North Dakota Army National Guard

Douglas Creek Local Training Area

Integrated Natural Resources Management Plan

(INRMP)

Prepared by:

North Dakota Army National Guard Environmental Division

April 2014

Douglas Creek Local Training Area Integrated Natural Resources Management Plan

Signature for Certification

I agree with and/or approve that the Douglas Creek Local Training Area Integrated Natural Resources Management Plan meets the requirements for INRMPs listed in the Sikes Act and has set appropriate guidelines for conserving and protecting wildlife and other natural resources of Douglas Creek Local Training Area.

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Annual Review and Coordination of the Douglas Creek Local Training Area Integrated Natural Resources Management Plan

Signature for Certification

I agree with and/or approve that the Douglas Creek Local Training Area Integrated Natural Resources Management Plan has been reviewed and properly implemented

_____

North Dakota National Guard

_____

United States Fish and Wildlife Service, North Dakota

_____

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EXECUTIVE SUMMARY

The Douglas Creek- Local Training Area (DC-LTA) is owned by the US Army Corps of Engineer (USACE) and is leased as a training site by the North Dakota Army National Guard (NDARNG).

The DC-LTA serves as a training installation for units assigned to the NDARNG. Common Tasks Training (CTT) and squad-level Mission Essential Task Listing (METL) training are the kinds of training that are typically conducted.

The DC-LTA is required to prepare and implement an Integrated Natural Resources Management Plan (INRMP) pursuant to the Sikes Act (16 U.S.C. 670 et.seq.).

This document reflects the commitment set forth by the NDARNG to conserve, protect and enhance the natural resources necessary to provide realistic military training for the Army and Air National Guard at DC-LTA.

The purpose and objective of the INRMP is to present a plan which can be implemented to achieve natural resources management goals while simultaneously meeting military training mission requirements and compliance with environmental policies and regulations.

Command support is essential for the implementation of this INRMP and is required for many of the natural resources management projects described herein. This INRMP has the full support of the Adjutant General for the State of North Dakota and other personnel in command positions with North Dakota Army National Guard (NDARNG).

INRMP supports the Army National Guard's (ARNG) underlying need for training the in a realistic environmental setting while meeting mission requirements and complying with Army Regulation (AR 200-1). Implementation of this plan supports the Military mission at DC-LTA from 2011 through 2016 by ensuring sound land management and compliance with all relevant laws, regulations and applicable plans.

1 Overview

1.1 Purpose

The purpose of this plan is to guide natural resources management of the Douglas Creek Local Training Area (DC-LTA) while simultaneously meeting military training mission requirements and complying with environmental policies and regulations set forth by the Sikes Act, 16 U.S.C. 670a et seq.

Pursuant to 16 U.S.C. 670a (b) (1) (I), the resource management efforts lined out in this plan will ensures "no net loss in the capability of military lands to support the military mission". This plan will be reviewed every 5 years to determine if the INRMP needs to be up-dated to address changes in the NDARNG mission at DC-LTA, natural resource concerns not previously identified, and/or changes in DoD regulations.

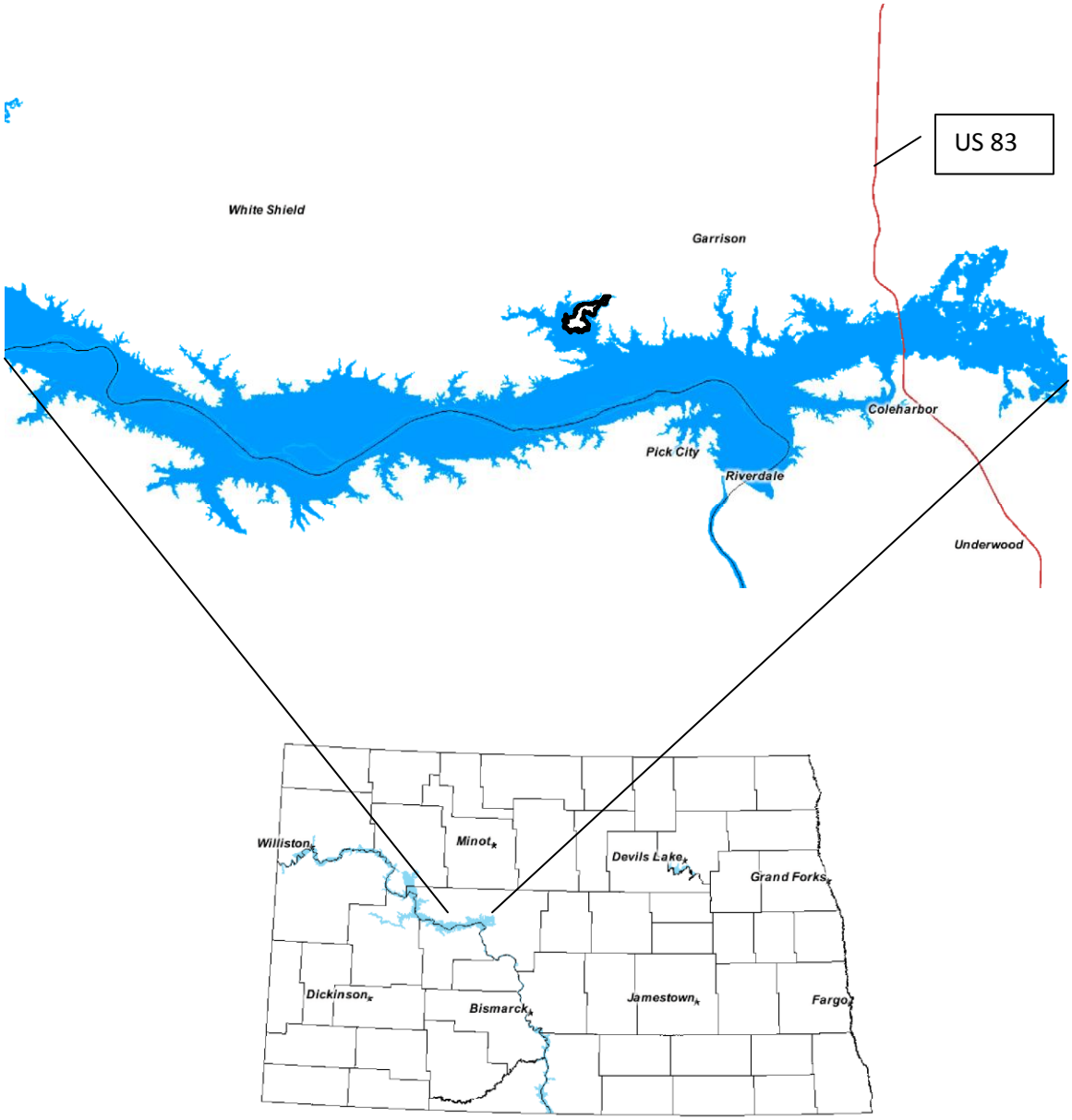
Further, this INRMP addresses cultural resource compliance matters associated with the implementation of the INRMP. Careful consideration has been given to insure the INRMP sufficiently details natural resource management activities that could impact cultural resources. Also, the INRMP sets out the steps that will be taken to ensure compliance with all cultural resource statutes, regulations and policies.

As required by the Sikes Act, this INRMP has been prepared in cooperation with the U.S. Fish & Wildlife Service (FWS) and the North Dakota State Game & Fish Department (NDGF). The completed and approved INRMP exemplifies the cooperative effort and mutual agreement between the NDARNG, FWS and the NDGF when addressing the conservation, protection and management of fish and wildlife resources.

1.2 Scope

The designated National Guard Recreation Area or DC-LTA is federally owned and administered by the Omaha District of the USACE. The training site lies in west central North Dakota and is located approximately 10 miles west and south of the city of Garrison, North Dakota. Accumulatively DC-LTA is located within portions of Sections 30 and 31, T138N, R85W, and Sections 25, 26, 35, and 36, T148N, R68W, McLean County, North Dakota. It is situated on the north shore of Lake Sakakawea (Garrison Reservoir) and is part of the Garrison project area.

Figure 1. Location of the Douglas Creek Local Training Area within McLean County, ND.



1.3 Goals and Policies

Camp Grafton Annual Training Site personnel, the Training Site Manager, and Environmental Services Office personnel will use the DC-LTA INRMP. This issue of the INRMP consists of two sections:

1) Description of the history, mission, setting, and DC-LTA resources, and
2) Implementation of the INRMP to ensure the continued stewardship of DC-LTA provides managers with the ability to:

    a) Choose optimal sites for training activities with knowledge of the resources present
    b) Identify and protect environmentally sensitive areas,
    c) Ensure natural resources management and military training are accomplished concurrently
    d) Improve ecosystem health and tolerance to drought, insect infestations, floods, fire, windstorms, livestock use, and military training
    e) Manage natural resources in coordination with other state and federal agencies in North Dakota's Coordinated Resource Management Program
    f) Maintain positive public relations by conducting good land stewardship.

Training sites will provide military troops with the training needed to win wars and protect our nation. Impacts of training will be minimized and/or mitigated to maintain the carrying capacity of this training site. The military will plan training activities so they do not negatively affect the people, lands or resources surrounding the training site or the training site itself.

Effective planning requires knowledge of the training site resources and required training activities. With this knowledge, training site managers can choose the locations best suited for each training activity. With proper management, training sites have the potential to provide quality training through the years.

1.4 Responsibilities

NDARNG Environmental Program is responsible for developing and implementing the INRMP in cooperation with the U.S Fish & Wildlife Service (FWS) and the North Dakota State Game and Fish Department (NDGF) as required by the Sikes Act. In accordance to Department of Defense (DoD) policy the NDARNG Environmental Program will conduct annual INRMP reviews with the Sikes Act partners.

The NDARNG is also responsible for integrating the INRMP with the installation master plan, range plans, training plans, integrated cultural resources management plans (ICRMPs), integrated pest management plans (IPMPs), cleanup installation action plans (IAPs), and other

appropriate plans to ensure they are consistent and in concert with environmental, wildlife, and invasive species laws and regulations.

The FWS and NDGF for their part will review and provide comment on the INRMP as necessary to insure the INRMP addresses Wildlife and Wildlife Management concerns applicable to the DC-LTA. These agencies will also participate in a 5 year review the DC-LTA INRMP and revisions to the plan when deemed necessary.

1.5 Authority

As required by the Sikes Act, this INRMP has been prepared in cooperation with the U.S. Fish and Wildlife Service (FWS) and the North Dakota State Game and Fish Department (NDGF). The completed and approved INRMP exemplifies the cooperative effort and mutual agreement between the NDARNG, FWS and the NDGF addressing the conservation, protection and management of fish and wildlife resources.

Pursuant to 16 U.S.C. 670a (b) (1) (I), this INRMP ensures that " no net loss in the capability of military lands to support the military mission" of the training site has occurred as a result of natural resources management set out in this plan. Specific objectives of management to maintain the training mission capabilities of the site are identified within this plan.

1.6 Stewardship and Compliance

1.6.1 National Environmental Policy Act of 1969

The National Environmental Policy Act (NEPA) was passed by Congress to protect human and natural resources. This Act requires all federal agencies to evaluate proposed actions to determine all possible alternatives and environmental impacts.

The NDARNG Environmental Protection Officer administers the NEPA process for the NDARNG. The NEPA is a three-phase process. If the proposed action is determined to have an insignificant impact on the environment, the project may proceed as planned. At the second phase an Environment Assessment is required. After the Environmental Assessment has been written and reviewed, the project may proceed providing there is a Finding of No Significant Impact. If more study is needed, phase three must be implemented with an Environmental Impact Statement written and procedures for completing the project defined by the National Guard Bureau.

An Environmental Assessment was prepared to address implementation and impact of the INRMP back in 2001. A REC (Record of Environmental Checklist) was completed for the up-dated DC-LTA INRMP.

1.6.2 Natural Resources Awareness

The NDARNG publishes environmental annexes in the training circulars produced by the Directorate of Plans, Operations and Training, and the units. In addition to that information, the Environmental Office provides maps to the units with sensitive areas marked. This information is provided to the units to assist them in planning the operations to minimize the impact to these areas.

The community is an important partner in the management of the natural resources at DC-LTA. The NDARNG, along with the ND Department of Agriculture, has conducted tours and meetings for members of county weed boards from throughout the state. These meetings are conducted to share information with county officials about the problems and progress associated with the control of noxious weeds. By having these tours, the NDARNG is able to demonstrate the many on-going programs and research activities and also ensure the public that NDARNG is a good steward of DC-LTA's natural resources.

1.6.3 Environmental Compliance Documentation and Status

The NDARNG completed an EA for the 2001 DC-LTA INRMP as required. Documents associated with the EA are available upon request from the North Dakota National Guard's Environmental Office of the Adjutant General. A REC was prepared to address the implementation of DC-LTA's updated INRM.

1.7 Review and Revisions

Annually NDARNG will solicit comments from internal and external stakeholders on the management and implementation of the INRMP. Based upon the input provided, the NDARNG will periodically updated to the INRMP to address the comments received.

As required by the Sikes Act, the NDARNG Environmental Office will meet with all internal and external stakeholders on a regular basis, not less often than every 5 years. Discussions will include the INRMP, any newly documented directives, proposed DC-LTA projects, changes to the DC-LTA training mission, the sustainability of the current DC-LTA INRMP, and other issues of concern. If major changes occur, an update to DC-LTA INRMP maybe appropriate in concert with the installation's needs to obtain mutual agreement in coordination with the FWS, NDG&F, and its other internal and external stake holders. An update is not required if circumstances have not changed.

1.8 Management Strategy

The INRMP supports the NDARNG's planning process by providing information about natural resources and potential projects to improve training opportunities and realism. The integration of DC-LTA's INRMP with the integrated pest management plan (IPMP) provides opportunities to better manage the natural resources and compliance with applicable laws and regulations.

Details contained in the plan also provide users of DC-LTA with information on the types of training and uses of the training area that are allowed and not allowed by the lease agreement with the USACE. Users may also find information regarding permitted activities, and activities which require additional coordination with the USACE. Activities which require additional coordination must be detailed in training area requests to CGTC (Camp Grafton Training Center) as early as possible, so additional coordination does not impact the training schedule.

Effective planning requires all associated information regarding an area's training site resources. When fully armed with the details about the natural resources and training requirements, training manager can best select areas able to meet training requirements and also able to sustain training activities will into the future.

This plan supports the Environmental Management System (EMS) – "Plan, Do, Check, Act" model by describing the environmental aspects and properties and also allows planning to minimize or eliminate negative disturbances on the resources (plan). The plan allows for training activities to be implemented that fit the current resources, both physical and environmental (do). This document allows the Installation Commander to review all concerned issues, both land and wildlife, and develop training activities in proper areas (check). The plan describes monitoring protocols and a monitoring plan to determine direct and indirect impacts, both negative and positive, on the faunal and floral resources. Finally, the plan describes reporting protocols for reviewing impacts of training activities on the natural resources and progress of any ITAM Programs (act).

The ITAM and Sustainable Range Program (SRP) provide funding for many of the natural resources management projects conducted at DC-LTA. As our partners, FWS and NDGF may also provide funding through various methods, such as in-kind services, which support natural resources management. Through the lease agreement with the USACE, the NDARNG may also leverage funds from the Directorate of Facilities Engineering to provide infrastructure maintenance. Projects of this type may affect natural resources management concerns, such as, maintaining trails and controlling surface water runoff.

1.9 Plan Integration

INRMP has been integrated into the IPMP. Threatened and endangered species information and the resource management sections of the INRMP have been incorporated into NDARNG's Range and Training Land Program (RTLP), the Range Complex Master Plan (RCMP), and the Real Property Development Plan (RPDP).

2.0 Current Conditions and Use

2.1 General Information

2.1.1 Location and Ownership

DC-LTA is a singular peninsula overlooking Douglas Creek Bay on Lake Sakakawea. Prior to inundation by Lake Sakakawea, the area would have been a ridge bounded by the Middle and East Branches of Douglas Creek, both substantial local tributaries' to the Missouri River. The area is rolling upland plains covered by glacial till, with boulders and cobbles exposed on the surface. No large-scale cultivation has taken place, but small areas have been plowed for tree planting. In the past the area was subleased for hay and grazing purposes.

DC-LTA consists of approximately 730 acres of federally owned land administered by the Omaha District of the U.S. Army Corps of Engineers. The U.S. Department of the Army granted a license to the state of North Dakota to use the area as a National Guard training site in 1956. National Guard facilities maintained at DC-LTA include a few existing structures and an access road.

2.1.2 Regional Land Use

Regional land use in the area surrounding DC-LTA is predominately agricultural- crops and grazing. Other important uses include the exploration and production of crude oil and recreational uses associated with Lake Sakakawea. DC-LTA provides some access for the public to use the training lands for recreational purposes, such as hunting and fishing.

2.1.3 History

DC-LTA is federally owned land administered by the Omaha District of the USACE. The U.S. Department of the Army granted a license to the state of North Dakota to use the 730 acre area as a National Guard training site in 1956.

NDARNG facilities maintained at the DC-LTA include a few existing structures and an access road. The first buildings located at DC-LTA were built at Riverdale by the Army Corps of Engineer's during the construction of Garrison Dam which began in 1947 and ended in 1953. According to NDARNG staff, these structures were moved across the frozen waters of Lake Sakakawea during 1956 a few short years after the dam's completion. Additional buildings were built on site between 1956 and 1960 to accommodate the needs of those solders training on site. All DC-LTA structures over 50 years in age have been evaluated for their historical significance and all of the structures were determined as not eligible for the National Register of Historic Places (NRHP). The newest building is the administration building. It was built on site during 2010 by members of the NDARNG.

Long term history indicates the area of the DC-LTA was utilized by numerous Native American tribes. Archaeological records indicate 24 prehistoric features have been recorded at DC-LTA, however, of the 24 features only two sites have been evaluated as NRHP eligible.

The NDARNG Integrated Cultural Resource Management Plan (ICRMP) can be referenced for further details.

2.1.4 Military Mission

The military mission of the North Dakota Army and Air National Guard is to provide trained units, individuals and equipment to support our communities, State, and Nation. The vision of the North Dakota Army National Guard is to be a dynamic force where everyone is a leader mentored, trained, empowered, and essential to our communities, State and Nation. The INRMP supports the military mission by providing improved training lands, insures better distribution of military activities making it possible to sustain training lands, and addresses public concerns regarding natural resources management at DC-LTA. This INRMP will enhance mission realism by providing greater options for training and by providing resource data that enables intensive mission planning."

2.1.5 Operations and Activities

Training activities at the DC-LTA are scheduled and managed by the Camp Grafton Training Center and documented in the Camp Grafton Training Center Local Training Area Standard Operation Procedures Manual (Appendix 9). DC-LTA approved training activities are primarily for individual, squad and company level training and include: overnight field training exercises, excavating tank ditches and crew fighting positions for individuals and vehicles, convoy operations training, land navigation, mobility and counter-mobility training, and engineer obstacle training.

2.1.6 Training Constraints

CGS has several constraints with the potential to affect training in specific areas. These include sensitive habitats, cultural resources and wetlands areas. Training in these areas presents a challenge in which NDNG balances the training need against environmental impacts. For example, DC-LTA has digging restrictions, however, dig permits may be issued to units requesting to dig in areas without known sensitive habitats, cultural resources and wetlands issues.

Constrains associated with sensitive habitat sites are tightly link to Sakakawea's high water mark of 1850 feet above sea level. The area above the 1850 foot mark partially describes the limits of DC-LTA outer boundary, but area below the 1850 elevation also helps to located sensitive habitat sites which are occasionally occupied by the piping plover (Figure 2).

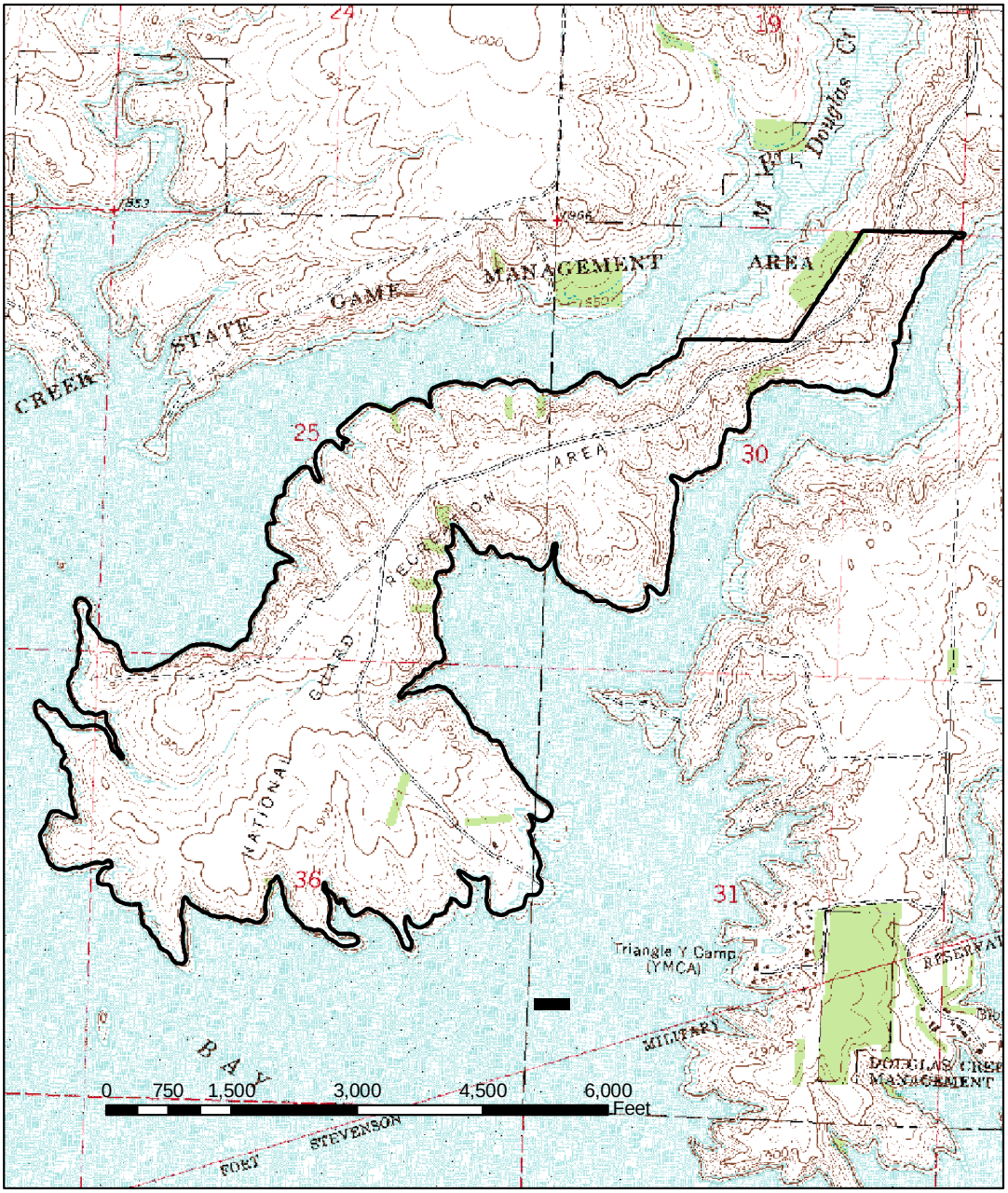


Figure 2: Douglas Creek Topographic Map

The piping plover has been sighted nesting on the shoreline area just outside DC-LTA's boundary and below the 1850 elevation mark. The importance of the 1850 elevation mark is amplified by the piping plover's threatened & endangered species listing. To prevent potential disturbances to the near shoreline plant community and those piping plovers utilizing the shoreline areas, training activities and mowing are restricted from taking place within 300 feet of the lake.

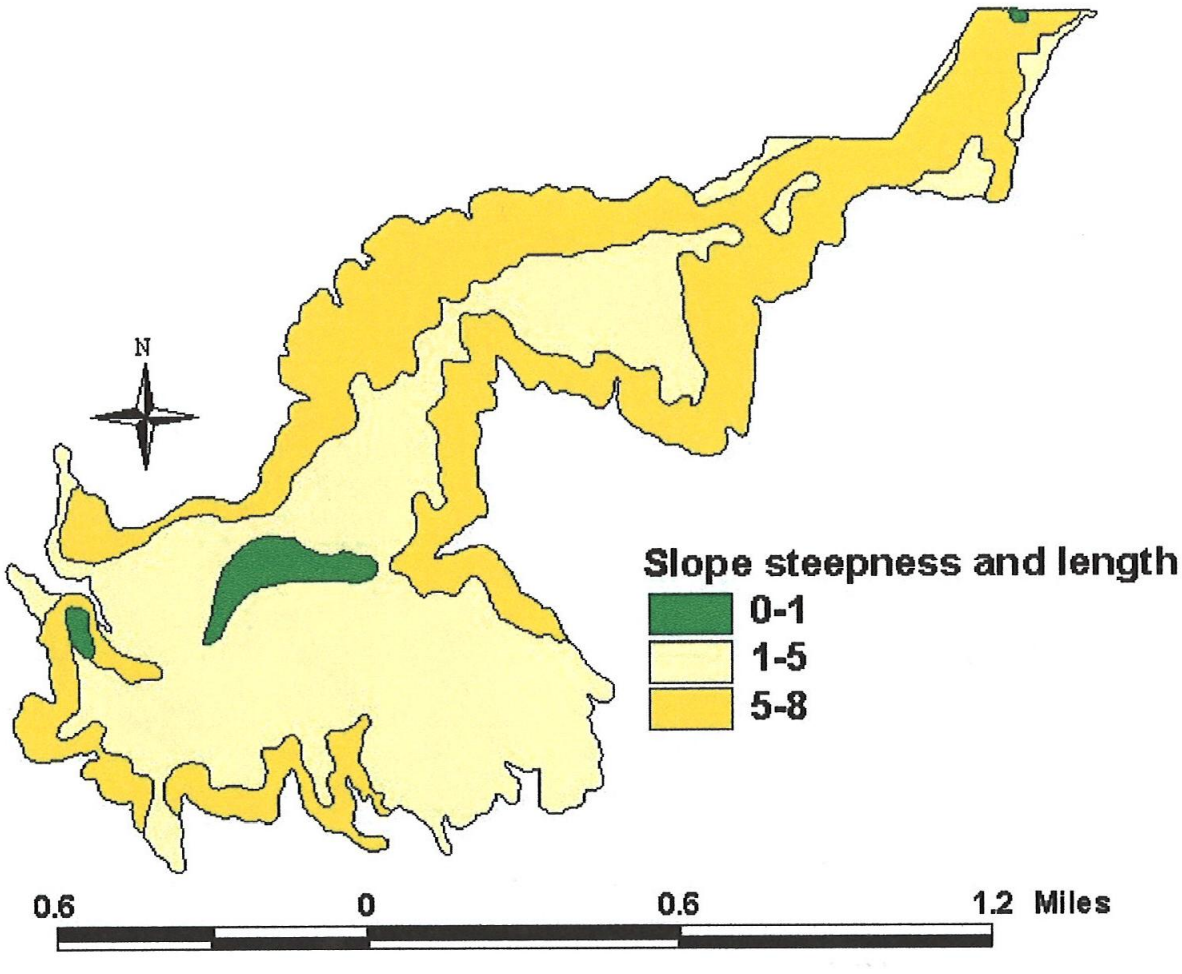


Figure 3: DC-LTA Slope steepness areas

Training activities at the DC-LTA are partially constrained by DC-LTA's topography. Various sites along DC-LTA's boundary line are dangerously steep. These areas have been fenced and signed to provide a warning to soldiers participating in daytime and nighttime activities of the pending danger.

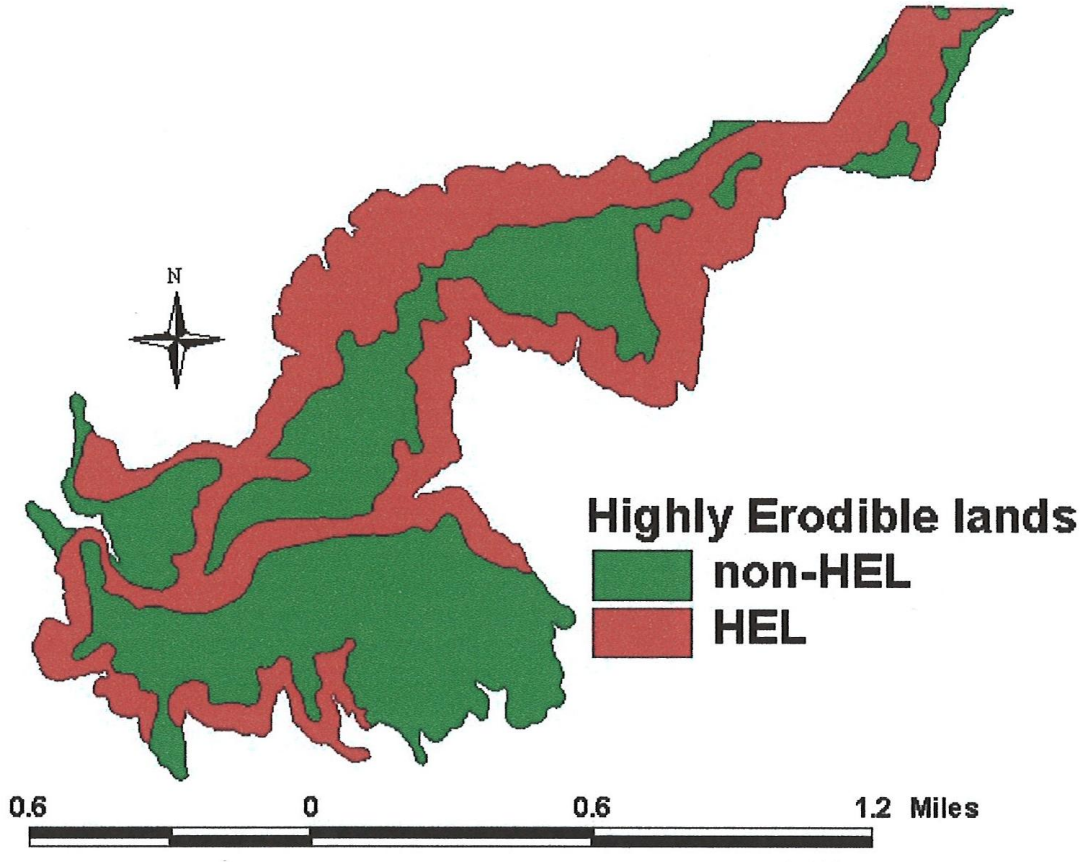


Figure 4: DC-LTA Highly Erodible Lands

Soils found at DC-LTA don't limit training activities, but they do impact where specific soil disturbing activities can be preformed. Highly Erodible Lands (HEL) because of either their erosive nature and or shallow soil development can't afford the loss of vegetative cover and exposure to the erosive forces of wind or water. Therefore, soil disturbing training activities should be constrained to soils classified as non-HEL and coordinated with CGTC operations 30 days prior to a scheduled training event.

