

Module IV – Incorporating the State Wildlife Action Plan (SWAP) into the Environmental Review Process

This module provides a brief description of how to incorporate Minnesota’s State Wildlife Action Plan as part of the Environmental Review process.

Minnesota’s State Wildlife Action Plan *Tomorrow’s Habitat for the Wild and Rare*

Recognizing the vast unmet needs of our nation’s wildlife resource, Congress created the Conservation and Restoration Program and the State Wildlife Grants Program in 2000. As a requirement Congress asked each state wildlife agency to develop a “comprehensive wildlife conservation strategy”—a wildlife *action* plan—that evaluates wildlife conservation needs and outlines the necessary action steps. While the action plans share a common framework, they are tailored to each state’s unique wildlife, habitat, and conservation needs.

The State Wildlife Action Plans (SWAP) build on the tremendously successful fish and game programs of the 20th century that were focused on species that were hunted and fished. These programs include the 1937 Wildlife Restoration Act (also known as the Pittman-Robertson Act) that established a user fee in the form of an excise tax on hunting equipment to conserve game species and assure conservation of their habitats, and the Sport Fish and Restoration Act of 1950, which extended the user fee to fishing gear with a focus on restoring fisheries. In 1973, Congress specifically addressed species on the brink of extinction with the passage of the Endangered Species Act.

While successful, these programs cover only about 15% of our wildlife species. Approximately 85% of our wildlife lack adequate conservation resources. Recognizing that recovery of species is much more costly than addressing habitat needs before a species reaches the need for listing, Congress has given states the opportunity to address the needs of all wildlife species through the establishment of SWAPs and the State Wildlife Grants Program (SWG). The SWAPs are revitalizing conservation in America. Never before have scientists, conservationists, and communities come together at this scale to pursue common conservation goals.

Paper copies of Minnesota’s SWAP have been provided to each of the region offices. The plan is also available on the DNR website at <http://www.dnr.state.mn.us/cwcs/index.html>.

Overview

The DNR and its partners developed Minnesota’s State Wildlife Action Plan (SWAP), called *Tomorrow’s Habitat for the Wild and Rare*, as a tool to guide wildlife conservation as population growth and its demands for goods and services place added pressures on the state’s natural resources. The SWAP provides a strategic framework to direct and inform habitat conservation efforts throughout the state, placing particular emphasis on species in greatest conservation need

(SGCN). SGCN are defined as species whose populations are rare, declining, or vulnerable to decline and are below levels desirable to ensure their long-term health and stability.

Swap Goals to Keep in Mind

1. Stabilize and increase SGCN populations
 2. Improve knowledge about SGCN
 3. Enhance people's appreciation and enjoyment of SGCN
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Environmental Review plays a critical role in protecting and maintaining biodiversity through the formal review process associated with the federal and state endangered species acts, the Minnesota and National Environmental Policy Acts, and the Minnesota Wetlands Conservation Act, and also through early project coordination and permitting. The DNR Environmental Review Program has always addressed potential impacts of development proposals on threatened and endangered species; however, these represent only a subset of SGCN. Minnesota's SWAP focuses on all SGCN and the key habitats that support them, and can be used as a tool to guide, direct, and inform environmental review efforts throughout the state. A purpose of this Environmental Review Guide, and this module in particular, is to implement Minnesota's SWAP and explicitly link the need to protect SGCN to the department's environmental review efforts.

SWAP Related Goals for the Environmental Review Process

Environmental review should achieve the following SWAP-related goals:

- Avoidance of key habitats
 - Minimal impact on biodiversity
 - No net loss of ecosystems, species populations, or genetic diversity
 - Avoidance of irreversible losses
 - No effect on the sustainable use of biological resources (e.g., the sustainable use of groundwater is the use of water to provide for the needs of society, now and in the future, without unacceptable social, economic, or environmental consequences)
 - Maintenance of natural processes and adequate habitat
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Minnesota's SWAP identifies 292 SGCN in the state, and each of the species was evaluated to determine the factors influencing their rarity, vulnerability, or decline (SWAP, 60). The results of this species problem analysis indicated that habitat loss and degradation are the most significant challenges facing Minnesota's SGCN. Other significant factors include invasive species and competition, pollution, and social tolerance/persecution or exploitation.

