

# Chapter 4.

## Goals, Objectives, Conservation Actions, and Performance Measures

Below are the three goals of the 2015-25 Wildlife Action Plan. Listed under each goal are the objectives, potential conservation actions, and performance measures.

### Goal 1: Ensure the long-term health and viability of Minnesota's wildlife, with a focus on species that are rare, declining, or vulnerable to decline.

**Objective 1.** Within the Wildlife Action Network, maintain and enhance the resilience of the habitats upon which Species in Greatest Conservation Need (SGCN) and other wildlife depend.

**Objective 1.1.** Sustain and enhance species, habitat, and landscape biological diversity within the Wildlife Action Network, giving priority to the following eight ecological communities, which are thought to be most vulnerable to changing climate: prairie stream ecosystems, high-diversity native prairie complexes, grassland-wetland complexes, peatlands, priority cold-water cisco lakes, cool-/cold-water streams, lowland conifer forests, and mesic hardwood forests.

#### *Potential conservation actions:*

- Restore the hydrology of prairie streams, rivers, and wetlands.
- Develop strategies for sustaining or restoring terrestrial and aquatic connections among conservation lands within the Wildlife Action Network, where appropriate.
- Sustain a diversity of wetland types within the Wildlife Action Network that are critical waterfowl and shorebird migratory stopovers.
- Restore wetlands that have been identified by the DNR as restorable.
- Implement forest certification.
- Implement the Minnesota Prairie Conservation Plan.
- Implement Subsection Forest Resource Management plans and Minnesota Forest Resources Council's Regional Landscape plans.
- Provide technical guidance to private landowners adjacent to public lands within the Wildlife Action Network to improve buffers, habitat quality, and connectivity.
- Prevent new introductions, and control the spread of invasive plants and animals and diseases that can harm wildlife and habitats.
- Assist conservation partners in the development of research, monitoring, and demonstration projects to evaluate the response of habitat and species to management practices to inform adaptive management.

- Develop policies and guidelines in cooperation with partners as appropriate, using the best available science.
- Work with the DNR's Strategic Land Asset Management Program, other agencies, public land managers, and conservation groups to include areas within the Wildlife Action Network in their acquisition plans and guidelines.
- Enhance protection of Minnesota's peatlands and support efforts to recognize their importance at a global scale.
- Continue or develop additional long-term species and habitat monitoring projects for early detection of changes in the resilience of ecological communities.
- Develop best management practices for lowland conifer SGCN.
- Promote the implementation of best management practices, in particular those developed for the following species or groups (see chapter 3, Table 3.3):
  - monarch butterfly and other pollinators
  - golden-winged warbler
  - four-toed salamander
  - Blanding's turtle
- Develop and refine the Wildlife Action Network over the next 10 years by:
  - Surveying habitats believed to meet the criteria for inclusion in the Wildlife Action Network and incorporating new data as appropriate.
  - Incorporating additional conservation targets or ecosystem services that support resilience, and applying spatial prioritization tools.

***Performance measures for Objective 1.1:***

- Further development of the Wildlife Action Network
- Enhanced protection for patterned peatlands
- Implementation of demonstration and adaptive management projects
- Number and types of projects implemented
- Number of programs that have incorporated information about the Wildlife Action Network into their prioritization process
- Successful promotion of best management practices
- Population levels of monarch butterflies in Minnesota have stabilized or increased
- Golden-winged warbler populations in Minnesota area are stable as evidenced from Breeding Bird Survey data

**Objective 1.2.** Maintain or enhance habitat in at least 6 Conservation Focus Areas.

**Potential conservation actions:** Conservation actions specific to each Focus Area will be developed and implemented with partners. Examples of conservation actions include the following:

- Protect, enhance, and restore wetland, floodplain, and shoreline habitats.
- Maintain or restore habitat connectivity within and between terrestrial and aquatic communities, where appropriate.
- Expand habitat cores.
- Implement the Minnesota Prairie Conservation Plan.
- Acquire from willing sellers (fee or easement) threatened sites providing exceptional habitat or ecological values.
- Improve the conditions of disturbance-dependent habitats through the appropriate reintroduction or mimicking of natural disturbance.
- Develop and promote the implementation of best management practices for SGCN and their habitats.
- Identify new Conservation Focus Areas, including at least one lake-focused Conservation Focus Area, and revise the boundaries of existing Conservation Focus Areas as new data become available.

