

3.5 Living Resources

3.5.1 Regional Setting

The Nation's lands proposed for trust transfer are located entirely within the Oneida Lake Watershed. The Oneida Lake Watershed comprises 1,364 square miles and includes portions of six counties in central New York State, including Cortland, Lewis, Madison, Oneida, Onondaga and Oswego Counties. The Oneida Lake watershed serves as an environmental linkage for the surrounding region as precipitation that falls within the watershed area, and drains through it, eventually travels to the lake. The following section describes the environmental characteristics of the watershed in order to provide a regional context for assessing the existing ecological and agricultural resources located on the Nation's lands.

The Oneida Lake Watershed is located within a transition zone between three physiographic regions, the Eastern Lake section of the Central Lowland Interior Plains and the Mohawk and Southern New York sections of the Appalachian Highlands (Fenneman and Johnson, 1946; United States Geological Survey, 2003). These three physiographic provinces are discussed in more detail in Section 3.2.1.2 Topography of the Study Area. Southern and eastern areas of Oneida County and northern areas of Madison County largely consist of broad, flat plains surrounding Oneida Lake. These areas are largely located in the Eastern Lake section of the Central Lowland Interior Plains, also referred to as the Erie/Ontario Lake Plains. Southern areas of Madison County are located in the Southern New York section of the Appalachian Highlands. These areas contain a series of north-south trending valleys. Many of the streams that drain into Oneida Lake from the south originate in the Appalachian Highlands and flow through these north-south valleys. The Erie/Ontario Lake Plains are bordered to the north and east by the Mohawk section of the Appalachian Highlands, which is described in Section 3.2.1.2 Topography of the Study Area. The Nation's lands are located in the Erie/Ontario Lake Plains or the Southern New York section of the Appalachian Highlands.

The Oneida Lake watershed has a humid continental climate (FAO-SDRA, 1997). The climate is strongly seasonal with average July and January temperatures of 70.2 and 21.1 ° F, respectively. Precipitation is distributed rather evenly throughout the year with annual precipitation averaging 45.3 inches (NYS Climate Office, 2006). The winter months are typified by regular snowstorms, strong winds, and bitter cold resulting from the southern expansion of continental polar air masses. The climatic characteristics of the watershed strongly influence the composition of the ecosystems, vegetation, and wildlife of Madison and Oneida Counties.

The natural resources of the environment in the Oneida Lake Watershed are closely related to its existing and historical land use conditions. Throughout the eastern United States and within the Oneida Lake Watershed, extensive clearing of land for agriculture

occurred in the 1800's while the regrowth of forests on abandoned agricultural land has characterized the 1900's (Houghton and Hackler 2000). As will be discussed in this section, this land use pattern of forest clearing, farmland abandonment, and forest regrowth has also strongly influenced the ecosystems, vegetation, and wildlife of Madison and Oneida Counties.

The Oneida Lake Watershed is largely rural with agricultural land uses continuing to account for 229,070 acres or 29 percent of watershed lands (Central New York Regional Planning and Development Board, 2003). In addition, the watershed also contains large areas of forested lands. More than 1.8 million acres of forested lands are located within the five counties (Lewis, Madison, Oneida, Onondaga, Oswego) that are found within the watershed, of which, 190,000 and 436,000 acres are located in Madison and Oneida Counties, respectively (USDA, 1995). These forests, fallow and vacant agricultural lands, and other ecosystems are important to the surrounding watershed as they provide many important ecosystem benefits and services. These benefits and services include improving water quality in surface and groundwater by filtering sediments and/or nutrients from surface runoff and precipitation, reducing soil erosion, serving as habitat for a diverse range of flora and fauna, supplying renewable and economically valuable agricultural and timber resources, providing areas for recreational activities and hunting, and removing harmful pollutants from the air.