In addition to the species assessment, a statewide look at species-habitat relationships identified 16 key habitats in state. Key habitats are defined as the habitats most important to the greatest number of SGCN. The analysis determined that prairies, rivers, and wetlands are the top three key habitats used by the most SGCN. These are also the habitats that have experienced some of the greatest loss and degradation in the state (SWAP, 30). An important tenet of Minnesota's

SWAP is to conserve quality habitat *before* restoring habitat that has been lost or degraded. The cost of restoration is many times greater than proactive conservation. The overarching goal of Minnesota's SWAP is to conserve key habitats used by SGCN in order to conserve the majority of Minnesota's wildlife species. Once high-quality habitat has been conserved, it is important to buffer, connect, and restore adjacent areas. Understanding the relationships among these habitats will allow them to be managed within their broader ecological context.

Organizing Framework

Minnesota’s SWAP identifies specific key habitats to be conserved and enhanced in each of Minnesota’s 25 ecological subsections (see <http://www.dnr.state.mn.us/ecs/index.html>). It also describes the key habitats relative to the ecological subsection, focusing on the important components of the habitats, both in terms of habitat quality and features important to SGCN. Reviewers should be aware that key habitats are specific to subsection and are not found everywhere in the state. For example, the key habitats in the Big Woods subsection are forest-upland deciduous (aspen-oak), forest-upland deciduous (hardwood), oak savanna, wetland-nonforested, grassland, shoreline-dunes-cliff/talus, lake-shallow, river-headwater to large, and river-very large. In contrast, key habitats in the Chippewa Plains subsection are forest-upland coniferous, shrub/woodland-upland, wetland-nonforested, and river-headwater to large.

DNR reviewers should keep in mind that Minnesota’s SWAP is a landscape-based (ECS subsection) approach, while watersheds are a primary unit for the Division of Ecological and Water Resources. *Until the DNR develops a framework to crosswalk these units, reviewers of plans and projects will need to think and operate in both systems.* Obviously for aquatic SGCN, the watershed unit will be more applicable, effective, and informative. At other times habitat distribution and connectivity across watershed boundaries may take on greater significance, particularly when considering terrestrial migrating species or terrestrial species that require access to a diversity of habitat types at different stages in their life history.

Essential Elements of the SWAP to Assist Reviewers

- List of SGCN by ecological subsection (Appendix E)
http://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/chapters_appendix/appendix_e.pdf
 - List of SGCN by key habitats
http://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/chapters_appendix/appendix_l.pdf
 - Subsection Profiles (chapter 5), which include:
 - Ecological subsection overviews including quick facts on ownership, population density, and current land use/land cover
 - Highlights on important species and habitat features
 - Species problem analysis (factors influencing the vulnerability or decline of SGCN that are known or predicted to occur in the subsection)
 - List of key habitats for the subsection including habitat percentages and habitat use by SGCN taxa
 - Priority conservation actions for species and habitats
http://www.dnr.state.mn.us/cwcs/subsection_profiles.html
 - Descriptions of sixteen key habitats including a list of the native plant communities included in the key habitats and management options to support SGCN (chapter 6).
http://www.dnr.state.mn.us/cwcs/habitat_descriptions.html
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Implementation

DNR reviewers implement the SWAP by informing plans and working to locate development activities in areas with fewer impacts on SGCN, by minimizing the impacts of such activities, and by restoring lost diversity. Reviewers work with experts from the Division of Ecological and Water Resources; other DNR divisions; other agencies; local governments; nonprofit organizations; and citizens to manage SGCN and key habitats and, in doing so, ensure that all species can adapt and thrive. DNR reviewers play a critical role in the implementation of SWAP through:

- The early identification of potential negative agents of change (stressors or threats) affecting SGCN and their habitats. Agents of change include such actions as habitat loss, habitat fragmentation, habitat degradation, pollution (including chemical, noise, and light), hydrological changes, interference/persecution by humans, and spread of disease.
- Working with others to identify alternatives that prevent or reduce impacts on SGCN and their habitats, such as relocating development activities to areas less sensitive to impacts on these species and/or key habitats.
- Providing technical guidance and incentives for restoring ecological functions and processes important to SGCN and their habitats.

