Integrated Natural Resources Management Plan/ Supplemental Environmental Assessment

Selfridge Air National Guard Base
Macomb County, Michigan

Final

September 2018

Final
Integrated Natural Resources Management Plan/ Supplemental Environmental Assessment Selfridge Air National Guard Base Macomb County, Michigan

Prepared for

Air National Guard
Plans and Requirements Branch
NGB/A4AM
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762

On Behalf Of

Michigan Air National Guard
127th Wing
28900 Selfridge Avenue
Selfridge ANGB, Michigan 48045-5029

September 2018

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SIGNATURE PAGE
MICHIGAN AIR NATIONAL GUARD BASE
MACOMB COUNTY, MICHIGAN

This Integrated Natural Resources Management Plan (INRMP), dated September 2018, has been developed for Selfridge Air National Guard Base (ANGB) and the National Guard Bureau (NGB) in accordance with Air Force Instruction 32-7064, *Integrated Natural Resources Management;* Air Force Policy Directive 32-70, *Environmental Quality;* and the provisions of the Sikes Act, as amended (16 United States Code §670a et seq.) in cooperation with the United States Fish and Wildlife Service (USFWS), Michigan Department of Natural Resources (DNR), and Michigan Department of Environmental Quality (DEQ). The management of natural resources in this INRMP reflects the mutual agreement of all parties.

To the extent that resources permit, the USFWS, Michigan DNR, and Selfridge ANGB, by signature of their agency representative, do hereby agree to enter a cooperative agreement program for the conservation, protection, and management of natural resources present on Selfridge ANGB, Michigan. The intention of this agreement is to develop functioning, sustainable ecological communities on Selfridge ANGB that integrate the interests and mission of the agencies charged with conservation, protection, and management of natural heritage in the public interest. This agreement may be modified and amended by mutual agreement of the authorized representatives of the three agencies. This agreement will become effective upon the date of the last signatory and shall continue in full force until terminated by written notice to the other parties, in whole or in part, by any of the parties signing this agreement.

By their signatures below, or an enclosed letter of concurrence, all parties grant their concurrence and acceptance of the following document.

Approving Officials:

Selfridge Air National Guard Base **Base Commander Signatory**	**Date**
United States Fish and Wildlife Service Signatory	**Date**
Michigan Department of Natural Resources Signatory	**Date**

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ANNUAL REVIEW AND COORDINATION DOCUMENTATION
2019

This page is used to certify the annual review and coordination of the Integrated Natural Resources Management Plan (INRMP) for Selfridge Air National Guard Base in Michigan.

By their signatures below, the certifying official acknowledges that the annual review and coordination of the INRMP has occurred for the specified year.

Approving Officials:

Selfridge Air National Guard Base **Base Commander Signatory**	**Date**
United States Fish and Wildlife Service Signatory	**Date**
Michigan Department of Natural Resources	**Date**

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ANNUAL REVIEW AND COORDINATION DOCUMENTATION
2020

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ANNUAL REVIEW AND COORDINATION DOCUMENTATION
2021

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ANNUAL REVIEW AND COORDINATION DOCUMENTATION
2022

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)
FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)
FOR THE INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN/ SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

Selfridge Air National Guard Base, Michigan

PURPOSE: Selfridge Air National Guard Base (ANGB) is preparing this Supplemental Environmental Assessment (SEA) to further evaluate the environmental consequences associated with the Integrated Natural Resources Management Plan (INRMP) implementation, specifically the Wildland Fire Management Plan (WFMP) and potential wetland impacts associated with the Storm Water Facilities – Conveyance Restoration Plan. The purpose of the INRMP implementation is to carry out the set of recommended resource-specific management strategies developed in the INRMP, which would enable Selfridge ANGB to effectively manage the use and condition of natural resources on the installation. The INRMP has been developed for use by Selfridge ANGB in in accordance with Air Force Instruction (AFI) 32-7064, *Integrated Natural Resources Management*; Air Force Policy Directive 32-70, *Environmental Quality*; Department of Defense Instruction 4715.03, *Natural Resources Conservation Program*; and the provisions of the Sikes Act (16 United States Code §670a et seq.). The purpose of the WFMP is to utilize prescribed burns to support mission sustainability by controlling invasive plant species that are threatening mission activities and to maintain the plant community surrounding the airfield as herbaceous habitat. The purpose of the Storm Water Facilities – Conveyance Restoration Plan is to manage storm water drainage in and around the airfield and restore the function and capacity of the storm water ditch system at Selfridge ANGB.

BACKGROUND: Selfridge ANGB is located on the western shore of Lake St. Clair, 2 miles northeast of Mount Clemens, Michigan, and 25 miles north of downtown Detroit, Michigan. The installation is located in Macomb County, and occupies 3,074.485 acres, or about 5 square miles of Federal Fee Land, which is managed by the Air National Guard for the U.S. Air Force (USAF). The primary mission of Selfridge ANGB is to train and support the host,127 Wing Guard (127 WG) of the Michigan Air National Guard (MIANG). The mission of the 127 WG is to provide trained and equipped air refueler, attack aircraft, and support resources for the community, state, and nation. As part of the federal mission, the ANG provides operationally ready combat units and combat support units, and qualified personnel for active duty in the USAF to fulfill war contingency commitments. Under order of state authorities, MIANG provides protection of life and property, and preserves peace, order, and public safety.

PROPOSED ACTION: Selfridge ANGB proposes to implement an INRMP, which supports the management of natural resources as described by the INRMP itself. INRMP implementation would also include the implementation of the WFMP and Storm Water Facilities – Conveyance Restoration Plan. The implementation of the INRMP would enable Selfridge ANGB personnel to protect the natural setting by effectively managing the use and condition of natural resources on the installation. Implementation of the Proposed Action, specifically the WFMP, would support Selfridge ANGB's continuing need to ensure safety and efficiency of the flying mission over the installation while practicing sound resource stewardship on the installation and complying with environmental policies and regulations.

Implementation of the WFMP would include using prescribed fire as a tool for managing plant communities. This includes managing invasive species, specifically common reed (*Phragmites* sp.), which is impeding the flow of water within the drainage ditch systems. Prescribed fire would also be used for routine maintenance of herbaceous habitat within flight safety areas with respect to Bird/Wildlife Airstrike Hazard (BASH).

The implementation of the Storm Water Facilities – Conveyance Restoration Plan would include maintenance of the existing ditches to remove accumulated sediment. A number of the storm water ditches are located adjacent to or within state regulated wetlands. The Storm Water Facilities – Conveyance Restoration Plan demonstrates that maintenance of the drainage ditches should be considered an exempt activity. However, if ditch maintenance is not considered an exempt activity, a state wetland permit and a Section 404 permit would be required. Wetland mitigation is required as a condition of many permits issued under state law (Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended) and federal law (Section 404 of the Clean Water Act). Selfridge ANGB BASH Plan states that wetland mitigation should never occur within the airport operating area as it could result in increased wildlife hazards with respect to BASH. Due to the configuration and limited size, the airport operating area encompasses the entire installation. Therefore, wetland mitigation, if required, could include the purchase of wetland credits through Michigan Department of Environmental Quality for offsite mitigation.

NO ACTION ALTERNATIVE: Implementation of the No Action Alternative would mean that the proposed management measures set forth in the INRMP would not be implemented. In addition, the WFMP and Storm Water Facilities – Conveyance Restoration Plan would not be implemented. Current management measures for natural resources would remain in effect and existing conditions would continue.

ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION: The SEA has evaluated the potential environmental impacts associated with the Proposed Action and No Action Alternative. Potential impacts of the Proposed Action have been assessed for the following environmental resource areas:

Air Quality – Minor adverse impacts to air quality will occur under the Selected Alternative due to the implementation of the WFMP. Smoke associated with prescribed burns can produce pollutants such as carbon monoxide, volatile organics, and particulates. Impacts would be minor since the prescribed burns would be small in size. In addition, impacts would be reduced by the implementation of smoke management techniques.

Noise – Implementation of the INRMP, including the WFMP, and the Storm Water Facilities – Conveyance Restoration Plan, will not involve activities that will impact noise conditions, such as changes in military equipment (aircraft), increase in the number or location of personnel; construction of new facilities or modification of existing facilities; or change in military operations. Therefore, impacts to noise levels is not expected.

Geologic Resources (Topography, Geology, and Soils) – Implementation of the INRMP will create beneficial impacts to geologic resources due to efforts to minimize soil erosion. The

implementation of prescribed burns will have minor adverse impacts to soil properties. Impacts to soil would depend on the intensity of the prescribed burns.

Water Resources – Implementation of the INRMP will create beneficial impacts to water resources by reducing the potential for water quality degradation within and downstream of Selfridge ANGB. Maintenance of the storm water conveyance channels will also restore the function and capacity of the storm water ditch system at Selfridge ANGB. Impacts to water resources associated with prescribed burns will be short-term, negligible, and adverse. Following the prescribed burns, there is potential for a slight increase in storm water runoff which may temporarily reduce water quality.

Wetlands – Implementation of the INRMP will create beneficial impacts to wetlands. The INRMP includes goals and objectives for adaptive management strategies to conserve and minimize impacts to the installation's wetland resources. Implementation of the WFMP will create minor adverse impacts to wetlands. Prescribed fire will be used to maintain previously deforested wetland as herbaceous habitat. This is necessary within the airfield management areas to address BASH and airfield requirements. Implementation of the Storm Water Facilities – Conveyance Restoration Plan would require permit exempted activities such as maintenance of county drains or roadside ditches. Minor adverse impacts to wetlands would result during maintenance activities from the removal of sediment buildup and blockage of vegetation that impedes flows. Removal of sediment and vegetation would only be to the extent that these systems were originally designed.

Floodplains **–** Implementation of the INRMP will create beneficial impacts to the floodplain and coastal zone due to the continued to maintenance of the riprap and berm along Lake St. Clair.

Vegetation – Beneficial impacts are expected due to the implementation of the INRMP and WFMP. Benefits will include the continued removal of urban trees in poor health, removal of invasive species, and use of native species in landscaping. Prescribed burn will also have a minor adverse impact due to the maintenance of herbaceous habitat when land management practices cannot be accomplished using mechanical means.

Wildlife – Implementation of the INRMP will include management actions that will support wildlife at Selfridge ANGB as appropriate. Implementation of the WFMP will create minor adverse impacts to wildlife. In general, most wildlife easily escape wildfires as ignition patterns provide escape routes as the fire progresses. Consideration will be given to nesting birds, amphibians, and reptiles before burning anytime other than during the winter.

Threatened and Endangered Species – Implementation of the INRMP will create beneficial impacts to threatened and endangered species occurring at Selfridge ANGB. Selfridge ANGB will monitor listed species and their habitat to ensure no adverse impacts occur to each species without jeopardizing the mission. Implementation of the WFMP has the potential to create adverse impacts to the state-listed species at Selfridge ANGB; however, Best Management Practices will be implemented to reduce the potential for impacts. Prior to a prescribed burn, staff will ensure that no listed species are located within the burn area.

Land Use and Facilities – The implementation of the INRMP will have no impact to land use and facilities at Selfridge ANGB.

Hazardous and Toxic Materials **–** The implementation of the WFMP will have negligible adverse impacts to hazardous and toxic materials. Hazardous materials are used during prescribed burns and hazardous wastes are generated. All hazardous materials and wastes will be stored in appropriate containers and any hazardous waste generated during the prescribed burns will be disposed of properly.

Socioeconomic Resources **–** Implementation of the INRMP and associated plans would have no impact on socioeconomics.

Environmental Justice **–** Implementation of the INRMP and associated plans would have no impact on environmental justice.

Cultural Resources **–** Implementation of the INRMP and associated plans would have no impact on cultural resources.

Public Health and Safety – Implementation of the INRMP and associated plans would have a beneficial impact to public health and safety. The maintenance of storm water conveyances and management of habitat within the airfield environment would reduce BASH risk, overall increasing flight safety. Implementation of the WFMP would have negligible impacts to public health and safety during prescribed burns.

PUBLIC INVOLVEMENT: The Sikes Act requires the preparation of an INRMP in cooperation with the U.S. Fish and Wildlife Service (USFWS) and the appropriate state fish and wildlife agency (Michigan Department of Natural Resources [DNR]). In addition, it is required that the resulting Plan reflects the mutual agreement of the parties concerning conservation, protection, and management of fish and wildlife resources. The USFWS and Michigan DNR participated in the development of the INRMP which ensured that information concerning the natural resources on or in the vicinity of the installation was accurate and presented with acknowledgment to local and regional management strategies. USFWS and Michigan DNR had the opportunity to review and comment on the document.

The Sikes Act also requires public comment on the INRMP at its inception as well as during revisions when there is a mission change. A Notice of Availability was placed in the Macomb Daily newspaper on 24 July 2018 to invite the public to comment on the Draft INRMP/SEA for a period of 30 days. A copy of the Draft INRMP/SEA was available at the Harrison Township Public Library during the review period. In addition, a letter announcing the availability of the INRMP/SEA was sent to the following agencies/stakeholders: USFWS, Michigan DNR, Michigan Department of Environmental Quality, U.S. Army Corps of Engineers, and all property owners within the surrounding area of Selfridge ANGB. No comments were received during the 30-day public review period.

FINDING OF NO PRACTICABLE ALTERNATIVE: Pursuant to Executive Order 11988, the authority delegated in the Secretary of the Air Force Order 791.1, and taking the above

information discussed under Wetlands into account, we conclude that there is no practicable alternative to modifying wetland habitat in the transition, approach, and clear zones and during storm water conveyance restoration. Unified Facilities Criteria 3-260-01, *Airfield and Heliport Planning and Design;* AFI 32-7063, *Air Installations Compatible Use Zones Program*; and Air Force Handbook 32-7084, *AICUZ Program Manager's Guide,* require that nonfrangible objects, such as trees, be kept 1,000 feet from runways and 200 feet from taxiways; therefore, any trees encroaching into the transition, approach, and clear zone will be removed. In order to minimize the adverse impacts to wetlands, modification of the habitat to emergent or grassland marsh wetlands will occur rather than the filling of wetlands. This has been determined to be the best approach to maintaining the clear zone consistent with the above regulations. This approach to maintaining the clear zone will not result in a loss of wetland acreage, but will affect the current vegetative characteristics of the wetland. Impacts to wetland boundaries due to storm water conveyance restoration would be the result of actions exempted from mitigation pertaining to existing storm water conveyances as detailed in the storm water conveyance restoration plan or accomplished under permitted activities with associated mitigation as required under state regulations. The proposed action, as planned, includes all practicable measures to minimize harm to wetlands.

FINDING OF NO SIGNIFICANT IMPACT: Based on my review of the facts and analysis in this SEA, I conclude that the Proposed Action will not have a significant impact on the quality of the human or natural environment or generate significant controversy either by itself or considering cumulative impacts. Accordingly, the requirements of the National Environmental Policy Act, the Council on Environmental Quality, and 32 Code of Federal Regulations 989, et seq. have been fulfilled, and an Environmental Impact Statement is not necessary and will not be prepared.

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WILLIAM P. ALBRO, GS-15, DAFC/USAF DATE
Associate Director, Installations

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1. EXECUTIVE SUMMARY

This Integrated Natural Resources Management Plan (INRMP) has been developed for the Selfridge Air National Guard Base (ANGB) and the National Guard Bureau (NGB) in accordance with Air Force Instruction 32-7064, *Integrated Natural Resources Management;* Air Force Policy Directive 32-70, *Environmental Quality;* Department of Defense Instruction 4715.03, *Natural Resources Conservation Program*; and the provisions of the Sikes Act, as amended (16 United States Code [USC] §670a et seq.). This INRMP provides Selfridge ANGB with a description of the installation and its surrounding environment, and presents various management practices designed to mitigate negative impacts and enhance the positive effects of the installation's mission on regional ecosystems. These recommendations have been balanced against the requirements of Selfridge ANGB to accomplish its mission at the highest possible level of efficiency. To obtain an accurate assessment of the installation's influences, analyses were conducted to determine the physical and biotic nature of Selfridge ANGB and its surrounding environment, as well as the operational activities taking place. In some cases, the implementation of some of these recommendations sacrifices the improvement of the natural resources at Selfridge ANGB in deference to the safety and efficiency of the flying mission.

This INRMP is a practical guide for the management and stewardship of all natural resources present on Selfridge ANGB, while ensuring the successful accomplishment of the military mission. The INRMP was developed using an interdisciplinary approach in which information was gathered from a variety of organizations. Guidance was also solicited from a variety of federal and state agencies. A Task Force was formed, which included key installation personnel and individuals from various agencies that have an interest in Selfridge ANGB and the management of its resources. Representatives from the following federal and state regulatory agencies comprised the Task Force: United States Fish and Wildlife Service (USFWS), Michigan Department of Natural Resources (DNR), and Michigan Department of Environmental Quality. These varying perspectives allowed for an accurate portrayal of the status and management needs of local ecosystems, balanced against the requirement for the installation to accomplish its mission(s) at the highest possible level of efficiency. As a result, the probable effects of Selfridge ANGB operations on the surrounding natural resources were projected, allowing for the development of possible operational alternatives that could result in lessening impacts on the environment.

Participation in the Task Force by representatives from the USFWS and Michigan DNR satisfied the provisions of the Sikes Act (16 USC §670a et seq.). The Sikes Act requires the preparation of an INRMP in cooperation with the USFWS and the appropriate state fish and wildlife agency (i.e., Michigan DNR). In addition, it is required that the resulting plan reflect the mutual agreement of the parties concerning conservation, protection, and management of fish and wildlife resources.

The maintenance and enhancement of biological diversity is particularly important in the management of natural resources and will be accomplished through the implementation of specific management practices identified in this INRMP. Biodiversity is simply defined as "the variety of life and its processes."

Biodiversity does not just describe how many species there are or how evenly they are represented in a given community. Rather, biodiversity can be applied on four basic levels:

1. ***Genetic Diversity***— Refers to the variation of genotypes within a species that influences different characteristics among individuals or populations.

2. ***Species Diversity***—Refers to the number of different kinds of species within a given area.

3. ***Ecosystem Diversity***—Refers to the number, relative proportions, and interactions among communities within an ecosystem.

4. ***Landscape Diversity***—Can be defined as the composition of and interactions among ecosystems across a defined landscape.

By protecting habitat that support the greatest variety of life and its processes, this INRMP will help perpetuate the form and function of native communities, thus enhancing the long-term viability of Selfridge ANGB and ensuring its sustainability for military operations.

The INRMP presents practicable alternatives and recommendations that would minimize impact on the Selfridge ANGB missions while providing for management and stewardship of natural resources that would conserve and enhance existing ecosystems on the installation.

The overriding goal for this INRMP is to accomplish natural resources stewardship with no net loss in Selfridge ANGB's capability to support the military mission. The mission of Selfridge ANGB is to provide trained, equipped and motivated air refueling, fighter and support resources serving the community, state and nation. Minimizing bird/wildlife aircraft safety hazard is of paramount importance when managing the natural resources on Selfridge ANGB. Knowledge of the ecological relationship between soil, hydrology, vegetation, and wildlife attracted to the vegetation (from insects to large mammals) are all factors taken into consideration when specifying natural resources goals, objectives, and actions in this INRMP.

The following natural resource goals will be considered when feasible and supportive of the mission:

1. Minimize habitat fragmentation and promote the natural connectivity of habitats;
2. Protect native species and discourage non-native, invasive species;
3. Protect rare and ecologically important species and unique or sensitive environments;
4. Maintain or mimic natural processes;
5. Protect genetic diversity;
6. Restore species, communities, and ecosystems; and,
7. Monitor impacts on biodiversity.

From these goals, objectives and management actions were identified that structure this plan's guidance. However, each of the management strategies described in this INRMP should be monitored so that modifications can be made as conditions change during implementation.

Throughout the development of this INRMP, management issues were identified in a number of natural resources subject areas. Some of these natural resources topics of concern could have an adverse impact on Selfridge ANGB's flying mission or future planning operations. One of the purposes of this INRMP is to identify goals and objectives for the installation and to obtain workable and useful solutions for each topic of concern. The topics of concern involving natural resource constraints to planning and mission operations are presented in Chapter 6.

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2. GENERAL INFORMATION

2.1 PURPOSE AND SCOPE

This Integrated Natural Resources Management Plan (INRMP) has been developed for use by Selfridge Air National Guard Base (ANGB) and the National Guard Bureau (NGB) in accordance with Air Force Instruction (AFI) 32-7064, *Integrated Natural Resources Management*; Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*; Department of Defense Instruction (DoDI) 4715.03, *Natural Resources Conservation Program*; and the provisions of the Sikes Act (16 United States Code [USC] §670a et seq.).

This INRMP provides Selfridge ANGB with a description of the installation (e.g., location, history, and mission), information about the surrounding physical and biotic environment, and an assessment of the impacts on natural resources as a result of mission activities. Furthermore, the INRMP recommends various management practices in compliance with federal, state, and local standards designed to mitigate negative impacts and enhance the positive effects of the installation's mission on local ecosystems.

This INRMP integrates all aspects of natural resource management with the rest of the installation's mission and, therefore, becomes the primary tool for managing the installation's ecosystems while ensuring the successful accomplishments of the military mission at the highest possible levels of efficiency. The INRMP is a guide for the management and stewardship of natural resources present on the installation. A multiple-use approach will be implemented to allow for the presence of mission-oriented activities, as well as environmental quality through efficient management of natural resources.

Specific management practices identified in this INRMP have been developed to enhance and maintain biological diversity within the installation. Specifically, management practices should:

- Minimize habitat fragmentation and promote the natural pattern and connectivity of habitats
- Protect native species and discourage non-native, invasive species
- Protect rare and ecologically important areas
- Protect unique sensitive environments
- Maintain or mimic natural processes
- Protect genetic diversity
- Restore species, communities, and ecosystems
- Monitor impacts on biodiversity.

Each of the management strategies described in this plan should be monitored so that modifications can be made during implementation if conditions change. There are four levels of biodiversity: genetic diversity, species diversity, ecosystem diversity, and landscape diversity. Human communities are entirely and completely dependent on the goods and services provided by our diverse ecosystems. Decline of these ecosystems and the biodiversity within them is one of the foremost limitations to human prosperity. Ecosystem sustainability is the key to both biological diversity and human existence. It is the goal of this INRMP to successfully integrate

ecological sustainability with goals and objectives that will safely sustain human communities and the operational mission of Selfridge ANGB. By protecting habitats that support the greatest diversity of life, this INRMP helps perpetuate viable, sustainable populations of native species, and the communities they comprise. The protection of these species and communities, in turn, promotes the sustainability of functional ecosystems across the landscape. Appendix A of this INRMP provides the references for the document, while Appendix B provides a list of acronyms and abbreviations.

2.2 MANAGEMENT PHILOSOPHY

As part of its mission, the United States Air Force (USAF) and Michigan Air National Guard (MIANG) have chosen to be leaders in environmental and natural resources stewardship both now and in the future. The vitality of natural resources must be ensured in order to achieve their military mission. As a steward of natural resources, Selfridge ANGB acknowledges its commitment to be a conservation leader for its cognizant areas.

Conservation is an integration or blending of natural resources management and preservation designed to maintain ecosystem integrity. This INRMP provides conservation measures and is a dynamic document that will be maintained and adapted, as necessary, to reflect updated natural resources information. The development and implementation of this INRMP indicate Selfridge ANGB's commitment to natural resources.

This INRMP was developed using an interdisciplinary approach, and with information gathered from a variety of organizations. Information and guidance were also solicited from a variety of federal and state agencies. A Task Force was formed which included key installation personnel and individuals from various agencies that have interest in Selfridge ANGB and the management of its resources. Representatives from the following federal and state regulatory agencies comprised the Task Force: United States Fish and Wildlife Service (USFWS), Michigan Department of Natural Resources (DNR), Michigan Department of Environmental Quality (DEQ), and U.S. Department of Agriculture Wildlife Services (USDA-WS). Correspondence with these agencies will be documented and will satisfy the requirements of 32 Code of Federal Regulations (CFR) 989, as amended, *The Environmental Impact Analysis Process*. Task Force participants from the Air National Guard (ANG) and Selfridge ANGB include the NGB/A4AM Natural Resources Program Manager, 127th Wing Guard (127 WG) Commander, 127 WG Base Civil Engineer, Natural Resources Manager (127 WG/CEV), Environmental Manager (127 WG/CEV), 127 WG Wing Safety Office, 127 WG Airfield Management, Legal Office NGB/JA, 127 WG Public Affairs, 127 WG Operations and Maintenance, and 127 WG Pest Management.

The Task Force ensured that information concerning the natural resources on or in the vicinity of the installation was accurate, and presented local and regional management strategies. As a result, the probable effects of installation operations on the surrounding natural and cultural resources will be projected. This approach also allowed for insight into possible operational alternatives, which could result in reduced impacts on natural resources on the installation and in surrounding areas.

Participation of the Task Force by representatives from the USFWS and Michigan DNR satisfies the provisions of the Sikes Act (16 USC §670a et seq.). The Sikes Act requires the preparation of an INRMP in cooperation with the USFWS and the appropriate state fish and wildlife agency (Michigan DNR). In addition, it is required that the resulting plan reflects the mutual agreement of the parties concerning conservation, protection, and management of fish and wildlife resources. The Sikes Act, in addition to Department of Defense (DoD) Manual 4715.03 and AFI 32-7064 requires public comment on the INRMP at its inception, as well as during revisions when there is a mission change. Appendix C includes consultation with USFWS, Michigan DNR, and Michigan DEQ and the Task Force meeting minutes.

The INRMP presents practicable alternatives and recommendations to allow for the protection and enhancement of natural resources and conservation of existing ecosystems, while minimizing impacts on the installation's mission(s). Consequently, implementation of some of these recommendations will sacrifice improvement of the installation's natural resources in deference to the safety and efficiency of the mission.

2.3 AUTHORITY

This INRMP is developed under, and proposes actions in accordance with, the applicable DoD and USAF policies, directives, and instructions. AFI 32-7064, *Integrated Natural Resources Management*, provides the necessary direction and instruction for preparing an INRMP. Issues are addressed in this plan using guidance provided under legislation, Executive Orders (EOs), Directives, and Instructions that include DoDI 4715.03, *Natural Resources Conservation Program*; DoD Manual 4715.03, *Integrated Natural Resources Management Plan*; AFPD 32-70, *Environmental Quality*; and AFI 32-7064. DoD Instruction 4715.03 provides direction for DoD installations in establishing procedures for an integrated program for multiple-use management of natural resources (including biological and earth resources) on property and lands managed or controlled by DoD. DoD Manual 4715.03 provides the procedures to prepare, review, update, and implement INRMPs in compliance with the Sikes Act. AFPD 32-70 discusses general environmental quality issues, including proper cleanup of polluted sites, compliance with applicable regulations, conservation of natural resources, and pollution prevention. Appendix D summarizes key legislation and guidance used to create and implement this INRMP.

2.4 INTEGRATION WITH OTHER PLANS

This INRMP is intended to be compatible with other Selfridge ANGB planning documents. In preparing this document, other plans consulted are listed below. These documents can be found either as appendices to this INRMP or as Component Plans. Component Plans can be found electronically on the compact disk provided with this INRMP.

- ***Integrated Pest Management (IPM) Plan***—This plan describes how Selfridge ANGB will comply with the requirements of DoDI 4150.07, *DoD Pest Management Program*, and AFI 32-1053, *Integrated Pest Management Program*. The plan provides guidance for operating and maintaining an effective integrated pest management program at Selfridge ANGB, and ensures that pest management issues do not adversely impact military readiness and mission. The plan also identifies and implements strategies for

managing specific pests at the installation and implements the use of both chemical and non-chemical control techniques to achieve effective pest management that minimizes economic, health, and environmental risks (Appendix E).

- ***Bird/Wildlife Aircraft Strike Hazard (BASH) Plan***—This plan provides guidance for BASH reduction in areas where flying operations are conducted. Specific operations in the plan include the establishment of a Bird/Wildlife Hazard Working Group, procedures for reporting hazardous bird activity, provisions to disseminate information to aircrews, procedures to eliminate or reduce conditions that attract birds and wildlife, and procedures to disperse birds and wildlife from the airfield (Component Plan A) (ANG 2017). The INRMP provides support for the BASH Plan. Guidelines for BASH should be developed in cooperation with the Environmental Office and Pest Management Office.

- ***Wildland Fire Management Plan***—This plan is intended to support mission sustainability by addressing invasive plan species that are threatening mission activities through a wildland fire program. The plan outlines procedures for conducting prescribed burns to control common reed (*Phragmites australis*) and to manage herbaceous habitat (Appendix F).

- ***Storm Water Facilities – Conveyance Restoration Plan***—This plan includes recommendations for maintaining or improving the existing storm water drainage throughout the installation. The existing ditches require maintenance to remove built-up sediment, as they have not been regularly maintained. The plan specifically addresses minimizing impacts to regulated wetlands, where practicable to maintain and operate storm water conveyances on the installation (Appendix G).

- ***Urban Tree Survey and Action Plan***—This plan includes geospatial maps and mapping data of native and non-native trees and associated vegetative communities, quantitative and qualitative information on these communities and specified individual trees, and recommendations to discourage non-native and invasive species. The plan also identifies hazard trees throughout the installation and recommends treatment (Appendix H).

2.5 NEPA COMPLIANCE AND INTEGRATION

2.5.1 National Environmental Policy Act of 1969

The National Environmental Policy Act (NEPA) is a federal statute requiring the identification and analysis of potential environmental impacts of proposed federal actions before those actions are taken. NEPA established the Council on Environmental Quality (CEQ), which is charged with the development of implementing regulations and ensuring federal agency compliance with NEPA. CEQ regulations mandate that all federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that could affect the environment. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed federal decisions.

The process for implementing NEPA is codified in 40 CFR Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ was established under NEPA to implement and oversee Federal policy in this process. To this end, the CEQ regulations specify that an Environmental Assessment be prepared to do the following:

- Briefly provide evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI)
- Aid in an agency's compliance with NEPA when an EIS is unnecessary
- Facilitate preparation of an EIS when one is necessary.

AFPD 32-70, *Environmental Quality*, states that the USAF will comply with applicable federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is 32 CFR Part 989, USAF *Environmental Impact Analysis Process*.

2.5.2 INRMP and NEPA Integration

To comply with NEPA, the planning and decision-making process for actions proposed by federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an Environmental Assessment (EA) or EIS, which enables the decision-maker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to the CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively." The adoption of an INRMP can be considered a major federal action as defined by Section 1508.18 of the CEQ regulations. The Headquarters USAF Environmental Office Policy Memo for Implementation of the Sikes Act Improvements Amendments dated 29 January 1999 requires the preparation of an EA or EIS for the implementation of the INRMP. For the purposes of implementing the Selfridge ANGB INRMP, an EA was chosen as the appropriate level of NEPA analysis, and was integrated as part of the INRMP in 2010.

If new management measures are developed during annual reviews or during the 5-year INRMP revision, additional environmental analyses may be required. A Supplemental Environmental Assessment (SEA) is being incorporated into this INRMP revision to further evaluate the environmental consequences associated with INRMP implementation, specifically the Wildland Fire Management Plan (WFMP) and potential wetland impacts associated with the Storm Water Facilities – Conveyance Restoration Plan.

Table 2-1 presents a "roadmap" of the NEPA analysis incorporated as part of this INRMP by providing the INRMP sections that correspond to the sections typically found in an EA.

Table 2-1. Roadmap Indicating NEPA Analysis and Corresponding INRMP Sections.

Required NEPA Analysis	Corresponding INRMP Section
Executive Summary – briefly describes the Proposed Action, environmental consequences, and mitigation measures.	Chapter 1 Executive Summary
Purpose and Need of the Proposed Action – summarizes the Proposed Action's purpose and need and describes the scope of the environmental impact analysis process.	Section 2.5.3
Description of Proposed Action and Alternatives – describes the Proposed Action of implementing the INRMP and alternatives to the implementation of the Proposed Action.	Section 2.5.4
Scope of Analysis – describes the scope of the environmental impact analysis process.	Section 2.5.5
Affected Environment – describes the biotic environment and the general physical environment potentially affected by the Proposed Action within the scope.	Chapters 4 and 5
Environmental Consequences – identifies the potential environmental impacts of implementing the INRMP.	Chapter 11
Cumulative Effects – identifies potential effect on the environment that result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place locally or regionally over a period of time.	Chapter 11
References – provides a list of references used in the preparation of the EA and INRMP.	Appendix A
Persons Consulted – provides a list of persons and agencies consulted during the preparation and approval of the EA.	Appendix C
Distribution List – indicates recipients of the EA.	Appendix C
Agency Consultation Letters – copies of these letters and supplemental information used in the preparation of the EA.	Appendix C

2.5.3 Purpose of and Need of the Proposed Action

Selfridge ANGB is proposing the implementation of this INRMP, which supports the management of natural resources as prescribed by the plan itself. The purpose of INRMP implementation is to carry out the set of recommended resource-specific management strategies developed in the INRMP, which would enable Selfridge ANGB to effectively manage the use and condition of natural resources on the installation. Implementation of the INRMP would support Selfridge ANGB's need to provide realistic training for ANG personnel in fulfillment of mission requirements while complying with environmental regulations and policies.

Selfridge ANGB is also proposing the implementation of the WFMP (Appendix F) and Storm Water Facilities – Conveyance Restoration Plan (Appendix G) included within this INRMP.

The purpose of the WFMP is to utilize prescribed burns to support mission sustainability by controlling invasive plant species that are threatening mission activities. In addition, the purpose of implementing the WFMP is to maintain the plant community surrounding the airfield as herbaceous habitat. Implementation of the WFMP is needed to support the BASH Plan.

The purpose of the Storm Water Facilities – Conveyance Restoration Plan is to manage storm water drainage in and around the airfield and restore the function and capacity of the storm water ditch system at Selfridge ANGB. Implementation of this plan is needed because the existing ditches require maintenance to remove accumulated sediment impeding the flow of water within the drainage system. In addition, lack of maintenance of the storm water conveyance results in ponded water, which is a wildlife attractant creating a BASH concern. Wildlife attracted to the ponded water in this area represents an aircraft strike hazard and safety concern.

2.5.4 Description of the Proposed Action and Alternatives

Proposed Action: Selfridge ANGB proposes to implement an INRMP, which supports the management of natural resources as described by the INRMP itself. INRMP implementation would also include the implementation of the WFMP and Storm Water Facilities – Conveyance Restoration Plan. The implementation of the INRMP would enable Selfridge ANGB personnel to protect the natural setting by effectively managing the use and condition of natural resources on the installation. Implementation of the Proposed Action, specifically the WFMP and Storm Water Facilities would support Selfridge ANGB's continuing need to ensure safety and efficiency of the flying mission over the installation while practicing sound resource stewardship on the installation and complying with environmental policies and regulations.

Wildland Fire Management Plan

Implementation of the WFMP would include using prescribed fire as a tool for managing plant communities. This includes managing invasive species, specifically common reed (*Phragmites* sp.), which is impeding the flow of water within the drainage ditch systems. Prescribed fire would also be used for routine maintenance of herbaceous habitat within flight safety areas with respect to BASH. The use of prescribed burns is considered a more viable option for vegetation maintenance in some areas compared to other mechanical methods. Since Selfridge ANGB is not adequately staffed or trained for conducting prescribed fires, Selfridge ANGB will partner with the U.S. Forest Service (USFS), USFWS, and/or Michigan DNR. Prescribed fire implementation will follow the standards set forth in the *Interagency Standards for Fire and Fire Aviation Operations (Redbook)* (http://www.nifc.gov/policies/pol_ref_redbook.html), and the 2008 *Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (Prescribed Fire Guide)* (http://www.nwcg.gov/pms/RxFire/rxfireguide.pdf). Selfridge ANGB would apply prescribed fire preferentially in late summer (mid-July through August). If prescribed fire is not possible in the summer, then a winter burn would occur. Consideration would be given to nesting birds, amphibians, and reptiles before burning anytime other than during the winter. For each prescribed fire, an individual Burn Plan would be prepared. The Burn Plan would include a map of the prescribed burn boundary and a Smoke Management Plan. Selfridge ANGB would inform the public of the prescribed fire program through a variety of media.

Storm Water Facilities – Conveyance Restoration Plan

The implementation of the Storm Water Facilities – Conveyance Restoration Plan would include maintenance of the existing ditches to remove built-up sediment. A number of the storm water ditches are located adjacent to or within state regulated wetlands. The Storm Water Facilities – Conveyance Restoration Plan demonstrates that maintenance of the drainage ditches should be considered an exempt activity. However, if ditch maintenance is not considered an exempt activity, a state wetland permit and a Section 404 permit would be required. Wetland mitigation is required as a condition of many permits issued under state law (Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended) and federal law (Section 404 of the Clean Water Act). Selfridge ANGB BASH Plan states that wetland mitigation should never occur within the airport operating area as it could result in increased wildlife hazards with respect to BASH. Due to the configuration and limited size, the airport operating area encompasses the entire installation. Therefore, wetland mitigation, if required, could include the purchase of wetland credits through Michigan DEQ for offsite mitigation.

No Action Alternative: Implementation of the No Action Alternative would mean that the proposed management measures set forth in the INRMP would not be implemented. In addition, the WFMP and Storm Water Facilities – Conveyance Restoration Plan would not be implemented. Current management measures for natural resources would remain in effect and existing conditions would continue. Invasive species and herbaceous habitat would be maintained mechanically and chemically. Storm water ditches throughout the installation would not be maintained and would continue to flood. This document refers to the continuation of existing conditions of the affected environment, without implementation of the Proposed Action, as the no Action Alternative. The No Action Alternative serves as a benchmark against which federal actions can be evaluated. Inclusion of a No Action Alternative is prescribed by CEQ regulations and, therefore, will be carried forward for further analysis in this SEA.

2.5.5 Scope of the Analysis

The potential environmental effects associated with the Proposed Action are required to be assessed in compliance with NEPA, CEQ Part 989, and AFI 32-7061 and AFI 32-7064. This SEA analyzes potential environmental effects associated with the implementation of the Proposed Action and No Action Alternative at Selfridge ANGB. The potential effects associated with the Proposed Action and the No Action Alternative are discussed in Chapter 11.

The objective of this document is to provide an INRMP that will be implemented for ANG that guides the installation in the following activities:

- Meeting training needs and military mission requirements
- Achieving natural resources management goals consistent with an ecosystems approach to management
- Meeting legal and policy requirements, including those associated with NEPA, which are consistent with current natural resources management philosophies.

3. INSTALLATION OVERVIEW

3.1 LOCATION AND AREA

Selfridge ANGB is on the western shore of Lake St. Clair, 2 miles northeast of Mount Clemens, Michigan, and 25 miles north of downtown Detroit, Michigan. The installation is located in Macomb County, and occupies 3,074.485 acres, or about 5 square miles of Federal Fee Land, which is managed by the Air National Guard for the USAF.

Interstate Highway 94 is the primary regional road west of Selfridge ANGB. The southern boundary of the installation borders the Clinton River, a major waterway used by recreational watercraft. The northern boundary is bordered by Wm. P. Rosso Highway. Single-family homes and a marina have been built to the east of the installation. Channels connect the residential property and dockage to Lake St. Clair for access to recreational boating. Areas to the west of the installation have been developed with light commercial facilities along major transportation corridors leading to Detroit (Selfridge ANGB 2001). A regional location map is provided as Figure 3-1 and shows the installation's relation to the surrounding region. Figure 3-2 is a detail map of Selfridge ANGB showing facilities, roads, and waterways adjacent to or in proximity to the installation.

3.2 INSTALLATION HISTORY

Named after General Alexander Macomb—a decorated veteran of the War of 1812—Macomb County became the third county in Michigan in 1818. The late 18th century marked the beginnings of permanent European settlements in the area. Regional marshes provided prime opportunities for French fur traders. A group of missionaries called the Moravians established the first organized immigrant settlement along the Clinton River in 1784. Forced to move by the Chippewas, the Moravians relocated a few miles downstream in 1796. This new settlement was established by Christian Clemens and is now Mount Clemens, the county seat of Macomb County, Michigan (Selfridge ANGB 2001).