3.5.2 Ecosystems and Biological Communities

The New York Natural Heritage Program (NYNHP) has rigorously inventoried the diversity of ecosystems and biological communities found within New York State. This section summarizes the methodologies of this biological inventory and provides descriptions for the ecosystems commonly found within Oneida and Madison Counties and on the Nation's lands.

3.5.2.1 Introduction

An ecological community is defined as a variable assemblage of interacting plant and animal populations that share a common environment. *Ecological Communities of New York State* by Carol Reschke was published in 1990, and updated in 2002, to classify the ecological communities of New York State, facilitate the NYNHP inventory, and assist with the NYNHP's goals of assessing and preserving New York's biological diversity (Reschke, 2002). The NYNHP inventory provides a regularly updated database of information on rare animals, rare plants, and significant natural communities of New York State. The definitions and descriptions provided in this section for the ecological communities of Oneida and Madison Counties and the Nation's lands are based upon the 2002 edition of *Ecological Communities of New York State*.

3.5.2.2 Ecological Systems Representative of Oneida and Madison Counties

The following section describes the terrestrial and aquatic ecological communities ecosystems that are representative of Oneida and Madison Counties using the

classifications presented in *Ecological Communities of New York State* (Reschke, 2002) These community types may be present on or adjacent to the Nation's lands according to Nation reference materials and studies, an archival search of available regulatory databases and reference materials, a review of available New York State and federal wetland maps, and field reconnaissance of representative Group 1, 2, and 3 lands.

Terrestrial ecological systems are found on dry to mesic (well drained) soils and feature vegetative cover that is never predominantly hydrophytic, even if the soil surface is occasionally or seasonally flooded or saturated. Terrestrial systems that may be found in Madison and Oneida Counties include open uplands, barrens and woodlands, forested uplands, and terrestrial cultural systems. Cultural systems include habitats created or maintained by human activities including croplands, orchards, lawns, and plantations. Cultural systems are dominant throughout Madison and Oneida Counties, as well as the Nation's lands, due to the extensive use of land for agricultural uses throughout the region.

The distribution of terrestrial ecological communities within the Madison and Oneida Counties is determined by the soil and climatic characteristics. Prior to the extensive clearing of lands for agriculture, the broad plains and areas of glacial till located around Onieda Lake, and throughout the Erie/Ontario Lake Plains physiographic province, were dominated by beech-maple forests, elm-ash forests, and northern hardwood forests (McNab and Avers, 1996). Wetland and lowland forest communities are also abundant due to the low elevations of the lake plains and form complex hydrological systems with many of the perennial streams and inland lakes.

The terrestrial ecological communities located in the Southern New York Appalachian Highlands physiographic region are also primarily dominated by beech-maple forests. Hemlock-mixed hardwood forests are often found interspersed within beech-maple forest particularly on north-facing slopes, coves, and ravines. Wetland communities are likely to be found bordering the streams located on the steep slopes of hills and uplands or near the more mature, meandering streams located in valleys. Forested wetlands and open marshes are likely to occupy poorly drained areas in either the uplands or valleys.

The ecological communities of the Mohawk Appalachian Highlands are influenced by the shorter growing season and colder temperatures associated with its higher elevations and more northern location. As a result, the mature vegetation communities in northern areas of Oneida County contain a larger proportion of coniferous or evergreen trees, as these species are better suited to short growing seasons. Specific ecological communities in these areas are likely to include spruce-northern hardwood forests at intermediate elevations and northeastern spruce-fir forests at higher elevations (McNab and Avers, 1996; Delacourt and Delacourt, 2000).

Aquatic ecological systems found in Madison and Oneida Counties include riverine, lacustrine, and palustrine systems. The following definitions of the systems and subsystems are adapted from the USFWS wetland classification and USDA ecological land classification (New York Natural Heritage Program, 2002). Riverine systems are linear freshwater communities of flowing waters within a discrete channel, typically lacking or with only sparse, persistent emergent vegetation. Riverine ecological communities are primarily distinguished by the topographic position of the stream in the watershed and water flow characteristics. Riverine systems in Madison and Oneida Counties include natural streams and cultural systems which include riverine habitats created or maintained by human activities.

