



Department of Defense Legacy Resource Management Program

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Considerations and Recommendations When Developing Department of Defense Integrated Natural Resource Management Plans

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Considerations and Recommendations When Developing Department of Defense Integrated Natural Resource Management Plans Legacy Project #: 07-356

BACKGROUND: Objectives and Methods

In order to improve Integrated Natural Resources Management Plans (INRMPs), representatives from the Military Services and DoD had two-day meeting in 2005 to discuss and come to a consensus on an INRMP template. The INRMP template was developed to address shortcomings from lessons learned over the previous four years. The participants developed a draft DoD INRMP template that encompassed the following rationale:

- Provide Stakeholders a better foundation from which to participate in the development, revision, and implementation of INRMPs.
- Facilitate working relationships between Stakeholders and the Military.
- Ensure State Comprehensive Conservation Wildlife Plans were properly addressed.
- Facilitate Stakeholder cooperation.
- Facilitate early coordination and review by Stakeholders.
- Facilitate final review by Stakeholders.
- Potential reduction in costs.
- Promote in-House INRMP development.
- Promote Range Sustainability and protecting the Military Mission.
- Articulate DOD and Service conservation expectations.
- Facilitate connectedness between resources and requirements.

The next step involved field testing the new DoD INRMP template by developing a model INRMP. The U.S. Army Environmental Command (USAEC) took the lead on behalf of DoD and the Services. USAEC requested and received funds via the DoD Legacy program to carry out the project.

Fort Drum a 107,000+ acre Army installation in northern New York, agreed to help test the new template and develop a model DoD INRMP. Raymond Rainbolt, Fort Drum's Fish & Wildlife Program Manager took the lead at the installation to be the primary facilitator, organizer, and author of Fort Drum's INRMP.

Mr. Wills assembled a team of Sikes Act subject matter experts to represent the Services. This core group included Mr. Wills, Craig Woods (U.S. Navy-NAVFAC HQ), Jay Rubinoff (USAEC), and Raymond Rainbolt (Fort Drum). Other members included Dan Friese (U.S. Air Force Center for Environmental Excellence), Helene Cleveland and Jim Anderson (U.S. Forest Service/USAEC), Malcolm Boswell (U.S. Army Installation Management Command), Steve Getlien (USAEC), Joe Hautzenroder (U.S. Navy-

NAVFAC HQ), and Chris Eberly (DoD-Partners-in-Flight). Other contributors included Fort Drum staff as well as INRMP stakeholders representatives Dick McDonald (New York State Department of Environmental Conservation), and Robyn Niver and Sandie Doran (U.S. Fish & Wildlife Service).

This project began in April 2007. There were three official meetings which included the above members (15-17 May 2007 at Fort Drum, NY; 11-12 September 2007 at Fort Drum, NY; and 26-28 February 2008 at the Navy Yard, Washington, DC) and e-mail and phone communications between the core group members.

Considerations and Recommendations

Through applying the template to Fort Drum, NY and analyzing the outcome, a suite of considerations and recommendations were developed that could apply to most INRMP development. The following address overall INRMP content and organization.

The suite of considerations were reviewed and edited over the next 14 months and incorporated comments from the Military Services, DoD, United States Fish and Wildlife Service, and Association of Fish and Wildlife Agencies.

CONSIDERATIONS AND RECOMMENDATIONS: INRMPS

The following address the overall INRMP content and organization. These comments are based on experiences working on all facets of the INRMP.

General

General Organization. All subject headings should be numerical rather than alphanumeric to simply organization for the reader (i.e. Section 4.7.2.7.4 versus 4.g.(2.)(g.)iv.)

General Content. Liberally use bullets when providing examples, etc. so the meaning isn't lost in a jumble of words in a paragraph.

General Content. Liberally use photographs—landscapes, management prescriptions, species of interest, habitats, etc. to better explain verbiage in the text (i.e. "A picture is worth a thousand words.")

Title Page. Only include the date the INRMP is approved and goes into effect—do not use a range of dates the INRMP will cover in the future (e.g., 2001-2005) to avoid the appearance of making it "out-dated" in the case it is determined there is no revision required or a revision is delayed at a later date.