Macomb County experienced large population growth during the early 1900s. Between 1920 and 1930, the county doubled in population from 38,103 to 77,146. Two occurrences stimulated this growth: first was the development of Selfridge Field in 1917, second was the urbanization movement northward from the city of Detroit. During the 1940s and 1950s, population spread from the central city to the suburbs. The largest change occurred between 1950 and 1970 when the county's population increased by more than 440,000 (Selfridge ANGB 2001).

Currently, Macomb County comprises 571 square miles and ranks third in population in the state; 2015 population statistics reported 864,840 people (U.S. Census Bureau 2015). The county is prosperous in business and industry, and was given the State of Michigan's "Community of Economic Excellence" award. Although the county has a large population and areas with dense urban characteristics, close to half of the county's land is undeveloped, in parkland, or is used for agriculture. In 2012, approximately 22 percent of the county was in agricultural use (U.S. Department of Agriculture [USDA] 2012).

Selfridge ANGB is named after First Lt. Thomas E. Selfridge, the first military officer to fly an engine-driven aircraft and to be killed in powered flight. Lt. Selfridge was killed on 17 September 1908, when his aircraft crashed while flying with Orville Wright at Fort Meyer, Virginia (Selfridge ANGB 2001). In 1917, the federal government leased the 640-acre property that would later become Selfridge Field from Henry Joy, president of the Packard Motor Car Company. The site was originally known as the Joy Aviation Field. The government built a small flying field to train military pilots, changed the name, and opened Selfridge Field on 1 July 1917. Pilot training began only 2 weeks later on 16 July 1917, about 2 months after the start of World War I (Selfridge ANGB 2001).

Source: ANG Undated.

In 1921, the federal government purchased the field from Mr. Joy. During the 1920s and 1930s, the installation served as a Pursuit Base and the home of the renowned First Pursuits Group. Pilots were trained on early biplanes at Selfridge Field, and in 1940 some pilots and mechanics stationed at Selfridge Field went to China to form part of the Flying Tigers. After World War II, Selfridge Field expanded to its current size (Selfridge ANGB 2001).

In 1947, Selfridge Field changed its name to Selfridge Air Force Base. The installation was subsequently transferred to the MIANG on 1 July 1971. The installation is currently home to units from every component of the U.S. Armed Forces; Selfridge ANGB is one of the oldest and most complex military air fields in the nation. Today, more than 40 tenants—including components of the U.S. Air Force, Army, Navy, Marine Corps, Coast Guard, and Customs and Border Protection—are located at Selfridge ANGB. The ANG is the host organization, and maintains authority over installation operations. Except for the Army, all other services, including the United States Border Patrol, are tenants on Base (Selfridge ANGB 2001).

3.3 MILITARY MISSIONS

Selfridge ANGB is the most diverse military installation in the United States dedicated to training ANG and reserve components of the military services. It is the only Reserve Forces Base to host active-duty units of all five armed services, and reserve components of the Army, Navy, Marines, and USAF. Tenant organizations at Selfridge ANGB represent all five branches of the military (Selfridge ANGB 2001). A list of tenant organizations is summarized in Table 3-1.

The ANG is administered by NGB, a joint bureau of the Army and the Air Force. ANG units are assigned to active-duty major commands during peacetime. These major commands establish training standards; provide advisory assistance; and evaluate ANG units for unit training, readiness, and safety programs. ANG missions at the state level are funded by those

individual states, and include disaster relief, search and rescue, protection of vital public services, and civil defense support (Selfridge ANGB 2001).

MIANG headquarters in Lansing, Michigan, provides command, control, and communications between higher headquarters, the Adjutant General, and assigned units. Headquarters defines policy and provides guidance to enhance the readiness of the MIANG to perform both state and federal missions. The Michigan National Guard has the following three distinct missions:

1. **Federal**—to assist the federal government in defending the sovereign interests of the United States when they are threatened or violated

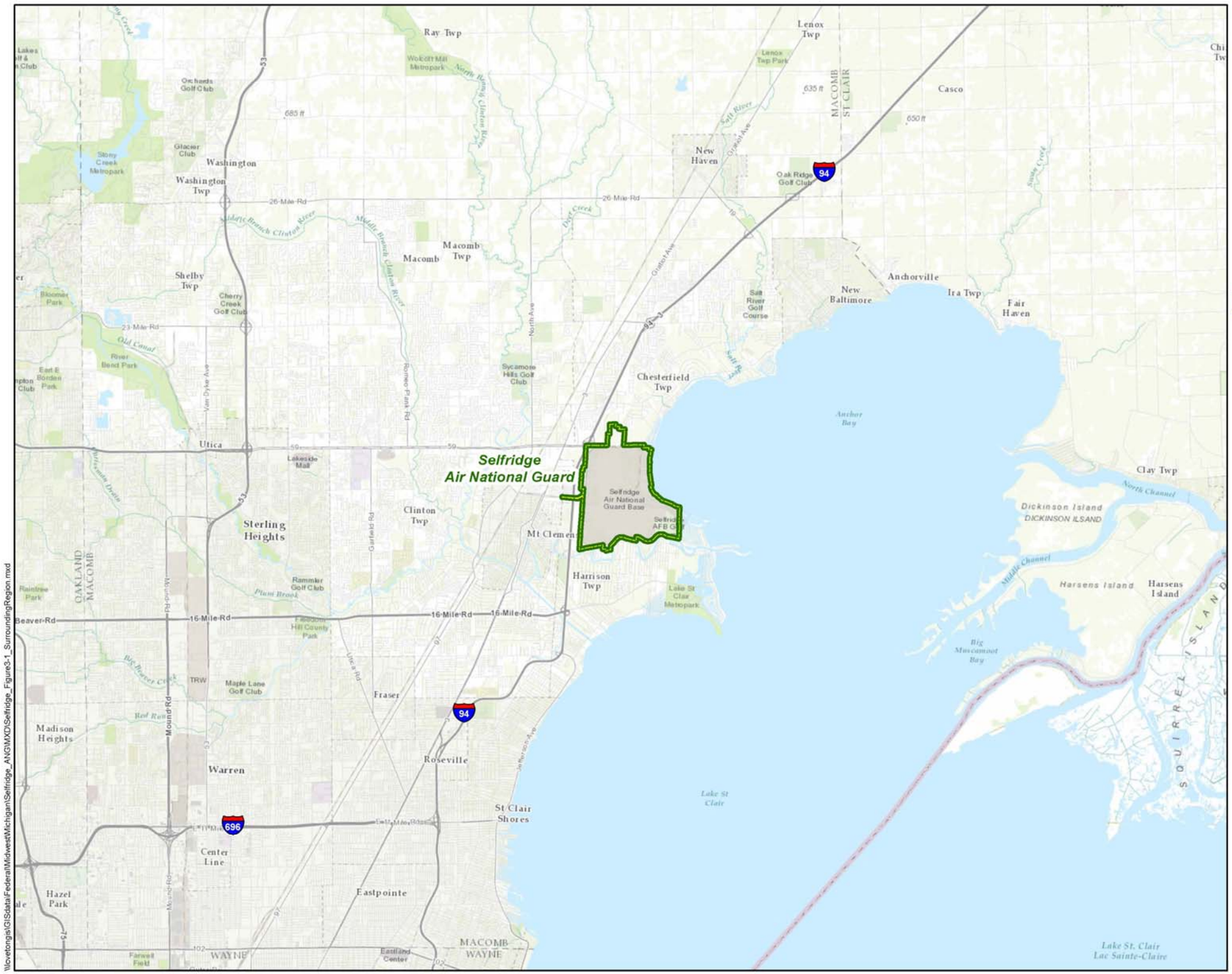
2. **State**—to protect the lives and property of Michigan citizens during times of natural disaster and to preserve peace, order, and public safety at the direction of the Governor

3. **Local**—to contribute to communities in which its units are based, and provide resources and equipment, as applicable regulations allow, to the communities (Selfridge ANGB 2001).

The primary mission of the Selfridge ANGB is to train and support the host (127 WG) of the MIANG. The 127 WG of the MIANG is the host organization at Selfridge ANGB and includes various support flights and squadrons. The mission of the 127 WG is to provide trained and equipped air refueler, attack aircraft, and support resources for the community, state, and nation (Selfridge ANGB 2001). As part of the federal mission, the ANG provides operationally ready combat units and combat support units and qualified personnel for active duty in the USAF to fulfill war contingency commitments. Under order of state authorities, MIANG provides protection of life and property, and preserves peace, order, and public safety (Selfridge ANGB 2001).

Table 3-1. Tenant Organizations

Organization	Unit
Army	88th Regional Recruiters Chinook Helicopters Tank-Automotive and Armaments Command • Integrated Logistics Support Center • Tank Automotive Research, Development and Engineering Center (TARDEC) • Joint Combat Support Systems • Military Outreach Program • Joint Project Office Robotics • Family and Morale, Welfare and Recreation—golf course and marina
Army National Guard	425th 405th Surface Maintenance
Navy	U.S. Marine Corps
National Guard Bureau	Human Resources Contracting Stock-Fund
Military Intelligence	Joint Reserve Intelligence Center
Department of Homeland Security	U.S. Customs and Border Protection (Air / Marine division) U.S. Customs and Border Protection (Marine and Vessel Maintenance) U.S. Customs and Border Patrol U.S. Coast Guard
Quasi-Government and Non-government Tenants	Army and Air Force Exchange Service Central Macomb Community Credit Union Civil Air Patrol Defense Commissary Agency Defense Logistics Agency - Distribution Services Federal Aviation Administration Federal Emergency Management Act – Disaster Medical Assistance Team Macomb Community College – Criminal Justice Training Center Michigan Air Guard Historical Association Northwood University Starbase Tri-CARE U.S. Post Office Vincennes University
Source: Selfridge ANGB 2009.	



VICINITY MAP

Legend

Installation Boundary

Map Date: 8/1/2016

Data Sources:
ESRI ArcGIS Map Service, 2016
Selfridge ANG, 2016

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Miles

Figure 3-1
Selfridge Air National Guard Base and Surrounding Region
Harrison Township, Michigan

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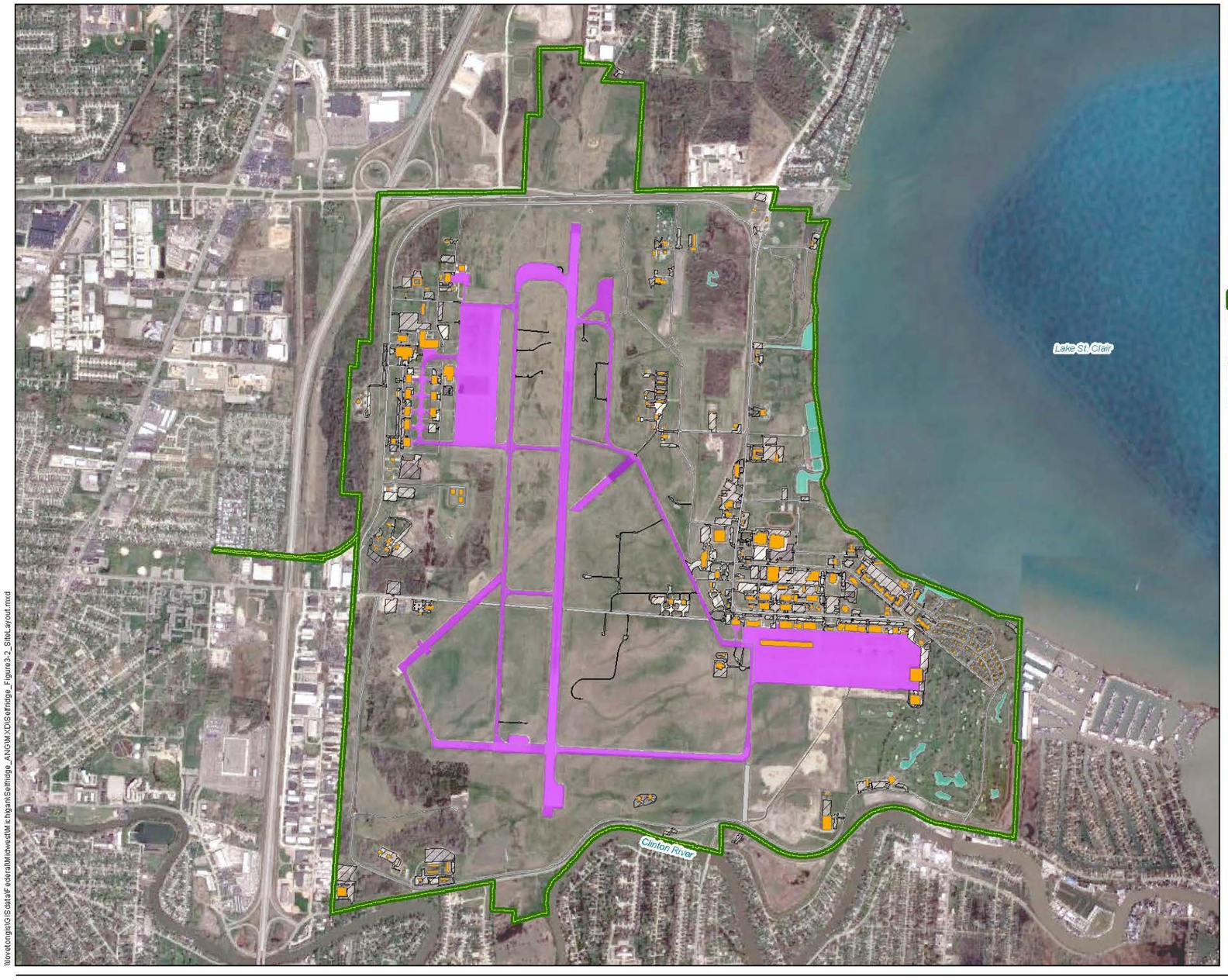

Legend

- Installation Boundary
- Airfield Surface
- Building
- Parking Area
- Road

Hydrology

- Pond/Lake

Map Date: 5/1/2018

Data Sources:
Google Earth, 2017
Selfridge ANG, 2016

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Feet

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Figure 3-2
Selfridge Air National Guard Base
Harrison Township, Michigan

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3.4 SURROUNDING COMMUNITIES

The area surrounding and comprising Selfridge ANGB is largely developed land, including buildings, landscaped areas, runways, and open land. Current and historical information pertaining to land uses on the installation and in the surrounding communities are necessary to properly manage natural resources and assess future management activities. This section describes land uses associated with the surrounding community, as well as with Selfridge ANGB.

Development trends established from 1958 through 1980 have continued through the present in Macomb County. The urban land use categories have increased in size, while undeveloped lands have decreased. Table 3-2 presents general land use categories for 2008 in Macomb County.

A 411 percent increase in residential land use has occurred since 1958. Residential uses composed 130,687 acres in 2008 compared to 25,570 acres in 1958 (Selfridge ANGB 2001, Southeast Michigan Council of Governments [SEMCOG] 2015).

Commercial land use has had the largest percentage increase of all land use categories in Macomb County (637 percent growth from 1958 to 2008). Commercial acreage totaled 1,970 in 1958 and grew to 14,518 acres by 2008. Industrial land use has grown from 8,090 acres in 1958 to 20,770 acres in 2008, a 256 percent growth rate (Selfridge ANGB 2001).

The area surrounding Selfridge ANGB consists of residential housing, light industry, and commercial development. The Townships of Chesterfield, Harrison, and Clinton, and the City of Mt. Clemens surround the installation. The political jurisdictions are responsible for administering local zoning regulations (Selfridge ANGB 2001).

Table 3-2. 2008 Land Use in Macomb County, Michigan

Land Use	Percent of Total Area
Residential (Single-Family and Multiple-Family)	42
Commercial-Office	5
Industrial	7
Institutional and Government Facilities; Transportation, Communications, and Utilities)	16
Water	1
Recreational	6
Agricultural	23
Source: SEMCOG 2015.	

Chesterfield Township

Chesterfield Township is north of Selfridge ANGB. Current land uses for the areas that directly border Selfridge ANGB include vacant open space and some industrial manufacturing. These areas are currently zoned for light industry (Selfridge ANGB 2001).

Within the area bounded by Cotton Road to the north, Sugar Bush Road to the east, 21 Mile Road to the south, and I-94 to the west, current land uses include single- and two-family housing, multifamily housing, and public and semi-public uses (institutional and governmental facilities, transportation, communication, and utilities). Zoning for this area is primarily residential (single-family) with some commercial (Selfridge ANGB 2001).

Harrison Township

Selfridge ANGB is entirely within Harrison Township, and represents the largest portion of the townships dominant public and semi-public land use category. Existing land uses south of the installation include single- and two-family housing (single and detached structures), and vacant open space. Land in this area is currently zoned for one- or two-family residential housing (i.e., single-family homes and duplexes). Land use east of Selfridge ANGB includes retail trade, wholesale trade, and service industries. This area is currently zoned for commercial use (Selfridge ANGB 2001).

Clinton Township

Clinton Township is located west of Selfridge ANGB. Zoning in areas within Clinton Township immediately adjacent to Selfridge ANGB include general business, light industry, mobile home park, and residential (multi-family low density and single family homes) (Department of Planning and Community Development 2007).

Mount Clemens

Mount Clemens is the only city in the immediate vicinity of Selfridge ANGB. Current land uses for this area, which borders Selfridge ANGB to the west, include a mix of industrial, business, and vacant space. Zoning for this region is predominantly industrial (Selfridge ANGB 2001).

3.5 LOCAL AND REGIONAL NATURAL AREAS

Lake Saint Clair Metropark
Source: HCMA 2016.

Lake Saint Clair Metropark is 1 mile southeast of Selfridge ANGB. This park has more than a mile of shoreline, and a 1,600-foot boardwalk that offers views of Lake St. Clair. Boaters, swimmers, and fishermen frequent the facility. Additionally, the marsh area surrounding the beach is home for an abundance of waterfowl. The area provides ample acreage for swimming, picnicking, winter sports, fitness walks, and an activity center. There is also a marina for boat launching and an extensive nature program (Huron-Clinton Metropolitan Authority [HCMA] 2016).

The Riverbend Natural Area is approximately 20 miles west of Selfridge ANGB in Utica, Michigan. The recreation area includes a day-use park with a picnic area and shelter. Activities available at Riverbend Natural Area include fishing, boating, snowmobiling, hiking, biking, and cross-country skiing (Ingham County 2016).

The St. Clair Flats Wildlife Area encompasses the delta ecosystem, with its associated islands, of the St. Clair River as it flows into the northeastern shores of Lake St. Clair. Algonac State Park is found within the delta ecosystem, which supports unique, rare habitat types, including lakeplain prairie and oak savannas, in addition to regionally important wetlands. The St. Clair River delta is particularly important for migrating waterfowl and the Great Lakes fishery. More than 1 million waterfowl and shorebirds use the lake and its associated ecosystems each year. The lake's fishery resources have changed over time due to impacts from wetland losses, exotic species, pollution discharges, and habitat alterations (U.S. Army Corps of Engineers [USACE] 2004).

From a recreational perspective, Lake St. Clair is among the most heavily used areas of the Great Lakes. Selfridge ANGB is built on the shores of Anchor Bay; where thousands of drivers raft offshore every year. More than 200,000 of the nearly 1 million registered boats in Michigan are registered in the four U.S. counties adjacent to or near Lake St. Clair. A 1994 study by Michigan State University documented 686 coastal marinas in the state of Michigan, 211 of which were in Wayne, Macomb, and St. Clair counties (64, 75, and 72 marinas, respectively). Conservative estimates of the annual economic value of direct boating-related activities in the three-county area are estimated to be more than $249 million (USACE 2004). Michigan charter boat operators have been required to report their charter fishing catch to the Michigan DNR. In 2001, Michigan charter boat anglers on Lake St. Clair and the St. Clair River caught 12,507 fish. The Lake St. Clair fishery (an area of less than 1 percent of the state's Great Lakes water) accounts for 14 percent of the Great Lakes fishing for the entire state (USACE 2004).

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4. PHYSICAL ENVIRONMENT

4.1 CLIMATE

The climate of southeastern Michigan is classified as humid continental to semi-marine. It is dominated by continental polar air masses in the winter and tropical air masses in the summer. Intensely contrasting seasonal temperature changes, highly variable weather, and abundant precipitation throughout the year results from the interaction of these air masses, along with cold fronts associated with east-moving cyclones. Selfridge ANGB averages 166 days between the last occurrence of freezing in late April to early May, and the first freeze, which usually occurs in mid-October. The warmest months are typically July and August when temperatures average approximately 76° Fahrenheit (°F) and the coldest months are typically December and January when temperatures average 28 to 29°F (National Oceanic and Atmospheric Administration [NOAA] 2017). Table 4-1 includes a summary of climate data for Selfridge ANGB in 2016.

Table 4-1. Climate Summary for Selfridge ANGB, 2016

Month	Normal Temperature (°F)—Daily			Total Rain (Inches)—Monthly	Total Snow (inches) Monthly
	Maximum	Minimum	Mean		
January	34.9	21.3	28.1	1.34	8.4
February	39.0	23.5	31.2	2.02	10.7
March	51.9	34.4	43.1	4.86	7.4
April	56.2	36.4	46.3	2.31	1.3
May	71.1	51.0	61.0	2.20	trace
June	82.5	59.8	71.1	1.30	0.0
July	86.8	66.7	76.8	1.57	0.0
August	86.3	67.2	76.7	5.62	0.0
September	76.9	59.4	68.2	6.28	0.0
October	64.5	47.3	55.9	2.98	0.0
November	55.8	37.6	46.7	2.10	0.10
December	34.6	23.5	29.0	2.16	16.8

Source: NOAA 2017.

Precipitation is distributed evenly throughout the year, with slightly wetter, rainy conditions prevailing in late summer and early fall. The majority of snowfall events occur from December through March, with some occurring in April. In 2016, the driest months were May, June, July, and November. The wettest months included August and September for rain and December and February for snow. Approximately 19.95 inches of rain fell from May through October, with an annual total of 34.74 inches (NOAA 2017). The annual total snowfall in 2016 was 44.7 inches (NOAA 2017).

4.2 LANDFORMS

The State of Michigan, situated within the Central Lowland Physiographic Province of the Interior Plains, has a physiography which is the result of Pleistocene glaciation. The glaciated terrain of Macomb County, located in the Eastern Lake Section of the Central Lowland Province,

is characterized by maturely dissected and glaciated knolls, lowlands, moraines, lakes, and lacustrine plains. Relief in this area generally varies from moderate in areas of cuestas and moraines, to low in areas of lakes and lacustrine plains.

Selfridge ANGB is located in Macomb County on the northwestern shore of Lake St. Clair on glacial lake bed deposits of ancestral Lake St. Clair. The base is relatively flat with surface elevations ranging from 585 feet above mean sea level at the extreme northwestern corner of the base, to 575 feet above mean sea level at the present shoreline. Relief on-base is due to a combination of natural features influenced by glacial, lacustrine, and fluvial processes and man-made surface features. A large percentage of the base has been reclaimed from the low-lying areas surrounding the lake. The natural topography has been modified by excavation and fill operations during the construction of buildings, runways, taxiways, roads, and landfills (Selfridge ANGB 2016). Figure 4-1 includes the topography of Selfridge ANGB.

4.3 GEOLOGY AND SOILS

Selfridge ANGB is located on the southeastern edge of the Michigan Basin, which includes all of the Lower Peninsula of Michigan, parts of several other states, and Canada. The Michigan Basin consists of sedimentary rocks ranging from older Cambrian rocks around the edges to younger Jurassic rocks in the middle of the basin. Beneath the Cambrian rocks are igneous, metamorphic, and sedimentary rocks of Precambrian Age. The unconsolidated overburden at Selfridge ANGB is underlain by the Antrim Shale of late Devonian Age. This formation ranges in thickness from 120 feet, where eroded, to 600 feet in portions of northern Michigan. The Antrim Shale is a dark gray to black and brown, hard, thin-bedded, brittle, carbonaceous shale. The Antrim Shale overlies the Traverse Group, which is of middle to late Devonian Age. The Traverse Group is divided into three units. These units, in descending order, are the Traverse Formation, Traverse Limestone, and Bell Shale. The Traverse Group as a whole ranges in thickness from approximately 100 to 800 feet.

Selfridge ANGB is underlain by unconsolidated materials of three depositional environments: lacustrine, glacial, and fluvial. Previous investigations show the lacustrine clays of ancestral Lake St. Clair, with some sand and gravel lenses, to be the most common and extensive soil within the uppermost 35 to 40 feet of unconsolidated sediments. The upper part of the clays consists of rusty to light brown, stiff clay to silty clay with brown and reddish mottles, minor admixtures of sand, and some organic material. The lower part consists of olive to dark gray, plastic clay to silty clay with gray mottling. Glacial till underlies the lacustrine clay unit throughout the base, generally occurring at a depth of 20 to 30 feet below ground surface. Glacial deposits consist of mixed layers of clays, silts, sands, and gravels. The discontinuous deposits found in the southwestern corner of the base appear to be fluvial deposits of the ancestral Clinton River. The fluvial sands consist of light brown to brown, fine-grained sand to silty sand. Shoreline deposits of ancestral Lake St. Clair are found in the northwestern corner of Selfridge ANGB. The sands are olive brown to brown, massive, medium- to fine-grained with some silt.

Legend

- Installation Boundary
- Elevation Contour (ft)

Map Date: 11/27/2017

Data Sources:
Google Earth, 2017
Selfridge ANG, 2016
USGS, 2016

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Feet

Figure 4-1
Selfridge Air National Guard Base
Topographic Map
Harrison Township, Michigan

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The characteristics of soils occurring on Selfridge ANGB can influence natural resource management decisions for the installation. Additionally, soil characteristics can affect land use decisions and site selection for construction and other activities. Consideration of soil properties in land use decisions provides a way to better understand, protect, and enhance the environment. Knowledge of the soil types present at Selfridge ANGB is helpful in identifying inherent hazards, in selecting improvements needed to overcome soil limitations, and in predicting the impact of selected land uses on the environment (USDA 1971). The USDA Natural Resources Conservation Service (NRCS) Soil Survey for Macomb County was completed and published in 1971.

Glaciation produced numerous soil variations, resulting in 48 different soil types within Macomb County. Textures range from sand to clay, with clay and loam predominating. The western portion of the county consists of mostly sandy and gravelly soils. These soil types are suitable for agriculture and urban development with the implementation of human-made drainage systems (Selfridge ANGB 2001).

The soils underlying Selfridge ANGB originated in three depositional environments: lacustrine, glacial, and fluvial. Soils associated with lacustrine clays from Lake St. Clair are the most common and extensive soils occurring on the installation. The dominant soil series mapped on the installation include poorly drained and low permeability soils (Selfridge ANGB 2001).

Figure 4-2 shows the locations of the soil-mapping units on Selfridge ANGB and Table 4-1 provides general characteristics of the soil-mapping units.

The two most extensive naturally occurring soil associations mapped on the installation are the Toledo-Paulding association and the Lanawee-Corunna-Lamson association which is mapped at the southern end of the installation. Toledo-Pauling soils consist mostly of clay and silty clay loam. The Lanawee-Corunna-Lamson soils consist primarily of moderately coarse soils (Selfridge ANGB 2001).

The dominant soil-mapping unit on the installation is Udorthents and Udipsammets (EtmaaE). Udorthents and Udipsammets consist of soils that have been altered as a result excavation, placement of fill material, and contouring associated with construction or other land disturbing activities. Natural topography at the installation has been altered by excavation and fill operations during the construction of buildings, runways, taxiways, and landfills (Selfridge ANGB 2001).

Several of the soil series that occur on Selfridge ANGB are designated as hydric. Hydric soils are soils that are saturated, flooded, or ponded for long enough during the growing season to develop anaerobic (oxygen-deficient) conditions in their upper part. Anaerobic soil conditions are conducive to the establishment of vegetation that is adapted for growth under oxygen-deficient conditions, and are typically found in wetlands (hydrophytic vegetation). Undrained hydric soils are typically found in association with wetlands and their presence is one of the three criteria (hydric soils, hydrophytic vegetation, and wetland hydrology) used to determine if an area is a wetland based on USACE Wetlands Delineation Manual, Technical Report Y-87-1 (USACE 1987). Soils that are designated as hydric are identified in Table 4-2

Table 4-2. Properties of the Soil Mapping Units Found at Selfridge ANGB

Mapping Unit	Texture	Slope	Drainage	Hydric?	Properties and Limitations
Brevort-Selfridge complex (Bx)	loamy sand	0 to 2%	Brevort – poorly drained and very poorly drained Selfridge – somewhat poorly drained	Brevort – yes Selfridge – no	Brevort occurs in depressions, is frequently ponded, and is seasonally saturated to the surface. Selfridge occurs on lake plains and has a seasonal depth to saturation at 18 inches.
Ceresco (Cf)	fine sandy loam	0 to 2%	somewhat poorly drained	yes	Occurs on floodplains, is frequently flooded, and has a seasonal depth to saturation at 18 inches.
Cohoctah (Cm)	fine sandy loam	0 to 2%	poorly drained or very poorly drained	yes	Occurs in depressions, is frequently flooded and ponded, and is seasonally saturated to the surface.
Granby (Gm)	loamy fine sand	0 to 2%	poorly drained or very poorly drained	yes	Occurs on flats, is frequently ponded, and is seasonally saturated to the surface.
Lamson (La)	fine sandy loam	0 to 2%	poorly drained and very poorly drained	yes	Occurs in depressions, is frequently ponded, and is seasonally saturated to the surface.
Lenawee (Lg)	silty clay loam	0 to 1%	very deep, poorly drained and very poorly drained	yes	Lenawee occurs in depressions, has a moderate shrink-swell potential, is frequently ponded, and is seasonally saturated to the surface
Minoa (MsB)	fine sandy loam	0 to 4%	somewhat poorly drained	no	Occurs on deltas and has a seasonal depth to saturation at 18 inches.
Oakville	fine sand	0 to 6%	very deep, excessively drained soils	no	Occurs on dunes, beach ridges, or lake plains and is droughty.
Paulding (Pc)	clay	0 to 2%	very poorly drained	yes	Occurs in depressions, has a high shrink- swell potential, is frequently ponded, and is seasonally saturated to the surface.
Pipestone (AsB)	sand	0 to 6%	somewhat poorly drained	no	Occurs on knolls and has a seasonal shallow depth to saturation at 12 inches.
Pipestone (AuB)	sand with loamy substratum	0 to 6%	somewhat poorly drained	no	Occurs on strand plains and has a seasonal shallow depth to saturation at 12 inches.
Sanitary Landfill (Sa)	–	–	–	–	Found in areas where municipal and industrial wastes have been dumped.
Selfridge (SdA)	fine sand	0 to 2%	somewhat poorly drained	no	Occurs on lake plains and has a seasonal depth to saturation at 18 inches.

Mapping Unit	Texture	Slope	Drainage	Hydric?	Properties and Limitations
Selfridge Lenawee Complex (SfB)	Selfridge– fine sand Lenawee– clay loam	2 to 6%	Selfridge – somewhat poorly drained Lenawee – poorly drained and very poorly drained	Selfridge – no Lenawee – yes	Selfridge occurs on lake plains and has a seasonal depth to saturation at 18 inches. Lenawee occurs in depressions, has a moderate shrink-swell potential, is frequently ponded, and is seasonally saturated to the surface.
Sloan (Sn)	loam	0 to 2%	very deep, very poorly drained soils	yes	Occurs on floodplains or in depressions along streams and subject to seasonal flooding
Toledo (Ts)	silty clay loam	0 to 2%	very poorly drained	yes	Occurs in depressions, has a high shrink- swell potential, is frequently ponded, and is seasonally saturated to the surface.
Toledo (Tt).	clay	0 to 2%	very poorly drained	yes	Occurs in depressions, has a high shrink- swell potential, is frequently ponded, and is seasonally saturated to the surface.
Udorthents and Udipsam-ments (EtmaaE)	sand to clay	Nearly level to hill	–	–	Site-specific surveys are necessary to determine characteristics and limitations.
Willete (Wx)	muck	0 to 2%	very poorly drained	yes	Occurs in depressions, has a high shrink- swell potential, is frequently ponded, and is seasonally saturated to the surface.

Source: USDA 2010.

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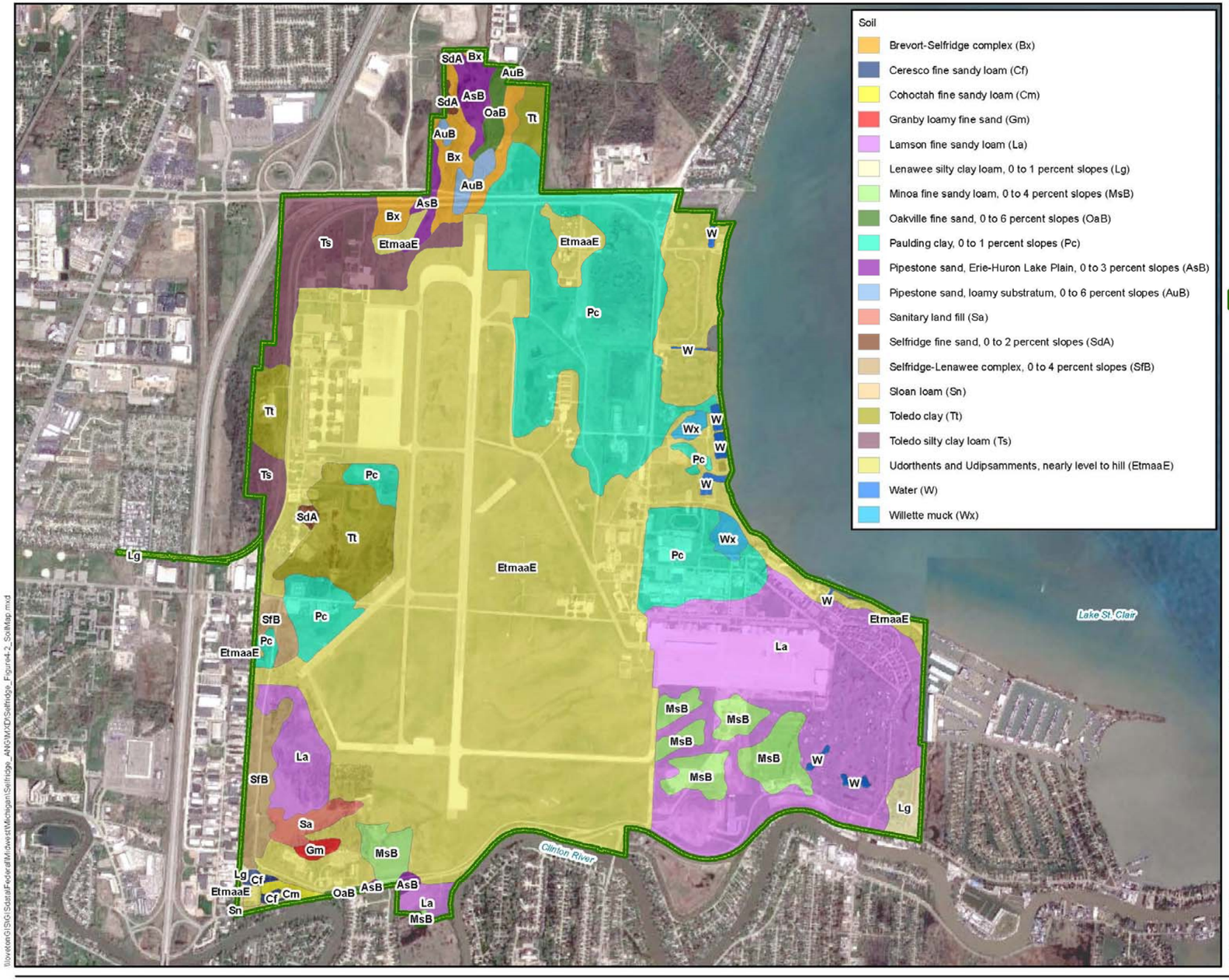

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Figure 4-2
Selfridge Air National Guard Base
Soil Map
Harrison Township, Michigan

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4.4 HYDROLOGY

Water resources presented in this INRMP include surface and groundwater resources. Surface water resources comprise lakes, rivers, and streams and are important for a variety of reasons including economic, ecological, recreational, and human health. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. The quality and availability of surface and groundwater are addressed in this section.

4.4.1 Surface Water

Selfridge ANGB, which is characterized by flat topography and poor surface drainage, is built upon filled farmland with poorly drained soils. Due to a lack of relief and natural drainage features on the base, an elaborate system of storm water conveyances, catch basins, storm water sewers, and five pump/lift stations was constructed to remove storm water runoff. The most notable surface water features in the vicinity of Selfridge ANGB are Lake St. Clair to the east and the Clinton River to the south. The original elevation of the area occupied by the installation was below the elevation of Lake St. Clair and the Clinton River. Shoring and filling have raised the elevation throughout most of the installation, with the exception of undeveloped areas adjacent to the Clinton River. In the areas adjacent to the river, seasonal high water table levels during periods of high rainfall range between below-surface levels to approximately 2 feet above surface level. This condition results in intermittent standing water in some low-lying areas. Figure 4-3 shows the installation's relation to the waterbodies of Macomb County.

Receiving waters for the storm water conveyance system on the installation include Lake St. Clair and the Clinton River, both of which are located in proximity to the installation. The catch basins, storm water sewers, and pump/lift stations were installed to remove storm water runoff; channeling storm water to collection points throughout the installation. When the installation receives precipitation, pumps will run intermittently to transport storm water off of the installation. All runoff from the northern and eastern portions of the installation is channeled into Lake St. Clair through three storm water pump/lift stations (Facilities No. 340, No. 980, and No. 990). The remaining portions of the installation are drained to the south into the Clinton River by two storm water pump/lift stations (Facilities No. 507 and No. 508) (Selfridge ANGB 2015).

4.4.2 Groundwater

Groundwater beneath Selfridge ANGB generally occurs within 15 feet below land surface within clayey and silty unconsolidated sediments of glacial and lacustrine origin. Yields from these layers are sufficient for domestic water sources; however, the irregular distribution of these sources makes them unreliable as a groundwater resource. Additionally, some wells in the area have produced mineralized water containing elevated levels of chloride, magnesium, sodium, and potassium but still meet safe drinking water standards (Selfridge ANGB 2000).

Groundwater also occurs in underlying Antrim Shale, and the Traverse Group bedrock formations; however, yields are less than 10 gallons per minute and withdrawn water is highly mineralized (Selfridge ANGB 2015).

Selfridge ANGB has institutional controls that prohibit the installation of drinking water wells and crock wells on the installation. The control was put in place to obtain closure for various clean-up sites under the restoration program.

The on-base water table generally occurs within lacustrine clays, with the exception of the southwestern and western edge of the base, where the water table occurs in silty to sandy sediments. Groundwater in the upper portions of the unconsolidated sediments generally flows toward one of two closed potentiometric lows; located adjacent to Lake St. Clair or in the southwestern portion of the base. Local variations in the direction of groundwater flow exist and may be induced by backfilled excavations, permeability variations, local topographic depressions, and the presence of the storm water sewer system (Selfridge ANGB 2015).