Minnesota's SWAP identifies Priority Conservation Actions that articulate and prioritize the specific management actions that practitioners may undertake to better manage for SGCN and key habitats within a particular subsection. Priority Conservation Actions are grouped into seven main categories: habitat management, species management, survey, research, monitoring, performance measures and information systems, and outreach and recreation. Examples of Priority Conservation Actions that are relevant to all subsections include:

- Provide technical assistance to interested individuals and organizations
- Incorporate SGCN habitat concerns into existing forest management planning
- Manage invasive species
- Encourage habitat restoration efforts
- Maintain stream integrity
- Enhance adjacent habitats
- Enforce existing laws
- Provide for protection opportunities, e.g., selective acquisition of key habitats

Environmental Review staff should familiarize themselves with the Priority Conservation Actions included in the SWAP and consider them when assessing impacts and making recommendations for the protection of SGCN and their key habitats. For example, the identification of sensitive shorelines is a Priority Conservation Action to be implemented under the SWAP. By following this lead, reviewers can place emphasis on the need and desirability of avoiding development actions that would negatively affect these shorelines. Likewise, they can recommend planning strategies to protect these sensitive areas.

Minnesota’s SWAP also includes (1) descriptions of problems that may adversely affect SGCN or their habitats, (2) priority research and survey efforts needed to identify factors that may assist in restoration and improved conservation of SGCN and key habitats, and (3) calls for monitoring SGCN, their habitats, and the effectiveness of the Priority Conservation Actions.

The Review Process

Information Sources

1. Use Minnesota’s SWAP, the Ecological Classification System, the Rare Natural Features, Native Plant Communities, and Sites of Biodiversity Significance data layers (i.e., the results of the Natural Heritage review), and the Rare Species Guide together as information sources.
2. Identify the ECS Subsection where the project or planning area is located. Subsection boundaries are available at <http://www.dnr.state.mn.us/ecs/index.html> or in Quick Layers for ArcGIS under the Geology and Soils category.
3. Review the subsection profile located in chapter 5 of the SWAP or on the DNR website at http://www.dnr.state.mn.us/cwcs/subsection_profiles.html. Identify the key habitats that occur or are expected to occur in the subsection and the Priority Conservation Actions that have been articulated for the subsection.
4. Review the results of the Natural Heritage review or consult the Native Plant Communities GIS layer (under the Land Cover category in Quick Layers) to identify any native plant communities that have been documented on or near the project/planning area. To crosswalk the native plant communities to their corresponding key habitats (if applicable), refer to Appendix B of this guide or go to http://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/key_habitat_by_subsection.pdf.
5. Review the key habitat descriptions in chapter 6 of the SWAP or on the DNR website at http://www.dnr.state.mn.us/cwcs/habitat_descriptions.html.
6. Review Appendix E in the SWAP or on the DNR website at http://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/chapters_appendix/appendix_e.pdf to identify any SGCN that occur or are expected to occur in the subsection.
7. Review the results of the Natural Heritage review or consult the Rare Natural Features GIS layer (under the Events and Sightings category in Quick Layers) to identify any state or federally listed SGCN that have been documented in or near the project/planning area.
8. Review the ecology of each SGCN, paying particular attention to habitat needs and life history. For all state and federally listed SGCN, this information is available in the Rare Species Guide at www.mndnr.gov/rsg. The Rare Species Guide is the state’s authoritative reference for all of Minnesota’s endangered, threatened, and special concern species (animal and plant). It is a dynamic, interactive source that can be queried by county, ECS subsection, watershed, or habitat.

Analysis and Considerations

1. Determine whether and how key habitats and/or SGCN would be affected by the project or plan. If many SGCN are present or you need to focus the assessment, determine if there are any indicator species that could be used as a surrogate to gauge the condition and response of a particular habitat, community, or ecosystem.
2. Consider (1) the amount of available habitat, both in the project area and in the state; (2) the quality of available habitat; (3) the status of biological inventories; and (4) the inherent biological diversity in the area. Keep in mind that in every subsection, the overwhelming influence on species vulnerability and decline is the loss or degradation of habitat.
3. Consider the resilience of the key habitats. Resilience is the ability of a system to absorb disturbance and still retain its basic functions and structure (Walker and Salt 2006).
4. Consider whether any SGCN have certain characteristics that make them especially vulnerable (e.g., they require large home ranges, use multiple habitats, depend on large habitat patch sizes, need special resources, depend on an ecological process such as fire that no longer operates within the natural range of variation, have low reproductive rates or low dispersal ability, have highly localized or restricted distribution, or concentrate their populations during some time of the year such as in hibernacula or migratory stopovers).
5. In addition to habitat loss and degradation, consider the cumulative effects of other stressors on SGCN populations including overexploitation, invasive species, disease, contaminants, human persecution, and road mortality.
6. Consider that some SGCN with stable Minnesota populations may be declining in a substantial part of their range outside of Minnesota (such as common loons or black terns). In such cases, actions in Minnesota could affect the national or global status of the species.
7. Evaluate the potential effects on SGCN that are rare or at the limit of their range, including endemic species, and therefore a possible early warning of critical ecological change.
8. Consider the proximity of protected lands to the project or planning area, and determine whether habitat management options (e.g., the ability to use prescribed fire) could be impacted or limited by the project.
9. Assess habitat conditions and look for opportunities both to conserve and improve the conditions. For example, while protection of a high-quality wetland may be critical to SGCN conservation, restoration of a degraded wetland also may provide substantial benefits.
10. Think both locally and on a landscape scale. Consider population growth, economic growth, and climate change as drivers affecting SGCN and key habitats.
11. Consider avoidance and mitigation options for maintaining biodiversity (plants, animals and communities).