Lacustrine systems consist of deep surface waters (greater than six feet) situated in topographic depressions or dammed river channels that are dominated by persistent emergent vegetation. Lacustrine communities are distinguished primarily by trophic (nutrient enrichment) state, alkalinity, thermal stratification, circulation, lake basin and drainage area characteristics, and water chemistry. Lacustrine systems in Madison and Oneida Counties include natural lake and ponds and cultural lacustrine systems.

Palustrine systems consist of non-tidal, perennial wetlands characterized by emergent vegetation including wetlands permanently saturated by seepage, permanently flooded wetlands, and wetlands that are seasonally or intermittently flooded (these may be seasonally dry). Wetland communities are distinguished by their plant composition (hydrophytes), substrate (hydric soils) and hydrologic regime (frequency of flooding). Palustrine systems in Madison and Oneida Counties are likely to include open mineral soil wetlands, forested mineral soil wetlands, open peatlands, forested peatlands, and cultural palustrine systems.

Significant Ecological Communities

Two significant ecological communities have been identified by the NYNHP for the region surrounding, but not located on, the Nation's lands. Both communities are found in Chittenango Falls State Park in the Towns of Cazenovia and Fenner, in Madison County. Chittenango Falls State Park is not located on any Nation parcel, and is more than 10,000 feet west of the nearest Nation parcel (Parcel 57, Group 2). The descriptions of these significant ecological communities are based on Reschke (2002).

The first community is classified as a Terrestrial-Open Uplands-Calcareous Cliff Community which occurs on vertical exposures of resistant, calcareous bedrock (such as limestone or dolomite) or consolidated material. These cliffs often include edges and small areas of talus (i.e. rock fragments) where soil development is minimal and vegetation is sparse.

The second community is classified as a Terrestrial-Barrens and Woodlands-Calcareous Talus Slope Woodland. These woodlands feature open or closed canopy communities

occurring on talus slopes composed of calcareous bedrock such as limestone or dolomite. The soils are usually moist and loamy and there can be numerous rock outcrops.

3.5.2.3 Ecological Communities Representative of Nation Lands

This section describes the riverine, lacustrine, palustrine, and terrestrial ecological communities on the Nation's lands. As discussed in Section 3.2.4, Nation lands are differentiated by current and historical use patterns. These land use patterns strongly influence the nature and extent of ecological community types present on Group 1, 2, and 3 lands.

Group 1 lands total approximately 3,428 acres and include the casino resort grounds, golf courses and surrounding woodland buffers, active/inactive agricultural lands and associated structures (i.e. farmhouses, barns, grain silos etc.) and Nation member housing. The ecological conditions of Group 1 lands largely reflect the predominant entertainment and recreational land uses except for surrounding undeveloped buffer properties.

Group 2 lands total approximately 6,475 acres and include other Nation non-gaming enterprises, residential properties, governmental facilities and cultural properties, as well as active and inactive agricultural and pasture lands. Generally, the more undeveloped nature of Group 2 lands results in a much greater diversity and habitat quality of ecological community types present.

Group 3 lands total approximately 7,467 acres and include non-gaming and agricultural lands. Group 3 lands are the least developed, consisting of active and inactive agriculture and associated structures, and exhibit the greatest diversity of ecological community types of the three Groupings.

Riverine Ecological Communities

Riverine ecological communities found on the Nation's lands include marsh headwater streams, canals, and artificial intermittent streams. The characteristics of these three communities and locations of representative examples of these communities on the Nation's lands are discussed below.

Marsh headwater streams are characterized by small, marshy perennial brooks with very low gradients, slow flow rates, and cool-to-warm waters. This stream type commonly flows through a marsh, fen, or swamp. These streams usually have meanders and are in unconfined landscapes. Marsh headwater streams are typically dominated by shallow, narrow runs that have a relatively small low flow discharge with interspersed pool sections. The substrate is typically gravel or sand, but may also be dominated by silt, muck, peat, marl deposits, or woody/leafy debris.

