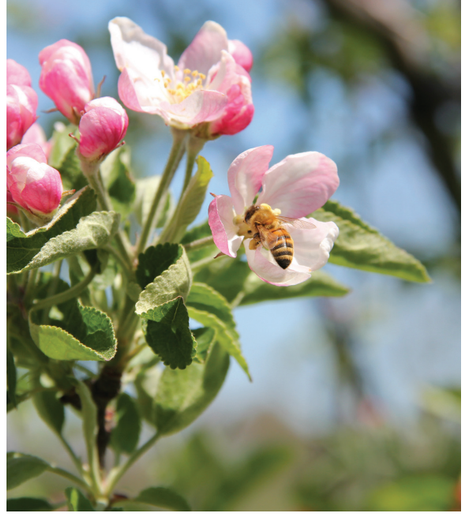


Helping People Help the Land

NRCS provides America's farmers and ranchers with financial and technical assistance to voluntarily put conservation on the ground, not only helping the environment but agricultural operations, too.

www.wi.nrcs.usda.gov

NIACS
Northern Institute of Applied Climate Science

The Northern Institute of Applied Climate Science (NIACS) has been designed as a collaborative effort among the Forest Service, universities, conservation organizations, and forest industry to provide information on managing forests for climate change adaptation and enhanced carbon sequestration.

www.niacs.org

USDA Climate Hubs
U.S. DEPARTMENT OF AGRICULTURE

January 2020

USDA
United States Department of Agriculture

CLIMATE CHANGE & WILDLIFE: YOUR LAND, YOUR PLAN

Many landowners enjoy the opportunity to experience wildlife on their property. As a landowner, you may have noticed impacts of recent trends in our changing climate on your land[1] and the wildlife there. Keeping your land suitable for wildlife can be challenged by loss of food or habitat, land fragmentation, and invasive species. The USDA's Northern Forests Climate Hub and Northern Institute of Applied Climate Science have identified tools and approaches[2] to help landowners adapt to climate change and achieve wildlife goals on your property. The USDA Natural Resources Conservation Service (NRCS) in Wisconsin has conservation programs that can help you with technical and financial assistance. Below are some examples of how NRCS programs can help you prepare for climate change impacts and steward your land resources for better wildlife management.

HOW IS CLIMATE CHANGE IMPACTING MY LAND?

For a full description of climate change impacts on your land, visit the Climate Explorer Tool at: https://adaptationworkbook.org/explore-impacts.

TEMPERATURE INCREASES

Temperatures have already warmed by ~2° F in northern Wisconsin over the past century and are projected to increase by another 3–9° F by the end of the century. Winters have warmed about twice as much as other seasons. This affects snowpack depth, which could limit suitable habitat for snow-dependent species such as snowshoe hare and Canada lynx, timing and availability of food sources and migration dates.

PRECIPITATION CHANGES

Mean annual precipitation in northern Wisconsin is projected to increase 1–3 inches by the end of the century. Most of the increases are projected to occur as extreme precipitation events, with longer periods of drought in between. Precipitation changes can have significant impacts on soil moisture, duration of vernal pools, flooding frequencies, etc. These things can affect nesting success of waterfowl and amphibians, food sources, and availability of water sources late in the season.

DEER HABITAT

Warmer winters and reduced snow depth reduce energy requirements for deer and increase access to forage during winter months, although these same impacts lead to greater physiological stress and parasite loads in moose. As deer benefit from climate change over the 21st century, browsing pressure may increase on tree regeneration, making it more difficult to maintain diverse, functioning forests on our landscape.

WHAT CAN I DO?

NRCS has programs that can provide the technical and financial assistance to help you achieve your goals and objectives and implement climate change adaptation on your property.

CONSERVATION STEWARDSHIP PROGRAM (CSP)

Helps landowners maintain conservation stewardship and implement conservation practices. Benefits keep land management more sustainable and profitable and improve our natural resources.

ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP)

Provides technical and financial help to landowners for conservation practices that protect soil and water quality.

WHERE DO I START?

Contact your local USDA Service Center to get started. Discussing your resource concerns with an NRCS conservation planner will help you:

- Identify your **GOALS** and **OBJECTIVES**,
- consider how climate change will affect your land, and
- select adaptation strategies and conservation practices to achieve your **GOALS**.

EXAMPLES:

OBJECTIVE: CREATE AND ENHANCE FOOD SOURCES

ADAPTATION APPROACHES: Enhance primary food sources for climate-sensitive species and create new sources of food, water, and cover in anticipation of future conditions.

