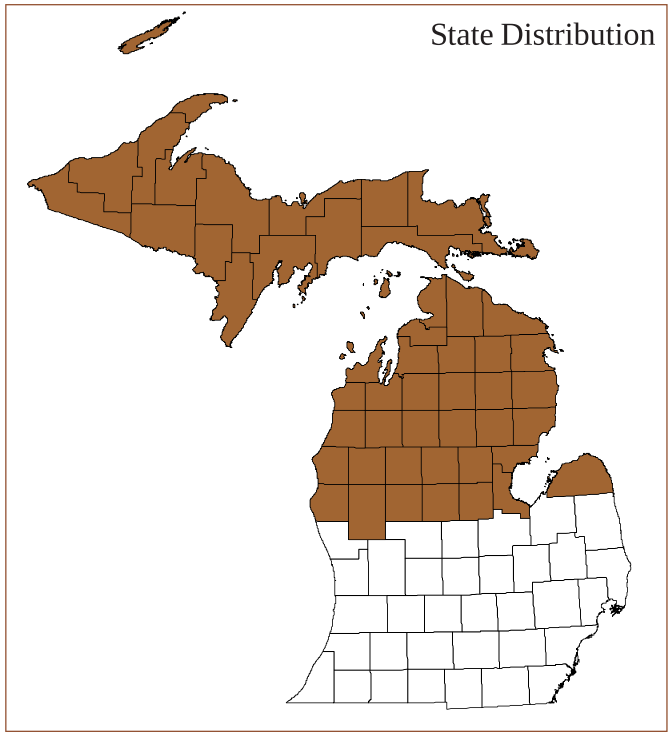
Northern Shrub Thicket — Community Abstract

Photo by Joshua G. Cohen



Overview: Northern shrub thicket is a shrub-dominated wetland located north of the climatic transition zone, typically occurring along streams, but also adjacent to lakes and beaver floodings. The saturated, nutrient-rich, organic soils are composed of sapric peat or less frequently mineral soil, typically with medium acid to neutral pH. Fluctuating water table, beaver, and windthrow limit succession to closed-canopy swamp. Northern shrub thickets are overwhelmingly dominated by *Alnus rugosa* (tag alder or speckled alder).

Global and State Rank: G5?/S5

Range: Alder swamp community types are widespread in the Midwestern and northeastern United States and southern Canada, ranging from Maine west to Manitoba, south to Iowa, and east to New Jersey, mostly north of the glacial boundary (Van Deelen 1991, Faber-Langendoen 2001, NatureServe 2005, NatureServe 2006). Within Michigan, northern shrub thicket is found in the northern half of the Lower Peninsula above the climatic transition zone and throughout the Upper Peninsula (Barnes and Wagner 1981).