Examples of headwater streams include Parcel 244 (Group 1), Parcel 205 (Group 2), and Parcel 220 (Group 3). This stream type typically occurs as part of a large wetland system

and often continues beyond the limits of the Nation's lands (particularly Group 2 and 3 lands north of Route 31 and west of Route 365). Marsh headwater streams are distributed throughout New York State (New York Natural Heritage Program, 2002).

Canals are aquatic communities within artificial waterways or modified stream channels constructed for inland navigation or irrigation. Most canals have low gradients between locks; however, some feeder canals have steep gradients and are not navigable. The manmade Erie Canal is a classic example of this community type. Group 2 Parcels (Parcels 121, 205, 313, 325, 326 and 327) adjacent to the Erie Canal and in the vicinity of the Snug Harbor Marina are indicative of this community type. This community type is distributed throughout New York State along similar canals (New York Natural Heritage Program, 2002).

Artificial intermittent streams include artificial ditches or channels constructed for drainage or irrigation. Water levels either fluctuate in response to variations in precipitation and groundwater levels, or water levels are artificially controlled. The sides of ditches are often vegetated by grasses, sedges, and exotic or weedy species. Examples of this community type exist on all three Groupings of the Nation's lands. This community type is most prevalent on or adjacent to active and inactive agricultural areas, pasture lands, and wetlands. The majority of these communities are found on Group 2 and 3 lands located to the north of I-90 and west of Route 365. Additional areas include Group 1 lands located to the north of Route 5 and west of Route 26. This community is distributed throughout New York State (New York Natural Heritage Program, 2002).

Lacustrine Ecological Communities

Lacustrine ecological communities found on the Nation's lands include winter-stratified monomictic lakes and farm/artificial ponds. The characteristics of these communities and locations of representative examples of these communities on the Nation's lands are discussed below.

Oneida Lake is an example of a winter-stratified monomictic lake. Winter-stratified monomictic lakes continue to circulate throughout the summer and stratification becomes disrupted at some point during an average summer. These lakes typically never become thermally stratified in the summer. Instead, they are only stratified in the winter when they freeze over and are inversely stratified (coldest water at the surface) during these times.

Group 2 lands adjacent to or associated with Marion Manor and Snug Harbor (for example Parcels 145, 204, 214, 215, 216, 232, 308, 318, 324) are found along the shoreline of Oneida Lake. Group 3 Parcels 191 and 185 are in proximity to Oneida Lake as they are located just south of Lake Road.

Farm and artificial ponds have been constructed on agricultural, recreational or residential properties. These ponds are often eutrophic (nutrient rich) with biota reflecting species naturally or artificially seeded, planted, or stocked in the pond. Farms ponds of varying sizes and ecological conditions can be found on some Group 2 and 3 lands and are associated with past or present agricultural or pasture use. Group 1 lands associated with the Nation's golf courses also have artificial ponds. Farm ponds and other artificial ponds are widely distributed throughout New York State (New York Natural Heritage Program, 2002).

Palustrine Ecological Communities

Palustrine ecological communities found on the Nation's lands include shallow emergent marshes, shrub swamps, red maple hardwood swamps, hemlock hardwood swamps, floodplain forests, northern white cedar swamps, and drained mucklands. The characteristics of these communities and locations of representative examples of these communities on the Nation's lands are discussed below.

Shallow emergent marshes occur on mineral soils, deep muck, or deep soils (rather than true peat) that are permanently saturated and seasonally flooded. In these wetlands, the substrate is typically exposed during the mid to late summer of an average year. Shallow emergent marshes typically occur in lake basins and along streams often intergrading with deep emergent marshes, shrub swamps, and sedge meadows.