Executive Summary

The *Executive Summary* should be written as a memo to the commander or the “Commander’s INRMP”—highlights the main points of the entire document and other relevant information useful to the installation commander.

Include a table of “critical elements”—sort of a mini-table of contents—that highlight the issues of critical interest as identified by the Command and stakeholders (e.g., “no net loss,” encroachment, endangered species, public access, migratory birds, etc.). Tailoring the INRMP to the installation and pertinent stakeholders seem to be a better goal than to make a “one size fits all” template.

Overview

The sections should be organized with the idea of a natural progression from the broadest to the narrowest – *Authority > Purpose > Scope > Responsibilities > Goals & Objectives > Management Strategy*. (In other words, legally the reason there is an INRMP (authority), functionally the reason there is an INRMP (purpose), what the INRMP covers (scope), who plays a part in the INRMP (responsibilities), what are the broad management goals and objectives, and what is the broad strategy to achieve those goals and objectives (management strategy).

Authority and Background is a combination of some of the overarching issues and legalities of the Sikes Act and INRMP. This section combines a) *Purpose*, b) *USFWS responsibilities for INRMP development*, c) *Authority*, d) *Stewardship & Compliance Discussion*, e) *Review and Revision Process*, f) *Other Plan Integration*, and the essence of g) *Preparing Prescriptions for Projects*. This was one way to keep most of the standard verbiage (i.e. the “wordy” parts) of the INRMP in one place while not obstructing the flow of the rest of the document.

External stakeholders may be limited to only state fish and wildlife agencies, U.S. Fish & Wildlife Service and tribal governments (if applicable).

10. *Stewardship & Compliance* should be integrated with *Authority and Background* and discussed more fully in later in *Implementation-Funding*.

Current Conditions & Use

This is analogous with “Installation Information.”

Abbreviated History and Pre-Military Land Use or Historic Land Use. Although this section should be brief, it should also explain the relevant history which is responsible for the landscape that is being managed and trained upon today.

Constraints Map. Instead of a map of constraints which can either be too small scaled to be useless as a reference or be too large scaled to require an entire book of maps for large installations, there should be a narrative of constraints. This narrative can be included in *Encroachment & Training Constraints*.

General Physical Environment & Ecosystems and *General Biotic Environment* should be combined into *Natural Environment* and organized from most general to more specific (climate > ecoregions > landcover > aquatic habitats > flora & vegetative communities > fauna).

Threatened and Endangered Species and Species of Concern should be re-named *Resources of Special Interest* to include not only T&E species and species of concern, but also groundwater and potable water supplies, rare ecological communities, etc.

Environmental Concerns should address issues that impact natural resources on the installation, but are outside the control of natural resource managers (e.g., contaminants, global climate change, and wildlife diseases).

Environmental Management Strategy & Mission Sustainability

This chapter was re-named *Natural Resources Management & Mission Sustainability* since Environmental Management Strategy is similar to Environmental Management System (EMS) which has a very specific meaning--and the INRMP is only one small part of EMS.

Supporting Sustainability of the Military Mission and the Natural Environment to Integrating Natural Resources Management & Military Mission. This section is concerned with the ways natural resource managers and military trainers communicate and integrate activities (*Operations Planning & Review*) and how natural resource managers support mission sustainability. Within *Integrating Natural Resources Management & Military Mission*, *Sustainability Challenges* addresses issues of concern for stewardship and mission sustainability (e.g., loss of habitat, forest regeneration, erosion, spread of invasive species, etc.).

Encroachment & Training Constraints. Within this section, encroachment is divided into internal encroachment (within the boundaries of the installation) and external encroachment (outside the installation). Internal encroachment is divided into four types: (1) infrastructure constraints (constraints generally related to development, infrastructure, or effects of past military training); (2) natural constraints (e.g., surface water and wetlands, topography, highly erodible soils); (3) cultural resources and compliance constraints (cemeteries, cultural resources, landfills, potable water supplies—regulatory constraints that are not “natural resources”); and (4) natural resources constraints (e.g., endangered species, wetland mitigation, bald eagles).