Rank Justification: In the Great Lakes region, northern shrub thicket is a widespread community type that has dramatically increased in acreage from its historical extent due to anthropogenic disturbance (Daly 1966). Interpretation of notes from the original land surveys of Michigan reveal that in the 1800s, alder/willow–dominated shrub wetland covered approximately 50,490 ha (124,761 ac) or just over 0.32% of the state (Comer et al. 1995). Based on 2000 remote sensing imagery interpretation, 385,105 ha (951,600 ac) of lowland shrub type now occurs in the northern Lower Peninsula and the Upper Peninsula, comprising just under 2.5% of the state, which constitutes close to an eight-fold increase in extent (Michigan DNR 2001a, 2001b). The drastic increase in northern shrub thicket is the result of ubiquitous logging of swamp forests, fire suppression, and alteration of hydrologic regimes, which were influenced by the elimination and then limited reestablishment of beaver. Widespread logging of conifer swamp at the end of the 19th century and beginning of the 20th century (Karamanski 1989) resulted in the conversion of many forested swamps to northern shrub thickets in the Great Lakes region (Curtis 1959, Heinselman 1963). As noted by Vincent (1964), shade-intolerant alder develops rapidly following the removal of the softwood overstory. In addition, alder can become established in multiple treefall gaps. Extensive mortality of *Ulmus americana* (American elm) caused by Dutch elm disease not only eliminated elm as a dominant overstory tree in swamp ecosystems but also allowed the expansion of shrub-dominated communities (Huenneke 1983). The capacity of alder to form dense, impenetrable thickets can retard or prevent tree establishment and regeneration (Huenneke 1983, Huenneke 1987). The extensive logging at the turn-of-the-century caused a rise in the water table in many sites, which caused the expansion of shrub-dominated systems at the expense of forest. In other areas historically dominated by open, herbaceous wetlands (i.e., northern wet meadow, northern fen, emergent marsh), tiling or ditching associated with agriculture and road building have lowered the water table, which resulted in the conversion of these open systems to shrub-dominated wetlands (Curtis 1959, White 1965, Reuter 1986, Eggers and Reed 1997, Hoffman 2002). Beginning in the 1920s, effective fire control by the U.S. Forest Service and state agencies reduced the acreage of fires ignited by humans or lightning (Swain 1973). As the result of fire suppression and subsequent shrub encroachment, many formerly open wetlands have since converted to shrub-dominated wetlands (Curtis 1959, Davis 1979, Reuter 1986, Jean and Bouchard 1991, Eggers and Reed 1997, Hoffman 2002). This is especially evident where the water table has been lowered through tiling or ditching and where the practice of mowing for marsh hay has been abandoned (White 1965, Eggers and Reed 1997). Drastic reductions in beaver populations following the fur-trading era significantly altered the hydrologic regimes of wetland ecosystems across the Great Lakes. In the absence of periodic long-term flooding by beaver, many streamside northern wet meadows have gradually converted to northern shrub thickets. In some locations, northern shrub thicket has been maintained and expanded by wildlife management geared toward providing favorable habitat for game species of early-successional habitat (particularly white-tailed deer, American woodcock, and ruffed grouse).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Occurring frequently along streams, northern shrub thickets are characterized by saturated and nutrient-rich organic or mineral soils.

Physiographic Context: Northern shrub thickets occur principally along streams, beaver floodings, lakeshores, and rivers primarily within glacial outwash channels and less frequently within ice-contact topography and coarse-textured end moraines (Curtis 1959, Schwintzer and Tomberlin 1982, Hoffman 1989, Faber-Langendoen 2001, Hoffman 2002, NatureServe 2006, Kost et al. 2007). Sites are characterized by little to no slope, can range from small pockets to extensive acreages, and are often a narrow band or zone of 20 to 30 meters (65 to 100 feet) within a larger wetland complex (Curtis 1959, White 1965, Faber-Langendoen 2001, NatureServe 2005, NatureServe 2006). Northern shrub thicket typically occurs adjacent to other wetland communities such as emergent marsh, northern wet meadow, northern hardwood swamp, poor conifer swamp, hardwood-conifer swamp, and rich conifer swamp. Northern shrub thicket can also be one of many zones within matrix communities such as Great Lakes marsh, northern fen, and wooded dune and swale complex. The soils overlaying the glacial till are wet to moist, nutrient-rich, well-decomposed sapric peat, or occasionally mineral soil (Curtis 1959, Van Deelen 1991, Faber-Langendoen 2001, NatureServe 2006, Kost et al. 2007). The pH ranges widely from alkaline to acidic (Curtis 1959) with medium acidity being the most prevalent condition (Kost et al. 2007). Northern shrub thickets are non-stagnant wetlands with high levels of dissolved oxygen and soil nitrogen. These wetlands are seasonally flooded and range from poorly-drained to well-drained with most sites remaining saturated throughout the growing season (Curtis 1959, Daly 1966, Parker and Schneider 1974, Van Deelen 1991, Eggers and Reed 1997, NatureServe 2006). Researchers have documented a strong correlation between soil moisture content and nitrogen concentration in alder-dominated wetlands (Voigt and Steucek 1969).

The Michigan range of northern shrub thicket falls within the area classified by Braun (1950) as the Northern Hardwood-Conifer Region (Hemlock/White Pine/Northern Hardwoods Region) and within the following regions classified by Albert et al. (1986) and Albert (1995): Region II, Northern Lower Michigan; Region III, Eastern Upper Michigan; and Region IV, Western Upper Michigan. The Northern Hardwood-Conifer Region has a cool snow-forest climate with short, warm summers, cold winters and a large number of cloudy days. The daily maximum temperature in July ranges from 24 to 29 °C (75 to 85 °F), the daily minimum temperature in January ranges from –21 to –9 °C (–5 to 15 °F) and the mean annual temperature is 7 °C (45 °F). The mean number of freeze-free days is between 90 and 160, and the average number of days per year with snow cover of 2.5 cm (1 in) or more is between 80 and 140. The normal annual total precipitation ranges from 740 to 900 mm (30 to 35 in) with a mean of 823 mm (32 in) (Albert et al. 1986, Barnes 1991, Albert 1995).