Shallow emergent marshes exist adjacent to headwater streams on lands belonging to Group 1 (Parcels 8, 158, 244, 272), Group 2 (Parcels 37, 205, 264), and Group 3 (Parcels 200, 220, 255). This community type is usually present as part of larger wetland systems that continue beyond the limits of the Nation's lands. This community is distributed throughout New York State (New York Natural Heritage Program, 2002).

Shrub swamps are dominated by tall shrubs that occur along the shore of lakes or rivers, in wet depressions or valleys, or as transition zones between wetland types. The substrate is usually mineral soil or muck. This is a very broadly defined community type that includes several distinct communities and many intermediates. Shrub swamps are very common and quite variable. They may be dominated by a mixture of species, or have a single dominant shrub species.

Shrub swamps exist adjacent to shallow emergent marshes on Parcels 158, 244, 272 (Group 1), Parcel 205 (Group 2), and Parcels 162, 220 (Group 3). This community type is usually present as part of larger wetland systems that continue beyond the limits of the Nation's lands. This community is distributed throughout New York State (New York Natural Heritage Program, 2002).

Red maple hardwood swamps typically occur in poorly drained depressions that are usually associated with inorganic mineral soils. This is a broadly defined community with

many regional variants. Red maple (*Acer rubrum*) is either the only dominant tree species, or it is co-dominant with one or more species of other hardwoods often including ashes and elms.

An example of this community type in Oneida County is Great Verona Swamp. The swamp is approximately 540-acres in size. Numerous Group 3 Parcels (26, 27, 28, 35, 220, 221, 223, 224, and 225) are located almost entirely within the boundaries of Great Verona Swamp. Parcels 289 and 325 (Group 2) also contain red maple hardwood swamps. This community type occurs throughout New York State (New York Natural Heritage Program, 2002).

Hemlock hardwood swamps occur in depressions that are fed by groundwater and are typically associated with mineral soils and deep muck. These forests feature a dense closed canopy dominated by eastern hemlock (*Tsuga canadensis*) with sparse shrub and herbaceous layers. Water levels in these swamps typically fluctuate seasonally as they may be flooded in the spring but fairly dry by late summer.

Examples of this community type can be found on Parcels 159 and 325 (Group 2) and Parcel 200 (Group 3) typically in small areas featuring muck soils. This hemlock hardwood swamp community type is common throughout upstate New York State (New York Natural Heritage Program, 2002).

Floodplain forests occur on mineral soils located on low flat terraces surrounding rivers. These forests feature seasonal flooding regimes corresponding to variation in river volume and precipitation. The composition of the vegetation community in these forests depends greatly on the frequency and duration of seasonal flooding.

Examples of this community type on Nation lands were found in areas surrounding creeks and streams on Parcels 38, 161, 244, 264 (Group 2), Parcel 162 (Group 3), and at the margins of the Verona Swamp on Parcels 220, 221, 222, 223, 224 (Group 3). Floodplain forests are widely distributed throughout upstate New York State (New York Natural Heritage Program, 2002).

Northern white cedar swamps occur on organic soils in poorly drained areas or along the margins of lakes and streams. These swamps are often fed by springs or groundwater seeps and are dominated by northern white cedar (*Thuja occidentalis*) which typically comprises greater than 30 percent of the forest canopy. The understory is typically sparse and the herbaceous layer may contain several species of bryophytes.

Small areas of this community type on Nation lands were found on Parcels 200 and 255 (Group 3) along portions of the edges of larger wetland systems. Northern white cedar swamps are found scattered throughout upstate New York State (New York Natural Heritage Program, 2002).

Drained mucklands are characterized by muck soils that have been drained and cultivated (e.g. for vegetable crops), and subsequently allowed to flood and thereby revert to a wetland. The majority of these areas are located on Group 2 and 3 lands located to the north of I-90 and west of Route 365. This community is distributed throughout upstate New York, north of the Coastal Lowlands ecozone (New York Natural Heritage Program, 2002).