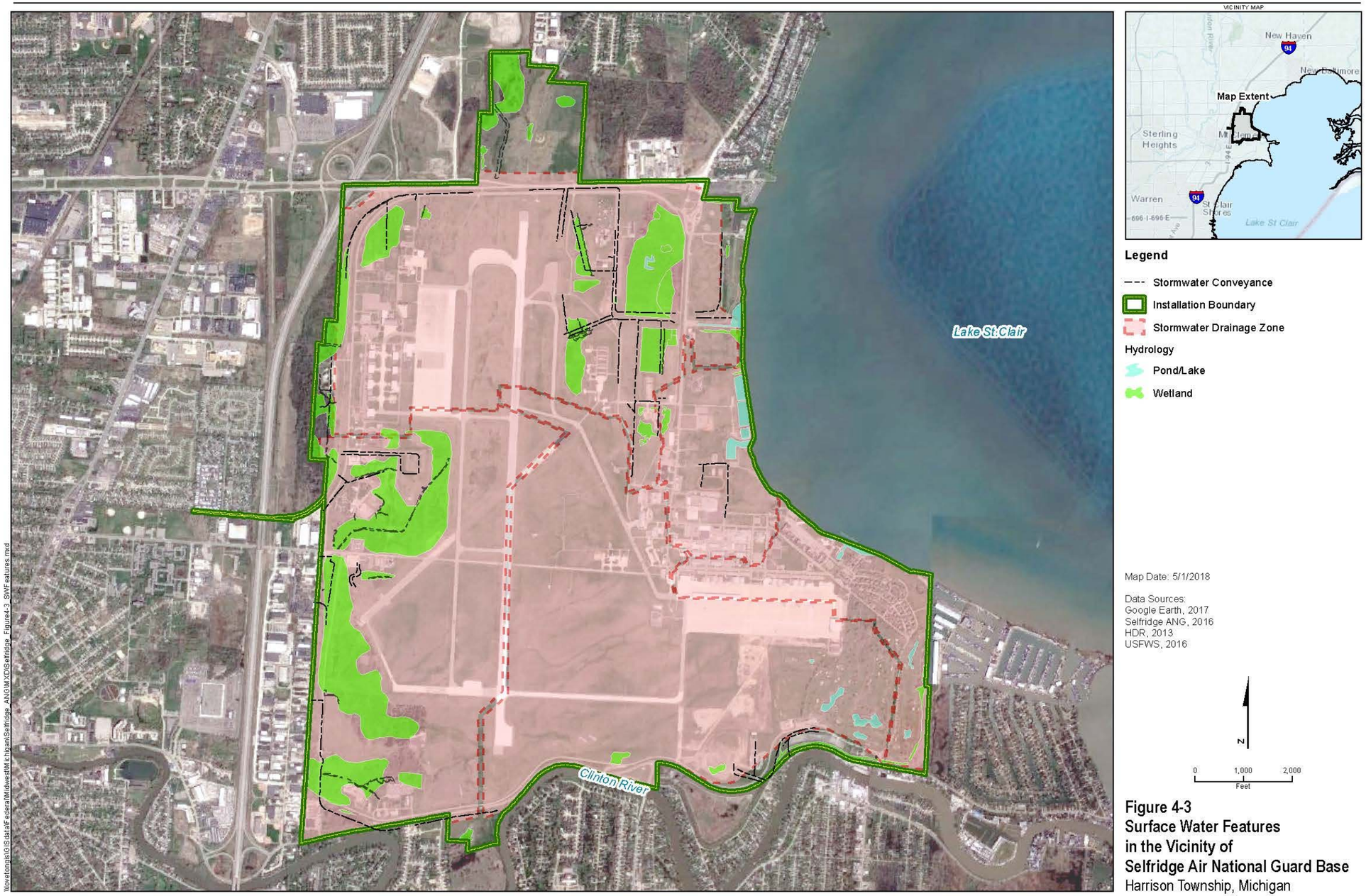

Figure 4-3
Surface Water Features in the Vicinity of Selfridge Air National Guard Base
Harrison Township, Michigan

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5. ECOSYSTEMS AND THE BIOTIC ENVIRONMENT

5.1 ECOSYSTEM CLASSIFICATION

Selfridge ANGB is in the Eastern Broadleaf Forest (Continental) Province as described by Bailey (1995). This province is a broadleaf deciduous forest, stretching from Arkansas into Canada and encompasses approximately 270,000 square miles. Vegetation in this climate division is a deciduous forest, dominated by tall broadleaf trees that provide a continuous dense canopy in the summer, and shed their leaves completely in winter. Lower layers of small trees and shrubs are weakly developed. In spring, a luxuriant ground cover of herbs quickly develops, but is greatly reduced after trees reach full foliage and shade the ground (Bailey 1995). Due to the smaller amounts of precipitation, the province favors the oak- hickory (*Quercus* spp. – *Carya* spp.) association. Although other forests have oak and hickory, only this particular forest association has both species in abundance. Northern reaches of the oak-hickory forest contain increasing numbers of maple (*Acer* spp.), American beech (*Fagus grandifolia*), and American basswood (*Tilia americana*) (Bailey 1995).

5.2 VEGETATION

5.2.1 Historic Vegetative Cover

Pre-settlement vegetation on the site was primarily composed of species typical of a mixed hardwood swamp extending out into a shrub swamp/emergent wetland on the southeastern portion of the installation.

5.2.2 Current Vegetative Cover

Vegetation at Selfridge ANGB is best described as human-maintained prairie interspersed with fragmented wetlands consisting of mixed hardwood woodlands that occasionally support scrub species. Marshes occur in wetter portions of the installation. Much of the natural vegetation has been removed from the improved and semi-improved areas of Selfridge ANGB to accommodate the development of runways and other facilities in support of the military mission.

A vegetation survey was conducted in June and August 2014 to document the presence and extent of vegetative communities and other land cover at Selfridge ANGB. National Vegetation Classification (NVC) and Michigan Natural Features Inventory (MNFI) vegetative communities were used to classify the vegetation at Selfridge ANGB. Vegetative/land cover classifications were initially identified using aerial imagery remote sensing. Results of the remote sensing were then ground-truthed by a screening level effort that included broad-scale area inspections. The second phase of the vegetation ground-truthing involved the detailed collection of data regarding species composition and percent cover across various strata within ground-truthing plots.

A total of six natural vegetation communities (301 acres), two semi-natural vegetation communities (53 acres), and four developed vegetation (human-maintained) communities (2,016 acres) were documented on Selfridge ANGB during ground-truthing. The six natural communities are mostly forest communities with one wetland community:

- Midwestern White Oak - Red Oak Forest (CEGL002068 *Quercus alba - Quercus rubra - Carya ovata* Glaciated Forest) (NVC Association, Table 5-1)

- Silver Maple - Elm Forest (CEGL002586 A*cer saccharinum - Fraxinus pennsylvanica - Ulmus americana* Forest) (NVC Association, Table 5-1)

- Maple - Ash - Elm Swamp Forest (CEGL005038 *Acer (rubrum, saccharinum*) - *Fraxinus* spp. - *Ulmus americana* Forest) (NVC Association, Table 5-1)

- Beech - Hardwoods Till Plain Flatwoods (CEGL005173 *Fagus grandifolia - Acer saccharinum - Quercus bicolor - Acer rubrum* Flatwoods Forest) (NVC Association, Table 5-1)

- Aspen - Balsam Poplar Lowland Forest (CEGL005036 *Populus tremuloides - Populus balsamifera* - Mixed Hardwoods Lowland Forest) (NVC Association, Table 5-1)

- Bulrush - Cattail - Bur-reed Shallow Marsh (CEGL002026 *Schoenoplectus tabernaemontani - Typha* spp. - (*Sparganium* spp., *Juncus* spp.) Herbaceous Vegetation) (NVC Association, Table 5-1)

The two semi-natural vegetative communities (53 acres) include:

- Eastern Reed Marsh (CEGL004141 *Phragmites australis* Eastern North America Temperate Semi-Natural Herbaceous Vegetation) (NVC Association, Table 5-1). This community is impacted by an invasive plant species.

- Northern and Central Ruderal Meadow and Shrubland (G059 *Solidago altissima - Poa pratensis - Cornus foemina* Meadow and Shrubland) (NVC Alliance, Table 5-1). This community could not be identified to association due to the recent disturbance from logging.

The developed vegetation communities include turf lawn and maintained landscaping areas around buildings (Lawn, Garden, and Recreational Vegetation – 1,290 acres), maintained wetlands, drainage ditches and ponds (Developed Wetland Vegetation – 71 acres), semi-maintained fields (Fallow Field and Weed Vegetation – 41 acres), and other maintained areas (Other Developed Vegetation – 614 acres) (NVC Formation, Table 5-1). The vast majority of Selfridge ANGB is either developed vegetation (2,016 acres) or impervious cover (663 acres). In addition, there is some open water (20 acres) and bare ground (36 acres) (General NVC Class, Table 5-1) (Selfridge ANGB 2016).

Table 5-1 summarizes the vegetation land cover and vegetative communities documented on Selfridge ANGB. These areas are depicted on Figure 5-1. Figure 5-2 shows vegetation cover at Selfridge ANGB.

Table 5-1. Vegetative Community and Land Cover Classifications

General (NVC Class)	NVC Formation	NVC Alliance	NVC Association	MFNI	Rarity	Acres	Description
Forest and Woodland	Cool Temperate Forest and Woodland	North-Central White Oak - (Red Oak, Hickory) Forest	Midwestern White Oak - Red Oak Forest (CEGL002068 *Quercus alba - Quercus rubra - Carya ovata* Glaciated Forest)	Dry-Mesic Southern Forest	S3	1.8	This community is rare on Selfridge ANGB. It only occurs in the northwestern woods between the base and the interstate.
	Temperate Flooded and Swamp Forest	Silver Maple - Eastern Cottonwood Floodplain Forest	Silver Maple - Elm Forest (CEGL002586 *Acer saccharinum - Fraxinus pennsylvanica - Ulmus americana* Forest)	Floodplain Forest	S3	238.0	This community is the dominant forest community at Selfridge ANGB and represents the majority of the forested areas on site.
		Red Maple - Black Ash Basic Seepage Swamp	Aspen - Balsam Poplar Lowland Forest (CEGL005036 *Populus tremuloides - Populus balsamifera* - Mixed Hardwoods Lowland Forest)	Floodplain Forest	S3	1.2	This community is found in the cleared forested land north of the airstrip.
		Red Maple - Black Ash - Swamp White Oak Swamp Forest	Maple - Ash - Elm Swamp Forest (CEGL005038 *Acer (rubrum, saccharinum*) - *Fraxinus* spp. - *Ulmus americana* Forest)	Southern Hardwood Swamp	S3	1.5	This community is rare on Selfridge ANGB. Representative stands are found only in one area within a larger silver maple-elm forest on the northwestern boundary of the property.
		North-Central Beech-Oak Flatwoods	Beech - Hardwoods Till Plain Flatwoods (CEGL005173 *Fagus grandifolia - Acer saccharinum - Quercus bicolor - Acer rubrum* Flatwoods Forest)	Wet-mesic Flatwoods	S2	1.3	This community is rare on Selfridge ANGB. Representative stands are found only in one area within a larger silver maple-elm forest on the northwestern corner of the property.
Shrubland and Grassland	Temperate Grassland and Shrubland	Northern & Central Ruderal Meadow & Shrubland (identified to Group, not Alliance)	N/A	N/A	N/A	51.9	This community was found in a recently logged area near the airfield.
	Temperate & Boreal Freshwater Marsh, Wet	Bulrush - Cattail Shallow Marsh	Bulrush - Cattail - Bur-reed Shallow Marsh (CEGL002026 *Schoenoplectus tabernaemontani - Typha* spp. - (*Sparganium* spp., *Juncus* spp.) Herbaceous Vegetation)	Inland Emergent Marsh	S4	57.5	This community is most common in the northern wetland areas on Selfridge ANGB.
	Meadow and Shrubland	Non-tidal Common Reed Marsh	Eastern Reed Marsh (CEGL004141 *Phragmites australis* Eastern North America Temperate Semi-Natural Herbaceous Vegetation)	Inland Emergent Marsh	S4	1.3	This community is found extensively throughout Selfridge ANGB in disturbed wetland areas.
Developed Vegetation	Lawn, Garden and Recreational Vegetation	N/A	N/A	N/A	N/A	1290.1	This community includes landscaped lawn and ornamental plantings.
	Fallow Field and Weed Vegetation	N/A	N/A	N/A	N/A	41.3	This community includes semi-maintained fields.
	Other Developed Vegetation	N/A	N/A	N/A	N/A	614.3	This community includes filled wetlands.
	Developed Wetland Vegetation	N/A	N/A	N/A	N/A	71.0	This community includes all other developed vegetation areas.
Water	N/A	N/A	N/A	N/A	N/A	19.5	This community is located on the southwest portion of Selfridge ANGB.
Bare Ground	N/A	N/A	N/A	N/A	N/A	36.0	This community includes developed lands including runways taxiways, sidewalks, roads, and parking lots throughout the base.
Impervious	N/A	N/A	N/A	N/A	N/A	662.6	This community is located along the eastern portion of the installation.

Source: Selfridge ANGB 2016.
Michigan State Rarity Ranks determined by MNFI: S1 Very rare in Michigan, S2 Rare in Michigan, S3 Uncommon in Michigan, S4 Widespread in Michigan, S5 Common and widespread in Michigan.

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Map Features
Installation
Road
Association
CEGL002026 Bulrush - Cattail - Bur-reed Shallow Marsh
CEGL002068 Midwestern White Oak - Red Oak Forest
CEGL002586 Silver Maple - Elm Forest
CEGL004141 Eastern Reed Marsh
CEGL005036 Aspen - Balsam Poplar Lowland Forest
CEGL005038 Maple - Ash - Elm Swamp Forest
CEGL005173 Beech - Hardwoods Till Plain Flatwoods
Developed Vegetation
G059 Ruderal Grassland - recently logged
N
W
E
S
0 0.25 0.5 Kilometers
0 0.25 0.5 Miles
Figure 5-1. NVC Vegetative Community Associations at Selfridge Air National Guard Base
Date: 2/9/2016
Imagery Data Source: NAIP, 2012.

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Figure 5-2.
Vegetation Cover at
Selfridge Air National
Guard Base

Date: 2/4/2016

Imagery Data Source: NAIP, 2012.

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The vegetation survey also included documenting invasive species present on Selfridge ANGB. Prior to the survey, there were 74 potential invasive plant species occurring on the installation. During the field surveys a total of 19 invasive species were observed and recorded. Table 5-2 includes a list of the invasive species observed and prioritizes these species for treatment. Figure 5-3 includes the location of invasive plant species.

Table 5-2. Priority Invasive Plant Species on Selfridge ANGB

Scientific Name	Common Name	Priority	Michigan Department of Agricultural and Rural Development Status
Ailanthus altissima	Tree-of-heaven	Medium	
Alliaria petiolata	Garlic mustard	Low	
Berberis thunbergii	Japanese barberry	High	
Butomus umbellatus	Flowering rush	Medium	Restricted
Centaurea stoebe	Spotted knapweed	High	Prohibited noxious
Cirsium arvense	Canada thistle	Low	Prohibited noxious; Noxious
Cirsium vulgare	Bull thistle	Low	Prohibited noxious
Dipsacus fullonum	Teasel	Medium	
Elaeagnus angustifolia	Russian olive	Low	
Elaeagnus umbellata	Autumn olive	Low	
Frangula alnus	Glossy buckthorn	Medium	
Lonicera maackii	Amur honeysuckle	Medium	
Lythrum salicaria	Purple loosestrife	Medium	Restricted
Phalaris arundinacea	Reed canary grass	Medium	
Phragmites australis	Common reed	High	Restricted
Rhamnus cathartica	Common buckthorn	Medium	
Robinia pseudoacacia	Black locust	Low	
Rosa multiflora	Multiflora rose	Low	
Typha angustifolia	Narrowleaf cattail	Low	

Source: Selfridge ANGB 2016.

A survey of the forested land on Selfridge Air National Guard Base was conducted in July of 2013 to document the potential marketable timber on the installation. Twenty-five forested areas were designated and surveyed for the merchantability of the forest products located in each area.

The main species of wood on Selfridge ANGB is basswood, which is not desired for products. Industry producers in Macomb and St Clair counties were contacted to see the level of interest in the forest products found on the base and very little interest was found for harvesting the products. For these reasons, the potential for marketable timber is absent from the installation (Selfridge ANGB 2013).

5.2.3 Turf and Landscaped Areas

Landscaped grass is located throughout the installation adjacent to runways and taxiways, roadway medians, and around buildings. These landscaped areas are maintained on a regular basis during the growing season.

In 2009, an Urban Tree Survey was performed to collect, analyze, and synthesize biological information on tree and associated landscaping species present at Selfridge ANGB. The condition of each specimen was also recorded as trees in developed areas of military facilities are generally subject to greater stress due to soil compaction, air/water pollution, and heat accumulation. Tree species were recorded if they met any of the following criteria:

- Tree trunk within 50 feet of the edge of any graveled or paved surface (ex. paved road, graveled footpath, paved or graveled parking lot); or

- Tree trunk or attached branch within 50 feet of any building or above-ground structure, including utility lines or pipes (but for base perimeter fence, only those trees with trunks closer than 10 feet, or with branches overhanging the fence, need be mapped); or

- Tree trunk within 20 feet of an imaginary, ground level, line following directly above any underground utility line or pipe (ex. gas lines, telecommunications lines, storm water or sewer pipes).

A total of 1,822 trees, including 49 species were surveyed throughout the Selfridge ANGB using the specified criteria above (Figure 5-4). The most common tree species observed include Norway maple (*Acer platanoides*; 425); silver maple (*Acer saccharinum*; 303); eastern cottonwood (*Populus deltoides*; 201); green ash (*Fraxinus pennsylvanica*; 163); red pine (*Pinus resinosa*; 114); blue spruce (*Picea pungens*; 100); and white spruce (*Picea glauca*; 44). Some species, such as cottonwood, were most numerous in peripheral mesic areas, particularly along the shores of Lake St. Clair and minor drainages. There were far fewer cottonwood trees around clusters of buildings and residential areas. Other trees, such as Norway maple, silver maple, and green ash were found throughout the installation. Based on average diameters, the largest commonly-found trees (greater than five individuals observed) on the installation were London plane (*Platanus hybrida*; 37.4 inches); eastern cottonwood (35.9 inches); weeping willow (*Salix babylonica*; 33.0 inches), basswood (*Tilia americana*; 30.1 inches); and honey locust (*Gleditsia triacanthos*; 29.5 inches). The tallest commonly-found trees (greater than five individuals observed) on the installation were eastern cottonwoods, with average canopies of about 46 feet; London plane, with average canopies of about 45 feet; basswood, with average canopies of about 41 feet; and white pine, with average canopies of about 41 feet.

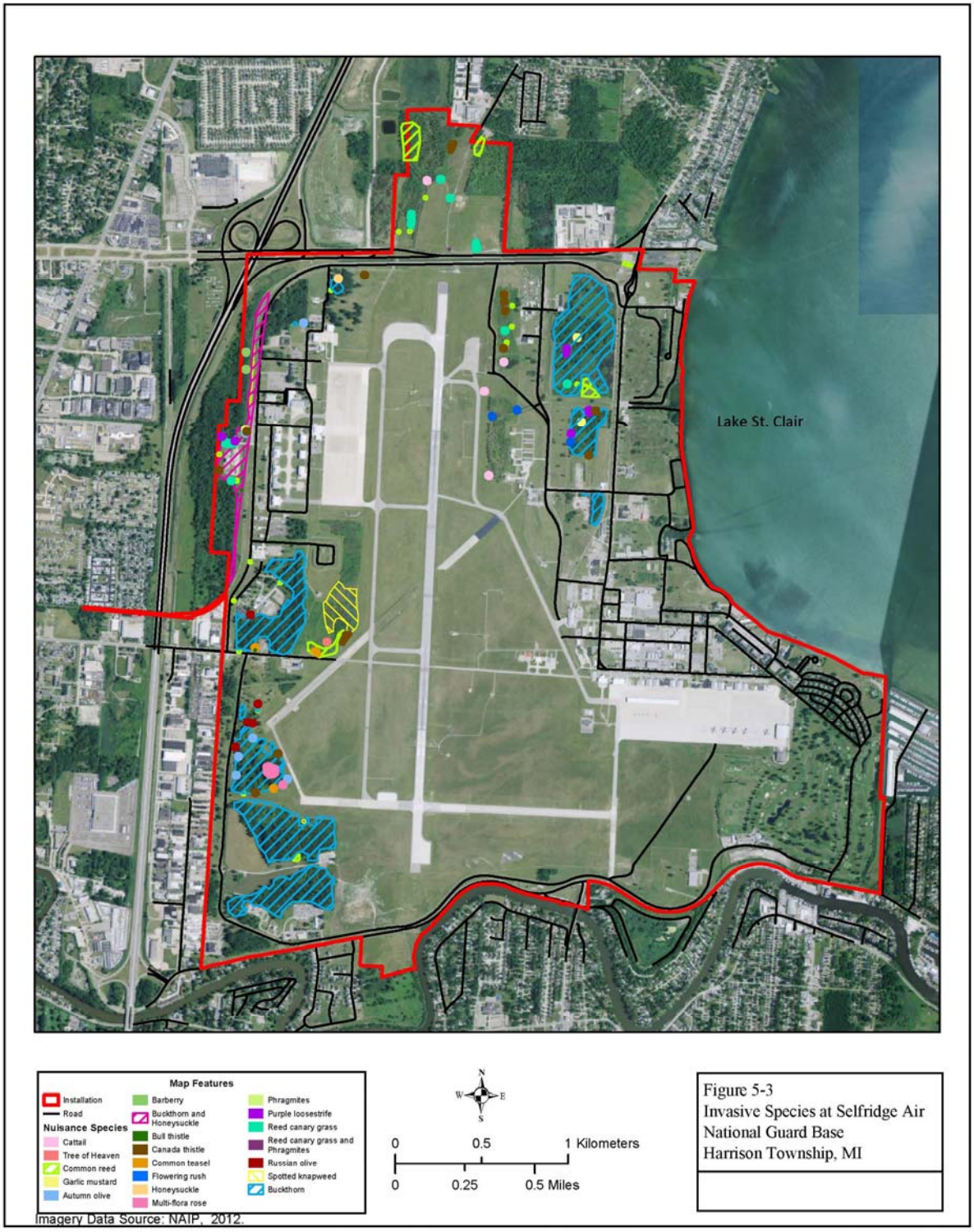

Figure 5-3
Invasive Species at Selfridge Air National Guard Base
Harrison Township, MI

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Legend

- Installation Boundary
- Urban Tree

Note: Urban tree collection point is from 2009. Trees in poor condition have been addressed consistent with the Urban Tree Management Plan.

Map Date: 11/27/2017

Data Sources:
Google Earth, 2017
Selfridge ANG, 2016

N

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Figure 5-4
Urban Trees Located throughout Selfridge Air National Guard Base
Harrison Township, Michigan

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The historic "400 Housing Area" possessed the greatest concentration of trees meeting the survey criteria, at approximately 346 total. The Selfridge Golf Course also possessed a large number of sizeable old trees, at approximately 334 total. The most commonly noted problems were trees planted too close to buildings and residences, and the use of steel wire around the trunks and branches for bracing when trees were saplings. These braces can compromise the structural integrity of the tree as it matures and opens the tree to various diseases and afflictions (NGB 2009). Of the 1,822 trees documented in the 2009 Urban Tree Study, 516 were documented to be in fair, poor, or remove condition. The majority of these trees have been removed by installation personnel to address hazardous condition concerns.

Selfridge ANGB is composed of small patches of forest, open land, and wetlands that provide habitat for animal species, including migratory songbirds which use these areas as spring and fall stopover points. Appendix I includes lists of species potentially found on Selfridge ANGB.

Caspian terns at Selfridge ANGB.

A Comprehensive Biological Survey was completed in 2004 to summarize wildlife presence and habitat preferences. In addition, field surveys for listed wildlife species were conducted in 2015. During these surveys, non-listed species were documented. The information below includes details on wildlife throughout the installation based on the 2004 and 2015 surveys.

5.2.4 Birds

Partners in Flight (PIF) is a cooperative effort involving partnerships among federal, state, and local government agencies; philanthropic foundations; professional organizations; conservations groups; industry; the academic community; and private individuals. The mission of PIF is to protect bird species at risk, keep common birds common, and develop voluntary partnerships for birds, habitat, and people.

Managing more than 25 million acres of land on hundreds of installations, the DoD plays a key role in PIF. DoD lands represent a critical network of habitats for neotropical migratory birds, offering these birds migratory stopover areas for resting and feeding, and suitable sites for nesting and rearing their young. The policy of DoD PIF is to promote and support DoD's partnership role in the protection and conservation of birds and their habitats by protecting vital DoD lands and ecosystems, enhancing biodiversity, and maintaining healthy and productive natural systems consistent with the military mission.

Long-term goals of PIF include development of Bird Conservation Plans for each physiographic region. Selfridge ANGB would be in the Upper Great Lakes Plain physiographic region, which includes the southern half of Michigan, northwestern Ohio, northern Indiana, northern Illinois, southern Wisconsin, and small portions of southwestern

Minnesota and northwestern Iowa. A plan is in place for this region and can be found online at https://www.partnersinflight.org/wp-content/uploads/2017/02/PA-16-Upper-Great-Lakes.pdf. The following habitats and birds have been identified for conservation priority:

Grasslands

- Henslow's sparrow (*Ammodramus henslowii*)
- Bobolink (*Dolichonyx oryzivorus*)

Shrub-scrub

- Golden-winged warbler (*Vermivora chrysoptera*)
- Black-billed cuckoo (*Coccyzus erythropthalmus*)

Deciduous forest/savannah

- Cerulean warbler (*Dendroica cerulea*)
- Red-headed woodpecker (*Melanerpes erythrocephalus*) (Knutson et al. 2001).

The Bird Conservation Plan identifies specific recommendations to address research, monitoring, and outreach needs for the priority bird species. Recommendations include the following:

1. Identify large tracts of grassland, mature forest, savannah, and scrub habitat to implement conservation actions.
2. Promote science-based management of bird habitats.
3. Monitor populations to see if population objectives are being met.
4. Increase inventory and monitoring efforts of priority bird species.
5. Evaluate if Bird Conservation Area concepts for sustaining populations are effective.
6. Identify and conserve bird population sources in different habitats.
7. Develop policy recommendations that address incentives for private landowners to manage their land with bird conservation plans.
8. Work to build public/private partnerships to conserve and restore habitats for priority bird species.
9. Educate landowners and conserve habitat.
10. Partner with international groups to ensure adequate winter and migration habitat for migrating species.

5.3 FISH AND WILDLIFE

Selfridge ANGB is aware of PIF recommendations; however, the 127 WG mission requires the maintenance of the property and habitat to address BASH concerns which may not be consistent with PIF recommendations. For example, to address BASH and safety concerns, the 127 WG have converted forested areas within the transition, approach, and clear zone, as well as locations where visual obstructions for the tower cannot be avoided. PIF recommendations have been

considered in developing this INRMP and the installation will implement recommendations as the mission allows. Due to the configuration and limited size of the installation, habitat enhancement for avian species anywhere on the installation would fall within separation perimeter B (Figure 5-5). This would not be consistent with FAA AC 150/5200-33B, which is based on a Memorandum of Agreement between federal resource agencies including the Federal Aviation Administration, USAF, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency (USEPA), USFWS, and USDA-WS. These agencies signed a Memorandum of Agreement in July 2003 to acknowledge their respective missions in protecting aviation from wildlife hazards.

Appendix I presents a list of potential and documented bird species on Selfridge ANGB. Those species marked with an asterisk have been observed on the installation. Detailed avifauna studies have not been performed at Selfridge ANGB; however, information gathered during other studies, including American Breeding Bird Surveys and Listed Wildlife Species Surveys have contributed to this list. The residential status of each species was assigned, designating them as being year-round residents; spring/fall migrants; or primarily summer, winter, fall, or spring residents. Other species whose ranges are primarily to the south or west might also be sighted at Selfridge as transients, or, less likely, as seasonal breeders.

Migratory birds are protected through International Treaties and the Migratory Bird Treaty Act. Federal regulations and EO 13186 provide the framework for regulation of migratory bird take and possession. Federal permits are required to take, possess, transport, and dispose of migratory birds, bird parts, feathers, nests, or eggs. When necessary, applications for permits will be made to the USFWS Migratory Bird Permit Office in Bloomington, Minnesota.

Raptors

Raptors (i.e., birds of prey) have the potential to migrate through or reside at Selfridge ANGB. During the 2015 Listed Wildlife Species Survey, the following raptors were observed at Selfridge ANGB: red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), American kestrel (*Falco sparverius*), broad-winged hawk (*Buteo platypterus*), rough-legged hawk *(Buteo lagopus*), sharp-shinned hawk (*Accipiter striatus*), great horned owl (*Bubo virginianus*), and bald eagle (*Haliaeetus leucocephalus*) (NGB 2015). Raptors prey on small mammals, including mice and shrews, reptiles, insects, and other birds.

Wading Birds, Shorebirds, and Waterfowl

Small marshes, bogs, and bordering irrigation reservoirs provide limited habitat for wading birds, shorebirds, or waterfowl on Selfridge ANGB. However, the installation is bordered by Lake St. Clair and there is potential for wading birds, shorebirds, and waterfowl to migrate through or reside at Selfridge ANGB. The following species were observed during the 2015 Listed Wildlife Species Survey: tundra swan (*Cygnus columbianus*), Caspian tern (*Hydroprogne caspia*), Forster's tern (*Sterna forsteri*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), Canada goose (*Branta canadensis*), mallard duck (*Anas platyrhynchos*), herring gull (*Larus smithsonianus*), ring-billed gull (*Larus delawarensis*), and greater black-backed gulls (*Larus marinus*). Some other ducks and aquatic birds were also observed during the survey on Lake St. Clair, outside of the boundary of Selfridge ANGB. These birds included common merganser

(*Mergus merganser*), hooded merganser (*Lophodytes cucullatus*), lesser scaup (*Aythya affinis*), greater scaup (*Aythya marila*), bufflehead (*Bucephala albeola*), canvasback (*Aythya valisineria*), and double-crested cormorant (*Phalacrocorax auritus*) (NGB 2015).

5.3.1 Mammals

Appendix I presents a list of potential and documented mammal species on Selfridge ANGB. Those species with an asterisk have been observed on the installation during surveys or during other activities.

Carnivores

Coyote (*Canis latrans*) and red fox (*Vulpes vulpes*) were observed at Selfridge ANGB during the 2015 Listed Wildlife Species Survey (NGB 2015). Mink (*Mustela vison*) and feral cat (*Felis catus*) have also been previously observed on the installation. Common carnivorous species with the potential to reside at Selfridge ANGB include the gray fox (*Urocyon cinereoargenteus*), badger (*Taxidea taxus*), raccoon (*Procyon lotor*), and long-tailed weasel (*Mustela frenata*). These species are important components of the local ecosystems. These predators prey on rodents, rabbits, and insects; providing a natural means of controlling potential pest populations. They can also effectively remove nesting and flocking birds.

Ungulates

Ungulates such as white-tailed deer (*Odocoileus virginianus*) utilize the forage available at Selfridge ANGB. Deer occur throughout the installation, including the developed and undeveloped areas. It was noted during the 2015 Listed Wildlife Species Survey that white-tailed deer were mostly observed in forested areas, but particularly in the wetland area to the immediate north of the shooting range, and in the large wetland bounded to the west by Dolittle Drive, to the east by North Jefferson Avenue, and to the north by North Perimeter Road. Deer numbers have been reduced through the installation of a perimeter fence line. There did not appear to be a large number of deer on the base (perhaps a dozen individuals total at the most) during the 2015 Listed Wildlife Species Survey, but their presence was obvious (NGB 2015). Greater numbers of deer occur outside the installation's boundary as evidenced by browse lines on trees and visual observations.

Small Mammals

Fox squirrel (*Sciurus niger*), muskrat (*Ondatra zibethicus*), woodchuck (*Marmota monax*), meadow vole (*Microtus pennsylvanicus*), and deer mouse (*Peromyscus maniculatus*) were observed during the 2015 Listed Wildlife Species Survey (NGB 2015). Other small mammals previously recorded on the installation included cottontail rabbit (*Sylvilagus floridanus*), striped skunk (*Mephitis mephitis*), and eastern gray squirrel (*Sciurus carolinensis*). The Virginia opossum (*Didelphis marsupialis*) also has the potential to reside at Selfridge ANGB

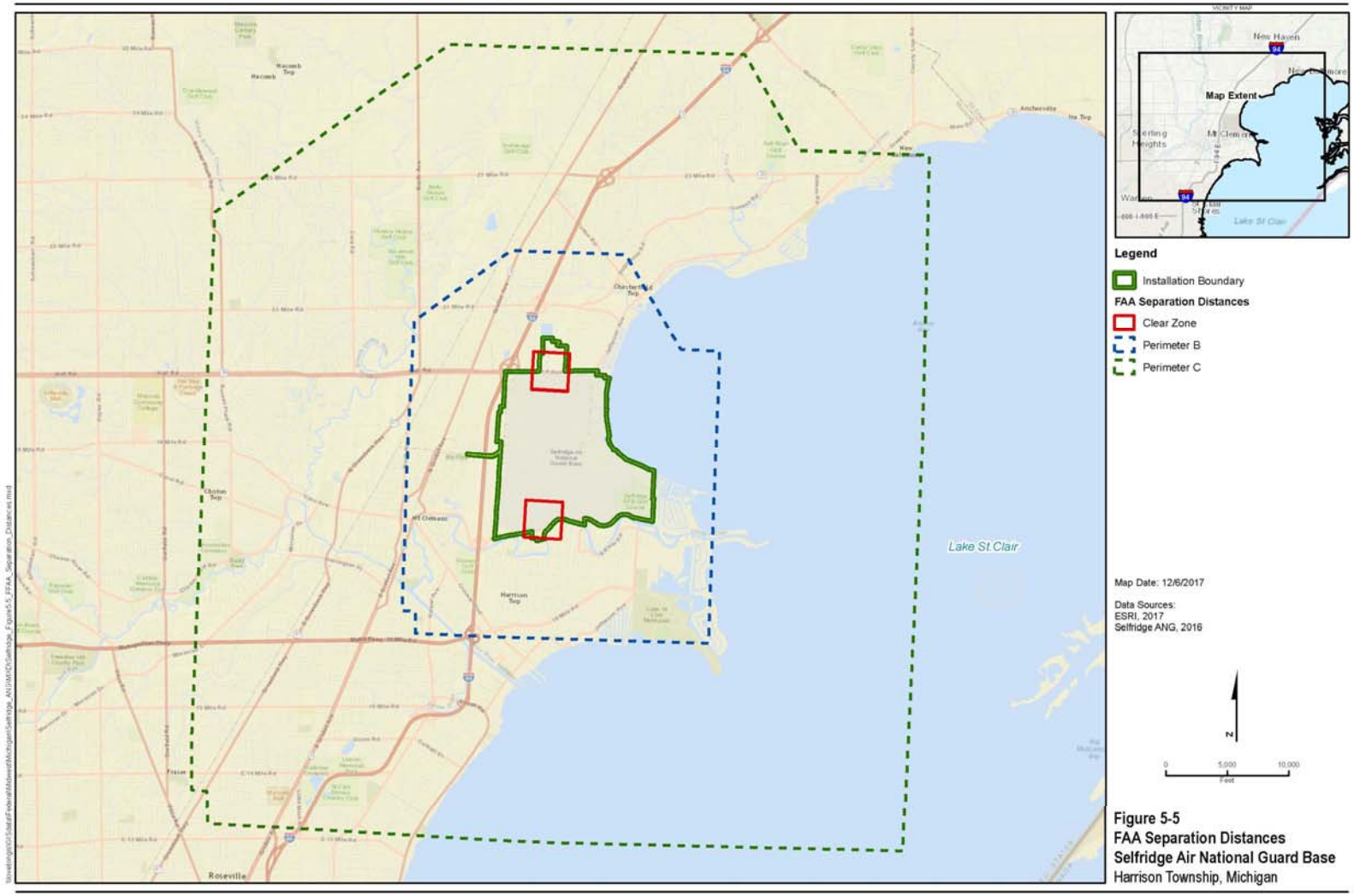

Figure 5-5
FAA Separation Distances
Selfridge Air National Guard Base
Harrison Township, Michigan

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The 2015 Listed Wildlife Species Survey also included both mist netting and acoustic monitoring of bats. During mist netting, 11 bats, representing 2 species were captured. These included the eastern red bat (*Lasiurus borealis*) and the big brown bat (*Eptesicus fuscus*). The acoustic monitoring detected additional bat species at Selfridge ANGB including hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*) evening bat (*Nycticeius humeralis*), and tricolored bat (*Perimyotis subflavus)* (NGB 2015). The results of this survey were consistent with the findings during the 2011 Bat Survey where the eastern red bat and big brown bat were the only species captured during mist netting. Acoustic monitoring during the 2011 Bat Survey also detected the silver-haired bat, hoary bat, little brown bat (*Myotis lucifugus*) and northern long-eared bat (*Myotis septentrionalis*) (ANG 2011a).

5.3.2 Reptile and Amphibians

Reptile and amphibian documentation is limited at Selfridge ANGB; however, a list of amphibians and reptiles with the potential to migrate through or reside at Selfridge ANGB is provided in Appendix I.

Reptile species observed during the 2015 Listed Wildlife Species Survey included the eastern garter snake (*Thamnophis sirtalis sirtalis*), common snapping turtle (*Chelydra serpentina*), painted turtle (*Chrysemys picta*), and the northern map turtle (*Graptemys geographica*) (NGB 2015). Other reptiles that could potentially occur at Selfridge ANGB include the blue racer (*Coluber constrictor foxii*).

Amphibian species observed during the 2015 Listed Wildlife Species Survey include the western chorus frog (*Pseudacris triseriata*), green frog (*Lithobates clamitans*), northern leopard frog (*Lithobates pipiens*), and American toad (*Anaxyrus americanus*). Wood frogs (*Lithobates sylvaticus*) also have the potential to occur on the installation.

5.3.3 Fisheries

Fisheries habitat on the installation is limited to three constructed ponds adjacent to Lake St. Clair. Two of the ponds are used to raise walleyes. The third pond has fish, but is not used for rearing walleyes. The Lake St. Clair Walleye Association (Association), which is administered by the Michigan DNR, is responsible for stocking the ponds with fish, and for maintaining the ponds (i.e., maintaining water levels and repairing leaks). Grounds maintenance personnel from Selfridge ANGB assist the Association in maintaining the ponds, primarily by providing equipment that the Association otherwise does not have access to for necessary repairs. The two walleye ponds are drained into Lake St. Clair following removal of the fish each year. The two walleye ponds are bordered by emergent wetland vegetation. The third pond has emergent and floating-leaved vegetation throughout the pond. These ponds are not in immediate proximity to the airfield and have not been shown to be a BASH concern, and therefore have continued to operate.

5.4 THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN

The USFWS and Michigan DNR were contacted regarding the presence of threatened and endangered species in the geographic area of Selfridge ANGB pursuant to the requirements of Section 7(c) of the Endangered Species Act (ESA) (16 USC 1536) and Michigan Endangered and Threatened Species Laws (Michigan Administrative Code R 299.1021 – R 299.1028). Under the ESA, an "endangered species" is defined as any species that is in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Table 5-3 includes a list of federal and state listed species occurring in Macomb County, Michigan.

Potential habitat for the federally listed Indiana bat, northern long-eared bat, red knot, and eastern Massasauga may occur at Selfridge ANGB. In addition, habitat for the state-listed eastern fox snake, short-eared owl, peregrine falcon, and common loon also potentially occurs on the installation. In 2015, six field surveys were conducted to document the presence/absence of these listed species and their habitats on the installation.

Indiana Bat
Photo by Adam Mann, USFWS.

The Indiana bat is a small, dark brown to black bat with a wingspan of 9 to 11 inches. During the winter, Indiana bats hibernate in caves or abandoned mines for approximately 6 months. During the summer months, Indiana bats migrate to wooded areas where they roost under loose tree bark or dead or dying trees. Indiana bats forage in or along the forest edge. Mating occurs in the fall, prior to winter hibernation. After the summer migration, females roost in maternity colonies (groups of up to 100 females). Each female in the colony gives birth to one pup. The young stay in the maternity colony throughout their first summer. Indiana bats feed on flying insects around rivers, lakes, and in upland areas.

Threats to the Indiana bat population and other bat populations, including the northern long-eared bat, are increasing due to the loss of summer roosting habitat and white-nose syndrome. White-nose syndrome— a disease named for the ring of white fungus that develops on the faces and wings of affected bats—has killed over a million bats. White-nose syndrome has been identified in Michigan (Michigan DNR 2016).

During the most recent June 2015 survey, no Indiana bats were captured in mist netting efforts, nor were they detected during acoustical monitoring at Selfridge ANGB (NGB 2015).

