

ATTACHMENT 5
EDINGER ECOLOGICAL COMMUNITIES

**Edinger Ecological Communities
at the
Proposed Marble River Wind Farm Site**

Red Maple Hardwood Swamp

Red Maple Hardwood Swamp is the most dominant forested covertype and one of the most common wetland community types occurring within the Survey area. These areas may consist of a monoculture canopy of red maple (*Acer rubrum*) or a co-dominance of red maple and gray birch (*Betula populifolia*). American elm (*Ulmus americana*), yellow birch (*B. alleghaniensis*) and balsam fir (*Abies balsamea*) occasionally occur as sub-dominants. These swamps often have gaps in the canopy allowing for a dense understory with many saplings and a thick shrub layer containing species such as speckled alder (*Alnus rugosa*), beak willow (*Salix bebbiana*), silky willow (*S. sericea*) and meadowsweet (*Spirea latifolia*). The herbaceous layer may be quite diverse with ferns including sensitive fern (*Onoclea sensibilis*) and cinnamon fern (*Osmunda cinnamomea*). Characteristic herbs include soft rush (*Juncus effusus*), Northern bugleweed (*Lycopus uniflorus*), rough-stemmed golden rod (*Solidago rugosa*), flat-topped aster (*Aster umbellatus*), sphagnum moss (*Sphagnum* sp.) and sedge species including bladder sedge (*Carex intumescens*), shallow sedge (*C. lurida*) and pointed broom sedge (*C. scoparia*).

Shrub Swamp

Shrub swamps are dominated by tall shrubs that occur along the shore of lakes or rivers, in a wet depression not associated with lakes, or in a transitional zone between a marsh, swamp, or bog and an upland community. This is a broadly defined, highly variable covertype that includes several distinct communities and many intermediates. Shrub swamps may have a single dominant shrub species or be co-dominated by a mixture of species. Speckled alder, beak willow and silky willow are the most frequently dominating shrubs of this community within the survey area. Various other shrub species with occasional occurrence include highbush cranberry (*Viburnum trilobum*), steplebush (*Spirea tomentosa*), meadowsweet and red osier dogwood (*Cornus stolonifera*). These wetland communities are frequently associated with stream complexes and may contain emergent wetland sedges and grasses.

Shallow Emergent Marsh

Shallow emergent marshes are permanently saturated and seasonally flooded wetlands that can be dominated by a variety of herbaceous vegetation. Common dominant herbaceous plants within the Survey area include soft rush, green bulrush (*Scirpus atrovirens*), wool-grass (*S. cyperinus*), bladder sedge, shallow sedge, pointed broom sedge, fox sedge (*Carex vulpinoidea*), rush aster (*Aster junciformis*), flat-topped aster, New York aster (*A. novi-belgii*), arrow-leaf tearthumb (*Polygonum sagittatum*), marshpepper smartweed (*P. hydropiper*), eastern Joe-pye-weed (*Eupatoriadelphus dubium*), lance-leaf goldenrod (*Euthamia graminifolia*), rough-stemmed goldenrod, jewelweed (*Impatiens capensis*), rattle snake grass (*Glyceria canadensis*), fowl meadow grass (*Poa palustris*), broad-leaved cattail (*Typha latifolia*) and reed canary grass (*Phalaris arundinacea*). Marshes must have less than 50 percent cover of peat and tussock-forming sedges such as tussock sedge (*Carex stricta*); otherwise it may be classified as a sedge meadow. Other plants characteristic of shallow emergent marshes include blue flag iris (*Iris versicolor*), sensitive fern, cinnamon fern, and rushes (*Juncus* spp.). Shallow emergent marshes

commonly have scattered shrub species including speckled alder, dogwoods (*Cornus* spp.), willows (*Salix* spp.) and spireas (*Spirea* spp.).

Northern White Cedar Swamp

Northern white cedar (*Thuja occidentalis*) swamps are conifer or mixed conifer swamps that occur on organic soils in cool, poorly drained depressions, and along lakes and streams. Co-dominants at the 11 delineated wetlands classified as northern white cedar swamp include gray birch, yellow birch (*Betula alleghaniensis*), balsam fir, and red maple. Understories of these wetlands include tree saplings and species such as speckled alder, Canadian serviceberry (*Amelanchier canadensis*), and meadowsweet in the shrub strata, and sedge species (*Carex* spp.), sensitive fern, cinnamon fern, and sphagnum moss in the herbaceous layer.

Balsam Flats

Balsam flats are generally an upland conifer forest community that occurs on well drained soils of low flats adjoining swamps, gentle low ridges, and knolls within swamps. At the Site, balsam flats occur in 28 delineated wetlands. Co-dominants in these wetlands include red maple, and gray birch. The herbaceous layers include species such as nannyberry, sheep laurel (*Kalmia angustifolia*), speckled alder, meadowsweet, sensitive fern, and sphagnum moss.