Natural Processes: The dominant species of northern shrub thicket is tag alder. Alder contains symbiotic nitrogen-fixing bacteria (*Frankia*) in its root nodules that fix atmospheric nitrogen (Daly 1966, Van Deelen 1991, NatureServe 2006). Soil nitrogen may accumulate at rates in excess of 85 kg/ha (Daly 1966, Voigt and Steucek 1969). In addition to atmospheric fixation of nitrogen, the rapid decomposition of alder leaves contributes to the enrichment of the soil (Barnes and Wagner 1981). Organic matter accumulates very slowly in these systems since litter fall is broken down extremely rapidly (Daly 1966). Leaf litter beneath the shrub canopy is usually thin (often less than one centimeter) (Voigt and Steucek 1969). In addition to increasing the nitrogen supply of wetland soils, northern shrub thickets input nutrient-rich detritus into aquatic ecosystems (NatureServe 2006). Northern shrub thickets are most frequently found along streams subject to periodic, seasonal flooding. The soils are typically saturated and well-aerated (Curtis 1959). Northern shrub thickets are often areas of high primary productivity because of the high nutrient supply in addition to normally favorable oxygen and soil moisture levels (Tilton and Bernard 1975). In sites subject to periodic flooding, alder stems can slow floodwaters and trap sediment. Over time, fine-textured sediments accumulate over coarser alluvial material and the land surface may eventually rise above the flood levels (NatureServe 2006).

Historically, alder was one of the first woody species to colonize recently deglaciated landscapes as an early-successional species (Sears 1948). Currently, northern shrub thickets can become established following severe disturbance of swamp forested systems or by invading open wetlands. Alder is shade-intolerant (Barnes and Wagner 1981, Huenneke and Marks 1987), tolerant of seasonal flooding (Knighton 1981, Ohmann et al. 1990), and moderately tolerant of fire (Van Deelen 1991). Alder often persists in swamp forests in light gaps. Flooding (i.e., from beaver or fluvial processes), fire, disease, and windthrow can result in sufficient mortality of the swamp forest overstory to allow for the complete opening of the forest canopy and the expansion of alder through establishment of seedlings or stump sprouting. Following canopy release, alder can form dense, impenetrable thickets that retard or prevent tree establishment (Huenneke 1983, 1987). Within open wetlands, alder and associated shrubs can become established following alteration in the fire or hydrologic regime. Prolonged periods without fire, an absence of beaver flooding, or the lowering of the water table allows for shrub encroachment into open wetlands and conversion to northern shrub thicket (Curtis 1959, White 1965, Jean and Bouchard 1991, Eggers and Reed 1997, Hoffman 2002).

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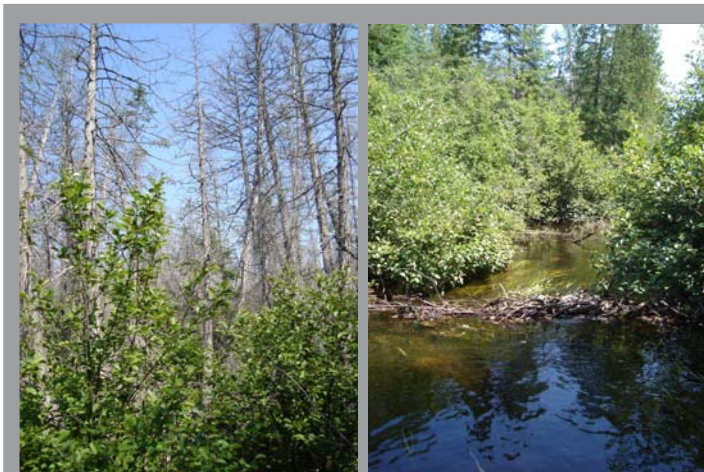
Lowering of the water table, an absence of beaver flooding, or fire suppression can result in the conversion of northern wet meadow to northern shrub thicket.