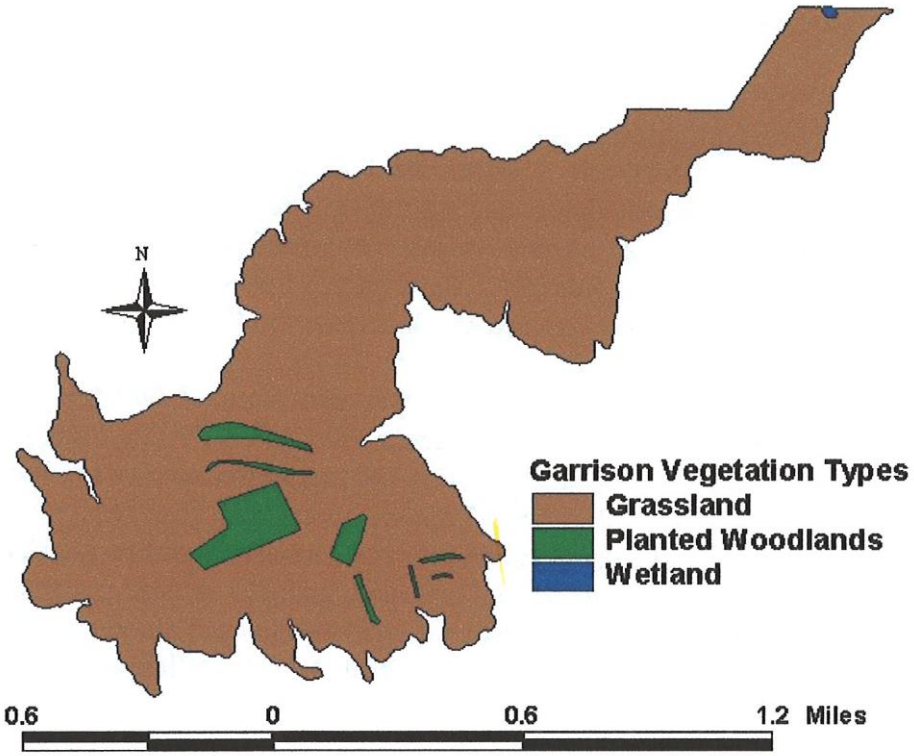


Figure 5: DC-LTA Vegetation Types

Vegetative issues provide only minor constraints to DC-LTA related training activities. The NDARNG advises all training activities to maintain a 100 meter distance from the 0.079 acre wetland located along DC-LTA's northern most border. The 0.079 acre wetland and wetland vegetation provided migratory birds with nesting habitat. The wetland vegetation also provides exponential water quality benefits to those waters contained within the wetland.

DC-LTA's remaining acres are composted of grassland and planted woodlands vegetation. On their own merits the grassland and planted woodlands areas provide no restrictions to the list of training activities approved for DC-LTA.

Additional information regarding DC-LTA's vascular plants can be found in Appendix 4.

2.1.7 Adjacent Lands/Encroachment Issues

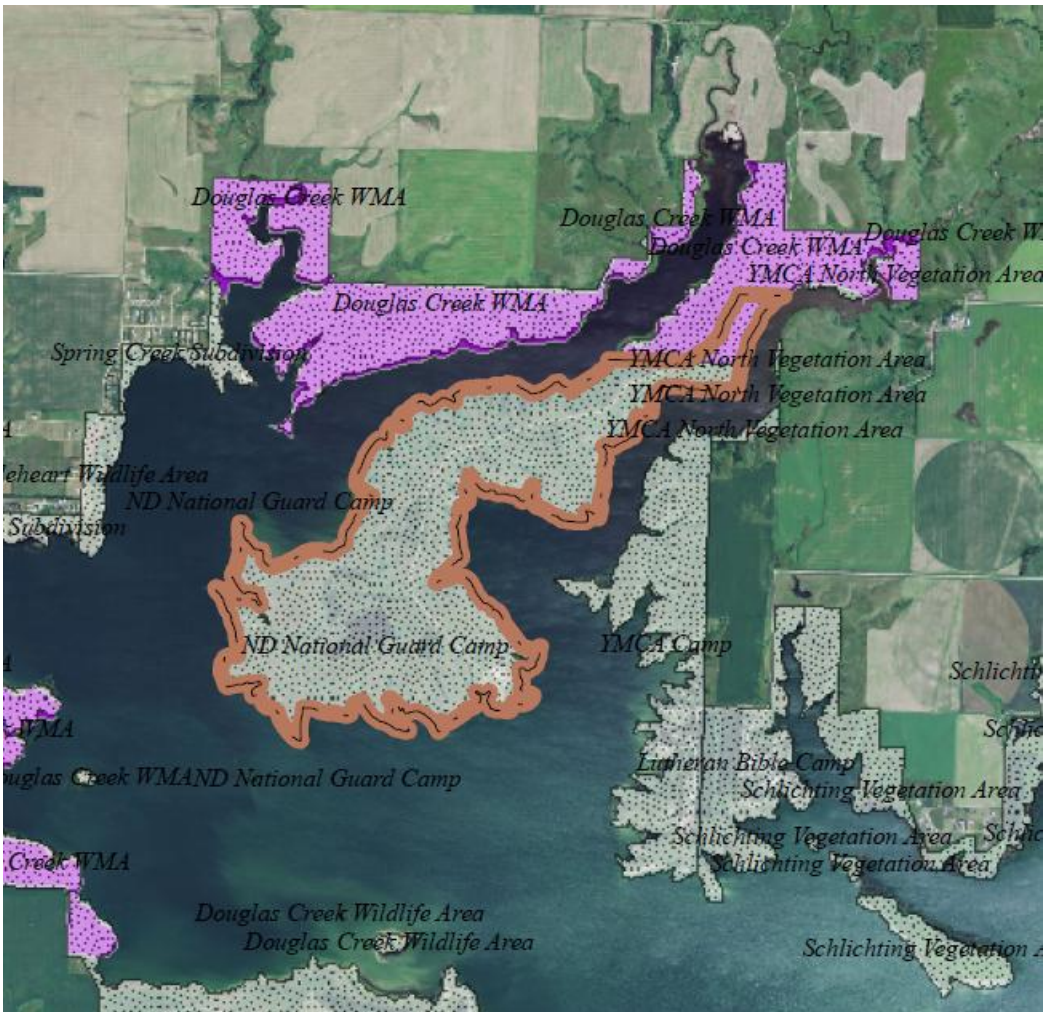


Figure 6: DC-LTA Local Management Areas.

DC-LTA encroachment concerns are very limited. As displayed by Figure 6, DC-LTA is bordered by the waters of Lake Sakakawea and USACE management areas leased to the NDGF. Furthermore, all shoreline areas across from DC-LTA are under the management of the USACE. USACE's control of these areas minimizes private and/or commercial developments from advancing onto areas bordering or in close proximity to DC-LTA.

2.2 PHYSICAL ENVIRONMENT

2.2.1 Climate

North Dakota has a sub-humid continental climate characterized by warm summers and cold winters. There is great variation in daily and annual temperatures, with the timing and amount of precipitation varying by year. North Dakota's weather can change rapidly and frequently depending on the dominant air masses moving across the state (Jensen 1972). North Dakota's climate is characterized as having long winters with low precipitation coupled with occasional and major summer droughts. Over seventy-five percent of North Dakota's precipitation occurs during the five-month period between May and September.

Severe weather can and will occur in North Dakota and can occur in many forms depending on the season of year. Winter snowstorms can occur from September through May, with the most harsh winter weather occurring in December, January, February, and March. Winter storms often are associated with high winds and snow, creating blinding conditions and cold, harsh climatic conditions. Thunderstorms, which include heavy rain, dangerous lightning, and high wind, can occur from April through October, with most harsh thunderstorms occurring in June, July and August. North Dakota's prairies are common areas for tornados. Tornados are primarily associated with thunderstorms and can occur from May through September; however, June, July, and August are considered the most common time period for tornado development.

2.2.1.1 Precipitation

The long-term average precipitation totals at DC-LTA were collected near Garrison, North Dakota, in northwestern McLean County and is 17.4 inches (44.2 cm) per year (NDAWN 2007). The long-term precipitation average in June is 3.5 inches (8.8 cm), July 2.5 inches (6.3 cm), and August 2.0 inches (5.0 cm) at DC-LTA (Table 1). Precipitation occurs as snow from November through mid April while most precipitation occurs as rain from mid April through late October.

Summer rains can occur as sporadic to steady rain showers and come in the form of short, light showers to heavy, intense downpours. It is not uncommon to receive spotty showers intermixed with sunshine to multiple-days of cloud cover and steady rains. Many rain showers occur as evening thunderstorms with brief heavy rainstorms and lightning.

2.2.1.2 Temperature

The long-term average temperature for DC-LTA near Garrison in eastern McLean County and is 40.0 F^0 (4.5 C^0) (NDAWN 2007). Most training activities on DC-LTA occur in June, July and August. The long-term average day-night temperature in June is 64.0 F^0 (17.7 C^0), July 69.9 F^0 (20.2 C^0), and August 67.8 F^0 (19.8 C^0) at DC-LTA. On average, daytime highs in June average 76 F^0 (24 C^0), 82 F^0 (28 C^0) in July, and 82 F^0 (27 C^0) in August (Table 2). Nighttime lows in June average 50 F^0 (11 C^0), 54 F^0 (14 C^0) in July, and 52 F^0 (13 C^0) in August. North Dakota summer temperatures are considered mild; however, the days can get hot from June through

early September. It is not uncommon for daytime highs to exceed 90 Fº (32 Cº), with an average of three days exceeding 100 Fº (38 Cº). Nighttime lows from June through August rarely drop below 45 Fº (7 Cº) and rarely exceed 80 Fº (26 Cº). Most summer nighttime lows are in the upper 50's to upper 60's Fº (14 to 20 Cº).

Table 1. Average monthly precipitation (30-year average) for Garrison, North Dakota (NDAWN 2007)

Month	Long-term Precipitation Average		Month	Long-term Precipitation Average	
	cm	in.		cm	in.
January	1.47	0.58	July	6.30	2.48
February	1.24	0.49	August	5.00	1.97
March	2.03	0.80	September	4.32	1.70
April	4.50	1.77	October	2.51	0.99
May	5.46	2.15	November	1.22	0.48
June	8.81	3.47	December	1.45	0.57

Table 2. Average long-term monthly daytime high and nighttime low temperatures (30-year averages in degrees Fahrenheit) near Garrison, North Dakota (NDAWN 2007).

Month	Daytime	Nighttime	Month	Daytime	Nighttime
January	18.0	- 2.0	July	82.0	54.0
February	26.0	6.0	August	82.0	52.0
March	38.0	17.0	September	69.0	42.0
April	54.0	29.0	October	56.0	30.0
May	67.0	40.0	November	35.0	16.0
June	76.0	50.0	December	22.0	3.0

2.2.2 Landforms

The topography associated with the DC-LTA is classified as rolling prairie inundated with finger draws draining into Lake Sakakawea (Bluemle 1991). The Lake Sakakawea shoreline area located adjacent to the training area lies about 1840 feet above sea level. In areas the topography rises sharply from the shoreline reaching 1900 ft above sea level only 150 ft to 800 ft away from the shore. The interior portion of the peninsula ranges from 1900 ft to 1940 ft, with two peaks reaching 1950 ft. The highest points are found within DC-LTA's northern sector and they reach to an elevation of 1985 ft (Figure 2).

2.2.2.1 Geology and Soils

The *Update Soil Survey of the Douglas Creek Local Training Area, McLean County, North Dakota* (Soil Survey Staff, Natural Resources Conservation Service 2000) shows 7 soil-mapping units within the boundaries of DC-LTA (Appendix 4). The published soil survey provides information on use and management of each soil. See Figure 7 for a detailed DC-LTA soil's map.

The upland prairie soil names include Bowbells, Max-Zahl, Regent, Williams-Bowbells, Zahl-Cabba, Zahl-Max, and Zahl-Williams and comprise 729.9 acres. Bottomland soil (wetlands, wet meadow) series include Tonka and Parnell and comprise 0.5 acres. Hardwood forested does not naturally exist on DC-LTA; however, trees were planted on previously cultivated land and found on the soil series Bowbells and Williams-Bowbells.

At DC-LTA, the upland prairie soils dominate and were formed by glaciations, deposited when the last glacier retreated over 10,000 years ago. Most of the upland soils are classified as loams and slopes of 1-3 percent (15.6 acres), loams and silt-clay loams with slopes of 3-9 percent (323.2 acres), loams and slopes of 6-9 percent (20.9 acres), loams and slopes 9-15 (41 acres), or loams and a complex of soils and a slope of 9-35 percent (327.0 acres). Most upland soils developed under prairie vegetation and remain in prairie or re-vegetated with permanent grass and/or tree cover. Prairie grasses have a deep, fibrous root system that grow, die, and decay to form a humus soil. This process produces a thick, deep soil.

The only hardwood forest areas on DC-LTA are tree plantings on previously uncultivated lands. The tree planting were planted upon soils influenced by a long term history and growth of prairie grasses.

Most upland soils on DC-LTA are deep, loamy textured, with a slope greater than 3 percent, and a potential for water erosion when exposed or when vegetation is sparse. Over 99 percent (729.9 acres) of DC-LTA is upland prairie and susceptible to water and wind erosion. These soils are well to moderately well drained soils and easily eroded by when exposed. Their erosive soil characteristics limit the use and it is highly recommended that they remain permanently protected by native grassland cover.

Less than 1.0 percent (0.79 acres) of DC-LTA's soils are classified as wetland or wet meadow soils. These soils are poorly drained and may have water on them for a time period in most years. These soils have evolved under the influence of wetland plant and hydric soil conditions and their soil characteristics limit their use.

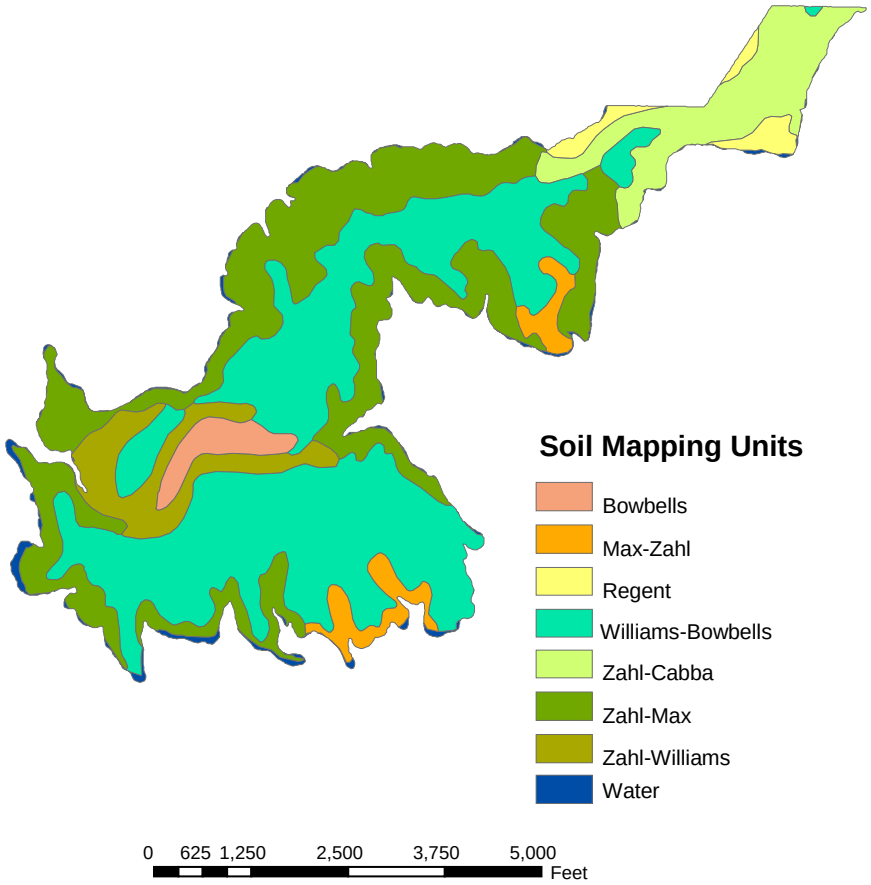


Figure 7. Douglas Creek Local Training Area Soil Mapping Units

At DC-LTA, two main types of soil erosion exist, wind and water. Since most of DC-LTA has a permanent plant cover (prairie), water causes most erosion, primarily when soils are exposed or water levels are high.

Several factors affect water erosion and include rainfall (R), steepness and length of slope (LS), soil texture or erodability (K), and soil erosion tolerance (T) (Appendix 4). Factors that affect

wind erosion include cover protecting the soil (C), soil erodability index (I) and soil erosion tolerance (T) (Appendix 4). Other factors that are needed are the special practices (P) such as terracing. The Universal Soil Loss Equation (A=R x LS x K x C x P) uses these factors to estimate average soil loss for a specific soil with specific management (Wischmeier and Smith 1978). The Natural Resource Conservation Service has estimated the soil erosion tolerance of individual soils. This tolerance is the average soil loss in tons per acre per year that can be tolerated without diminishing soil productivity.

Soil texture or erodability (K) is one factor in determining the rate of soil erosion. The loamy soils at DC-LTA have lower erodability factors than the silt clay loams. They allow more water to infiltrate, leaving less runoff to move soil. However, loamy soils have steeper and/or longer slopes than some silty soils thereby causing loamy soils to have higher erosion rates when management factors C and P being equal.

The water erosion index (WaEI) shows the potential for soil erosion caused by water runoff. An erosion index can be computed by assuming management factors C and P o be constant and by adjusting for differences in soil erosion tolerance [WaEI=(R x LS x K)/T]. Average slope steepness and slope lengths for each map unit were used to compute an LS factor. The water erosion index considers the combined effects of rainfall intensity (R), soil erodability (K), slope (LS), and soil erosion tolerance (T). Zahl-Cabba soil complex with a slope of 15-35 percent (WaEI = 18.438) has the highest potential for water erosion, comprising 68.4 acres (9.4 %) of the DC-LTA. Soils with a WaEI greater than 8.0 are classified as erodible due to water runoff. The Zahl-Cabba complex, Zahl-Max loam, and Zahl-Williams are considered highly erodible for water erosion, comprising 361.0 acres or 49.0 percent of DC-LTA (Figure 7).

The wind erosion index (WiEI) shows the potential for soil erosion caused by wind. An erosion index can be computed by assuming management factors (P) to be constant and by adjusting for differences in soil erosion tolerance [WiEI = C x I)/T] The wind erosion index considers the combined effects of climatic factors (C), soil erodability (I), and soil erosion tolerance (T). Soils with a WiEI greater than 8.0 are classified as erodible due to wind. No soil series are classified as highly erodible for wind on DC-LTA. Since DC-LTA is predominately rangeland with a permanent vegetative cover, wind erosion is normally minimal.

The Natural Resource Conservation Service (NRCS) rates soils with water and wind erosion indices (WaEI and WiEI) greater than 8 as highly erodible (Appendix 4). Of the 10 soil series found on DC-LTA, three (30.0 %) soil series are highly erodible soils (HEL) (Appendix 4). These HEL soils can only tolerate 8.0 to 12.0 tons of soil loss per acre per year, depending on soil series. Zahl-Cabba and Zahl-Max soils were the most erodible soil on DC-LTA and tolerate 12.0 tons of soil loss per acre per year. The HEL soils are shown as red and non-HEL soils as green. To protect this soil and other highly erodible soils, the soil surface must have at least 80 percent groundcover.

2.2.2.2 Hydrology (Wetlands)

Wetlands are an important component of the natural resources, storing water and minimizing flooding. They filter sediments and excess nutrients, as well as other impurities from water that pass through. The aquatic vegetation found in wetlands protects shorelines from erosion and provide food and habitat for wildlife. Wetlands provide habitat for many micro and macro invertebrates that use and/or breakdown nutrients and contaminants.

One 0.79 acre wetland can be found on DC-LTA. The wetland is associated with glaciations through the formation of kettles and sedimentation deposition. The wetland area varies in hydrology and vegetative cover and comprises < 0.1 % of training area.

The lake bordering DC-LTA is Lake Sakakawea and classified as a body of fresh water , supporting fish life, and macro and micro invertebrates. The wet meadow area and the adjacent lake provide habitat for many migratory waterfowl and neo-tropical birds. The dominant plants vary, but the wetland is dominated by many species of graminoid plants and flowering forbs.

2.3 ECOSYSTEM AND BIOTIC ENVIRONMENT

The communities, ecosystem, and biological diversity are integral components of the ecological concept. Barbour et al. (1987) define communities as interrelated assemblages of plants and animals found in a given region or area. For example, a community can be a prairie that includes the living organism found within the areas. They defined ecosystems as the sum of the plant community, animal community, and environment in a particular region or habitat. DC-LTA is part of a large ecosystem that includes several plant and animal communities in northeastern North Dakota. Biological diversity refers to richness and evenness of existing native plants and animals within that defined ecosystem or community (Barbour et al. 1987).

2.3.1 Ecosystem Classification

The DC-LTA is located in the mixed grass prairie of North Dakota. During pre-settlement times, hardwood forest, mixed grass prairie, and wetlands covered approximately 100 percent of the land (Kucher 1964). Today, most land surrounding DC-LTA is in private ownership, lakeshore, and USACE land. This surrounding land is or has been developed for urban use, hay land, pastureland, or cropland.

The DC-LTA has a diverse plant and animal community, demonstrating that biological diversity exists at camp, making it worthy of land stewardship. The DC-LTA has a variety of vegetation including upland, midland and lowland prairie; and woody draws associated with the mixed grass prairie, wetland, and tree planting areas with an under story of grasses. Information from the McLean County Soil Survey (Soil Survey Staff, Natural Resource Conservation Service 2000) show present plant flora similar to previously conducted surveys.

Information gathered while researching and surveying camp indicate three terrestrial community types. These communities at DC-LTA were identified as mixed grass prairie (upland, midland,

lowland, woody draws) that comprises 701.6 acres (96.0 %), wetlands (0.79 acres or 0.1%), and tree plantings on previously cultivated land (28.3 acres or 3.9 %). Disturbed communities found within the cantonment area and cultivated lands were planted to permanent grass or permanent grass/tree planting areas and include mixtures or monocultures of cool-season grasses [primarily smooth bromegrass (*Bromus inermus*) and Kentucky bluegrass (*Poa pratensis*)]. The communities at DC-LTA are further described as ecological sites and become the basic management units for this INRMP. These ecological sites include loamy, thin loamy, sandy, and water (Figure 8).

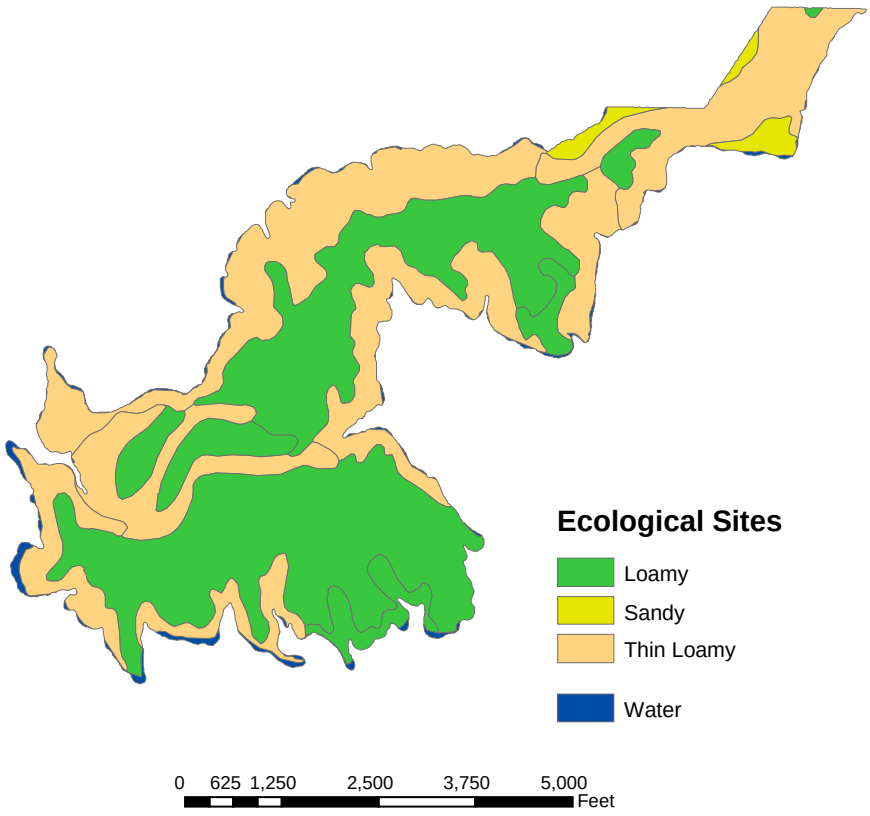


Figure 8. Ecological Sites found on the Douglas Creek Local Training Area

2.3.1.1 Ecosystem and Community Monitoring

A combination of RTLA (Range and Training Land Assessment) (Tazik et al. 1992), vegetative transect monitoring techniques, visual surveys, floristic collection, and/or soil sampling along randomized transects and stratification by soils surveys were used to inventory plants, animals, and describe the condition of surface soils. The RTLA surveys and vegetative transect monitoring were used to determine the effects of military training on the natural resources at DC-

LTA. The DC-LTA was divided into land type units according to overlapping soil and plant communities. Sixteen RTLA transacts were distributed among a combination of four different land types: upland prairie, lowland prairie (shoreline), woody draws, and tree planting areas. The information was gathered during the spring, summer, and fall of 1999 and 2005, to provide baseline data indicating those plants and animals present, and regarding the areas biological diversity. The information gathered from these surveys will monitor the health of natural communities at DC-LTA. Biological diversity and communities on DC-LTA will be discussed in more detail in the following sections on vegetation, wildlife, and threatened and endangered species.

2.3.2 Flora

Prairie communities dominate DC-LTA, with native prairie and some exotic grasses and forbs intermixed. An annotative plant survey was not conducted on DC-LTA; however, vegetative line transects were conducted to determine present species composition by plant community in 1999. The current plant checklist is a compilation of the line transects and only represents a plant species list found on these selected sites (16 line transects). If funding is available, a complete plant inventory will be conducted in the future.

This checklist is a result of the vegetative survey on the training area (Appendix 4). The order in which the families of this list are placed follows that of *An Integrated System of Classification of Flowering Plants* (Cronquist 1981). The nomenclature of the different plant species is according to *Flora of the Great Plains* (Great Plains Flora Association 1986) and *Manual of Vascular Plants of Northeastern United States and Adjacent Canada, 2nd Edition* (Gleason and Cronquist 1991). Common names were obtained from *Flora of the Great Plains, Handbook of North Dakota Plants* (Stevens 1963), and *Vascular Flora of South Central North Dakota* (Williams 1979).

The plant species in the list have been characterized as common, occasional, or rare. The plants listed as common are easily located. These plants are often characteristic species to a certain vegetation type or have a range of tolerance and can exist in a variety of different vegetation types. The species that are listed as occasional are few in number and are usually restricted to one vegetation type. Plant species that are listed as rare have been collected only once or twice in the area. These plants often are limited to special habitat conditions and are usually rare across the mixed grass prairie in general.

Habitats in which each plant species can most often be found are also listed. After the habitat description, flowering times of the species are listed. Flowering times were according to past studies in the area, collections obtained from DC-LTA, and voucher specimens representative of the area located in the NDSU Herbarium.

2.3.2.1 Prairie

Prairie dominates DC-LTA and comprises four plant community types within the mixed grass prairie. These plant communities include upland, midland and lowland prairie, and woody draws. Botanical nomenclature follows the Great Plains Flora Association (1977, 1986).

2.3.2.1.1 Upland Prairie

Upland prairie occurs on the hilltops. The soils in these areas are excessively well-drained with a high sand content and often quite rocky. With excessive drainage, upland prairie is very dry and soils are low in organic matter as compared to the lower prairie communities. The plant species located on upland prairie are generally characteristic of the western Mixed Grass Prairie and have a high tolerance for dry conditions. Grass and grass-like plants that are common to upland prairie are: western wheatgrass (*Agropyron smithii),* blue grama *(Bouteloua gracilis),* prairie sandreed *(Calamovilfa longifolia),* needle-leaved sedge *(Carex eleocharis),* threadleaf sedge *(C. filifolia),* prairie junegrass (*Koeleria pyramidata),* plains muhly *(Muhlenbergia cuspidata),* and needle-and-thread (*Stipa comata)*. Common spring flowering forbs include: white wild onion (*Allium textile),* western rock jasmine (*Androsace occidentalis),* pasque flower (*Anemone patens),* downy paintbrush (*Castilleja sessiliflora),* and prairie violet (*Viola pedatifida)*. Common summer forbs found at DC-LTA include: little ground rose (*Chamaerhodos erecta),* purple coneflower (*Echinacea angustifolia),* fleabane (*Erigeron glabellus),* scarlet gaura (*Gaura coccinea),* stiffstem flax (*Linum rigidum),* skeleton weed (*Lygodesmia juncea),* and silverleaf scurfpea (*Psoralea argophylla)*. Common fall forbs include: green sage (*Artemisia dracunculus),* fringed sage (*A. frigida),* hairy goldaster (*Chrysopsis villosa),* Flodman's thistle (*Cirsium flodmani),* broom snakeweed (*Gutierrezia sarothrae),* stiff sunflower (*Helianthus rigidus),* and rigid goldenrod (*Solidago rigida)*.

2.3.2.1.2 Midland Prairie

Midland prairie is found on the hillsides. Soils are somewhat well-drained, although overland runoff water occurs from the upland prairie. The soils have a higher organic matter than upland prairie, but lower than low prairie. The number of plant species occurring in this prairie type increases because of the more mesic conditions. Common grass and grass-like plants on midland prairie include: western wheatgrass, blue grama, prairie sandreed, sun sedge, little bluestem *(Schizachyrium scoparium),* needle-grass *(Stipa curtiseta),* and green needle-grass (*S. viridula)*. Common spring flowering forbs include: pasque flower, prairie buttercup (*Ranunculus rhomboideus),* pussy-toes *(Antennaria parvifolia),* ground-plum (*Astragalus crassicarpus),* prairie chickweed (*Cerastium arvense),* bastard toadflax (*Comandra umbellata),* western wallflower (*Erysium asperum),* purple locoweed (*Oxytropsis lambertii),* white beardtongue (*Penstemon albidus),* prairie ragwort (*Senecio plattensis)* and American vetch (*Vicia americana)*. Common summer forbs found at DC-LTA include: western yarrow (*Achillea millefolium),* false dandelion (*Agroseris glauca),* candle anemone (*Anemone cylindrical),* standing milk-vetch (*Astragalus adsurgens),* plains yellow primrose (*Calylophus serrulatus),* harebell (*Campanula rotundifolia),* purple prairie-clover (*Dalea purpurea),* fleabane (*Erigeron glabellus),*

blanketflower (*Gaillardia aristata),* northern bedstraw (*Galium boreale),* curly-top gumweed (*Grindelia squarrosa),* alumroot (*Heuchera richardsonii),* slender beardtongue (*Penstemon gracilis),* cinquefoil (*Potentilla pennsylvanica),* prairie coneflower (*Ratibida columnifera),* goatsbeard (*Tragopogon dubius),* and Indian breadroot (*Psoralea esculenta).* Common fall forbs include: pink wild onion (*Allium stellatum),* daisy fleabane (*Erigeron strigosus),* blue lettuce (*Lactuca oblongifolia),* dotted gayfeather (*Liatris punctata),* Missouri goldenrod (*Solidago missouriensis),* soft goldenrod (*S. mollis),* and sneezewort aster (*S. ptarmicoides).* Western snowberry (*Symphoricarpos occidentalis)* and silverberry (*Elaeagnus commutata)* are common shrubs of the midland prairie.