Table 5-3. List of Federal and State Listed Species in Macomb County, Michigan

Scientific Name	Common Name	Federal Status	State Status
Reptiles and Amphibians			
Sistrurus catenatus	Eastern massasauga	PT	SC
Clemmys guttata	Spotted turtle		T
Pantherophis vulpinus	Eastern fox snake		T
Birds			
Calidris canutus rufa	Rufa red knot	T	
Asio otus	Long-eared owl		T
Asio flammeus	Short-eared owl		E
Botaurus lentiginosus	American bittern		SC
Buteo lineatus	Red-shouldered hawk		T
Chlidonias niger	Black tern		SC
Circus cyaneus	Northern harrier		SC
Falco peregrinus	Peregrine falcon		E
Gavia immer	Common loon		T
Protonotaria citrea	Prothonotary warbler		SC
Rallus elegans	King rail		E
Sterna forsteri	Forster's tern		T
Sterna hirundo	Common tern		T
Fish			
Acipenser fulvescens	Lake sturgeon		T
Ammocrypta pellucida	Eastern sand darter		T
Hiodon tergisus	Mooneye		T
Macrhybopsis storeriana	Silver chub		SC
Notropis anogenus	Pugnose shiner		E
Noturus miurus	Brindled madtom		SC
Percina shumardi	River darter		E
Mammals			
Myotis sodalist	Indiana bat	E	
Myotis septentrionalis	Northern long-eared bat	T	
Mussels			
Alasmidonta marginata	Elktoe		SC
Alasmidonta viridis	Slippershell		T
Cyclonaias tuberculatta	Purple wartyback		T
Epioblasma triquetra	Snuffbox		E
Lampsilis fasciola	Wavy-rayed lampmussel		T
Ligumia masuta	Eastern pondmussel		E
Ligumia recta	Black sandshell		E
Pleurobema sintoxia	Round pigtoe		SC
Ptychobranchus fasciolaris	Kidney shell		SC
Toxolasma parvus	Lilliput		E
Truncilla truncate	Deertoe		SC
Villosa fabalis	Rayed bean		E
Villosa iris	Rainbow		SC
Mollusks			
Mesodon mitchellianus	Sealed globelet		SC
Oxyloma peoriense	Depressed ambersnail		SC
Plants			
Agalinis gattingeri	Gattinger's gerardia		E
Arabis missouriensis var. deamii	Missouri rock-cress		SC
Amoracia lacustris	Lake cress		T

Scientific Name	Common Name	Federal Status	State Status
Carex davisii	Davis's sedge		SC
Carex lupuliformis	False hop sedge		T
Carex richardsonii	Richardson's sedge		SC
Cirsium hillii	Hill's thistle		SC
Galearisd spectabilis	Showy orchis		T
Gentiana puberulenta	Downy gentian		E
Gentianalla quinquefolia	Stiff gentian		T
Hieracium paniculatum	Panicled hawkweed		T
Hydrastis Canadensis	Goldenseal		T
Obovaria olivaria	Hickorynut		E
Obovaria subrotunda	Round hickorynut		E
Plantago cordata	Heart-leaved plantain		E
Platanthera ciliaris	Orange- or yellow-fringed orchid		E
Quercus shumardii	Shumard's oak		SC
Scirpus clintonii	Clinton's bulrush		SC
Silphium integrifolium	Rosinweed		T

NOTE: E = Endangered.
PE = Proposed Endangered.
T = Threatened.
PT = Proposed Threatened
SC = Special Concern.
Source: USFWS 2015a; Michigan DNR 2016.

Northern long-eared bat Photo by USFWS.

The northern long-eared bat is one of the species most affected by white-nose syndrome. In April 2015, the USFWS designated the northern long-eared bat as a threatened species under the ESA. The northern long-eared bat is a medium-sized bat with a wingspan of 9 to10 inches. Like Indiana bats, northern long-eared bats spend winters hibernating in caves or mines (USFWS 2015b). During the summer months, northern long-eared bats nest by themselves or in colonies under bark, in cavities, or in the crevices of live or dead trees; some are also found roosting in caves and mines. Northern long-eared bats are opportunistic in selecting roosts, they typically choose tree species that retain bark, or provide cavities or crevices (USFWS 2015b). Northern long-eared bats breed in late summer or early fall, hibernate, and then give birth to a single pup the following May or June. Maternity colonies typically have 30-60 bats. Young bats begin flying 18-21 days after birth. Northern long-eared bats use echolocation to catch insects such as moths, flies, leafhoppers, and beetles in the understory of forested hillsides at dusk (USFWS 2015b). During the most recent June 2015 survey, no northern long-eared bats were captured in mist netting efforts, nor were they detected during acoustical monitoring at Selfridge ANGB (NGB 2015).

Red Knot
Photo by USFWS.

The red knot is a large sandpiper approximately 9 to 10 inches long with a short, straight black bill. The breast and belly of this bird range from salmon-red to brick red during breeding season. Red knots fly together and makes one of the longest distance migrations. They feed on clams, mussels, snails, crustaceans, and marine worms. Red knots would only be present at Selfridge ANGB during the spring and fall migration period along the near shore waters of Lake St. Clair adjacent to the installation. In 2012, red knots were observed at the nearby Lake St. Clair Metropark. In 2015, Selfridge ANGB was surveyed for red knot in both April and August. No red knots were observed during this time. In addition, it was determined that no suitable sandy habitat for the red knot exists at Selfridge ANGB (NGB 2015).

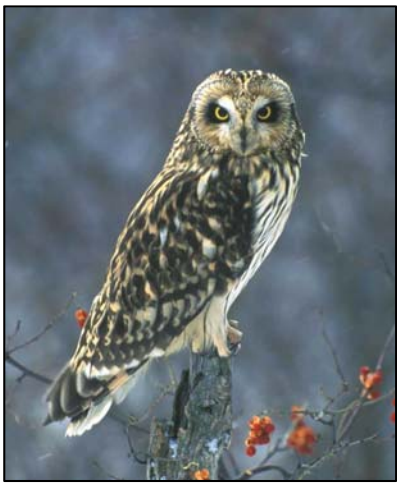
The eastern Massasauga is a small, thick bodied rattlesnake with adults reaching approximately 2 feet. This snake typically lives in wet areas along rivers and lakes, and in the adjacent uplands. Eastern Massasauga eat small rodents, frogs, and other snakes. Potential habitat at Selfridge ANGB for this species includes the forested wetland areas. In 2015, surveys for the eastern Massasauga were conducted in late April and June when the snakes were most active, and continued monthly through November. Surveys included visual encounters and cover board surveys. No eastern Massasauga were observed during the surveys and it was noted that several problems with the potential forested wetland habitats exist (NGB 2015).

Eastern Massasauga
Photo by Dick Dickinson, USFWS

Eastern Fox Snake
Photo by Jim Harding, Michigan DNR

The eastern fox snake is a yellowish or light brown snake with brown or black blotches, and reaches lengths of up to 5 feet. This snake prefers marshes and wet meadows where they feed on rodents, frogs, and birds. In 2015, surveys for the eastern fox snake were conducted in late April and June when the snakes were most active, and continued monthly through November. Surveys included visual encounters and cover board surveys. No eastern fox snakes were observed during the surveys. It was noted that the appropriate habitats—Lake St. Clair marshes and adjacent wet meadows—no longer exist at Selfridge ANGB. Potential habitat does exist in a semi-open wetland bounded to the west by Dolittle Drive, to the east by North Jefferson Avenue, and to the north by the North Perimeter Road; however, this wetland is now isolated from Lake

St. Clair by large areas of mowed lawn North Jefferson Road. It is unlikely that the snakes would have access to this wetland (NGB 2015).



Short-Eared Owl
Photo by Audubon.

The short-eared owl, can be found in grassland areas with interspersed wetlands or wet meadows. Nests are located at the base of shrubs or in clumps of vegetation. In mid-February owls begin to form pairs and then begin to breed from April through June. Short-eared owls feed on rodents and insects during both the day and night. The large open areas adjacent to the installation facilities, runways, taxiways, hangars, and other facilities including the golf course could potentially provide habitat for the short-eared owl. Surveys that included point counts for breeding owls were conducted at the end of March and the beginning of June 2015. In addition, point counts for migrating owls were conducted at the end of August and mid-October. Short-eared owls were observed in four different locations, flying over open fields hunting during daylight hours in March 2015. Owls were observed within the North and South Approach areas, the large field south of the Base marina, and in the vicinity of the Walleye Stocking ponds adjacent to lake St. Clair. It was presumed that the short-eared owls observed were in their spring migration pattern and not breeding at Selfridge ANGB (NGB 2015). Owls within the North and South Approach areas could be considered a BASH and safety issue. Management of short-eared owls is accomplished in compliance with Michigan DNR Threatened and Endangered Species and USFWS Migratory Bird permits. Additional consultation with agencies occurs as necessary. Both the installation and USDA-WS hold permits to manage the short-eared owl at Selfridge ANGB if needed.

Peregrine Falcon
Photo by Audubon

Peregrine falcons are a migratory bird in Michigan with a gray back and barred breast. Peregrine falcons prefer large open areas for hunting a variety of small birds. Peregrine falcons mate for life and often use the same nest each year. In urban areas, peregrine falcons nest on tall buildings or bridges near lakes or rivers. In Michigan, nesting occurs between April and late September. Peregrine falcons are listed by the DoD Partners in Flight as a Bird of Conservation Concern. The large open areas at Selfridge ANGB described above for the short-eared owl also provide habitat for the peregrine falcon. In 2015, point count surveys were completed in March and mid-October. Peregrine falcons were observed in three locations at Selfridge ANGB during March and April 2015. These areas included the North Approach area, airfield south of the ammunition supply facility, and in an area of the airfield just south of the Selfridge Air Museum. The falcons observed appeared to be hunting (NGB 2015). Peregrine falcons within proximity to the transition, approach, and clear zones have the potential to cause BASH and safety issues.

Management of peregrine falcons is accomplished in compliance with Michigan DNR Threatened and Endangered Species and USFWS Migratory Bird permits. Additional consultation with agencies occurs as necessary. Both the installation and USDA-WS hold permits to manage peregrine falcons at Selfridge ANGB if needed.

Common Loon observed in April 2015

Common loons, a goose-sized, long-bodied water bird, were once abundant in Lake St. Clair. Today they are considered a state threatened species. Common loon typically breed in inland lakes with small islands and undeveloped shorelines starting in April. From September to December, common loon return to wintering areas on the Gulf of Mexico and Atlantic Coast. Surveys for common loon and suitable habitat occurred in March and April 2015 for spring migration, and in October and November 2015 for fall migration. A total of six common loons were observed in two locations during the surveys at Selfridge ANGB. The birds were observed in the open water of Lake St. Clair and were likely in migration to appropriate lake breeding habitats to the north (NGB 2015). Management of common loon is accomplished in compliance with Michigan DNR Threatened and Endangered Species and USFWS Migratory Bird permits. Additional consultation with agencies occurs as necessary. If needed, the installation and USDA-WS holds a permit to manage common loon if BASH or safety issues are present. However, common loons were not identified within the transition, approach, and clear zones.

Bald eagle pair on nest.

Bald eagles (*Haliaeetus leucocephalus*) are currently protected by the Bald and Golden Eagle Protection Act. This Act prohibits the take, possession, or transport of alive or dead bald and golden eagles (*Aquila chrysaetos*), including nests (active and inactive) and eggs without prior authorization. Bald eagles were previously protected under the ESA until 9 August 2007 when the species was delisted. Over the years, bald eagle numbers and nesting pairs have continued to rise throughout the United States. Bald eagles nest in forested areas adjacent to large bodies of water. Nests are typically 5 to 6 feet in diameter, take up to 3 months to build, and are reused year after year. Bald eagles primarily feed on fish; however, they will eat other birds, reptiles, amphibians, invertebrates, and small mammals such as rabbit and muskrat. Bald eagles have been documented at Selfridge ANGB. The installation holds a permit for bald eagle harassment if the presence of bald eagles become a BASH or safety concern.

No federally-listed plant species are known to occur in Macomb County, Michigan. A total of nine rare plants were identified as potentially occurring at Selfridge ANGB. In 2014, potential rare plant habitat was mapped during the Vegetation Survey at the installation. None of the rare

plants were documented on Selfridge ANGB during the survey. Table 5-4 includes a list of the nine rare plants and their potential for occurring on the installation based on habitat availability.

Table 5-4. Potential Rare Plants at Selfridge ANGB

Scientific Name	Common Name	Preferred Habitat	Potential on Selfridge ANGB	
			Habitat	Presence
Carex davisii	Davis' sedge	Floodplain forests, especially in canopy gaps, artificial clearings, riparian thickets and fields	Floodplain forests	Moderate
Carex lupuliformis	False hop sedge	Floodplain forests and swamps	Floodplain forests	Low
Cirsium hillii	Hill's thistle	Pine barrens, savanna, prairie, openings with coniferous and oak forests	Openings in pine forest	Unlikely, no pine forests
Fraxinus profunda	Pumpkin ash	Floodplain forests, deciduous swamps	Floodplain forests	Moderate
Hydrastis canadensis	Goldenseal	Southern hardwood forests; moist ravines; riparian forests	Moist forests	Moderate
Plantago cordata	Heart-leaved plantain	Large river floodplains and small, mucky streams	Floodplain forests	Low
Quercus shumardii	Shumard oak	Wet, low woods on clay soils in glacial lake plains	Wet woodlands	Unlikely
Silphium integrifolium	Rosinweed	Prairie remnants; wet-mesic prairies; fens on peaty mucks and loams; dry-mesic to mesic loams	Wet prairies	Unlikely; grasslands are low quality
Trichophorum clintonii	Clinton's bulrush	Wet to wet mesic prairies	Wet prairies	Low

Source: Selfridge ANGB 2016.

5.5 WETLANDS AND FLOODPLAINS

5.5.1 Waters of the U.S./Wetlands

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987). Wetland functions include groundwater recharge/discharge, flood/flow alteration, sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, aquatic and terrestrial diversity and abundance, and uniqueness. In Michigan, activities occurring within a wetland are regulated by both the Michigan DEQ and USACE.

Wetland areas are determined using the routine onsite determination method described in the USACE *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)* (USACE 2012). The wetland delineation method requires the investigation of three wetland parameters:

- ***Hydrophytic Vegetation***—Classified by the estimated probability of occurrence in wetland versus non-wetland areas throughout its distribution.

- ***Hydric Soils***—Soils that are saturated, flooded, or ponded for sufficient periods during the growing season and that develop anaerobic conditions in their upper layers.

- ***Hydrological Characteristics***—Determined by the frequency of flooding, duration of inundation, and soil saturation.

For an area to be classified as a wetland, positive indicators of each of the three parameters must be present, with the exception of problem areas. Jurisdictional wetlands are those subject to regulatory authority under Section 404 of the Clean Water Act (CWA) and EO 11990, *Protection of Wetlands*. In addition to the USACE routine determination, Michigan uses the Michigan Rapid Assessment Method (MiRAM) for assessing the functional value of a wetland and assigning a numeric value to allow for comparison to other wetlands. The MiRAM system uses seven metrics: size and distribution, upland buffers and surrounding landscape, hydrology, habitat alterations and structure, special situations, habitat features, and scenic and recreational values.

Wetland area at Selfridge ANGB

A total of 18 wetland areas have been identified on the installation. In 2011, a routine wetland delineation was performed to update previous wetland delineations. In the 2013 *Final Wetland Delineation Report and Associated Mapping* (ANG 2013) results showed that the cover type of many wetlands had changed as a result of tree removals and other land management that Selfridge ANG had undertaken. In 2013, both USACE and Michigan DEQ evaluated the wetlands resulting in USACE and/or Michigan DEQ adjusting some wetland boundaries and taking jurisdiction over 385 of the 385.7 acres delineated. Table 5-5 provides characteristics of the 18 wetland areas within Selfridge ANGB. Figure 4-3 shows the locations of wetlands throughout the installation. It is important to note that many of the wetlands at Selfridge ANGB occur within the transition, approach, and clear zones and present BASH issues. Land management activities such as converting forested wetlands to herbaceous wetlands is required as needed to reduce BASH and address airfield operational/safety concerns.

Table 5-5. State and Federal Regulated Wetlands at Selfridge ANGB

Wetland Area	Size (acres)	Wetland Type	MiRAM Value	Regulatory Agency	Dominant Species
A	68.5	PFO, PEM, PSS	51.5	Michigan DEQ	Bulrush sp. (*Scirpus* sp). Northern water plantain (*Alisma triviale*) Sedge sp. (*Carex* sp.) Knotweed sp. (*Polygonum* sp.) Narrowleaf cattail (*Typha angustifolia*) Narrowleaf willow (*Salix exigua*) Common reed Gray dogwood (*Cornus racemosa*) Giant goldenrod (*Solidago gigantean*) Fuller's teasel (*Dipsacus fullonum*) New England aster (*Symphyotrichum novae-angilae*) Purple loosestrife (*Lythrum salicaria*) Spreading dogbane (*Apocynum androsaemifolium*) Riverbank grape (*Vitus riparia*) Virginia creeper (*Parthenocissus quinquefolia*)
B	25.8	PFO, PEM	58.5	Michigan DEQ	Eastern cottonwood (*Populus deltoids*) Gray dogwood Common serviceberry (*Amelanchier arborea*) Narrowleaf willow Green ash Goldenrod sp. (*Solidago* sp.) New England aster Sedge sp. Narrowleaf cattail White heath aster (*Symphyotrichum ericoide*) Plantain sp. (*Plantago* sp.) Blackberry sp. (*Rubus* sp.) Riverbank grape Virginia creeper Common reed
C	11.4	PFO	52	Michigan DEQ	Gray dogwood Silky dogwood (*Cornus amomum*) Riverbank grape Virginia creeper

Wetland Area	Size (acres)	Wetland Type	MiRAM Value	Regulatory Agency	Dominant Species
D	62.4[a]	PFO, PEM, PSS	Not Provided	Michigan DEQ	Eastern cottonwood Gray dogwood Green ash Common reed Rock elm (*Ulmus thomasii*) Maple sp. (*Acer* sp.) Jewelweed (*Impatiens capensis*) Riverbank grape Narrowleaf willow Giant goldenrod Common serviceberry Willow sp. (*Salix* sp.) Bedstraw sp. (*Galium* sp.) Virginia creeper
E	55.2	PSS	53	Michigan DEQ	American elm (*Ulmus americana*) Gray dogwood Common serviceberry Giant goldenrod Aster sp. (*Symphyotrichum* sp.) Riverbank grape Blackberry sp.
F	15.8	PFO, PSS	47	Michigan DEQ	Eastern cottonwood Green ash Silky dogwood Narrowleaf willow Giant goldenrod Riverbank grape Common reed Common serviceberry
G	32.6	PFO, PSS	59	Michigan DEQ	American elm Common buckthorn (*Rhamnus cathartica*) Gray dogwood New England aster Giant goldenrod Riverbank grape Virginia creeper Chokeberry (*Prunus virginiana*) Eastern cottonwood Green ash Graminae sp. Common rush (*Juncus effusus*) Sedge sp. Aster sp. Blackberry sp. Eastern poison ivy (*Toxicodendron radicans*)

Wetland Area	Size (acres)	Wetland Type	MiRAM Value	Regulatory Agency	Dominant Species
H	66.9	PFO, PSS, PEM	55.5	Michigan DEQ	Eastern cottonwood Green Ash Crack willow (*Salix fragilis*) Narrow leaf willow Gray dogwood Giant goldenrod New England aster Grass sp. (*Gramineae* sp.) Pepper vine (*Ampelopsis arborea*) Blackberry sp.
J	1.2	PEM	50.5	USACE and Michigan DEQ	Eastern cottonwood Green ash Narrow leaf willow Common reed Giant goldenrod Gray dogwood Jewelweed Riverbank grape
K	1.6	PFO	44	Michigan DEQ	Eastern cottonwood Green Ash Silky dogwood Common buckthorn Riverbank grape
L	4.8	PFO, PEM	48	Michigan DEQ	Common reed Orange jewelweed Curley dock (*Rumex crispus*) Riverbank grape Virginia creeper
M	1.1	PEM	29.5	Michigan DEQ	Eastern poison ivy Sedge sp. Grass sp. (*Festuca* sp.) Grass sp. (*Panicum* sp.) Plantain sp. (*Plantago* sp.) Grass sp. (*Setaria* sp.) Clover (*Trifolium* sp.) Vine sp. (*Vitus* sp.)

Wetland Area	Size (acres)	Wetland Type	MiRAM Value	Regulatory Agency	Dominant Species
N	3.0	PFO, PSS	54	Michigan DEQ	Eastern cottonwood Narrowleaf willow American Elm Green Ash Red Maple (*Acer rubrum*) Giant goldenrod Grass sp. Knotweed Goatsbeard (*Tragopogon sp.*) Indian hemp sp. (*Apocynum sp.*) Gray dogwood Silky dogwood Common serviceberry Eastern poison ivy New England aster Northern bedstraw (*Galium boreale)* Flat-topped aster (*Aster umbellatus*) Riverbank grape Balloon berry (*Rubus illecebrosus*) Virginia creeper
P	33.0	PFO, PEM	61.5	Michigan DEQ	Narrowleaf willow Green Ash Narrowleaf cattail Giant goldenrod Gray dogwood Common rush Sedge sp. Red Maple Northern bugleweed (*Lycopus uniflorus*) Riverbank grape Virginia creeper
Q	0.8	PFO	49	Michigan DEQ	Eastern cottonwood "ironwood" Chokeberry Sumac sp. (*Rhus sp.*) Swamp rose (*Rosa palustris*) Giant goldenrod Common reed Sedge sp. Riverbank grape Greenbrier sp. (*Smilax sp.*)
R	0.5	PEM, PFO	39.5	USACE and Michigan DEQ	Common reed Sedge sp. Rosette grass sp. Plantain sp.
T	0.3	PFO, PEM	40.5	Michigan DEQ	Grass sp. Red Maple Common reed Barnyard grass (*Echinochloa crus-galli*) Riverbank grape

Wetland Area	Size (acres)	Wetland Type	MiRAM Value	Regulatory Agency	Dominant Species
U	2.2	PFO, PSS, PEM	44.5	USACE and Michigan DEQ	Weeping willow (*Salix babylonica*) Eastern cottonwood Red Maple Fuller's teasel Umbrella sedge (*Cyperus involucratus*) Giant goldenrod Spear thistle (*Cirsium vulgare*) Chairmaker's bulrush (*Scirpus americanus*) Balloon berry Purple loosestrife Riverbank grape Flower sp. (*Ipomoea sp.*) Virginia creeper Sedge sp. Common spikerush (*Eleocharis palustris*)
		Wetland type codes: PFO – Palustrine forested, PSS – Palustrine shrub, PEM – Palustrine emergent			

5.5.2 Floodplains

EO 11988, *Floodplain Management,* issued 24 May 1977, requires all federal agencies to provide leadership and take action to reduce the risk of flood loss; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values of floodplains when acquiring, managing, or disposing of federal lands. EO 11988 is implemented through the CWA and 44 CFR Part 9 *Floodplain Management and Protection of Wetlands*. Floodplains are defined in this EO as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands including, at a minimum, that area subject to a 1 percent or greater chance of flooding in any given year." Flooding in the 100-year floodplain is expected to occur from a flood that has a 1 percent probability of occurring in any given year; therefore, the 100-year floodplain has an annual probability of exceedance of 1 percent.

The Federal Emergency Management Agency (FEMA) updated the floodplain maps for Lake St. Clair in 1992, 2009, and 2012. Changes in the mapping methods for floodplains over the years has resulted in increases to the areas within Selfridge ANGB falling within the 100-year floodplain. In 1992, 1 percent of the installation, or 31 acres, was within the 100-year floodplain. In 2009, 754 acres, or 24 percent of the installation, was within the 100-year floodplain. In 2012 the FEMA floodplain was updated. Approximately 43 percent, or 1,327 acres of Selfridge ANGB is now located within the 100-year floodplain mapped by FEMA (Flood Insurance Rate Map Panel 0351H, 0352H, 0264H, and 0356H, Harrison Township, Michigan) (Figure 5-6) (FEMA 2016). The 100-year floodplain is associated with Lake St Clair located along the eastern boundary of the installation, and the Clinton River located along the southern boundary. The 100-year floodplain extends from the eastern boundary of the installation inland to the runway. The 100-year floodplain for the Clinton River has little to no encroachment onto the installation as is currently mapped by FEMA.

Figure 5-6
Floodplains on and in the Vicinity of Selfridge Air National Guard Base
Harrison Township, Michigan

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5.6 OTHER NATURAL RESOURCE INFORMATION

Currently, no other biological inventories and surveys have been conducted on the installation that provide information applicable to natural resources program management

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6. MISSION IMPACTS ON NATURAL RESOURCES

6.1 NATURAL RESOURCES CONSTRAINTS TO MISSIONS AND MISSION PLANNING

The Sikes Act requires that INRMPs provide for "…no net loss in the capability of military installation lands to support the military mission of the installation" (16 USC §670 et seq.). The INRMP enables the installation to meet the requirements of the military mission within the limitations and legal restrictions of the baseline natural resources at Selfridge ANGB.

Environmental constraints, such as forested areas and wetlands, dictate where and when certain types of activities can occur to ensure regulatory compliance and long-term sustainability of natural resources on the installation. Selfridge ANGB will manage environmental constraints during training and mission activities. Activities in and around wetland areas are limited because impacts such as filling, modifying, draining, or construction may require federal, state, and local permits, and mitigation to offset permitted impacts. Any new training within these areas should be coordinated with the installation's environmental staff to ensure that actions are in compliance with all applicable laws. However, various maintenance activities do occur within wetland areas to be consistent with the BASH program. Maintenance activities include mowing of airfield grasses and herbaceous habitat within the wetlands in proximity to the airfield. There is also reoccurring maintenance of the existing storm water conveyance systems that transverse wetlands which require routine maintenance to protect property and prevent increases in wildlife hazard attractant concerns under the BASH program. Activities in the vicinity of the forested areas should also be limited to minimize soil compaction and damage to tree roots, and to encourage the growth of the native understory. However, forested areas in proximity to the airfield that impede on Federal Aviation Administration imaginary surfaces and visual sight for the control tower with respect to aircraft movement areas are routinely removed/harvested. These activities are coordinated with Michigan DEQ, USFWS, and Michigan DNR and are necessary for the continued success of the mission on the installation.

Approximately 43 percent of Selfridge ANGB is located within the 100-year floodplain mapped by FEMA. Construction within the 100-year floodplain should be avoided or minimized to prevent future damage to installation property. However, since the majority of the installation is located within the floodplain, some construction may occur. Coordination and ANG approval in accordance with AFI 32-1021 and EO 11988 occurs prior to proposed construction of new buildings and renovation of an existing building within the floodplain; an ANG-approved Finding of No Practicable Alternative (FONPA) and flood damage vulnerability assessments may be required depending on the cost of the threshold specified in DoD guidance. Certification of flood damage vulnerability assessments to the Office of Undersecretary of Defense that identify each project's flood vulnerability, mission requirement despite flood vulnerability, and planned/incorporated flood mitigation measures or justification for why mitigation measures are not planned for the project would be prepared. This prior certification will ensure adequate measures to plan and prepare for flooding and considerations for what mission critical infrastructure must be located in these highly vulnerable areas. A floodplain permit from Michigan DEQ under Part 31, *Water Resources Protection*, of the Natural Resources and Environmental Protection Act would not be required for the majority of activities because,

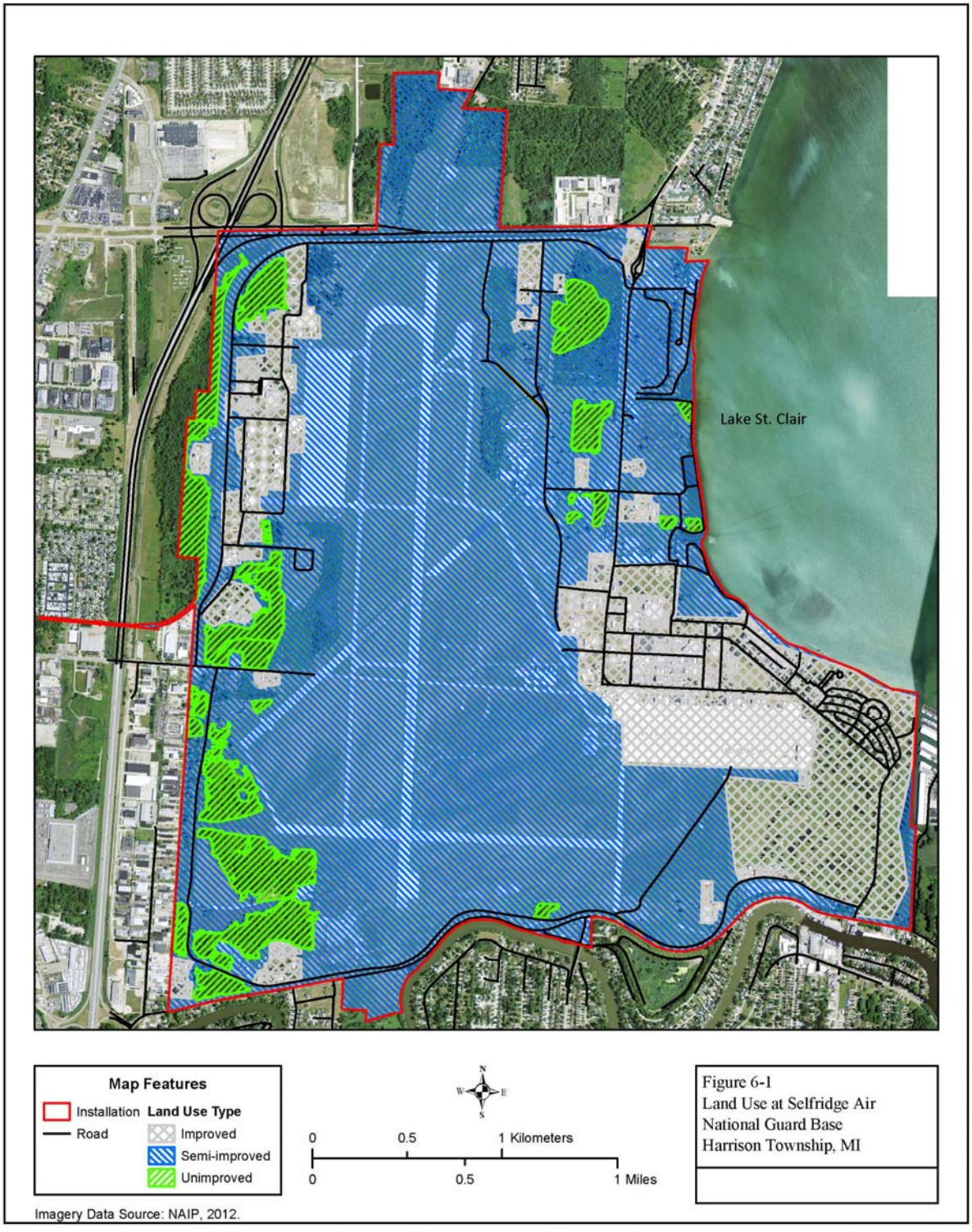
except for a small section of the floodplain on the installation, a rise in lake level is the governing factor with respect to the majority of the 100-year floodplain impacting the installation. Part 31 activities that require a permit only include any occupation, construction, filling, or grade change within the floodplain of a river, stream, or drain, including bridge and culvert construction. Selfridge ANGB flood level is only applicable with respect a rise in lake level associated with Lake St. Clair or Anchor Bay.

6.2 LAND USE

Selfridge ANGB occupies 3,075 acres of Federal Fee Land, of which 2,554 acres are managed by the ANG for the USAF. Existing land use on the installation can be divided into three general categories: improved, semi-improved, and unimproved. Improved lands include all areas occupied by buildings, other structures, and intensely maintained lawns/landscaping. Semi-improved grounds include lawns/landscaped areas where periodic maintenance occurs. Unimproved grounds are more natural areas that are not maintained such as forested areas. Table 6-1 further describes the land use categories, and Figure 6-1 shows the land use at Selfridge ANGB and locations of improved, semi-improved, and unimproved lands throughout the installation.

Table 6-1. Brief Descriptions of the Land Use Categories on Selfridge ANGB

Land Use Category	Description	Land Cover	Acres
Improved	Includes land occupied by buildings and other structures as well as lawns and landscaping which receive intensive maintenance activities. Improved grounds include the cantonment area, parade grounds, drill fields, athletic areas, golf courses (excluding roughs), cemeteries and housing areas. Grass in these areas is normally maintained at a height of 2-4 inches.	Impervious, Developed Vegetation	618
Semi-Improved	Grounds where periodic maintenance is performed, primarily for operational reasons such as erosion control, dust control, reducing air strike risk, and clear zones. Includes areas adjacent to runways, taxiways, aprons, runway clear zones, lateral safety zones; rifle and pistol ranges; weapons firing and bombing ranges; picnic areas; ammunition storage areas; antenna facilities; and golf course roughs. Semi-improved grounds areas are mowed less often than improved grounds and include areas that may only have maintenance accomplished annually and semiannually.	Developed Vegetation, Semi-natural Vegetation, Some Natural Vegetation	2,263
Unimproved	Unimproved grounds are areas not classified as “improved” or “semi-improved”. Unimproved grounds include forest lands, croplands, grazing lands, lakes, and any areas where natural vegetation is allowed to grow without maintenance activities.	Some Natural Vegetation	208
Source: Selfridge ANGB 2001.			


Lake St. Clair
Map Features
Installation
Road
Land Use Type
Improved
Semi-improved
Unimproved
N
W
E
S
0
0.5
1 Kilometers
0
0.5
1 Miles
Figure 6-1
Land Use at Selfridge Air
National Guard Base
Harrison Township, MI
Imagery Data Source: NAIP, 2012.

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6.3 CURRENT MAJOR IMPACTS

Selfridge ANGB is home to units from every component of the U.S. Armed Forces. The installation provides a broad range of services and capabilities to the state and to the nation. Known as the Home of the Generals, the base was the duty station at one time to more than 150 officers who eventually became general officers in the U.S. Air Force. The 127th Fighter Wing of the Michigan Air National Guard is the host unit at the base.

More than 40 tenants, including components of the USAF, Army, Navy Marine Corps, Coast Guard, and Customs and Border Protection, are located at Selfridge ANGB. In total, nearly 3,000 full-time civilian and military personnel work at the base, in addition to approximately 3,000 members of the Air and Army National Guard and the Reserve components of the U.S. Armed Forces. Primary aircraft assigned to the base are A-10 Thunderbolt II and KC-135 Stratotanker (Michigan Air National Guard); CH-47 Chinook helicopter (Michigan Army National Guard); HH-65 Dolphin helicopter (U.S. Coast Guard); and a variety of light helicopters and fixed wing aircraft (Customs and Border Protection).

The following discussion focuses on Selfridge ANGB current impacts to the local environment, including hazardous materials/wastes, noise, air quality, fire management, and pest management.

Hazardous Materials and Hazardous Wastes

Hazardous materials are those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended, and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA). In general, hazardous materials include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, could present substantial danger to public health or welfare or the environment when released. The operation of aircraft, vehicles, and equipment requires the use of various hazardous materials including fuels, solvents, and lubricants. If released, these materials have the potential to harm the environment by impacting air, soil, and water quality.

Hazardous materials are used at Selfridge ANGB in aircraft and ground vehicle maintenance activities, operation of utility systems, and installation operation and maintenance activities. Hazardous materials stored and used at Selfridge ANGB include solvents (such as toluene and trichloroethane), alcohols, dry chemicals (chlorine), compressed gases, herbicides, fertilizers, insecticides, disinfectants, lubricant oils, antifreeze, de-icing fluids, cleaning supplies, paints, adhesives, epoxy, brake/hydraulic fluids, and batteries (Selfridge ANGB 2000).

Hazardous waste generated at Selfridge ANGB is disposed of through the Defense Logistics Agency - Distribution Services, or by waste disposal contractors. Selfridge ANGB hazardous waste management follows all federal, state and local regulations pertaining to handling, storage, and disposal of hazardous waste generated at the installation. On-installation generators of waste are responsible for identifying and accounting for hazardous wastes in proper containers at approved hazardous waste satellite accumulation points. Containers are labeled and moved to 90-day hazardous waste accumulation areas.

Hazardous materials consumed in large quantities, such as fuel oil, jet fuel, gasoline, and diesel oil, are stored in above ground storage tanks at the installation. As of 2016, there was one regulated underground storage tank at the Army and Air Force Exchange Service gas station.

The Installation Restoration Program (IRP) is designed to identify, investigate, and cleanup contamination associated with past activities at installations. IRP activities are conducted in accordance with the requirements of either the Federal Superfund Cleanup Process or the RCRA corrective action process, as appropriate. The IRP cleanup process closely follows the requirements of the National Contingency Plan as promulgated under the CERCLA, as amended. The IRP seeks to minimize public health and environmental hazards associated with contaminated sites.

The Military Munitions Response Program (MMRP) addresses the potential explosives safety, health, and environmental issues caused by past DoD munitions related activities. The MMRP provides a focused program to address the challenges presented at sites called munitions response sites that are located on other than operational ranges. The program addresses the potential explosives safety hazards presented by munitions and explosives of concern with concentrations high enough to pose an explosive hazard and potential environmental contamination. Munitions responses are response actions, including investigation, removal actions and remedial actions that address the explosives safety, human health or environmental risks presented by unexploded ordinance, discarded military munitions, and munitions constituents.

The ANG began conducting environmental restoration activities to address environmental site contamination at Selfridge ANGB in 1982, and numerous investigations and studies have been completed since that time. To date, the ANG and the Michigan DNR have been working corporately to address the state regulator's specific environmental requirements at the Base.

Selfridge ANGB implements a Solid Waste Management Plan. Solid waste generated at Selfridge ANGB is disposed of via contract services at off-Base commercially operated treatment or disposal facilities. There are no active landfills on Selfridge ANGB. The 127 WG is responsible for the collection, transportation, and disposal of solid waste generated at the installation. There are three closed solid waste landfills within the boundaries of Selfridge ANGB. The closed landfills are being managed under the IRP in coordination with the Michigan DNR. In general, solid waste consists of paper products, glass, plastic, wood, aluminum, other metals, and wood and other plant materials. Procedures for waste and volume reduction also are included in the plan. Waste, such as metals and tires, is sent to the Defense Logistics Agency - Distribution Services or a local recycling contractor for recycling, reuse, or resale (Selfridge ANGB 2000).

Noise

Noise is perhaps the most identifiable environmental problem associated with aircraft operations, and is often singled out for special attention and criticism by local communities. Based on the October 2009 Air Installation Compatible Use Zone (AICUZ) Report for Selfridge ANGB, approximately 108 airfield operations per average busy day (ABD) are flown at Selfridge ANGB

(Selfridge ANGB 2009). An airfield operation is defined as one takeoff/departure, one approach/landing, or half a closed pattern.

The 127 WG flies two distinctly different missions in the KC-135R/T and the A-10. The KC-135R/T aircraft are assigned to the 171st Air Refueling Squadron. These aircraft provide aerial refueling support to USAF, Navy, Marine Corps, and allied nation aircraft. The A-10 aircraft are assigned to the 107th Fighter Squadron. The primary mission of the A-10 is to provide close air support to ground forces by attacking tanks, armored vehicles, and other ground targets (Selfridge ANGB 2009). The installation also supports tenant units with flying missions including Coast Guard Air Station Detroit, Army Aviation Support Facility #2, and the U.S. Customs and Border Protection Northern Air Wing. Coast Guard Air Station Detroit flies the H-65 Dolphin helicopter in support of their mission to protect the public, the environment, and U.S. economic and security interests in any maritime region. The Army Aviation Support Facility #2 supports Detachment 1 B Co 3-328th Aviation, which flies CH-47 Chinook helicopters. The primary function of the CH-47 is tactical and logistical air support. The U.S. Customs and Border Protection Northern Air Wing flies several aircraft types including both fixed- and rotary-wing aircraft. Customs and Border Protection provides security and access control at America's borders with the priority mission being preventing terrorists and terrorists' weapons from entering the U.S. (Selfridge ANGB 2009). Table 6-2 provides a list of aircraft along with the flying unit that operates them on Selfridge ANGB.