**Performance measures for Objective 1.2:**

Performance measures for each Conservation Focus Area will be developed by Conservation Focus Area teams and will include shorter-term measures (number of acres protected or restored, or number of demonstration projects) along with longer-term monitoring of status and trends to evaluate the effectiveness of conservation actions. Additional information on the development of performance measures for Conservation Focus Areas is provided in Chapter 5 (Monitoring and Adaptive Management) and Chapter 6 (Implementation).

**Objective 2.** Maintain or increase populations for at least three of the SGCN for which non-habitat-related issues have been identified.

**Issue: White-nose Syndrome**

**Targeted species:** northern long-eared bat, little brown myotis, big brown bat, tricolored bat

**Potential conservation actions:**

- Continue to monitor caves and hibernating bats for the presence of the fungus and signs of the disease.
- Educate the public about the fungus and how it spreads; target cavers and other groups or locations in the state where the risk is highest.
- Install boot/shoe decontamination stations at caves with public access.
- Protect vulnerable caves.
- Improve knowledge of summer habitat requirements to maintain healthy bat populations to mitigate impacts of white-nose syndrome.

***Performance measures for Objective 2:***

- Number of caves and/or bats assessed for presence of fungus; change in number of caves where fungus is detected over time
- Northern long-eared bat population status and trends
- Better definition of characteristics of roost trees
- Best management practices developed for summer habitat

***Issue: Species with a limited ability to recover on their own***

***Targeted species: freshwater mussels***

***Potential conservation actions:***

- Continue to implement the freshwater mussel propagation and reintroduction plan.
- Continue long-term mussel monitoring activities.
- Remove dams to provide access to host fish, where appropriate.

***Performance measures for Objective 2:***

- Number of species for which host fish have been identified
- Number of species being propagated and reintroduced
- Number of reintroduction sites
- Number of reintroduction sites with evidence of naturally occurring reproduction
- Population status and trends

***Targeted species: wood turtle***

***Potential conservation actions:***

- Develop and implement a statewide wood turtle management plan.
- Collect population data as needed to assess current status of populations in Minnesota and other data essential for the plan.

***Performance measures for Objective 2:***

- Implementation of actions included in the management plan
- Population status and trends

***Issue: Stewardship species with limited distribution***

***Targeted species: brook trout, southeastern Minnesota heritage strain***

***Potential conservation actions:***

- Propagate heritage-strain brook trout in southeastern Minnesota cool-water hatcheries.
- Reintroduce heritage-strain brook trout to former stream reaches in southeastern Minnesota using fish from hatcheries or surplus individuals from streams with identified populations.

**Performance measures for Objective 2:**

- Status and trends of heritage-strain brook trout populations
- Number of individuals propagated and released
- Evidence of reproduction in streams where reintroductions or maintenance stocking occurred

**Issue: Deliberate killing, overexploitation, or unregulated taking**

**Targeted species: gophersnake, plains hog-nosed snake, mudpuppy, hornyhead chub**

**Potential conservation actions:**

- Establish legal protection for snakes and salamanders.
- Continue educational efforts to address deliberate killing of snakes.
- Conduct a population structure study for the hornyhead chub using Otter Creek as a reference site.
- Monitor hornyhead chub spawning activity through nest counts; based on results, consider establishing a harvest season to prevent wild collection during spawning.

**Performance measures for Objective 2:**

- Legal protection established for salamanders and snakes
- Status and trends of mudpuppy and hornyhead chub populations

**Objective 3.** Improve knowledge of the status, distribution, and conservation needs of select wildlife in Minnesota.

**Objective 3.1.** By 2022, obtain additional survey information for at least 3 of the following 23 state-listed SGCN to determine if their classification on the state list is accurate.