2.3.2.1.3 Lowland Prairie

Lowland prairie can be easily visualized because it has a well-defined pattern in the landscape. This community can be found in a zone around wetlands, lakes, or in the bottom of a drainage way or swale. Lowland prairie can also occupy the lower slopes of mid prairie where runoff water occurs. The soil is rich in organic matter, often moist, but seldom inundated. The water table is below the rooting zone of plants but high in the soil profile, usually within 3 to 5 feet (1 to 1.5 m). The grass and grass-like plants found on lowland prairie include: slender wheatgrass (*Agropyron caninum* subsp. *majus* var. *majus),* big bluestem (*Andropogon gerardii),* Baltic rush (*Juncus balticus),* Kentucky bluegrass (*Poa pratensis),* fowl bluegrass (*P. palustris),* little bluestem, prairie dropseed (*Sporobolus heterolepis),* and prairie wedge-grass (*Sphenopholis obtusata).* Spring forbs include: meadow anemone (*Anemone canadensis),* yellow stargrass (*Hypoxis hirsute),* silverweed (*Potentilla anserine),* meadow parsnip (*Zizia aptera),* and golden alexanders (*Z. aurea).* Common summer forbs include: false dandelion, ovalleaf milkweed (*Asclepias ovalifolia),* Canada thistle (*Cirsium arvense),* hawk's-beard (*Crepis runcinata),* wild licorice (*Glycyrrhiza lepidota),* wild licorice (*Lilium philadelphicum),* palespike lobelia (*Lobelia spicata),* and black-eyed susan (*Rudbeckia hirta).* Common fall forbs include white aster (*Aster ericoides),* smooth blue aster (*A. laevis),* Maximillian sunflower (*Helianthus maximilianii),* Nuttall's sunflower (*H. nuttallii),* round-headed blazing star (*Liatris ligulistylis),* and Canada goldenrod (*Solidago canadensis).*

2.3.2.2 Woody Draws

Woody draws occur within drainages found in the midland prairie community adjacent to hillsides, moving down slope toward the outlet. Soils are somewhat well-drained, although overland runoff water occurs from the upland prairie. The soils have a higher organic matter than upland prairie, but lower than low prairie. The number of plant species occurring in this prairie type increases because of the more mesic conditions. Common grass and grass-like plants on midland prairie include: slender wheatgrass, western wheatgrass, prairie sandreed, sun sedge, little bluestem, needle-grass (*Stipa curtiseta),* porcupine grass (*S. spartea),* and green needle-grass. Common spring flowering forbs include: prairie buttercup, pussy-toes (*Antennaria parvifolia),* ground plum, prairie chickweed, bastard toad-flax, western wallflower, purple locoweed, white beardtongue, prairie ragwort and American vetch. Common summer forbs found at DC-LTA include: western yarrow, false dandelion, candle anemone, standing milk-

vetch, plains yellow primrose, fleabane (*Erigeron glabellus)*, blanketflower, northern bedstraw, curly-top gumweed, alumroot, slender beardtongue, cinquefoil (*Potentilla pennsylvanica)*, prairie coneflower, goatsbeard, and Indian breadroot. Common fall forbs include: pink wild onion, daisy fleabane (*Erigeron strigosus)*, blue lettuce, soft goldenrod, and sneezewort aster. Western snowberry and silverberry are common shrubs in the woody draws.

2.3.2.3 Wetlands

DC-LTA's only wetland is located on the northern most edge of the training area and is less than one acre in size. The wetland area is classified as a palustrine emergent system. This wetland is a function of flooding from Lake Sakakawea that back fills the wetland. Stewart and Kantrud (1971) have described the plants identified in the wetland and wet meadow zone.

2.3.2.4 Hardwood Forest

Native hardwood forest areas do not exist on DC-LTA; however, tree plantings are found in eight locations ranging from 0.2 acres to 16.8 acres in size. These tree planting areas are found on previously cultivated lands and contain a dense graminoid under story. The following tree species are common on DC-LTA and include northern hawthorn (*rataegus rotundifolia*), Russian olive (*Elaeagnus angustifolia*), green ash (*Fraxinus pennsylvanica*), ponderosa pine (*Pinus ponderosa*), and choke cherry (*Prunus virginiana*).

2.3.2.5 DC-LTA Invasive Plant Species

Although the DC-LTA is comprised of native rangeland, many invasive plants are found in the area. The most common invasive grasses include smooth bromegrass, kentucky bluegrass, and quackgrass (*Agropyron repens*). The most common invasive forbs or flowering plants include sweetclover (*Melilotus officinalis*). Leafy spurge (*Euphorbia esula*), canada thistle (*Cirsium arvense*), and wormwood (*Artemisia absinthium*) are invasive plants found on DC-LTA, but only in small areas. See section 3 on noxious weed management for further information on the control of leafy spurge, canada thistle, and wormwood. Only russian olive (*Elaeagnus angustifolia*) would be classified as an invasive tree found on DC-LTA.

2.3.3 Fauna

Wildlife found on DC-LTA is diverse due to the mix of grassland communities (upland, midland, lowland, woody draws), wet meadow and shoreline areas, tree planting areas, and urban area. A wildlife inventory was conducted (to include visual sightings, track identification, and inventory to determine faunal species present, faunal species densities by habitat type, and if rare or endangered species exist in 1999 and 2005. Birds, mammals, and reptiles and amphibians subdivide the (Appendixes 4).

2.3.3.1 Fish and Invertebrate Species

No lakes or large wetlands are found on DC-LTA; however, Lake Sakakawea borders the training area. An inventory conducted by North Dakota Game and Fish Department can be used to identify any species of fish capable of inhabiting the Lake if desired. Invertebrates do exist on border lakes and wet meadow areas on the training area; however, an inventory or population censuses hasn't been conducted.

2.3.3.2 Birds

The DC-LTA provides habitat for a diverse population of birds of which most are migratory. Biologists reported 59 species of birds during the 1999 survey, of which all 59 could breed on training site. These birds are as follows: the great blue heron, Canada goose, mallard, northern pintail, northern pintail, gadwall, American wigeon, lesser scaup, common merganser, northern harrier, red-tailed hawk, gray partridge, sharp-tailed grouse, American coot, piping plover, killdeer, American avocet, mourning dove, willet, upland sandpiper, marbled godwit, franklin's gull, common tern, downy woodpecker, hairy woodpecker, northern flicker, western kingbird, eastern kingbird, horned lark, tree swallow, bank swallow, cliff swallow, barn swallow, blue jay, black-billed magpie, American crow, black-capped chickadee, white-breasted nuthatch, American robin, gray catbird, brown thrasher, American goldfinch, Yellow warbler, Common yellowthroat, Rufous-sided towhee, chipping sparrow, clay-colored sparrow, field sparrow, vesper sparrow, lark bunting, grasshopper sparrow, song sparrow, chestnut-collared longspur, bobolink, red-winged blackbird, western meadowlark, yellow-headed blackbird, brewer's blackbird, and brown-headed cowbird. Appendix 4 provides further information regarding the birds associated with DC-LTA.

2.3.3.3 Mammals

Biologists recorded twelve mammals at DC-LTA in 1999. The list of mammals includes the pigmy shrew, big brown bat, eastern cottontail, white-tailed jackrabbit, thirteen-lined ground squirrel, franklin's ground squirrel, northern pocket gopher, deer mouse, white-footed mouse, meadow vole, red fox, and badger. Appendix 4 provides further information regarding those mammals associated with DC-LTA.

2.3.3.4 Reptiles and Amphibians

Biologists captured or surveyed two species of reptiles and two species of amphibians during the 1999 survey which included the common garter snake, smooth green snake, great plains toad, and gray tiger salamander. Appendix 4 provides further information regarding those reptiles and amphibians associated with DC-LTA.

2.3.4 Threatened and Endangered Species

Federal status as a threatened or endangered species is derived from the U.S. Dept. of Interior Federal Endangered Species Act (1973) and re-authorized in 1988 & 1994. The U.S. Fish and Wildlife Service administer the Act with federal protection for all species designated as endangered or threatened.

The DC-LTA provides excellent habitat for many wildlife species including some threatened and endangered species. Six wildlife species have been listed on the February 2012 County of Endangered, Threatened and Candidate Species and Designated Critical Habitat in North Dakota (see Table 3) and potentially could be found within the DC-LTA. The piping plover has been sited on the shoreline areas near the DC-LTA. The Interior Least Tern, Gray Wolf, Whooping Crane, Pallid Sturgeon, and Dakota Skipper have been sighted within the borders of the county and/or the state, but no such sightings have been reported within DC-LTA.

The shoreline area adjacent to, but outside the parameters of the DC-LTA provides critical habitat for the piping plover (*Charadrius melodus*). The perimeter of DC-LTA is determined by the 1850 elevation level which is also Lake Sakakawea's high water mark. The USACE conducts a piping plover survey annually. Their surveys have recorded the presences of nesting piping plovers upon the shoreline areas outside of DC-LTA.

Whooping crane (*Grus americana*) sightings haven't been recorded at the DC-LTA in recent years, but whooping crane sightings have been reported in adjacent counties. The possibility of a future whooping crane sighting within the DC-LTA hypothetically could occur because wetland areas which may attract whooping cranes are located near the training area.

DC-LTA doesn't provide the interior least tern (*Sterna antillarum*) with the islands or sandbars it prefers for nesting, nor does the training area provide the shallow waters favored by the interior least tern for fishing. USACE surveys have also failed to record the interior least tern along the shoreline areas located next to the DC-LTA.

US Fish & Wildlife information indicates the gray wolf is only an occasional visitor to North Dakota and NDNG records indicate no recorded sightings of the gray wolf have occurred at the DC-LTA. The nearest sighting of the gray wolf has been 130 miles to the north of the DC-LTA.

The pallid surgeon (Scaphirhynchus albus) is unlike to be found within the parameters of DC-LTA. The training area is a dry upland area without waters capable of supporting an aquatic species such as the pallid surgeon. Lake Sakakawea which provides the aquatic habitat for the pallid surgeon is located adjacent to the training area, but beyond the training area's outer parameter. Because of the lake is of great importance to the pallid surgeon, best management practices will be implemented to insure NDARNG activities don't adversely impact the lake or its ability to sustain the pallid surgeon.

The Dakota Skipper (*Hesperia dacotae*) is a butterfly that occurs only in scattered remnants of high-quality native prairie dominated by bluestem grasses, needlegrasses, and three wildflowers that are typically present in high-quality native prairie sites: pale purple (*Echinacea pallid*), upright (*E.angustifolia*) coneflowers, and blanketflower (*Gaillardia sp.*). The DC-LTA isn't dominated by high-quality native prairie but the Dakota Skipper potentially could be drawn to the training site because the plant species associated with high quality native prairie can be found growing within DC-LTA.

Sprague's Pipit (Anthus spragueii) is found in well-drained, open grasslands and fields. The Sprague's Pipit avoids trees and is negatively impacted by the presences of shrubs in its desired breeding area. They avoid edges between grasslands and other habitat features that are structurally different than grasslands. They also appear to favor large acreage grassland patches with low to edge ratios. Although is possible the Sprague's Pipit potentially could bread on or nest near DC-LTA, it hasn't been sited or reported on DC-LTA.

Table 3. Threatened and endangered species and their status summary (U.S. Fish and Wildlife Service 1995, U.S. Fish and Wildlife Service 2007) recorded or having the potential to be found within or in areas adjacent to the DC-LTA, North Dakota.

Listed Species	Population Listed as	Status	Recovery[1] Priority	Sited at DC-LTA
Gray Wolf (Canis lupus)	Endangered	Improving	NA	No
Interior Least Tern (*Sterna antillarum*)	Endangered	Declining	NA	No
Piping plover (*Charadrius melodus*)	Threatened	Declining	5C	Yes
Whooping Crane (*Grus americana*)	Endangered	Improving	2C	No
Pallid Sturgeon (*Scaphirhynchus albus*)	Endangered	No Change	2C	No
Dakota Skipper (*Hesperia dacotae*)	Candidate	Not Determine	11	No
Sprague's Pipit (Anthus spragueii)	Candidate	Not Determine	NA	No

[1]A species is assigned a recovery priority from 1 to 18 according to the degree of threats, recovery potential and taxonomic distinctness. In addition, a species' rank may be elevated by adding a "C" designation to its numerical rank to indicate that there is some degree of conflict between the species' conservation efforts and economic development associated with recovery.

2.3.5 Invasive Fauna Species found on the DC-LTA

A number of invasive fauna have been recorded on DC-LTA. These wildlife species include the gray partridge (*Perdix perdix*), ringed-necked pheasant (*Phasianus colchicus*), and wild turkey (*Meleagris gallopavo*). All three invasive species were introduced into North Dakota as game birds for recreational purposes.

2.3.6 Cultural Resources

Cultural resource inventories were completed for all of DC-LTA. Twenty-four prehistoric archaeological sites have been recorded at the DC-LTA by a number of different researchers. All sites have been tested and evaluated for significance in terms of NRHP eligibility criteria.

An architectural survey of the four buildings located at the DC-LTA has been completed and the buildings have been evaluated for NRHP listing.

2.3.6.1 Archaeological Resources

Pedestrian cultural resources inventories have completely covered the 730 acre DC-LTA and 24 archaeological sites recorded in the Garrison Local Training Area (Appendix 4k). All were initially recorded as prehistoric stone feature sites and have undergone evaluative test excavations in order to determine significance and NRHP eligibility. Test excavations at six sites by UND during July 1999, and field inspection of a seventh site, resulted in the reclassification of seven sites as artifact scatters—Sites 32ML58, 32ML186, 32ML203, 32ML234, 32ML235, 32ML236, and 32ML239. No credible evidence of stone features could be found at any of these sites, other than natural outcroppings of larger sized rock in the glacial sediments covering the sites (Bales et al. 2000). This left two possible alternatives regarding such sites: (1) the sites were misidentified during survey as stone feature sites, or (2) the stone features at the sites have been completely disturbed and/or removed since initial recording. Based on analyses by UND archaeologists, it seems most likely that the seven sites in question never did exhibit archaeological stone features (i.e., stone circles and/or rock cairns), and were misidentified as stone feature sites when first recorded.

Two sites, 32ML231 & 32ML233 were determined eligible for NRHP listing following field examinations (Molyneaux et al. 1996; Stine and Kulevsky 1994; Toom and Kordecki 2006) and review by the North Dakota State Historic Preservation Office. Sites 32ML231 was determined to meet minimum significance criteria (known temporal-cultural affiliation) for NRHP listing based upon the site's hearth yielded a bulk soil radiocarbon age. The site was evaluated as significant and eligible for NRHP listing under Criterion D because it was dateable to the Middle Plains Woodland period (ca. AD 1-600). Archeologist from UND also evaluated site 32ML233 and determined the site not eligible for NRHP listing; however, NDSHPO disagreed with UND's NRHP evaluation and determined site 32ML233 as significant and eligible for NRHP listing based upon features identified at the site

765
766 #### 2.3.6.2 Architectural Resources
767
768 Many of the first buildings located at DC-LTA were built at Riverdale by the Army Corps of
769 Engineer's during the construction of Garrison Dam which began in 1947 and ended in 1953.
770 According to NDNG staff, these structures were moved across the frozen Lake Sakakawea in
771 1956 a few short years after the dam's completion. The remaining buildings were built on site
772 between 1956 and 1960 to accommodate the needs of those solders training on site. DC-LTA
773 buildings were evaluated by Renewable Technologies, Inc (McCormick 2004) as not eligible for
774 NRHP listing. The revised ICRMP for NDARNG contains further information about
775 archaeological and architectural resources located at DC-LTA.

776 ### 2.3.7 Paleontological Resources

777 No paleontological resources are recorded at the DC-LTA. Dr. John Hoganson, the state
778 paleontologist, was contacted regarding his opinion on the paleontological potential of the area.
779 He stated that it is unlikely that fossils would be encountered during ground disturbing activities
780 due to the area being dominated by unfossiliferous glacial deposits (Hoganson 1999).

3.0 ENVIRONMENTAL MANAGEMENT STRATEGY AND MISSION SUSTAINABILITY

3.1 Sustainability of the Military Mission and the Natural Environment

Sustainability seeks to reach a balance between current uses and future requirements. The military mission of the NDARNG requires the ability to provide training to our troops in a realistic training environment. This interaction between training needs and the natural environment often poses one against the other, while, in fact, there are tremendous opportunities to conduct military training that enhance the natural environment.

3.1.1 Military Mission and Sustainable Land Use

Integration of natural resources management with mission support and training requirements helps to ensure DC-LTA meets the challenges of combat readiness homeland security, and ecosystem health, while fulfilling its stewardship and regulatory responsibilities. Implementation of the DC-LTA INRMP will better integrate sustainable natural resource management with mission support and training requirements and responsibilities, affording more realistic training opportunities in support of the base mission.

The INRMP benefits military actions in at least five ways:

1. It facilitates compliance with environmental laws and regulations such as Sikes Act, the Clean Water Act, the Endangered Species Act, and obviates the need for Federal critical habitat designation.

2. It provides actions that support training activities, while still providing protection to the environment and threatened and endangered species (e.g., continuing the military impact monitoring, identifying species of concern before they restrict military actions, reducing wildland fire threat, rotating out and restoring eroded training areas so that they will be available for future use).

3. It provides for programs to deal with bird/aircraft strike hazards and wildlife damage.

4. It provides for increased education of Soldiers and visiting units to promote responsible use of training areas and ranges in order to avoid future restrictions of military actions.

5. It provides for regional conservation and encroachment partnering initiatives to reduce or prevent current and future mission restrictions.

3.1.2 Impact of the Military Mission

Military training activities vary depending upon the specific mission of a unit, whether they are engineers, quartermaster, air defense artillery, transportation or some other type of unit. Each of

these units will have different impacts on the training lands because of their size, equipment and training needs.

Training activities at DC-LTA are limited to those training exercises that fit DC-LTA's capacity to recover. Furthermore, ground disturbing activities are restricted to specific sites where vegetation can be established with ease and natural erosion factors can be anticipated and controlled. Controlling the types of training and locations where training will take place enables NDARNG to maintain the land at DC-LTA in a sustainable condition.

Military training exercises conducted on DC-LTA have the ability to impact land resources in a variety of manners.

There are six primary consequences of intensive and continuous use of Army training lands:

* the loss of historical sites, vegetation, water resources, and wildlife

* diminished quality of available realistic training areas

* diminished operational security

* ineffective tactical operations

* the creation of safety hazards to personnel and equipment

* an increase in training maintenance costs and litigation

The training activities conducted at DC-LTA with the greatest potential to inflict adverse impacts upon DC-LTA are those that create ground disturbances or impact vegetative cover, such as, convoy operations training, mobility and counter mobility training, engineering obstacles training, and digging in fighting positions for vehicles, crews, and individuals. The adverse resulting impacts potentially can destroy vegetation, damage cultural sites, disturb wildlife and their habitat, create noise pollution, accelerate erosion, and create dust. The intensity, severity, and the nature of the impacts vary and depend to a great extent upon the units involved in training, where training activities are concentrated, and the attention given to environmental considerations by commanders and troops.

3.1.3 Operations and Environmental Awareness (EA)

EA provides a means to educate all land users on their environmental stewardship responsibilities and distributes educational materials to those users. These materials relate the principles of land stewardship and the practices of reducing training and/or testing impacts. The EA also provides environmental information to NDARNG professionals concerning operational requirements.

The NDARNG EA is implemented through a cooperative effort with NDSU developing training maps that identify environmentally sensitive and off-limited areas, and calendars and posters depicting the diversity of vegetation and animals. In addition, waterproof cards for soldiers have been developed depicting environmental issues at the training site. EA is enhanced through the creation of an environmental awareness video. The video presentation of environmental stewardship was professionally produced and includes subject matter specific to training areas of the NDARNG. The video has been distributed statewide and is made available to all Units utilizing DC-LTA. The video is a recommendation that has been a command directive and is an important NDARNG tool used in promoting EA.

3.1.3.1 Environmental Program Development & Status

As part of the INRMP development process, the NDARNG utilizes data obtained from research conducted by North Dakota State University (NDSU) as the result of a cooperative effort. The research data collected and monitored under the terms of this cooperative agreement provides insight into the status of NDARNG's INRMP efforts.

3.2 NATURAL RESOURCES PROGRAM MANAGEMENT

The following describes the integration of military training, land rehabilitation and maintenance, and resource management for terrestrial community types, aquatic communities, and other special concerns.

3.2.1 Integrating Military Training with Training Site Resources

The INRMP lists all training exercises currently conducted at DC-LTA. Each exercise is categorized according to their potential impacts on DC-LTA. This section is designed to discuss precautions and concerns for each training exercise and provide guidelines for soldiers to follow that minimize disturbances caused by the training exercises. This section will describe restrictions for some types of training at various locations, areas to avoid when conducting specific types of exercises, location or condition, and the use of optimal areas. The NDARNG will provide the following requirements and guidelines in this section to assure the natural resources are protected without compromising the missions of DC-LTA.

This section will also identify "sensitive" areas of DC-LTA. Areas classified as "sensitive" will include wetlands, areas with high vulnerability to erosion, cultural resource sites, and/or habitat for endangered species. Sensitive areas involving cultural resources and endangered species will be kept confidential to protect them from collectors. See section 2 regarding "Cultural Resource Management" and "Fish and Wildlife Management – Threatened and Endangered Species" for integrating training needs and resource management at DC-LTA.

3.2.2 Requirements for All Training at the DC-LTA

All Unit Commanders training at DC-LTA will be responsible for complying with the Standard Operating Procedures set forth for DC-LTA. The goals of the INRMP for DC-LTA are to maximize the military training available within the real estate available. The objectives to reach this goal are to sustain the current natural resources, to enhance those natural resources that are depleted or in need of modification, and insure DC-LTA's viability for future realistic training exercises.

An explanation of the training goals and INRMP objectives are explained by first outlining the different types of training; their impacts on the natural resources, and followed by how the resource will be sustained, maintained or enhanced.

3.2.3 Minimum Impact Training

The following NDARNG training activities are classified as having a minimal impact on the DC-LTA's natural resources. Minimal impact exercises result in no greater disturbance than walking across the prairie or through woods and normally require no precautions or restrictions.

1. Reconnaissance

2. Patrolling

3. Terrain/map analyses

The INRMP objective is to sustain and maintain all areas of DC-LTA, so they are capable of supporting minimum impact training. These objectives are achieved by controlling noxious weeds (leafy spurge, canada thistle, and absinth wormwood). Trails used for patrolling are maintained by controlling erosion from occasional deluge type rains. Erosion problems will be continually monitored and addressed by reseeding when necessary. Preservation of minimum impact training areas can also be accomplished by curtailing training activity when wet or saturated ground conditions occur. Often curtailing training for a 24-hour period is ample timfor soils to dry out.

3.2.4 Training that may cause Soil or Vegetative Disturbance

Some types of training may and will disturb soils and vegetation. These disturbances may require corrective actions such as seeding, reseeding, re-positioning the sod, or mulching. Certain precautions can minimize disturbances during specific exercises and will be implemented to minimize damage, then followed with a corrective practice. The following training activities that occur at DC-LTA may cause soil or vegetative disturbance.

- Tactical bivouac occupation/displacement

- Cover and concealment
- Construct and maintain main supply routes
- Vehicle maneuvers

The CGTC SOP is available for review. It provides guidance for DC-LTA related activities. The SOPs help to insure minimize impacts to natural resources, such as types and size of trees to use for cover and concealment, erosion control measures on roads and trails, and training in such a way as to minimize fire hazards. Notwithstanding the existence and usage of SOPs, the continuous realistic training does damage vegetation and disturb soils. The INRMP for DC-LTA addresses soil disruption and impacting vegetation. The DC-LTA INRMP goal is to maintain the area(s) for continuous training. The DC-LTA INRMP objective to attain and sustain this goal is premised on land restoration and management. Soils are an essential natural resource that takes centuries to develop, if not thousands of years in the colder climates. They can be drastically altered from erosion, compaction, plant species changes, or removal of top-growth. Sediments resulting from erosion affect surface water quality and aquatic organisms. Plants rely on soils for growth, including water and nutrient uptake. All animals, including humans, depend on plants for food either directly or indirectly. Healthy stable soils form the foundation for a healthy ecosystem.

Some training activities may destroy vegetation, creating opportunities for bare soils. Avoid conducting exercises on soils with a high erosion index, particularity those soils on the steep slopes. Disturbances that are minimal and do not destroy the vegetation may not require restoration. However, even a small disturbance that creates bare soils can start a gully on sloping lands. A gully can damage vehicles, impact structures, degrade wildlife habitat, deposit sediments into streams and lakes, and cause bodily harm to humans.

Soil disturbance activities are restricted in areas designated as wetlands or cultural resource sites. Save excavated soil to fill foxholes or other small holes. Pack the soil to approximate undisturbed soil density. Place the soil layers as they naturally occurred; subsoil first followed by topsoil. Overfill holes to allow for settling. Reseed areas based upon with recommended grass mixture for the particular situation (Table 4). The unit commander is responsible for ensuring that small excavations are filled properly. If fill is needed for a training activity, take fill from an area of DC-LTA that has already been disturbed (ex. cropland or pits) rather than undisturbed prairie. Before moving fill, the Training Site Manager must give approval.

Stay on permanent roads during muddy conditions. Limit off-road use when soils are wet and capable of forming a soil ribbon. Soils become compacted at this moisture level. Moderate to heavily compacted soils prevents the roots from getting proper aeration and may kill the plants. Native plants become displaced by undesirable plants when compaction becomes high to severe.

3.2.5 Land Restoration and Management

Some training activities will disturb soil and vegetation, varying by intensity, severity, and amount of land. These disturbances can be good for the natural communities, but to protect the natural integrity of the community from soil erosion and invasion of exotic plants, follow the guidelines given in Table 4 for treating sites with disturbed soils and vegetation.

Disturbances on DC-LTA will differ depending on activity and fall into categories varying from:

- aboveground vegetation destroyed, soils not disturbed and vegetative roots intact,
- sod, including upper root mass and soil particles attached, turned up or rolled and still intact, e.g. as caused by heavy vehicles that turn corners, and
- soils opened and removed, including vegetation, e.g. by trenching, foxhole development or vehicle emplacements for camouflaging vehicles.

3.2.5.1 Aboveground vegetation destroyed, soils not disturbed and vegetative roots intact

The type of activities that destroy aboveground vegetation but cause little to no damage to the soil profile or root mass include off road wheeled vehicles, straight-line travel of off-road tracked vehicles on dry to slightly wet soils and flat terrain (slopes less than 6 percent), fire, and bivouacking on dry to slightly wet soils and flat terrain (slopes less than 6 percent). These disturbances normally do not cause irreversible damage to the natural resource communities and do not require reseeding. These types of activities are the closest related to mimicking large herbivore activities. The Camp Resource Manager will monitor these sites for possible invasion of exotic plants such as leafy spurge. Since the native plant species will be under stress for a time period, exotic plants will have the opportunity to invade and will be controlled either mechanically or with herbicides.

Table 4. Re-vegetation methods and guidelines for areas based on grass mixture and site characteristics.

Land Characteristic	Native Grass Mix[*1*2]	Cool-season Grass Mix	Annual Grass Mix
Mulch Required Slopes<6%	No	No	No
Mulch Required Slopes >6%	Yes Prairie hay	Yes Straw	Yes Straw
Grass to[1] Seed Mix	Green needlegrass (2-3 lb/ac) Slender wheatgrass (2-3 lb/ac) Western wheatgrass (2-3 lb/ac) Little bluestem (2-3 lb/ac) Side-oats grama (2-3 lb/ac) Switchgrass (0.5-1 lb/ac) Annual ryegrass (2-4 lb/ac)	Intermediate wheatgrass or Pubescent wheatgrass or Western wheatgrass or some other cool-season grass	Rye or Oats or Wheat or other
Seeding Rate	See above	8-14 lbs/ac	70 -100 lbs/ac

[1] • Seed a mixture of green needlegrass, western wheatgrass, little bluestem, side-oats grama, switchgrass, slender wheatgrass, and annual ryegrass for loamy/silty soils

[2] • Seed a mixture of western wheatgrass, little bluestem, side-oats grama, slender wheatgrass, switchgrass, and annual ryegrass for sandy soils.

3.2.5.2 Vegetation and roots destroyed, soils open and disturbed on areas greater than 15 yards[2]

The type of activities that destroy vegetative cover and most roots, soils open and disturbed and greater than 15 yards[2] may include bivouacking on wet soils down to six inches, off-road vehicle lanes on wet soils down to six inches, engineering, trenching, excavating, and pit development. This type of disturbance needs to be categorized as occurring on native prairie or cool-season

exotic grass (introduced) planting. These disturbances, if they occur on native prairie, will need to be restored by seeding a native grass mix indicative of the natural community (Table 4).

These disturbances, if occurring on cool season dominated vegetative communities or cool-season exotic grass planting, may also need to be reseeded to restore a vegetative cover. If the disturbance occurs within a cool season grass located within native prairie, seed with the native grass mix in Table 4. If a cool season grass dominants the area of disturbance or disturbance occurs on a cool-season grass planting, reseed with one of the following grass types (e.g. intermediate wheatgrass, pubescent wheatgrass, or western wheatgrass). In an area that is heavily disturbed annually and need reseeding, reseed with an annual cover crop. Annual plants that could be reseeded at DC-LTA include rye, oats, or other small grains. Large areas that are under constant heavily disturbed exercises will be reseeded to a permanent grass cover that is very rhizomatous such as pubescent wheatgrass, intermediate wheatgrass or western wheatgrass. These cool-season rhizomatous grasses are very vigorous and will tolerate a higher level of disturbance.