The 127th Wing KC-135R/T and A-10 aircraft make up the majority of the operations (64 percent) at Selfridge ANGB. HH-65 aircraft (Coast Guard) and CH-47 aircraft (Army Reserve) fly 11 percent and 8 percent of operations, respectively. U.S. Customs and Border Protection aircraft (Cessna 210, Cessna 550, Beechcraft 300, EC-120, H-60, and AS-350) fly approximately 13 percent of all airfield operations flown each ABD. In addition, several types of transient aircraft visit Selfridge ANGB, and flew approximately 4 percent of total operations on an ABD during Fiscal Year 2008 (Selfridge ANGB 2009).

Table 6-2. Air Craft and Flying Units Utilizing Selfridge ANGB

Aircraft	Flying Unit
A-10 Thunderbolt	107th Fighter Squadron
AS-350 Helicopter	U.S. Customs and Border Protection
Beechcraft 300	U.S. Customs and Border Protection
Cessna 210	U.S. Customs and Border Protection
Cessna 550	U.S. Customs and Border Protection
CH-47 Chinook Helicopter	Army Aviation Support Facility #2
EC-120 Helicopter	U.S. Customs and Border Protection
H-60 Black Hawk Helicopter	U.S. Customs and Border Protection
HH-65 Dolphin Helicopter	Coast Guard Air Station Detroit
KC-135R/T Stratotanker	171st Air Refueling Squadron
Transient -	Not applicable

Noise contours at Selfridge ANGB affect a total of approximately 122 acres; excluding Selfridge ANGB acreage. Of this acreage, 37.2 acres (31 percent) are developed in a manner that is

conditionally compatible, and 84.7 acres (69 percent) are compatible with current noise levels. All conditionally compatible land areas are single-family residential.

The significant noise sources at Selfridge ANGB include aircraft warm-ups, maintenance and testing, taxiing, takeoffs, approaches, and landings. The 2009 AICUZ study indicated that noise levels on the installation are highest in the immediate vicinity of the runway complex and to the west of the runway in proximity to static engine runup pads. Some residential areas to the north and south of the installation are exposed to noise levels that have been measured at a day-night average sound level of 65 decibels.

Although the noise generated from low-altitude military overflights can be initially startling to wildlife, habituation to jet aircraft noise occurs with most wildlife and domestic species. Species-specific responses to low-altitude overflights vary considerably, and responses from individual animals could have the potential to cause injury. Variations in responses also have been documented among homogeneous species under similar environmental conditions (USDA 1992). However, animal responses to aircraft noise depend on numerous factors, including the physical features of the environment and the animals' own physiological attributes. Wildlife populations usually are affected only when a variety of factors combine to affect them (e.g., declines or fluctuations in the availability of a food source, habitat destruction or alteration, predation, hunting, trapping, poaching, disease, or inclement weather) rather than noise alone. Normally, it would be unrealistic to predict or attribute any wildlife population decline to a single stressor, such as noise. In addition, no published scientific evidence was identified that indicated harm might occur to wildlife as a result of exposure to the levels of noise generated by military aircraft using Selfridge ANGB.

Other sources of noise on the installation include the small arms operations and Army ballistic testing operations. Noise studies have been completed for the small arms operations, and an Environmental Assessment that analyzed noise impacts was completed for the Army ballistic testing operations (TARDEC 2015). The small arms operation would be located within the eastern portion of the installation. The noise analysis indicates, that within 0.25 mile of the small arms operations, peak noise could be greater than 104 decibels (dB). This noise zone would not go beyond the Selfridge ANGB boundary. Areas within 0.5 to 1.0 miles of the small arms operations could experience peak noise levels between 87 and 104 dB. This noise zone extends into Lake St. Clair outside of the Selfridge ANGB boundary. It was determined that the Army ballistic testing operations would have minimal to no impacts to noise beyond the Selfridge ANGB boundary, as the testing equipment would be located completely inside bunkers. Firing inside the bunker may be audible in the immediate area surrounding the bunker, but is not expected to exceed 80 dB within 50 feet of the bunker (TARDEC 2015). In addition, various operations are accomplished for harassment of avian species associated with the BASH program and are allowed under permits. Noise associated with harassment results from the use of long range acoustic devices, propane cannons, and small rockets fired from pistols.

Air Quality

The release of air pollutants is regulated under both federal and Michigan statutes. The National Ambient Air Quality Standards (NAAQS) are the federal standards and are established by USEPA. USEPA has given attainment status (in compliance) or nonattainment status (out of

compliance) to county areas for designated criteria pollutants including ozone, carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM10), sulfur dioxide (SO_2), nitrogen oxides (NO_x), and volatile organic compounds. The State of Michigan has adopted the NAAQS for all criteria pollutants, as well as a standard for total suspended particulates (Selfridge ANGB 2000).

Selfridge ANGB is in the Metro Detroit–Port Huron Intrastate Air Quality Management Area (AQMA). This AQMA is designated as a maintenance area for ozone, with a portion also designated as nonattainment for CO. The installation is not within the boundaries of the CO nonattainment area; however, it is located in the ozone maintenance area. Selfridge ANGB is in maintenance for ozone and fine particulate matter (PM2.5). Potential emissions at Selfridge ANGB are a major source for Title V permitting purposes. The installation is classified as a Category I Facility because it has the potential to emit greater than 100 tons per year of nitrogen dioxide and SO_2. Selfridge ANGB limits its actual annual emissions to levels beneath the major source thresholds by obtaining a Title V Synthetic Minor permit. Emissions at the installation are controlled via specific practices according to fuel type and process. If emissions were to increase and exceed the Title V thresholds, a Title V Operating Permit must be obtained (Selfridge ANGB 2000).

Pest Management

Pest management programs at Selfridge ANGB have the potential to benefit natural resources. Some pest species require the use of invasive management protocols. Use of insecticides, herbicides, rodenticides, and fungicides to control indigenous pest populations is carefully managed. Many pesticides are inherently toxic to most biological systems and, as such, have no natural degradation pathways and can persist for long periods in the environment. The presence of such compounds can degrade the quality of soil, surface water, and groundwater. Wildlife and human life could be detrimentally affected by any inadvertent contact with pest management chemicals.

The DoD Armed Forces Pest Management Board establishes policy for installation IPM programs, based on IPM principles, including judicious use of pesticides in controlling pests. The Pest Management Program incorporates the provisions of DoDI 4150.07. The instruction states that it is DoD policy to establish and maintain safe, effective, and environmentally sound IPM programs to prevent or control pests and disease vectors that might adversely impact readiness or military operations by affecting the health of personnel or damaging structures, material, or property.

IPM should use mechanical, physical, cultural, biological, and educational methods to maintain pests at populations low enough to prevent undesirable damage or annoyance. In addition, application of the least toxic chemical should be used as a last resort.

Typical Base Pest Management Plans outline and describe policies, standards, and requirements for the Civil Engineering (CE) personnel in performing all operations in connection with the Pest Management Program on the installation, and are consistent with DoDI 4150.07. Control measures for large predators, rats, ticks, mites, spiders, bees, wasps, fleas, gnats, ants, mice, lice, cockroaches, bedbugs, houseflies, and miscellaneous insects and rodents that might be

detrimental to the health and welfare of installation personnel and property are described in a typical Pest Management Plan.

Fire Management

The Selfridge ANGB Fire Department responds to fires on the installation and has equipment necessary to respond to wildland fires if they occur. The extent of fire breaks and low available fuel on the installation minimizes the potential for the spread of wildfires off the installation. There is a very low chance for fires that occur on Selfridge ANGB to spread off the installation. Based on discussion with Michigan DNR, the installation does not fall within an identified high-risk wild fire area.

Selfridge ANGB recently prepared a WFMP to utilize prescribed fire as an optional tool for managing plant communities, specifically herbaceous habitat under the BASH program. Prescribed burns can be used to control vegetation within proximity of the airfield to address BASH concerns and to control invasive species such as common reed. Treatment of invasive species is necessary as part of this operation to address BASH concerns and to prevent the proliferation of certain species. The preliminary need for optional land management techniques such as prescribed burns pertains to the difficulty getting equipment into areas required for herbaceous habitat management, which could potentially be more costly or difficult due to wet conditions and potential permitting requirements. This is especially true if necessary maintenance of these areas cannot be accomplished when ideal winter conditions do not occur. Smoke associated with the controlled burns could impact visibility and wildlife populations. Prescribed burns will follow the WFMP to reduce impacts to the environment.

Prior to conducting the controlled burns, the Harrison Township Fire Department, Chesterfield Township Fire Department, and Macomb County Sheriff's Department should be notified. The phone numbers for these departments are as follows:

- Harrison Township Fire Department – Phone: (586) 466-1450
- Chesterfield Township Fire Department – Phone: (586) 725-2233
- Macomb County Sheriff's Department Phone: (586) 469-5151.

6.4 POTENTIAL FUTURE IMPACTS

Construction of new buildings and facilities will continue on Selfridge ANGB, in support of its current missions and demands of modernization. The discrete and cumulative impacts on the local environment must continually be evaluated.

6.5 NATURAL RESOURCES NEEDED TO SUPPORT THE MILITARY MISSION

The primary purpose of the natural resources management at Selfridge ANGB is to support the military mission by maintaining sustainable natural resources as a critical asset upon which to accomplish the mission of Selfridge ANGB. Overall goals of natural resource management include:

- No net loss in the capacity of the installation lands to support existing and future military operations at Selfridge ANGB.

- Ensure military operations are not interrupted due to non-compliance with applicable laws.

This INRMP integrates the various aspects of natural resources management into the military mission, and is the primary tool for ecosystem management at Selfridge ANGB while ensuring the successful, efficient accomplishment of the military mission. A multiple-use approach will be implemented through the INRMP to accommodate the presence of mission-oriented activities and provide for good stewardship; thereby maintaining and improving the quality, aesthetic values, and ecological relationships of the environment. Implementation of this INRMP will promote stewardship practices that protect and enhance natural resources for multiple use and biological integrity, while supporting the military mission. Mission activities at Selfridge ANGB consist primarily of installation operation and maintenance. The mission of Selfridge ANGB does not require consumption or use of natural resources on the installation.

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7. NATURAL RESOURCES PROGRAM MANAGEMENT

7.1 NATURAL RESOURCES PROGRAM MANAGEMENT

The INRMP Program has been organized to ensure the implementation of year-round, cost-effective management activities and projects that meet the requirements of Selfridge ANGB. The Sikes Act requires that INRMPs provide for no net loss in the capability of military installation lands to support the military mission of the installation. Professionally trained natural resources management staff and natural resources enforcement are required to implement this INRMP. The Sikes Act Improvement Act Section 670g, defines a "professional" as one who has an undergraduate degree or graduate degree in a natural resources-related science. As defined in paragraph 2.10 of AFI 32-7064 "installations will use professionally trained natural resources management personnel to develop, implement and enforce their INRMPs." Selfridge ANGB does not have a Natural Resources Manager, but natural resources issues at the installation are handled by a variety of sources, including the acting Natural Resources Manager for Selfridge ANGB (Mr. Ken Baker of the 127 WG/CEV), installation personnel, and government contractors. At the request of Selfridge ANGB, USDA-WS has provided a full-time wildlife biologist to support the INRMP Program as necessary under the BASH program. In addition to NGB/A4AM, Selfridge ANGB, and government contracted personnel, MIANG personnel will be required to implement this Plan. The Sikes Act also states that if an installation cannot retain a professional natural resources staff, related federal or state agencies be given the opportunity to assume these tasks. Responsibilities of the various organizations on Selfridge ANGB for the implementation of the INRMP are described below.

- **INRMP Working Group**—The INRMP Working Group will be a subgroup of the Environment Safety and Occupation Health Council (ESOHC), and will be responsible for the overall implementation of the INRMP. The INRMP Working Group will be made up of the key installation personnel from Selfridge ANGB, and will assume an oversight role to ensure the effective implementation of this Plan. The acting Selfridge ANGB Natural Resources Manager (Mr. Ken Baker of the 127 WG/CEV) shall chair this organization, and shall establish subcommittees composed of installation personnel and outside agencies to focus on high-level priority natural resources management issues such as fish and wildlife management, wetlands management, and erosion and sedimentation. Top- and middle-level management representation, as well as representation from several individuals with day-to-day on- installation field experience, will provide the INRMP Working Group with the leadership and structure necessary for the successful implementation of this INRMP. Working group meetings will take place every 4 to 6 months or as needed, and the implementation of issues in this Plan that pertain to the BASH Reduction Program will be discussed in Airfield Management and Wing Safety Office meetings.

- **Commander 127 WG/CC**—The Selfridge ANGB Commander (127 WG/CC) oversees the installation and serves as the Chairman of the ESOHC. In these capacities, the 127 WG/CC will ensure the implementation of the INRMP to the fullest extent practicable

based on funding and manpower availability. The final approval of the INRMP, and any future changes, rests with the 127 WG/CC.

- **NGB/A4AM Natural Resources Manager**—The NGB/A4AM Natural Resources Manager tracks DoD and USAF policies and approves funding for projects or studies identified as a priority in this Plan. Deviation from the projects proposed in this Plan should be independently reviewed by the NGB/A4AM Natural Resources Manager. The NGB/A4AM Natural Resources Manager acts as a technical point-of-contact on all natural resources-related activities. Ms. Melanie Frisch currently serves as the NGB/A4AM Natural Resources Manager.

- **Base Civil Engineer 127 WG/CE**—The Selfridge ANGB Base CE (127 WG/CE) plans, budgets, approves, and oversees all maintenance and construction activities performed on the installation. All maintenance- and construction-related projects or management activities proposed in this Plan should be approved by the Base CE to ensure that (1) funding is available and (2) these projects are complementary to the installation's comprehensive planning processes. Mr. Ken Baker of the 127 WG/CEV currently serves as one of the acting Natural Resources Managers of Selfridge ANGB until this position is filled.

- **Natural Resources Manager**—As stated above, Selfridge ANGB does not have a Natural Resources Manager, but natural resources issues at the installation are handled by a variety of sources, including the acting Natural Resources Manager for Selfridge ANGB (Mr. Ken Baker of the 127 WG/CEV), installation personnel, and government contractors. The acting Natural Resources Manager is responsible for ensuring that activities associated with the implementation of this Plan adhere to applicable federal, state, local, and USAF environmental regulations and guidelines. Projects proposed in this Plan are reviewed by Ms. Melanie Frisch, the NGB/A4AM Natural Resources Manager, and Mr. Ken Baker of the 127 WG/CEV. The acting Selfridge ANGB Natural Resources Manager oversees the management of natural resources on the installation. The acting Natural Resources Manager, in conjunction with the Public Affairs Office, is responsible for establishing and implementing a conservation education program to instruct installation personnel on the protection and enhancement of biological diversity on Selfridge ANGB. The acting Natural Resources Manager provides onsite management of most of the ongoing natural resources management activities presented in this Plan; however, several management activities (e.g., BASH) fall under the responsibilities listed for other installation organizations. Selfridge ANGB BASH activities should be coordinated with the NGB/A4AM BASH Program Manager and Pest Management Consultant, as appropriate. The acting Natural Resources Manager will act as a technical point-of-contact for those activities for which they are not directly responsible for implementing.

- **Environmental Management Office**—The Selfridge ANGB Environmental Management Office (127 WG/CEV) plans, budgets, approves, and oversees all environmental activities performed on the installation and is responsible for ensuring that activities associated with the implementation of this Plan adhere to applicable federal,

state, local, and USAF environmental regulations and guidelines. The 127 WG/CEV should independently review deviation from the projects proposed in this Plan.

- **Wing Safety Office 127 WG/SE**—The Safety Office, in conjunction with the acting Natural Resources Manager, is responsible for implementing all activities presented in this Plan that pertain to the BASH Reduction Program at Selfridge ANGB. The Safety Office also ensures that bird/wildlife strikes that occur with aircraft assigned to host tenant transient units at Selfridge ANGB are accurately documented and reported to the USAF BASH Team, Kirtland Air Force Base, New Mexico. In addition, the Safety Office ensures that the Bird Hazard Working Group conducts meetings on the reduction of the BASH threat on the installation.

- **Airfield Management 127 WG/OTM**—Airfield Management is responsible for ensuring that the airfield is acceptable and appropriated for flight activity.

- **Legal Office NGB/JA**—The Legal Office is responsible for ensuring that the implementation of the management objectives contained within this INRMP meet all of the MIANG's regulatory and statutory requirements that pertain to natural resources management. The Legal Office will review any future natural resources management proposals and alert the 127 WG/CC and the acting Selfridge ANGB Natural Resources Manager should there be any regulatory conflicts or shortfalls. In addition, the legal office will keep the 127 WG/CC, 127 WG/CEV, and the acting Selfridge ANGB Natural Resources Manager notified of any new statutes or regulations that could affect natural resources management on the installation.

- **Public Affairs 127 WG/PA**—The Public Affairs Office is responsible for the coordination of access for public events at the installation. Public Facilities/Recreation land use is oriented to providing recreational opportunities to assigned installation personnel, members of reserve components and their families, active and retired military, and civil service personnel. The military mission and the limited amount of resources on Selfridge ANGB preclude open public recreational use of the installation; however, the base does host a biennial Open House and Air Show and Base Family Picnic, which involve all tenant units on the base. There are also opportunities for certain groups such as the Selfridge Base Community Council (BCC) to utilize the installation. The BCC is a local supporting organization which strives to improve the relationship between the civilian community and the military service communication centered at Selfridge ANGB. The organization promotes the general welfare, prosperity, and quality of life between the military and civilian populations, assists public relations, and sponsors charitable and social functions to promote these purposes. The Public Affairs Office serves as the point-of-contact to interface between the 127 WG/CC and civilian groups interested in using the installation for environmental, educational, or other purposes.

- **Operations and Maintenance 127 WG/CEO**—The Selfridge ANGB Operations and Maintenance personnel are responsible for all grounds maintenance activities on the installation. In addition, this office will ensure accomplishment of the habitat management protocols established in this Plan to accomplish mission requirements while

complying with natural resource management goals consistent with the mission and regulatory compliance requirements. The Selfridge ANGB Operations and Maintenance personnel will also periodically review the type of grounds maintenance equipment to determine if new or additional equipment is needed for the proper maintenance of the installation's landscapes. These offices will also play a vital role in the yearly review of the management objectives and natural resources topics of concern presented in this Plan.

- **Pest Management 127 WG/CEOP—**The Selfridge ANGB Pest Management Shop is responsible for the protection of real estate, control of potential disease vectors or animals of other medical importance, control of undesirable or nuisance plants and animals (including insects), and prevention of damage to natural resources. Pest management personnel utilize IPM approaches and are responsible for the implementation of the IPM Plan for Selfridge ANGB.

- **U.S. Department of Agriculture – Wildlife Services**—While under contract with Selfridge ANGB, USDA-WS is responsible for monitoring nuisance wildlife that have the potential to create a wildlife aircraft strike hazard. USDA-WS personnel support activities that pertain to the BASH Reduction Program. USDA-WS is responsible for coordinating all depredation activities, including deer and swan control within the base perimeter. USDA-WS will also be handling all wildlife permits, while keeping the INRMP Working Group appraised of proposed modifications or changes to permits, as they occur or are proposed. USDA-WS personnel, under the direction of the Flight Safety Officer, who in turn coordinates activities with the BASH Working Group to include at a minimum 127WG/SE, 127WG/CEOP, 127WG/CEV, 127WG/OTM, and the Natural Resource Manager.

- **Other Agencies**—The USFWS and Michigan DNR can provide technical assistance to Selfridge ANGB. Specifically, these agencies will alert the acting Selfridge ANGB Natural Resources Manager whenever new species are added to the federal or state endangered species lists that have the potential for inhabiting the region. These agencies also should support Selfridge ANGB personnel during scheduled wildlife and vegetation surveys. The USFWS and Michigan DNR will also support the development of operational component plans to be developed in conjunction with implementation of this INRMP. These offices will also play a vital role in the yearly review of the management objective and natural resources topics of concern presented in this Plan.

Offices in addition to the ones identified above can be solicited to aid in the 5-year evaluation and rewrite of this Plan as required by the Sikes Act, should additional personnel and expertise be required.

7.2 FISH AND WILDLIFE MANAGEMENT

The day-to-day management of fish and wildlife resources and enforcement of applicable laws and policies at Selfridge ANGB are the responsibility of the Installation Commander. There is no permitted hunting allowed on the installation, although some recreational fishing does occur and is discussed in this section. Nuisance species (e.g., deer, small mammals, and birds) are

managed due to BASH issues. Selfridge ANGB holds multiple permits for depredation of wildlife mostly due to BASH issues; listed in Table 7-1. USDA-WS is responsible for maintaining and implementing depredation permits in coordination with USFWS.

Table 7-1. Selfridge ANGB Depredation Permits

Installation Held Permits	USDA Held Permits
Damage and Nuisance Animal Control Permit	Mute Swan Removal Permit
Mute Swan Removal Permit	Airport Depredation Permit
Mute Swan Nest/Egg Destruction Permit	State Threatened and Endangered Species Permit (Short-Eared Owls, Common Loon, and Caspian Tern (Peregrine Falcon may be added-pending)
Airport Depredation Permit (Migratory Birds)	
Deer Damage Shooting Permit	
Eagle Harassment Permit	
State Threatened and Endangered Species Permit (Short-Eared Owls, Common Loon, and Peregrine Falcon)	

7.3 OUTDOOR RECREATION AND PUBLIC ACCESS TO NATURAL RESOURCES

Outdoor recreation and public access to the natural resources at Selfridge ANGB is limited to the general public. The installation is secured 24 hours a day and access is strictly U.S. Armed Forces mission-related only. The Selfridge Military Air Museum is located at the main gate of the installation. The air park display houses over 40 different types of military aircraft. The museum includes displays on aviation history dating back to the early 1900's through Desert Storm. Individuals without a Government ID Card, Common Access Card or Defense Biometric Identification System Card are required to have a mandatory security background check performed before they are allowed access to the Base and the Museum. The Selfridge Golf Course is located at the southeast end of the flight line. Access to the golf course is the same as the aircraft museum.

Outdoor recreation opportunities for the installation personnel include the aircraft museum, golf course, ball fields, playgrounds, marina, RV storage areas, picnic areas, and fishing (Figure 7-1). Fishing is permitted along the shoreline of Lake St. Clair. A Michigan DNR fishing license is required.

7.4 CONSERVATION LAW ENFORCEMENT

DoDI 5525.17, *Conservation Law Enforcement Program*, states that a Conservation Law Enforcement Program ensures that installations remain in compliance with appropriate environmental, natural, and cultural resource laws and regulations (Section 1(b)). There are no conservation law enforcement officers at Selfridge ANGB. Michigan DNR is allowed access to the installation to enforce fishing regulations. In addition, the installation's Security Forces also check fishing licenses and contact the Michigan DNR as needed if natural resource related issues are identified.

7.5 MANAGEMENT OF THREATENED AND ENDANGERED SPECIES AND HABITATS

A Threatened and Endangered Species Survey was completed in 2015. No federally listed species were observed. Three state listed species were documented: the peregrine falcon, short-eared owl, and common loon. If BASH issues associated with these species do occur, management action in consultation with Michigan DNR is implemented. Both the installation and USDA-WS hold permits to manage the peregrine falcon, short-eared owl, and common loon at Selfridge ANGB if needed. The bald eagle, which is protected by the Bald and Golden Eagle Protection Act, have been observed on the installation. In addition, due to BASH concerns, Selfridge ANGB does hold a permit for bald eagle harassment if the presence of bald eagles become a BASH or safety concern. A Vegetation Study was also conducted in 2015. None of the nine rare plant species that have the potential to occur on the installation were documented.

7.6 WATER RESOURCES PROTECTION

Selfridge ANGB is bordered by Lake St. Clair to the east and the Clinton River to the south. The northern and eastern portions of the installation drain to Lake St. Clair, while the remaining portions of the installation drain to the Clinton River. To reduce runoff into the waterbodies, areas with exposed soils throughout the installation are planted with native vegetation. A system of storm water drains constructed in the 1950's and 1960's is located throughout the installation. More routine maintenance of the storm water drains is needed at some locations on the installation. The installation has developed a storm water conveyance restoration plan to address areas of concern with the conveyance system. Selfridge ANGB is currently working to maintain the drainage ditches by removing built-up sediment to improve drainage throughout the installation.

Storm water conveyance area

Figure 7-1
Recreational Opportunities at Selfridge Air National Guard Base
Harrison Township, Michigan

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7.7 WATERS OF THE U.S./WETLAND PROTECTION

A total of 18 state and federal jurisdictional wetland areas (385 acres) have been identified on the installation. Both the Michigan DEQ and USACE have jurisdictional determinations at Selfridge ANGB. The USACE determined coastal wetland areas J, R, and U adjacent to Lake St. Clair were under their regulatory jurisdiction, and the expiration occurs on 27 November 2018. The Michigan DEQ determined non-coastal wetland areas A, B, C, D, E, F, G, H, I, K, L, M, N, P, Q, and T were under their regulatory jurisdiction, and the Wetland Identification Report expired on 4 February 2017. In addition, Michigan DEQ has dual jurisdiction with USACE for coastal wetlands J, R, and U. Wetland areas were identified during the last wetland delineation. Wetland areas are managed for BASH. Some areas of forested wetlands have been converted to herbaceous habitat, as this was identified in the 2011 Selfridge ANGB INRMP as the preferred alternative to address transition, approach, clear zone, and BASH concerns with respect to airfield operations. The installation has also been controlling common reed within wetland areas. In addition, in order to manage the wetlands for BASH, endophytic fescue has been planted in all areas of the airfield including wetland areas to control Canada geese in the area. The use of endophytic fescue within the wetlands was approved by Michigan DEQ to address flight safety concerns as identified in the BASH Plan.

7.8 GROUNDS MAINTENANCE

The Selfridge ANGB Operations and Maintenance personnel are responsible for all grounds maintenance activities on the installation. Some maintenance activities include mowing, maintaining herbaceous habitat for deer management, maintaining storm water features, and planting native species when needed. Areas within the transition, approach, and clear zone presenting visual site constraints for the control tower with respect to aircraft movement area, or in proximity to the airfield presenting BASH concern are cut by grounds maintenance staff and are being maintained as herbaceous habitat. Areas converted to herbaceous habitat include approximately 60 acres of forested areas north of the runway, 23 acres east of the runway, 55 acres west of the runway, and 5 acres south of the runway.

7.9 FOREST MANAGEMENT

In 2013, 25 forested areas were designated and surveyed for the merchantability of the forest products. It was determined that the potential for marketable timber is absent from the installation. Much of the forested areas are dominated by broadleaf deciduous species and are located in the southwestern and northeastern corners of the installation, as well as along the western perimeter. An urban tree survey was completed in 2009. This survey identified hazard trees and rated their condition throughout the installation. Trees rated poor or marked for removal have been removed. In addition, native trees were planted throughout the installation in areas with no BASH concerns in 2013 and 2014.

7.10 WILDLAND FIRE MANAGEMENT

WFMP was prepared for Selfridge ANGB in 2015(Appendix F). The WFMP is being used to support mission sustainability by addressing invasive plant species that are threatening mission activities. The installation is planning to use prescribed fire as a tool for managing plant

communities. Fire will be used to maintain herbaceous habitat in flight safety areas and to maintain invasive species such as common reed. Prescribed burns are conducted in partnership with the United States Forest Service (USFS), USFWS, and/or Michigan DNR.

7.11 AGRICULTURAL OUTLEASING

The Agricultural Outleasing Program element does not apply to Selfridge ANGB.

7.12 INTEGRATED PEST MANAGEMENT PROGRAM

The IPM Plan for Selfridge ANGB was updated in 2015 (Appendix E). The IPM Plan is a comprehensive document used by all Selfridge ANGB personnel, and was developed to ensure that the installation is in compliance with federal and commonwealth regulations governing pest management. All pest and weed management activities at Selfridge ANGB are conducted by the staff in the Pest Management Shop. Installation-specific pests have been identified at the 127 WG. Per AFI 32-1053, *Integrated Pest Management Program*, a "pest" is defined as arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds, or other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.

Examples of IPM strategies at Selfridge ANGB include nonchemical methods such as the use of mouse and ant traps, and the use of a vacuum cleaner to remove spiders and other insects from inside offices and buildings. Other examples of mechanical and physical control methods are harborage elimination through caulking or filling voids, screening, and other barriers to prevent entry into buildings. Mowing to remove weeds, brush, and other unwanted vegetation are also examples of mechanical and physical control methods used at Selfridge ANGB.

Table 7-2 includes a list of pests that are present on the installation. IPM strategies have been developed for each of the pests/categories of pests. Based on the most recent vegetation survey conducted at Selfridge ANGB, a total of 19 invasive species occur on the installation. These species are listed in Table 5-2. Currently, common reeds are being treated with herbicides and then removed mechanically. Goals and objectives to minimize the number of invasive species and pests at Selfridge ANGB are included in this INRMP.

Table 7-2. Potential Pests at Selfridge Air National Guard Base

Category	Pests
Public Health Related Pests	• Mice • Cockroaches • Ticks • Mosquitoes • Bees, Hornets, and Wasps • Spiders • Ants • Filth Flies • Fleas • Mites • Chiggers • Bed Bugs • Fabric Pests • Biting Flies
Pests Found In and Around Buildings	• Stored Product Pests
Structural Pests	• Wood Decaying Fungi
Noxious or Invasive Plants and Animals	• European Starlings • House Sparrows • Canada Goose • Feral Cats and Dogs • Coyotes • White-tailed Deer • Lawn and Landscaping Pests • Gypsy Moth • Snails
Undesirable Vegetation	• Vegetative Overgrowth • Broadleaf Weeds
Quarantine and Regulated Pests	• Japanese Beetles • Emerald Ash Borer Beetle
Vertebrate Pests	• Birds • Mammalian Feral Animals and Wildlife • Bats • Snakes
Source: Selfridge ANGB 2015.	

7.13 BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD

Selfridge ANGB currently has a BASH Plan which is managed by 127 WG Safety Office personnel (Component Plan A). The purpose of the BASH Plan is to provide an active program to minimize bird and other wildlife strikes to aircraft. The plan is based on hazards from both resident and seasonal bird species as well as other species of wildlife. Daily and seasonal bird movements create various hazardous conditions. The plan establishes procedures to minimize the hazard to the ANG and the deployed aircraft at the installation and in their operating areas.

The plan is designed to:

- Establish a Bird/Wildlife Hazard Working Group and designate responsibilities to its members

- Establish procedures to identify and report hazardous bird activity situations and to aid supervisors and aircrews in altering or discounting flying operation when required

- Provide for disseminating information to all assigned and transient aircrews on bird hazards and procedures for bird avoidance

- Establish guidelines to eliminate or reduce environmental conditions that attract birds and other wildlife to the airfield.

- Provide guidelines for dispersing birds and other wildlife when they are present on the airfield.

Red-tailed hawk
Photo by Audubon Guide to Birds.

Over 270 bird/wildlife strikes have been recorded at Selfridge ANGB since 1992. Strikes on Selfridge ANGB assigned aircraft involved Canada goose, canvasbacks, ring-necked ducks (*Aytha collaris*), red-tailed hawks, American kestrels, snowy owls (*Bubo scandiacus*), ring-billed gulls, killdeer (*Charadrius vociferous*), American golden plovers (*Pluvialis dominica*), mourning doves (*Zenaida macroura*), rock pigeons (*Columba livia*), swallows (*Hirundinidae* spp.), European starlings (*Sturnus vulgaris*), American robins (*Turdus migratorius*), eastern meadowlarks (*Sturnella magna*), red-winged blackbirds(*Agelaius phoeniceus*), horned larks (*Eremophila alpestris*), sharp-shinned hawk (*Accipiter striatus*), merlin (*Falco columbarius*), bufflehead, sora (*Porzana carolina*), black-bellied plover (*Pluvialis squatarola*), Kentish plover (*Charadrius alexandrines*), greater black-backed gull, Franklin's gull (*Leucophaeus pipixcan*), Bonaparte's gull (*Chroicocephalus philadelphia*), ruby-throated hummingbird (*Archilochus colubris*), blue jay (*Cyanocitta cristata*), least flycatcher (*Empidonax minimus*), magnolia warbler (*Setophaga magnolia*), bay-breasted warbler (*Setophaga castanea*), sparrows (*Passeridae* spp.) and other small perching birds. Also reported were several strikes with big brown bats and other unidentified species of bats (ANG 2017). Component Plan A includes a list of the most hazardous birds identified in the vicinity of Selfridge ANGB.

Selfridge ANGB has made great progress in many areas of the BASH Plan since 2003; strike rates, largest hazardous species struck, and financial losses have been reduced. Airfield habitat management, bird control, removal of other wildlife, and bird dispersal activities have all occurred in the past and have served to reduce the hazards at the airfield. Bird dispersal and control efforts have been conducted by pest management staff supplemented by base operations, safety office, fire department, and other staffs.

Habitats surrounding the airfields are maintained by removing trees, brush, and weeds so they are less attractive to wildlife. Any regenerating trees and brush in these areas are routinely removed. Gulls and Canada geese have been noted in significant numbers within the ball fields at the former outdoor recreation site near the main gate and on the golf course southeast of the airfield. In addition, Selfridge ANGB is adjacent to Lake St. Clair and the Clinton River, which are natural migration corridors for many species of birds. Waterfowl are abundant within Lake St. Clair and have been observed crossing the airfield between the lake and feeding areas. The airfield is managed to make it as unattractive as possible so birds will avoid it and use alternatives available in the surrounding area. Selfridge ANGB has also re-vegetated the airfield in endophytic fescue, which is indigestible to the majority of birds and other wildlife species. Standing water throughout the installation, particularly within the vicinity of the runways also presents high BASH threats. To reduce this concern, the installation has been putting forth ongoing efforts to actively manage the storm water conveyance system throughout the installation.

7.14 COASTAL ZONE AND MARINE RESOURCES MANAGEMENT

The Coastal Zone Management Act (CZMA) (USC Title 16, Chapter 33) defines the coastal zone of a given area as "the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder) strongly influenced by each other and in proximity to the shorelines of several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands and beaches." "Coastal waters," as defined in the CZMA, are the waters within the territorial jurisdiction of the United States consisting of the Great Lakes, their connecting waters, harbors, roadsteads, and estuary-type areas such as bays, shallows, and marshes (USC Title 16). Selfridge ANGB personnel are currently responsible for the maintenance of the seawall on the east side of the installation on the shore of Lake St. Clair. The shoreline along Lake St. Clair has been built up, and a seawall and rocky shoreline are present, which primarily prevent erosion. Wave action occurs on the lake, but it is not a significant concern as compared to other systems of the Great Lakes. The seawall is required for flood control during times of high water on Lake St. Clair. However, there are openings along the shoreline at particular elevations that would not protect the installation in the event of a 100-year flood event as determined by FEMA. Maintenance of the seawall is necessary to prevent erosion and to protect the shoreline and installation from ice damage and the limited wave action that is found on the Lake. The Environmental Office obtains necessary permits from USACE, Michigan DNR, and the Macomb County Department of Public Works, Soil Erosion and Sedimentation Control Division prior to conducting maintenance activities on the riprap and seawall.

7.15 CULTURAL RESOURCES PROTECTION

Selfridge ANGB currently has an Integrated Cultural Resources Management Plan (ICRMP). The location of Selfridge ANGB along the Clinton River and along Lake St. Clair provides environments that appear to possess high archaeological site potential. Several cultural resources studies have been undertaken at Selfridge ANGB. In 1994, a cultural resources survey of the Naval Air Facility at Selfridge ANGB, totaling approximately 83 acres, was conducted for both architectural and archaeological resources. The survey located one site (20MB481) and

recovered one flake and one core from a garden plot south of the 1400 building series. This site was evaluated by the Michigan State Historic Preservation Office as not eligible for the National Register of Historic Places (NRHP). In 1996, a cultural landscape evaluation was conducted on the portion of Selfridge ANGB occupied by the MIANG at that time. This study comprised survey results and recommendations for NRHP eligibility of built resources through the Cold War era and compiled documentary research on previously identified archaeological properties. In 1997 and 1999, the United States Army Garrison-Selfridge (USAG-Selfridge) prepared draft cultural landscape evaluations that recommended NRHP eligibility for 96 buildings and structures then under their control. In 2002 an archaeological assessment of the 520 acres under control of the USAG-Selfridge at Selfridge ANGB was conducted. The survey report concluded that there was a low likelihood for archaeological resources meeting the criteria of eligibility for the NRHP at USAG-Selfridge (ANG 2011b). The installation's ICRMP identifies goals and objectives for cultural resource management. The overall goal of the program includes planning and integration of cultural resource management with installation plans, projects, and programs and in support of military missions.

7.16 PUBLIC OUTREACH

Opportunities for public outreach are limited at Selfridge ANGB due to the high security of the installation. Installation staff currently attend BCC meetings to identify opportunities for public outreach.

7.17 GEOGRAPHIC INFORMATION SYSTEM

The DoD/USAF standardized requirement for geographic information systems (GIS) follows the guidance provided in these links:

https://www.sdsfieonline.org/Components/USAF
http://www.sdsfieonline.org/Downloads/geospatial_guidancememo041409.pdf.

8. MANAGEMENT GOALS AND OBJECTIVES

Specific management objectives and strategies have been identified in a number of subject areas that affect the natural resources present on and immediately adjacent to Selfridge ANGB. This chapter lists the goals and objectives for future natural resources management on the installation. The goals are the primary focal point for implementation of the INRMP. A goal should reflect the values of the installation by expressing a vision of the desired condition for the installation's natural resources in the foreseeable future. Each goal is supported by one or more objectives. An objective indicates a management initiative or strategy that will be used to achieve the stated goal. Projects or tasks are the individual component actions required to achieve an objective. Project statements describe the specific methods and procedures that will be used to achieve the objective supported.

Management objectives established in this INRMP were initially developed during a thorough evaluation of the natural resources present on Selfridge ANGB. In accordance with AFI 32-7064 and the principles of adaptive ecosystem management, subject areas were identified and management alternatives developed by an interdisciplinary team of ecologists, biologists, geologists, planners, and environmental scientists. The revision of this INRMP involved a complete review of the original subject areas and management alternatives accomplished during the 5 years since the 2010 INRMP revision. This revised section presents the preferred management alternatives based on the professional opinions of the Selfridge ANGB Natural Resources Manager, USFWS, Michigan DNR, and the Selfridge ANGB Task Force. Through these evaluations, the original natural resources planning and management goals have been reevaluated to ensure they represent the most current theories on adaptive ecosystem-based planning. Selection of these management goals has been tempered with the fact that the operational mission at Selfridge ANGB takes primacy over natural resources management. However, through the multiple-use adaptive paradigms used, sound ecological management on the installation should supplement the operational effectiveness and safety of the military missions. Ecosystem management provides a means for the USAF to conserve biodiversity and to provide high-quality military readiness. The INRMP is a mechanism through which Selfridge ANGB can maintain sustainable land use through ecosystem management.

The specific "management issues" identified in the 2010 INRMP have been reviewed and updated in this revision. These management issues related to a number of subject areas that affect the natural resources present on and immediately adjacent to Selfridge ANGB. The purpose of this section is to identify actions and objectives for Selfridge ANGB to obtain workable and useful solutions for each management issue identified. This chapter is divided into 17 sections, one for each of the natural resource subject areas. For simplicity and clarity within this INRMP, each natural resource subject area is assigned an individual "issue number." Each subject area has been abbreviated, as shown in Table 8-1. For example, the first management objective in Section 8.1, Natural Resources Program Management, is identified as NRP-1. In addition, a series of projects/tasks are presented following the goal and objective for each subject area. The projects/tasks are consecutively numbered for each management objective. A summary of the management objectives is provided in Chapter 10, Annual Work Plans.

Some of the projects described in this section will be accomplished through interactive partnerships with federal, state, and local organizations. Selfridge ANGB natural resources management staff will initiate partnerships based on the benefits to the regional ecosystem and the local environment. Required projects, which are part of the continued management of Selfridge ANGB, will be internally funded through the ANG.

