

1 EXECUTIVE SUMMARY

1.1 PURPOSE

The vision for the Tobyhanna Army Depot Natural Resources Inventory and Management Plan (NRIMP) is to provide:

- current documentation of natural resources serving to update the 2001 Study (USACE 2001), and
- management recommendations for protection and enhancement of natural resources.

It is intended that the contents of this report be used to aid Tobyhanna Army Depot (TYAD) natural resource managers in achieving compliance with the ecosystem management policy of the Department of Defense (DOD) specifically in support of Army Regulation 200-1, *Environmental Protection and Enhancement* and the preparation of a Natural Resources Inventory and Management Plan (NRIMP) is required of all installations with a natural resources base, per Army Regulation AR 200-2 Ch 4-3, *Natural Resources - Land, Forest, and Wildlife Management*. These natural resource survey findings and management recommendations will be used as guidance to integrate the installation's activities with ongoing mission requirements and to identify potential conflicts.

Specific objectives of the NRIMP include outlining natural resources regulatory framework; providing updated current conditions of natural resources including results from the threatened and endangered species (TES) investigation; and providing goals, objectives and management practice recommendations for protection and enhancement of TYADs natural resources.

The basis of information for this plan is both from natural resource inventories, as well as government furnished information and material including previous studies and reporting. This also includes current installation design guidance which outlines improvement projects that the installation intends to conduct.

1.2 BACKGROUND

TYAD is located in northeastern Pennsylvania in Tobyhanna, PA, approximately 75 miles west of New York City. The entire site, which is the area of study for this inventory, is just less than 1300 acres in size. TYAD operations include support for all Department of Defense agencies by serving as a communications-electronic maintenance depot that provides for the maintenance, issuance and disposal of assigned commodities; provides installation support to attached organizations; and operates assigned facilities.

TYAD has a land area comprised of natural resources including wetlands, wildlife habitat, forest lands, water bodies, and creeks, as well as industrial and community functional land use categories. Current land use on TYAD is divided broadly into two functional areas: the Industrial Area and the Community Area (TYAD IDG, 2010). The Community Area comprises the southeast portion of TYAD east of Hap Arnold Boulevard. The Industrial Area is situated west of Hap Arnold Boulevard and comprises the majority of TYAD, and is subdivided into three areas in support of the following functions: 1) testing, 2) storage and supply, and 3) maintenance and production.

1.3 FIELD SURVEY FINDINGS

Field survey efforts were designed to document natural resources including threatened and endangered species, critical or unique habitats, and to update previous inventories of flora and fauna habitat and species at TYAD. Site surveys of existing flora and fauna were conducted between March 2012 and November 2012 to update Natural Resources data of habitats and species inhabiting the site. Valuable flora and fauna species were investigated and the area was evaluated for potential habitats for additional TES. A photographic record of representative habitats and species was prepared. An inventory of significant areas dominated by invasive exotic species was also conducted. TYAD natural resources management plan has been updated outlining goals and objectives, and providing management recommendations across resource types aimed at protecting, conserving and enhancing the existing habitats and species found at TYAD.

1.3.1 Threatened and Endangered Species

The enactment of the Endangered Species Act (ESA) of 1973 and AR 200-1 provided the regulatory guidance for protection of rare, threatened and endangered species. Both Federal and State inventories were queried to determine what listed species and critical habitats may occur within or near TYAD boundaries. Three USFWS-listed threatened, endangered and/or candidate species were found with potential to occur within or near TYAD. None of these federally listed species have been encountered during prior survey efforts nor were any encountered during the 2012 field surveys. The overall lack of findings of these three species is consistent with prior field survey efforts including Nature Conservancy (1994), and the comprehensive 2001 Study (USACE 2001).

1.3.2 Flora

TYAD flora investigation using National Vegetation Classification Standard (NVCS) resulted in the identification of several ecological communities. At a broad level of vegetative categorization, Mesic Harwood and Conifer Forest comprise 412 acres, Ruderal Shrubland & Grassland cover 188 acres, and Wetland - Aquatic Vegetation are mapped at just less than 160 acres. Nuisance vegetation stands consisting of non-native invasive (NNI) species was noted during field investigations. Common reed were the most

abundant NNI plant present occurring within many of the wetland areas and near the radome clearing along the eastern perimeter road. Other NNI species that were encountered in abundance on TYAD include Multiflora rose, Japanese barberry, Garlic mustard, Oriental bittersweet, Autumn olive, and Himalayan blackberry.

Using the *Wetlands and Deepwater Habitats Classification System* (Cowardin et al. 1979), a classification based on vegetative habitats and water regime, palustrine emergent, palustrine scrub-shrub and palustrine wetlands were delineated. Thirty-six wetlands with a total area of 159 acres were delineated within the property. In general, the wetland communities within the study area are moderately disturbed as a result of various installation activities.