3.2.6 Reseeding or Seeding Guidelines

Seed grass mixture using a no-till drill or by broadcasting. A no-till drill will be used whenever possible to seed native grasses instead of broadcasting due to amount of seed need for broadcasting and higher success of establishing a successful stand (consult the local Soil Conservation District for use a no-till drill). When using a drill, seed to a minimum depth of ¼ inch, but no more than a 1 inch. The corrective actions needed for disturbed soil vary with slope, soil type, and size of disturbance. Seed mixtures are listed in Table 4.

When seeding an area within native prairie due to disturbance, use a mix for native grass. When seeding season grass dominated area that is a component of native prairie, use a native grass seed mix. When seeding a cool season grass area where the cool season grass dominates the area, reseed with a cool season grass mixture. When reseeding an area that was a previously a tame grass pasture, hay land, or roadside, use guidelines for cool-season grass mix. When seeding a site that receives yearly disturbances that expose the soil, use the guidelines and seed mixtures for annual grasses.

The seeding mixtures perform several functions. An annual grass mix such as rye or oats will provide a quick cover but will not persist. The cool-season grass seeding will provide cover within the first year or in the second year, providing a vigorous root mass that is rhizomatous. The Native Grass Mix is typical of the native prairie found on DC-LTA, providing a natural community that is stable, environmentally suited, and adapted to the existing soils, moisture, and sunlight conditions. These native grass mixtures generally take three years to become established, so other non-aggressive, short-lived grasses are planted within the mixture to provide cover in years one and two.

When purchasing a grass for a mix or as single species seeding, purchase the seed according to quantities of "pure live seed (PLS)". Specify PLS when purchasing grass seed, to insure the

quantity of seed purchased provides the appropriate number of germinating seeds required to replant a desired area. Seeding rates given in pounds of seed per acre may not be reliable for warm-season grasses because seed viability and bulkiness is not taken into account unless specific as PLS.

Use the no-till drill for seeding the native grass mix and cool grass mixtures. A no-till or conventional grass drill is appropriate when seeding cool-season tame grasses. Use a hydro seeder on steep slopes or in areas inaccessible with the drill. When seeding with a conventional drill, seedbed preparation is important in development a good stand of grass. The seedbed must be firm, planted seed at 1/4 to 1 inch (7 to 25 mm) depth, and repacked after seeding. Weed control following the seeding is very important in achieving a successful stand. When seeding the cool-season grass mixture, conduct a soil test to determine if any soil nutrients need to be applied prior to seeding.

3.2.7 Prairie Management

The DC-LTA is dominated by prairie, of which most is virgin prairie. Prairie comprises 702.4 acres of land, or 96.2 percent of the land base. Management of this important resource will be to maintain and accentuate prairie plant health, soil health, and proper movement of water and nutrients through the prairie/soil system. Grazing, haying and prescribed burning are excellent tools to uses to maintain the plant vigor and health of the native prairie grassland complex.

3.2.8 Livestock Grazing and Haying Program

No grazing or haying occurs on DC-LTA to date. If in the future grazing is permitted on the training area, the National Guard Environmental Office should contact the local NRCS, Extension Agent, or University Specialists to obtain recommendations stocking rates and timing of grazing.

3.2.9 Prescribed Burn Program

Currently, DC-LTA does not have a prescribe burn program. DC-LTA lies on rolling prairie with deep draws, with soils with low fertility, and a limited amount of surface litter. Although, fire maybe viable grassland management tool for retaining the high plant vigor of DC-LTA's native plant community, a fire management plan for DC-LTA will be needed to insure the use of fire doesn't adversely impact the grassland plant complex which protects these shallow soils from the adverse forces and impacts of erosion.

3.2.10 Management of Non-Native Vegetation

The majority of DC-LTA is virgin undisturbed rangeland that has never been cultivated; however, various areas within DC-LTA have been disturbed. These sites include areas which have been planted to trees, roads roadsides ditches and areas designated for digging.

Mowing is used as a tool to maintain the visibility and safety of roadside areas. Mowing reduces the fuel load that may accumulate and helps to prevent potential fire hazards. Mowing should be conducted between the dates of 15 July and 15 August. Mowing during this time period prevents impacts to ground-nesting birds and allows time for warm-season grasses to retain their plant vigor. When training activities disturb a non-native grassland sites, the sites may need to be reseeded. When the disturbance is small reseed the area with a mixture that matches the plants already on site. However, if the disturbed area is located in an area of high use, erosion can be best controlled by reseeding the area with a cool season grass mixture which is able to establish quickly, provide rapid surface cover, and minimize erosion. If a large area is disturbed and the future training activities for the site does not include disturbance, reseeding with a native plant mix may be desired. Follow the guidelines in the "Land Restoration and Management Section" for reseeding mixes and guidelines.

3.2.11 Wetlands and Lakes

One wetland is found on DC-LTA, totaling 0.79 acres (<0.1 % of DC-LTA). Although no lakes exist on DC-LTA, Lake Sakakawea borders the area to the east, south, and west and it supports a large fish population. Fishing doesn't take place on DC-LTA, but civilians and training site personnel are able fish the lake via the USACE managed shoreline area which separates DC-LTA from Lake Sakakawea. All fishing activities are regulated under North Dakota law as written and enforced by the North Dakota Game and Fish Department.

Both DC-LTA and the shoreline area of Lake Sakakawea will be monitored for invasive exotic plant species however, the shoreline weed control efforts are the responsibility the USACE and inland weed control efforts are managed by NDARNG.

Training and mowing activities are restricted from within 100 meters of the lake. A noticeable vegetation change generally exists within the border area surrounding the lake. Although these areas host healthy plant communities, these areas need maintenance to retain their integrity. Shoreline areas provide food and nesting habitat for many wildlife species. They also provide a staging area for migratory waterfowl during the spring and fall. Since the lake is not a natural lake, water levels and shorelines areas will fluctuate based upon USACE management decisions.

3.2.12 Noxious Weed Management

Noxious weeds (those listed by the North Dakota Department of Agriculture) are found on DC-LTA; however, currently they are small infestations. Noxious weeds found on DC-LTA include leafy spurge (*Euphorbia esula*), absinth wormword (*Artemisia absinthium*), and canada thistle (*Cirsium arvense*). Noxious weeds comprise less than one percent of DC-LTA or approximately 2-5 acres. Chemicals will provide the best control of noxious weed infestations and need to be conducted annually for control purposes. Spraying must be conducted by a registered/certified commercial applicator. Maintain a 100 meter buffer from the water's edge to minimize contamination potential.

3.2.12.1 Leafy Spurge

Leafy spurge, North Dakota's most prolific and destructive noxious weed, infests only a small portion of DC-LTA. Leafy spurge is an aggressive introduced weed that displaces native plants even under ideal conditions. It is one of the earliest plants to emerge in the spring and has no natural animals, insects, diseases, or bacteria to control its spread, which gives it the capability to dominate both introduced and native grassland areas. Leafy spurge spreads by a deep root system and seeds, and in combination with the other advantages previously listed, becomes a highly competitive plant in North Dakota.

Leafy spurge is capable of over running DC-LTA, however NDARNG's annual monitoring and chemical control efforts have been able to keep leafy spurge in check.

3.2.12.2 Canada Thistle

Several small areas of Canada thistle can be found at DC-LTA. This weed can be easily controlled when only a few plants are present, but spread rapidly and infest many acres if unchecked. Canada thistle is a perennial plant and early summer is the preferred time for applying herbicides followed by rosette stage in the fall. Biological control programs remain in the early stages of development, leaving herbicide control as the best tool to date. Controlled sites should be monitored for several years to ensure these areas aren't being re-infestation by seedlings.

3.2.12.3 Absinth Wormwood

Absinth wormwood has been observed growing on DC-LTA, especially along roadways or areas disturbed by machinery. This is a much easier and more economical noxious weed to control than leafy spurge or Canada thistle. The areas should be observed annually for re-infestation by seedlings. Absinth wormwood can be effectively and economically controlled and it should not be allowed to become a problem on DC-LTA.

3.2.13 Fish and Wildlife Management

Managing fish and wildlife is an integral component of any management program for DC-LTA. While fish are not found on DC-LTA, (fish are found adjacent to DC-LTA in the waters of Lake Sakakawea); wildlife consisting of mammals, birds, reptiles, and invertebrates will be the primary component of a wildlife management program. Proper natural resource management, in terms of land base, will in turn strengthen the wildlife management plan. By managing the land found on DC-LTA properly, adequate food, water, shelter, and habitat will be achieved for most wildlife species identified as being residents of DC-LTA. This section will also cover supplemental wildlife management practices not discussed in other sections of this plan.

3.2.13.1 Roadsides

Minimize roadside mowing, with mowing only one mower width from the roadside edge except in areas that require visibility for safety reasons. Since white-tailed deer are common on and near DC-LTA, complete mowing of the ditches of well-traveled roads should be conducted to minimize hazard of deer collisions. Mow these areas after 15 July and before 15 August at a stubble height of 20-25 cm (8-10 inches). Roadsides are important feeding and nesting areas for waterfowl, gray partridge, many passerine and non-passerine birds, and other wildlife.

3.2.13.2 Hunting

The DC-LTA is open to general public for hunting as regulated by the North Dakota Game and Fish Department. Since DC-LTA is public land, hunting is allowed and all North Dakota laws and regulations must be obeyed. Wildlife found on DC-LTA that may be harvested for game include white-tailed deer, ring-neck pheasant, gray partridge, sharp-tailed grouse, ducks, geese, mourning doves, and small mammals. The North Dakota Game and Fish Department has retained the authority to oversee and enforce the Game and Fish laws on this tract of land, even though the land is under the primary control of the USACE.

White-tailed deer are the primary game hunted on DC-LTA. There are three primary seasons for harvesting deer. The earliest season (bow) begins August and runs through December. The second season typically commences on the first Friday in November and is open to rifle hunting for a period of 16.5 days. A third season is offered for the harvesting of animals with black powder rifles and usually begins in late November or December.

Upland game bird hunting of sharp-tailed grouse and gray partridge occurs in the second week of September and is typically open until the end of the year or later. Pheasant season opens in early October and is typically open until the end of the year or later. Wild turkey season usually begins in early to mid October and is open until the end of the year or later.

Waterfowl hunting of ducks and geese usually opens by the first Saturday in October. This season remains open until the end of the year, depending on waterfowl type and regulations. Realistically, the season is over at such time as the waterways are iced over and the migration of waterfowl moves south. The acreage at DC-LTA lends itself well to allowing the sportsman access to all of these types of hunting.

3.2.14 Threatened and Endangered Species (T&E)

Appendix 7 lists T&E for DC-LTA or McLean County. Some of these species require key habitats and environmental components near DC-LTA. The requirements of some of these species strengthen the need to maintain prairie, lakeshore line, woody draws, and tree planting areas at DC-LTA. To date, no sightings of any threatened and endangered species have been recorded on the DC-LTA; however, the gravelly shorelines of Lake Sakakawea located outside the boundary area of DC-LTA provided critical habitat for piping plovers nesting.

3.2.15 Integrated Pest Management

Pest management objectives at DC-LTA include control of undesirable or nuisance plants and animals (including insects), control of potential disease vectors or animals of medical concern, prevention of damage to natural resources, and protection of real estate from depreciation. The NDARNG pest management program attempts an integrated pest management (IPM) program. This method involves three primary control strategies which include:

1) mechanical and physical control (removal of pest excluding chemicals)

2) biological control (use of organisms that control a specific pest)

3) chemical control (use of herbicides and pesticides)

Refer to the NDARNG IPMP for further program details.

3.2.15.1 Management Strategies

Pest control strategies at DC-LTA follow an IPM approach. These principles will be equally applied whenever possible and applied to minor pests, common pests, major pests and specialized problems.

3.2.15.2 Protection of Real Estate

Protection of real estate from depreciation or damage from animals or insects that seek refuge or other life necessities within human dwellings in a manner that causes damage to structures, electric or plumbing lines, or create disease potential situations must be controlled or prevented from entering the dwelling. Often animals seek refuge inside human dwellings because they may provide warmth, protection from elements, materials and locations for nest building, and food.

3.2.15.3 Control of Potential Disease Vectors or Animals of Medical Concern

Controlling potential disease vectors or animals of medical concern is needed for the protection of human life and well-being. Some animals and insects that carry diseases or can cause other medical problems are attracted to human dwellings in search of food and shelter or egg-laying sites. Some insects might also be transported to human dwellings by people themselves or other animals. Transmission of disease to humans is usually passive and non-disease medical problems (e.g. bites and stings) are the result of an animal's need to food or self-protection.

Birds might seek nesting sites in protected locations on the outside of buildings and occasionally in protected locations inside buildings, and their nests can harbor disease-carrying organisms. Birds, while they themselves are not harmful to humans, can potentially transmit diseases to

humans. Their establishment in human dwellings and in close proximity to humans should be controlled to the extent that the likelihood of disease transmission is very small.

Ticks are commonly found in North Dakota and DC-LTA, attaching themselves to humans when passing through vegetation where the ticks are located. Human blood is a source of food to the ticks. Ticks that carry disease-causing organisms internally can pass the organisms directly to humans through their bites.

Rodents (e.g. rats and skunks) and bats can carry diseases internally and pass them to humans through bites that might occur if the animals are disturbed or threatened. Rodent nests and rodent and bat feces can also harbor other disease-carrying organisms or disease vectors. Bees, wasps, and a few spiders that nest on or near human dwellings may sting or bite humans when disturbed or threatened. Generally, these injuries are only painful and do not cause long-term problems, though some individuals might be sensitive to the stings of certain insects and the dangerously poisonous bites of various spiders.

3.2.15.4 Control of Undesirable or Nuisance Plants and Animals (including insects)

Animals that are nuisances when in human dwellings are controlled to make the dwellings more enjoyable to inhabit, but these animals generally do not pose any real threat to humans. Spiders; ants; earwigs; crickets; and stray bees, wasps, or hornets that gain entry to dwellings can be nuisances. Moths or beetles might create a nuisance if they establish themselves in stored food products, and some species can damage fabrics. Birds that nest on dwellings or that search for food in the materials of dwellings (e.g., swallows, sparrows, woodpeckers) at times can be a nuisance. Stray dogs and cats, nonpoisonous snakes, woodchucks, badgers, coyotes, and raccoons can become nuisances if they become accustomed to the presence of humans or to finding food near human dwellings, cause damage to grounds around dwellings, or gain entrance to dwellings.

Mosquitoes can and do become nuisance in and near bivouac sites throughout the summer months at DC-LTA. For the safety and comfort of the soldiers, pesticides should be applied to minimize the nuisance of mosquitoes.

Nuisance plants include undesirable weedy plants or grounds that are unsightly, herbaceous or woody plants in locations where they could lead to mechanical problems (e.g., near power lines), and plants in areas that need to be relatively free of vegetation for fire control purposes. Plants that exude irritating substances (e.g., poison ivy) are also nuisances where they occur in areas frequented by humans.

3.2.15.5 Prevention of Damage to Natural Resources

Prevention of damage to natural resources is a primary objective of pest management on DC-LTA. Natural resource damage can result from invasions of exotic plant species (e.g. leafy

spurge, kentucky bluegrass), and from overgrowths of vegetation where other natural resource management concerns demand their removal (e.g. kentucky bluegrass).

Noxious weeds are a minor problem at DC-LTA due to the proactive control and monitoring efforts. Noxious weeds that occur on DC-LTA include leafy spurge (*Euphorbia esula*), canada thistle (*Cirsium arvense*), and absinth wormwood (*Artemisia absinthium*).

3.2.16 Cultural Resources Management

The NDARNG is committed to protecting the cultural resources under its care. The sites are recorded and marked in order to prevent any disturbances to these sites. The NDARNG and the UND Anthropology Research Department have recorded these sites using a global positioning system (GPS) to more accurately document their locations. This information is then provided to the units training at DC-LTA to prevent them from disturbing any of the sites. Cultural resources will not be impacted by any natural resource management activities in this plan. In the case of inadvertent disruption of any cultural resource, the SOP as set out in the Integrated Cultural Resources Plan (ICRMP) will be followed. This at a minimum includes contacting the Cultural Resources Manager (CRM) as well as the TPHO of the relevant Native American Indian Tribe(s) potentially affected.

3.2.17 Community Recreational and Educational Use

The DC-LTA is a National Guard Training Site in the state of North Dakota. It is estimated that annually greater than five hundred individuals use the facility for recreational purposes (hunting, birding, and access to fishing).

The DC-LTA is also used for research, demonstrations, and educational workshops and tours. Most of the research includes botanical and plant community identification, faunal inventories, and plant community dynamics. DC-LTA is comprised of a prairie grassland community with remnant tracts of conservation tree plantings. Together the prairie and wooded areas provide excellent opportunities for grassland, conservation, and general environmental workshops and training programs.

3.2.18 Natural Resources Consultation Requirements

The NDARNG routinely consults with the NDGF, FWS, and NDSU on natural resource management issues.

NDARNG consultation with FWS & NDGF is required for projects where natural resources considerations require notification. The NDARNG maintains a good working relationship with both the FWS & NDGF and attempts to consult these agencies to ensuring the preservation of the threatened and endangered species at DC-LTA and to achieve a sustainable balance of military training and public uses of DC-LTA area.

The NDARNG has partnered with NDSU in managing natural resources on DC-LTA. NDSU provides trained staff and students with opportunities to conduct studies and gain experience managing natural resources on a large scale. This partnership has provided the NDARNG with a significant amount of information on the flora, fauna, resources and management techniques and enables the NDARNG to create a sustainable training environment.

3.2.19 National Environmental Policy Act Compliance

The National Environmental Policy Act (NEPA) was passed by Congress to protect human and natural resources. This Act requires all federal agencies to evaluate proposed actions to determine all possible alternatives and environmental impacts.

The NDARNG Environmental Program Manager administers the NEPA process for the NDARNG. The NEPA is a three-tiered process. If the proposed action is determined to have an insignificant impact on the environment, the project may proceed as planned. At the second tier an Environment Assessment is required. After the Environmental Assessment has been written and reviewed, the project may proceed if there is a Finding of No Significant Impact. If more study is needed, the third tier must be implemented with an Environment Impact Statement written and procedures for completing the project defined by the National Guard Bureau.

An Environmental Assessment was prepared to address implementation and impact of the previously implemented INRMP. A Record of Environmental Consideration has been completed for the continuing implementation of this INRMP given that there were no significant environment impacts identified during the review.

3.2.20 Beneficial Partnerships and Collaborative Resource Planning

The NDARNG has established partnerships with the North Dakota State University and the University of North Dakota. Both institutions provide vital roles in managing natural and cultural resources on NDARNG training lands.

The NDARNG has also established working relationships with the NDGF, FWS and USACE. These relationships provide instant access to resource management professionals with experience in managing threatened and endangered species and candidate species/species of concern as well was land management issues pertinent to all NDARNG training lands.

3.2.21 Public Access and Outreach

NDARNG doesn't have a permanent presence at DC-LTA, therefore DC-LTA public outreach efforts are limited. NDARNG has posted notification at DC-LTA entrance which states that public access and use of the DC-LTA training area for hunting, fishing access, and recreational purposes is permitted unless otherwise stated. It also indicates that the private sector is not permitted to use DC-LTA for overnight camping.

3.2.22 Encroachment Partnering

Encroachment upon DC-LTA is naturally restricted; therefore, NDARNG hasn't been working upon plans that may prevent home and commercial developments from being constructed adjacent to DC-LTA. As shown by Figure 6, DC-LTA's border is buffered against encroachment by the waters of the Lake Sakakawea and by the presences of NDGF Wildlife Management Areas. In addition, encroachment issues haven't been of essential concern for DC-LTA, because it is locate in relatively remote and rural setting in which farming activities currently dominate.

3.2.23 Comprehensive Wildlife Conservation Strategy (CWCS)

NDARNG DC-LTA INRMP and the NDGF 2005 CWCS action plan for the Mixed-Grass Prairie Missouri Coteau Region of North Dakota complement one another. The goals of the plans maybe different but the objectives are quite similar. This partially is a consequence of consultation efforts between the NDARNG and NDGF and recognition by both agencies of the importance of implementing management, research, and educations plans that will sustain the state's natural resources. Objectives common to both the DC-LTA INRMP and the CWCS action plan include:

- Protection and maintenance of the native mix-grass prairie community where possible
- Implementation of alternatives to long term haying of native grassland areas
- Controlling of noxious weeds through biological and chemical methods
- Working with state and federal agencies regarding the compliance of state pesticide regulations
- The implementation survey and research efforts that will collect information linked to natural resource's baseline information.
- Developing brochures & videos for informing the public and/or the troops regarding the need for conserving natural resources and wildlife habitat.

Not all CWCW objectives have been found in the DC-LTA INRMP. The CWCS action plan for the Mixed-Grass Prairie Missouri Coteau Region applies to very large area of North Dakota with great diversity; therefore, not all CWCS objectives are applicable to the DC-LTA INRMP nor are they the best fit for NDARNG training needs. Planning objectives; such as, coordinating efforts with wind energy companies don't apply to DC-LTA. CWCW plans; such as, the removal of stands of DC-LTA trees would conflict NDARNG requirements and other CWCS management tools (planned grazing system and fire) are difficult to implement at DC-LTA due to DC-LTA's limited acres. Objectives listed by the CWCS but not include in the DC-LTA INRMP include:

- Working cooperatively with state and federal agencies to research & develop BMPs associated with the use of fire.

- The implementation of grazing systems to benefit mixed-grass prairies species.

- The removal of tree stands located within the 50 meters of grassland patches larger than 100 acres in size.

- Coordinating efforts with wind energy companies to minimize their impacts.

4.0 Natural Resource Management Goals

NDARNG's management of DC-LTA principally focuses upon maintaining the integrity of the grassland, wetland and planted woodland areas found on DC-LTA and takes into consideration the relationships of all living organisms, including human activity, with the nonliving elements.

NDARNG's goals for maintaining the integrity of natural resources found on DC-LTA include:

1. Integrate military training with the training site resources and ensure no net loss in the capability of installation.

2. Enhance the training site's natural environment and minimize training limitations.

3. Provide guidelines to all soldiers training on DC-LTA on how to maintain site's integrity and restore those natural resources damaged during training.

4. Make accessible spatially environmental data which will enable NRARNG personnel to avoid and or prevent adverse impacts to soil, vegetative, fauna, and cultural resources during training activities.

5. Design research projects which can directly support ecosystem management programs.

6. Manage the natural resources (prairie, wetlands and woodlands) in a manner that will sustain and improve the quality of the train area.

7. Comply with North Dakota State Agricultural Regulation by controlling all noxious weeds.

8. Implement the NDARNG Integrated Pesticide Management Plan at DC-LTA.

9. Ensures military training will have minimal impact upon those areas that support threatened, endangered, candidate and migratory birds species.

10. Maintain and up-date lists of floral and fauna located within DC-LTA and implement management strategies that will sustain, improve, and/or protect these resources during adverse conditions such as drought.

11. Cooperate and work with NDGF, USACE, FWS and private groups with the expertise to protect and enhance wildlife habitat areas identified at DC-LTA.

12. Provide cultural resource management strategies for DC-LTA

13. Maintain the trees planted trees at DC-LTA which support both the military training mission and the ecosystem at DC-LTA.

14. Develop recreation opportunities which ensure soldiers and civilians can enjoy outdoor recreation actives in a clean safe environment while in compliance with military and civilian laws.

15. Integrate recreation activities with endangered species management.

The biological conditions at DC-LTA have proven to sustain the geographic area of DC-LTA over the centuries and today the natural resources at DC-LTA are in good health. NDARNG's long term management goals for DC-LTA focuses upon maintaining the biological diversity found at DC-LTA and the management of the area in a manner that will favor the current native grasslands and wildlife ecosystems.

The following sections will describe the integration of military training, land rehabilitation, resource maintenance, and NDARNG's resource management plans for the terrestrial community and other special concerns found at DC-LTA.

4.1 Threatened, Endangered, and Candidate Species Management

Threatened and endangered species (T&E) and candidate species require a variety of habitats. Some of these species require key habitats and environmental components found on DC-LTA. These unique requirements strengthen the need to maintain prairie & wetland areas at DC-LTA.

The following management techniques will be employed in order to appropriately manage T&E species most likely to frequent DC-LTA. Further, management techniques for candidate species are also provided, even though candidate species are not afforded protection under ESA. Managing to protect candidate species will not further their decline and is likely to create a healthier, more diverse ecosystem at DC-LTA. A current list of T&E species associated with DC-LTA can be found within Appendix 7. (An up-date T&E list can be found at http://www.fws.gov/northdakotafieldoffice/SEtable.pdf.)

* Strategy. Using information provided by the FWS and NDGF, decreases the interaction and/or conflict between military activities and T&E species and candidate species.

* Goal. Conserve breeding areas used by T&E species and candidate species in a manner that does not interfere with military training activities

    * Objective 1. Conduct annual training for NDARNG personnel and provide information (NDNG Environmental Awareness Video & Soldiers Compliance Field Cards) to DC-LTA users on the protection of T&E and candidate species.

4.1.1 Piping Plover

The Piping plover (*Charadrius melodus*) is in the threatened category. Piping Plover may be present during the spring and summer months for breeding at DC-LTA. Piping Plovers prefer

gravel shorelines along Lake Sakakawea and they have been sighted nesting upon the shoreline areas found adjacent to the DC-LTA.

* Objective 1. Eliminate or significantly reduce training related disturbances from taking place within close proximity to the shoreline areas of Lake Sakakawea when piping plovers are present and/or nesting (late April through August). Although the shoreline areas of Lake Sakakawea are outside the boundary of DC-LTA disturbances may disrupt a piping plover nesting event.

* Objective 2. Restrict maintenance activities that may disrupt piping plovers present and/or nesting within the area by creating a 100 meter (328 ft) buffer zone from the Lake Sakakawea shoreline for mowing activities.

* Objective 3. Establish a 100 meter (328 ft) buffer zone for insecticide and herbicide applications from the Lake Sakakawea shoreline.

* Objective 4. Contact the FWS and NDGF, if piping plovers are sighted on DC-LTA or on the shoreline areas adjacent to DC-LTA.

4.1.2 Whooping Crane

The Whooping Crane (*Grus americana*) is in the endangered category. DC-LTA lies within the migratory flyway that Whooping Cranes use during their annual migrations. Whooping Cranes potentially could use wetlands areas at DC-LTA for temporary resting during migration through North Dakota.

* Objective 1. Minimize potential whooping crane disturbances during the spring (mid-April through mid-May) and fall (late September through mid-October) migrations by creating a 100 meter (328 ft) buffer zone around all wetlands areas at DC-LTA.

* Objective 2. Avoid disturbing whooping cranes when sighted and, in accordance to the Cooperative/ Federal/State Whooping Crane Contingency Plan (2006), report all sightings to the FWS and NDGF.

4.1.3 Pallid Sturgeon

The Pallid Sturgeon (*Scaphirhynchus albus*) is in the endangered category. DC-LTA is a dry upland site unable to support the pallid surgeon, but DC-LTA it is located adjacent to waters of Lake Sakakawea in which the Pallid Sturgeon can be found.

* Objective 1: Comply with North Dakota Department of Health regulations to insure NDNG activities don't pollute the waters of Lake Sakakawea which harbor the Pallid Sturgeon.

* Objective 2: To further prevent sediments from reaching the waters of Lake Sakakawea ground disturbing activities will be conducted approximately 100 meters or more from lakes shoreline.

4.1.4 Least Tern

The Least Tern (*Sterna antillarum) is in the endangered category.* The Least Tern has been identified along the shoreline areas of the Missouri River system. It can be found nesting and raising young on sparsely vegetated sandbars. Least Terns haven't been sighted within DC-LTA nor have they been identified along the Lake Sakakawea shoreline areas located adjacent to DC-LTA.

- Objective 1. Eliminate or significantly reduce training related disturbances from taking place within close proximity to the shoreline areas of Lake Sakakawea (late April though August). Although the shoreline areas of Lake Sakakawea are outside the boundary of DC-LTA, training disturbances may disrupt a least tern nesting event.

- Objective 2. Reduce and/or restrict maintenance activities that may disrupt least terns present and/or nesting in the area by creating a 100 meter (328 ft) buffer zone from the Lake Sakakawea shoreline for mowing activities.

- Objective 3. Establish a 100 meter (328 ft) buffer zone for pesticide applications from the Lake Sakakawea shoreline.

- Objective 4. Contact the FWS and NDGF, if least terns are sighted on DC-LTA or on the shoreline areas adjacent to DC-LTA.

4.1.5 Gray Wolf

The Gray Wolf (Canis lupus) is listed as an endangered species. DC-LTA is within the gray wolf's historical range. FWS records indicate the forested areas 130 miles to the north of DC-LTA are likely areas which may provide habitat for the gray wolf; however, the gray wolf may range hundreds of miles from its favored habitat and may appear almost anywhere.

- Objective 1. If a gray wolf is sighted at DC-LTA, avoid disturbing it and report the sighting to the FWS and NDGF.

4.1.6 Dakota Skipper Butterfly

The Dakota Skipper butterfly is listed as a candidate species and receives much attention from many concerned individuals and groups. The NDARNG conducted a Dakota Skipper butterfly survey at DC-LTA during 2001. This survey determined that the Dakota Skipper butterfly was not found on DC-LTA, but that it likely transits the area while foraging.

* Objective 1. Minimize the use of self-help chemical pest control techniques and limit their impacts on the Dakota skipper butterfly during bivouacking operations at DC-LTA.

* Objective 2. Ensure planned pesticide applications at DC-LTA consider non-target species (insects and vegetation) when conducting large scale applications. Ensure pesticide applications are conducted in accordance with the IPMP.

* Objective 3. Minimize military training off road vehicle travel in native grassland areas to the extent that native grasses and forbs utilized by the Dakota Skipper butterfly aren't adversely impacted.

4.1. 7 Sprague's Pipit

The Sprague's Pipit (Anthus spragueli) is in the candidate category. DC-LTA lies within the Sprague's Pipit's breeding area and provides the open undisturbed well drained blocks of native grasslands thought to be desired by the Sprague's Pipit for nesting. The introduction of exotic grasses, the planting of trees, and the encroachment of shrubs renders native grasslands areas unsuitable to the Sprague's Pipit.

* Objective 1. Avoid breaking up those blocks of native grassland found at DC-LTA with new roads, trails, or trees plantings.

* Objective 2. Control the introduction of exotic plant species and volunteer woody shrubs encroaching into DC-LTA's native grassland areas.

4.2 Wetland Management

The U.S. Congress enacted the Clean Water Act in 1972 to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Section 404 of the Clean Water Act delegates jurisdictional authority over wetlands to the US Army Corps of Engineers (USACE) and the Environmental Protection Agency (EPA). Waters of the United States protected by the Clean Water Act include rivers, streams, estuaries, and most ponds, lakes, and wetlands. USACE and the EPA jointly define wetlands as ... areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

* Goal . Work with NDGF, USACE, and FWS to protect DC-LTA wetlands from degradation.

* Objective 1. Conduct annual training for NDARNG personnel and provide information to DC-LTA users on wetlands protection.