CONSERVATION PRACTICES: Pollinator/Beneficial Insect Habitat, Forage and Biomass Planting

Wildlife food sources on your land can be a resource concern identified during the conservation planning process. This can be addressed through practices that establish or enhance native plants on your property, protect threatened or endangered species, remove noxious or invasive species, and incorporate plant material that is of high quality and adapted for future climate change conditions. You can provide nectar for pollinators, hard and soft mast for songbirds and large birds of prey, and grazing for wildlife and livestock, especially during times when food is not available in portions of the landscape, such as during crop season or at the end of the growing season.

OBJECTIVE: PROVIDE NESTING SITES AND COVER

ADAPTATION APPROACHES: Manage for plant species diversity and complexity and manage and create suitable microhabitats and microclimates.

CONSERVATION PRACTICES: Tree/Shrub Establishment

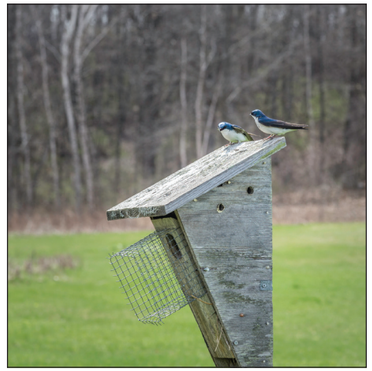
Providing sufficient vegetative cover for brood rearing, nesting, and thermal regulation can help sustain viable wildlife populations. This can involve protecting small areas of important plant species, planting or introducing new species better suited to climate change impacts, and/or converting edges of cropland to tallgrass prairie. Harvesting trees to encourage regeneration and a diversity of age classes can provide important habitat for grouse and woodcocks. You can also schedule mowing, harvesting, weed control, and other management activities so as not to be detrimental to target wildlife species, and combine multiple practices (prescribed burning, riparian forest buffer, early successional habitat, etc.) in order to achieve your goals.

OBJECTIVE: ESTABLISH CORRIDORS

ADAPTATION APPROACHES: Establish corridors and minimize barriers to movement to new suitable habitats and implement nonlethal behavioral control methods.

CONSERVATION PRACTICES: Establish Wildlife Corridors, Aquatic Organism Passage

These strategies and practices provide passageways for wildlife to move from food/cover/water sources to other places as needed in their life cycles. This can include the establishment of adapted vegetation, or the modification or removal of barriers that restrict or impede the movement of organisms. Bypassing or removing an aquatic barrier can restore streamflow to stable natural channel states in aquatic systems and can improve survival for terrestrial vertebrates by providing safe migration routes under roadways or through culverts.



OBJECTIVE: PROVIDE BENEFICIAL INFRASTRUCTURE

ADAPTATION APPROACHES: Increase reproduction and survival rates and reduce or limit barriers to wildlife movement across private land.

CONSERVATION PRACTICES: Structures for Wildlife, Fence

Investing in beneficial infrastructure can increase wildlife survival and utilization of the land. This can include modifying existing structures that pose a hazard to wildlife, such as adding markers to an existing fence, removing wire, or adding wildlife friendly wire at appropriate spacing to a fence. Wildlife-friendly fencing can provide connectivity for food resources, exclude livestock or wildlife from areas needing protection, and/or regulate domestic livestock access to areas while permitting wildlife movement. Providing structures for nesting, rearing, or perching habitat can increase utilization of the area and wildlife reproductive success, especially in areas where suitable nest sites are unavailable. Improper placement or lack of maintenance of habitat structures can result in a net negative impact on wildlife, so, work with NRCS to ensure proper placement and maintenance.

OTHER RESOURCES AVAILABLE

Many wildlife conservation practices are available through the NRCS. Visit your local USDA Service Center or www.wi.nrcs.usda.gov for more information. To see our other brochures for adapting to climate change impacts on forestry, wetlands, and carbon management, visit the Climate Change Response Framework website at: https://forestadaptation.org/focus/wildlife.

CITATIONS

1. Janowiak, Maria K et al, 2014. Forest ecosystem vulnerability assessment and synthesis for northern Wisconsin and western Upper Michigan: a report from the Northwoods Climate Change Response Framework project. Gen. Tech. Rep. NRS-136. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 247 p. https://doi.org/10.2737/NRS-GTR-136.

2. Swanston et al, 2016. Forest Adaptation Resources: climate change tools and approaches for land managers, 2nd edition. https://www.treesearch.fs.fed.us/pubs/52760.