



State Wildlife Habitat Incentives Program (WHIP) Plan for Michigan

State Objectives:

The Michigan Wildlife Action Plan identifies 14 statewide priority threats of 50 aquatic and terrestrial threats identified within standardized categories. These threats were identified by regional natural resource professionals as being of at least medium severity in all four ecoregions for all four great lake basins, or greater than medium severity in three of the four ecoregions or lake basins. Of the 14 statewide priority threats, the Wildlife Habitat Incentives Program (WHIP) can directly address 4: invasive species; fragmentation; riparian modifications; and altered fire regimes. Invasive species and fragmentation were repeatedly identified, as being the highest priority threats to wildlife and landscape features in both aquatic and terrestrial systems throughout Michigan.

Invasive species

Hundreds of new species of plants, animals and pathogens have been either intentionally or accidentally introduced since European settlement. Although many have had little or no effect, others are more aggressive and threaten both species and landscapes (MDEQ 2003a). As many as one-third of Michigan plant species may be non-native species (Herman et al. 2001). Several of the plants that have been the most troublesome have been introduced deliberately for use as ornamentals or herbs, including buckthorn, purple loosestrife, and garlic mustard.

Executive Order 13112 of February 3, 1999 on Invasive Species (Appendix A) was issued "to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause." Specifically, Federal agencies (NRCS) shall use relevant programs (WHIP) to prevent the introduction of invasive species and to control populations of such species in a cost-effective and environmentally sound manner. Further, NRCS shall not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species unless, the benefits of such actions clearly outweigh the potential harm caused by invasive species.

In compliance with this Executive Order, Michigan maintains a list of ineligible plant list for use in the WHIP program (Appendix B). Invasive species that occur on this list will not be eligible for cost-share however; they can be treated with Michigan Conservation Practice Standard 797 Invasive Species Control in Natural Habitats.

Fragmentation

Estimates of pre-settlement conditions indicate that forests comprised approximately 90% of the Michigan land area. Unsustainable logging practices, extensive conversion to agriculture, and the occurrence of catastrophic fires nearly eliminated all of these forests by the early 20th century. With implementation of sustainable forestry practices and abandonment of farms, which allowed ecological succession to forested lands, Michigan's forest began to recover (Eagle, et. al. 2005). Currently, forest covers approximately 50% of the acreage of the State (Smyth 1995). Many Michigan forests are being replaced by residential and commercial development, and if current patterns of development continue, forest acreage in Michigan may decrease by 2 to 7% by 2040 (Public Sector Consultants 2001).

Michigan WHIP ranking criteria favor projects that will result in larger managed forestlands. Larger forest plantings receive a greater number of ranking points. Smaller forest plantings would receive a greater number of ranking points if adjacent to other larger forestlands. Isolated forests, both planned and existing, receive a greater number of ranking points if connected to other isolated forests by a corridor of at least 66 feet in width.

Riparian Modifications

Natural riparian areas provide valuable wildlife habitat, as well as important water quality benefits such as nutrient uptake, bank stabilization, and erosion control (Karr and Schlosser 1978, Gregory et al. 1991, Osborne and Kovacic 1993). Aquatic buffers improve water quality by filtering upland runoff, providing shade and detritus to the aquatic system, and/or providing sufficient buffer width and cover for upland and aquatic wildlife species.

The aquatic resources identified as most in need of aquatic buffers are the Michigan WHIP priorities and include: Great Lakes shorelines; Great Lakes marshes; coastal plain marshes; wet meadows; fens; and bogs as identified by Michigan Field Office Tech Guide (FOTG) criteria). High priority is also given to unaltered streams that have no unnatural modifications to their channel on the portion offered into WHIP. Medium priority is given to water bodies identified as impaired on Michigan Department of Environmental Quality's (DEQ) 304 (d) lists. Altered streams and other bodies are eligible for WHIP cost-share but receive lower priority. Minimum buffer widths are 35 feet.

Modifications to riparian habitats can be treated with Michigan Conservation Practice Standard 390 Riparian Herbaceous Cover, 391 Riparian Forest Cover, 395 Stream Habitat Improvement and Management, and in some cases 580 Streambank and Shoreline Protection.