- Objective 2. Establish 100 meter (328 ft) buffer zones around wetlands areas for vehicular training, maintenance and pesticide applications and a 30 meter (98 ft) foot buffer zone for pedestrian related training and pesticide activities.

- Objective 3. Maintain open communication with USACE & FWS regarding projects concerning wetlands at DC-LTA.

4.3 Law Enforcement of Natural Resources Laws

Many aspects of natural resources management require effective enforcement. Programs; such as, endangered species protection, forest products production, harvest controls, protection of sensitive areas, water pollution prevention, hunting and fishing recreation, etc. are very dependent upon effective environmental law enforcement.

Currently, DC-LTA does not have trained staff to cover law enforcement on the training site. DC-LTA relies on local law enforcement agencies to perform these actions. DC-LTA maintains close working relationships with local law enforcement agencies and will continue to provide information on suspected violations and violators.

- Strategy. Partner with local, state and federal law enforcement agencies to conduct appropriate enforcement actions.

- Goal. Assure legal compliance of military and civilian activities on DC-LTA.

- Objective 1. Maintain a program regulating all military and civilian activities on DC-LTA range areas with an awareness campaign for all users.

- Objective 2. Coordinate enforcement activities with other agencies and organizations.

- Objective 3. Use enforcement as an integral part of the overall natural resources program.

4.3.1 Fishing

In conjunction with the NDGF, NDARNG will provide access to fishable waters located adjacent to DC-LTA. The public will be allowed access to DC-LTA to fish the waters of Lake Sakakawea when their efforts will not interfere with military training events and activities.

- Goal 1: Provide public access for fishing on DC-LTA in a manner that does not interfere with military training activities and ensure that soldiers and civilians who use DC-LTA have chance to enjoy the fishing in a clean and safe environment.

- Objective 1. Encourage those fishing the waters of Lake Sakakawea to follow the NDGF fishing guidelines and regulations

* Objective 2. Educate the soldiers and civilians regarding fishing opportunities available at DC-LTA

* Objective 3. Encourage those utilizing DC-LTA to practice good stewardship and police themselves during their time at DC-LTA.

4.3.2 Hunting

DC-LTA is open to hunting. Hunting on DC-LTA mimics the effects of predators. Large predators such as wolves and mountain lions that preyed on deer and other game in pre-settlement times are no longer present in North Dakota. Without predation, deer populations may increase to the point where they may damage habitat for other wildlife species, cause outbreak in diseases, and pose greater hazards to passenger vehicles in the area. All state and federal hunting regulations apply to DC-LTA.

* Goal 1: Provide public access for hunting on DC-LTA in a manner that does not interfere with military training activities.

* Objective 1. Permit hunting at DC-LTA when NDARNG training is not scheduled.

4.3.2.1 Big Game

Whitetail deer are the only big game species to inhabit DC-LTA. DC-LTA does not support a large herd of whitetail deer, there are sites within DC-LTA where whitetail deer can be found throughout the year.

* Objective 1. Work with NDNG and hunters to maintain the deer population at DC-LTA a sustainable and manageable level.

4.3.2.2 Upland birds

There are several species of upland game birds which may be pursued at DC-LTA, including sharp-tailed grouse, gray partridge, ringed-necked pheasant, and mourning doves.

* Objective. Take steps to enhance DC-LTA upland bird habitat

4.3.2.3 Waterfowl

Waterfowl are typically associated with wetlands at DC-LTA. Hunting opportunities may be sparse given that waterfowl hunting season occurs when active training is still taking place at DC-LTA.

* Objective. Take step to enhance waterfowl nesting habitat at DC-LTA

4.3.3 Trapping

DC-LTA is open to trapping.

All state and federal trapping regulations are adhered to at DC-LTA. Personnel are allowed to trap fur-bearing animals, such as coyote, red fox, raccoon, badger, and beaver. Trapping seasons and requirements are established by NDGF; however, trapping is permitted on DC-LTA only between November 1 and April 15.

- Strategy: Control populations of fur-bearers on the training site and ensure realistic training while limiting potential human-animal conflicts.

  - Goal: Enhance training site management by offering the general public opportunities for trapping and thereby reducing NDARNG costs associated with trapping, relocation and/or carcass disposal.

    - Objective 1. Maintain effective control of fur-bearing species, especially predatory species, in order to sustain and/or enhance survivability and propagation of T&E species and their habitat.

4.4 Fish & Wildlife Management

Habitat management is accomplished through training land rehabilitation, wetlands management, erosion control, and wildlife habitat management projects. DC-LTA does not actively manage habitat for the propagation of wildlife although this is a benefit from NDARNG's land management efforts which support military training activities.

DC-LTA military training activities strive to avoid impacting the local flora utilized by native wildlife species for food, water, and shelter. NDARNG management and training lands rehabilitation efforts also attempt to use native plants to protect the soil resources and indirectly enhance DC-LTA's wildlife habitat. DC-LTA wildlife, mammals, birds, amphibians, and reptiles are identified in Appendix 4. The vertebrates identified by these lists can be found at DC-LTA and/or located within close proximity to DC-LTA. NDARNG land management efforts are believed to benefit all the residential wildlife species listed by Appendix 4.

DC-LTA is a dry land training site without a body of water capable of supporting fish; therefore, fisheries management isn't a DC-LTA active management component.

- Goal. Work with NDGF, USACE, and FWS to protect and enhance identified habitat requirements of native wildlife species utilizing DC-LTA.

  - Objective 1. Lead efforts with Universities, Federal, State, and private organizations to complete up-dated wildlife species surveys of DC-LTA.

4.5 Forestry Management

There are no natural woodlands at DC-LTA; therefore DC-LTA has no active management of forested lands. The woodlands at DC-LTA are limited to the planted trees and shrubs which serve as created concealment areas for maneuver training, erosion control, and windbreaks. Currently, there are 28.3 acres of planted woodland within DC-LTA which is primarily composed of a mixture of various conifers.

- Goal. Maintain planted trees that support both the military training mission and the ecosystem at DC-LTA.

  - Objective 1. Monitor tree stands for disease and insect infestation; remove infected trees before damage becomes widespread.

  - Objective 2. Replace dead trees used for overhead cover military training operations and habitat for wildlife species.

    1. Avoid off road vehicle use in woodlands areas.

    2. Avoid cutting woody vegetation with trunk diameters over 1 inch for use as camouflage.

4.6 Vegetation Management

Although most of DC-LTA is virgin native rangeland that has never been cultivated, some areas of the DC-LTA have been cropped, mechanically disturbed and/or used for training activities. Other disturbed areas include roadsides and roads, areas planted to non-native species, the mowed cantonment area, and areas from which vegetation or topsoil was removed for fill or training activities.

Prairieland comprised 701.6 acres or 96.0 percent of the DC-LTA's land base. Wetlands comprise 0.79 acres or 0.1 percent of the land base. The planted woodland area comprises 28.3 acres or 3.9 percent of the land base.

- Strategy. Maintain and expand the biological diversity of native plants inherit to DC-LTA

  - Goal. Enhance the training site's natural environment and provide a realistic training area with as few training limitations as possible.

    - Objective 1. Study the effects of kentucky bluegrass, an invasive species, on the ecosystem.

- Objective 2. Study the use of mowing and prescribed burning as a management tools for areas where the accumulation of biomass has restricted the vitality of the native prairie ecosystem and/or has enabled the introduction of woody shrubs and non-native invasive plant species.

4.7 Migratory Birds Management

It should be noted that training activities have the potential to inadvertently injure or kill migratory birds. To minimize adverse impacts upon migratory birds during the nesting season, training activities will be restricted to established trails or performed in the designated excavation areas whenever possible. Migratory birds are protected through International Treaties and the Migratory Bird Treaty Act. Federal regulations (50 CFR) and Executive Order 13186 provide the framework for regulations of migratory bird take and possession. For any take that does not occur as a direct result of military readiness activities, as defined in the Director's Order detailing specifics of the exemption, Federal permits are required to take, possess, transport, and dispose of migratory birds, bird parts, feathers, nests, or eggs. When necessary, application for permits will be made to the FWS Migratory Bird Permit Office in Denver, CO.

- Goal. Conserve breeding areas used by migratory birds in a manner that does not interfere with military training activities and ensure military training activities have limited impacts upon migratory birds and the areas they utilize.

- Objective 1. Limit ground disturbances from military training activities during the breeding season (April 1 through July 15, annually) to the extent practical.

- Objective 2. Conduct annual training for NDARNG personnel and provide information (NDNG Environmental Awareness Video & Soldiers Compliance Field Cards) to DC-LTA users on the protection areas utilized by migratory bird species.

4.8 Invasive Noxious Weed Management

Aggressive weed species have been introduced to DC-LTA. The most aggressive of these species are listed by North Dakota Agricultural Department as Noxious Weeds. Noxious weeds are governed under North Dakota Law (NDCC 4.1-47-02) Weed species which are both found at DC-LTA and identified by the state of North Dakota as noxious weeds include: leafy spurge, canada thistle, and absinth wormwood.

Leafy spurge (Euphorbia esula) is found in isolated areas of DC-LTA. It is an aggressive weed introduced from Eurasia that displaces native plants even under ideal conditions. It is one of the earliest plants to emerge in the spring and has no natural animals, insects, diseases, or bacteria to control its spread, giving it an advantage to dominate native rangeland. Leafy spurge spreads by a deep root system and seeds, and in combination with the other advantages, becomes a highly competitive to native North Dakota plants.

Canada thistle (Cirsium arvense) has been noted growing within swales and disturbed areas of DC-LTA. It is an aggressive perennial plant introduced from Europe. Each canada thistle flower can produce 40 to 80 light weight seeds the wind can transport long distances. Its active underground root system can form dense infestations by vegetative reproduction and it is capable of displacing native grasses and forbs. Canada thistle's above ground biomass is normally abundant and its flammability has the potential to increase fire severity.

Absinth wormwood (Artemisia absinthium) has been observed growing at DC-LTA, especially along roadways. Absinth wormwood is an introduced biennial weed species capable of producing hundreds of thousands of seeds. Relative to leafy spurge, it is a weed that can be effectively and economically controlled.

* Goal: Maintain compliance with North Dakota State Agricultural Regulations which mandate the control of invasive plants listed as noxious weeds and ensure the native vegetation, which has protected and sustained DC-LTA during adverse climatic conditions, remain vibrant.

  * Objective 1. Actively monitor DC-LTA for noxious weeds.

  * Objective 2. If noxious weeds are located, use chemical methods to achieve and maintain control of these invasive weeds before they become established.

  * Objective 3. Introduce biological control measures to DC-LTA to assist with controlling noxious weeds and reducing the need for noxious weed chemical control applications.

  * Objective 4. Apply pesticides in accordance to labeled instructions, in a manner which will not create a threat to the surrounding natural resources, and in accordance to North Dakota Pesticide Laws and Regulation.

4.9 Pest management - Insects and Vertebrates

Insect and vertebrate pest management operations are performed in such a manner as to cause no harm to personnel or the environment. Non-chemical control efforts will be used to the greatest extent possible to reduce reliance on pesticides, minimize cost, enhance environmental protection, and maximize the use of integrated pest management techniques.

Pest management includes surveillance and control of mosquitoes, miscellaneous insects (bees, wasps, ants, crickets, and cockroaches), spiders, mice, and miscellaneous vertebrate pests; such as, skunks, raccoons and squirrels. Without control, these pests could interfere with the military mission, damage real property and/or the environment, increase maintenance costs and expose personnel to diseases. Actual pest management procedures are found in the NDARNG's Integrated Pest Management Plan.

- Strategy Minimize unwanted encounters with pests which can disrupt the training mission and/or damage NDARNG facilities within the DC-LTA training area.

  - Goal. Implement NDARNG Integrated Pesticide Management Plan at DC-LTA which will minimize the use of pesticides, prevent the potential occurrence infectious diseases (hantavirus, lyme disease, west nile virus, equine encephalitis, or rabies), and improve the environmental safety of DC-LTA.

    - Objective 1. Conduct annual reviews to insure pest related concerns aren't adversely impacting training area and/or the structures located at DC-LTA.

    - Objective 2. Control pests before they become a health concern or interfere with training activities.

    - Objective 3. Apply pesticides in accordance to labeled instructions, in a manner which will not create a threat to the surrounding natural resources and in accordance to North Dakota Pesticide Laws and Regulation.

4.10 Land Management

Soil erosion potential at DC-LTA is relatively high given the soil types, topography, the intensity and variable amounts of annual precipitation, and the duration and the types of military training activities conducted at DC-LTA. Approximately 30% of DC-LTA acreage falls within the erodible to highly erodible category. Activities which contribute to soil erosion at DC-LTA include the following field training exercises; cover and concealment, convoy operations training, bivouac operations, land navigation, engineering obstacle training, mobility/counter mobility training, and trail maintenance activities. Site reclamation requirements are referred to in the Chapter 3.

- Goal 1. Manage and protect land resources so they are able to sustain for military training actions without damaging DC-LTA ecosystem and natural environment.

- Goal 2. Ensure impacts derived from military training activities are rehabilitated quickly and efficiently.

  - Objective 1. Provide educational training materials to soldiers regarding training rules and restriction put in place to prevent and/or minimize impacts upon natural resources at DC-LTA

    1. Obey speed limits to avoid creating dust.

    2. To the maximum extent practical, remain on combat trails when maneuvering in the training areas.

3. Digging fighting positions, tank trenches and kitchen sumps is permitted through a permit process with CGTC Range Control. Digging is not permitted for trench latrines or burying of garbage, refuse, or sewage.

* Objective 2. Follow standard reclamation requirements for repairing damages created by training activities

4.11 Geographical Information Systems (GIS) Management

The NDNG GIS is a web mapping enterprise available internally to NDARNG web users. The GIS system features are used to provide a spatial view by overlaying multiple layers of data.

The GIS web mapping capabilities supports NDARNG efforts to operate sustainable environmental programs. The NDARNG DC-LTA GIS data records are used to track environmental assessments. It is also used to provide NDARNG users the ability to determine area size, proposed scenarios, and natural resource areas that are of interest.

* Strategy. Using digital aerial photographs to record the location of environmental issues of interest, track changes, progress, and developments of on-going environmental of various issues found at DC-LTA.

* Goal. Create and track accessible spatial environmental data which enable NDARNG personnel to training in a manner that prevents adverse impacts to DC-LTA soil, vegetative, fauna, and cultural resources.

* Objective 1: Map those areas where noxious weeds have been identified. Track the acreage and locations where these noxious weeds have been identified and over time determine if control measures have been effective.

* Objective 2: Digitally record sites where birds of concern, threatened & endangered species, and plants of interest to Native Americans have been identified. Over time determine if sightings are more or less frequent.

* Objective 3: Develop maps for military training activities and training site development which display environmental sensitive areas (wetlands, water bodies, cultural sites, T&E nesting areas, etc.). Show setback distance on the maps to indicate where training activities are off limits.

4.12 Public Access and Outdoor Recreation

DC-LTA is a small open space training area with few outdoor recreation opportunities (fishing, hunting, and birding) available to the public as well as military personnel, however, if hunting and fishing (or other outdoor recreational activities) are to thrive on DC-LTA, the military mission priority must not be compromised. If recreational or management activities conflict with

military activities, the military mission will come first in order to provide our soldiers with the training they require and to insure public safety isn't compromised.

Over the past century the Army has been training soldiers to win on battlefields around the world while providing quality recreational opportunities for soldiers, their families, employees, and the general public. DC-LTA is consistent with its Army leadership role and has shown that training and recreational opportunities can be achieved simultaneously.

DC-LTA is open to the public for educational and/or recreational use when the activities are compatible with military mission activities. Public access to the DC-LTA is also available on an equitably and impartially bases. In keeping with NDARNG's licenses with the USACE, the general public is prohibited from using DC-LTA for overnight; however, overnight camping is permitted by NDARNG members and their families within the DC-LTA building site area.

* Goal 1. Provide recreational opportunities to the military community and general public.

* Goal 2. Manage outdoor recreation consistent with the needs of the DC-LTA military mission.

* Goal 3. Integrate recreation activities with sensitive species management.

  * Objective 1. Keep recreation areas and activities 100 meters (328 ft) from identified habitat and threatened or endangered species management areas. Post interpretative signs explaining restrictions at developed recreation sites.

  * Objective 2. Maintain recreation areas 100 meters (328 ft) from cultural resources sites.

  * Objective 3. Maintain posted signs at DC-LTA's entrance informing the public of overnight camping restrictions.

4,12.1 Native American Access

Camp Grafton is proud to offer Native American Tribes access to the training lands in order to support religious rites and ceremonies as well as to conduct gathering activities for sacred and/or medicinal plants. Tribal officials are encouraged to access DC-LTA. NDARNG's main concern is safety when these activities are conducted, both for training soldiers and those participating Native Americans. This is consistent with AR 200-1, Section 6-4.c and implements the requirements of American Indian Religious Freedom Act, Executive Order 13007 and 13175.

* Objective.4 Continue NDARNG policies regarding Native American access to DC-LTA.

4.13 Wildland Fire Management

Despite the fact that DC-LTA doesn't have a recognizable history of wildland fires, attention still needs to be given to fire prevention. NDARNG personnel and firefighting equipment aren't stationed at DC-LTA on a full time bases, therefore, training activities shall be limited to those activities which have both a low potential for fire and are listed by Annex B CGTC LTA SOP. These activities include: overnight field training exercises, creating vehicle/individual/crew fighting positions, and tank ditches in designated digging areas, convoy operation training, land navigation, mobility/counter mobility training, and engineer obstacle training. Overnight camping by NDARNG members and their families shall be restricted to the mowed and maintain building cantonment area in order to comply terms of DC-LTA NDARNG license and camp fires will be restricted within the provided fire rings.

Inherently a fire initiated at DC-LTA would unlikely be a threat to the general public. 14 miles of DC-LTA's parameter is bordered by the waters of Lake Sakakawea. The remaining 1.3 miles of the training site is bordered by a wildlife area managed by the NDGF. The narrow 0.3 mile area at DC-LTA entrance will also help to prevent a wildland fire from existing DC-LTA peninsula location. NDARNG was granted approved for an Integrated Wildland Fire Management Plan waiver in 2009.

4.14 Training of Natural Resource Personnel

Table 5, below, displays the NDARNG personnel currently involved with implementing INRMPs at all NDARNG training sites.

Organization/Position	Current manning	Type	Needed to fully implement	Notes
Environmental Office				
Environmental Program Manager	1	FT	1	
Natural Resources Manager	0.5	SE		NR and CR positions combined into one position
Cultural Resources Manager	0.5	SE		
GIS Program staff	1.5	SE	2	GIS personnel include: 0.5 Manager 1 GIS Specialist 0.5 GIS Specialist at training site

Current a staffing shortfall for full implementation results from:

- Authorizations do not match current manning model.
- Required projects currently not implemented due to staff limitations.
- Increased military training and subsequent increased training impacts and natural resource management needs.

- Deployments over the past 6 years have caused decreased overall use leading to reduced funding under the ITAM program.

The above personnel list doesn't include all personnel who have significant roles in implementation of this INRMP.

* **Strategy.** Insure natural NDARNG management activities are incompliance with all federal, state, and local laws and regulations.

  * **Goal.** Manage NDARNG training area in a manner which sustains them for the long term and does not interfere with military training activities.

    * **Objective 1.** Insure natural resource staff have the funding and the opportunity to attend NGB sponsored natural resource training program pertinent to operating DC-LTA.

    * **Objective 2.** Insure natural resource staff has the funding and the opportunity to attend state sponsored regulatory and education natural resource training program pertinent to operating DC-LTA.

    * **Objective 3.** Insure contracted and seasonal personnel are aware of pertinent DC-LTA regulatory and natural resource concerns and issues.

4.15 Leases and Research Projects.

4.15.1 Agency Assistance

Increasing regulatory demands have lead NDARNG to recruit outside assistance in gathering natural resources information and management input for DC-LTA. The assistance provide by outside organizations has yielded benefits particularly in the areas of wildlife research, erosion control, biological surveys, and gathering biological baseline data. The growth of environmental compliance requirements has increased NDARNG's need to expand its partners in other areas, including on-the ground personnel support. NDSU, UND, USACE, NDFS, NDGF are examples of organizations NDARNG has worked with or contracted with to gather resource information pertinent to the management of DC-LTA. NDARNG also as a need to expand its project partnerships with nongovernment organizations, such as: the Nature Conservancy (rare species inventories), National Wild Turkey Federation (turkey stocking), Tall Timbers Research Station (ecosystem research), Institute for Bird Populations (Neotropical bird monitoring), and the Vermont Center for Ecostudies (Grasshopper Sparrows and Upland Sandpipers migratory flight and habitat study)

* Goal 1. Provide research, data support, and survey support for DC-LTA natural resources management and natural resource programs

- Goal 2. Cooperate with Federal, state, and private groups with the expertise to enhance DC-LTA's natural resources programs.

- Objective 1. Use a 4-5 person student conservation association crew to assist with habitat mapping and other management duties.

- Objective 2. Use volunteers as available for project assistance.

- Objective 3. Use military unit support for projects that meet their capabilities and/or training requirements.

- Objective 4. Use USACE laboratory support for research and special projects.

- Objective 5. Utilize universities assistance during implementation of DC-LTA's INRMP.

- Objective 6. Support the NDGF during their efforts to conduct wildlife surveys and update the North Dakota Comprehensive Wildlife Conservation Strategy.

- Objective 7. When possible work with and or support the USACE efforts to survey nesting site on those shoreline areas located adjacent to DC-LTA.

- Objective 8. Continue to look toward new partnerships with nongovernmental organizations.

4.15.2 Habitat and Species-specific Research

- Goal 1. Establish and maintain working partnerships and contractual agreements for research and other coordinated activities with federal and state wildlife and research agencies, cooperative research units, universities, and private research organizations.

- Objective 2. Maintain a mailing list of regional experts and managers with shared interests in natural resources management issues.

- Goal 2. Design research projects to provide habitat management options which can directly support ecosystem management programs.

- Objective 1. Initiate research to assess insect, seed, forage, and cover production potential of natural communities subjected to various land management practices.

- Objective 2. Initiate research to determine the availability and importance of litter to ground nesting birds in areas of different burning regimes.

- Objective 3. Initiate research to assess the ability of birds to relocate and/or re-nest after burning or other habitat alterations. Analyze effects of forced relocation on birds in established territories that are closely tied to habitat research projects.

735
736 * Objective 4. Initiate research to determine the influence of nest predators on grouse
737 productivity.
738
739 **4.15.3 Planned Research and Special Projects**
740
741 **Table 6** below table outlines needed external support projects in three priorities. In the plan
742 period many of these projects will be determined by funding availability. These are described in
743 more detail in appropriate sections of this INRMP.
744

Project	Priority*	Agency	Completion	Comments
Habitat mapping/modeling	1	FWS, NDGF	Indefinite	Ongoing
Wetlands delineation	1	USACE, FWS	Indefinite	As needed
Predation on grouse Productivity	3	NDSU		Planned
Affects of prescribed burns on training lands	3	NDSU		Recommended
Affects of prescribed burns on invasive plants (Kentucky bluegrass)	3	NDSU		Recommended
Affects of prescribed burns on biological controls for leafy spurge	Low priority @ DC-LTA	NDSU		Recommended
Multiyear effects of prescribed burns on ground nesting birds	3	NDSU, USACE		Recommended
Annual Piping Plover nesting survey	1	USACE	Indefinite	Ongoing

745
746 1 Needed as soon as possible for immediate management application.
747 2 Useful for improving management to a significant degree over a long period.
748 3 Has good potential to improve long-term management.

5.0 Implementation & Environmental Compliance

Preparation and implementation of the DC-LTA INRMP is required by the Sikes Act (16 U.S.C. 670a *et seq*.), Department of Defense Instruction 4715.3 (*Environmental Conservation Program*), and Army Regulation 200-1.

The DC-LTA INRMP will help North Dakota Army National Guard comply with other federal and state laws, most notably laws associated with environmental documentation, wetlands, endangered species, water quality, and wildlife management in general. This plan describes how the NDARNG will implement provisions of AR 200-1 and local regulations at the DC-LTA.

This INRMP has the signatory approval of the U.S. Fish and Wildlife Service. This signature approval includes agreement that the INRMP complies with the Endangered Species Act. Review of the INRMP is informal consultation with regard to the Endangered Species Act.

5.1 Summary

The DC-LTA INRMP states how the NDARNG plans to comply with environmental laws, conserve and protect DC-LTA's natural resources, insure NDARNG's favorable relationship with the public, prevent training losses from habitat degradation, and enhance the military mission. This Plan will not resolve all existing and/or future environmental issues. It does, however, provide guidance strategy, personnel, and means to minimize training impacts to the environment and natural resources identified at DC-LTA.

5.2 Achieving No Net Loss

As required by the Sikes Act, this INRMP has been prepared in cooperation with the U.S. Fish & Wildlife Service (FWS) and the North Dakota State Game & Fish Department (NDGF). The completed and approved INRMP exemplifies the cooperative effort and mutual agreement between the NDARNG, FWS and the NDGF addressing the conservation, protection and management of fish and wildlife resources.

The DC-LTA INRMP ensures the " no net loss in the capability of military lands to support the military mission" of the training site has occurred as a result of natural resources management set out in this plan. Specific objectives of management to maintain the training mission capabilities of the site are identified within this plan. This plan will be periodically updated if major addition

NDARNG has however a lease with the USACE which permits to NDARNG to operate and train upon the 730 acres referred to as DC-LTA. NDARNG does its best to comply with the terms of the lease, but all other environmental issues linked to the sharing research information, sharing DC-LTA T&E sighting locations, participation in consultation meetings, and requests for input regarding environmental concerns are conducted without a cooperative agreement between the NDARNG & the USACE.

NDARNG also maintains a good working relationship with the FWS and the NDGF without a cooperative agreement. Again the absence of a cooperative agreement hasn't prevented NDARNG from obtaining valuable input from these agencies and/or their attendance at annual consultation meetings.

Work completed for the NDARNG by agencies such as the North Dakota State University and the University of North Dakota is completed for the NDARNG under the conditions of a contract. Research studies, biological inventories, wildlife surveys, and cultural evaluations are examples of contract work completed at DC-LTA for NDARNG by the North Dakota's Universities.

Finally, NDARNG periodically works with the Mclean County Weed Board and the McLean Soil Conservation District regarding issues related to noxious weed control issues, best management practices for erosion, and seeding recommendations. Services provide via these agencies have been conducted using purchase agreements.

5.3 INRMP Implementation Costs

Implementation of the INRMP will be realized through the accomplishment of specific goals and objectives as measured by the completion of the projects identified in each major section of this plan (See Implementation of LCTA, TM, LRAM, Environmental Awareness, and Ecosystem Management). It should be noted that project implementation dates are estimated and subject to change depending upon funding and staffing availability. The implementation schedules found within this chapter will provide a basis for monitoring and evaluating accomplishments towards reaching the goals.
Estimates of five-year implementation costs for all projects listed in Chapters 3 and 4 are given in Tables 5 and 6. All implementation costs are rough estimates (based on estimated materials and direct costs) and are subject to change. If a contractor completes projects, implementation costs could be much higher due to indirect costs of the contractor, travel, principal investigator expenses, or equipment.

5.4 Funding Options

The following discussion of funding options is not a complete listing of funding sources. In fact, funding sources are continuously changing and the focuses, restrictions, and requirements of funding sources are volatile.

5.4.1 NDARNG Funding

Environmental Program Requirements (EPR) Reports Funds. Funding requirements for Army Environmental Programs (including the natural and cultural resources programs) are identified in the EPR and the reporting process through NGB-ARE. This source provides funding for natural resource planning level surveys, and any compliance-related projects. Estimated needs for Environmental Conservation Funding projects at all of NDARNG training areas can be found at Appendix 3. Estimates will be adjusted each year on an as needed basis.

Integrated Training Area Management (ITAM) funding is through the military training office (NGB-ART), rather than through the environmental program. In addition to maintaining key personnel and natural resources data collection efforts, the ITAM work plan budget will fund a number of projects of major importance to maintaining, preserving and protecting the natural resources at DC-LTA. Estimated needs for ITAM projects at all of NDARNG training areas can be found at Appendix 3. Estimates will be adjusted each year on an as needed basis.

5.4.2 Sikes Act Funding

Cooperative agreements may be entered with States, local governments, nongovernmental organizations, and individuals for the improvement of natural resources or to benefit natural and historical research on state-owned training sites. Funding and services may be contributed on a matching basis to defray the cost of programs, projects, and activities under the agreement (16 U.S.C. 670a et seq.). Because the USFWS and the ND Game and Fish have become cooperating agencies with the ND ARNG, an avenue for matching funds and services with them has been created. Naturally, funding and services by both parties will be subject to the availability of funds and personnel of both parties.

5.4.3 Other Grant Program Funding

In 1990, Congress passed legislation establishing the Legacy Resource Management Program to provide financial assistance to DoD efforts to preserve natural and cultural heritage. The program assists DoD in Legacy Resource Management Program protecting and enhancing resources while supporting military readiness. A Legacy project may involve regional ecosystem management initiatives, habitat preservation efforts, archaeological investigations, invasive species control, and/or monitoring and predicting migratory patterns of birds and animal. Three principles guide the Legacy program: stewardship, leadership, and partnership. Stewardship initiatives assist DoD in safeguarding its irreplaceable resources for future generations. By embracing a leadership role as part of the program, the Department serves as a model for respectful use of natural and cultural resources. Through partnerships, the program strives to access the knowledge and talents of individuals outside of DoD. Projects proposals must be submitted by logging onto the Legacy Tracker Homepage at: http://www.dodlegacy.org.

6.0 Literature Cited

Barbour, M.G., J.H. Burk, and W.D. Pitts. 1987. Terrestrial plant ecology, 2nd Ed. The Benjamin/Cummings Publishing Comp., Inc. Menlo Park, CA. 634 pp.

Bluemle, J.P. 1991. The face of North Dakota revised edition. North Dakota Geological Survey, Bismarck.

Cronquist, A. 1981. An integrated system of classification of flowering plants. Columbia Univ. Press, NY.

Faanes, C.A. and R.E. Stewart. 1982. Checklist of birds in North Dakota (Revised). Prairie Nat. 14 (3):81-92.

Gleason, H.A. and A. Cronquist. 1991. Manual of vascular plants of northeastern United States and adjacent Canada, 2nd Ed. Willard Grant Press, Boston.

Great Plains Flora Association. 1977. Atlas of the flora of the Great Plains. Iowa State University Press, Ames.

Great Plains Flora Association. 1986. Flora of the Great Plains. University Press of Kansas, Lawrence.

Grondahl, C. and K. Martin. 1995. North Dakota endangered and threatened species. North Dakota Game and Fish Department Nongame Program, Bismarck, ND.

Hagen, S., P. Isakson, and S. Dyke. 2005. North Dakota Comprehensive Wildlife Conservation Strategy. North Dakota Game and Fish Department.