Table 8-1. Integrated Natural Resources Management Plan Subject Area Abbreviations

Section	INRMP Subject Area	Abbreviation
8.1	Natural Resources Program Management	NRP
8.2	Fish and Wildlife Management	FWM
8.3	Outdoor Recreation and Public Access to Natural Resources	OR
8.4	Conservation Law Enforcement	CLE
8.5	Threatened and Endangered Species and Habitats	TE
8.6	Water Resources Protection	WRP
8.7	Wetland Protection	WP
8.8	Grounds Maintenance	GM
8.9	Forest Management	FM
8.10	Wildland Fire Management	WFM
8.11	Agricultural Outleasing	AG
8.12	Integrated Pest Management Program	IPM
8.13	Bird/Wildlife Aircraft Strike Hazard	BH
8.14	Coastal Zone and Marine Resources Management	CZ
8.15	Cultural Resources Protection	CRP
8.16	Public Outreach	PO
8.17	Geographic Information System	GIS

8.1 NATURAL RESOURCES PROGRAM MANAGEMENT

Operation and management of Selfridge ANGB is conducted by installation personnel, departments, and stakeholders. Management teams provide support within their areas of expertise to ensure that operation of the installations is implemented successfully. It is necessary that management approaches are consistent between operational units and with the natural resources management goals and objectives developed in the INRMP. Coordination with installation operators and consistency of natural resources management goals and objectives developed in the INRMP with other installation operational plans and documents will ensure that natural resources management can be implemented successfully in a manner consistent with the missions of the installations.

A crucial function of this INRMP is to utilize an ecosystems approach for the management of resources found at Selfridge ANGB. An ecosystems approach focuses on using an ecosystems model, in which all appropriate factors are accounted for by their function within the model. Natural resources management is emphasized in this INRMP because it is recognized that the mission of the ANG is inextricably linked to local, regional, and global ecological integrity. Protecting the ecological integrity of the installation aids in improving the natural resources of the area, including biodiversity and ecosystem health. Such practices also assure that projects are completed with the foundations of sustainable use in mind. Another benefit of conserving the ecological integrity of ANG sites is that it can reduce management costs for natural resources

over time. Native natural communities are best suited to localized areas, and are crucial to maintaining a functional and adaptable ecosystem, which decreases management needs.

Although the ecosystem at Selfridge ANGB has already largely been altered by human activity, it is a priority to manage the remaining natural areas and resources under the principles of ecosystem management. While ecosystem management principles largely consider the complex interaction of natural factors, ecosystem-based management also must consider human needs and uses of an area when establishing suitable ecological management actions.

The natural resource management topics of concern and associated goals and objectives for Selfridge ANGB are listed below. These goals focus on conserving and enhancing biodiversity by managing the ecosystem rather than focusing on a single biotic or abiotic component of the ecosystem. Ecosystem-focused management encompasses both the function and the structure of the ecosystem and the processes that link them.

NRP GOAL 1: TRAINING AND SUPPORT OF THE IMPLEMENTATION OF THE INRMP

- **NRP OBJECTIVE 1.1:** Allow appropriate personnel to attend training on natural resource management.

  — **PROJECT 1.1.1:** Appropriate Selfridge ANGB personnel in the environmental management office should identify and obtain training necessary to develop an understanding of natural resource management. The following courses are recommended:

    - *DoD Natural Resources Compliance*, endorsed by the DoD Interservice Environmental Education Review Board and offered for all DoD Components by the Naval School, Civil Engineer Corps Officers School (CECOS). CECOS course schedules and registration can be found at http://www.netc.navy.mil/centers/csfe/cecos.

    - DoD environmental management courses can be found at the Air Force Institute of Technology (https://www.afit.edu/). Selfridge ANGB personnel will continue to look at opportunities offered by this institution for a course that fits in with organizational and personnel needs. To-date, the following courses are available for environmental management:

      - **Introduction to Environmental Management Course -** This comprehensive course provides an overview of pertinent laws, regulations, and Air Force policies and guidance governing compliance activities (e.g., air, water, special pollutants, hazardous waste management, etc.), and conservation (natural and cultural resource preservation), with a brief overview of clean-up (restoration). Course Length: 5 days

- **Environmental Impact Analysis Process Course -** This comprehensive course provides an in-depth understanding of the National Environmental Policy Act, the associated Council on Environmental Quality regulations, AFI 32-7061 (The Environmental Impact Analysis Process), and the associated regulations in 32 CFR 989. Course Length: 5 days

- **Construction Site Storm Water Seminar -** This seminar delivers the fundamentals of construction site storm water management planning and storm water management operations. Emphasis areas include National Pollutant Discharge Elimination System (NPDES) permitting application process, Storm Water Pollution Prevention Plan authoring and change management, and Best Management Practice (BMP) selection, design, installation, and management. Course Length: 6 hours

— **PROJECT 1.1.2:** Appropriate environmental management personnel should attend the National Military Fish and Wildlife Association (NMFWA) Training Workshop annually. Details on the NMFWA workshop can be found at the following website: http://www.nmfwa.net/index.php/conference.

— **PROJECT 1.1.3:** Continue to consider natural resources during planning of substantial construction or activity within the installation. Continue to evaluate impacts to natural resources through the work order review process (AFI Form 332), Work Clearance Request Process (AF Form 103), and the Environmental Impact Analysis Process (AFI Form 813). During this process, impacts to natural resources will be evaluated and appropriate subject matter experts will be consulted as appropriate to provide guidance.

NRP GOAL 2: UPDATE THE INRMP WHEN ENVIRONMENTAL OR MISSION CONDITIONS CHANGE AS REQUIRED BY THE SIKES ACT (16 USC 670A) AND DODI 4715.03.

- **NRP OBJECTIVE 2.1:** Coordinate with installation organizations to ensure there is an understanding of management goals and actions developed in the INRMP and to ensure that management actions developed in the INRMP are consistent with current management instructions and plans. Coordination with installation operational and management organizations and stakeholders is necessary to ensure that the goals and objectives of management actions developed in this INRMP are understood and consistent with current ongoing management on the installation. INRMP tasks need to be compatible with management and actions prescribed in other installation plans and documents.

— **PROJECT 2.1.1:** Conduct a formal meeting and internal review with installation operation and management organizations on an annual basis to ensure that there is an understanding of goals, objectives, and projects presented in this INRMP.

- **NRP OBJECTIVE 2.2:** Conduct external stakeholder annual review and update the INRMP as needed based on pertinent review findings. The INRMP needs to be reviewed internally on an annual basis to assess the suggested management practices in terms of their appropriateness for current conditions at the installation. Recurring annual review with minor update and tripartite coordination is generally performed in-house or by the Installation Support Team, but may include incidental costs associated with physical update of the Plan documentation. The installation will coordinate with the USFWS and Michigan DNR to review and assess conservation goals and objectives and to determine if updates to the INRMP goals and objectives need to be made. In addition, the Plan should be updated whenever there is a modification to the installation's mission, or when there is a substantial change to the installation's resources.

  — **PROJECT 2.2.1:** Conduct annual review with USFWS and Michigan DNR.

  — **PROJECT 2.2.2:** Utilize internal and external stakeholder comments to update the INRMP goals and objectives.

- **NRP OBJECTIVE 2.3:** During annual reviews, determine if an update or revision of the INRMP is necessary based on changes in environmental conditions or the mission, as required by the Sikes Act (16 USC 670a) and DoDI 4715.03. The Sikes Act requires INRMPs to be reviewed for operation and effect no less than once every 5 years.

  — **PROJECT 2.3.1:** Conduct an internal and external evaluation of the INRMP annually to determine if an update or revision is necessary based on changes in environmental conditions or the mission. If determined necessary, make changes to the INRMP to address changes in environmental conditions or the mission as required by the Sikes Act (16 USC 670a) and AFI 32-7064.

  — **PROJECT 2.3.2:** If the aforementioned evaluation identifies changes in environmental conditions or the mission, the modifications to the INRMP will be coordinated with USFWS and Michigan DNR (tripartite coordination), as appropriate.

8.2 FISH AND WILDLIFE MANAGEMENT

Wildlife management is defined as manipulation of the environment and wildlife populations to produce desired objectives. Management can be performed in a manner that enhances biodiversity through the reestablishment of native habitats. Conversely, habitat management could be required to decrease the abundance of certain wildlife species to reduce animal damage or bird strike hazards. Traditionally, wildlife management was confined to large tracts of naturally vegetated land. ANG determined that Selfridge ANGB has sufficient habitat to warrant the preparation of this INRMP. Observations and discussions with installation and federal and state agency personnel identified a number of important wildlife species on Selfridge ANGB. The variety of habitats present on the installation (e.g., wetland complexes, upland forests, grasslands) contributes to the diversity of species found on the installation.

Selfridge ANGB does not encourage the population growth of prey species because of their incompatibility with flying operations. Therefore, any future habitat enhancement opportunity needs to be evaluated carefully to determine its effect on the flying mission.

Wildlife population and habitat management on Selfridge ANGB will attempt to deter animals from foraging or roosting near or adjacent to areas where they would be in opposition to ANG missions and actions, or where they present a risk to safety or practices. Management actions include attracting wildlife away from these areas to more suitable locations, and protecting and conserving threatened and endangered species through habitat conservation at selected locations at the installation. This approach has been chosen due to the relative abundance and variety of wildlife species present on Selfridge ANGB, and the low likelihood of excluding all wildlife species from the installation that pose a significant threat to the safety of the flying mission.

Selfridge ANGB currently maintains a USFWS and Michigan DNR Depredation Permit to authorize the taking of nuisance species to lessen the danger of bird/wildlife strikes with aircraft; however, depredation permits are not required for killing English house sparrows (*Passer domesticus*), European starlings, and common pigeons or rock doves (*Columba livia*). In addition, 50 CFR 21.43 excludes the need for a depredation permit for red-winged blackbirds, rusty blackbirds (*Euphagus carolinus*), brown-headed cowbirds (*Molothrus ater*), common grackle (*Quiscalus quiscula*), and American crows (*Corvus brachyrhynchos*) when concentrated in such numbers and manner as to constitute a health hazard or other nuisance.

The primary goal of fish and wildlife management at Selfridge ANGB is to maintain and control wildlife populations to provide quality non-consumptive wildlife associated recreation that is compatible with the military missions of the installation.

FWM GOAL 1: MAINTAIN AND UTILIZE ANIMAL CONTROL PERMIT AND DEPREDATION PERMITS.

- **FWM OBJECTIVE 1.1:** Maintain Selfridge ANGB current Nuisance Animal Control Permit and Depredation Permits. Selfridge ANGB has a comprehensive list of nuisance wildlife that may attract birds and become a BASH risk at the installation. The installation currently has a Nuisance Animal Control Permit through Michigan DNR and USFWS for the removal of small mammals and birds. Depredation permits through the USFWS and Michigan DNR for mute swan removal, mute swan nest/egg destruction, migratory birds, deer, bald eagle harassment, short-eared owls, common loon, and peregrine falcon. Permits should be maintained to ensure proper wildlife control at the installation.

    — **PROJECT 1.1.1:** Coordinate with USFWS and Michigan DNR to maintain animal control and depredation permits. Coordinate with USDA-WS as needed to implement permits.

FWM GOAL 2: MANAGEMENT OF NONGAME WILDLIFE SPECIES

- **FWM OBJECTIVE 2.1:** Manage habitat that will benefit multiple species, rather than managing habitat for single species. The following actions concerning nongame wildlife species are a result of a Memorandum of Understanding with the USFWS in 2006. Selfridge ANGB has not been able to fulfill these actions as many promote raptors or additional wildlife on the property that will create a BASH risk. The installation will re-evaluate implementation of these projects if conditions on the installation change in the future.

  — **PROJECT 2.1.1:** Improve habitat conditions for aquatic communities by establishing vegetative buffers around waterbodies and maintaining healthy communities of riparian vegetation, minimizing training impacts, and preventing erosion and sedimentation. Vegetation buffers will continue to be maintained along the lake and ditch lines on the installation, which minimize soil erosion and sedimentation impacts to receiving waters and wetlands. Unimproved buffers are not able to be maintained at some locations because they encourage the establishment of wildlife which present a BASH concern in proximity to the airfield or present a security risk such as near installation parameters or security fencing.

  — **PROJECT 2.1.2:** Promote herptile reproduction and songbird habitat in wetland areas where it will not result in increased BASH concerns. Installation staff has accessed areas to promote herptile and songbird habitat throughout the installation; however, implementing these actions would increase BASH. If changes in the installation occur or additional information or studies become available that would allow for these actions to occur, the installation will determine appropriate locations for these projects.

  — **PROJECT 2.1.3:** Selfridge ANGB staff has determined that creating nest boxes at the installation would result in an increase to BASH concerns. The INRMP Working Group will continue to consider possibilities for the construction of nest boxes for cavity-nesting birds adjacent to edge habitat, in open areas, and in forested lowlands in areas that will not affect the flying mission, but such activities are not occurring at this time due to BASH concerns. If conditions change, outside services (e.g., Boy Scouts) and conservation organizations will be sought to assist in nest box construction and placement.

  — **PROJECT 2.1.4:** Continue to preserve snags and trees with nesting cavities in areas that will not affect the flying mission. This is not implemented at the installation in and around the airfield, as actions are taken to reduce the attractiveness of nesting activities under the current mission. Removal of all trees in the transition, approach, and clear zone is a priority concern. Actions are also taken to remove snag trees where they are near structures or roadways, presenting a safety hazard. If areas are identified where preserving snags and trees with nesting cavities is appropriate without increasing BASH, this action will be implemented.

— **PROJECT 2.1.5:** Do not disturb migratory bird nest sites (with the exception of Canada geese) until offspring have been fledged and the Selfridge Natural Resources Manager provides concurrence, any required permits are obtained, and/or consultation completed. Any activities that could disturb nesting birds must be coordinated with USFWS in advance. In addition, the installation will avoid any tree cutting between 15 April and 15 August to protect migratory birds, to the fullest extent possible. If tree cutting must occur in this period, coordination with USFWS will occur.

— **PROJECT 2.1.6:** Continue to remove large debris piles in proximity to the airfield, as they serve as harborages for wildlife and can contribute to the increase in BASH threat.

— **PROJECT 2.1.7:** Continue to promote the use of native trees as part of on-installation landscaping activities.

Monarch butterfly
Photo credit: Mark Musselman/National Audubon Society

- **FWM OBJECTIVE 2.2:** Create pollinator habitat. Pollinators have been in severe decline in recent years. The declining trend results from habitat loss and fragmentation, pesticide exposure, disease, parasites, and effects of introduced species. Selfridge ANGB is an ecologically important area and is uniquely positioned to contribute to pollinator conservation by enhancing habitat for monarch butterflies (*Danus plexippus plexisppus*) and other pollinators on the installation.

  — **PROJECT 2.2.1:** Determine if specific studies (wildlife hazard assessment) have been accomplished for creating pollinator habitats on an installation the size of Selfridge ANGB without having a negative impact on BASH concerns.

  — **PROJECT 2.2.2:** If adverse impacts to BASH have not been identified, consider enhancement of pollinator habitat in open space and/or recreational areas. Areas should be located away from the airfield to avoid an increase in BASH.

  — **PROJECT 2.2.3:** If an appropriate area is identified where habitat enhancement activities could contribute to pollinator recovery without increasing BASH, plant native milkweed or other native pollinator plant species. Plantings would create valuable nectar and pollen resources as well as sites for nesting, egg-laying, and overwintering. Additional information on pollinators and habitat enhancement can be found at http://www.fws.gov/pollinators.

- **FWM OBJECTIVE 2.3:** Continue to allow the Lake St. Clair Walleye Association and Michigan DNR use and access to the ponds for the Walleye Stocking Program. The Lake St. Clair Walleye Association, which is administered by the Michigan DNR, is

responsible for stocking the walleye ponds with fish and for maintaining the ponds (water level and repairing leaks).

— **PROJECT 2.3.1:** Continue coordination and communication with Lake St. Clair Walleye Association to access the ponds on the installation to stock walleye. Any maintenance issues associated with the ponds should be reported to the Lake St. Clair Walleye Association.

FWM GOAL 3: FREE ENTRY OF WILDLIFE ONTO THE BASE

- **FWM OBJECTIVE 3.1:** Continue to inspect the perimeter fence for breaches and control free entry of wildlife. Breaches in the perimeter fence allow for the free entry of wildlife onto the installation especially white-tailed deer and coyotes. Breaches typically occur along the north and south perimeter fences where the fence height is 7 feet.

  — **PROJECT 3.1.1:** The 127 WG Operations and Management staff is responsible for routinely conducting surveys to inspect the perimeter fence for damage or breaches. If other installation staff observe any issues or concerns with the perimeter fence, Operations and Management should be contacted.

8.3 OUTDOOR RECREATION AND PUBLIC ACCESS TO NATURAL RESOURCES

Limited outdoor recreation opportunities exist at Selfridge ANGB due to the dangers associated with the installation's mission. The level of enjoyment that is derived from these activities is directly related to the quality of the natural resources present on Selfridge ANGB, as well as the level of public access to those resources as dictated by the mission. Maintaining a quality outdoor recreation program is dependent on proper management of natural resources and efficient program administration and oversight.

Outdoor recreation resources at Selfridge ANGB include jogging routes, an exercise course, a golf course, and fishing areas along the seawall. Limited development of outdoor recreation activities has occurred in the past at Selfridge ANGB, other than the golf course. Management for the consumptive use of game species is restricted because of the operational missions and layout of Selfridge ANGB. The predominate game species at Selfridge ANGB is white-tailed deer; however, there is no opportunity for a hunting program. White-tailed deer are immediately removed when they are observed on Selfridge ANGB property due to the threat to aviation safety.

People and social uses/needs are an integral part of ecosystem management. The outdoor recreation program is based on providing quality experiences while sustaining ecosystem integrity. Activities that have a direct effect on species populations will be monitored to determine effects, and adaptive management (e.g., water bars on trails) incorporated to mitigate negative impacts. Special consideration is given to protecting sensitive areas from negative impacts due to outdoor recreation or ecosystem management activities. Based on these considerations, goals and objectives have been identified to manage outdoor recreation resources and activities on the installation.

OR GOAL 1: PROVIDE QUALITY OUTDOOR RECREATION EXPERIENCES WHILE SUSTAINING ECOSYSTEM INTEGRITY. ENSURE THAT OUTDOOR RECREATION ACTIVITIES ARE NOT IN CONFLICT WITH MISSION PRIORITIES.

- **OR OBJECTIVE 1.1:** Establish an interpretive nature trail. A nature trail would increase the recreational opportunities on the installation and would promote physical fitness. The trail and picnic area would be for installation personnel only; the public would not have access to the recreational opportunity.

  — **PROJECT 1.1.1:** Macomb County and Harrison Township have constructed a bike path which connects MacRay Marina with an extensive trail system to the south of the installation. There are plans to construct an additional bike path and nature trail along the shoreline. Coordinate with Macomb County to see if funding is available for the nature trail along the bike path.

  — **PROJECT 1.1.2:** If funding is not available through Macomb County, an interpretive nature trail could be established along the existing security roadway along the shoreline.

  — **PROJECT 1.1.3:** Incorporate educational signs along the nature trail or create a brochure that informs viewers of native plant and animal species of the area.

- **OR OBJECTIVE 1.2:** Continue to review Parking Plans for the biennial Selfridge ANGB Open House and Air Show. Selfridge ANGB hosts an open house and airshow biennially. This event will be open to the public with thousands expected to attend. Parking will be available throughout the installation. A Parking Plan is needed to ensure there would be no damage to natural resources during the weekend event.

2014 Selfridge ANGB Air Show

  — **PROJECT 1.2.1:** Coordinate with the Environmental Management Office to review and implement a Parking Plan. The Environmental Management Office will determine if any environmental impacts would occur and ensure parking is located outside wetland areas with appropriate buffers and best management practices utilized.

8.4 CONSERVATION LAW ENFORCEMENT

DoDI 5525.17, *Conservation Law Enforcement Program*, ensures that installations remain in compliance with appropriate environmental, natural, and cultural resource laws and regulations. Conservation law enforcement also includes regulating hunting and fishing programs on the installation. There is no hunting program on the installation. Fishing is permitted along the

shoreline with a valid fishing license. DoDI 5525.17 states that with an INRMP, the Conservation Law Enforcement section will provide specific goals and objectives to ensure compliance with laws and regulations to support the overarching goals of the INRMP (DoDI 5525.17 2(b)). There are a number of federal statutes and directives addressing specific requirements pertaining to natural resources. A comprehensive list of these regulations can be found in Appendix D.

CLE GOAL 1: ENSURE THAT THE ENFORCEMENT OF NATURAL RESOURCE LAWS AND REGULATIONS IS IMPLEMENTED.

- **CLE OBJECTIVE 1.1:** Continue to implement agreement with Michigan DNR to enforce natural resource regulations. In Michigan, Michigan DNR is responsible for enforcing fishing and hunting regulations.

  — **PROJECT 1.1.1:** Continue to allow Michigan DNR staff access to the installation to regulate natural resource regulations, including fishing.

  — **PROJECT 1.1.2:** Contact Michigan DNR staff when assistance in natural resource regulation enforcement is needed.

8.5 MANAGEMENT OF THREATENED AND ENDANGERED SPECIES AND HABITATS

The occurrence of threatened and endangered species on Selfridge ANGB is important to the overall management of natural resources at the installation. The adaptive ecosystem management used at Selfridge ANGB does not focus on the management of individual species of wildlife; it instead provides comprehensive management actions to all species by enhancing ecosystem structure and function on which all species rely. Off-base management by adjacent landowners (e.g., private landowners) needs to be considered in the application of the management actions identified in this INRMP. Threatened and endangered species surveys were conducted in 2015. No federally listed species were observed during the surveys. Three state-listed species were observed: the short-eared owl, common loon, and peregrine falcon.

The goals for this section are to manage Selfridge ANGB on a regional ecosystem-based approach that manages sensitive species and their associated ecosystems while protecting the operational functionality of the missions of the installation. Also, the Selfridge ANGB Natural Resources Manager will work to promote ecosystem-based management in the local region. Sensitive species at Selfridge ANGB will be managed by minimizing impacts to each species. There are limited opportunities for enhancement of listed species habitat at Selfridge ANGB due to operations, configuration, limited size, and potential increases in BASH. Adherence to the goals set for threatened and endangered species management will ensure that the installation remains in compliance with the ESA and applicable state regulations.

TE GOAL 1: PROTECT LISTED SPECIES AND THEIR HABITATS AT SELFRIDGE ANGB.

- **TE OBJECTIVE 1.1:** Monitor threatened and endangered species found within Selfridge ANGB. The 2015 survey indicated that three state-listed species occur at Selfridge ANGB. Bald eagles have also been observed on the installation. These species and their habitat should be monitored to ensure adverse impacts do not occur.

  — **PROJECT 1.1.1:** Continue to conduct threatened and endangered species habitat and species survey, specifically for the short-eared owl, peregrine falcon, common loon, and bald eagle to monitor the locations of these species and to minimize potential for adverse impacts to these species consistent with the military mission. Obtain and maintain permits as necessary to manage species.

- **TE OBJECTIVE 1.2:** Conduct Threatened and Endangered species surveys for endangered species, and if found prepare a Threatened and Endangered Species Management Plan. USFWS has expressed that threatened and endangered species surveys should be conducted at least every 5 years or as new species are added to the protection list.

  — **PROJECT 1.2.1:** Review the federal threatened and endangered species list to determine species that could potentially occur on the installation. Conduct a threatened and endangered species survey for federally-listed species every 5 years or when new species are added to the protection list.

  — **PROJECT 1.2.2:** If federally listed species are documented on the installation during the survey, a Threatened and Endangered Species Management Plan should be prepared for species that could potentially be impacted by operations, as required or deemed appropriate.

8.6 WATER RESOURCES PROTECTION

Water resources protection is important to natural resources management because it directly affects surface water quality and the value of aquatic habitats. Selfridge ANGB currently complies with a number of federal, state, local, and USAF environmental regulations. The objective of these regulations is to prevent pollutants from entering the watershed, thus protecting surface waters. Selfridge ANGB has been sampling and reporting discharges from the installation under the NPDES, since 1977 under the Clean Water Act. The installation continually evaluates data regarding potential environmental concerns that could impact the ecosystems, and has implemented BMPs for industrial operations, such as deicing; petroleum, oil, and lubricants storage; pesticide use; earth disturbances; dewatering; and equipment washing and maintenance. The installation continues to evaluate operations and minimizes potential impact to water resources while continuing to accomplish the mission. Specific watershed protection measures used by the installation include spill clean-up equipment at industrial locations, IPM, and reduction of fertilizer applications.

One of the primary concerns to water quality at Selfridge ANGB is the deposition of sediment in the waterways, including Lake St. Clair and the Clinton River, adjacent to the installation. The storm water discharge system at the installation consists of three pumps that discharge to Lake St. Clair, and two pumps that discharge to the Clinton River. The installation needs these pumps to prevent the accumulation of standing water and flooding, both of which pose a hazard to the mission of Selfridge ANGB. As a result, construction projects and other land-disturbing activities at the installation have the potential to cause sediment loading in the surface waterbodies adjacent to the installation. The watershed protection management objectives and actions presented in this INRMP are designed to reduce/control nutrient and sediment inputs into the watershed. In addition, the Selfridge ANGB Natural Resources Manager seeks to minimize nonpoint source pollution of both surface water and groundwater in the watershed. To effectively manage the watersheds of Selfridge ANGB, installation personnel and the Selfridge ANGB Natural Resources Manager must understand ecosystem dynamics within the watershed in an effort to prevent or respond to threats to its integrity.

The Selfridge ANGB Water Quality Program addresses water quality through implementation, conformance, and maintaining the soil erosion program standards and specifications of the Macomb County Soil Erosion and Sedimentation Control (SESC) Office of Public Works in accordance with Part 91, of Act 451, of 1994, as amended, of the Michigan Natural Resources and Environmental Protection Act, except as modified by the Macomb County SESC Ordinance, adopted 16 August 2007, by the Resolution of the Macomb County Board of Commissioners. The Environmental Management office inspects installation permitted sites weekly, or as required based on precipitation or snowmelt conditions. Permitted sites on the installation under the responsibility/ownership of a contractor and/or landowner's representative are not inspected by installation personnel; Macomb County personnel are onsite for monthly inspections of all permitted sites.

WRP GOAL 1: REMAIN IN COMPLIANCE WITH FEDERAL, STATE, LOCAL, AND USAF ENVIRONMENTAL REGULATIONS AND POLICIES. CONTINUE TO IMPLEMENT STORM WATER POLLUTION PREVENTION BMPS AND IMPROVE WATER QUALITY BY REDUCING EROSION AND IMPERVIOUS SERVICES.

- **WRP OBJECTIVE 1.1:** Continue to manage and implement operations on base in a manner to minimize soil erosion impacts on water quality, while maintaining compliance and minimizing impacts from operations. Land disturbing activities on the installation are causing erosion and sedimentation. Installation personnel should be properly trained to maintain certifications and understand field requirements for the installation and maintenance of soil erosion BMPs. Environmental Management and Government Inspectors must continue to accomplish inspections of all construction sites and earth disturbance activities to make sure they are in compliance with regulations and plan requirements, and coordinated with ground maintenance personnel, project managers, government inspectors, environmental management, and contactors, as needed, during the interval between regulatory inspections.

  — **PROJECT 1.1.1:** Environmental Management will keep an inventory of all permitted sites and review actions for permits via the AF Form 332 work request

process. This activity is coordinated with Civil Engineering work control, ground maintenance, project managers, and government inspectors to make sure notices are provided for permits to be obtained where needed, and guidance is provided where activities are minor and do not require a permit.

— **PROJECT 1.1.2:** Environmental Management and project managers will continue to develop and/or review plans that include earth disturbance to make sure they include BMPs for controlling soil erosion.

— **PROJECT 1.1.3:** Identified government personnel will obtain and maintain certifications as Construction Soil Erosion Inspectors with the State of Michigan.

— **PROJECT 1.1.4:** Environmental Managers will coordinate with regulatory agencies and provide periodic training and informational materials for base personnel with duties involving earth moving and/or ground maintenance.

- **WRP OBJECTIVE 1.2:** Limit the use of substances that contain pollutants to avoid contact with storm water and subsequent transport to surrounding waterbodies. Pollutants, such as metals, organic contaminants, and chlorides, originating on or flowing onto Selfridge ANGB have the potential to adversely affect the health of waterbodies adjacent to the installation. These pollutants stress fish and aquatic organisms in the water column and in bottom sediments, leading to bioaccumulation and related food chain events. These pollutants can also cause osmotic stress and ultimately lead to groundwater pollution. Ensure that adjacent land uses do not contribute to increased contamination to storm water run-on to the installation.

  — **PROJECT 1.2.1:** Continue to screen pesticides and fertilizers used on base and select alternatives that are environmentally sensitive to avoid chemical and nutrient loading of adjacent waterbodies. All pesticides used on the installation must be authorized by NGB and USAF in accordance with Air Force and DoD instruction. All pesticide use accomplished on the installation must be documented under the IPM Program, and all pesticide use must be approved and tracked by the Pest Management Office.

  — **PROJECT 1.2.2:** Continue to monitor in-flow points to determine if contaminated storm water flows onto the installation.

  — **PROJECT 1.2.3:** Continue to store equipment, especially leaking or malfunctioning equipment, on covered, impervious surfaces to avoid contact with storm water.

  — **PROJECT 1.2.4**: Continue to implement BMPs for erosion and sediment control at construction sites to avoid sediment loading.

  — **PROJECT 1.2.5:** Continue to identify nonpoint sources of unnecessary pollutants and implement control measures.

- **WRP OBJECTIVE 1.3:** Continue to revegetate areas of exposed soils with native flora. Several areas on the installation have exposed soils, which could potentially impact on-base and off-base water quality. Active construction and demolition sites on Selfridge ANGB are areas where exposed soils have the potential to impact water quality.

  — **PROJECT 1.3.1:** Continue to monitor turf area and prioritize areas of exposed soil or erosion for revegetation.

  — **PROJECT 1.3.2:** Continue to implement the Vision 2020 Landscaping Design Standard, as well as the use of native vegetation where practicable. The Landscape Design Standard considers BASH concerns by using endophytic fescue and non-fruit baring trees and shrubs in proximity to the airfield to minimize wildlife hazard attractants.

  — **PROJECT 1.3.3:** Request assistance from USDA NRCS to update the existing Vision 2020 Landscaping Design standard if concerns with the existing document are identified or if needed.

8.7 WATERS OF THE U.S./WETLAND PROTECTION

Wetlands are protected as a subset of the "waters of the United States" under Section 404 of the CWA. The term "waters of the United States" has broad meaning under the CWA and incorporates deep water aquatic habitats and special aquatic habitats (including wetlands). Jurisdictional waters of the United States are areas regulated under the CWA and also include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, vernal pools, and "other" waters that if degraded or destroyed could affect interstate commerce.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the waters of the United States, including wetlands. Therefore, even an inadvertent encroachment into wetlands or other waters of the United States that results in displacement or movement of soil or fill materials has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. In Michigan, the state has primary jurisdictional authority to regulate interior wetlands and waters. Michigan DEQ has been delegated authority by the federal government to regulate activities in inland wetlands in place of the CWA Section 404 Wetland Program. However, a dual permit program with Michigan DEQ and the USACE Detroit District is in effect for activities in wetlands within 1,000 feet of the Great Lakes or in certain inland lakes (including Lake St. Clair), rivers, or streams that are susceptible for use in the transport of interstate commerce. Wetlands on Selfridge ANGB within 1,000 feet of Lake St. Clair fall under this category and are subject to the dual permit program, and coordination with the USACE Detroit District and the Michigan DEQ must occur prior to commencement of activities within these wetlands.

The State of Michigan implements additional protections to wetlands through the *Wetlands Protection Division Act 451 of 1994, Natural Resources and Environmental Protection* (Act 451 of 1994, Article III, Chapter 1, Inland Waters Part 303), and the *Great Lakes Shorelands*

Management program (Act 451 of 1994, Article III, Chapter 1, The Great Lakes, Part 323) which requires that persons planning to conduct certain activities in regulated wetlands apply for and receive a permit from the state before beginning the activity. A permit is required from the state for the following:

- Depositing or placing of fill material in a wetland
- Dredging, removing, or permitting the removal of soil or minerals from a wetland
- Constructing, operating, or maintaining any use or development in a wetland
- Draining surface water from a wetland.

The Michigan Legislature defines a wetland as "land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life," and is commonly referred to as a bog, swamp, or marsh, and which is any of the following:

- Contiguous to the Great Lakes or Lake St. Clair, an inland lake or pond, or a river or stream

- Not contiguous to the Great Lakes, an inland lake or pond, or a river or stream and more than 5 acres in size

- Not contiguous to the Great Lakes, an inland lake or pond, or a river or stream, and is 5 acres or less in size if the department determines that protection of the area is essential to the preservation of the natural resources of the state from pollution, impairment, or destruction, and the department has notified the owner.

Prior to encroachment into wetlands, Selfridge ANGB must determine if a permit is required by Michigan DEQ. Michigan DEQ authorization is obtained by submitting a *Joint Permit Application* to the Water Resources Division in Lansing, Michigan at:

Michigan DEQ
Water Resources Division
P.O. Box 30458
Lansing, Michigan 48909-7958

State law requires landowners to avoid wetlands whenever possible, therefore the application will require Selfridge ANGB to explain why wetlands cannot be avoided and that the proposed project will not significantly affect wetland functions or values. Information pertaining to the state wetland application process can be obtained by contacting the Environmental Assistance Center by telephone at (800)-662-9278 or by email to deqassist@michigan.gov or DEQ-WRD-MIWATERS@michigan.gov. The current district staff point of contact for Selfridge ANGB is Ms. Karyn Green at (586)-256-7274, greenk8@michigan.gov. It is important to note that in 2017, Michigan DEQ's Water Resources Division transitioned to using *MiWaters*, a web-based permitting and compliance database. *MiWaters* allows the applicant to enter basic information such as project location, description, a Joint Permit Application, and other applicable

attachments, and submit application fees. Additional information can be found at: https://miwaters.deq.state.mi.us/miwaters/#/external/home.

Wetlands are also protected under EO 11990, *Protection of Wetlands* (43 Federal Register 6030). The purpose of this EO is to reduce adverse impacts associated with the destruction or modification of wetlands. If impacts to wetlands are anticipated, a FONPA must be submitted to the MAJCOM EPF (32 CFR 989.14 (g)). The FONPA includes consideration of practicable alternatives that will meet justified program requirements to ensure they are within legal authority of the USAF, meet technology standards, are cost-effective, do not result in unreasonable adverse environmental impacts, and other pertinent factors.

Any actions that require a federal permit, license, or approval that results in a discharge into waters of the United States, including Section 404 individual dredge and fill permits and nationwide permits, require a state water quality certification. The state has adopted procedures and criteria for water quality certification for Department of Army permits and NPDES permits (Act 451 21 of 1994, Article III).

The ANG is responsible for identifying and locating jurisdictional waters of the United States, including wetlands occurring on ANG installations, where these resources have the potential to be impacted by military mission activities. Such impacts could include construction of roads, buildings, runways, taxiways, navigational aids, and other appurtenant structures or activities as simple as culvert crossings of small intermittent streams, rip-rap placement in stream channels to curb accelerated erosion, and incidental fill and grading of wet depressions.

The major goal in wetland management is to minimize the impact that the Selfridge ANGB missions have on wetlands. The ANG strives to enhance healthy, functional wetlands that can sustain minor operational influences outside indirect infringement of wetlands. When possible, the goal is set to enhance wetland functions to create wetlands that maximize the values that wetlands have within the ecosystem and to society. It is also the goal to maximize floral diversity of wetland communities that, in turn, maximize the faunal diversity of the ecosystem. To meet the goals of wetland management, the following topics of concern identify actions that compromise achieving particular goals and presents objectives and management actions designed to meet the wetland management goals.

WP GOAL 1: MAINTAIN HEALTHY, FUNCTIONAL WETLANDS THAT CAN SUSTAIN MINOR OPERATIONAL INFLUENCES OUTSIDE INDIRECT INFRINGEMENT OF WETLANDS, AND MANAGE FOR NO NET LOSS OF WETLAND ACREAGE, FUNCTIONS, AND VALUES.

- **WP OBJECTIVE 1.1:** Implement adaptive management strategies to conserve and minimize impacts to the installation's wetland resources. A wetland delineation was completed in 2013. Both the Michigan DEQ and USACE have jurisdictional determinations at Selfridge ANGB. The USACE expires on 27 November 2018, and the Michigan DEQ expired on 4 February 2017. The dominant vegetation within several Selfridge ANGB's emergent wetlands is common reed, an invasive species with low wildlife habitat.

- **PROJECT 1.1.1:** Maintain 50- to 100-foot buffer zones around wetlands where it is determined that a wetland has, or could have, significant habitat value, or where current activities adjacent to wetlands are causing noticeable adverse impacts on the habitat. Activities within buffer zones are limited to those that would cause little or no impact on or disturbance to the wetlands. In cases where established activities already occur within buffers and cannot be reasonably changed, those wetlands are subject to increasing monitoring, and use of controls and BMPs to avoid or minimize impacts.

- **PROJECT 1.1.2:** Continue to plan development and training to avoid wetland impacts to the maximum extent possible and mitigate unavoidable impacts on wetland functions.

- **PROJECT 1.1.3:** Continue to review operations and maintenance programs that potentially affect wetlands, and develop procedures and guidelines to avoid loss of wetland functions. No Michigan DEQ permit is required for removing woody vegetation from a wetland and for in-place grinding of tree stumps. In addition, cut vegetation may remain within the wetland of its origination.

- **PROJECT 1.1.4:** Continue to pursue water quality management procedures that protect wetlands from excessive nonpoint source runoff.

- **WP OBJECTIVE 1.2:** Continue to maintain areas within the transition, approach, and clear zones, visual site areas, and/or areas presenting a BASH concern within proximity to the airfield as herbaceous habitat per airfield regulations or BASH program recommendations. Where any additional deforestation is necessary to address airfield management requirements, continued maintenance of such areas as herbaceous habitat is necessary to prevent edge effect that could result in increased BASH concern. Unified Facilities Code 3-260-01, AFI 32-7063, and AFI 32-7084 explain the requirements for the prevention of obstacles, particularly nonfrangible objects such as trees, within the airfield environment. Obstructions that penetrate the 50 Horizontal: 1 Vertical (50H:1V) approach-departure imaginary surface from the end of the primary surface as well as the 7H:1V transitional imaginary surface that extends 1,000 feet of each side of the primary surface. The majority of forested wetland areas that were predominantly wooded swamp dominated by silver maple and dead or dying green ash within these airfield areas have already been deforested.

  - **PROJECT 1.2.1:** Continue to monitor for trees that penetrate the 50H:1V approach-departure imaginary surface, as well as the 7H:1V transitional imaginary surface. As the tallest trees are, at a maximum, 80 feet tall, there should be no obstructions in the transitional imaginary surface beyond approximately 600 feet from the primary surface.

  - **PROJECT 1.2.2:** Continue to remove all the trees that encroach into the USAF Class B runway airspace imaginary surfaces by cutting them close to the ground

using a chainsaw, and treating the stumps with herbicides in the spring immediately following cutting to prevent re-growth. This action should be coordinated through the Pest Management Office and the Natural Resources Management Program Manager and all applicable permits would be obtained. These areas should be maintained as herbaceous habitat. Appropriate revegetation of the cleared areas should be determined based on consideration of airfield management constraints, maintenance restraints, BASH concerns, wetland impacts, and any threatened and endangered species concerns.

— **PROJECT 1.2.3:** Maintain the site to ensure that regeneration of cut trees and establishment of volunteer species does not occur. Maintenance of the cut-forested areas would be conducted after removal of the trees. Maintenance would include monitoring the site as necessary for the emergence of seedling/sapling volunteer species and cutting unsuitable regrowth. Maintenance actions to be performed would be accomplished during winter months when the ground is frozen and would consist of dozing blade up and manual cutting where equipment can be operated safely. As required, coordination would continue to be accomplished with USFWS, Michigan DNR, and Michigan DEQ regarding maintenance actions in these areas, as applicable.

— **PROJECT 1.2.4:** Identify additional forested wetland areas causing high BASH threats and convert to herbaceous habitat. Determine the appropriate means for removing trees – physical removal or prescribed burns. If stump removal is necessary, a Michigan DEQ permit is required. Potential areas include areas northwest, northeast, and southwest of the runway.