Once established northern shrub thicket can persist if disturbance factors maintain the open canopy conditions. Windthrow, beaver herbivory, beaver flooding, seasonal flooding, and fire can all limit tree establishment and survival (Kost et al. 2007). Alder's capacity to stump-sprout following fire, herbivory, and seasonal or short-term flooding allow it to persist after these disturbances (Huenneke and Marks 1987, Ohmann et al. 1990). Basal sprout production is critical for maintenance of alder thickets (Huenneke 1987, Huenneke and Marks 1987). Northern shrub thickets can recover from moderate flooding and fire disturbance within five years (White 1965). In instances where flooding or fire is severe (prolonged flooding above the root crown or burning of the mineral soil and root crown), alder fails to stump sprout and the shrub thicket may be replaced by an open wetland, such as northern wet meadow or northern fen (Knighton 1981, Ohmann et al. 1990, Van Deelen 1991). Alder and willow are adapted to periodic flooding but intolerant of prolonged and severe flooding, which may occur as a result of beaver damming (Knighton 1981, Ohmann et al. 1990).



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Severe beaver flooding can convert forested wetlands to shrub swamp (left) or convert existing shrub swamps to northern wet meadow, while moderate flooding can maintain existing northern shrub thickets (right).

In the absence of disturbance factors that prevent tree establishment and survival or conversion to more open conditions, northern shrub thicket typically succeeds to closed-canopy swamp forest (Curtis 1959). The capacity of alder to condition the soil by increasing the available nitrogen and contribute to the accumulation of top soil through sediment trapping creates a suitable soil substrate for tree establishment and growth. Saplings of tree species grow through the shrub layer and once a tree canopy becomes established, alder are shaded out. Unable to continue sprout production, alder experiences a diminished capacity to fix nitrogen, and declines (Daly 1966, Barnes and Wagner 1981, Huenneke and Marks 1987). Tree species that typically invade northern shrub thickets include *Abies balsamea* (balsam fir), *Acer rubrum* (red maple), *Fraxinus nigra* (black ash), *Larix laricina* (tamarack), *Picea mariana* (black spruce), *Populus balsamifera* (balsam poplar), *Populus tremuloides* (quaking aspen), and *Thuja occidentalis* (northern white-cedar) (Parker and Schneider 1974, Van Deelen 1991, Faber-Langendoen 2001, NatureServe 2006, Kost et al. 2007). Northern shrub thickets can be replaced by northern hardwood swamp, hardwood-conifer swamp, rich conifer swamp, and poor conifer swamp. Succession from shrub swamp to swamp forest can occur within ten years but may take longer. Curtis (1959) postulated that the minimum life expectancy of shrub-carr (in southern Wisconsin) is fifty years.

Vegetation Description: Northern shrub thicket is characterized by an overwhelming dominance of tag alder, which forms dense, often monotypic thickets with canopy coverage ranging between 40 to 95% and stand height ranging from one to eight meters but typically between one and three meters (Curtis 1959, Vincent 1964, White 1965, Parker and Schneider 1974, Tilton and Bernard 1975, Mattson and Winsauer 1986, Huenneke 1987, Hoffman 1989, Van Deelen 1991, Faber-Langendoen 2001, Hoffman 2002, NatureServe 2006, Kost et al. 2007). Estimates of stem density range widely from 5,000 to 30,000 stems per acre (Vincent 1964, Mattson and Winsauer 1986, Tilton and Bernard 1975).

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Alder and associated shrubs form seemingly impenetrable thickets. Floristic diversity of these systems decreases with shrub canopy closure.

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In a study in Upper Michigan and northern Wisconsin, Mattson and Winsauer (1986) estimated that on average, alder thickets produce close to 30 tons of green biomass per acre. Stem diameter of alder is typically between one to five inches (Parker and Schneider 1974, Tilton and Bernard 1975, Barnes and Wagner 1981, Mattson and Winsauer 1986). Alder are monoecious and wind-pollinated with germination usually requiring exposed mineral soil (Huenneke 1985, Van Deelen 1991). Within established stands of alder, vegetation reproduction through stump sprouting provides most of the new stems (Huenneke 1985, Huenneke 1987, Van Deelen 1991). Alder forms clonal clumps where few to many stems arise at the root collar (Barnes and Wagner 1981). A fast-growing, shade-intolerant shrub, alder is usually short-lived; alder stems typically live 10 to 30 years (Tilton and Bernard 1975, Barnes and Wagner 1981, Huenneke 1987, Huenneke and Marks 1987).