Consultation Requirements includes Endangered Species Section 7 with USFWS, Clean Water Act Section 404 with USACE, National Historic Preservation Act Section 106, tribal consultations, etc. This should also be included in the Executive Summary.

Concerning the *State Wildlife Action Plans*: best approach may be to describe how the installation fits into the plan geographically and/or ecologically based on the SWAP organization and then how the installation fits strategically based on the SWAP goals and objectives.

Program Elements

Also known as *Management Actions* to avoid confusion with the word “program” since there are several programs that may be involved with one management action or one program with several different responsibilities.

Management Actions may be ordered and grouped by “type”—land management (forest, vegetation, wetlands, soil & water, coastal/marine, and floodplain); wildlife-related fish & wildlife, endangered species, outdoor recreation, pest management, BASH); support (law enforcement, wildland fire, and GIS); leases (agricultural outleases and other leases); and special management (as an example: Cantonment Area Management). Invasive species may be put at the end of land management since it often involves plant species, but in some cases invasive wildlife may be of concern, so it was a natural transition between land management and wildlife.

In general, each Management Action may be organized to discuss various strategies, actions/practices, and guidelines that are followed so that the INRMP may be as a reference document for environmental documentation, as well as, making it clear to the public and other stakeholders what occurs on the installation.

For *Fish & Wildlife Management*, a table may be included listing the other portions of the INRMP that are concerned with fish and wildlife management (state wildlife action plan, invasive species, endangered species, outdoor recreation, pest management, BASH management, etc.). To streamline this section and prevent discussing all fish and wildlife on the installation, the section may be organized by (1) surveys and monitoring activities; (2) fish and wildlife habitats; and (3) focal species/groups of species of special management concern or interest. This list was decided upon through coordination with the USFWS and State. For example, the focal species on Fort Drum include: (1) bats; (2) beaver; (3) deer; (4) bear; (5) bald and golden eagles; (6) wild turkey; (7) grassland birds; (8) early successional forest/shrubland birds; and (9) brook trout.

Wildland Fire Management should only be concerned with fighting wildland fires. Prescribed burning for forest management or vegetation management or endangered species management should be included under those specific sections.

Other Leases is concerned with the lease of installation property—not the installation leasing other property. If an installation is leasing other property, it could constitute a satellite installation and require an appendix to the INRMP.

Cantonment Area Management deals with special management scenarios within the Cantonment Area. Included are vegetation management & landscaping, urban forest management, fish and wildlife management, and outdoor recreation & green space.

Appendices

Consider dividing *Surveys* into two separate appendices listing the fauna and flora on the installation.

Consider including a listing the regulatory drivers on the installation.

Migratory Bird Management is divided into seven categories: (1) inventory and monitoring; (2) habitat conservation (protection, restoration and enhancement); (3) collaboration; (4) cooperation; (5) outreach and public access; (6) integration; and (7) regulations.

Consider including a listing the species of special status (federal and state listed species) and species of greatest conservation need (listed in the state wildlife action plan).

CONSIDERATIONS AND RECOMMENDATIONS: METRICS

Metrics. Metrics are based on the seven broad categories developed by the Navy/Marines, but has been slightly modified as the follows:

- (1) INRMP Implementation
- (2) T&E Species and Critical Habitat
- (3) Public Use & Outdoor Recreation
- (4) Ecosystem Integrity
- (5) Partnership Effectiveness (External stakeholders)
- (6) Team Adequacy (Internal Stakeholders)
- (7) INRMP Impact on the Installation Mission

1. INRMP Implementation

These metrics are concerned with overall implementation of the INRMP. These questions are to be answered by installation natural resources staff and specific internal stakeholders. Planning level surveys or baseline information is included in this section; long-term monitoring is included in #4 Ecosystem Integrity.