**Mammals**  
Richardson's ground squirrel

**Birds**  
Bell's vireo  
boreal owl

**Amphibians**  
great plains toad  
mudpuppy  
spotted salamander

**Fish**  
bluntnose darter  
crystal darter  
pygmy whitefish  
reidside dace  
warmouth

**Leafhoppers**  
caped leafhopper  
hill prairie shovelhead leafhopper

**Snails**  
dull gloss

**Butterflies and Moths**  
abbreviated underwing  
leadplant flower moth  
Whitney's underwing

**Caddisflies**  
*Anabolia ozburni*  
*Protophila erotica*  
*Triaenodes flavescens*

**Jumping spiders**  
*Habronattus viridipes*  
*Habronattus calcaratus maddisoni*  
*Marpissa formosa*

**Potential conservation actions:**

- Develop and implement a strategy for conducting surveys.
- Enter survey data into the Natural Heritage Information System database.
- Report annually on survey activities and results.
- Use results to inform review of Minnesota’s list of endangered, threatened, and special concern species.

**Performance measures for Objective 3.1:**

- Total number of species surveyed
- Number of species for which data are likely to result in a change in state status
- 100 percent of species surveyed have survey data entered into the database
- Annual survey reports are submitted

**Objective 3.2.** By 2022, survey at least 3 of the 15 species or groups of species for which data were insufficient in 2014 to determine if the species met the criteria for SGCN.

**Mammals**

long-tailed weasel  
water shrew  
woodland jumping mouse

**Birds**

brown creeper  
gray jay  
Lincoln’s sparrow  
spotted sandpiper

**Reptiles**

Ouachita map turtle

**Amphibians**

western tiger salamander

**Butterflies and Moths**

blazing star stem borer  
*Melaporphyria immortua*

**Dragonflies and Damselflies**

Cyrano darner  
great spreadwing  
stygian shadowdragon  
larval odonates

**Potential conservation actions:**

- Develop and implement a strategy for conducting surveys.
- Enter survey data into the Natural Heritage information System database.
- Report annually on survey activities and results.

**Performance measures for Objective 3.2:**

- Total number of species surveyed
- Number of species for which data are usable for evaluating SGCN status
- 100 percent of species surveyed have survey data entered into the Natural Heritage Information System database
- Annual survey reports are submitted

**Objective 3.3.** By 2022, implement research projects to identify the cause(s) of population decline for one or more of the following SGCN.

**Birds**

American kestrel  
belted kingfisher  
olive-sided flycatcher

**Fish**

longnose sucker  
redfin shiner  
suckermouth minnow

***Potential conservation actions:***

- Design, implement, and assess results of research project(s).
- Develop and implement one or more conservation actions to address the cause(s) of population decline.
- Monitor conservation actions to determine effectiveness.

***Performance measures for Objective 3.3:***

- Number of research projects implemented
- Number of species for which cause(s) of decline was identified
- Number of species for which conservation actions were developed and implemented to address cause(s) of decline
- Monitoring plan developed and implemented to assess changes in population status and trends over time, and adaptive management implemented

**Objective 3.4.** Implement survey and research projects to understand the cause(s) of pollinator declines, and improve knowledge about the status of native bees.

***Potential conservation actions:***

- Work with partners such as the University of Minnesota, Xerces Society, Minnesota Zoo, and others to conduct research into the causes of pollinator declines.
- Conduct surveys to assess the status of native bee populations.

***Performance measures for Objective 3.4:***

- Number of research projects implemented
- Number of species for which causes of declines were identified
- Number of species for which conservation actions were developed and implemented to address cause(s) of decline

**Objective 3.5.** Enhance and update information on the status and distribution of SGCN in Minnesota.

***Potential conservation actions:***

- Support the county by county survey effort undertaken by the Minnesota Biological Survey.
- Develop a strategy and time line for surveying underrepresented sites and species.
- Identify priorities for updating occurrence information that is more than 25 years old.