Terrestrial Ecological Communities

Terrestrial ecological communities found on the Nation's lands include successional old fields, successional shrub lands, beech maple mesic forests, hemlock- northern hardwood forests, successional hardwoods, and cultural terrestrial systems. The characteristics of these communities and locations of representative examples of these communities on the Nation's lands are discussed below.

Successional old fields are fields, old pastures, or meadows dominated by forbs and grasses on lands that have been cleared for farming, but then abandoned for various lengths of time. During the period of abandonment, these lands have been reclaimed by non-agricultural species. Shrubs may be present on lands abandoned for longer durations, but typically represent less than 50 percent of vegetative cover in the community.

Successional old fields are the dominant ecological community type on the Nation's undeveloped and vacant lands and typify most non-Nation lands in surrounding areas of Madison and Oneida Counties. Successional old fields were observed on Group 1 (Parcels 158 and 244), Group 2 (Parcels 23, 38, 57, 90, 128, 140, 205, 208), and Group 3 (Parcels 168, 200, 214, 221, 222, 239, 310) lands. With respect to the distribution of this community type among Group 1, 2 and 3 lands, some obvious trends are apparent. Group 1 lands associated with the Turning Stone Resort & Casino and associated golf courses display the least of this community type given the more highly developed nature of these lands. However, several areas of successional old fields are present on Group 1 lands located to the west of Route 31 and to the north of Route 5. Large tracts representative of this community type can also be found on Group 2 lands located to the east of Route 46, surrounding Route 31, adjacent to the Erie Canal, and on the Nation's lands in the southern part of Oneida County in the vicinity of the Nation's 32-acre territory. Group 3 lands located to the north of Route 31 and west of Route 365 exhibit examples of successional. This community type is also abundant on Group 3 lands located in Madison County. This community type is widely distributed throughout New York State (New York Natural Heritage Program, 2002).

Successional shrub lands occur on lands that have been previously cleared for farming, logging, or development and typically display coverage of at least 50 percent shrubs. This community type is present on all Groupings of the Nation's lands where old fields have reverted partially or completely to shrub cover. Successional shrub lands were observed on Parcels 158, 244 (Group 1) and Parcels 200, 310, 315 (Group 3). This community

type occurs mostly along edges, hedge rows, or on sloping or elevated terrain. It is not uncommon on the Nation's lands displaying this community type to encounter old fields closest to the parcel's road frontage and shrub lands with increased distance away from the road. The pattern of distribution among Group 1, 2, and 3 lands is similar to that described for open uplands-successional old field. This community type is also widely distributed throughout New York State (New York Natural Heritage Program, 2002).

Beech maple hardwood forests are dominated by sugar maple (*Acer saccharum*) and American beech (*Fagus sylvatica*). This is a broadly defined community type with several regional variants. These forests occur on moist, well-drained, usually acid soils. There are relatively few shrubs and herbs. Beech maple mesic forests can be found on several Nation lands at sites that have not recently been cleared for agricultural uses, particularly in the Southern New York Appalachian Uplands. These lands are typically found at higher elevations and occur on well drained soils resulting in a concentration of this community type on the Nation's lands in southern Madison County. Specifically, beech maple mesic forests were observed on Group 2 (Parcels 120) and Group 3 (Parcels 171, 200, and 310) lands. These forests often contain patches of hemlock-northern hardwood forest, located on the north-facing slopes of ravines and gullies, as observed on Parcel 212 (Group 3). Beech maple hardwood forests are widely distributed throughout New York State (New York Natural Heritage Program, 2002).

Hemlock-northern hardwood forests typically occur on the slopes of ravines, mid-elevation slopes, and on moist, well-drained sites at the margins of swamps. Eastern hemlock is typically co-dominant with one to three other deciduous and/or coniferous species. The relative cover of hemlock is quite variable, ranging from nearly pure stands in some steep ravines to as little as 20 percent of the canopy cover.