12. Consider whether it would be appropriate to build survey, research, or monitoring plans into project recommendations.

Big-Picture Elements to Consider

- Species diversity (including genetic) and richness
- Species status (common, state or federally listed, or SGCN)
- Habitat types (common and key habitats for a subsection)
- Pattern and connectivity of habitat patches
- Ecosystem composition, structure, and function
- Ecosystem resilience
- Ecological processes and services
- Habitats critical to ecological processes
- Disturbance regime
- Structural complexity
- Hydrologic patterns
- Nutrient cycling
- Purification services
- Biotic interactions
- Population dynamics
- Effects on DNR management objectives

Habitat Features to Consider

- Trees and brush (including deadfall, snags)
- Aquatic, riparian, and wetland areas
- Nesting, molting, or staging areas
- Migration corridors
- Leks or dens
- Snake hibernacula or rookeries
- Bat hibernacula (existing and potential)
- Cliffs
- Burrows
- Hawk stands (artificial, as well as natural)
- Rocky areas and outcroppings
- Coulees, breaks
- Sinkholes
- Sandhills, dune complexes
- Islands
- Microhabitats

Recommendations and Actions

1. Provide background information on SGCN and key habitats that occur or potentially occur in the project or planning area.

2. Recommend avoidance of key habitats and provide recommendations to minimize impacts to adjacent habitats or native plant communities.
3. Seek to stabilize and increase SGCN populations in the project or planning area.
4. Recommend any relevant Priority Conservation Actions (including the possibility of future research or monitoring) as outlined in the subsection profile.
5. Provide guidance and technical assistance to inform decision-making and strategic planning.
6. Implement existing laws.
7. Create greater consistency in the assessments that are done, informational sources used, natural resource concerns that are reviewed, project changes or mitigation requested, and local planning throughout the state.

Informing Watershed Management Plans

There is no substitute for good planning. When they are well thought out and effectively implemented, local plans such as comprehensive plans and watershed management plans can avoid most of the natural resource impacts that would otherwise occur as a result of project development. Minnesota's SWAP is a guide to wise planning.

The DNR's review of watershed management plans and the written comments submitted by the DNR to a watershed district or watershed management organization focus on accuracy and completeness of the document, description of the existing natural resources land and water resources inventory, and goals and policies as well as specific implementation actions to achieve the goals and policies. One of the specific directions for the DNR in the review and comment is to provide an evaluation of the consistency of the plan with Minnesota's SWAP. Keep in mind the specific requirements of watershed management plans, and, whenever possible, relate them to the goals and Priority Conservation Actions identified in the SWAP.

- Watershed management plans describe the existing physical environment, land use, and development in the area, and the environment, land use, and development proposed in existing local and metropolitan comprehensive plans. Plans state objectives and policies, including management principles, alternatives and modifications, water-quality goals, and protection of natural characteristics. When reviewing plans, comment on the requirements of the SGCN and the need to protect key habitats.
- Watershed management plans identify the hydrologic system and its components, including drainage systems previously constructed and existing and potential problems. They articulate a management plan, including the hydrologic and water-quality conditions that will be sought and significant opportunities for improvement. The effect of the plan on existing drainage systems is also described. Reviewers should comment on the potential for existing conditions and proposed actions to affect SGCN and their key habitats. This is also a good opportunity to promote maintenance and restoration of key habitats and to identify any survey, research, or monitoring efforts that could benefit SGCN within the planning area.

- Watershed management plans identify high-priority areas for wetland preservation, enhancement, restoration, and establishment and describe any conflicts with wetlands and land use in these areas. In the review of plans, ensure that key habitats are included as priority areas for protection.

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Module IV SWAP
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