Northern shrub thicket exhibits a high degree of floristic homogeneity due to the dominance of alder (Tilton and Bernard 1975). Floristic diversity is usually correlated with the degree of shrub canopy closure with higher levels of diversity occurring in more open sites (Eggers and Reed 1997). The understory, which is comprised of species from both wet meadow and swamp forest (Curtis 1959), is dominated by an array of short shrubs, forbs, grasses, sedges, and ferns. The density of the understory varies inversely with the density of the tall-shrub canopy.


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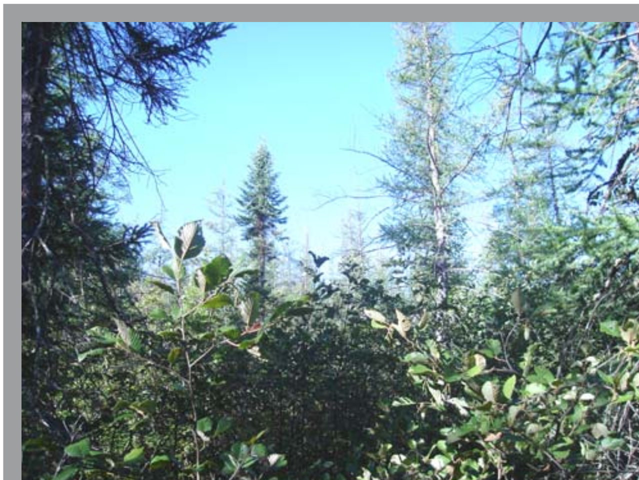
Floristic diversity and graminoid cover of northern shrub thickets increase as shrub density decreases.

Prevalent herbs of the northern shrub thicket include: *Asclepias incarnata* (swamp milkweed), *Aster lanceolatus* (panicled aster), *A. puniceus* (swamp aster), *A. umbellatus* (flat-topped aster), *Caltha palustris* (marsh marigold), *Campanula aparinoides* (marsh bellflower), *Chelone glabra* (turtlehead), *Clematis virginiana* (woodbine), *Epilobium coloratum* (purple-leaf willow-herb), *Eupatorium maculatum* (joe-pye-weed), *E. perfoliatum* (boneset), *Galium asprellum* (rough bedstraw), *Impatiens capensis* (jewelweed), *Iris versicolor* (wild blue flag), *Lycopus uniflorus* (northern bugleweed or water-horehound), *Mentha arvensis* (wild mint), *Mimulus ringens* (monkey-flower), *Polygonum sagittatum* (tear-thumb or smartweed), *Rumex orbiculatus* (greater water dock), *Scutellaria galericulata* (common skullcap), *S. lateriflora* (mad-dog skullcap), *Senecio aureus* (golden ragwort), *Smilacina trifolia* (false Solomon-seal), *Solidago canadensis* (Canada goldenrod), *S. gigantea* (late goldenrod), *S. rugosa* (rough goldenrod), *Symplocarpus foetidus* (skunk cabbage), and *Thalictrum dasycarpum* (purple meadow rue). Where the tall shrub canopy is open, graminoids can become dense. The most dominant grass species in northern shrub thicket is *Calamagrostis canadensis* (bluejoint grass). Other common grasses include *Bromus ciliatus* (fringed brome), *Glyceria striata* (fowl manna grass), *Leersia oryzoides* (cut grass), and *Poa palustris* (fowl meadow grass). A diversity of sedge species is found in these systems including *Carex stricta* (tussock sedge), *C. flava* (yellow sedge), *C. lacustris* (lake or hairy sedge), and *C. leptalea* (bristly-stalked sedge). Bulrushes such as *Scirpus atrovirens* (green bulrush) are also common. Numerous species of *Sphagnum* moss and ferns thrive in these moist, saturated systems. Characteristic ferns and fern allies include *Dryopteris cristata* (crested woodfern), *Equisetum arvense* (common horsetail), *Onoclea sensibilis* (sensitive fern), *Osmunda cinnamomea* (cinnamon fern), *Osmunda regalis* (royal fern), and *Thelypteris palustris* (marsh fern).