Forest Management

- % Forest Inventory completed? Date last completed?
- # Acres of forest managed this FY/CY?
- # Acres / % of timber harvests primarily conducted for direct benefit of military mission?
- # Acres / % of timber harvests primarily conducted for wildlife habitat creation/enhancement?
- # Acres / % of timber harvests primarily conducted for silvicultural purposes?
- # Acres of forest harvested due to construction activities?
- # official partnerships/agreements with external entities to implement forest management actions? (This does not apply to contracting actions, but having official agreements with other government agencies, universities, or NGOs.)

Vegetation Management

- Status of Planning Level Survey for flora (% complete)? (At a minimum, this is an installation-wide vascular plant survey that provides a list of plant species with verified nomenclature and classification and determine the existence of special status species.)
- Status of Planning Level Survey for vegetative communities (% complete)? (At a minimum, the distribution and extent of vegetation communities are described, mapped, field-checked for accuracy, and included in a GIS layer.)
- # official partnerships/agreements with external entities to implement vegetation management actions? (This does not apply to contracting actions, but having official agreements with other government agencies, universities, or NGOs.)

Wetlands Management

- Status of Planning Level Survey for wetlands (% complete)? (At a minimum, wetlands will be identified, classified, mapped, and included in a GIS layer.)
- # Acres wetlands filled or drained this FY/CY?
- # Miles/linear feet of stream lost or impacted this FY/CY?
- # Acres wetlands created through mitigation by Cowardin type on-post? Off-post?
- # Acres wetland impacts avoided/minimized through project review and design modification.
- # Miles/linear feet of stream loss or impact avoided through project review and design modification.

Soil & Water Management

- Status of Planning Level Survey for soil (% complete)? (At a minimum, soils are classified, categorized, described, mapped, and included in a GIS layer.)
- Status of Planning Level Survey for surface water (% complete)? (At a minimum, the distribution and extent of surface waters will be described, mapped, and included in a GIS layer.)
- Status of Planning Level Survey for topography (% complete)? (At a minimum, a map showing elevations, contours and associated data consistent with USGS standards and topographic map products and included in a GIS layer.)

- Erosion Mgmt: Acres of Land/Stream miles rehabilitated through management actions? (This would be a reactive measure to restore lands after an impact occurred.)
- Erosion Mgmt: Acres of Land/Stream miles protected through management actions? (This would be a proactive measure before impacts occurred (e.g., hardened water crossings.)
- # official partnerships/agreements with external entities to implement vegetation management actions? (This does not apply to contracting actions, but having official agreements with other government agencies, universities, or NGOs.)

Invasive Species Management [could also be included in #4 Ecosystem Integrity]

- # invasive species on the installation / approximate acreage cover of each species
- # invasive species actively managed
- # invasive species partially managed
- # official partnerships/agreements with external entities to implement vegetation management actions? (This does not apply to contracting actions, but having official agreements with other government agencies, universities, or NGOs.)

Fish & Wildlife Management

- Status of Planning Level Survey for mammals (% complete)? (At a minimum, this is an installation-wide survey of mammals to provide a list of species with verified nomenclature and determine the existence of special status species.)
- Status of Planning Level Survey for birds (% complete)? (At a minimum, this is an installation-wide survey of birds to provide a list of species with verified nomenclature and determine the existence of special status species.)
- Status of Planning Level Survey for reptiles and amphibians (% complete)? (At a minimum, this is an installation-wide survey of reptiles and amphibians to provide a list of species with verified nomenclature and determine the existence of special status species.)
- Status of Planning Level Survey for fish (% complete)? (At a minimum, this is an installation-wide survey of fish to provide a list of species with verified nomenclature and determine the existence of special status species.)
- Status of Planning Level Survey for aquatic invertebrates (% complete)? (At a minimum, this is an installation-wide survey of aquatic invertebrates to provide a list of species with verified nomenclature and determine the existence of special status species.)
- Status of Planning Level Survey for terrestrial invertebrates (% complete)? (At a minimum, this is an installation-wide survey of terrestrial invertebrates to provide a list of species with verified nomenclature and determine the existence of special status species.)
- Migratory Bird Conservation. What % of habitat or vegetation management projects (or # acres not impacted) are conducted outside the primary nesting season for migratory birds (Apr 15 - Aug 1)? How many acres are impacted during the nesting season and which bird species are affected? (Are other actions taken to minimize or mitigate the impacts of these actions on migratory birds?)