Examples of this community type can be found as part of the wooded buffers on Group 1 lands associated with the Smith, Jones, and Fazio golf courses (wooded boundaries at Parcels 8, 44, 45, 74, 86, 104, 148, 154, 240, 263, 269, 270, 272, 276 and 278). Other examples of hemlock-hardwood forest were found at higher elevations and steeper slopes on Group 3 lands (Parcels 17, 166, 200, 212, 213, 304). Hemlock-hardwood forests were occasionally found in the Oneida Lake plains, Parcels 159 and 325 (Group 2). This community is distributed throughout New York State (New York Natural Heritage Program, 2002).

Successional hardwoods occur on sites that have been cleared or otherwise disturbed. Successional hardwood forests on Nation lands feature tree species typical of northern (quaking aspen) and southern (elms, ashes, and box elder) successional forests. This is a broadly defined community and several regional variants are known.

Examples of this community type occur on Nation lands where larger areas of successional shrub land transition to hardwood forests as observed on Group 1 (Parcels 158 and 244),

Group 2 (Parcels 127, 205, 289) and Group 3 (Parcels 136, 291,314). Most commonly, this community type occurs on abandoned or inactive agricultural parcels, along property boundaries, or along more mature hedge rows. This community type occurs on Group 2 lands on berms adjacent to the Erie Canal (Parcels 121, 205 and 325) and surrounding wetlands (Parcels 36, 37, 56, 90 and 91). Successional hardwoods are also found on Group 3 lands in Madison County situated on higher elevations and steeper slopes. This community is distributed throughout upstate New York, north of the Coastal Lowlands ecozone (New York Natural Heritage Program, 2002).

Terrestrial cultural systems have been created, modified, or maintained by human activities to such a degree that the physical conformation of the substrate or the biological composition of the resident community is substantially different from the community present prior to human influence. Examples of this community type include croplands, flower and herb gardens, pasturelands, orchards, mowed lawns, mowed roadsides or paths, unpaved and paved roads or paths, rock quarries, and construction or road maintenance spoils.

A number of the terrestrial communities listed above can be found on Nation lands. Due to the size and number of active agricultural Parcels on all three Groupings of Nation lands, multiple communities can be found throughout. However, active croplands and pasturelands are by far the most prevalent. Active agricultural Group 1 lands include Parcels 101, 118, 119, 201, and 295 totaling 566 acres. Similar Group 2 include Parcels 2, 23, 24, 30, 31, 60, 61, 62, 63, 99, 121, 126, 127, 128, 129, 137, 147, 207, 208, 209, 271, and 295 which total approximately 1,148 acres. Similar Group 3 lands include Parcels 7, 22, 52, 130, 131, 132, 133, 134, 135, 136, 151, 152, 153, 155, 166, 167, 168, 169, 171, 172, 173, 174, 196, 206, 210, 211, 212, 213, 214, 282, 304, 309, 310, 315, and 317 which total approximately 4,739 acres.

3.5.3 Vegetation

3.5.3.1 Introduction

This section summarizes the vegetative communities typical of Oneida and Madison Counties and on the Nation's lands. In addition, the federal and New York State regulatory programs for conservation of protected plant species are described. Lastly, a summary of the location of occurrences of federal and New York State protected species within Oneida and Madison Counties is provided, as well as, an assessment of the suitability of habitats occurring on Nation lands for these species.

3.5.3.2 Dominant Vegetative Communities Representative of Oneida and Madison Counties

The diverse topography and soil types of Oneida Lake Watershed result in variations in the composition of vegetative communities. The soils found along the shore of Oneida Lake and throughout the low-lying Erie/Ontario Lake Plains are interspersed with many

wetlands, lakes and ponds, and meandering streams. As a result, non-agricultural areas to the south and east of Oneida Lake support vegetative species adapted to saturated soil conditions or flooding that include red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), black gum (*Nyssa sylvatica*), and yellow poplar (*Liriodendron tulipifera*). American elm (*Ulmus americana*), black ash (*Fraxinus nigra*), and American beech are typically found growing in soils with better drainage. On the northern shore of Oneida Lake, conifer stands are frequently found along the north shore of the lake along with mixed stands of beech, birch (*Betula sp.*), maple (*Acer sp.*), and hemlock (*Tsuga canadensis*).