The understory layer may also contains numerous short shrubs including *Chamaedaphne calyculata* (leatherleaf), *Ledum groenlandicum* (Labrador tea), *Myrica gale* (sweet gale or wax-myrtle or bayberry), *Potentilla palustris* (marsh cinquefoil), *Ribes americanum* (wild black currant), *Rubus hispidus* (swamp dewberry), *R. pubescens* (dwarf raspberry), *R. strigosus* (wild red raspberry), and *Spirea alba* (meadowsweet). Where alder does not form a monospecific shrub layer, associates of the tall shrub layer can include *Aronia prunifolia* (black chokeberry), *Betula pumila* (bog birch), *Cornus amomum* (silky dogwood), *C. stolonifera* (red-osier dogwood), *Ilex verticilata* (winterberry), *Salix bebbiana* (Bebb's willow), *S. discolor* (pussy willow), *S. exigua* (sandbar willow), *S. petiolaris* (slender willow), *Viburnum cassinoides* (wild-raisin), and *V. opulus* var. *americanum* (highbush-cranberry). Scattered trees and tree saplings are often found invading northern shrub thickets. Typical tree species include balsam fir, red maple, black ash, tamarack, black spruce, balsam poplar, quaking aspen, and northern white-cedar. (Above species lists compiled from Michigan Natural Features Inventory database, Curtis 1959, White 1965, Parker and Schneider 1974, Hoffman 1989, Van Deelen 1991, Eggers and Reed 1997, Faber-Langendoen 2001, Hoffman 2002, NatureServe 2006.)



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In the absence of disturbance, northern shrub thickets are often invaded by conifers such as tamarack.

Michigan Indicator Species: bluejoint grass, joe-pye-weed, marsh fern, marsh marigold, northern bugleweed, sensitive fern, jewelweed, and tag alder.

Other Noteworthy Species: Northern shrub thicket provide habitat for numerous herptiles including *Emys blandingii* (Blanding's turtle, state special concern), *Glyptemys insculpta* (wood turtle, state special concern), *Pseudacris triseriata maculata* (boreal chorus frog, state special concern), and *Sistrurus catenatus catenatus* (eastern massasauga, federal candidate species and state special concern). If suitable nesting trees or snags are available, *Haliaeetus leucocephalus* (bald eagle, state threatened) and *Pandion haliaetus* (osprey, state threatened) can be found nesting in these systems and *Ardea herodias* (great blue heron, protected by the Migratory Bird Treaty Act of 1918) can establish rookeries (Hoffman 1989). *Oncocnemis piffardi* (three-striped oncocnemis, state special concern moth) utilizes northern shrub thickets, especially where its host plant meadowsweet is prevalent.

Rare plants associated with northern shrub thicket include *Listera auriculata* (auricled twayblade, state special concern), *Lonicera involucrata* (black twinberry, state threatened), *Mimulus guttatus* (western monkey-flower, state special concern), *Stellaria crassifolia* (fleshy stitchwort, state threatened), and *Thalictrum venulosum* var. *confine* (veiny meadow-rue, state special concern). The single Michigan collection of *Equisetum telmateia* (giant horsetail, presumed extirpated from Michigan) was from a "damp alder thicket".

The leaves and twigs of alder provide important browse for a wide array of mammals including *Alces alces* (moose, state threatened), *Ondatra zibethicus* (muskrat), *Castor canadensis* (beaver), *Sylvilagus floridanus* (cottontail rabbit), and *Lepus americanus* (snowshoe hare). Beaver build dams and lodges with alder stems and as noted above, can profoundly influence the hydrology of northern shrub thickets through their dam-building activities. The buds and seeds of alder are eaten by a diversity of birds. Songbirds feed on alder seeds and *Philohela minor* (American woodcock) and *Bonasa umbellus* (ruffed grouse) eat the buds and catkins. Thickets of alder provide important hiding cover for species such as *Odocoileus virginianus* (white-tailed deer), *Lutra canadensis* (river otter), and *Mustela vison* (mink) (Barnes and Wagner 1981, Van Deelen 1991). *Canis lupus* (gray wolf, state threatened) and *Lynx canadensis* (lynx, state endangered) also utilize shrub thicket habitat.