Altered Fire Regimes

Many of Michigan's landscape features, including certain grasslands, forests and wetlands, were historically maintained through natural or human-induced fires. Fire is likely as important an element as climate in the establishment and maintenance of Michigan's grasslands; fire helps prairies to grow by stimulating grass and wildflowers to reproduce, reducing competition from weeds, and discouraging the encroachment of shrubs and trees (Eagle et. al, 2005).

Michigan has lost over 99% of its former prairies and savannas. Managing pre-settlement prairie or savanna sites as forestland is not allowed in Michigan WHIP. Pre-settlement vegetation is determined from vegetation maps located in the Michigan FOTG. Michigan WHIP ranking criteria favor projects that encourage large projects devoted to the management of grassland dependent wildlife. Additional ranking points are awarded to projects that are in close proximity to other herbaceous habitat and additional points to grassland areas identified as pre-settlement grasslands or savannas.

Due to the substantial reduction of grassland acres, Michigan WHIP does allow the grassland establishment and management on sites determined to be forested pre-settlement. Michigan WHIP strongly supports the establishment of diverse native herbaceous vegetation, commonly known as warm season grasses. These grasses are best managed by the use of prescribed fire. The ability to utilize fire as a management options should be carefully considered in the planning phase of any application for WHIP.

Altered fire regimes can be treated with Michigan Conservation Practice Standard 338 Prescribed Burning. Prescribed burning must applied according to a prescribed burning plan written and approved by certified individuals.

The Michigan WAP then identifies the following categories that may be applicable to WHIP that have the greatest number of associated conservation needs, which should be considered state wide priorities.

- Identification and conservation of areas facing serious threats (e.g., invasive species, lack of disturbance regime, contamination)
- Development and use of best management practices, recommended strategies, or recommended plans for conservation and management in specific situations
- Assistance to private landowners and creation of partnerships between conservation organizations/agencies and private landowners for conservation of wildlife and landscape features
- Development of conservation plans for landscapes (e.g., mosaics, networks, adjacent landownership)
- Identification and protection of corridors between large areas and isolated habitat patches.

Wildlife Habitat Priorities:

National Priorities

Restoration of declining or important native wildlife habitats:

This is also a Michigan state priority in WHIP. Michigan has a number of habitats which are in decline and maintains a WHIP priority habitat list. (Appendix A). Michigan Conservation Practice Standards 643 Restoration and Management of Declining Habitats has restoration techniques developed for three habitats in Michigan: tallgrass prairie; oak savanna; and red pine and white pine forests. Various conservation practice standards can be applied to other priority habitats. WHIP program policy allows up to 15% of funds made available annually to a state may be used for increased cost-shared payments to participants who restore and protect essential plant and animal habitat using a WHIP agreement with duration of at least 15 years. Michigan will provide 90% cost-share for all eligible applications for priority habitats with State Biologist concurrence and subject to available funding.

Protection, restoration, development or enhancement of wildlife habitat for at-risk species which can include candidate species and State listed threatened species and protection, restoration, development or enhancement of wildlife habitat for Federally listed T&E wildlife species:

This is also a Michigan state priority in WHIP. Michigan has a number of state and federal threatened and endangered (T&E) species listed in the Michigan Natural features Inventory Database. Various conservation practice standards can be applied to address habitat needs for state or federal T&E species. WHIP program policy allows up to 15% of funds made available annually to a state may be used for increased cost-shared payments to participants who restore and protect essential plant and animal habitat using a WHP agreement with duration of at least 15 years. Michigan will provide 90% cost-share for all eligible applications for T&E with State Biologist concurrence and subject to available funding.

Reduction of invasive species on wildlife habitats:

This is also a Michigan state priority in Michigan's Wildlife Action Plan (WAP) described above and in Michigan's WHIP. Michigan maintains a list of ineligible plant list for use in the WHIP program (Appendix B). Michigan ranking criteria favors contracts that address invasive species listed on this ineligible plant list in their Wildlife Habitat Development Plan (WHDP). The highest number of points given is to plans that will have no invasive species present after the WHDP is implemented.