***Performance measures for Objective 3.5:***

- Strategies and time lines are developed

**Objective 3.6.** Establish additional expert advisory teams focused on invertebrates.

***Potential conservation actions:***

- Invertebrate teams develop priorities for survey, monitoring, and research efforts.

***Performance measures for Objective 3.6:***

- At least two new teams are established and provide guidance on determining the status of invertebrate groups
- Surveys are implemented on up to two species not previously surveyed, as identified by the teams

**Objective 4.** Ensure compliance with regulations and provide technical guidance to protect SGCN and their habitats.

***Potential conservation actions:***

- Enforce wildlife, land, wetland, and water laws and regulations.
- Use information from the Wildlife Action Plan in environmental review activities to inform recommendations that prevent or reduce threats to SGCN.
- Incorporate information from the Wildlife Action Plan in other planning efforts to promote the conservation of SGCN and their habitats.

***Performance measures for Objective 4:***

- Information from the Wildlife Action Plan is incorporated into the Environmental Review process
- Planning efforts incorporate information from the Wildlife Action Plan

## **Goal 2: Enhance opportunities to enjoy Species in Greatest Conservation Need and other wildlife and to participate in conservation.**

**Objective 1.** Increase the number and diversity of people participating in wildlife-related outdoor recreation.

***Potential conservation actions:***

- Partner with the DNR Division of Parks and Trails and other organizations to implement interpretive programs focused on SGCN and other wildlife, especially in habitats where these opportunities have been limited in the past.
- Incorporate wildlife viewing and conservation awareness into local tourism projects.

**Objective 2.** Increase the number and diversity of people directly engaged in conservation of SGCN.

***Potential conservation actions:***

- Partner with agencies and organizations to develop and implement additional citizen science or habitat stewardship projects focused on SGCN.
- Provide increased opportunities for the public to show their support, including financially for conservation.
- Develop a survey to be given at 10-year intervals that evaluates the public support for conservation of wildlife in Minnesota.

***Performance measures for Objectives 1 and 2:***

- Number of interpretive programs developed that focus on SGCN
- Data for the number of Minnesotans participating in various types of outdoor recreational activities and the revenues generated from those activities from the US Fish and Wildlife Service recurring National Survey of Fishing, Hunting and Wildlife Associated Recreation, Minnesota
- Number of volunteers participating in Minnesota frog, toad, and loon surveys each year
- Results of surveys at 10-year intervals to evaluate Minnesotans' conservation values, including support for conservation of rare wildlife and participation in conservation activities

## **Goal 3: Acquire the resources necessary to successfully implement the Minnesota Wildlife Action Plan.**

**Objective 1.** Increase and diversify funding and partnerships for implementing the Wildlife Action Plan and reporting on the plan's effectiveness.

***Potential conservation actions:***

- Maintain and develop partnerships.
- Develop proposals for other funding sources including the Outdoor Heritage Fund, Parks and Trails Fund, Environment and Natural Resources Trust Fund, and competitive State Wildlife Grant program to help leverage existing funds.
- Work with partners to use State Wildlife Grant funds for work on private lands that complements projects funded through the Outdoor Heritage Fund.
- Increase and diversify efforts to promote contributions to the Nongame Wildlife Program.

***Performance measures for Objective 1:***

- Donations to the Nongame Wildlife Program increase by 10 percent by 2020
- Number of proposals funded through new funding sources

**Objective 2.** Enhance the Minnesota Department of Natural Resources' capacity to provide information needed for effective wildlife conservation

***Potential conservation actions:***

- Maintain or enhance the current level of Natural Heritage Information System staff.
- Provide leadership and coordination of the establishment or implementation of monitoring initiatives or projects focused on biological diversity and ecosystem resilience.
- Promote development of shared databases with internal and external partners when appropriate, especially related to monitoring efforts.
- Promote the standardization of data collections and digital field data collection.
- Develop additional web-based tools to facilitate implementation of the Wildlife Action Plan.

***Performance measures for Objective 2:***

- Mapped information from Wildlife Action Plan is available through a web site
- New data are made available within one year of the information being collected