Conservation and Biodiversity Management: Northern shrub thicket is a widespread community type in the Great Lakes region and has dramatically increased from its historical extent due to anthropogenic disturbance. Alder swamps contribute significantly to the overall biodiversity of northern Michigan by providing habitat to a wide variety of plant and animal species including several rare species. In addition, northern shrub thickets provide ecosystem services, protecting water quality by assimilating nutrients, trapping sediment, and retaining stormwater and floodwater. Northern shrub thickets have replaced many rare and declining wetland communities such as rich conifer swamp and northern fen. Where shrub encroachment threatens to convert open wetlands to shrub-dominated systems, repeated prescribed fires, prolonged flooding, mowing, or herbicide application to cut shrub stumps can be employed to maintain open conditions (White 1965, Heidorn 1991). On sites in which northern shrub thicket is succeeding to swamp forest, allowing succession to proceed unhindered will result in the increase of less common swamp systems. In situations where the management objective is to prevent succession, northern shrub thicket can be maintained by cutting the overstory (Vincent 1964). Following canopy removal with scarification of the soil and mild intensity burning encourages alder regeneration (Van Deelen 1991).

Monitoring and control efforts to detect and remove invasive species are critical to the long-term viability of northern shrub thicket and associated wetlands. Particularly aggressive invasive species that threaten the diversity and community structure include *Rhamnus frangula* (glossy buckthorn), *Rosa multiflora* (multiflora rose), *Lythrum salicaria* (purple loosestrife), *Typha angustifolia* (narrow-leaved cat-tail), *Typha* x*glauca* (hybrid cat-tail), *Phalaris arundinacea* (reed canary grass), and *Phragmites australis* (reed).

Research Needs: Northern shrub thicket has a broad distribution and exhibits numerous regional, physiographic, hydrologic, and edaphic variants. The diversity of variations throughout its range demands the continual refinement of regional classifications that focus on the inter-relationships between vegetation, physiography, hydrology, and soils (White 1965, Barnes et al. 1982, Hoffman 1989, Faber-Langendoen 2001, NatureServe 2006). Little is known about the flooding and fire regimes of northern shrub thickets and the interaction of disturbance factors within these systems. As noted by Hammerson (1994), beaver significantly alter the ecosystems they occupy. An important research question to examine is how the wetland ecosystems of the Great Lakes have been and continue to be affected by fluctuations in populations of beaver. Experimentation is needed to determine how best to prevent shrub encroachment of open wetlands that are threatened by conversion to northern shrub thicket. Effects of management within northern shrub thickets need to be monitored to allow for assessment and refinement of management techniques. The examination of non-native plant establishment in northern shrub thickets and means of controlling invasive species is especially critical.

Photo by Joshua G. Cohen

Important research needs include ascertaining how flooding and fire interact at the landscape and local scales to influence northern shrub thickets and associated wetlands.

Similar Communities: floodplain forest, Great Lakes marsh, hardwood-conifer swamp, inundated shrub swamp, northern fen, northern hardwood swamp, northern wet meadow, poor conifer swamp, rich conifer swamp, southern shrub-carr, and wooded dune and swale complex.

Other Classifications:

Michigan Natural Features Inventory (MNFI) Circa 1800 Vegetation: Alder, Willow, Bog Birch Thicket (6122), and Emergent Marsh or Shrub Swamp (6221).

Michigan Department of Natural Resources (MDNR): L (lowland brush).

Michigan Resource Information Systems (MIRIS): 612 (shrub/scrub wetland).

Integrated Forest Monitoring, Assessment, and Prescription (IFMAP): Lowland Shrub (622).

The Nature Conservancy National Classification: CODE; ALLIANCE; ASSOCIATION; COMMON NAME

III.B.2.N.e; *Alnus incana* Seasonally Flooded Shrubland Alliance; *Alnus incana* Swamp Shrubland; Speckled Alder Swamp Shrubland; Speckled Alder Swamp

NatureServe Ecological Systems Classification:

CES201.582: Laurentian-Acadian Wet Meadow-Shrub Swamp

Related Abstracts: Blanding's turtle, eastern massasauga, floodplain forest, great blue heron rookery, Great Lakes marsh, hardwood-conifer swamp, northern fen, northern swamp, northern wet meadow, osprey, poor conifer swamp, rich conifer swamp, wooded dune and swale complex, and wood turtle.

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Abstract Citation:

Cohen, J.G., and M.A. Kost. 2007. Natural community abstract for northern shrub thicket. Michigan Natural Features Inventory, Lansing, MI. 9 pp.

Photo by Joshua G. Cohen

Northern shrub thicket is prevalent along the Two Hearted River in Luce County, Upper Michigan.

Funding for abstract provided by Michigan Department of Military and Veterans Affairs.

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