- **WP OBJECTIVE 1.3:** Continue to educate base personnel regarding wetland locations and allowable activities in proximity to wetlands. The installation staff needs re-occurring training, as personnel change or replacements occur, to explain the types and extent of activities performed in and adjacent to jurisdictional wetlands and water of the United States on Selfridge ANGB, which require prior coordination and special BMPs to be implemented. In general, any activity that could impact hydrology of a wetland, the quality of water within the hydrological system, and the vegetative composition of the wetland generally require regulatory coordination, likely a permit, and possible mitigation in some form. This includes activities such as construction projects, tracked/wheeled vehicle operations, dredging, or filling (with appropriate permits or mitigation measures).

  — **PROJECT 1.3.1:** Continue to post wetland fact sheets and training information on the Selfridge Virtual Environmental Management Office site. Update materials as needed.

  — **PROJECT 1.3.2:** Continue to provide reminders and updates to grounds maintenance supervisors regarding wetland regulations and allowable practices, which can be accomplished with and without permits.

- **WP OBJECTIVE 1.4:** Modify wetland habitat as necessary on and in proximity to the Selfridge ANGB airfield to reduce attractiveness to wildlife. Forested wetland areas on and in the proximity of the airfield attracts wildlife and has a high BASH threat.

  — **PROJECT 1.4.1:** Continue to manage areas near the airfield consistent with the BASH plan to ensure the managed areas are not increasing BASH threats, and to determine if maintenance schedules are working to maintain the habitat correctly.

  — **PROJECT 1.4.2:** Continue to coordinate with Michigan DEQ and/or USACE, as applicable to determine regulatory requirements for habitat modifications and mitigate as statutes, regulations, and/or policies require.

- **WP OBJECTIVE 1.5:** Work with Michigan DEQ to reclassify ditches that transverse wetlands as storm water conveyances rather than jurisdictional wetlands. Michigan DEQ determines state regulatory authority of wetlands through the Wetland Identification Program (WIP). According to the WIP for Selfridge ANGB, dated 4 February 2014, approximately 385 of the 385.7 acres of wetlands were determined to be regulated by Michigan DEQ pursuant to Part 303, Wetland Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 303). Michigan DEQ viewed a number of the ditches within Selfridge ANG requiring maintenance as having a direct hydrologic connection to surrounding regulated wetland and, therefore, would not remove them from within the regulated wetland boundaries. The Selfridge ANGB WIP is valid until February 2017.

  Maintenance of the ditches—initially established in the 1960s in association with the construction of and for providing proper drainage of the airfield—is necessary for maintaining the function and capacity of the installation's storm water conveyance system critical for mission safety. This is true even where conveyances transverse areas or drain portions of the airfield, determined at a subsequent date to be a jurisdictional wetland. The existing ditches require maintenance to remove built-up sediment, as they have not been regularly maintained. The lack of maintenance has resulted in inefficient storm water conveyance and areas of ponded water. Ponded water attracts wildlife and creates a BASH threat. Roadside ditches and storm water facilities (storm water ditches) constructed in uplands are exempt from Part 303 and Part 301, and are not considered to be a wetland or a stream. According to the current WIP, ditches that are surrounded by regulated wetlands are considered part of the regulated wetland. Cleaning of the ditches where they are considered wetland would be considered a permanent wetland impact and would require mitigation; therefore, it is critical that any and all roadside and storm water ditches are correctly designated by Michigan DEQ in the WIP. Per the BASH plan, the preferred alternative is to seek a waiver and not conduct mitigation per the Federal memorandum of Agreement, and seek alternative remedies should legal options to the waiver be denied, with the associated liability therein, by the state.

  — **PROJECT 1.5.1:** Continue to develop a plan to address the management of all storm water conveyances at the installation, to include those that transverse or are located within wetland boundaries. Obtain necessary permits and accomplish mitigation, if

required, for re-occurring maintenance of existing storm water conveyance systems on the installation.

— **PROJECT 1.5.2:** When the Michigan DEQ WIP expires in February 2017, meet with Michigan DEQ to discuss the classification of the drain as it pertains to Michigan Part 303 and Part 301 storm water facility exemptions.

— **PROJECT 1.5.3:** Implement and update as necessary the Selfridge ANGB Storm Water Conveyance Restoration Plan (Appendix G).

8.8 GROUNDS MAINTENANCE

Base grounds maintenance personnel perform most grounds maintenance activities at Selfridge ANGB. Normal grounds maintenance operations at Selfridge ANGB are focused on lawn care, drainage ditch maintenance, road and runway maintenance, airfield management, landscaping maintenance, pest management, and snow removal.

GM GOAL 1 MAKE MAXIMUM USE OF REGIONALLY NATIVE PLANT SPECIES AND AVOID INTRODUCTION OF INVASIVE, EXOTIC SPECIES IN RE-VEGETATION ACTIVITIES

- **GM OBJECTIVE 1.1:** Use native landscape plant species that are well adapted to the growing conditions in southeastern Michigan. If native plants are not used, non-native and invasive species could be introduced to the installation during revegetation efforts and landscaping activities.

  — **PROJECT 1.1.1:** The Vision 2020 includes a list of native species to the southeast Michigan area provided by Michigan DNR, Michigan DEQ, and the USDA. During ground disturbing activities, continue to reseed exposed soils using a native grass mix. Continue to ensure regionally native species are selected for landscape plantings. Endophytic fescue should be planted in all areas of the airfield to include wetland areas maintained as herbaceous habitat to control BASH.

GM GOAL 2: MAINTAIN STORM WATER CONVEYANCE CHANNELS THROUGHOUT THE INSTALLATION

- **GM OBJECTIVE 2.1:** Storm water conveyance channels should be maintained on a regular basis to allow sufficient drainage to minimize BASH threat and to maintain runway integrity. Lack of ditch maintenance has allowed vegetation and sediment to compromise the flow efficiency of man-made storm water conveyance channels on the installation, and has increased potential wildlife threat to aircraft operations.

  — **PROJECT 2.1.1:** Implement the Storm Water Conveyance Management Plan.

  — **PROJECT 2.1.2:** Identify ditches within wetland areas that need maintenance. Meet with Michigan DEQ to discuss if routine maintenance of ditches to remove

sediment buildup and vegetation require wetland mitigation. Propose all potential options for ditch maintenance without having to accomplish mitigation allowed under current regulations.

— **PROJECT 2.1.3:** Perform ditch maintenance in approved areas on an as needed basis.

GM GOAL 3: MAINTAIN HERBACEOUS HABITAT TO REDUCE BASH POTENTIAL

- **GM OBJECTIVE 3.1:** Continue to maintain semi-improved grounds on the installation as herbaceous habitat consistent with the BASH Plan (Figure 6-1). Maintaining these areas as herbaceous habitat will minimize the BASH at the installation.

  — **PROJECT 3.1.1:** Maintain herbaceous habitat to reduce BASH.

8.9 FOREST MANAGEMENT

No commercial forestry resources are present at Selfridge ANGB. A survey was completed in 2013 and it was determined that there is no potential for marketable timber on the installation. An urban tree survey was completed in 2009. This survey identified hazard trees and rated their condition throughout the installation. Trees rated poor or marked for removal have been removed. In addition, native trees were planted throughout the installation in areas with no BASH concerns in 2013 and 2014.

FM GOAL 1: MANAGE URBAN FOREST RESOURCES AT SELFRIDGE ANGB

- **FM OBJECTIVE 1.1:** Continue to remove urban trees throughout the installation that are determined to be in poor condition. Management of urban trees throughout the installation is essential. Management actions developed in the 2009 Urban Tree Survey should continue to be implemented. Management of urban trees should address the installation's goals to manage primarily for aesthetics, recreation, compatible wildlife preservation, and for visual and noise buffering capacity.

  — **PROJECT 1.1.1:** Continue to implement the Urban Tree Management Plan by monitoring urban trees to identify hazard trees.

  — **PROJECT 1.1.2:** Continue to remove/manage trees in poor or remove condition

  — **PROJECT 1.1.3:** Contract an arborist to inspect the installation's trees and grounds annually and to collect GIS data. The purpose of the annual inspection of trees and grounds would be to evaluate them for condition, disease, and/or infestations, and to document and provide GIS data for locations of such occurrences. In addition to GIS data, a report documenting the general condition of trees and grounds on the installation, along with recommendations and strategies to address concerns pertaining to condition, disease, and/or infestations observed should be developed.

— **PROJECT 1.1.4:** Review recommendations provided by the arborist, and implement recommendations as funding and/or manpower allows.

FM GOAL 2: MANAGE GREEN ASH AFFECTED BY EMERALD ASH BORER

- **FM OBJECTIVE 2.1:** Continue to manage green ash trees affected by the emerald ash borer. The emerald ash borer infested green ash trees throughout the installation. The green ash population on the installation has been decimated. A large number of the trees were removed within the transition, approach, and clear zones, and during subsequent hazard tree removal actions.

  — **PROJECT 2.1.1:** Continue to remove dead ash trees where they pose a hazard or where possible.

  — **PROJECT 2.1.2:** If any green ash trees are identified as not affected by the emerald green ash borer, the tree should be treated to prevent or arrest future infestation. Information for the treatment of emerald ash borer including treatment methods available at: http://www.emeraldashborer.info. Any applications of insecticides in and around wetland areas require proper permits. Michigan DNR should be consulted prior to any insecticide applications in wetland habitats.

8.10 WILDLAND FIRE MANAGEMENT

The primary firefighting mission at the installation is structural and aircraft fire suppression. In 2015, a WFMP was developed to utilize prescribed fire as a tool for managing plant communities on the installation. The Selfridge ANGB WFMP meets AFI policy by giving full consideration to the use of wildland fire as a natural process and as a tool in the land management planning process, and also meets the Federal Wildland Fire Management policy.

WFM GOAL 1: MANAGE HERBACEOUS HABITAT AND INVASIVE SPECIES USING PRESCRIBED BURNS

- **WFM OBJECTIVE 1.1:** Implement the Wildland Fire Management Plan (Appendix F) to maintain herbaceous habitat in flight safety areas and control common reed. Prescribed fire implementation will follow the standards set forth in the *Interagency Standards for Fire and Fire Aviation Operations (Redbook)* (http://www.nifc.gov/policies/pol_ref_redbook.html), and the 2008 *Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (Prescribed Fire Guide)* (http://www.nwcg.gov/pms/RxFire/rxfireguide.pdf). In some wetland areas non-native common reed is the dominant form of vegetation. Prescribed burns would help control common reed throughout wetland areas. In addition to common reed, various other invasive species were identified during recent vegetative surveys, which will also be taken into consideration and addressed accordingly in conjunction with and/or before planning prescribed burns. Since the installation is not adequately staffed or

trained for conducting prescribed burns, Selfridge ANGB will partner with the USFS, USFWS, and/or Michigan DNR to preform prescribed burns.

— **PROJECT 1.1.1:** Identify areas where prescribed fires should be used to maintain herbaceous habitat or to control common reed. Prepare a Burn Plan or update existing burn plan as deemed necessary prior to burn implementation.

— **PROJECT 1.1.2:** Coordinate with USFWS to determine if there will be wildlife concerns during prescribed burns. Consideration will be given to nesting birds, amphibians, and reptiles if burning any other time than winter.

— **PROJECT 1.1.3:** Inform the public of the prescribed fire program through news releases, interpretive messages, and educational programs.

— **PROJECT 1.1.4:** Coordinate with USFS, USFWS, and/or Michigan DNR to perform prescribed burns and implement the Burn Plan.

8.11 AGRICULTURAL OUTLEASING

The Agricultural Outleasing program element does not apply to Selfridge ANGB.

8.12 INTEGRATED PEST MANAGEMENT PROGRAM

Native plant and animal communities have been adversely impacted by development and the introduction of non-native species. Non-native species are those plants or animal species that were not present during European settlement. Due to aggressive growth habits of many non-native species, the species have become invasive and out-compete the native plants and animals. "An invasive species is defined as a species that is non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health" (EO 13112) (USDA 2016). Invasive species put native plants and animals at risk. Invasive plants, which can be both native and non-native, result in the loss of diversity within a local plant community. Table 5-2 includes the priority invasive plant species that have been identified on Selfridge ANGB. Table 7-2 includes pests that have been identified at the installation. Nuisance species generally refers to animals and is a result of the animal's population density.

DoDI 4150.7, *Pest Management Program*, is a DoD policy to establish and maintain safe, effective, and environmentally sound IPM programs to prevent or control pests and disease vectors that could adversely impact readiness or military operations by affecting the health of personnel or damaging structures, material, or property. The policy set Measures of Merit for pest management, which require each installation to develop an IPM Plan, reduce the amount of pesticides used on the installation, and certify all pesticide applicators. A copy of the IPM Plan for Selfridge ANGB is located in Appendix E.

IPM GOAL 1: CONTROL NON-NATIVE AND INVASIVE SPECIES THROUGHOUT THE INSTALLATION

- **IPM OBJECTIVE 1.1:** On an annual basis, implement protocols established in the IPM Plan. Monitoring and assessing nuisance and non-native species allows managers to more effectively evaluate and control populations. Selfridge ANGB should annually review the IPM Plan to evaluate the short-term and long-term goals of the plan. Protocols within the IPM Plan should be implemented.

  — **PROJECT 1.1.1:** Develop a schedule and review process to implement protocols, such as monitoring/assessing wildlife and vegetative communities.

  — **PROJECT 1.1.2:** Perform year-round surveillance of vegetation and wildlife resources to detect disruptions and/or locations where threats are affecting resource integrity.

  — **PROJECT 1.1.3:** Implement invasive species management practices and conduct monitoring as recommended in the IPM Plan, as funding and resources allow.

- **IPM OBJECTIVE 1.2:** Implement the IPM Plan for nuisance species including rats, cats, woodchucks, dogs, raccoons, muskrats, skunks, etc. The existing control strategies for the removal of these species and reduction of their habitat should continue. The IPM Plan has thresholds and control strategy recommendations for nuisance species.

  — **PROJECT 1.2.1:** Assess the impact of control strategies for nuisance species on sensitive species inhabiting the installation.

  — **PROJECT 1.2.2:** Consult the IPM Plan for thresholds and control strategy recommendations for nuisance species. General management measures that should be used to control nuisance pests include the following:

    - Capturing individual large animals (e.g., raccoons, skunks) for removal or euthanasia.

    - Using snap traps and glue boards to trap rodents.

    - Placing pesticide baits along the paths of ants and cockroaches.

  — **PROJECT 1.2.3:** Implement control strategies considering sensitive species to maintain nuisance species populations below threshold levels.

- **IPM OBJECTIVE 1.3:** Obtain contracted assistance to conduct additional invasive species surveys as needed, and prepare an Invasive Species Management Plan. Implement the plan at the installation level as resources and staffing allows. An invasive species survey was completed in 2014 as part of the Vegetation Alliance Mapping. During this survey a total of 19 invasive vegetation species were documented on the installation. Non-native and invasive species could be endangering populations of native species and creating lower quality habitat for wildlife. Treatment or management of invasive species also needs to consider the possibility of enhancement of habitat from efforts and the potential negative effects this could have on BASH management at the installation. While the overall goal should be the eradication of invasive species, the primary goal should be preventing the proliferation of invasive species as a result of ongoing ground maintenance activities.

Purple loosestrife on Selfridge ANGB

  - **PROJECT 1.3.1:** Conduct an invasive plant species survey at Selfridge ANGB to identify the exact locations of invasive species. Develop a Non-native and Invasive Species Management Plan detailing specific management actions to target populations of invasive species while taking into account the current level of ground maintenance operations for unimproved, semi-improved, or improved areas of the installation where invasive species are present. The management plan should provide management and treatment methods to minimize or prevent the proliferation and/or spread of invasive species due to necessary ground maintenance activities within semi-improved and improved grounds necessary to support mission activities. The management plan should also look at unimproved grounds and provide recommendations to address invasive species concern for unimproved grounds. The Non-native and Invasive Species Management Plan should be included in this INRMP as well as the IPM Plan.

  - **PROJECT 1.3.2:** Notify adjacent land managers of non-native and invasive plant occurrences and offer to assist in plant removal projects.

  - **PROJECT 1.3.3:** Coordinate with state and local regulators to obtain appropriate permits for non-native and invasive plant species eradication within wetland areas.

- **IPM OBJECTIVE 1.4:** Work with the Cooperative Invasive Species Management Area (CISMA) covering the Lake St. Clair area for the treatment of non-native and invasive species on a community level. Project partners of CISMA are developing a watershed wide management plan for the early detection, treatment, control, and eradication of priority invasive species. Part of developing a management plan includes the mapping of current infestations throughout the watershed area. Selfridge ANGB has previously supplied invasive species survey data to CISMA.

— **PROJECT 1.4.1:** Continue to send appropriate Selfridge ANGB staff to CISMA meetings as schedules allow. Collaborate and use the knowledge of the CISMA group with management of invasive species at the installation to ensure the installation's approach is consistent with what is occurring within the local community.

— **PROJECT 1.4.2:** Continue to supply CISMA with invasive species data collected at Selfridge ANGB.

8.13 BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD

Selfridge ANGB actively implements a BASH Reduction Plan, thereby reducing the potential for a bird strike to occur on the airfield. Birds can be encountered up to altitudes of 30,000 feet and higher; however, most birds fly close to ground level, and more than 95 percent of all reported incidents in which a USAF aircraft has struck a bird have been below 3,000 feet above ground level. Approximately half of these bird strikes occur in the airfield environment, and approximately one quarter occur during low-altitude training. Strike rates rise significantly as altitude decreases, which is partly due to the greater number of low-altitude missions, but mostly because birds are commonly active close to the ground. Any gain in altitude represents a substantially reduced threat of a bird strike.

Migratory waterfowl (ducks, geese, and swans) pose a threat to low flying aircraft. Waterfowl vary considerably in size, from 1 to 2 pounds for ducks, 5 to 8 pounds for geese, and up to 20 pounds for most swans. At the installation, there are several common bird species that may pose a hazard, including gulls, hawks, blackbirds, starlings, pigeons, ducks, geese, sparrows, killdeer, and common grackle. There are two normal migratory seasons, spring and fall. Waterfowl are usually only a hazard during the migratory season. Waterfowl typically migrate at night and generally fly between 1,500 and 3,000 ft above ground level during the fall migration and 1,000-3,000 ft above ground level during spring migration.
Selfridge ANGB currently maintains a USFWS and Michigan DNR Depredation Permit to authorize the taking of nuisance species to lessen the danger of bird/wildlife strikes with aircraft. However, depredation permits are not required for killing English house sparrows, European starlings, common pigeons, and rock doves. In addition, 50 CFR 21.43 excludes the need for a depredation permit for red-winged blackbirds, rusty blackbirds, brown-headed cowbirds, common grackle, and American crows when connected in such numbers and manner as to constitute a health hazard or other nuisance.

BH GOAL 1: IMPLEMENT PROCEDURES OF THE BASH REDUCTION PLAN TO LESSEN OCCURRENCES OF BIRD/WILDLIFE AIRCRAFT STRIKES.

- **BH OBJECTIVE 1.1:** Implement BASH procedures for the Selfridge ANGB and surrounding airspace. A BASH and wildlife strike threat exists at Selfridge ANGB. Without the continuation of the BASH reduction plan for the installation, bird/wildlife aircraft strike incidents would not be prevented, resulting in a greater BASH threat at the

installation. Selfridge ANGB and USDA-WS personnel will continue their extremely effective approach in identifying and reducing BASH threats on Selfridge ANGB.

— **PROJECT 1.1.1:** Continue implementation of measures outlined in the Selfridge ANGB BASH reduction plan.

— **PROJECT 1.1.2:** Implement USAF policy for all bird remains.

— **PROJECT 1.1.3:** Continue USDA-WS studies to determine resident populations and seasonal influxes of migratory species. As the species composition changes on Selfridge ANGB, management strategies will be modified on an as-needed basis.

— **PROJECT 1.1.4:** Continue to harass geese, turkey, cranes, and deer as necessary utilizing a variety of techniques (e.g., pyrotechnics, model aircraft, propane cannons, long-range acoustic devices) to minimize wildlife-aircraft strikes.

— **PROJECT 1.1.5:** Obtain additional training (e.g., Annual Bird Strike Committee USA meetings) to ensure the use of the most current methods in wildlife damage prevention and control.

— **PROJECT 1.1.6:** Maintain current USFWS and Michigan DNR depredation permits.

— **PROJECT 1.1.7:** Grounds maintenance personnel will maintain vegetation within drainage ditches to discourage wildlife from foraging and nesting in proximity to the airfield.

8.14 COASTAL ZONE AND MARINE RESOURCES MANAGEMENT

The CZMA (USC Title 16, Chapter 33) defines the coastal zone of a given area as “the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder) strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands and beaches” (USC Title 16, Chap. 33). Coastal zones are important because of the diverse biological and hydrological functions which occur in the areas. These functions include water and land forms interacting as integrated ecological units, estuaries, brackish and saline water, shorelands, dunes, offshore islands, barrier islands, and freshwater wetlands within estuarine drainages. These interrelated features are crucial to coastal fish and wildlife and their habitats and coastal waters in general.

“Coastal waters," as defined in the CZMA, are the waters within the territorial jurisdiction of the United States consisting of the Great Lakes, their connecting waters, harbors, roadsteads, and estuary-type areas such as bays, shallows, and marshes. These also include water adjacent to the shorelines, which contain a measurable quantity or percentage of sea water, including sounds, bays, lagoons, bayous, ponds, and estuaries (USC Title 16). The CZMA was enacted to “preserve, protect and where possible, to restore or enhance, the resources of the Nation’s coastal

zone for this and succeeding generations" (USC Title 16, Chapter 33). One of the main provisions of the Act is to manage coastal development to minimize the loss of life and property caused by improper development in flood-prone, storm surge, geological hazard, and erosion-prone areas, and in areas likely to be affected by or vulnerable to sea level rise, land subsidence, and saltwater intrusion; and by the destruction of natural protective features such as beaches, dunes, wetlands, and barrier islands (USC Title 16, Chapter 33). In doing so, the CZMA encourages the states to exercise their full authority over the lands and waters in the coastal zone by assisting the states, in cooperation with federal and local governments and other vitally affected interests, in developing land and water use programs for the coastal zone. These include unifying policies, criteria, standards, methods, and processes for dealing with land and water use decisions of more than local significance (USC Title 16, Chapter 33).

Michigan implements the requirements of the CZMA through the *Michigan Coastal Management Program (MCMP).* The MCMP was created out of Act PA 451, *The Natural Resources and Environmental Protection Act of 1994,* and is administered by The Great Lakes Shorelands, Water Resources Division of the Michigan DNR. The program includes the provision of grants, administration of PA 451, and review of federal agencies for compliance with Michigan's program.

Parts 301, 323, and 325 of PA 451 outline the permitting requirements for many different projects and activities related to coastal areas. According to the Act, the following activities within a coastal zone require a permit:

- Dredging or filling a bottomland;
- Constructing, enlarging, extending, removing, or placing a structure on bottomland;
- Erecting, maintaining, or diminishing an inland lake or stream;
- Structurally interfering with the natural flow of an inland lake or stream;
- Constructing, dredging, commencing, extending, or enlarging an artificial canal, channel, ditch, lagoon, pond, lake, or similar waterway where the purpose is ultimate connection with an existing inland lake or stream, or where any part of the artificial waterway is within 500 feet of the ordinary high-water mark of an existing inland lake or stream; and,
- Connecting any natural or artificial waterway, canal, channel, ditch, lagoon, pond, lake, or similar water with an existing inland lake or stream for navigation or any other purpose.

The permitting applicant is required to mail permit applications to Michigan DNR. Michigan DNR will forward the application to the Department of Health; NRCS; Clerks of the county, city, village or township; and drain or road commissioners of the county. Additional information concerning coastal zone management can be obtained utilizing the following contact:

Coastal Management Phone: (517)-284-5040
Email Address: wuycheckr@michigan.gov
Division Information: Office of Great Lakes

CZ GOAL 1: MAINTENANCE OF SEAWALL ON LAKE ST. CLAIR

- **CZ OBJECTIVE 1.1:** Continue to ensure that the seawall on the east side of the installation on the shore of Lake St. Clair is maintained to protect the installation's natural resources in a manner consistent with the natural resource management guidelines presented in this INRMP and to protect the military mission on Selfridge ANGB. The seawall and associated berm are required for flood control during times of high water on Lake St. Clair. While the seawall and rock berms provide protection of the shoreline from wave action and ice damage, they would not protect the installation from flooding in the event of a 100-year flood event on Lake St. Clair as determined by FEMA. Damage to the seawall or berms, if not maintained, could result in localized flooding on the installation.

  — **PROJECT 1.1.1:** Continue to maintain the integrity of the riprap and berm to ensure the seawall is functioning properly. Coordinate maintenance activities with the Environmental Office to ensure compliance with CZMA. Obtain necessary permits from USACE, Michigan DNR, and the Macomb County Department of Public Works Soil Erosion and Sedimentation Control Division prior to conducting maintenance activities on the riprap, berm, or breakwall.

  — **PROJECT 1.1.2:** Ensure that future management of the seawall minimizes erosion and sedimentation to Lake St. Clair.

8.15 CULTURAL RESOURCES PROTECTION

Cultural resource protection will be addressed through the ANG Cultural Resources Management Program.

8.16 PUBLIC OUTREACH

Opportunities for public outreach are limited at Selfridge ANGB due to the high security of the installation. It is important for Selfridge ANGB to continue to develop a positive relationship with the public and surrounding communities.

PO GOAL 1: PROVIDE QUALITY PUBLIC OUTREACH EXPERIENCES, WHILE SUSTAINING ECOSYSTEM INTEGRITY. ENSURE THAT PUBLIC OUTREACH OPPORTUNITIES ARE NOT IN CONFLICT WITH MISSION PRIORITIES.

- **PO OBJECTIVE 1.1:** Continue to attend BCC meetings to discuss public outreach opportunities. Successful community relations are vital to the continued good positive

image that Selfridge ANGB has with the public. It is imperative that the installation continues with a public affairs campaign.

— **PROJECT 1.1.1:** Attend BCC meetings.

— **PROJECT 1.1.2:** Identify opportunities for individuals to volunteer and provide assistance in the local community. Provide resources and manpower to support and enhance the community's quality of life.

8.17 GEOGRAPHIC INFORMATION SYSTEM

The use of a GIS is to manage and catalog information acquired in natural resources research. The GIS assists in planning by charting areas of environmental concern and providing a baseline for analyzing the potential impacts of any proposed natural resources management action. Managers can implement the capabilities of a GIS to watershed, wetlands, wildlife, and various other natural resource management applications. The USAF is embarking on a common GIS operating system for all bases called GeoBase, where the primary focus is on the local infrastructure. Affected installation operations include communications, operations, safety, civil engineering, public affairs, and more. GeoBase will be fully compliant with the Tri-Service Spatial Data Standards. Selfridge ANGB is currently implementing GeoBase available for natural resources planning.

GIS needs and requirements will be addressed through the ANG GeoBase Program.

GIS GOAL 1: CONTINUED USE, DEVELOPMENT, AND MAINTENANCE OF GEOBASE FOR NATURAL RESOURCES MANAGEMENT.

- **GIS OBJECTIVE 1.1:** Continue to update Natural Resource GeoBase with data as it is collected. Update and digitize natural resources and infrastructure information to allow a comprehensive GIS tool to be used by installation personnel. The GeoBase system must be current, and Selfridge ANGB staff proficient in its use to maximize the benefits of this tool in natural resources management.

  — **PROJECT 1.1.1:** Update the Natural Resources GeoBase as new data or mapping are collected.

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9. INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN IMPLEMENTATION

9.1 INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN IMPLEMENTATION

9.1.1 Implementation

The INRMP Program has been organized to ensure the implementation of year-round, cost-effective management activities and projects that meet the requirements of the installation. The various organizations on the installation that are responsible for implementation of the INRMP are described below.

Installation Stakeholders—The INRMP Working Group will be responsible for the overall implementation of the INRMP. The INRMP Working Group will be comprised of key installation personnel from Selfridge ANGB, in addition to the NGB/A4AM Natural Resources Program Manager who will provide technical assistance when necessary. This INRMP Working Group will assume an oversight role to ensure the effective implementation of this plan.

The Commander of Selfridge ANGB will be the official signatory for the INRMP and the annual reviews. The installation's Natural Resources Manager is responsible for ensuring the activities associated with the implementation of this plan adhere to applicable federal, state, local, and USAF environmental regulations and guidelines. The NGB/A4AM Natural Resources Program Manager tracks DoD and USAF policies, and approves funding for projects and studies identified as a priority in this plan. The NGB/A4AM Natural Resources Program Manager acts as a technical point of contact on all natural resources-related activities. Projects proposed in this plan are reviewed by the installation's Natural Resources Manager and the NGB/A4AM Natural Resources Program Manager. Deviation from the projects proposed in this plan should be independently reviewed by the NGB/A4AM Natural Resources Program Manager.

External Stakeholders—The USFWS and Michigan DNR can provide technical assistance to the installation. Specifically, these agencies will alert the Natural Resources Manager whenever new species that have the potential for inhabiting the installation are added to the federal and state endangered species lists. In addition, these agencies will be involved in the annual review of the INRMP and updates to the INRMP determined to be necessary as a result of changes in environmental conditions or the mission.

9.1.2 Natural Resources Management Staffing

A description of the offices or squadrons responsible for assisting in the portions of the INRMP are described in Section 7.1, Natural Resources Program Management.

9.1.3 Monitoring Integrated Natural Resources Management Plan Implementation

A variety of metrics will be used to measure the extent of INRMP implementation. In general, the Natural Resources Manager will be responsible for implementing the goals, objectives, and

projects described in this INRMP. The following monitoring criteria have been established for each resource management.

- ***Natural Resources Program Management—***Monitoring criteria will include documented completion of the annual coordination meeting with USFWS and Michigan DNR. When the annual INRMP review is conducted, concurrence from the signatory agencies will be obtained, and the INRMP document will be amended accordingly.

- ***Fish and Wildlife Management***—Monitoring criteria will include accessing habitat and wildlife on the installation to ensure healthy populations. In addition, the perimeter fence line will continually be surveyed for evidence of wildlife entry and breaches.

- ***Outdoor Recreation and Public Access to Natural Resources—***Monitoring criteria will include developing a nature trail and monitoring use of the nature trail and other outdoor areas by base personnel.

- ***Conservation Law Enforcement***—Monitoring criteria will include ensuring that Michigan DNR has full access to the installation to enforce natural resource laws.

- ***Threatened and Endangered Species and Habitats Management***—Monitoring criteria will include annual updates of the listed rare, threatened, and endangered species or their habitats occurring on the installation. Management actions will be implemented to avoid or minimize impacts to any listed species or habitats if they occur; consistent with permits.

- ***Water Resource Protection***—Monitoring criteria will include regular inspections of storm water and erosion and sediment control BMPs to ensure proper functioning. These controls and practices are set in place to make sure that impacts to water resources associated with accidental spills and leakage from vehicles and equipment are minimized.

- ***Wetland Protection***—Monitoring criteria for wetlands will include assessing the effectiveness of wetlands management to curtail wetland encroachment. Any unavoidable impacts to wetlands will be fully mitigated and in compliance with regulations.

- ***Grounds Maintenance***—Monitoring criteria will include regular assessment of the use of native species throughout the installation. Drainage patterns will also be monitored to ensure that problems do not occur.

- ***Forest Management***—Monitoring criteria will include regular surveys to determine the health of the trees throughout the installation.

- ***Wildland Fire Management***—Monitoring criteria will include surveys to determine if prescribed burns are an effective measure to manage invasive species and to maintain herbaceous habitat.

- ***Integrated Pest Management***—Monitoring criteria will include ensuring that IPM practices are incorporated into pest management approaches on the installation. The IPM Plan will be updated based on USDA-WS recommendations. After treatment of invasive species and removal of nuisance species, post-monitoring will be implemented to determine the success of the effort.

- ***Bird/Wildlife Aircraft Strike Hazard***—Monitoring criteria will include ensuring that management strategies provided in this INRMP do not result in an increase in BASH.

- ***Coastal Zone and Marine Resources Management***—Monitoring criteria will include examining the integrity of the seawall along Lake St. Clair.

- ***Cultural Resource Protection***—Cultural resources issues will be addressed through the ANG Cultural Resources Management Program.

- ***Public Outreach—***Monitoring criteria will include assessing the overall success of programs offered at the installation.

- ***GIS—***Monitoring will include measuring the effectiveness and accuracy of the Natural Resources GeoBase.

9.2 ANNUAL INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN REVIEW AND COORDINATION REQUIREMENTS

To ensure that this INRMP properly addresses all aspects of the natural resources present on the installation and proposes actions that are in accordance with USAF goals and objectives, this plan and all its components are subject to review by the installation's Environmental Management Office and the NGB/A4AM Natural Resources Program Manager. Similarly, all changes to be incorporated into this plan must be approved by the installation, USFWS, and Michigan DNR.

9.3 INTEGRATED NATURAL RESOURCES MANAGEMENT PLANT UPDATE AND REVISION PROCESS

This INRMP is in effect from the date that all required signatures have been received; however, the Operational Component Plans must be updated annually during preparation of the installations' environmental budgets.

This INRMP should be reviewed internally on an annual basis to assess the recommended management practices in terms of their appropriateness for current conditions at the installation. The INRMP should also be coordinated annually with the USFWS and Michigan DNR. In addition, the INRMP should be updated whenever there is a modification to the installation's missions, or when there is a substantial change to the installation's natural or cultural resources.

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10. ANNUAL WORK PLANS

The purpose of this chapter is to present a road map for the execution of specific actions to achieve management goals and objectives identified in this INRMP.

Under the authority and direction of the Commanding Officer, the Natural Resources Manager provides staff for implementing the INRMP management actions, and the NGB/A4AM Natural Resources Program Manager provides technical assistance when necessary.

Tables 10-1 through 10-5 summarize the management actions identified in Chapter 8 for Selfridge ANGB and propose priorities for their implementation from 2017 through 2021. The actions proposed for this INRMP are aggressive, and might not be accomplished within the established timelines due to a number of factors (e.g., budget and manpower constraints, wartime tasks). However, their importance to the proper management of the installation's natural resources cannot be understated. Therefore, the management actions presented in these tables should be modified as part of the annual review of this INRMP by the INRMP Working Group to ensure that these goals are continually emphasized, and accomplished when practicable.

This INRMP reflects the commitment set forth by Selfridge ANGB to conserve, protect, and enhance the natural resources present on the installation. This INRMP is the final plan that will direct the natural resources management at the installation from Fiscal Years 2017 through 2021. An ecosystem approach was used to develop the management measures for each resource area. Implementation of the management measures will maintain, conserve, and enhance the ecological integrity of the installation and the biological communities occurring on the installation. In addition, the natural resources management measures described in this plan will protect the installation's ecosystems and their components from unacceptable damage or degradation and identify and restore previously degraded habitats.

Natural resources and land use management issues are not the only factors contributing to the development and implementation of the INRMP. Installation management and other seemingly unrelated issues affect the implementation of this Plan. It is of utmost importance to the implementation of this INRMP that installation personnel take "ownership" of the Plan (i.e., individual or organizational primary responsibility to implement the INRMP), provide the necessary resources (i.e., personnel and equipment), and allocate the appropriate funding to enact the Plan. It is extremely important that an INRMP Working Group be established to aid in the continued development of and commitment to the implementation of this INRMP. The INRMP Working Group should be comprised of key installation personnel, and will assume an oversight role to ensure the effective implementation of this plan. Top- and middle-level management representation, as well as representation from several individuals with day-to-day on-installation field experience, will provide the INRMP Working Group with the leadership and structure necessary for the successful implementation of this INRMP.

Any requirement for the obligation of funds for projects in this INRMP shall be subject to the availability of funds appropriated by Congress, and none of the proposed projects shall be interpreted to require obligation or payment of funds in violation of any applicable federal law. Implementation of the actions and projects described in this INRMP are guided by how budget

priorities are assessed for environmental work on DoD installations. This is described in DoDI 4715.03, *Natural Resources Conservation Program*, which implements policy, assigns responsibilities, and prescribes procedures for the integrated management of natural and cultural resources on property under DoD control.

The Office of Management and Budget considers funding for the preparation and implementation of this INRMP, as required by the Sikes Act, to be a high priority; however, the reality is that not all the projects and programs identified in this INRMP will receive immediate funding. As such, these programs and projects have been placed into four priority-based categories:

- Priority 0 – Day-to-day recurring projects
- Priority 1 – High priority projects
- Priority 2 – Medium importance projects
- Priority 3 – Low importance projects.

The prioritization of the projects is based on need, and need is based on a project's importance in moving the natural resources management program closer toward successfully achieving its goal. DoDI 4715.03 defines recurring and non-recurring conservation requirements as follows:

RECURRING AND NON-RECURRING CONSERVATION REQUIREMENTS

Priority 0: Recurring Natural Resources Conservation Management Requirements
a. Administrative, personnel, and other costs associated with managing the DoD Natural Resources Conservation Program that are necessary to meet applicable compliance requirements in federal and state laws, regulations, Eos, and DoD policies, or in direct support of the military mission. b. DoD components shall give priority to recurring natural resources conservation management requirements associated with the operation of facilities, installations, and deployed weapons systems. These activities include day-to-day costs of sustaining an effective natural resources management program, and annual requirements, including manpower, training, supplies, permits, fees, testing and monitoring, sampling and analysis, reporting and recordkeeping, maintenance of natural resources conservation equipment, and compliance self-assessments.
Priority 1 (High): Non-Recurring Natural Resources Management Requirements. Current Compliance.
Includes installation projects and activities to support: a. Installations currently out of compliance (e.g., received an enforcement action from an authorized federal or state agency or local authority). b. Signed compliance agreement or consent order. c. Meeting requirements with applicable federal and state regulations, standards, EOs, or DoD policies. d. Immediate and essential maintenance of operational integrity or military mission sustainment. e. Projects or activities that will be out of compliance if not implemented in the current program year including the following:

RECURRING AND NON-RECURRING CONSERVATION REQUIREMENTS

Priority 1 (High): Non-Recurring Natural Resources Management Requirements. Current Compliance (continued)

i. Environmental analyses for natural resources conservation projects, and monitoring and studies required to assess and mitigate potential impacts of the military mission on conservation resources.

ii. Planning documentation, master plans, compatible development planning, and INRMPs.

iii. Natural resources planning-level surveys.

iv. Reasonable and prudent measures included in incidental take statements of Biological Opinions; biological assessments; surveys; monitoring; reporting of assessment results; or habitat protection for listed, at-risk, and candidate species so that proposed or continuing actions can be modified in consultation with the USFWS or National Marine Fisheries Service.

v. Mitigation to meet existing regulatory permit conditions or written agreements.

vi. Non-point source pollution or watershed management studies or actions needed to meet compliance dates cited in approved state coastal non-point source pollution control plans, as required to meet consistency determinations consistent with Coastal Zone Management.

vii. Wetlands delineations critical for the prevention of adverse impacts on wetlands, so that continuing actions can be modified to ensure mission continuity.

Compliance with missed deadlines established in DoD-executed agreements.

Priority 2 (Medium): Non-Recurring Natural Resources Management Requirements. Maintenance Requirements.

Includes those projects and activities needed to meet an established deadline beyond the current program year and maintain compliance. Examples include the following:

a. Compliance with future deadlines.

b. Conservation, GIS mapping, and data management to comply with federal, state, and local regulations; EOs; and DoD policy.

c. Efforts undertaken in accordance with non-deadline specific compliance requirements of leadership initiatives.

d. Wetlands enhancement to minimize wetlands loss and enhance existing degraded wetlands.

e. Conservation recommendations in biological opinions issued pursuant to the ESA.

RECURRING AND NON-RECURRING CONSERVATION REQUIREMENTS

Priority 3 (Low): Non-Recurring Natural Resources Management Requirements. Enhancement Actions Beyond Compliance.
Includes those projects and activities that enhance conservation resources or the integrity of the installation's mission, or are needed to address overall environmental goals and objectives, but are not specifically required by law, regulation, or EO, and are not of an immediate nature. Examples include: a. Community outreach activities, such as International Migratory Bird Day, Earth Day, National Public Lands Day, Pollinator Week, and Arbor Day activities. b. Educational and public awareness projects, such as interpretive displays, oral histories, Watchable Wildlife areas, nature trails, wildlife checklists, and conservation teaching materials. c. Restoration or enhancement of natural resources when no specific compliance requirement dictates a course, or timing of action. d. Management and execution of volunteer and partnership programs.