Hall, E.R. and K.R. Kelson. 1959. The mammals of North America. Ronald Press, NY. 2 Volumes.

Higgins, K.F. A.D. Kruse, and J.L. Piehl. 1989. Prescribed burning guidelines in the Northern Great Plains. Res. Publ. EC 760. United States Fish and Wildlife Service and Cooperative Extension Service, South Dakota State University. 36 pp.

Hoberg T. and C. Gause. 1992. Reptiles and amphibians of North Dakota. North Dakota Outdoors, North Dakota Game and Fish Department. Bismarck, ND.

Hoganson, J. 1999. 1999 letter report regarding paleontological site report reviews of selected North Dakota Army National Guard tracts. North Dakota Geological Survey, Bismarck, ND.

Jackson et al. 2000. Report in preparation at time of document development.

Jensen, R.E. 1972. Climate of North Dakota. North Dakota National Weather Service, North Dakota State University, Fargo, ND.

Jones, J.K., D.C. Carter, and H.H. Genoways. 1975. Revised checklist of North American mammals north of Mexico. Occas. Papers Mus., Texas Tech University. 28:1-14.

Kinney, W.J., C.M. Kinney, and M.H. Schreiner. 1983. Cultural resource inventory of forty-six proposed seismic test lines in Dunn, McKenzie, McLean, Mercer, Mountrail, and Williams Counties, North Dakota. Historical and Archaeological Surveys, Inc., Mandan, ND. Submitted to the U.S. Army Corps of Engineers, Omaha District.

Küchler, A.W. 1964. Potential natural vegetation of the conterminous United States. American Geographical Society Special Publication 36. Washington, DC.

Larson, T.K., W.J. Kinney, and D.M. Penny. 1993. Report of findings from an intensive cultural resource inventory conducted for the Garrison Rural Water Project, McLean County, North Dakota. Draft Report. Larson-Tibesar Associates, Inc. Laramie, WY. Submitted to KCM, Inc., Grand Forks, ND.

Lueck, E.J., K. Lippincott, R.P. Winham, and L.A. Hannus. 1992. Cultural resource reconnaissance of U.S. Army Corps of Engineers Land alongside Lake Sakakawea and Audubon Lake in McLean County, North Dakota. Vol 1. Archeological Contact Series Number 58. Archeology Laboratory, Augustana College, Sioux Falls, SD. Submitted to the U.S. Army Corps of Engineers, Omaha District.

Miller, G.S. Jr. and R. Kellog. 1955. List of North American recent mammals. Bull. U.S. Nat. Hist. Mus. 205:1-350.

Molyneaux, B.L., N. Hodgson, E. Rameriz, S. Spars, D. Hiemstra, and R. Maiwad. 1996. National register testing at Sites 32ML229, 32ML237, 32ML239, and 32ML243 at the National Guard Recreation Area, Lake Sakakawea, McLean County, North Dakota. Archeology Laboratory, University of South Dakota, Vermillion. Submitted to the U.S. Army Corps of Engineers, Omaha District.

NDAWN. 2007. North Dakota Agricultural Weather Network. North Dakota Agricultural Research Station, North Dakota State University, Fargo. http://ndawn.ndsu.nodak.edu/

North Dakota Game and Fish Department. 1995. Birds of North Dakota Field Checklist. North Dakota Game and Fish Dept. Nongame Program, Bismarck, ND.

North Dakota Army National Guard. 2000. Pers. Comm.

Robson, L.G. 1979a. Letter report regarding National Guard construction (License No. DA-32-015-CIVENG-58-8). McLean County, North Dakota.

Robson, L.G. 1979b. Letter report regarding National Guard loading ramp (License No. DA-32-015-CIVENG-58-8). McLean County, North Dakota.

Seabloom, R.W., R.D. Crawford, and M.G. McKenna. 1978. Vertebrates of southwestern North Dakota: amphibians, reptiles, birds, mammals. Rept. 78 - 4, North Dakota Regional Environmental Assessment Program, Bismarck, ND. xiv+1-549.

Simpson, G.G. 1945. The principles of classification and a classification of mammals. Bull. Am. Mus. Nat. Hist. 85:1-350.

Stevens, O.A. 1963. Handbook of North Dakota plants. North Dakota Institute for Regional Studies, North Dakota State University, Fargo.

Stewart, R.E. and H.A. Kantrud. 1971. Classification of natural ponds and lakes in the glaciated prairie region. United States Fish and Wildlife Service, US Dept. of Inter. Res. Publ. 92. Washington DC.

Stine, E. and A. Kulevsky. 1994. Garrison Wets, McLean County, North Dakota: test excavations of twelve sites. Metcalf Archaeological Consultants, Inc., Bismarck, ND. Submitted to the North Dakota Army National Guard, Bismarck.

Tazik, D.J., S.D. Warren, V.E. Diersing, R.B. Shaw, R.J. Brozka, C.F. Bagley, and W.R. Whitworth. 1992. U.S. Army land condition-trend analysis (LCTA) plot inventory field methods. USACERL Technical Report N-92/03.

U.S. Dept. of Interior, Fish and Wildlife Service. 1973. Threatened wildlife of the United States. Resource Publication 114. 289pp.

U.S. Dept. of Interior, Fish and Wildlife Service. 1995. North Dakota's federally listed endangered, threatened, and candidate species. United States Fish and Wildlife Service, Bismarck, ND.

USDA Natural Resources Conservation Service. 2007. Updated soils survey of Williams county, North Dakota. Field Office Technical Guide (FOTG), North Dakota. http://nrcs.usda.gov/technical/efotg/

Wiehe, J.M. and J.F. Cassel. 1978. Checklist of North Dakota mammals (Revised). Prairie Nat. 10: 81-88.

Williams, R.P. 1979. Vascular flora of south central North Dakota. Ph.D. dissertation. North Dakota State University, Fargo.

Appendix 1- List of Acronyms used in the Integrated Natural Resources Management Plan (INRMP).

A - Acre
Ac - Acre
AHPD - Archeology and Historic Preservation Division
AR - Army Regulations
ARNG - Army National Guard
AUM - Animal Unit Month
BASH - Bird Aircraft Strike Hazard
BMP - Best Management Practices
C - Cover
CFR - Code of Federal Regulations
CGN - Camp Grafton (North Unit)
CGS - Camp Grafton (South Unit)
CGTC - Camp Grafton Training Center
CRM - Cultural Resource Manager
CTT - Common Tasks Training
CWCS -Comprehensive Wildlife Conservation Strategy
DC-LTA - Douglas Creek Local Training Area
DoD - Department of Defense
EA - Environmental Awareness
ECAS - Environment Compliance Assessment System
EMS - Environmental Management System
EPR - Environmental Program Requirements
ESA - Endangered Species Act
ES - State Employee
FT - Federal Technician
FWS - Fish and Wildlife Service
GPS - Global Positioning System
GTA - Garrison Training Area
HEL - Highly Erodible Lands
I - Soil Erodibility Index
ICRMP - Integrated Cultural Resources Management Plan
IAP - Installation Action Plan
ILE - Installation Logistics & Environment
INRMP - Integrated Natural Resource Management Plan
IPMP - Integrated Pest Management Plan
IRE - Division of Installations, Resources and Environment
ITAM - Integrated Training Area Management
K - Soil Texture or Erodibility

LCTA - Land Condition Trend Analysis
LS - Length of Slope
MTA - Major Training Area
METL - Mission Essential Task Listing
MACOM - Major Army Command
NDNG - North Dakota National Guard
NDARNG - North Dakota Army National Guard
NDGF - North Dakota Game and Fish Department
NDSHPO - North Dakota State Historical Preservation Office
NDFS - North Dakota Forest Service
NDSU - North Dakota State University
NEPA - National Environmental Policy Act
NRCS - Natural Resources Conservation Service
NRHP - National Register of Historic Places
ORV - Off-road vehicles
P - Special Practices
PLS - Pure Live Seed
R - Rainfall
RCMP - Range Complex Master Plan
RFMSS - Range Facility Management Support System
RPDP - Real Property Development Plan
RTLA - Range and Training Land Assessment
RTLP - Range and Training Land Program
SHSND - State Historical Society of North Dakota
SoCP - Species of Conservation Priority
SOP - Standard Operating Procedures
SRP - Site Rehabilitation Prioritization
SRP - Sustainable Range Program
T - Soil Erosion Tolerance
TES - Threatened and Endangered Species
TREC - Training Record of Environmental Consideration
TSES - Training Site Environmental Specialist
TRI - Training Requirements Integration
UND - University of North Dakota
USACE - United States Army Corps of Engineer
USFWS - United States Fish and Wildlife Service
USGS - Unites States Geological Survey
WaEI - Water Erosion Index
WiEI - Wind Erosion Index

	Appendix 2	2014-2018 NDNG INRMP Project Schedule for all NDARNG Training Sites					
			Funding Requirments				
	Projects titles:	Project Discription	2014	2015	2016	2017	2018
1	Salaries	Employee salary and benefits for a Natural Resources Manager and Training Site Environmental Specialist. Funding is used for two full time equivalent employees as authorized by state personnel agency. Costs are recurring, and anticipated to rise at no more than 5%/year.	$161,900	$166,000	$170,200	$174,500	$178,900
2	Mission Travel	Costs associated with travel to support mission requirements	$12,000	$15,000	$15,000	$15,000	$15,000
3	INRMP Implementation	Expenses linked to implymenting the INRMP and supporting natural resources stewardship activities and projects.	$50,000	$50,000	$50,000	$50,000	$50,000
4	Salaries -Contractor & Intern	Salary for contractor/intern associated with natural resource management projects.	$15,000	$15,000	$15,000	$15,000	$15,000
6	Environmental Staff Training	Costs associated with training environmental staff in natural resource management practices.	$17,500	$17,500	$17,500	$17,500	$17,500
7	Ground Water Studies & Monitoring Camp Grafton South Project	Conduct annual and periodic surveys of surface and ground waters at Camp Grafton South to determine the presence of contaminants that can be traced back to NDNG range operations, pesticide applications and/or training.	$3,500	$3,500	$3,500	$3,500	$48,000
8	Gis Coordinator/Analyst	Salaries, benefits, and training for GIS technical staff members tasked with managing and updating special data required by the natural resource program.	$51,400	$52,600	$52,800	$55,100	$56,400

	Appendix 2	2014-2018 NDNG INRMP Project Schedule for all NDARNG Training Sites					
			Funding Requirments				
	Projects titles:	Project Discription	2014	2015	2016	2017	2018
9	GIS data development	Costs associated with procuring spatial data, upgrading hardware and software GIS equipment, and obtaining reproduction materials.	$3,900	$8,000	$4,200	$8,500	$15,000
11	Environmental Awareness Training	Produce environmental awareness products (DVDs, videos, & posters) for the purpose of conducting installation environmental awarness training, and/or public outreach.	$10,000	$20,000	$10,000	$20,000	$10,000
13	Follow-up Invertebrate Surveys for the Dakota Skipper Camp Grafton South and Douglas Creek Local Training Area Project	Follow-up Invertebrate Surveys for the Dakota Skipper @ Camp Grafton South and Douglas Creek Training Area		$20,000			
`14	Fauna, and flora surveys & monitoring at CGS, CGN, and DC-LTA	Conduct surveys	$3,000	$3,000	$53,000	$53,000	$53,000
15	Survey Wetlands at CGN & CGS	Map CGS and CGN wetlands via areial photography and ground level vegetative and soil verification efforts.				$30,000	$50,000
16	Total per year		$328,200	$370,600	$391,200	$442,100	$508,800
17		Total over 5 years =	$2,040,900				

Appendix 3. NDARNG INRMP Projects List for Camp Grafton South, Camp Grafton North and Douglas Creek Local Training Area.

Planned INRMP projects within this appendix are summarized by general topics (for example, Land Management, Wetlands Management, Pest Management, Endangered Species Management). Individual 'must fund' and other planned projects within each of these general topics are budget items entered into the STEP budget system. Individual projects are described in a standard format to facilitate input into the STEP system and provide a means of monitoring overall INRMP implementation. Project format is as follows:

Project: Title
Description: A brief summary of the planned action.
Driver: A driver identifies a need to be satisfied in order for the mission to continue without disruption. Management drivers are installation unique and are defined by the mission, land uses to support the mission, and natural resources affected by the mission. Drivers often include compliance with laws and regulations. Military regulatory requirements are not included in driver descriptions since virtually all drivers are tied to general Department of Defense instructions and/or Department of the Army Orders.
Implementation Timeframes: Calendar year the project is planned to be executed. Some projects are ongoing or as-needed.
Required Funding: Funds required by fiscal year, budget classification and general source of funding or operations budget (BOS).
Regulatory Approvals Required: Used if projects are legally required to have some form of coordination, consultation, or permitting from an outside agency.
Project Implementation Vehicle: Generally either in-house or contract with the understanding that even contract projects require in-house support/monitoring.
Priority: A priority system for ranking projects within this INRMP.
Success Monitoring: Quantitative or qualitative means used to determine how well the project is meeting the purposes of the INRMP and the military readiness mission.

Each general section has an objective(s). Under each objective is a list of projects in the above format. Projects for each objective are grouped as either "must fund projects" or "other planned projects." Must fund projects are either budget class 0 or 1; other planned projects are either budget class 2 or 3.

DoD Instruction 4715.3 describes funding classifications that pertain to "must fund" projects (Class 0 and Class 1) and other planned projects that are not required to meet INRMP implementation status (Class 2 and Class 3).

Description of Required Funding Priorities.

Class 0, Recurring Natural and Cultural Resources Conservation Requirements "Federal and State laws, regulations, Presidential Executive orders, and DoD policies" shall also include actions necessary to rehabilitate or prevent resources degradation that may affect military readiness.

Class 1, Current Compliance shall contain requirements to managed federally listed threatened or endangered species. Class 1 includes projects needed because an installation is currently out of compliance.

Class 2, Maintenance Requirements shall include those projects that are not currently out of compliance but shall be out of compliance (with applicable laws, regulations, standards, Executive Orders, or DoD Policy) if projects are not implemented in time to meet an established deadline beyond the current program year.

Class 3, Enhancement Actions Beyond Compliance shall include projects that enhance conservation resources or the integrity of the installation mission, or are needed to address overall environmental goals and objectives, but are not specifically required under regulation or executive order and are not of an immediate nature.

FY	Local Priority	Standard Practice Category	Project Title	Funding Priority	Cost ($000)
14	1	PR&IA	Salaries – Civilian employees	0H	161.9
14	2	GIS	GIS Coordinator/Analyst	OH	51
14	3	Admin	Mission travel	0H	12
14	4	RE&T	Environmental Staff Training	0H	17.5
14	5	ONRM	Groundwater Studies	0H	3.5
14	6	INRM	INRMP Project Implementation	0H	35
14	7	GIS	GIS equipment, supplies, and data development for Conservation	0H	8
14	8	PR&IA	Salaries – Contractor/intern	0H	15
14	9	ONRM	Fauna & Flora Surveys / Up-dates	1H	3

FY	Local Priority	Standard Practice Category	Project Title	Funding Priority	Cost ($000)
15	1	PR&IA	Salaries – Civilian employees	0H	166
15	2	GIS	Salary GIS Coordinator	0H	52
15	3	Admin	Mission travel	0H	12
15	7	ONRM	Groundwater Studies	0H	3.5
15	8	INRM	INRMP Project Implementation	0H	50
15	9	SRA	Conduct SRA Training	0H	1.5
15	5	RE&T	Environmental Staff Training	0H	17.5
15	12	GIS	GIS equipment, supplies, and data development for Conservation	0H	8
15	10	ONRM	Invertebrate Survey CGS	1H	20
15	4	PR&IA	Salaries – Contractor/intern	0H	5
15	11	ONRM	Fauna & Flora Surveys / Up-dates	1H	3

FY	Local Priority	Standard Practice Category	Project Title	Funding Priority	Cost ($000)
16	1	PR&IA	Salaries – Civilian employees	0H	170.2
16	2	GIS	GIS Coordinator/Analyst	0H	52.8
16	3	Admin	Mission travel	0H	15
16	4	PR&IA	Salaries – Contractor/intern	0H	15
16	5	INRM	INRMP Project Implementation	0H	50
16	6	RE&T	Environmental Staff Training	0H	17.5
16	7	ONRM	Fauna & Flora Surveys / Up-dates	1H	3
16	8	ONRM	Groundwater Studies	0H	3.5
16	9	GIS	GIS equipment, supplies, and data development for Conservation	0H	8

FY	Local Priority	Standard Practice Category	Project Title	Funding Priority	Cost ($000)
17	1	PR&IA	Salaries – Civilian employees	0H	174.5
17	2	GIS	GIS Coordinator/Analyst	0H	55.1
17	3	Admin	Mission travel	0H	15
17	4	PR&IA	Salaries – Contractor/intern	0H	15
17	5	RE&T	Environmental Staff Training	0H	17.5
17	6	INRM	INRMP Project Implementation	0H	50
17	7	SRA	Conduct SRA Training	0H	1.5
17	9	ONRM	Fauna & Flora Surveys / Up-dates	1H	53
17	10	ONRM	Wetland Survey	1H	30
17	11	ONRM	Groundwater Studies (CWA)	0H	3.5
17	12	GIS	GIS equipment, supplies, and data development for Conservation	0H	15

FY	Local Priority	Standard Practice Category	Project Title	Funding Priority	Cost ($000)
18	1	PR&IA	Salaries – Civilian employees	0H	178.9.5
18	2	GIS	GIS Coordinator/Analyst	0H	56.4
18	3	Admin	Mission travel	0H	15
18	4	RE&T	Environmental Staff Training	0H	17.5
18	5	PR&IA	Salaries – Contractor/intern	0H	15
18	6	INRM	INRMP Project Implementation	0H	50
18	7	ONRM	Groundwater Studies	0H	48
18	8	ONRM	Fauna & Flora Surveys / Up-dates	1H	53
18	9	ONRM	Wetland Survey	1H	30
18	10	GIS	GIS equipment, supplies, and data development for Conservation	0H	15

Project: Salaries – Civilian employees
Description: Employee salary and benefits for a Natural Resources Manager, Training Site Environmental Specialist . Funding is used for two full time equivalent employees as authorized by state personnel agency. Costs are recurring, and anticipated to rise at no more than 5%/year.
Driver: AR 200-1; Comply with various natural resources-related laws to allow completion of the military mission and operate a natural resources management program to maintain fully functioning native ecosystems that can support military training activities.
Implementation Timeframes: Annual requirement.
Required Funding: FY14, $161,900, Class 0H, Environmental funding. FY15, $166,000; FY16, $170,200; FY17, $174,500; FY18, $178,00.
Regulatory Approvals Required: None
Project Implementation Vehicle: In-house through hiring of state employees.
Priority: 0H
Success Monitoring: There is adequate staffing to ensure that sufficient numbers of professionally trained natural resources management staff are available to perform the tasks required by the INRMP.

Project: Mission travel
Description: Costs associated with travel to support mission requirements.
Driver: AR 200-1; Understand requirements to comply with various natural resources-related laws in order to allow completion of the military mission and manage an effective, efficient natural resources management program to support the military mission.
Implementation Timeframes: Annual requirement.
Required Funding: FY14, $12000, FY 15 $15,000, FY 16 $15,000, FY 17 $15,000, FY 18 $15,000 Class 0H, Environmental funding.
Regulatory Approvals Required: None.
Project Implementation Vehicle: In house
Priority: 0H
Success Monitoring: There is adequate training to ensure that sufficient numbers of professionally trained natural resources management staff are available to perform the tasks required by this INRMP.

Project: INRMP Implementation
Description: Costs associated with monitoring efforts, studies, and efforts necessary to guide management decisions and activities that will sustain natural resources associated with NDARNG's training sites.
Driver: SIKES Act, AR 200-1; Comply with various natural resources-related laws to allow completion of the military mission and operate a natural resources management program to maintain fully functioning native ecosystems that can support military training activities.
Implementation Timeframes: Annual requirement.
Required Funding: FY14 $35,000, FY15 $50,000, FY16 $50,000 FY17$50,000, FY18 $50,000, 3H, Environmental funding.
Regulatory Approvals Required: None
Project Implementation Vehicle: Contract.
Priority: 0H

Success Monitoring: Natural resource documentation with measurable changes, reports of notable impacts, and evaluations regarding biological issues that may guide NDARNG resource management decisions.

Project: Salary – Contractor/intern
Description: Salary for contractor/intern associated with natural resource management projects.
Driver: AR 200-1; Comply with various natural resources-related laws to allow completion of the military mission and operate a natural resources management program to maintain fully functioning native ecosystems that can support military training activities.
Implementation Timeframes: Annual requirement.
Required Funding: FY14 $15,000, FY15 $15,000, FY16 $15,000, FY17 $15,000, FY18 $15,000, Class 0H, Environmental funding.
Regulatory Approvals Required: None.
Project Implementation Vehicle: Contract.
Priority: 0H
Success Monitoring: There is adequate staffing to ensure that sufficient numbers of professionally trained natural resources management staff are available to perform the tasks required by the INRMP.

Project: Environmental Staff Training
Description: Costs associated with training environmental staff in natural resource management practices.
Driver: AR 200-1, SIKES Act; Understand requirements to comply with various natural resources-related laws in order to allow completion of the military mission and manage an effective, efficient natural resources management program to support the military mission.
Implementation Timeframes: Annual requirement.
Required Funding: FY14 $17500, FY15 $17500, FY16 $17500, FY17 $17500, FY18 $17500, 0H, Environmental funding.
Regulatory Approvals Required: None.
Project Implementation Vehicle:
Priority: 0H
Success Monitoring: There is adequate training to ensure that sufficient numbers of professionally trained natural resources management staff are available to perform the tasks required by this INRMP.

Project: Groundwater studies
Description: Conduct annual and periodic water surveys of surface and ground waters at Camp Grafton South to determine the presence of contaminants that can be directly traced back to military activities such as range operations, pesticide operations and/or training.
Driver: CWA, SIKES Act, NEPA, AR 200-1; Provide data to analyze planned mission and mission support projects and to provide information needed to manage for naturally functioning ecosystems to support the military mission.
Implementation Timeframes: Annual requirement.
Required Funding: FY14, $3500, 3H, Environmental funding. FY 15, $3500; FY16, $3500; FY17, $3500, FY18, $48,000.

Regulatory Approvals Required: None.
Project Implementation Vehicle: Contract.
Priority: 0H
Success Monitoring: Delivery of water quality report that is provides analysis of changes and an initial evaluation of the causes of changes in water quality parameters.

Project: GIS Coordinator/Analyst
Description: Employee salary and benefits for a training site GIS technician. Funding may be used for one-half full time equivalent employee if hiring is authorized by state personnel agency or to contract services on an as needed basis for up to 9 months per year. Costs are recurring, and anticipated to rise at no more than 5%/year.
Driver: SIKES Act; Comply with various natural resources-related laws to allow completion of the military mission and operate a natural resources management program to maintain fully functioning native ecosystems that can support military training activities.
Implementation Timeframes: Annual requirement.
Required Funding: FY14, $51,400, Class A,. Subsequent years: FY15, $52,600; FY16, $52,800; FY17, $55,100; FY18, $56,400.
Regulatory Approvals Required: None.
Project Implementation Vehicle: In-house state employee salary or contract, depending upon convenience to the State.
Priority: 0H
Success Monitoring: There is adequate staffing to ensure that sufficient numbers of professionally trained natural resources management staff are available to perform the tasks required by the INRMP.

Project: Spatial Data Development for Conservation
Description: Costs associated with procurement of spatial data, development of data sources/resources, integration of data into existing geodatabases and other functions of the enterprise GIS program.
Driver: Provide data to analyze planned mission and mission support projects and to provide information needed to manage for naturally functioning ecosystems to support the military mission.
Implementation Timeframes: Annual requirement.
Required Funding: FY14 $3900, 0H, Environmental funding. FY15 $8000; FY16 $4.200; FY17 $8,500, $; FY18 $15000.
Regulatory Approvals Required: None.
Project Implementation Vehicle: Contract.
Priority: 0H
Success Monitoring: Delivery of GIS database and analysis report, spatial data, or other information that is compatible with current databases and is necessary to provide analysis of changes over time.

Project: SRA Training/Environmental Awareness
Description: Create printed material for soldiers and leaders discussing natural and cultural resources protection at all NDARNG training sites.

Driver: AR 200-1; SIKES Act; NHPA; Understand requirements to comply with various natural resources-related laws in order to allow completion of the military mission and manage an effective, efficient natural resources management program to support the military mission.
Implementation Timeframes: CY11. Project is ongoing and recurs when supplies are exhausted.
Required Funding: FY15 $20,00, FY 2017 $20,000. Future years costs not anticipated to exceed $4000 per printing.
Regulatory Approvals Required: None.
Project Implementation Vehicle: In house or contract.
Priority: 0H
Success Monitoring: There are adequate supplies of printed materials on hand for distribution to training site users in support of tasks required by the INRMP.

Project: Conduct invertebrate study of DC-LTA & CGS
Description: Project necessary to obtain baseline data of invertebrates inhabiting the DC-LTA & CGS.
Driver: EO 13112, SIKES Act, Conduct invertebrates survey for use with determining if invertebrates listed on future T&E listings may be located at DC-LTA and management effort NDARNG can take to avoid negatively impacting eligible listed T&E invertebrate species. Information also necessary to avoid damaging vegetation that could be associated with non-compliance with natural resources management laws (CWA, ESA, etc.), or NDARNG capability to train on identified lands.
Implementation Timeframes: Annual requirement.
Required Funding: FY15, $20000, BOS. Anticipated costs not to exceed $35000 annually.
Regulatory Approvals Required: None.
Project Implementation Vehicle: Contract.
Priority: 1H
Success Monitoring: Monitoring occurs by 1) site visits, 2) repeated assessments of native ecosystem functionality, 3) initiation of any appropriate restoration, 4) consistent quality assurance and 5) conducting any appropriate regulatory consultations.

Project: Fauna & Flora studies at CGS, CGN, and DC-LTA
Description: Project necessary to up-date data the status birds & mammals once reported on NDARNG training area and currently being considered for T &E listing. Funding would verify their status also assist with mapping out the location of vegetative plant species thought to be necessary for invertebrate species identified at CGS & DC-LTA.
Driver: EO 13112, SIKES Act, Conduct fauna and flora surveys for use with determining if birds, bats, and plants that support invertebrates listed on future T&E listings may be located, so management adaptation can be implemented and NDARNG training can avoid negatively impacting eligible listed T&E invertebrate species. Information also necessary to avoid damaging vegetation that could be associated with non-compliance with natural resources management laws (CWA, ESA, etc.), that my impact NDARNG training on identified lands.
Implementation Timeframes: Annual requirement.
Required Funding: FY14, $3000, FY 15 $3000, FY 16 $53,000 FY 17 $53,000 FY 18 $53,000 BOS. Anticipated costs not to exceed $53,000 annually.
Regulatory Approvals Required: None.

Project Implementation Vehicle: Contract.
Priority: 1H
Success Monitoring: Monitoring occurs by 1) site visits, 2) repeated assessments of native ecosystem functionality, 3) initiation of any appropriate restoration, 4) consistent quality assurance and 5) conducting any appropriate regulatory consultations.

Project: Conduct Wetland Survey @ CGN & CGS
Description: Project necessary to verify wetlands and obtain electronic coordinates / GIS data for wetland areas.
Driver: EO 13112, Clean Water Act, Conduct planning level surveys. Information is necessary to adequate address wetland compliance and to avoid damaging jurisdictional wetland and FWS easement wetlands. Not completing this project may lead to non-compliance with natural resources management laws (CWA, ESA, etc.), may impact NDARNG training on identified lands.
Implementation Timeframes: Annual requirement.
Required Funding: FY 17 $30,000 FY 18 $50,000 BOS. Anticipated costs not to exceed $55,000 annually.
Regulatory Approvals Required: None.
Project Implementation Vehicle: Contract.
Priority: 1H
Success Monitoring: Monitoring occurs by 1) site visits, 2) repeated assessments of native ecosystem functionality, 3) initiation of any appropriate restoration, 4) consistent quality assurance and 5) conducting any appropriate regulatory consultations.

Appendix 4

Resource Inventories

Appendix 4A: Water erosion prediction factors and soils of the Douglas Creek Local Training Area (Soil Survey Staff, Natural Resource Conservation Service 2000).

Soil Name[3]	Map[1] Symbol	Surface[2] Texture	Slope (%)	K	R	LS	Potential Soil Loss (Tons/ac/yr)
Bowbells	BoA	L	1-3	0.24	50	0.418	1.0
Gravel Pit	GP	Gravel	0.10	0.28	50	0.823	7.0
Max-Zahl	MlC	L	6-9	0.28	50	1.436	4.0
Max-Zahl	MlD	L	9-15	0.28	50	1.659	6.0
Regent	RgC	SiCL	3-9	0.37	50	1.436	4.0
Water	W	SiCL	0-1	0.24	50	0.105	1.0
Williams-Bowbells	WoB	L	3-6	0.28	50	0.823	1.0
Zahl-Cabba	ZcE	Complex	15-35	0.28	50	6.585	12.0
Zahl-Max	ZmE	L	9-35	0.28	50	5.890	12.0
Zahl-Williams	ZwC	L	3-9	0.28	50	2.886	8.0

[1] Abbreviations for each column and definition include K=soil erodibility factor; R=rainfall factor; LS=length slope factor.

[2] Surface texture abbreviations and definition include S=sandy, sands; L=loamy, loam; Si=silty, silt; C=clayey, clay; Sa=Saline.

[3] C (Cropping Management Factor) is 0.04 for all soils, P (Support Practice Factor) is 1 for all soils.

Appendix 4B: Wind erosion prediction factors and soils of the Douglas Creek Local Training Area (Soil Survey Staff, Natural Resource Conservation Service 2000).

Soil Name[3]	Map[1] Symbol	Surface[2] Texture	Slope (%)	I	T	Potential Soil Loss (Tons/ac/yr)
Bowbells	BoA	L	1-3	48	5	3.0
Gravel Pit	GP	Gravel		86	5	3.0
Max-Zahl	MlC	L	6-9	48	5	2.0
Max-Zahl	MlD	L	9-15	48	5	2.0
Regent	RgC	SiCL	3-9	38	3	2.0
Water	W	SiCL	0-1	38	5	2.0
Williams-Bowbells	WoB	L	3-6	48	5	3.0
Zahl-Cabba	ZcE	Complex	15-35	86	5	4.0
Zahl-Max	ZmE	L	9-35	86	5	4.0
Zahl-Williams	ZwC	L	3-9	86	5	3.0

[1] Abbreviations for each column and definition include T= Soil erosion tolerance; I=Soil erodibility index.

[2] Surface texture abbreviations and definition include S=sandy, sands; L=loamy, loam; Si=silty, silt; C=clayey, clay; Sa = Saline.

[3] C (Cropping Management Factor) is 0.04 for all soils, P (Support Practice Factor) is 1 for all soils.