- Migratory Bird Conservation. # of acres of habitat that has been conserved, created, or enhanced for the benefit of migratory birds? Have monitoring projects been implemented to evaluate the success of these habitat actions?
- # official partnerships/agreements with external entities to implement fish and wildlife management actions? (This does not apply to contracting actions, but having official agreements with other government agencies, universities, or NGOs.)

Endangered Species Management (See Question #2 below)

Public Access & Outdoor Recreation (See Question #3 below)

Pest Management

- Is there an Installation Pest Management Plan? (Include date signed.)
- Are the IPMP and INRMP integrated?
- # of nuisance beaver situations handled?

Bird-Aircraft Strike Hazard Management

- Is there a Bird-Aircraft Strike Hazard Plan? (Include date signed.)
- Are the BASH Plan and INRMP integrated?
- Last meeting of BASH Working Group?

Law Enforcement

- # of formal meetings with LE & Environmental staff?

Wildland Fire Management

- Is there an Installation Wildland Fire Management Plan? (Include date signed.)
- Are the IWFMP and INRMP integrated?

GIS Management

- Date of the most recent wetlands (NWI) layer in GIS.
- Date of the most recent soils (NRCS) layer in GIS.
- Date of the most recent surface water (NWI) layer in GIS.
- Date of the most recent vegetation cover layer in GIS.
- Date of the most recent T&E information layer in GIS.

Leases

- # of Agricultural leases (activity)
- # acres in agricultural lease for cropland/hay, grazing, and other
- \$ value of services
- \$ cost savings

2. T&E Species and Critical Habitat

These metrics are concerned with federally listed threatened and endangered species. These questions are to be answered by installation natural resources staff.

- # and names of T&E Species
- # ac / % of the installation with designated Critical Habitat
- Status of Planning Level Surveys for T&E species (% complete for each species)? (At a minimum, this survey shall produce a map that shows the kinds and known distribution of federal T&E species.)
- Status of Planning Level Surveys for T&E species habitat (% complete for each species)?
- # of individual consultations with the USFWS/NOAA this FY/CY.
- # (or %) of consultations completed through a comprehensive Biological Assessment this FY/CY.
- What % of conservation measures is being met? If less than 100%, identify which areas and % completeness.
- # acres of habitat impacts avoided/minimized through project review and design modification?
- # acres of habitat that has been conserved, created, or enhanced on the installation for the benefit of endangered species? Have monitoring projects been implemented to evaluate the success of these habitat actions?
- How many acres of habitat have been conserved, created, or enhanced off the installation through installation programs (e.g., ACUB) for T&E species?
- \$ expenditures on T&E Management (for each species).

3. Public Use & Outdoor Recreation

These metrics are concerned with public use and outdoor recreation. These questions are to be answered by installation natural resources staff.

- Does the installation allow the following activities (hunting, fishing, trapping, wildlife viewing, other). If so, how often?
- How many recreation permits are issued?
- % of recreation permits issued to the public?
- Last revision of installation hunting/fishing regulations?
- Was public outreach conducted? What types of outreach and # of times public outreach conducted?

4. Ecosystem Integrity

These metrics are concerned with how management actions relate to long-term ecosystem health as well as long-term monitoring. These questions are to be answered by installation natural resources staff and specific internal stakeholders.

- Status of Planning Level Survey for state-listed fauna (% complete)? (Including state endangered, threatened and species of special concern, and species of greatest conservation need. At a minimum, the status of these species are assessed and their distribution on the installation mapped.)
- Status of Planning Level Survey for state listed rare plant species (% complete)? (Including species as determined by Natural Heritage Program. At a minimum, the statuses of these species are assessed and their distribution on the installation mapped.)
- Status of Planning Level Survey for unique ecological communities (% complete)? (including ecological communities as determined by the Natural Heritage Program. At a minimum, the status of these communities are assessed and their distribution on the installation mapped.)
- Long-term monitoring for state-listed and/or indicator species (list them): (Yes/No) If “yes” to monitoring, are they increasing, decreasing or stable.
- Long-term monitoring for sensitive vegetation communities (list them): (Yes/No) If “yes” to monitoring, are they good/bad; decreasing/increasing/stable.