Table 10-1. Summary of Selfridge ANGB Management Actions 2018

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Natural Resources Program Management				
NRP – 1.1	**Allow Personnel to Attend Trainings on Natural Resource Management**	2 (Medium)		
NRP – 1.1	**Consider Natural Resources During Planning and Evaluate Impacts**	0 (Reoccurring)		
NRP – 2.1	**Ensure INRMP Goals Are Consistent with Current Management**	1 (High)		
NRP – 2.2	**Conduct Stakeholder Review and Update INRMP**	0 (Reoccurring)		
NRP – 2.3	**Determine if an Update or Revision to the INRMP is Needed**	0 (Reoccurring)		
Fish and Wildlife Management				
FWM – 1.1	**Maintain Nuisance Animal Control and Depredation Permits**	0 (Reoccurring)		
FWM – 2.1	**Manage Habitat to Benefit Multiple Species**	2 (Medium)		
FWM – 2.3	**Allow Access to Ponds for Walleye Stocking Program**	3 (Low)		
FWM – 3.1	**Continue to Inspect Perimeter Fence for Breaches**	2 (Medium)		
Conservation Law Enforcement				
CLE – 1.1	**Michigan DNR to continue Enforcing Natural Resource Regulations**	1 (High)		
Management of Threatened and Endangered Species and Habitats				
TE – 1.1	**Monitor Threatened and Endangered Species and Habitat**	1 (High)		
Water Resources Protection				
WRP – 1.1	**Continue to Manage Soil Erosion Impacts on Water Quality**	0 (Reoccurring)		
WRP – 1.2	**Limit Use of Substances that Contain Pollutants**	2 (Medium)		
WRP – 1.3	**Revegetate Areas of Exposed Soils with Native Flora**	2 (Medium)		
Waters of the U.S./Wetland Protection				
WP – 1.1	**Implement Adaptive Management for Wetland Resources**	2 (Medium)		
WP – 1.2	**Continue to Maintain Herbaceous Habitat in BASH Areas**	1 (High)		
WP – 1.3	**Educate Personnel on Wetland Location and Allowable Activities**	2 (Medium)		
WP – 1.4	**Modify Wetland Habitat near Selfridge ANGB Airfield to Reduce Attractiveness to Wildlife**	1 (High)		
WP – 1.5	**Continue to Develop Storm Water Conveyance Restoration Plan**	1 (High)		
WP – 1.5	**Meet with Michigan DEQ to Reclassify Ditches**	1 (High)		

Table 10-1. Summary of Selfridge ANGB Management Actions 2018

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Grounds Maintenance				
GM – 1.1	**Use Native Landscape Plant Species Adapted to Southeastern Michigan**	2 (Medium)		
GM – 2.1	**Maintain Storm Water Conveyance Channels**	2 (Medium)		
GM – 3.1	**Maintain Herbaceous Habitat to Reduce BASH**	2 (Medium)		
Forest Management				
FM – 1.1	**Conduct Annual Arborist Inspection and Remove Urban Trees in Poor Condition**	2 (Medium)		
Wildland Fire Management				
WFM – 1.1	**Implement Wildland Fire Management Plan**	2 (Medium)		
Integrated Pest Management Program				
IPM – 1.1	**Implement Integrated Pest Management Plan Protocols**	2 (Medium)		
IPM – 1.2	**Eradicate Nuisance Species**	2 (Medium)		
IPM – 1.4	**Continue to Participate in CISMA**	2 (Medium)		
Bird/Wildlife Aircraft Strike Hazard				
BH – 1.1	**Implement BASH Procedures**	2 (Medium)		
BH – 1.1	**Maintain Current USFWS and Michigan DNR Depredation Permits.**	0 (Reoccurring)		
Coastal Zone and Marine Resources Management				
CZ – 1.1	**Maintain Seawall**	2 (Medium)		
Public Outreach				
PO – 1.1	**Attend Base Council Community Meetings**	3 (Low)		
Geographic Information Systems				
GIS – 1.1	**Update Natural Resource GeoBase**	2 (Medium)		

Table 10-2. Summary of Selfridge ANGB Management Actions 2019

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Natural Resources Program Management				
NRP – 1.1	**Allow Personnel to Attend Trainings on Natural Resource Management**	2 (Medium)		
NRP – 1.1	**Consider Natural Resources During Planning and Evaluate Impacts**	0 (Reoccurring)		
NRP – 2.1	**Ensure INRMP Goals Are Consistent with Current Management**	1 (High)		
NRP – 2.2	**Conduct Stakeholder Review and Update INRMP**	0 (Reoccurring)		
NPR – 2.3	**Determine if an Update or Revision to the INRMP is Needed**	0 (Reoccurring)		
Fish and Wildlife Management				
FWM – 1.1	**Maintain Nuisance Animal Control and Depredation Permits**	0 (Reoccurring)		
FWM – 2.1	**Manage Habitat to Benefit Multiple Species**	2 (Medium)		
FWM – 2.2	**Create Pollinator Habitat**	3 (Low)		
FWM – 2.3	**Allow Access to Ponds for Walleye Stocking Program**	3 (Low)		
FWM – 3.1	**Continue to Inspect Perimeter Fence for Breaches**	2 (Medium)		
Outdoor Recreation and Public Access to Natural Resources				
OR – 1.2	**Review and Implement Parking Plan for Open House and Air Show**	3 (Low)		
Conservation Law Enforcement				
CLE – 1.1	**Michigan DNR to continue Enforcing Natural Resource Regulations**	1 (High)		
Management of Threatened and Endangered Species and Habitats				
TE – 1.1	**Monitor Threatened and Endangered Species and Habitat**	1 (High)		
Water Resources Protection				
WRP – 1.1	**Continue to Manage Soil Erosion Impacts on Water Quality**	0 (Reoccurring)		
WRP – 1.2	**Continue to Limit Use of Substances that Contain Pollutants**	2 (Medium)		
WRP – 1.3	**Continue to Revegetate Areas of Exposed Soils with Native Flora**	2 (Medium)		
Waters of the U.S./Wetland Protection				
WP – 1.1	**Implement Adaptive Management for Wetland Resources**	2 (Medium)		
WP – 1.2	**Continue to Maintain Herbaceous Habitat in BASH Areas**	1 (High)		
WP – 1.4	**Modify Wetland Habitat near Selfridge ANGB Airfield to Reduce Attractiveness to Wildlife**	1 (High)		

Table 10-2. Summary of Selfridge ANGB Management Actions 2019

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Grounds Maintenance				
GM – 1.1	**Use Native Landscape Plant Species Adapted to Southeastern Michigan**	2 (Medium)		
GM – 2.1	**Maintain Storm Water Conveyance Channels**	2 (Medium)		
GM – 3.1	**Maintain Herbaceous Habitat to Reduce BASH**	2 (Medium)		
Forest Management				
FM – 1.1	**Conduct Annual Arborist Inspection and Remove Urban Trees in Poor Condition**	2 (Medium)		
FM – 2.1	**Manage Green Ash Trees Affected by Emerald Ash Borer**	2 (Medium)		
Wildland Fire Management				
WFM – 1.1	**Implement Wildland Fire Management Plan**	2 (Medium)		
Integrated Pest Management Program				
IPM – 1.1	**Implement Integrated Pest Management Plan Protocols**	2 (Medium)		
IPM – 1.2	**Eradicate Nuisance Species**	2 (Medium)		
IPM – 1.3	**Conduct an Invasive Species Survey**	2 (Medium)		
IPM – 1.4	**Continue to Participate in CISMA**	2 (Medium)		
Bird/Wildlife Aircraft Strike Hazard				
BH – 1.1	**Implement BASH Procedures**	2 (Medium)		
BH – 1.1	**Maintain Current USFWS and Michigan DNR Depredation Permits.**	0 (Reoccurring)		
Coastal Zone and Marine Resources Management				
CZ – 1.1	**Maintain Seawall**	2 (Medium)		
Public Outreach				
PO – 1.1	**Attend Base Council Community Meetings**	3 (Low)		
Geographic Information Systems				
GIS – 1.1	**Update Natural Resource GeoBase**	2 (Medium)		

Table 10-3. Summary of Selfridge ANGB Management Actions 2020

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Natural Resources Program Management				
NRP – 1.1	**Allow Personnel to Attend Trainings on Natural Resource Management**	2 (Medium)		
NRP – 1.1	**Consider Natural Resources During Planning and Evaluate Impacts**	0 (Reoccurring)		
NRP – 2.1	**Ensure INRMP Goals Are Consistent with Current Management**	1 (High)		
NRP – 2.2	**Conduct Stakeholder Review and Update INRMP**	0 (Reoccurring)		
NPR – 2.3	**Determine if an Update or Revision to the INRMP is Needed**	0 (Reoccurring)		
Fish and Wildlife Management				
FWM – 1.1	**Maintain Nuisance Animal Control and Depredation Permits**	0 (Reoccurring)		
FWM – 2.1	**Manage Habitat to Benefit Multiple Species**	2 (Medium)		
FWM – 2.3	**Allow Access to Ponds for Walleye Stocking Program**	3 (Low)		
FWM – 3.1	**Continue to Inspect Perimeter Fence for Breaches**	2 (Medium)		
Conservation Law Enforcement				
CLE – 1.1	**Michigan DNR to continue Enforcing Natural Resource Regulations**	1 (High)		
Management of Threatened and Endangered Species and Habitats				
TE – 1.1	**Monitor Threatened and Endangered Species and Habitat**	1 (High)		
Water Resources Protection				
WRP – 1.1	**Continue to Manage Soil Erosion Impacts on Water Quality**	0 (Reoccurring)		
WRP – 1.2	**Continue to Limit Use of Substances that Contain Pollutants**	2 (Medium)		
WRP – 1.3	**Continue to Revegetate Areas of Exposed Soils with Native Flora**	2 (Medium)		
Waters of the U.S./Wetland Protection				
WP – 1.1	**Implement Adaptive Management for Wetland Resources**	2 (Medium)		
WP – 1.2	**Continue to Maintain Herbaceous Habitat in BASH Areas**	1 (High)		
WP – 1.4	**Modify Wetland Habitat near Selfridge ANGB Airfield to Reduce Attractiveness to Wildlife**	1 (High)		
WP = 1.5	**Implement Storm Water Conveyance Restoration Plan**	1 (High)		

Table 10-3. Summary of Selfridge ANGB Management Actions 2020

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Grounds Maintenance				
GM – 1.1	**Use Native Landscape Plant Species Adapted to Southeastern Michigan**	2 (Medium)		
GM – 2.1	**Maintain Storm Water Conveyance Channels**	2 (Medium)		
GM – 3.1	**Maintain Herbaceous Habitat to Reduce BASH**	2 (Medium)		
Forest Management				
FM – 1.1	**Conduct Annual Arborist Inspection and Remove Urban Trees in Poor Condition**	2 (Medium)		
Wildland Fire Management				
WFM – 1.1	**Implement Wildland Fire Management Plan**	2 (Medium)		
Integrated Pest Management Program				
IPM – 1.1	**Implement Integrated Pest Management Plan Protocols**	2 (Medium)		
IPM – 1.2	**Eradicate Nuisance Species**	2 (Medium)		
IPM – 1.3	**Develop a Non-Native and Invasive Species Management Plan**	2 (Medium)		
IPM – 1.4	**Continue to Participate in CISMA**	2 (Medium)		
Bird/Wildlife Aircraft Strike Hazard				
BH – 1.1	**Implement BASH Procedures**	2 (Medium)		
BH – 1.1	**Maintain Current USFWS and Michigan DNR Depredation Permits.**	0 (Reoccurring)		
Coastal Zone and Marine Resources Management				
CZ – 1.1	**Maintain Seawall**	2 (Medium)		
Public Outreach				
PO – 1.1	**Attend Base Council Community Meetings**	3 (Low)		
Geographic Information Systems				
GIS – 1.1	**Update Natural Resource GeoBase**	2 (Medium)		

Table 10-4. Summary of Selfridge ANGB Management Actions 2021

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Natural Resources Program Management				
NRP – 1.1	**Allow Personnel to Attend Trainings on Natural Resource Management**	2 (Medium)		
NRP – 1.1	**Consider Natural Resources During Planning and Evaluate Impacts**	0 (Reoccurring)		
NRP – 2.1	**Ensure INRMP Goals Are Consistent with Current Management**	1 (High)		
NRP – 2.2	**Conduct Stakeholder Review and Update INRMP**	0 (Reoccurring)		
NPR – 2.3	**Determine if an Update or Revision to the INRMP is Needed**	0 (Reoccurring)		
Fish and Wildlife Management				
FWM – 1.1	**Maintain Nuisance Animal Control and Depredation Permits**	0 (Reoccurring)		
FWM – 2.1	**Manage Habitat to Benefit Multiple Species**	2 (Medium)		
FWM – 2.3	**Allow Access to Ponds for Walleye Stocking Program**	3 (Low)		
FWM – 3.1	**Continue to Inspect Perimeter Fence for Breaches**	2 (Medium)		
Outdoor recreation and Public Access to Natural Resources				
OR – 1.1	**Coordinate with Macomb County and Establish an Interpretive Nature Trail**	3 (Low)		
OR – 1.2	**Review and Implement a Parking Plan for Open House and Air Show**	3 (Low)		
Conservation Law Enforcement				
CLE – 1.1	**Michigan DNR to continue Enforcing Natural Resource Regulations**	1 (High)		
Management of Threatened and Endangered Species and Habitats				
TE – 1.1	**Monitor Threatened and Endangered Species and Habitat**	1 (High)		
TE – 1.2	**Conduct Threatened and Endangered Species Survey**	1 (High)		
Water Resources Protection				
WRP – 1.1	**Continue to Manage Soil Erosion Impacts on Water Quality**	0 (Reoccurring)		
WRP – 1.2	**Continue to Limit Use of Substances that Contain Pollutants**	2 (Medium)		
WRP – 1.3	**Continue to Revegetate Areas of Exposed Soils with Native Flora**	2 (Medium)		
Waters of the U.S./Wetland Protection				
WP – 1.1	**Implement Adaptive Management for Wetland Resources**	2 (Medium)		
WP – 1.2	**Continue to Maintain Herbaceous Habitat in BASH Areas**	1 (High)		
WP – 1.3	**Educate Personnel on Wetland Location and Allowable Activities**	2 (Medium)		

Table 10-4. Summary of Selfridge ANGB Management Actions 2021

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
WP – 1.4	**Modify Wetland Habitat near Selfridge ANGB Airfield to Reduce Attractiveness to Wildlife**	1 (High)		
Grounds Maintenance				
GM – 1.1	**Use Native Landscape Plant Species Adapted to Southeastern Michigan**	2 (Medium)		
GM – 2.1	**Maintain Storm Water Conveyance Channels**	2 (Medium)		
GM – 3.1	**Maintain Herbaceous Habitat to Reduce BASH**	2 (Medium)		
Forest Management				
FM – 1.1	**Conduct Annual Arborist Inspection and Remove Urban Trees in Poor Condition**	2 (Medium)		
FM – 2.1	**Manage Green Ash Trees Affected by Emerald Ash Borer**	2 (Medium)		
Wildland Fire Management				
WFM – 1.1	**Implement Wildland Fire Management Plan**	2 (Medium)		
Integrated Pest Management Program				
IPM – 1.1	**Implement Integrated Pest Management Plan Protocols**	2 (Medium)		
IPM – 1.2	**Eradicate Nuisance Species**	2 (Medium)		
IPM – 1.4	**Continue to Participate in CISMA**	2 (Medium)		
Bird/Wildlife Aircraft Strike Hazard				
BH – 1.1	**Implement BASH Procedures**	2 (Medium)		
BH – 1.1	**Maintain Current USFWS and Michigan DNR Depredation Permits.**	0 (Reoccurring)		
Coastal Zone and Marine Resources Management				
CZ – 1.1	**Maintain Seawall**	2 (Medium)		
Public Outreach				
PO – 1.1	**Attend Base Council Community Meetings**	3 (Low)		
Geographic Information Systems				
GIS – 1.1	**Update Natural Resource GeoBase**	2 (Medium)		

Table 10-5. Summary of Selfridge ANGB Management Actions 2022

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Natural Resources Program Management				
NRP – 1.1	**Allow Personnel to Attend Trainings on Natural Resource Management**	2 (Medium)		
NRP – 1.1	**Consider Natural Resources During Planning and Evaluate Impacts**	0 (Reoccurring)		
NRP – 2.1	**Ensure INRMP Goals Are Consistent with Current Management**	1 (High)		
NRP – 2.2	**Conduct Stakeholder Review and Update INRMP**	0 (Reoccurring)		
NPR – 2.3	**Determine if an Update or Revision to the INRMP is Needed**	0 (Reoccurring)		
Fish and Wildlife Management				
FWM – 1.1	**Maintain Nuisance Animal Control and Depredation Permits**	0 (Reoccurring)		
FWM – 2.1	**Manage Habitat to Benefit Multiple Species**	2 (Medium)		
FWM – 2.3	**Allow Access to Ponds for Walleye Stocking Program**	3 (Low)		
FWM – 3.1	**Continue to Inspect Perimeter Fence for Breaches**	2 (Medium)		
Outdoor Recreation and Public Access to Natural Resources				
OR – 1.2	**Review and Implement a Parking Plan for Open House and Air Show**	3 (Low)		
Conservation Law Enforcement				
CLE – 1.1	**Michigan DNR to continue Enforcing Natural Resource Regulations**	2 (Medium)		
Management of Threatened and Endangered Species and Habitats				
TE – 1.1	**Monitor Threatened and Endangered Species and Habitat**	1 (High)		
TE – 1.2	**Conduct a Threatened and Endangered Species Survey**	1 (High)		
TE – 1.2	**Prepare a Threatened and Endangered Species Management Plan**	1 (High)		
Water Resources Protection				
WRP – 1.1	**Continue to Manage Soil Erosion Impacts on Water Quality**	0 (Reoccurring)		
WRP – 1.2	**Continue to Limit Use of Substances that Contain Pollutants**	2 (Medium)		
WRP – 1.3	**Continue to Revegetate Areas of Exposed Soils with Native Flora**	2 (Medium)		
Waters of the U.S./Wetland Protection				
WP – 1.1	**Implement Adaptive Management for Wetland Resources**	2 (Medium)		
WP – 1.2	**Continue to Maintain Herbaceous Habitat in BASH Areas**	1 (High)		
WP – 1.4	**Modify Wetland Habitat near Selfridge ANGB Airfield to Reduce Attractiveness to Wildlife**	1 (High)		
WP – 1.5	**Work with Michigan DEQ to Reclassify Ditches**	1 (High)		

Table 10-5. Summary of Selfridge ANGB Management Actions 2022

Objective No.	Projects	Priority Level	Completed (Date)	Notes (include actions and dates)
Grounds Maintenance				
GM – 1.1	**Use Native Landscape Plant Species Adapted to Southeastern Michigan**	2 (Medium)		
GM – 2.1	**Maintain Storm Water Conveyance Channels**	2 (Medium)		
GM – 3.1	**Maintain Herbaceous Habitat to Reduce BASH**	2 (Medium)		
Forest Management				
FM – 1.1	**Conduct Annual Arborist Inspection and Remove Urban Trees in Poor Condition**	2 (Medium)		
FM – 2.1	**Manage Green Ash Trees Affected by Emerald Ash Borer**	2 (Medium)		
Wildland Fire Management				
WFM – 1.1	**Implement Wildland Fire Management Plan**	2 (Medium)		
Integrated Pest Management Program				
IPM – 1.1	**Implement Integrated Pest Management Plan Protocols**	2 (Medium)		
IPM – 1.2	**Eradicate Nuisance Species**	2 (Medium)		
IPM – 1.4	**Continue to Participate in CISMA**	2 (Medium)		
Bird/Wildlife Aircraft Strike Hazard				
BH – 1.1	**Implement BASH Procedures**	2 (Medium)		
BH – 1.1	**Maintain Current USFWS and Michigan DNR Depredation Permits.**	0 (Reoccurring)		
Coastal Zone and Marine Resources Management				
CZ – 1.1	**Maintain Seawall**	2 (Medium)		
Public Outreach				
PO – 1.1	**Attend Base Council Community Meetings**	3 (Low)		
Geographic Information Systems				
GIS – 1.1	**Update Natural Resource GeoBase**	2 (Medium)		

11. ENVIRONMENTAL CONSEQUENCES

This section of the document assesses known, potential, and reasonably foreseeable environmental consequences related to implementing the INRMP, WFMP, and Storm Water Facilities – Conveyance Restoration Plan, and managing natural resources at Selfridge ANGB. Section 11.1 addresses implementation of the No Action Alternative that reflects the continuation of existing baseline conditions as described in Chapters 3, 4, and 5. Section 11.2 presents potential effects in the context of the scope of the Proposed Action and in consideration of the affected environment. This assessment presents resource areas adapted from the resources described in Chapters 3, 4, and 5, as well as resource areas requiring assessment pursuant to AFI 32-7061, *Environmental Impact Analysis Process* (e.g., socioeconomics and environmental justice). It also considers implementation of the selected management measures in their entirety (as presented in Chapters 8 and 9). A summary of the potential environmental consequences associated with the No Action Alternative and the Proposed Action is presented in Sections 11.1 and 11.2. Implementation of the INRMP, WFMP, and Storm Water Facilities – Conveyance Restoration Plan is Selfridge ANGB's preferred alternative. Cumulative effects are discussed in Section 11.3.

11.1 NO ACTION ALTERNATIVE

Adoption of the No Action Alternative would mean that Selfridge ANGB's INRMP and associated Plans would not be implemented and current natural resource management practices would continue "as is." Existing conditions and management practices would continue, and no new initiatives would be established.

Potential consequences associated with the No Action Alternative are discussed in this section for each resource area. Section 11.3 summarizes the analysis of potential consequences for the No Action Alternative and compares them to the Proposed Action. Under the No Action Alternative, the environmental conditions at Selfridge ANGB would not benefit from the management measures associated with implementing the INRMP.

Expected consequences of the No Action Alternative for each resource area are presented in the following paragraphs:

- *Air Quality* – The primary concern regarding the potential environmental effects on air quality are exceedances of NAAQS and other federal, state, and local limits; and impacts on existing air permits. Current natural resources management actions do not involve activities that would contribute to the changes in existing air quality. Therefore, there would be no effects regarding air quality as a result of implementation of the No Action Alternative.

- *Noise* – The primary concern regarding noise and potential environmental effects pertains to increases in sound levels, exceedances of acceptable land use compatibility guidelines, and changes in public acceptance (i.e., noise complaints). Potential effects are precluded by the fact that current natural resource management actions do not involve activities that would affect noise conditions. Existing noise levels would not change. Therefore, there

would be no effects regarding noise levels or sound quality as a result of implementation of the No Action Alternative.

- *Geologic Resources* – By failing to implement an effective soil erosion and sedimentation program, minor adverse effects to geologic resources would be expected due to erosion and sedimentation. The No Action Alternative does not include the implementation of soil conservation measures, or a plan of action to prevent or minimize erosion and sedimentation before it occurs. Implementation of the No Action Alternative would involve reactive management to problems after their occurrence, rather than on managing the resource to prevent impacts.

- *Water Resources* – The No Action Alternative does not provide a formal plan of action for monitoring and protecting the water resources at Selfridge ANGB. The water resources are vulnerable to degradation without the implementation of a formal plan of action that includes watershed protection measures, nonpoint source pollution controls, and a comprehensive monitoring program designed to identify water quality problems at their onset. Minor adverse impacts to water resources would be expected to continue.

- *Wetlands* – The No Action Alternative does not provide a formal plan for evaluation and monitoring of wetland habitat conditions nor does it establish formal protection measures to prevent or minimize potential impacts that could result from training and other mission-related activities. The WFMP would not be implemented. Wetlands would not be maintained as herbaceous habitat and would therefore create BASH hazards within the transition, approach, and clear zones. In addition, the No Action Alternative would not include the implementation of the Storm Water Facilities – Conveyance Restoration Plan. Wetlands associated with the storm water conveyance channels would not be maintained and would continue to cause drainage issues on the airfield. Moderate adverse impacts to wetlands would occur under the No Action Alternative.

- *Floodplains and Coastal Zones* – The No Action Alternative does not provide for maintenance of the seawall along Lake St. Clair which protects the installation and natural resources during a flood event. Impacts to the floodplain and coastal zone would be minor and adverse under the No Action Alternative.

- *Vegetation* – Under the No Action Alternative, vegetation would not be maintained or conserved. Minor adverse impacts to vegetation would occur as healthy vegetative communities would not be maintained. In addition, vegetation would not be maintained within the transition, approach, and clear zones, creating safety and BASH issues.

- *Wildlife* – Under the No Action Alternative, management measures to maintain wildlife and the biodiversity of wildlife within Selfridge ANGB would not occur. In addition, management measures to protect wildlife habitat as allowed would not be implemented. Impacts to wildlife would be minor and adverse.

- *Threatened and Endangered Species* – Under the No Action Alternative, the state-listed species found at Selfridge ANGB would not be protected or managed. Implementation of

the No Action Alternative would continue to leave these species vulnerable to potential impacts that could adversely affect their existence on the installation. Impacts to threatened and endangered species would be minor and adverse.

- *Land Use* – Under the No Action Alternative, no changes to onsite land uses or land use patterns would occur. Because land uses would not be expected to change on the installation, land use patterns in the surrounding area would not be affected. No impacts to land use are expected.

- *Hazardous and Toxic Materials* – Hazardous and toxic materials would continue to be handled in accordance with federal laws and AFIs, including RCRA, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Toxic Substances Control Act (TSCA), and AFI 32-4002. Hazardous Material Emergency Planning and Response Program. Therefore, no adverse impacts regarding the generation of hazardous and toxic materials would be expected under the No Action Alternative.

- *Socioeconomics* – Under the No Action Alternative, typical changes in population, housing, and economic conditions would continue. The No Action Alternative does not involve activities that change existing socioeconomic resources; therefore, no impacts are expected.

- *Environmental Justice* – The primary concern regarding environmental justice and potential environmental effects pertains to disproportionately high and adverse consequences to minority or low-income communities. The No Action Alternative in itself does not create any advantage or disadvantage for any group or individual, and is not expected to create disproportionately high or adverse human health or environmental effects on minority or low-income populations or communities at, or surrounding, Selfridge ANGB.

- *Cultural Resources* – The No Action Alternative would not lead to any actions that have the potential to significantly affect cultural resources, tribal resources, tribal rights, or Indian lands. Overall, no impacts to cultural resources would occur.

- *Public Health and Safety* – The No Action Alternative would lead to moderate adverse impacts to public health and safety. The inability to maintain storm water conveyances and properly manage habitat within the Clear Zones and Airfield Management Areas would create BASH issues. An increase in BASH issues would have an adverse impact on flight safety.

11.2 PROPOSED ACTION (PREFERRED ALTERNATIVE)

Potential consequences associated with the Proposed Action are discussed in this section for each resource area. Section 11.3 summarizes the analysis of potential consequences for the Proposed Action and compares them to the No Action Alternative. Potential environmental consequences associated with implementation of the INRMP, including the WFMP and Storm Water Facilities – Conveyance Restoration Plan would result in either no effects, minor adverse effects, or beneficial effects for each resource area. The Proposed Action would enable Selfridge ANGB

to achieve its goal of maintaining ecosystem viability while ensuring sustainability of desired military training conditions. Compared to the No Action Alternative, environmental conditions at Selfridge ANGB would improve as a result of implementing the proposed INRMP and associated plans. Therefore, implementing the INRMP (Proposed Action) is the Preferred Alternative.

Expected consequences of the Proposed Action for each resource area are presented in the following paragraphs:

- *Air Quality* – The primary concern regarding the potential environmental effects on air quality are exceedances of NAAQS and other federal, state, and local limits; and impacts on existing air permits. Examples of activities that would result in potential adverse changes in air quality conditions include changes in military equipment, increase in the number and location of personnel, construction of new facilities or modification of existing facilities, or an increase or change in military operations. Implementation of the INRMP does not include activities that would contribute to changes in the existing air quality conditions. However, the implementation of the WFMP would have adverse impacts to air quality. The major air pollutant of concern associated with prescribed burns is the smoke produced. Smoke from prescribed fires contains a mixture of carbons, tars, liquids, and various gases. The major pollutants include carbon monoxide, volatile organics, and particulates. Depending on combustion temperatures, nitrogen oxides are emitted at rates of from 1 to 4 grams per kilogram burned and emissions of sulfur dioxides are negligible. Particulate matter of widely ranging size is produced from the open combustion source and depends on the rate of energy release of the fire. Smoke management is the largest concern with implementing prescribed fire at Selfridge ANGB. Smoke associated with the wildfires could impact visibility and could create health and human safety issues. However, since the prescribed fires would be small in scale and various preventative measures would be implemented for smoke management, impacts to air quality would be minor and adverse. Smoke plume modeling and notifications would be performed for every planned burn.

- *Noise* – The primary concern regarding noise and potential environmental effects pertains to increases in sound levels, exceedances of acceptable land use compatibility guidelines, and changes in public acceptance (i.e., noise complaints). Implementation of the INRMP, including the WFMP, and the Storm Water Facilities – Conveyance Restoration Plan, would not involve activities that would impact noise conditions, such as changes in military equipment (aircraft), increase in the number or location of personnel, construction of new facilities or modification of existing facilities, or change in military operations. Therefore, impacts to noise levels are not expected.

- *Geologic Resources* – Implementation of the INRMP would create beneficial impacts to geologic resources. The INRMP includes revegetating areas with exposed soils and managing base operations to minimize soil erosion and sedimentation. The implementation of prescribed burns would have minor adverse impacts to soil properties including soil structure, texture, porosity, wetability, infiltration rates, and water holding capacity. Impacts to soil would depend on the intensity of the prescribed burns. Lower intensity fires would have less impact when compared to high intensity fires as they do

not cause enough soil heating to create significant changes to soil properties. Impacts could be short-term, lasting only one season, or long-term, lasting up to a decade. This would also be dependent on the intensity of the fire.

- *Water Resources* – Implementation of the INRMP would create beneficial impacts to water resources. The INRMP includes goals and objectives to minimize impacts on waterbodies by reducing the potential for water quality degradation both within and downstream of Selfridge ANGB. Proper application of turf management chemicals, fungicides, and insecticides would minimize the potential impacts on waterbodies associated with the use of these chemicals at the installation. In addition, the maintenance of the storm water conveyance system would create beneficial impacts to water resources. Maintenance would restore the function and capacity of the storm water ditch system at Selfridge ANGB.

  Impacts to water resources associated with prescribed burns would be short-term, negligible, and adverse. Following the prescribed burns, there is potential for a slight increase in storm water runoff which could reduce water quality. Storm water runoff may carry suspended soil particles and dissolved inorganic nutrients into adjacent or nearby water bodies.

- *Wetlands* – The implementation of the INRMP and the WFMP would create minor adverse impacts to wetlands. Impacts would be expected on forested wetlands as a result of the modification of wetland habitats within the airfield management areas. Modification of wetland habitats in the airfield management areas would occur to address BASH and clear zone requirements prescribed in AFI 32-7064. Deforested areas in proximity to the airfield and storm water conveyances within wetlands would be maintained as emergent or grassland marsh habitat. No filling of wetland habitat would occur, so no loss of wetland acreage would be expected. All necessary permits would be obtained from Michigan DEQ prior to the commencement of any action. Forested wetland habitat within the Clear Zones and Airfield Management Areas has been clear-cut and converted to herbaceous wetlands. Maintaining the clear-cut wetland areas in an early successional state would enhance the safety of the flying mission. Implementation of the Storm Water Facilities – Conveyance Restoration Plan would require permit exempted activities such as maintenance of county drains or roadside ditches. Minor adverse impacts to wetlands would result during maintenance activities from the removal of sediment buildup and blockage of vegetation that impedes flows. Removal of sediment and vegetation would only be to the extent that these systems were originally designed.

  Implementation of the INRMP would also create beneficial impacts to wetlands. The INRMP includes goals and objectives for adaptive management strategies to conserve and minimize impacts to the installation's wetland resources. While taking bird/wildlife hazards into account, wetland buffer zones would be maintained and water quality management procedures would be implemented that protect wetlands from excessive nonpoint source runoff. In addition, development and training activities would avoid wetland areas to the maximum extent possible. Implementation of the Storm Water Facilities – Conveyance Restoration Plan may require wetland mitigation. If required,

wetland credits would be purchased for offsite wetland mitigation. The purchase of wetland credits would have beneficial impacts for offsite wetlands.

- *Floodplains and Coastal Zones* – Implementation of the INRMP would create beneficial impacts to the floodplain and coastal zone. Selfridge ANGB would continue to maintain the integrity of the riprap and berm along Lake St. Clair to ensure the seawall is functioning properly.

- *Vegetation* – Implementation of the INRMP would create beneficial impacts to vegetation. The INRMP includes continuing the removal and/or treatment of urban trees in poor health. In addition, areas void of vegetation and landscaped areas would be planted with native grass, shrubs, and trees. The implementation of the WFMP would also create beneficial impacts to vegetation. Prescribed fire would be used to manage invasive species including *Phragmites* sp.

  The implementation of the WFMP would also create long-term minor adverse impacts. Prescribed fire would be used to maintain/manage forested wetlands as herbaceous wetlands. Adverse impacts are expected as trees within forested areas would be removed. In the long term, herbaceous vegetation would be re-established.

- *Wildlife* – The implementation of the INRMP would create beneficial impacts to wildlife. One goal of the INRMP is to enhance habitat to support a variety of wildlife species. Beneficial management actions for wildlife would be implemented as appropriate. Management actions could include improving aquatic habitat by maintaining healthy vegetative buffers, preserving snags and trees for nesting birds, and leaving migratory bird nests undisturbed. If wetland mitigation is required due to the implementation of the Storm Water Facilities Conveyance Restoration Plan, wetland credits would be purchased for offsite mitigation. Offsite wetland mitigation would also create beneficial impacts for wildlife through the enhancement of existing wetlands or creation of new wetland areas.

  Implementation of the WFMP would create minor adverse impacts to wildlife. In general, most wildlife easily escape wildfires as ignition patterns provide escape routes as the fire progresses. Larger mammals such as deer or fox are able to outrun the fire, while smaller animals will find shelter in burrows, under logs, or in wet areas. Following the prescribed burns, wildlife would likely return to the area. Some bird nests may be destroyed during prescribed fires; however, to minimize this impact, prescribed burns would occur outside of the nesting period. Consideration would be given to nesting birds, amphibians, and reptiles before burning anytime other than during the winter.

- *Threatened and Endangered Species* – Implementation of the INRMP would create beneficial impacts to threatened and endangered species. State-listed species found within Selfridge ANGB would be monitored in addition to their habitat to ensure that no adverse impacts occur to each species. In addition, a Threatened and Endangered Species Survey would be conducted every 5 years to determine if any new listed species are occurring on the installation. Implementation of the WFMP has the potential to create adverse impacts to the state-listed species at Selfridge ANGB; however, BMPs would be

implemented to reduce the potential for impacts. Prior to a prescribed burn, staff would ensure that no listed species are located within the burn area.

- *Land Use* – The implementation of the INRMP would create no impacts to land use. No changes to the land use at Selfridge ANGB are expected with implementation of the INRMP and associated plans.

- *Hazardous and Toxic Materials* – The implementation of the WFMP would have negligible adverse impacts to hazardous and toxic materials. Hazardous materials are used during prescribed burns and hazardous wastes are generated. All hazardous materials would be in accordance with Federal laws and AFIs, including RCRA, FIFRA, TSCA, and AFI 32-4002. In addition, all hazardous materials and wastes would be stored in appropriate containers and any hazardous waste generated during the prescribed burns would be disposed of properly. Because of these BMPs, impacts would be negligible.

- *Socioeconomics* – Implementation of the INRMP and associated plans would have no impact on socioeconomics. The primary concern regarding potential effects on socioeconomic resources pertains to changes in population, housing, and economic conditions. The implementation of the INRMP does not involve any activities that would contribute to the changes in socioeconomic resources.

- *Environmental Justice* – Implementation of the INRMP and associated plans would have no impact on environmental justice. The primary concern regarding environmental justice and potential environmental effects pertains to disproportionately high and adverse consequences to minority or low-income communities. Implementation of the INRMP would not create any advantage or disadvantage for any group or individual. The proposed INRMP and associated plans are not expected to create disproportionately high or adverse human health or environmental effects on minority or low-income populations or communities at or surrounding Selfridge ANGB. Prior to initiating prescribed burns, Selfridge ANGB would inform the public of the prescribed fire program through news releases, interpretive messages, and educational programs. Special notifications would be made for neighbors with known physical ailments that could be adversely affected by smoke. The installation would address any project-specific issues regarding disproportionate adverse health or environmental effects on minority or low-income groups, should they arise, and would use best environmental management practices to ensure compliance with applicable regulatory requirements. Therefore, no impact to environmental justice is expected.

- *Cultural Resources* – Implementation of the INRMP and associated plans would have no impact on cultural resources. Management goals and objectives within the INRMP do not lead to any actions that have potential to significantly affect cultural resources, tribal resources, tribal rights, or Indian lands for which the threshold of consideration is the 27 October 1999 Annotated DoD American Indian and Alaska Native Policy.

- *Public Health and Safety* – Implementation of the INRMP and associated plans would have a beneficial impact to public health and safety. The maintenances of the storm

water conveyances and management of habitat within the Clear Zones and Airfield Management Areas would reduce BASH risk and increase flight safety.

The implementation of the WFMP would have negligible impacts to public health and safety. Firefighter and public safety is the first priority of the WFMP and all associated activities. Only trained and certified employees would participate in the prescribed burns. The smoke associated with prescribed burns has the potential to impact health and human safety. However, impacts would be negligible because smoke management BMPs would be implemented.

11.3 CUMULATIVE EFFECTS

A cumulative effect is defined as an effect on the environment that results from the incremental effect of the action when added together with past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place locally or regionally over a period of time.

Implementation of the INRMP would result in a comprehensive natural resources management strategy for Selfridge that represents compliance, restoration, prevention, and conservation; improves the existing management approach for natural resources on the installation; and meets legal and policy requirements consistent with national natural resources management philosophies. Implementation would be expected initially to improve existing environmental conditions at Selfridge ANGB, as shown by the potential for beneficial impacts in Table 11-1 below and as described in Section 11.3. Over time, implementation of the INRMP would enable Selfridge ANGB to achieve their goal of maintaining ecosystem viability and ensuring sustainability of desired military training conditions.

Although growth and development can be expected to continue outside of Selfridge ANGB and within the surrounding natural areas, cumulative adverse effects on these resources would not be expected when added to the effects of activities associated with the proposed management measures contained in the INRMP.

Table 11-1. Summary of Potential Environmental Consequences

Resource	Environmental Consequences	
	No Action Alternative	**Proposed Action**
Air Quality	No impact	Minor adverse impacts
Noise	No impact	No impact
Geology/Soils	Minor adverse impacts	Beneficial impacts Minor adverse impacts
Water	Minor adverse impacts	Beneficial impacts Negligible adverse impacts
Wetlands	Moderate adverse impacts	Minor adverse impacts Beneficial impacts
Floodplains and Coastal Zone	Minor adverse impacts	Beneficial impacts
Vegetation	Minor adverse impacts	Beneficial impacts Minor adverse impacts
Wildlife	Minor adverse impacts	Beneficial impacts Minor adverse impacts
Threatened and Endangered Species	Minor adverse impacts	Beneficial impacts
Land Use	No impact	No impact
Hazardous and Toxic Materials	No impact	Negligible adverse impacts
Socioeconomic	No impact	No impact
Environmental Justice	No impact	No impact
Cultural	No impact	No impact
Public Health and Safety	Moderate adverse impact	Beneficial and negligible impacts

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12. APPENDIX

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13. ASSOCIATED AND COMPONENT PLANS

COMPONENT PLAN A: BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH) PLAN

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