Appendix 4C: Soil erosion potential (highly erodible if index greater than 8) for water (WaEI) and wind (WiEI) and those soils that are classified as HEL by soil types at the Douglas Creek Local Training Area (Soil Survey Staff, Natural Resource Conservation Service 2000).

Soil Name[3]	Map[1] Number	Surface[2] Texture	Slope (%)	WaEI		WiEI	HEL
Bowbells	BoA	L	1-3	1.003	0.384		
Gravel Pit	GP	Gravel		2.304	0.688		
Max-Zahl	MlC	L	6-9	4.021	0.384		
Max-Zahl	MlD	L	9-15	4.645	0.384		
Regent	RgC	SiCL	3-9	5.313	0.304		
Water	W	SiCL	0-1	0.252	0.304		
Williams-Bowbells	WoB	L	3-6	2.304	0.384		
Zahl-Cabba	ZcE	Complex	15-35	18.438	0.688	X	
Zahl-Max	ZmE	L	9-35	16.492	0.688	X	
Zahl-Williams	ZwC	L	3-9	8.080	0.688	X	

[1] Abbreviations for each column and definition include WaEI=Water erodibility index; WiEI =Wind erodibility index; HEL=highly erodible level soils.

[2] Surface texture abbreviations and definition include S=sandy, sands; L=loamy, loam; Si=silty, silt; C=clayey, clay; Sa=Saline.

[3] C (Cropping Management Factor) is 0.04 for all soils, P (Support Practice Factor) is 1 for all soils.

Appendix 4D: Checklist of vascular plants surveyed on the Douglas Creek Local Training Area in 1999.

EQUISETACEAE (Horsetail Family)

Equisetum laevigatum A. Br. (smooth scouring rush)
Occasional, on sandy shorelines, sedge meadows, low prairie, roadside ditches, and other moist disturbed areas. Sporangiophores present June to August.

PINACEAE (Pine Family)

Pinus ponderosa Laws. (ponderosa pine)
Rare, found in plantings south. Cones present May through June.

RANUNCULACEAE (Buttercup Family)

Anemone canadensis L. (meadow anemone)
Common, in prairie, woodland edges, and roadside ditches. Flowers June through July.
Anemone patens L. (pasque flower)
Common, in prairie. Flowers mid April through May.

POLYGONACEAE (Buckwheat Family)

Polygonum amphibium L. var. *stipulaceum* Colem. (water smartweed)
Occasional, on the muddy shorelines of ponds and lakes, floating or emerged on ponds, lakes, or streams. Flowers late July through August.

VIOLACEAE (Violet Family)

Viola nuttallii Pursh. (Nuttall's violet or yellow prairie violet)
Common, on prairie. Flowers mid May to early June.

BRASSICACEAE (Mustard Family)

Erysimum asperum (Nutt.) DC. (western wallflower)
Common, on prairie, on rocky, sandy, well-drained soil. Flowers throughout June.

ROSACEAE (Rose Family)

Amelanchier alnifolia Nutt. (Saskatoon service-berry, Juneberry)
Common, woodland edges, and in woodlands around lakes, ponds, and wet meadows. Flowers early May to early June.

Appendix 4D. Continue

Crataegus rotundifolia Moench. (northern hawthorn)
Common, woodland edges. Flowers late May to mid-June.
Geum triflorum Pursh. (torch flower)
Common, on prairie. Flowers mid May to mid June.
Potentilla arguta Pursh. (tall cinquefoil)
Common, on prairie in sandy, rocky, or silty soil. Flowers late June through August.
Potentilla norvegica L. (Norwegian cinquefoil)
Common, on the wet shores surrounding lakes and ponds, and in wet roadside ditches, and along the banks of small springs. Flowers late June to mid August.
Prunus virginiana L. (choke cherry)
Common, in lakeside woodlands. Flowers late May through June.
Rosa arkansana Porter. (prairie wild rose)
Common, along roadsides, on prairie. Flowers mid June through July.
Rubus idaeus L. subsp. *sachalinensis* (Levl.) Focke. var. *sachalinensis* (red raspberry)
Occasional, in wooded areas surrounding lakes and ponds. Flowers June to mid July.

FABACEAE (Bean Family)

Amorpha canescens Pursh. (lead plant)
Common, on prairie. Flowers throughout July.
Amorpha fruiticosa (L.). (false indigo)
Occasional, on prairie. Flowers May through July.
Astragalus crassicarpus Nutt. var. *crassicarpus* (ground plum)
Common, on prairie. Flowers mid May to mid June.
Dalea purpurea Vent. (purple prairie clover)
Common, on prairie. Flowers late June through August.
Glycyrrhiza lepidota Pursh. (wild licorice)
Common, on moist low prairie and moist roadside ditches, along the margins of lakes and ponds. Flowers late June through August.
Melilotus officinalis (L.) Pall. (yellow sweet clover)
Common, on roadsides, open prairie, and disturbed areas. Flowers mid June to early September.
Psoralea argophylla Pursh. (silver-leaf scurf pea)
Common, on prairie. Flowers early July through August.
Psoralea esculenta Pursh. (breadroot scurf pea, prairie-turnip)
Common, on prairie. Flowers early June to mid July.
Trifolium repens L. (white clover)
Common, in the disturbed understory of woodlands, roadside ditches, drainage trenches, and lake and pond shorelines. Flowers June through August.

Appendix 4D. Continue

Vicia americana Muhl ex Willd. var. *minor* Hook. (American vetch)
Occasional, on prairie. Flowers late May through June.

ELAEAGNACEAE (Oleaster Family)

Elaeagnus angustifolia L. (Russian olive)
Occasional, in wet meadows and the shorelines of lakes and ponds. Flowers mid June to early July.
Elaeagnus commutata Bernh. (silverberry)
Common, on prairie. Flowers late May to early July.

ONAGRACEAE (Evening Primrose Family)

Oenothera villosa Thunb. (common evening primrose)
Occasional, on prairie, roadsides, and the dry sandy shorelines of lakes. Flowers mid July to mid August.

SANTALACEAE (Sandalwood Family)

Comandra umbellata (L.) Nutt. subsp. *pallida* (A. DC.) Piehl. (bastard toadflax)
Occasional, on prairie; often in sandy and rocky soil. Flowers late May to early July.
Comandra umbellata (L.) Nutt. subsp. *umbellata* (bastard toadflax)
Occasional, on prairie. Flowers late May to early July.

EUPHORBIACEAE (Spurge Family)

Euphorbia esula L. (leafy spurge)
Occasional, on prairie and a variety of other disturbed and undisturbed areas. Flowers June through August.

LINACEAE (Flax Family)

Linum sulcatum Ridd. (grooved flax)
Common, on prairie, often in rocky soil. Flowers June to mid August.

POLYGALACEAE (Milkwort Family)

Polygala alba Nutt. (white milkwort)
Occasional, on prairie. Flowers mid June through August.

Appendix 4D. Continue

Polygala verticillata L. var. *isocycla* Fern. (whorled milkwort)
Occasional, on slightly brushy prairie areas, low prairie, and other areas that have thick grass cover. Flowers late June to late August.

ANACARDIACEAE (Cashew Family)

Toxicodendron rydbergii (Small) Greene (poison ivy)
Occasional, in the understory of woodlands, woodland edges, and roadside ditches with thick grass cover. Flowers June to early July.

OXALIDACEAE (Wood Sorrel Family)

Oxalis stricta L. (yellow wood sorrel)
Occasional, in lakeside woodlands, and upland woodlands. Flowers mid June to mid August.

APIACEAE (Parsley Family)

Lomatium foeniculaceum (Nutt.) Coult. & Rose. var. *foeniculaceum* (wild parsley)
Occasional, on dry prairie in rocky soil. Flowers May to early June.

APOCYNACEAE (Dogbane Family)

Apocynum cannabinum L. (Indian hemp dogbane, prairie dogbane)
Occasional, in woodlands surrounding lakes and ponds and shrubby low prairie. Flowers throughout July.

ASCLEPIADACEAE (Milkweed Family)

Asclepias viridiflora Raf. (green milkweed)
Occasional, on prairie. Flowers late June to late July.

BORAGINACEAE (Borage Family)

Onosmodium molle Michx. var. *occidentale* (Mack.) Johnst. (false gromwell)
Occasional, on prairie. Flowers July to mid August.

Appendix 4D. Continue

LAMIACEAE (Mint Family)

Monarda fistulosa L. var. *fistulosa* (wild bergamot)
Common, on prairie, often in shrubby areas. Flowers early July to early August.

OLEACEAE (Olive Family)

Fraxinus pennsylvanica Marsh. (red or green ash)
Common, in lakeside and upland woodlands. Flowers May to mid June.

SCROPHULARIACEAE (Figwort Family)

Penstemon gracilis Nutt. (slender beardtongue)
Common, on prairie. Flowers mid June to mid July.

CAMPANULACEAE (Bellflower Family)

Campanula rotundifolia L. (harebell)
Common, in moist low prairie and in upland woodlands. Flowers mid June mid July.

RUBIACEAE (Madder Family)

Galium boreale L. (northern bedstraw)
Common, in woody or shrubby areas, upland woodlands and on prairie. Flowers mid June to mid July.

CAPRIFOLIACEAE (Honeysuckle Family)

Symphoricarpos occidentalis Hook. (western snowberry, wolfberry)
Common, on prairie, and woodland edges. Flowers mid June through July.

ASTERACEAE (Sunflower Family)

Achillea millefolium L. subsp. *lanulosa* (Nutt.) Piper. (yarrow)
Common, on prairie, and in roadside ditches. Flowers mid June to mid August.
Ambrosia psilostachya DC. (western ragweed)
Common, in disturbed areas such as roadsides. Flowers late July to September.
Ambrosia trifida L. (giant ragweed)
Occasional, often in disturbed areas such as roadsides. Flowers late July to late August.

Appendix 4D. Continue

Antennaria neglecta Greene. (field pussy-toes)
Occasional, in open meadows, low prairie, and roadside ditches. Flowers early May to mid June.

Artemisia absinthium L. (wormwood)
Common, in disturbed areas such as roadsides, gravel pits, disturbed prairie and woodlands. Flowers late July to September.

Artemisia campestris L. subsp. *caudata* (Michx.) Hall & Clem. (western sagewort)
Occasional, on prairie in dry, sandy soil. Flowers early August to mid September.

Artemisia dracunculus L. (silky wormwood)
Occasional, on prairie. Flowers early August to early September.

Artemisia frigida Willd. (fringed sage)
Common, in prairie, also on disturbed, well-drained areas such as gravel pits. Flowers mid August to mid September.

Artemisia ludoviciana Nutt. var. *ludoviciana* (white sage)
Common, in prairie. Flowers mid August to mid September.

Aster ericoides L. (white aster)
Common, in roadside ditches, prairie, and brushy draws. Flowers mid to mid September.

Aster simplex Willd. var. *ramosissimus* (T. & G.) Cronq. (panicled aster)
Occasional, on low prairie and margins around lakes and ponds. Flowers mid August to early September.

Aster simplex Willd. var. *simplex* (panicled aster)
Occasional, on low prairie, roadside ditches, and along the margins around lakes and ponds. Flowers mid August to early September.

Cirsium arvense (L.) Scop. (Canada thistle, field thistle)
Common, in wet roadside ditches, wet meadows, and low prairie, and along margins around lakes and ponds. Flowers late June to early August.

Cirsium flodmanii (Rydb.) Arthur. (Flodman's thistle)
Occasional, on prairie and along roadsides. Flowers July through August.

Echinacea angustifolia DC. (purple coneflower)
Common, on rocky and sandy prairie and sandy roadsides. Flowers late June to August.

Erigeron strigosus Muhl. ex Willd. var. *strigosus* (daisy fleabane)
Common, in roadside ditches, and prairie. Flowers early July to mid August.

Eupatorium maculatum L. var. *bruneri* (A. Gray) Breitung. (joe-pye weed)
Occasional, in wet meadows, and similar wet areas. Flowers late July through August.

Gaillardia aristata Pursh. (blanket flower)
Common, on prairie. Flowers mid June to early July.

Grindelia squarrosa (Pursh) Dun. var. *quasiperennis* Lunell. (curly-top gumweed)
Common, on sandy roadsides, dry ditches, rocky prairie, and many disturbed habitats. Flowers late June through August.

Appendix 4D. Continue

Grindelia squarrosa (Pursh) Dun. var. *squarrosa* (curly-top gumweed)
Common, on sandy roadsides, dry ditches, rocky prairie, and many disturbed habitats. Flowers late June through August.

Helianthus rigidus (Cass.) Desf. subsp. *subrhomboideus* (Rydb.) Heiser.
(stiff sunflower) Common, on prairie, and sandy roadsides. Flowers mid-July through August.

Lactuca oblongifolia Nutt. (blue lettuce)
Common, on prairie open meadows, and roadside ditches. Flowers July to mid-August.

Liatris punctata Hook. (dotted gayfeather)
Common, on prairie and roadsides. Flowers late July to late August.

Lygodesmia juncea (Pursh) Hook. (skeletonweed)
Common, on prairie and roadsides. Flowers late June to late July.

Ratibida columnifera (Nutt.) Woot. & Standl. (prairie coneflower)
Common, often on dry, open prairie, roadsides, and similarly dry areas. Flowers late June through August.

Ratibida columnifera (Nutt.) Woot. & Standl. forma *pulcherrima* Fern.
(prairie coneflower)
Rare, found where large colonies of the prairie coneflower are growing. Flowers late June through August.

Senecio plattensis Nutt. (prairie ragwort)
Common, on prairie. Flowers late May through June.

Solidago gigantea Ait. var. *serotina* (O. Ktze.) Cronq. (late goldenrod)
Occasional, by woody or shrubby areas near ponds and wet meadows. Flowers early August to early September.

Solidago missouriensis Nutt. var. *fasciculata* Holz. (prairie goldenrod)
Common, on prairie, and roadside ditches. Flowers mid July to mid August.

Solidago mollis Bartl. (soft goldenrod)
Occasional, on prairie and roadsides. Flowers early August to mid September.

Solidago rigida L. var. *humilis* Porter. (rigid goldenrod)
Common, on prairie. Flowers late July through August.

Sonchus arvensis L. subsp. *uliginosus* (Bieb.) Nyman. (field sow thistle)
Common, on sandy roadsides, wet meadows, low prairie, and the margins around lakes and ponds. Flowers July through August.

Taraxacum officinale Weber. (common dandelion)
Common, in the understory of woodlands, low prairie, roadsides, and similarly disturbed areas. Flowers late May to mid August.

Tragopogon dubius Scop. (goat's beard)
Common, in roadside ditches, open prairie, and open meadows. Flowers early June to mid July.

Appendix 4D. Continue

CYPERACEAE (Sedge Family)

Carex eleocharis Bailey.
Common, on prairie. Flowers mid May to mid June.
Carex filifolia Nutt. (thread-leaved sedge)
Common, on prairie. Flowers mid May to mid June.
Carex heliophila Mack. (sun sedge)
Occasional, on prairie hilltops and hillsides. Flowers late May to late June.
Carex lanuginosa Michx. (wooly sedge)
Common, in wet meadows. Flowers mid June through August.

POACEAE (Grass Family)

Agropyron caninum (L.) Beauv. subsp. *majus* (Vasey) C. L. Hitchc.
(slender wheatgrass)
Common, on prairie, along roadsides. Flowers mid June to August.
Agropyron cristatum (L.) Gaertn. (crested wheatgrass)
Common, on disturbed prairie, and roadsides. Flowers June through August.
Agropyron repens (L.) Beauv. (quackgrass)
Common, on disturbed soil such as roadsides, disturbed prairie, and disturbed woodlands. Flowers early June through August.
Agropyron smithii Rydb. (western wheatgrass)
Common, on prairie. Flowers mid June to mid July.
Agrostis scabra Willd. (ticklegrass)
Occasional, on low prairie, moist meadows, wet meadows, and roadsides. Flowers mid July to late August.
Andropogon gerardii Vitman (big bluestem)
Common, in moist roadside ditches, low prairie, and more mesic mid prairie.
Aristida purpurea Nutt. var. *robusta* (Merrill) A. Holmgren & N. Holmgren
(red three-awn) Occasional, on prairie. Flowers mid July to early August.
Bouteloua curtipendula (Michx.) Torr. (sideoats grama)
Common, on prairie hillsides. Flowers throughout August.
Bouteloua gracilis (H.B.K.) Lag. ex Griffiths (blue grama)
Common, on prairie Flowers July to early August.
Bromus inermis Leyss. subsp. *inermis* (smooth brome)
Common, in roadside ditches, fencelines, woodlands, shrubby draws, and planted areas. Flowers mid May to mid August.
Calamovilfa longifolia (Hook.) Scribn. (prairie sandreed)
Common, on prairie. Flowers late July to late August.

Dichanthelium wilcoxianum (Vasey) Freckmann (Wilcox dichanthelium)
Occasional, on well-drained prairie. Flowers early June to early July.
Festuca octoflora Walt. (sixweeks fescue)
Occasional, on prairie. Flowers mid June to early July.
Helictotrichon hookeri (Scribn.) Henr. (spike oat)
Common, on prairie. Flowers June to early July.
Koeleria pyramidata (Lam.) Beauv. (Junegrass)
Common, on prairie. Flowers mid June to mid July.
Muhlenbergia cuspidata (Torr.) Rydb. (plains muhly)
Occasional, on prairie. Flowers mid July to early September.
Panicum virgatum L. (switchgrass)
Common, low prairie, wet meadows, and moist roadside ditches. Flowers mid July to early September.
Phalaris arundinacea L. (reed canary grass)
Occasional, in wet roadside ditches and marshy areas in standing water. Flowers mid June to late August.
Poa compressa L. (Canada bluegrass)
Occassional, in rocky soil or waste ground in variety of habitats. Flowers late June to early August.
Poa pratensis L. (Kentucky bluegrass)
Common, in woodland edges, woody to shrubby draws; and prairie. Flowers mid June to mid July.
Stipa comata Trin. ex Rupr. (needle-and-thread)
Common, on prairie. Flowers early June to early July.
Stipa spartea Trin. (porcupine-grass)
Common, on prairie. Flowers June through July.
Stipa viridula Trin. (green needlegrass)
Common, on prairie. Flowers early June to mid July.

LILIACEAE (Lily Family)

Smilacina stellata (L.) Desf. (spikenard)
Occasional, in woodlands found next to lakes and ponds. Flowers mid May to mid June.
Zigadenus elegans Pursh (white camas)
Occasional, on low prairie, and in wet meadows. Flowers mid June to early July.

IRIDACEAE (Iris Family)

Sisyrinchium angustifolium P. Mill. (blue-eyed grass)
Occasional, on prairie and roadside ditches. Flowers late May through June.

Sisyrinchium montanum Greene. (blue-eyed grass)

Occasional, on low prairie, wet meadows, and wet roadside ditches. Flowers late May to early July.

Appendix 4E: Checklist of bird fauna found at (DC-LTA).

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
FAMILY PODICIPEDIDAE			
Podilymbus podiceps	Pied-billed grebe	X	
Podiceps auritus	Horned grebe	X	
Podiceps grisegena	Red-necked grebe	X	
Podiceps nigrivollis	Eared grebe	X	
Aechmophorus occidentalis	Western grebe	X	
Aechmophorus clarkii	Clark's grebe	?	
FAMILY PELECANIDAE			
Pelecanus erythrorhynchos	American white pelican	X	
FAMILY PHALACROCORACIDAE			
Phalacrocorax auritus	Double-crested cormorant	X	
FAMILY ARDEIDAE			
Botaurus lentiginosus	American bittern	X	
Ixobrychus exilis	Least bittern	?	
Ardea herodias	Great blue heron	X	X
Egretta caerulea	Little blue heron	?	
Egretta tricolor	Tricolored heron	?	
Bubulcus ibis	Cattle egret	X	
Butorides striatus	Green-backed heron	?	
Nycticorax nycticorax	Black-crowned night-heron	?	
FAMILY THRESKIORNITHIDAE			
Plegadis chihi	White-faced ibis	?	
FAMILY ANATIDAE			
Dendrocygna bicolor	Fulvous whistling-duck		
Cygnus columbianus	Tundra swan	X	
Anser albifrons	Greater white-fronted goose		
Chen caerulescens	Snow goose	X	
Branta canadensis	Canada goose	X	X
Aix sponsa	Wood duck	X	
Anas crecca	Green-winged teal	X	
Anas rubripes	American black duck	X	
Anas platyrhynchos	Mallard	X	X
Anas acuta	Northern pintail	X	X

Appendix 4E. Continue.

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
Anas cyanoptera	Cinnamon teal	X	
Anas clypeata	Northern shoveler	X	X
Anas strepera	Gadwall	X	X
Anas americana	American wigeon	X	X
Aythya valisineria	Canvasback	X	
Aythya americana	Redhead	X	
Aythya collaris	Ring-necked duck	X	
Aythya affinis	Lesser scaup	X	X
Bucephala clangula	Common goldeye	X	
Bucephala islandica	Barrow's goldeneye		
Bucephala albeola	Bufflehead	X	
Lophodytes cucullatus	Hooded merganser	X	
Mergus merganser	Common merganser	X	X
Oxyura jamaicensis	Ruddy duck	X	
FAMILY ACCIPITRIDAE			
Subfamily Pandion			
Pandion haliatus	Osprey	X	
Subfamily Accipitrinae			
Haliaeetus leucocephalus	Bald eagle	X	
Ciricus cyaneus	Northern harrier	X	X
Accipiter striatus	Sharp-shinned hawk	X	
Accipiter cooperii	Cooper's hawk	X	
Accipiter gentilis	Northern goshawk	X	
Buteo platypterus	Broad-winged hawk	X	
Buteo swainsoni	Swainson's hawk	X	
Buteo jamaicensis	Red-tailed hawk	X	X
Buteo regalis	Ferruginous hawk	X	
Aquila chrysaetos	Golden eagle	X	
FAMILY FALCONIDAE			
Falco sparverius	American kestrel	X	
Falco columbarius	Merlin	X	
Falco peregrinus	Peregrine falcon	X	
Falco mexicanus	Prairie falcon	X	
FAMILY PHASIANIDAE			
Subfamily Phasianinae			

Appendix 4E. Continue.

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
Perdix perdix	Gray partridge	X	X
Phasianus colchicus	Ring-necked pheasant	X	
Subfamily Tetraoninae			
Bonasas umbellus	Ruffed grouse	X	
Tympanuchus phasianellus	Sharp-tailed grouse	X	X
Subfamily Meleagridinae			
Meleagris gallopavo	Wild turkey	X	
FAMILY RALLIDAE			
Coturnicops noveboracensis	Yellow rail	X	
Rallus limicola	Virginia rail	X	
Porxana carolina	Sora	X	
Fulica americana	American coot	X	X
FAMILY GRUIDAE			
Grus canadensis	Sandhill crane	X	
Grus americana	Whooping crane		
FAMILY CHARADRIIDAE			
Charadrius semipalmatus	Semipalmated plover		
Charadrius melodus	Piping plover	X	X
Charadrius vociferus	Killdeer	X	X
Charadrius montanus	Mountain plover		
FAMILY RECURVIROSTRIDAE			
Recurvirostra americana	American avocet	X	X
FAMILY COLUMBIDAE			
Columba livia	Rock dove	X	
Zenaida macroura	Mourning dove	X	X
FAMILY CUCULIDAE			
Coccyzus erythropthalmus	Black-billed cuckoo	X	
Coccyzus americanus	Yellow-billed cuckoo	?	
FAMILY TYTONIDAE			
Tyto alba	Common barn-owl	?	
FAMILY CAPRIMULGIDAE			
Subfamily Chordelinae			
Chordeiles minor	Common nighthawk	X	
FAMILY APODIDAE			
Chaetura pelagica	Chimney swift	X	
FAMILY TROCHILIDAE			

Appendix 4E. Continue.

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
Archilochus colubris	Ruby-throated hummingbird	X	
FAMILY ALCEDINIDAE			
Ceryle alcyon	Belted kingfisher	X	
FAMILY SCOLOPACIDAE			
Subfamily Scolopacinae			
Catoptrophorus semipalmatus	Willet	X	X
Actitis macularia	Spotted sandpiper	?	
Bartramia longicanda	Upland sandpiper	X	X
Numenius americanus	Long-billed curlew	?	
Limosa haemastica	Hudsonian godwit		
Limosa fedoa	Marbled godwit	X	X
Calidris pusilla	Semipalmated sandpiper		
Gallinago gallinago	Common snipe	X	
Scolopax minor	American woodcock	?	
Subfamily Phalaropinae			
Phalaropus tricolor	Wilson's phalarope	X	
Phalaropus lobatus	Red-necked phalarope		
Phalaropus fulicaria	Red phalarope		
FAMILY LARIDAE			
Subfamily Larinae			
Larus pipixcan	Franklin's gull	X	X
Larus delawarensis	Ring-billed gull	X	
Larus californicus	California gull	X	
Subfamily Sterninae			
Sterna caspia	Caspian tern	?	
Sterna hirundo	Common tern	X	X
Sterna forsteri	Forster's tern	?	
Sterna antillarum	Least tern	?	
Chlidonias niger	Black tern	X	
FAMILY STRIGIDAE			
Ottus asio	Eastern screech-owl	?	
Bubo virginianus	Great horned owl	X	
Nyctea scandiaca	Snowy owl		
Athene cunicularia	Burrowing owl	?	
Strix varia	Barred owl		

Appendix 4E. Continue.

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
Asio otus	Long-eared owl	?	
Asio flammeus	Short-eared owl	X	
FAMILY PICIDAE			
Melanerpes erythrocephalus	Red-headed woodpecker	X	
Melanerpes carolinus	Red-bellied woodpecker	X	
Sphyrapicus varius	Yellow-bellied sapsucker	X	
Picoides pubescens	Downy woodpecker	X	X
Picoides villosus	Hairy woodpecker	X	X
Colaptes auratus	Northern flicker	X	X
Dryocopus pileatus	Pileated woodpecker	X	
FAMILY TYRANNIDAE			
Subfamily Fluvicolinae			
Contopus virens	Eastern wood-pewee	X	
Empidonax alnorum	Alder flycatcher	?	
Empidonax trailii	Willow flycatcher	X	
Empidonax minimus	Least flycatcher	X	
Sayornis phoebe	Eastern phoebe	?	
Sayornis saya	Say's phoebe	?	
Subfamily Tyranninae			
Myiarchus crinitus	Great crested flycatcher	X	
Tyrannus verticalis	Western kingbird	X	X
Tyrannus tyrannus	Eastern kingbird	X	X
Tyrannus forficatus	Scissor-tailed flycatcher		
FAMILY ALAUDIDAE			
Eremophila alpestris	Horned lark	X	X
FAMILY HIRUNDINIDAE			
Progne subis	Purple martin	X	
Tachycineta bicolor	Tree swallow	X	X
Stelgidopteryx serripennis	Northern rough-winged swallow	X	
Riparia riparia	Bank swallow	X	X
Hirundo pyrrhonota	Cliff swallow	X	X
Hirundo rustica	Barn swallow	X	X
FAMILY CORVIDAE			
Perisoreus canadensis	Gray jay		
Cyanocitta cristata	Blue jay	X	X

Appendix 4E. Continue.

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
Pica pica	Black-billed magpie	X	X
Corvus brachyrhynchos	American crow	X	X
Corvus corax	Common raven	X	
FAMILY PARIDAE			
Parus atricapillus	Black-capped chickadee	X	X
FAMILY SITTIDAE			
Sitta canadensis	Red-breasted nuthatch	?	
Sitta carolinensis	White-breasted nuthatch	X	X
FAMILY TROGLODYTIDAE			
Salpinctes obsoletus	Rock wren	X	
Troglodytes aedon	House wren	X	
Cistothorus platensis	Sedge wren	X	
Cistothorus palustris	Marsh wren	X	
FAMILY MUSICAPIDAE			
Subfamily Turdinae			
Sialia sialis	Eastern bluebird	X	
Sialia currucoides	Mountain bluebird	X	
Catharus fuscescens	Veery	?	
Hylocichla mustelina	Wood thrush	?	
Turdus migratorius	American robin	X	X
Ixoreus naevius	Varied thrush		
FAMILY MIMIDAE			
Dumetella carolinensis	Gray catbird	X	X
Mimus polyglottos	Northern mockingbird	?	
Toxostoma rufum	Brown thrasher	X	X
FAMILY MOTACILLIDAE			
Antbus spragueii	Sprague's pipit	?	
FAMILY BOMBYCILLIDAE			
Bombycilla garrulus	Bohemian waxwing		
Bombycilla cedrorum	Cedar waxwing	X	
FAMILY LANIDAE			
Lanius excubitor	Northern shrike		
Lanius ludovicianus	Loggerhead shrike	X	
FAMILY STURNIDAE			
Sturnus vulgaris	European starling	X	

Appendix 4E. Continue.

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
FAMILY VIREONIDAE			
Vireo bellii	Bell's vireo	?	
Vireo flavifrons	Yellow-throated vireo	?	
Vireo gilvus	Warbling vireo	X	
Viroe olivaceus	Red-eyed vireo	X	
Vireo philadelphicus	Philadelphia vireo	?	
FAMILY FRINGILLIDAE			
Subfamily Carduelinae			
Carpodacus purpureus	Purple finch	?	
Carpodacus mexicanus	House finch		
Loxia curvirostra	Red crossbill	?	
Loxialeucoptera	White-winged crossbill		
Carduelis flammea	Common redpoll		
Carduelis hornemanni	Hoary redpoll		
Carduelis pinus	Pine siskin	?	
Carduelis psaltria	Lesser goldfinch	?	
Carduelis tristis	American goldfinch	X	X
Coccothraustes vespertinus	Evening grosbeak		
FAMILY PASSERIDAE			
Passer domesticus	House sparrow	X	
FAMILY EMBERIZIDAE			
Subfamily Parulinae			
Vermivora chrysoptera	Golden-winged warbler	?	
Dendroica dominica	Yellow throated warbler	X	
Dendroica petechia	Yellow warbler	X	X
Dendroica pensylvanica	Chestnut-sided warbler	X	
Dendroica coronata	Yellow-rumped warbler	X	
Mniotilta varia	Black-and-white warbler	X	
Setophaga ruticilla	American redstart	X	
Seirus aurocapillus	Ovenbird	X	
Seiurus noveboracensis	Northern waterthrush	X	
Oporornis philadelphia	Mourning warbler	X	
Geothlypis trichas	Common yellowthroat	X	X
Wilsonia canadensis	Canada warbler		
Icteria virens	Yellow-breasted chat	X	

Appendix 4E. Continue.