1.3.3 Fauna

Bird survey results from the 2001 Study and 2012 surveys are, for the most part, similar in the species noted and their habitat associations. Seventy-seven species are common to both years of survey. From the two formal avifaunal survey periods at TYAD, 79 species were recorded based on visual and auditory observations. An additional 8 species were noted anecdotally by Biohabitats staff in March and August 2012 for a total of 87 species. Two other species were noted by PARC in 2012, both of which were noted in the 2000, bringing the total 2012 species count to 89.

Mammal surveys documented a total of twenty (20) mammal species representing all seven (7) orders of North American terrestrial mammals and fourteen (14) different families were observed during the study period. While the species richness is similar to the 2000 study (17 species), only ten (10) species observed in the 2001 Study were observed again in 2012. This difference is likely the result of subtle differences in the sampling techniques employed.

Reptile and amphibian survey documented a total of 16 species including, four salamanders, seven frogs, three snakes and two turtle species were observed during the 2012 survey. Of the observed species, two species (eastern gray treefrog and two-lined salamander) were new to the 2012 survey. In contrast, five of the species observed in the 2001 Study (one salamander and four snakes) were not observed in the 2012 survey. Of the species not observed, the slimy salamander was only observed in a snap trap which is a method not used in the 2012 survey and three of the snake species, eastern rat snake, smooth green snake and northern brown snake were only observed in section of Oakes Swamp adjacent to Gouldsboro Road. This area appears to have experienced some sedimentation or fluctuation in water level that has caused a shift in the vegetative community, which may have displaced these species or more likely influenced the effectiveness of visual encounter sampling. Lastly, the northern ring-necked snake is a fairly secretive nocturnal snake that was not observed, but likely to still occur at TYAD.

Fish surveys resulted in a combined total of thirteen fish species found in the lotic and lentic habitats of TYAD. Of these species eleven were previously identified and two new species were found (Eastern mudminnow and Creek chubsucker). The Eastern mudminnow is on the PA heritage watch list because the size and distribution of its habitat in Pennsylvania are not well documented due to the secretive nature of the fish. The only fish not found from the 2001 Study was the Bluegill, which was common in both Barney's Lake and Hummler Run. Exclusion of the Bluegill from Barney's Lake is likely the result of competition from the pumpkinseed, and predation from largemouth bass, which have become established in the lake since 2000.

1.4 NATURAL RESOURCES MANAGEMENT PLAN

1.4.1 Vegetation Management Goals and Objectives

Restore and maintain native plant communities through the developed areas, to the extent practical, through the use of integrated ecosystem management principles (including specific habitat benefits).

- Eliminate the installation/use of non-native species to the maximum extent practicable through the developed areas (elimination of existing non-native and invasive species is covered in Recommended Invasive Species Management).
- Improve habitat quality throughout the developed areas for the promotion of native flora and fauna habitat.

1.4.2 Select Vegetation Management Recommendations

- Although the Landscape Design Standards (IDG Section 10) includes preserving and enhancing natural cover, as well as the use of native plant material, it does not specifically mention highlighting specific functions of vegetation to support targeted species (e.g., providing food year-round/breeding season, habitat, shelter, etc.).
- Convert level radar sight clearings from early successional forest to meadow communities through the removal of stumps and slash material, and planting with native dry meadow species.

1.4.3 Forest Management Goals and Objectives

Protect and enhance forest/woodland composition and structure to support target species and other wildlife.

- Manage forest areas with consideration given to adjacent, contiguous forested areas in cooperation with appropriate state and local jurisdiction natural resource managers.
- Prevent pest and disease related impacts to existing forest stands such as Beech bark disease (BBD) and Hemlock wooly adelgid (HWA).
- Control forest stand succession in areas of desired low ground clearance using sustainable or regenerative methods such as establishing and maintaining healthy native shrub communities.

1.4.4 Select Forest Management Recommendations

- Conduct annual coordination with the U.S. Forest Service and PA State Agency (adjacent state parklands) in monitoring gypsy moth and other forest pest activities.
- Develop a prevention & management plan for Beech bark disease which initially involves infestation by a tiny, non-native beech scale insect.
- Develop a prevention & management plan for Hemlock Woolly Adelgid, an insect that feeds on the sap of the eastern hemlock, a once abundant component of Pennsylvania forests.

1.4.5 Invasive Species Management Goals and Objectives

Eliminate invasive species and prevent new infestations of invasive species.

- Detect and rapidly respond to control populations of invasive plant species in a cost-effective and environmentally sound manner.
- Research technologies to prevent introduction of new invasive species and environmentally sustainable control of invasive vegetation.
- Identify native plant restoration opportunities in exiting habitats and after completion of invasive vegetation control within repair areas (areas vulnerable to erosion, etc.).
- Promote public education on invasive species and provision of means to address invasive vegetation.
- Integrate invasive vegetation management into TYAD pest management staff responsibilities, as well as the staff environmental/biologists.