Rich Shrub Fen

Rich shrub fens are open peatlands with greater than 8 inches (20 cm) of woody peat. At the Site, rich shrub fen communities are present at two delineated wetlands: the AR80A portion of wetland AR80/81A and AR606B. Wetland AR80A occurs between Robare Pond Road and Turbine 10A and wetland AR606B occurs along Bootleg Road. At wetland AR80A, the sparse tree, moderate shrub and dense herbaceous layers are dominated by northern white cedar, speckled alder and sphagnum moss, respectively. At wetland AR606B, gray birch, speckled alder, and nannyberry dominate the shrub layer, and sedge and moss species dominate the dense herbaceous layer.

Successional Northern Hardwoods

Successional northern hardwoods are hardwood or mixed forests that occur on sites that have been cleared or otherwise disturbed. This broadly-defined community occurs at 17 wetlands at the Site. Characteristic trees and saplings in these wetlands include gray birch, red maple, American elm (*Ulmus Americana*), yellow birch, and aspen (*Populus* spp.). Communities are often dominated by species well adapted to establishment following disturbance. Common understory vegetation at the Site includes sensitive fern, jewelweed, Canada mayflower, and sedge and moss species.

Hemlock-Hardwood Swamp

Hemlock-hardwood swamps are mixed swamps with a fairly closed canopy, sparse shrub layer, and low species diversity. At the Site, this community occurs at one wetland (AR941A) in conjunction with a balsam flats community. Hemlock (*Tsuga canadensis*) is typically co-dominated by yellow birch and red maple. The herbaceous layer includes sensitive fern, New York fern (*Thelypteris noveboracensis*), and Northern bugleweed.

Black Spruce-Tamarack Bog

Black spruce-tamarack bogs are conifer forests that occur on acidic peatlands in cool, poorly drained depressions. At the Site, this community occurs at one wetland (IC1038A) and would not be affected by the project. Tamarack (*Larix laricina*) is the dominant tree species at this wetland; black spruce was not observed at the sample station but may occur elsewhere. The shrub and herb layers consist of low-growing evergreen, ericaceous shrubs and sphagnum mosses and include leatherleaf (*Viburnum rhytidophyllum*), bog labrador tea (*Ledum groenlandicum*), bog rosemary (*Andromeda glaucophylla*), sheep laurel, and sphagnum moss.

Red Maple-Tamarack Peat Swamp

Red maple-tamarack peat swamps are mixed swamps that occur on organic soils in poorly drained depressions. At the Site, this community occurs at one wetland (IC1038B). Dominant trees are red maple and tamarack while the understory is dominated by highbush blueberry (*Vaccinium corymbosum*), mountain holly (*Nemopanthus mucronatus*), and sphagnum moss.

Spruce-fir Swamp

Spruce-fir swamps are conifer swamps that typically occur in drainage basins, but can also occur at the edge of a lake or pond. In the Adirondacks, these swamps are often found in drainage basins occasionally flooded by beaver. At the Site, spruce-fir swamp communities were found at four delineated wetlands. The dominant tree is usually red spruce (*Picea rubens*). Co-dominant trees include balsam fir and red maple, but gray birch was also found in the wetlands. Shrub layers include serviceberry and meadowsweet; herb layers include peat and club mosses, sheep laurel, soft rush, and sedge species.

Cropland/Row Crops

Cropland/row crops are agricultural fields planted in row crops (*e.g.* corn). This community occurs in two wetlands (AR16A and AR16BC). Because these field wetlands had been plowed at the time of the Site visit, most of the vegetation was unidentifiable, presenting an Atypical Situation. Wetland plant species observed at these two sites included reed canary grass and *Scirpus* species. Upland species included common plantain (*Plantago major*), fall dandelion (*Leontodon autumnalis*), and clover (*Trifolium* spp.).

Cropland/Field Crops

Cropland/field crops are agricultural fields planted in field crops (*e.g.* timothy) and includes hayfields that are rotated to pasture. This community occurs in 18 wetlands. Dense herbaceous layers are dominated by vegetative species such as reed canary grass (*Phalaris arundinacea*), timothy (*Phleum pretense*), sedge species, and fowl meadow grass.

Pastureland

Pastureland is defined as agricultural land permanently maintained (or recently abandoned) as a pasture area for livestock. This community occurs in 25 wetlands. Herbaceous species dominating these wetlands include various grass species, sedge species, green bulrush (*Scirpus atrovirens*), soft rush (*Juncus effuses*), goldenrod species (*Solidago* spp.), aster species (*Aster* spp.), and buttercup species (*Ranunculus* spp.).

Successional Old Field

Successional old fields are meadows dominated by forbs and grasses that occur on sites that have been cleared and plowed (*e.g.* for farming) and then abandoned. This community occurs in eight wetlands. Vegetative species dominating these wetlands include fowl mannagrass (*Glyceria striata*); sedge species including fringed, shallow and bladder sedges; aster species; purple-leaf willow-herb (*Epilobium coloratum*); bulrush species, Northern bugleweed; and goldenrod species.

Mowed Lawn

Mowed lawn is a terrestrial community type in which ground cover is dominated by clipped grasses which are maintained by mowing. This community occurs in a portion of one wetland (AR719-A/B/C) in the vicinity of a residential structure and included various sedge (*Carex* spp.) and spikerush (*Eleocharis* spp.) species, not able to be identified to the species level in the field due to regular lawn maintenance.