoing or periodic vegetation, forest, and wetland management actions that benefit amphibians and reptiles. Management actions may include wetlands

protection or enhancement; prescribed burning; invasive plant species removal, as well as others.

- ***Fish & Wildlife Management and Threatened and Endangered Species Protection***
 - DoD PARC recommends a description of management and conservation actions performed on or off the installation that act to prevent the decline in common and conservation priority amphibian and reptile species populations. This includes surveys, monitoring, habitat protection, and disease surveillance.
- ***Natural Resources Conservation Law Enforcement***
 - DoD PARC recommends a synopsis or copy of the state and installation regulations regarding herpetofauna, if applicable. Consider highlighting those regulations typically overlooked by conservation law enforcement and those regulations that may be unfamiliar to traditional law enforcement officers (for example, poaching of wildlife or illegally collecting protected species).
- ***Cantonment Fish and Wildlife Management***
 - DoD PARC recommends a discussion of any issues with human-reptile interactions including your Pest Management Program and interactions with venomous snake species. Discuss conflict avoidance and mitigation mechanisms. Also discuss any educational or outreach activities/tools such as snake demonstrations or the development of educational materials such as posters or pamphlets.
 - Consider a separate set of recommendations specific to military family/housing areas such as snake avoidance, amphibian and reptile road mortality, subsidizing predators of herpetofauna, controlling feral cats, persecution of herpetofauna.

INRMP Implementation

- ***Project Development***
 - DoD PARC recommends a list of installation-specific projects that will help you reach your management goals and objectives with amphibians and reptiles and the ecosystems and natural communities in which they occur. Examples of projects are found within the Partners in Amphibian and Reptile Conservation (PARC) *Habitat Management Guidelines* series and the *Inventory and Monitoring Guide*. Examples include:
 - Conducting periodic (approximately every five years) herpetofauna inventories and surveys.
 - Monitoring at-risk and state-listed or federally-listed amphibian and reptilian populations.

- Maintaining or restoring natural hydrological processes through water table and stream flow maintenance and preserving natural hydrological regimes, such as inundation and desiccation cycles.
- Protecting natural drainages from degradation through invasive species vegetation clearing, equipment disinfection, and erosion prevention.
- Restoring and re-vegetating disturbed and degraded herpetofauna habitats.
- Determining the need to control or exclude non-native amphibian and reptile populations.
- Reducing impacts to herpetofauna associated with roads by closing non-essential roads, enacting seasonal controls, and enforcing speed limits.
- Conducting projects to maintain habitat connectivity and encourage reptile population movement (e.g., providing safe crossings for reptiles on roadway projects).
- Maintaining natural upland habitat buffers for migrating amphibians around wetlands.
- Developing educational programs or materials about local amphibians and reptiles.
- Developing educational materials to inform installation personnel of venomous reptile species.
- Using prescribed burns to better simulate the natural fire regime.
- Maintaining a training-free buffer zone around creeks, wetlands, lake/pond edges, etc.
- Minimizing the operation of heavy equipment/vehicles on hillsides to prevent erosion.
- Conducting a long-term population monitoring program to track population changes of SGCN.