Invasive species that occur on this list can be treated with Michigan Conservation Practice Standard 797 Invasive Species Control in Natural Habitats.

Protection, restoration, development or enhancement of declining or important aquatic wildlife species habitats:

Highly migratory species suffer the most obvious effects of fragmentation in aquatic systems (Edwards 1978, Holden 1979). Life history requirements such as reproduction, nursery and wintering habitat require even non-migratory fish species to move over large areas (Schlosser 1993, Schlosser, 1995a, Fausch et al. 2002). Fragmentation of aquatic systems commonly take the form of dams, culverts the create velocity, jump or exhaustion barriers for aquatic organisms. Like dams, improperly constructed stream crossings may alter water depths and velocities and limit or prohibit passage of aquatic organisms (Eagle et al. 2005).

Throughout Michigan, concerns about sedimentation and obstructed fish passage in streams and rivers are a concern. Practices which allow unobstructed fish passage, reduce sedimentation and provide aquatic buffers will be emphasized. Special criteria may apply. For example, the existing structure must impede the passage of native fish to good quality habitat above the structure for spawning, nursery or other significant life history requirements. The structure must open up at least 1 stream mile of good quality upstream habitat. Streams identified on the section 303 (d) attainment list for the state of Michigan, or identified as a top quality cold or warm water stream by the MDNR may receive higher priority for funding. It will be important to consider invasive species in any stream work. Invasive species is listed as a priority threat in the Michigan WAP. Any documented invasive species that may gain access to upstream habitats that they presently do not have access to (lamprey, zebra mussel, etc.), should not be eligible for WHIP cost-share.

State Priorities:

Herbaceous habitats: including grasslands; prairies; savannas; and barrens; beneficial to grassland wildlife:

The primary factor impacting Michigan's grassland dependant species is the loss of large expanses of herbaceous habitats. A ranking factor will be developed giving priority to larger herbaceous area project managed for wildlife in the ranking tool. Grassland establishment or restoration of 50 acres will receive the maximum number of points.

Isolation of newly established or restored grassland habitats is another important consideration in the value of the habitat. A ranking factor will be developed to evaluate the abundance of herbaceous habitats in proximity to the establishment or restoration of grassland habitats though WHIP in the ranking tool. Distances greater than 1 mile will not receive any points.

The geomorphology of the planning unit is the best predictor of the likelihood of successful establishment of grasslands. Installation of grassland habitats on area where the site was pre-settlement forest will likely have a more difficult time to establish.

Habitat improvements practices to emphasize:

Herbaceous habitat practices will include installation practices such as restoration and management of declining habitats, upland wildlife habitat management (seeding of wildlife friendly mixes, and wetland wildlife habitat management (seeding of wildlife friendly wetland mixes). Management practices such as prescribed burning, and early successional habitat management and invasive species control will be stressed.

Aquatic buffers which include grasses, trees and shrubs along streams, wetlands and other water bodies:

Buffers improve and protect water quality by reducing the amount of sediment, pesticides, organic nutrients, and other pollutants in surface runoff, as well as in shallow groundwater flow.

Riparian forest buffers provide riparian wildlife habitat, maintain or restore water temperatures for fish and other aquatic organisms, and provide a source of large woody debris to form pools, help stabilize the channel bed and create shelter for fish and other aquatic organisms.

Riparian herbaceous cover provide food, shelter, shading, substrate, access to adjacent habitats, nursery habitat, and pathways for movement by resident and non resident aquatic, semi-aquatic, and terrestrial organisms. Herbaceous buffers improve and protect water quality by reducing the amount of sediments, pesticides, and nutrients in surface runoff.

Habitat improvements practices to emphasize:

Aquatic buffers will include installation practices such as fence for livestock exclusion, riparian herbaceous and riparian forest buffer practices, grade stabilization and in some cases stream bank and shoreline protection.