5. Partnership Effectiveness (External Stakeholders)

These metrics are to be answered by natural resources staff and external stakeholders (i.e. USFWS & state agencies).

- How many formal meetings were held between the installation & USFWS?
- How many informal meetings were held between the installation & USFWS? (This can include sharing information, discussing issues, etc.)
- Has the installation sought and received support from USFWS, as needed?
- How well has natural resources management supported geographical/regional USFWS objectives (e.g., Migratory Bird Initiative and the Fish Habitat Initiative)? (Not supported, Minimally supported, Satisfactorily supported, Well supported, or Very well supported.)
- Is natural resources program execution meeting USFWS expectations? (Dissatisfied, Minimally satisfied, Somewhat satisfied, Highly satisfied, or Completely satisfied).
- How many formal meetings were held between the installation & state agencies?
- How many informal meetings were held between the installation & state agencies? (This can include sharing information, discussing issues, etc.)
- Has the installation sought and received support from state agencies, as needed?
- How well has natural resources management supported geographical/regional NYSDEC objectives (e.g., State Wildlife Comprehensive Plan)? (Not supported, Minimally supported, Satisfactorily supported, Well supported, or Very well supported.)

- Is natural resources program execution meeting state agencies expectations? (Dissatisfied, Minimally satisfied, Somewhat satisfied, Highly satisfied, or Completely satisfied).
- What was the date of the last meeting with USFWS & state agencies to discuss INRMP “operations & effect”?

6. Team Adequacy (Internal Stakeholders)

These metrics are to be answered by natural resources staff and internal stakeholders.

- Are staffing levels of natural resources professionals at the installation adequate to meet current requirements? (Members of the team do not have to be within the natural resources department.) If no, how many professionals are required?
- Do staff have current Individual Development Plans (IDP)? Are training requirements being fulfilled?
- Has the installation received support from the IMA-NERO field offices as needed?
- What was the date of the last meeting with internal stakeholders to discuss INRMP “operations & effect”?
- How many formal meetings did Training Division and Environmental Division have during the calendar year? (e.g., monthly coordination meetings, Range Facilities Steering Committee meeting, Natural Resources Conservation Meeting, Forest Management Program Annual Work Plan review, INRMP review meetings).

7. INRMP Impact on the Installation Mission

These metrics are to be answered by the Commanding Officer or his/her Designee considering the mission of the installation.

- **Has Coordination between natural resources and operators been successful/effective?** Does the Training Division and Environmental Division coordinate and cooperate? (No coordination, Minimal coordination, Satisfactory coordination, Effective coordination, or Highly effective coordination.)
- **To what level do NR compliance requirements support the installation's ability to sustain the operational mission?** (Cannot accomplish mission requirements; Meet mission requirements, but with significant work-arounds; Meet mission requirements, but with minimal work-arounds; Meet mission requirements, but with diminished value; or Accomplish all mission requirements with no work-arounds.)
- **Has there been a net loss of training lands?** The Sikes act states that each INRMP shall, where appropriate and applicable, provide for no net loss in the

capability of military installations lands to support the military mission of the installation. Has the implementation of the installation INRMP resulted in a net loss of lands to support the military mission? (Yes, to such degree that a training activity could not be conducted on the base; Yes, the loss resulted in modification of the training so that it could be conducted on the base; Yes, a loss occurred but it only affects future training activities; No loss occurred; or No loss occurred and the base was able to recover areas for training previously lost due to natural resource requirements.)

- **Does the INRMP process effectively consider current mission requirements?** (Strongly disagree, Disagree, Not sure (neutral), Agree, or Strongly agree.)
- **How well has natural resources management supported other local/regional/national conservation initiatives including public/community initiatives?** (Not supported, Minimally supported, Satisfactorily supported, Well supported, or Very well supported.)