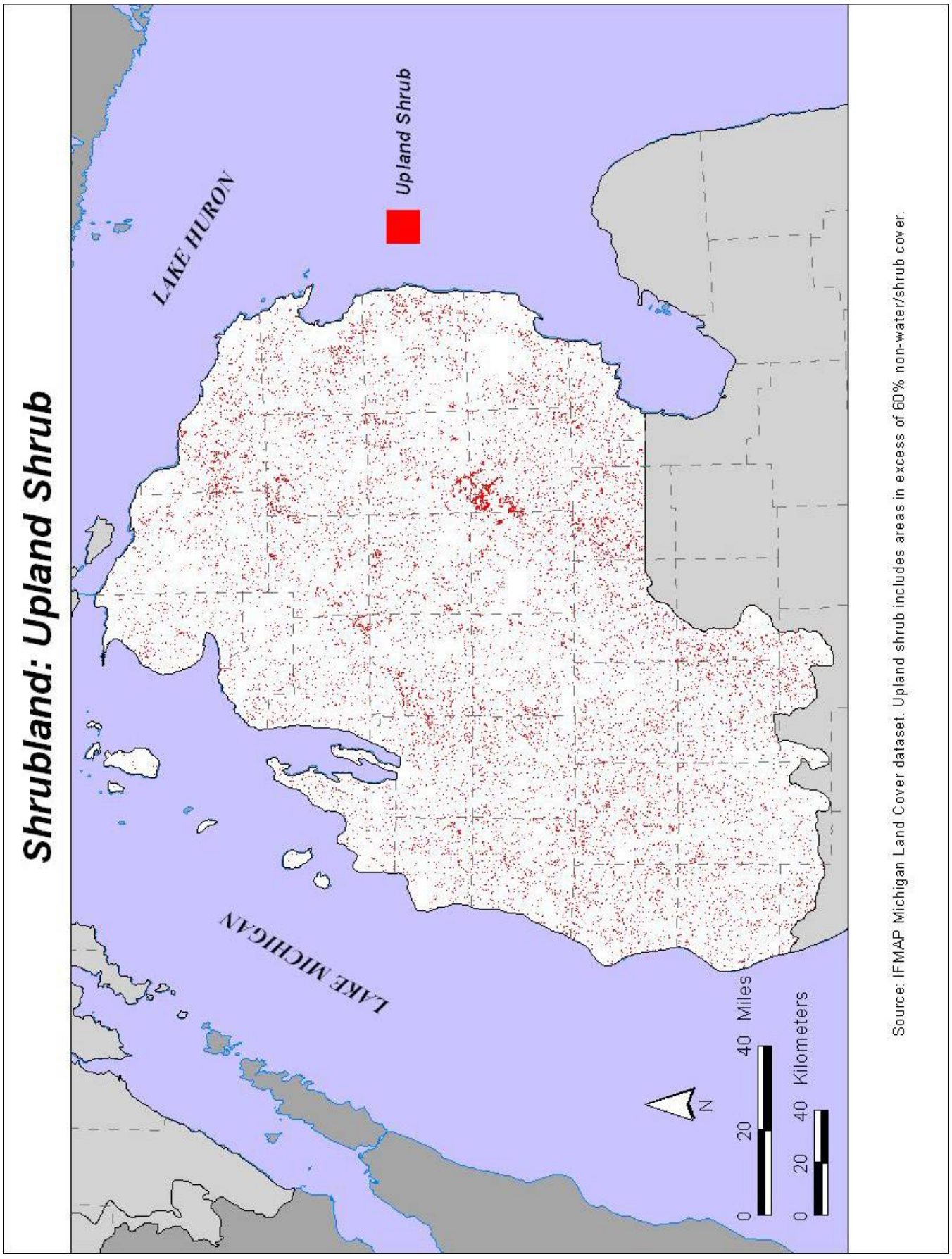
Shrubland: Upland Shrub
Upland Shrub
LAKE HURON
LAKE MICHIGAN
N
0 20 40 Miles
0 20 40 Kilometers
Source: IFMAP Michigan Land Cover dataset. Upland shrub includes areas in excess of 60% non-water/shrub cover.

Shrubland: Upland shrub

Description

Upland shrub areas have relatively dry soils and are dominated by woody shrub vegetation. These areas are often spatially and temporally dynamic across the landscape since they are an intermediate successional stage between early successional herbaceous vegetation and forest.

General Condition of Feature

Much of the upland shrub in the Northern Lower Peninsula is considered to be in fair to good condition (~60%). Most of the remaining areas are considered degraded (~25%).

Associated Natural Communities

N/A – No defined natural communities

Associated Species of Greatest Conservation Need

INSECTS
- a spur-throat grasshopper *(Melanoplus eurycercus)*
- secretive locust *(Appalachia arcana)*
- Henry's elfin *(Callophrys henrici)*

REPTILES
- blue racer *(Coluber constrictor foxii)*
- eastern fox snake *(Elaphe gloydi)*
- black rat snake *(Elaphe obsoleta obsoleta)*
- eastern hognose snake *(Heterodon platirhinos)*
- eastern massasauga *(Sistrurus catenatus catenatus)*
- Blanding's turtle *(Emydoidea blandingii)*
- wood turtle *(Glyptemys insculpta)*
- eastern box turtle *(Terrapene carolina carolina)*