Forestland expansion to increase small fragmented forested landscapes and to close gaps in existing forests:

Fragmentation is caused by natural disturbances or land-use changes that divide previously contiguous landscapes into separate fragments (habitat patches) (Eagle et al. 2005). Fragmentation (forest, grassland and aquatic fragmentation) is listed as a highest priority threat in the WAP described above.

Michigan WHIP ranking criteria favor projects that will result in larger managed forestlands. Larger forest plantings receive a greater number of ranking points. Smaller forest plantings would receive a greater number of ranking points if adjacent to other larger forestlands. Isolated forests, both planned and existing, receive a greater number of ranking points if connected to other isolated forests by a corridor of at least 66 feet in width

Habitat improvements practices to emphasize:

Forestland expansion will include installation practices such as windbreak/shelterbelt establishment to connect fragmented forests by corridors and tree/shrub establishment to expand existing forests or to fill in gaps.

Forestland improvement to increase the diversity in stand composition in species diversity, age and structure:

Habitat improvements practices to emphasize:

Forestland improvement will include management practices such as fence for livestock exclusion, tree and shrub planting, windbreak/shelterbelt renovation, forest stand improvement and invasive species control.

Partnership involvement including the amount and kinds of resources the partners will provide to support the program. Disclosure of partner financial assistance dollars is optional.

State application evaluation and ranking process and criteria:

Michigan will utilize the National Ranking Tool whereby 35% of the ranking points will come from the National Priorities listed above and 15% will come from the cost-efficiency score for the practice installed as required by national policy.

The Michigan state ranking tools will be developed according to the state priorities listed above (i.e. Grasslands, Aquatic Buffers, Forestland Expansion and Forestland Improvement).

The Michigan local ranking tools will emphasize practices which address resource needs based upon the 4 major terrestrial ecoregions as identified by the Michigan's WAP.

The Southern Lower Peninsula Ecoregion encompasses 8,064 square miles. Circa 1800, fire dependent savannas and forest systems dominated this region. Most of this region is now farmed for row crops and is the most heavily farmed region of Michigan. Local ranking tools will be developed to emphasize practices which restore and develop herbaceous habitats, expand existing forestlands and develop aquatic buffers.

The Northern Lower Peninsula encompasses 8,743 square miles. Circa 1800, the common forest types included northern hardwood forest, jack pine barrens, white pine-red pine forest, hardwood-conifer swamp and conifer swamp. Most of the ecoregion remains forested by northern hardwoods, aspen oaks, pines (plantations) and lowland conifer. Local ranking tools will be developed to emphasize practices which improve forestlands, expand forestland and restore herbaceous habitats and aquatic buffers.

The Eastern Upper Peninsula ecoregion encompasses 17,114 square miles. Circa 1800, the forests included northern hardwood, white pine-red pine forest, jack pine barrens, conifer swamp, and muskeg. Most of the ecoregion remains forested, with the exception of the clay lake plains, which are used for pasture and forage crops. Local ranking tools will be developed to emphasize practices which improve forestland, expand forestland and restore aquatic buffers.

The Western Upper Peninsula ecoregion encompasses 24,287 square miles. Circa 1800, land cover included northern hardwood forests dominated by sugar maple, eastern hemlock, basswood, yellow birch and white pine. Most of the ecoregion remains hardwood forest. These forests have been recognized as a major breeding area for migratory songbirds. Several iron and copper formations were mined in the past, resulting in many abandoned shaft mines. These mines provide hibernating sites for many species of bats. Local ranking tools will be developed to emphasize practices which improved forestlands, expand forestland, provide bat friendly mine closures and restore aquatic buffers.

Criteria for measuring program success, performance goals, etc:

Part 517.50 of the WHIP manual require that benchmark wildlife habitat assessments will be completed at the time the conservation plan is developed and as determined as appropriate through the life of the WHIP cost-share agreement and at in the final year. Michigan will use the Michigan Wildlife Habitat Evaluation Procedure (Michigan Biology Technical Note #12, Attachment E) to assess WHIP contracts. A process will be developed for collection of this assessment data to capture habitat benefits.

National Performance goals were achieved according to NRCS policy for WHIP programs though the NRCS Performance Results System as appropriate.