1.4.6 Select Invasive Species Management Recommendations

- Develop technologies and establish guidelines for environmentally sustainable control of existing invasive vegetation based on research to prevent new introductions for specific environments such as:
 - establish guidelines for control of invasive vegetation on improved grounds using appropriate methods (cultural, mechanical, biological or chemical) following an Integrated Vegetation Management (IVM) process , and
 - establish guidelines for control of unwanted aquatic plants in managed fisheries ponds using mechanical (shoreline shaping), physical (water level fluctuations), and/or biological and approved chemical methods.
- Design specific treatment and planting plans for restoration of native plant species and habitat conditions in ecosystems that have been invaded such as:
 - Design a treatment and planting plan for the Leather leaf (*Ledum groenlandicum*) wetland community adjacent to Gouldsboro Road invaded by common reed (*Phragmites australis*).

1.4.7 Fish and Wildlife Management Goals and Objectives

Fish and wildlife management practices will be integrated with other natural resources management practices and military needs at TYAD to maximize species population overall health and diversity while supporting public needs.

- Maintenance of a diversity of habitat which encourages habitation by a maximum number of species
- Maintenance of a close working relationship with other state and federal as applicable, to maximize the biodiversity of species
- Maintenance of a satisfactory recreational fishery.
- Retention of acceptable fish and wildlife habitat in close proximity to recreation, housing, dining, and work facilities, to promote desirable wildlife for TYAD human populations
- Protection of State-listed species, neotropical migratory nesting sites, and wetland habitat

1.4.8 Select Wildlife Management Recommendations

- *Meadow areas* - Two significant meadow areas, the closed landfill and Munson track, were observed in this study. These areas should only be mowed to a height of 10-inches once annually in late August (would require coordination with D/PW). This will allow most of the wildlife time to nest and brood their young and allow enough regrowth to occur before senescence to provide winter cover.
- *Roadsides* – Roadsides in the naturalized areas should mowed on the same schedule as the meadows. A similar strategy could be employed for the other roads on base provided it does not inhibit site lines.

1.4.9 Select Fish Management Recommendations

- *Hummler Run* – Improving the biological integrity of Hummler Run must start with an investigation into and correction of the water quality impairment as evidenced by the high conductivity below the treatment plant tributary. Once that problem is corrected, the habitat should be suitable support fish population. Important note: a new sewage treatment plant is currently being installed and should help address this issue. Possible actions could include the following items:
 - Evaluation of plant operations and monitoring programs should be performed to optimize the plant and reduce the amount of dissolved ions in effluent.
 - Evaluation of end of pipe treatment options such as wetland creation can help buffer the effluent before it enters Hummler Run
 - The forested middle reach would benefit from the introduction of some woody debris to improve habitat complexity and induce scour to create deeper resting pools.
- *Barney's Lake* – This resource has historically been managed as a put-and-take fishery to support recreational objectives of the base. It is evident from the fish data that annual stocking of top predators to support this goal has stressed the resident populations within the lake, as evidenced by missing age classes and few young-of-year (except largemouth bass). If the desire is to create a

sustainable warmwater fishery, further study, including sampling the deepwater areas of the lake, is recommended to better determine the age class structure and diversity of fishes. An additional recommendation for the lake would be to add permanent habitat structure by sinking trees and rootwads. Seasonal cover is provided by a dense growth of submerged aquatic vegetation, but permanent cover appeared to be lacking.

- *Oakes Swamp* – Overall the fishery in Oakes Swamp appears to be healthy and increasing in both number and diversity since the 2001 Study. The primary management concern is sedimentation in the upper swamp. The sedimentation does appear to be progressive and is likely linked to major land clearing activities including the K-Lot expansion. Implementation, inspection and maintenance of sediment control BMPs could prevent further sedimentation.

1.4.10 Avian Management Goals and Objectives

Manage TYAD in a manner that supports the conservation of birds and their habitats.

- Document avian diversity, abundance, behaviors, and habitat associations on a seasonal, annual, and long-term basis.
- Identify management activities that have the potential to adversely affect bird populations. Evaluate need for potentially harmful management activities and identify ways to minimize impacts.
- Promote and undertake management activities that benefit birds and enhance the quality of their breeding, migration, and wintering habitats. As appropriate, utilize conservation techniques to target specific species of concern.
- Cooperate and collaborate with existing and possible future partners to develop reasonable and effective conservation measures for actions that affect migratory birds and their natural habitats. The County Natural Heritage mapping tool shows an Important Bird Area (IBA) immediately adjacent to TYAD (IBA#63 Pocono Lake Preserve).

1.4.11 Select Avian Management Recommendations

- Preserve existing mosaic of forest, open (e.g., scrub-shrub, grassland), and wetland habitats in different successional stages to promote habitat diversity.
- Promote the aging of existing large areas of forest (e.g., exceeding 100 ha) where woodland avian species forage and nest to promote long-term development of mature woodland stands (e.g., >100 years). Retain dead snags in aging stands to promote development of nest cavities.
- Avoid disruptive management treatments (e.g., mowing, burning) in nesting habitat during the breeding season, as these activities cause nest abandonment and destruction, and increase the incidence of nest predation.