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
FAMILY EMBERIZIDAE			
Subfamily Thraupinae			
Piranga olivacea	Scarlet tanager	X	
Subfamily Cardinalinae			
Cardinalis cardinalis	Northern cardinal	?	
Pheucticus ludovicianus	Rose-breasted grosbeak	X	X
Pheucticus melanocephalus	Black-headed grosbeak	X	
Guiraca caerulea	Blue grosbeak	?	
Passerina amoena	Lazuli bunting	X	
Passerina cyanea	Indigo bunting	X	
Spiza americana	Dickcissel	X	
Subfamily Emberizinae			
Pipilo erythrophthalmus	Rufous-sided towhee	X	X
Spizella arborea	American tree sparrow		
Spizella passerina	Chipping sparrow	X	X
Spizella pallida	Clay-colored sparrow	X	X
Spizella breweri	Brewer's sparrow	X	
Spizella pusilla	Field sparrow	X	X
Pooecetes gramineus	Vesper sparrow	X	X
Chondestes grammacus	Lark sparrow	X	
Calamospiza melanocorys	Lark bunting	X	X
Passerculus sandwichensis	Savannah sparrow	X	
Ammodramus bairdii	Baird's sparrow		
Ammodramus savannarum	Grasshopper sparrow	X	X
Ammodramus henslowii	Henslow's sparrow		
Ammodramus leconteii	Le Conte's sparrow	?	
Ammodramus caudacutus	Sharp-tailed sparrow	?	
Passerella iliaca	Fox sparrow		
Melospiza melodia	Song sparrow	X	X
Melospiza lincolnii	Lincoln's sparrow		
Melospiza georgiana	Swamp sparrow	?	
Zonotrichia albicollis	White-throated sparrow	X	
Calcarius lapponicus	Lapland longspur		
Zonotrichia atricapilla	Golden-crowned sparrow		
Zonotrichia leucophrys	White-crowned sparrow		
Zonotrichia querula	Harris' sparrow		
Junco hyemalis	Dark-eyed junco		

Appendix 4E. Continue.

Family and Scientific Name	Common Name	Could Breed on or near G-TA	Reported
Calcarius mccownii	McCown's longspur	?	
FAMILY EMBERIZIDAE			
Subfamily Emberizinae			
Calcarius ornatus	Chestnut-collared longspur	X	X
Plectrophenax nivalis	Snow bunting		
Subfamily lcterinae			
Dolichonyx oryzivorus	Bobolink	X	X
Agelaius phoeniceus	Red-winged blackbird	X	X
Sturnella magna	Eastern meadowlark		
Sturnella neglecta	Western meadowlark	X	X
Xanthocephalus xanthocephalus	Yellow-headed blackbird	X	X
Euphagus carolinus	Rusty blackbird		
Euphagus cyanocephalus	Brewer's blackbird	X	X
Quiscalus quiscula	Common grackle	X	
Molothrus ater	Brown-headed cowbird	X	X
Icterus spurius	Orchard oriole	?	
Icterus galbula	Northern oriole	X	

Appendix 4F: Checklist of mammalian fauna found on the Douglas Creek Local Training Area.

Order, Family, Scientific name	Common name	State Range	Could Be Found	Reported
Order Insectivora				
Family Soricidae				
Sorex cinereus Kerr	Masked Shrew	All	X	
Sorex arcticus Kerr	Arctic Shrew	N,E	X	
R *Microsorex hoyi* Baird	Pigmy Shrew	E	X	X
Blarina brevicauda Say	Short-tailed Shrew	E	X	
Order Chiroptera				
Family Vespertilionidae				
Myotis lucifugus Le Conte	Little Brown Myotis	All	X	
Myotis keenii Merriam	Keen's Myotis	E	X	
Lasionycteris noctivagans Le Conte	Silver-haired Bat	All	X	
Eptesicus fuscus Palisot de Beauvois	Big Brown Bat	All	X	X
Lasiurus borealis Muller	Red Bat	All	X	
Lasiurus cinereus Palisot de Beauvois	Hoary Bat	All	X	
Order Lagomorpha				
Family Leporidae				
Sylvilagus floridanus J.A. Allen	Eastern Cottontail	E,SW	X	X
Lepus americanus Erxleben	Snowshoe Hare	N,E	X	
Lepus townsendii Bachman	White-tailed Jackrabbit	All	X	X
Order Rodentia				
Family Sciuridae				
Tamias striatus Linnaeus	Eastern Chipmunk	E	X	
Marmota monax Linnaeus	Woodchuck	E	X	
Spermophilus richardsonii Sabine	Richardson's Ground Squirrel	N,E	X	

Appendix 4F. Continue.

Order, Family, Scientific name	Common name	State Range	Could Be Found	Reported
Spermophilus tridecemlineatus Mitchill	Thirteen-lined Ground Squirrel	All	X	X
Family Sciuridae				
Spermophilus franklinii Sabine	Franklin's Ground Squirrel	E,NW	X	X
Sciurus carolinensis G melinGray	Squirrel	E	X	
Sciurus niger Linnaeus	Fox Squirrel	E,S	X	
Tamiasciurus hudsonicus Erxleben	Red Squirrel	E	X	
Glaucomys sabrinus Shaw	Northern Flying Squirrel	E	X	
Family Geomyidae				
Thomomys talpoides Richardson	Northern Pocket Gopher	All	X	X
Geomy bursarius Shaw	Plains Pocket Gopher	E	X	
Family Heteromyidae				
Perognathus fasciatus Wied-Neuwied	Olive-backed Pocket Mouse	All	X	
Family Heteromyidae				
Castor canadensis Kuhl	Beaver	All	X	
Family Cricetidae				
Peromyscus maniculatus Wagner	Deer Mouse	All	X	X
Peromyscus leucopus Rafinesque	White-footed Mouse	All	X	X

Appendix 4F. Continue.

Order, Family, Scientific name	Common name	State Range	Could Be Found	Reported
Onychomys leucogaster Wied-Neuwied	Northern Grasshopper Mouse	All	X	
Clethrionomys gapperi Vigors	Southern Red-backed Vole	All	X	
Microtus pennsylvanicus Ord	Meadow Vole	All	X	X
Microtus ochrogaster Wagner	Prairie Vole	All	X	
Ondatra zibethicus Linnaeus	Muskrat	All	X	
Family Muridae				
I *Rattus norvegicus* Berkenhout	Norway Rat	All	X	
I *Mus musculus* Linnaeus	House Mouse	All	X	
Family Zapodidae				
Napaeozapus insignis	Woodland Jumping Mouse	W,NE	X	
Zapus hudsonius Zimmerman	Meadow Jumping Mouse	All	X	
Zapus princeps J.A. Allen	Western Jumping Mouse	E,NW	X	
Family Erethizontidae				
Erethizon dorsatum Linnaeus	Porcupine	All	X	
Order Carnivora				
Family Canidae				
Canis latrans Say	Coyote	All	X	
R&T *Canis lupus* Linnaeus	Gray Wolf	NE	X	
Vulpes vulpes Desmarest	Red Fox	All	X	X
Family Procyonidae				
Procyon lotor Linnaeus	Raccoon	All	X	
Family Mustelidae				

Appendix 4F. Continue.

Order, Family, Scientific name	Common name	State Range	Could Be Found	Reported	
R *Martes pennanti* Erxleben	Fisher	NE			
Mustela nivalis Bangs	Least Weasel	All	X		
Mustela frenata Lichtenstein	Long-tailed Weasel	All	X		
Mustela vison Schreber	Mink	All	X		
Taxidea taxus Schreber	Badger	All	X	X	
R *Spilogale putorius* Linnaeus	Eastern Spotted Skunk	SE			
Mephitis mephitis Schreber	Striped Skunk	All	X	X	
Family Felidae					
R *Felis concolor* Kerr	Mountain Lion	N,W	X		
R *Felis rufus* Schreber	Bobcat	All	X		
Order Artiodactyla					
Family Cervidae					
R *Cervus elaphus* Linnaeus	Wapiti or Elk	W,NE	X		
Odocoileus hemionus Rafinesque	Mule Deer	All	X		
Odocoileus virginianus Zimmerman	White-tailed Deer	All	X	X	
R *Alces alces* Linnaeus	Moose	N,E	X		
Family Bovidae					
X&I *Bison bison* Linnaeus	Bison	?	X		

Appendix 4G: Checklist of reptile and amphibian fauna found on the Douglas Creek Local Training Area.

Scientific name	Common name	Range	State Found	Could Be Reported
Bufo cognatus	Great Plains Toad	All but far N	X	X
Bufo americanus	American Toad	E1/3	X	
Bufo hemiophrys	Canadian Toad	N and E of Missouri R.	X	
Hyla versicolor	Gray Tree Frog	E		
Rana pipiens	Northern Leopard Frog	All	X	
Rana sylvatica	Wood Frog	N and E of Missouri R.	X	
Pseudacris triseriata	Western Chorus Frog	All	X	
Ambystoma tigrinum trigrinum	Eastern Tiger Salamander	All	X	
Ambystoma tigrinum Diaboli	Gray Tiger Salamander	E	X	X
Ambystoma tigrinum melanostictum	Blotched Tiger Salamander	C	X	
Necturus maculosus	Mudpuppy	E	X	
Eumeces septentrionalis	Northern Prairie Skink	E	X	
Chrysemys picta belli	Western Painted Turtle	All	X	
Chelydra serpentina	Common Snapping Turtle	All	X	
Thamnophis sirtalis	Common Garter Snake	All	X	X
Thamnophis radixs	Plains Garter Snake	All	X	
Storeria occipitomaculata	Redbelly Snake	E	X	
Opheodrys vernalis	Smooth Green Snake	N,E,SC	X	X
Heterdon nasicus	Western Hognose Snake	W,S,NC	X	

Appendix 4H: Listing of Threaten, Endangered & Candidate Species

County Occurrence of Endangered, Threatened and Candidate Species and Designated Critical Habitat in North Dakota — **September 2010**

Species	Adams	Barnes	Benson	Billings	Bottineau	Bowman	Burke	Burleigh	Cavalier	Dickey	Divide	Dunn	Emmons	Foster	Golden Valley	Grand Forks	Grant	Griggs	Hettinger	Kidder	LaMoure	Logan	McHenry	McIntosh	McKenzie	McLean	Mercer	Morton	Mountrail	Nelson	Oliver	Pembina	Pierce	Ramsey	Ransom	Renville	Richland	Rolette	Sargent	Sheridan	Sioux	Slope	Stark	Steele	Stutsman	Towner	Traill	Walsh	Ward	Wells	Williams
Interior Least Tern - E							X				X		X																																						X
Whooping Crane - E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black-footed Ferret - E	X			X		X						X					X			X																															X
Pallid Sturgeon - E							X					X		X																																					X
Gray Wolf - E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Piping Plover - T		X			X		X	X			X	X	X	X																																			X
Western Prairie Fringed Orchid - T																																																				
Dakota Skipper - C					X																																														X
Sprague's Pipit - C	X	X	X	X	X	X	X	X			X	X	X	X	X																																				X
Greater Sage-Grouse - C						X									X																																				
Designated Critical Habitat																																																			
Piping Plover		X				X	X	X				X	X	X																																					X

E - Endangered T - Threatened C - Candidate

1 **Appendix 4H: Continued**

County Occurrence of Endangered, Threatened and Candidate Species and Designated Critical Habitat in North Dakota — **September 2010**

Species	McLean	Mercer	Morton	Mountrail	Nelson	Oliver	Pembina	Ramsey	Renville	Richland	Sargent	Sheridan	Sioux	Slope	Stark	Steele	Stutsman	Towner	Traill	Walsh	Ward	Wells	Williams
Interior Least Tern - E	X	X	X			X							X										X
Whooping Crane - E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black-footed Ferret - E		X	X			X							X	X	X								
Pallid Sturgeon - E	X	X	X			X							X									X	
Gray Wolf - E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Piping Plover - T	X	X	X			X		X					X	X			X				X	X	X
W. P. Fringed Orchid - T							X		X														
Dakota Skipper - C	X		X			X		X		X	X				X		X				X	X	
Sprague's Pipit - C	X	X	X			X	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X
Greater Sage-Grouse - C														X									
Designated Critical Habitat																							
Piping Plover	X	X	X	X		X	X		X				X	X			X				X		X

E - Endangered T - Threatened C - Candidate

2

Appendix 5. INRMP Benefits for Endangered Species.

In 2002, the U.S. Fish and Wildlife Service (Service), designated critical habitat for the northern Great Plains breeding population of the piping plover (*Charadrius melodus*), pursuant to the Endangered Species Act of 1973. Two documents published that year, Environmental Assessment, Proposal of Critical Habitat for the Northern Great Plains Breeding Population of Piping Plovers (*Charadrius melodus*) and Department of the Interior, Fish and Wildlife Service

50 CFR Part 17, Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Great Plains Breeding Population of the Piping Plover; Final Rule contain information on critical habitat and exclude property addressed by the DC-LTA INRMP from the critical habitat designation.

The USFWS may decline to designate critical habitat where there exists a plan that provides for the adequate management or protection for listed species. The USFWS uses the following three point criteria to determine if an INRMP provides adequate management or protection.

1. **The plan provides a conservation benefit to the endangered and candidate species.** The cumulative benefits of the management activities identified in a management plan, for the length of the plan, must maintain or provide for an increase in a species' population, or the enhancement or restoration of its habitat within the area covered by the plan [i.e., those areas deemed essential to the conservation of the species]. A conservation benefit may result from reducing fragmentation of habitat, maintaining or increasing populations, insuring against catastrophic events, enhancing and restoring habitats, buffering protected areas, or testing and implementing new conservation strategies. The INRMP currently provides for piping plover habitat protection.

2. **The plan provides certainty that the management plan will be implemented.** Persons charged with plan implementation are capable of accomplishing the objectives of the management plan and have adequate funding for the management plan. They have the authority to implement the plan and have obtained all the necessary authorizations or approvals. An implementation schedule (including completion dates) for the conservation effort is provided in the plan. Camp Grafton's conservation program is adequately funded and has a well-trained staff of personnel, technicians, and contractors to ensure plan implementation.

3. **The plan provides certainty that the conservation effort will be effective.** The following criteria are considered when determining the effectiveness of the conservation effort. The plan includes (1) biological goals (broad guiding principles for the program) and objectives (measurable targets for achieving the goals); (2) quantifiable, scientifically valid parameters that will demonstrate achievement of objectives, and standards for these parameters by which progress will be measured, are identified; (3) provisions for monitoring and, where appropriate, adaptive management; (4) provisions for reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort are provided; and (5) a duration sufficient to implement the plan and achieve the benefits of its goals and objectives.

In relation to two candidate species (Dakota Skipper butterfly and Sprague's Pipit) which may occur on DC-LTA, the NDNG offers the following list of management and conservation efforts for consideration when making a determination not to designate critical habitat:

The Endangered Species Act was revised via the National Defense Authorization Act of 2004. It states that, "The Secretary [of the Interior] shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation." An installation may have its INRMP obviate the need for critical habitat designation if the INRMP provides a benefit to listed species, and manages for the long-term conservation of the species. This revised INRMP specifically addresses the benefits of management of these actions for these species or habitats. The benefits are clearly identifiable in the document and are included in the table of contents of the INRMP.

INRMP Benefits

Benefits to the Military Mission

Integration of natural resources management with mission support and training requirements helps to ensure DC-LTA meets the challenges of combat readiness homeland security, and ecosystem health, while fulfilling its stewardship and regulatory responsibilities. Implementation of the DC-LTA INRMP will better integrate sustainable natural resource management with mission support and training requirements and responsibilities, affording more realistic training opportunities in support of the base mission.

The INRMP benefits military actions in at least five ways:

1. It facilitates compliance with environmental laws and regulations such as Sikes Act, the Clean Water Act, the Endangered Species Act, and obviates the need for Federal critical habitat designation.

2. It provides actions that support training activities, while still providing protection to the environment and threatened and endangered species (e.g., continuing the military impact monitoring, identifying species of concern before they restrict military actions, reducing wildland fire threat, rotating out and restoring eroded training areas so that they will be available for future use).

3. It provides for programs to deal with bird/aircraft strike hazards and wildlife damage.

4. It provides for increased education of Soldiers and visiting units to promote responsible use of training areas and ranges in order to avoid future restrictions of military actions.

5. It provides for regional conservation and encroachment partnering initiatives to reduce or prevent current and future mission restrictions.

Environmental Benefits

The actions described in this INRMP provide a clear benefit to the natural resources of DC-LTA. These include, for example, actions that expand Piping Plover & Sprague's Pipet conservation and management, including:

• new efforts to integrate Piping Plover and shoreline management

• modifying data collection to improve understanding of good quality habitat

• continued surveying and monitoring of Piping Plover population

• monitoring actions that may enhance DC-LTA as a potential site for the sprague's pipet

The INRMP also provides for continued support of efforts to protect natural communities to avoid future military restrictions and participation in migratory bird protection and management efforts. Under land protection actions, the INRMP provides for continued planning and data collection, updated GIS records, and actions to minimize impacts of prescribed burning and damaging insects and diseases.

Actions that specifically address wetland, soil and water management and include direction on continuing to protect and monitor training impacts on wetlands, conserving and restoring eroded areas, and stabilizing and restoring coastal dunes. Actions addressing wildlife management for both game and non-game species, and include continued data collection, development of an annual wildlife clearing management plan, and improving habitat for non-game species and waterfowl. BASH and depredation permits are also included in these actions.

Finally, the INRMP provides for environmental benefits through continued and expanded participation in regional conservation efforts such as migratory bird counts and suggests improvements for conservation education outreach.

Relational Benefits

This INRMP provides continual support for DC-LTA's community relations. It includes specific actions to continue recreational and educational activities, such as maintaining and improving access for fishing and hunting purposes.

The document also considers and recommends actions dealing with encroachment, public and military awareness of on-going environmental efforts, and a program for field trips and presentations for students of local schools.

Finally, as with any planning process, this INRMP allows for continued cooperation with federal and state natural resources agencies such as USFWS and ND Game and Fish.

DC-LTA Endangered Species

The Piping Plover is the only Threatened or Endangered Species that has been recorded with the vicinity of the DC-LTA .

It has been determined that NDARNG training activities at DC-LTA are unlikely to have an effect upon the piping plover and/or the piping plover's critical habitat. The lake's shoreline

which provides critical habitat for the piping plover is located outside the parameter of the DC-LTA. The parameter of the DC-LTA is determined by the lake's 1850 elevation line which is also the lake's high water mark. All NDARNG activities (convoys, land navigation, mobility/counter mobility training, overnight field training exercises, etc.) take place only within the parameters of the DC-LTA. NDARNG training activities are restricted from taking place within 300 feet piping plover sightings. In the event the USACEs' annual piping plover survey ascertains the presences of nesting piping plovers along the adjacent shoreline area, NDARNG will collaborate with the USACE to post signs emphasizing the associated NDARNG training restrictions.

Monitoring areas for nesting piping plovers is an on-going or annual activity completed by the USACE. If nesting piping plovers are sighted signs will be posted to prevent the general public and/or NDARNG troops from venturing into the piping plover nesting area.

Again, the habitat best suited for the Piping Plover is located out-side the boundary of the DC-LTA; therefore, it is NDARNG objective to cooperate with the USACE to identify and protect identified nesting sites. If Piping Plovers are identified within an area, NDARNG will work with the USACE to make efforts to direct training away from these sites.

County Occurrence of Endangered, Threatened and Candidate Species and Designated Critical Habitat in North Dakota

February 2012

Species	Adams	Barnes	Benson	Billings	Bottineau	Bowman	Burke	Burleigh	Cass	Cavalier	Dickey	Divide	Dunn	Eddy	Emmons	Foster	Go. Valley	Gr. Forks	Grant	Griggs	Hettinger	Kidder	Lamoure	Logan	McHenry	McIntosh	McKenzie
Interior Least Tern - E								X					X		X												X
Whooping Crane - E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black-footed Ferret - E	X			X		X							X				X		X		X						X
Pallid Sturgeon - E								X					X		X												X
Gray Wolf - E	X			X	X	X	X					X	X				X		X		X						X
Piping Plover - T			X				X	X				X	X	X	X	X						X		X	X	X	X
Western Prairie Fringed Orchid - T																											
Dakota Skipper - C					X		X						X	X											X		X
Poweshiek skipperling - C									X																		
Sprague's Pipit - C	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X
Greater Sage-Grouse - C						X											X										
Designated Critical Habitat																											
Piping Plover			X				X	X				X	X	X	X							X		X	X	X	X

E - Endangered T - Threatened C - Candidate Endangered west of Hwy 83 - Delisted east of Hwy 83

County Occurrence of Endangered, Threatened and Candidate Species and Designated Critical Habitat in North Dakota

February 2012

Species	McLean	Mercer	Morton	Mountrail	Nelson	Oliver	Pembina	Pierce	Ramsey	Ransom	Renville	Richland	Rolette	Sargent	Sheridan	Sioux	Slope	Stark	Steele	Stutsman	Towner	Traill	Walsh	Ward	Wells	Williams
Interior Least Tern - E	X	X	X	X		X										X										X
Whooping Crane - E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black-footed Ferret - E		X	X			X										X	X	X								
Pallid Sturgeon - E	X	X	X	X		X										X										X
Gray Wolf - E	X	X	X	X		X					X					X	X	X						X		X
Piping Plover - T	X	X	X	X		X		X			X				X	X				X				X	X	X
W. P. Fringed Orchid - T										X		X														
Dakota Skipper - C	X			X		X				X		X	X	X						X				X	X	
Poweshiek skipperling - C										X		X		X												
Sprague's Pipit - C	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X	X		X	X	X	X
Greater Sage-Grouse - C																	X									
Designated Critical Habitat																										
Piping Plover	X	X	X	X		X		X			X				X	X				X				X		X

E - Endangered T - Threatened C - Candidate Endangered west of Hwy 83 - Delisted east of Hwy 83

Critical Habitat Issues

Section 4(a)(3) of the Endangered Species Act requires the USFWS to designate "critical habitat" for a species upon its listing as endangered or threatened. The USFWS can choose not to designate a species' critical habitat in only limited circumstances.

Requirements

Section4(b)(2) describes the statutory requirements of determining the impacts of designating areas as critical habitat. The interpretation of the statute is based on previous designations and key court opinions discussed in the sections that follow.

Statutory Language and Consideration of Potential Impacts of Designation

The ESA section 4(b)(2)states:

The Secretary shall designate critical habitat, and make revisions thereto, under subsection (a)(3) of this section on the basis of the best scientific data available and after taking into consideration the economic impact, impact on national security, and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned. (16 U.S.C. §1533(b)(2))

Impacts may result from a critical habitat designation primarily through Section 7 of the ESA (16 U.S.C. 1536). Section 7(a)(2) requires each Federal agency to consult with NMFS (or the U.S. Fish and Wildlife Service [USFWS], as applicable) to ensure that any action they authorized, funded, or carried out by such agency will not likely destroy or adversely modify the designated critical habitat of listed species. Federal agencies are required to enter into consultation whenever a proposed action “may affect” listed species or designated critical habitat. If a proposed Federal action will likely destroy or adversely modify critical habitat, NMFS may recommend that the Federal agency or the project permittee or grantee implement a reasonable and prudent alternative (RPA) to the proposed action that would avoid destruction or adverse modification of critical habitat. Thus, impacts that may result from Section 7 consultations include the administrative costs of performing the consultation, costs of modifications to the proposed action in order to implement an RPA, and secondary costs to local or regional economies that result from the project modification. In addition, because critical habitat is by definition “essential to the conservation” of the species, conservation benefits to the listed species would be expected to result when the consultation process avoids destruction or adverse modification of its critical habitat, or avoids lesser adverse effects to critical habitat that may not rise to the level of adverse modification. Adverse impacts to other components of the ecosystem may similarly be avoided through consultation and implementation of RPAs. Designation and protection of critical habitat could result in project modifications that avoid adverse impacts to critical habitat and other components of the ecosystem may result in continued provision of benefits to user groups and economic sectors that utilize these habitats or ecosystem components.

The ESA does not specify methods for identifying and considering the impacts of critical habitat designation, and previous designations have used a variety of approaches based on the relevant circumstances of the species and habitat involved. As described, the legislative history of the ESA informs these analyses, and several important court opinions have evaluated the legal sufficiency of these analyses, and clarified a number of important aspects of these statutory provisions. Section 4(b)(2) consists of two steps: an initial mandatory requirement that the agency consider certain impacts of critical habitat designation, and a discretionary step wherein the agency, informed by those considerations, may propose excluding particular areas from the designation. The ESA's legislative history explains the broad latitude afforded to NMFS in its consideration of impacts:

Economics and any other relevant impact shall be considered by the Secretary in setting the limits of critical habitat for such a species. The Secretary is not required to give economics or any other "relevant impact" predominant consideration in his specification of critical habitat...The consideration and weight given to any particular impact is completely within the Secretary's discretion. (H.R. Rep. No. 95-1625, at 16-17 (1978), 1978 U.S.C.C.A.N. 9453, 9466-67)1

NMFS may then exclude particular areas that otherwise meet the definition of critical habitat from a designation, on a determination that the benefits of exclusion outweigh the benefits of including the area(s), and exclusion will not result in the species' extinction. This step is entirely discretionary, and does not require exclusion in any circumstances.

One court recently held that an agency's decision not to exercise its discretion to exclude areas is not subject to judicial review (*Home Builders Association of No. Calif. et al., v. U.S. Fish and Wildlife Service*, 2006 U.S. Dist. LEXIS 80255 at 45-46 (E.D. Cal., Nov. 1, 2006)). The court based this conclusion on the broad latitude provided to the agency in consideration of impacts described above, the discretionary nature of the exclusion provision, and the fact that the statute provides substantive standards only for the review of actual exclusions, i.e., the Secretary must determine that the benefits of exclusion outweigh the benefits of inclusion for particular areas. In contrast, the statute includes no substantive standards for a court to review a decision not to exclude areas from a designation.

Regarding consideration of economic impacts in the *Home Builders* case, the court noted that the term "impacts" is not specific and can be both positive and negative (*Id*. at 54, citing *Butte Envtl. Council v. Norton*, slip op., 04-0096, at 12 (N.D. Cal. Oct. 28, 2004)); this logic applies equally to national security impacts and other relevant impacts.

Other Laws, Executive Orders, and Policies Applicable to Economic Impact Analysis

The consideration of impacts from a critical habitat designation is subject to other laws, EOs, and policies beyond the ESA. For example, the Regulatory Flexibility Act (RFA, 5 U.S.C. 601 *et seq.*) establishes a regulatory philosophy that agencies shall endeavor, consistent with the objectives of a proposed rule and applicable statutes, to fit regulatory requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. The RFA does not contain decision criteria per se; rather, the purpose of the RFA is to inform the agency, as

well as the public, of the expected economic impacts of a proposed action to ensure that the agency considers alternatives that minimize expected significant adverse impacts of the rule on a substantial number of small entities, while meeting the goals and objectives of the proposed action. A Final Regulatory Flexibility Analysis (FRFA) was conducted for the final critical habitat designation (Appendix B).

EO 12866, Regulatory Planning and Review, provides guidance to Federal agencies on the development and analysis of regulatory actions. The overarching regulatory philosophy established by EO 12866 is:

Federal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people. In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages, distributive impacts, and equity), unless a statute requires another regulatory approach.

The EO includes a list of twelve principles for regulatory program planning and development of individual proposed rules that agencies should adhere to, to the extent permitted by law and where applicable. These principles include identification of market failures or other problems intended to be addressed by the regulation, and whether existing regulations or laws have created or contributed to the problem. If applicable, agencies are directed to identify non-regulatory alternatives to the problem.

Where regulations are necessary or required by law, agencies must design regulations in the most cost effective manner available to achieve the regulatory objective and impose the least burden on society. All costs and benefits of proposed regulations must be assessed. If feasible, agencies should specify performance objectives rather than behavior or compliance requirements. Agencies are directed to seek the views of appropriate State, local, and Tribal officials if such would be significantly or uniquely affected by a proposed rule. Regulations must not be inconsistent, incompatible, or duplicative with other Federal regulations, and must be simply drafted and easy to understand.

Office of Management and Budget (OMB) guidance to Federal agencies on implementing EO 12866 states that good regulatory analyses include three basic elements: (1) a statement of the need for the action, (2) an examination of alternative approaches, and (3) an evaluation of benefits and costs of the final action and the main alternatives (OMB Circular A-4, Sept. 17, 2003). Further, OMB Circular A-4 states that proper evaluation of the benefits and costs of regulations requires:

- Explaining how the actions required by the rule are linked to the expected benefits
- Identifying an appropriate baseline
- Identifying the expected undesirable side effects and ancillary benefits of the final rule

These regulatory principles were integrated into the development of the final rule to the extent consistent with the mandatory duty to designate critical habitat, as defined in the ESA.

DC-LTA INRMP

The DC-LTA INRMP strives to sustain the natural resources at DC-LTA for future training missions and attempts to insure minimal impacts to soil, vegetative, water, and fauna. It also out-lines monitoring efforts for detecting any training impacts upon these resources, so detected impacts can be corrected. In the event the Secretary of the Interior determines the necessity to add a new species to the list of threatened and endangered species, the NDARNG's DC-LTA ICRMP will provide management guidance assuring DC-LTA's native habitat remains relatively unchanged and potential suitable for supporting a newly listed T&E species requiring the collective natural resources located at DC-LTA.

The designation critical habitat based upon the listing of new T&E listed species could be devastating to the NDARNG training mission at DC-LTA. The 730 acres of DC-LTA offers limited training opportunities and designating even small areas of DC-LTA as critical habitat may force the troops to utilize an alternative NDARNG training site located 177 miles to the east of the DC-LTA. The travel to the alternative site would be more costly, but more importantly time investment traveling to the site would deprive NDARNG soldiers of training time needed to prepare for active duty.

An up-dated T&E listed species and canidate species can be obtained at the following web address: http://www.fws.gov/northdakotafieldoffice/SEtable.pdf

NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE
ARLINGTON VA 22204-1373

ARNG-ILE

MEMORANDUM FOR North Dakota Army National Guard (NDARNG), JFND-ENV, (ATTN: Kent Belland), P.O. Box 5511, Bismarck, ND 59506-5511

SUBJECT: Army National Guard (ARNG) Directorate Review of the Integrated Natural Resource Management Plans for the North Dakota Army National Guard

1. References:

a. The Sikes Act (16 U.S.C 670 et seq), as amended, 31 DEC 11.

b. 32 CFR Part 651, Environmental Analysis of Army Actions, 29 MAR 02.

c. AR 200–1, Environmental Protection and Enhancement, 13 DEC 07.

2. The ARNG Directorate Conservation Branch has reviewed the INRMP Updates for Camp Grafton North, Camp Grafton South, and Douglas Creek LTA, and determined that all comments have been sufficiently addressed. Enclosed are the signed INRMP signature pages.

3. The Record of Environmental Considerations, dated 18 Sep 14 are appropriate NEPA documents in accordance with reference 1b.

4. The point of contact for this action is Mr. Eric Beckley, Natural Resources Program Manager, at DSN 327-7036, 703-601-7036 or via email at eric.r.beckley.civ@mail.mil.

Encl

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