BIRDS
- Sharp-tailed Grouse *(Tympanuchus phasianellus)*
- Northern Bobwhite *(Colinus virginianus)*
- Cooper's Hawk *(Accipiter cooperii)*
- American Woodcock *(Scolopax minor)*
- Black-billed Cuckoo *(Coccyzus erythropthalmus)*

BIRDS cont.
- Long-eared Owl *(Asio otus)*
- Least Flycatcher *(Empidonax minimus)*
- Migrant Loggerhead Shrike *(Lanius ludovicianus migrans)*
- Brown Thrasher *(Toxostoma rufum)*
- Blue-winged Warbler *(Vermivora pinus)*
- Prairie Warbler *(Dendroica discolor)*
- Yellow-breasted Chat (Icteria virens)
- Eastern Towhee *(Pipilo erythrophthalmus)*
- Field Sparrow *(Spizella pusilla)*
- Vesper Sparrow *(Pooecetes gramineus)*
- northern bat or northern myotis *(Myotis septentrionalis)*

MAMMALS
- eastern pipistrelle *(Pipistrellus subflavus)*
- southern red-backed vole *(Clethrionomys gapperi)*
- southern bog lemming *(Synaptomys cooperi)*
- deer mouse *(Peromyscus maniculatus gracilis)*

Associated Threats

MODIFICATION OF NATURAL PROCESSES
- Altered fire regime: Lack of fire results in succession to forested landscape features.
- Fragmentation

HABITAT CONVERSION
- Industrial, residential and recreational development: Shrubby uplands are attractive to developers for conversion to other uses.
- Conversion to agriculture
- Incompatible natural resource management: Planting of trees in upland shrub areas may lead to conversion to forested feature types.

CONSUMPTIVE BIOLOGICAL RESOURCE USE
- Mining practices: Oil and gas development may affect upland shrub areas in the Northern Lower Peninsula.

NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE
- Non-consumptive recreation: Uncontrolled ATV and ORV use may impact upland shrub areas.

BIOLOGICAL INTERACTIONS
- Invasive plants and animals: Invasive plant species such as autumn olive (*Elaeagnus umbellata*) and multiflora rose (*Rosa multiflora*) may impact species composition.
- Other biological interactions: White-tailed deer (*Odocoileus virginianus*) browse may prevent some systems from transitioning to shrubland from grassland. In other systems, white-tailed deer (*Odocoileus virginianus*) browse may prevent transition from shrubland to forested cover.

Conservation Actions Needed [Threats addressed]

LAND, WATER & SPECIES MANAGEMENT
- Manage to approximate natural disturbance regimes using prescribed fire. [Altered fire regime; Fragmentation]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]

- Manage white-tailed deer densities to allow for regeneration within shrublands. [Other biological interactions]
- Consider wildife values, timber values, and natural landcover and conditions when selecting vegetative species composition as part of management of these areas [Incompatible natural resource management]
- Work with land managers to develop priorities for upland shrub restoration and management. [Incompatible natural resource management]

LAW & POLICY

- Work with municipalities to promote planning and zoning insuring adequate protection for upland shrub systems or their conversion to features that have greater wildlife value. [Fragmentation; Industrial, residential and recreational development]
- Develop new and enforce existing regulations for mitigation of oil and gas extraction facilities. [Mining practices]
- Develop and enforce regulations to curtail recreational activities that cause significant damage. [Non-consumptive recreation]

RECREATION

- Promote responsible ATV and ORV use. [Non-consumptive recreation]

Research and Survey Needs

- Determine suitable deer densities to prevent establishment of forested features while allowing regeneration of shrubland. [Other biological interactions]
- An inventory needs to be conducted to determine the location, condition, and classification of upland shrub remnants and of the opportunities for restoration.
- Test the assumption that remnants are widely dispersed and becoming more fragmented resulting in a loss of species diversity.
- A better understanding is needed of the management needs and appropriate management techniques to maintain and improve upland shrub features.
- A better understanding is needed of the temporal distribution of fire and its influence on upland shrub.
- A better understanding is needed of the history of upland shrub sites. Many sites have been retained through cultural activities that foster maintenance of upland shrub features.
- Techniques need to be developed using remote sensing and physical inventorying to create digital data sources for use in research and planning.
- Determine the impacts of nutrient inflow on upland shrub systems. Many of these systems are adjacent to agricultural land and tend to accumulate nutrients.
- Identify sources of disturbance and their influence on upland shrub features.
- Determine the value of pasturing livestock for creating, maintaining, and degrading upland shrub sites. Pasturing may prevent succession to more forested feature types or it may prevent the establishment of shrubs in upland grasslands.
- Identify the characteristics of upland shrub systems that contribute to their value to wildlife and which species may be affected by changes in these characteristics.
- Identify invasive species that may degrade the value of upland shrub sites for wildlife. Develop techniques to control invasive species. Common invasive species include autumn olive (*Elaeagnus umbellata*) and glossy buckthorn (*Rhamnus frangula*).
- Determine whether restoration to pre-settlement or pre-logging feature types is feasible. Many of these sites may have consisted of upland shrub communities for 100 years or more and may no longer be suitable for some historic cover types.
- Determine whether regenerating northern forest carries similar wildlife value as upland shrub. Are early successional stages a good surrogate for upland shrub communities?
- Determine whether site characteristics exist that favor the establishment and retention of upland shrub communities over forested or grassland communities.

Monitoring

- Identify and track the acreage and distribution of shrub communities in multiple successional stages.