Large tracks of heavily forested areas of the Southern New York section of the Appalachian Highlands were cleared for agricultural use particularly in Cortland, Onondaga, and Madison Counties. Many of these agricultural lands have since been abandoned due to marginal productivity. However, the Nation's lands in the Southern New York Appalachian Highlands feature a mosaic of agricultural lands and areas that have naturally reverted back to shrub stands of hawthorne (*Crateagus sp.*), buckthorn (*Rhamnus cathartica*), ash (*Fraxinus sp.*) and mixed hardwoods. Old agricultural fields typically develop shrub-dominated communities within 30-40 years (Flinn et al., 2005). These shrub communities also tend to occur in fringe areas between active farmlands and forests. Old fields that have been abandoned for more than 80-100 years typically feature ecological communities that are comprised of hardwood tree species (Flinn et al., 2005). These older successional forests tend to be located on the tops of the ridges that border the north-south oriented valleys that transverse the Southern New York Appalachian Highlands, as well as, other sites that were not extensively used for agriculture including steep slopes and areas near wetlands and streams.

Agricultural lands are commonplace in Madison County and the southern and western portions of Oneida County and predominantly contain cultivated crop species and scattered patches of re-growth herbaceous cover. In both counties, shrub lands are present as areas of dense thickets comprised of shrubs, saplings, grasses and flowering plants and in the fringe areas between the active farmlands and forestlands.

3.5.3.3 Vegetation Representative of Nation Lands

The vegetative communities found throughout the Madison and Oneida Counties and the Nation's Group 1, 2, and 3 lands are typical of a predominantly agricultural landscape. The Nation's land also have extensive developed and landscaped areas that include the Turning Stone Resort & Casino, golf courses, marinas, cultural, governmental, residential, and commercial properties. The Nation controls invasive plant and insect species on these developed and landscaped properties through the commercial application of approved pesticides and herbicides by licensed applicators in accordance with 40CFR, Chapter I, Parts 150-189. Herbicides and insecticides are not used outside of these managed areas.

This section summarizes the dominant plant species for the ecological communities identified in Section 3.5.2.3 Ecological Communities Representative of Nation Lands. These ecological communities are less common than agricultural areas on the Nation's lands are typically found on undeveloped or inactive parcels. A complete inventory of the plant species observed on Nation lands that are representative of these ecological communities during field reconnaissance conducted in October 2005 and May 2006 is provided in Appendix C.

The vegetation of the terrestrial cultural systems on Nation lands is dominated by agricultural and pasture species (i.e. corn, squash, beans, red clover, alfalfa and hay grasses).

Successional old fields include pasture lands, recently abandoned agricultural areas, and/or areas allowed to lie fallow until land preparation and crop propagation are resumed. These areas are typically dominated by herbaceous forbs and grasses with occasional woody shrubs. The dominant vegetation species observed in the old fields located on the Nation's lands included orchard grass (*Dactylis glomerata*), sweet vernal grass (*Anthoxanthum odoratum*), meadow fescue (*Festuca elatior*), sheep fescue (*Festuca ovina*), slender mannagrass (*Glyceria melicaria*), goldenrod (*Solidago sp.*), burdock (*Arctium minus*), plantain (*Plantago major*), fragrant bedstraw (*Galium triflorum*), wild madder (*Galium mollugo*), chickory (*Cichorium intybus*), white clover (*Trifolium repens*) and red clover (*Trifolium pretense*).

Successional shrub lands were found to be dominated by hawthorn (*Crataegus sp.*), buckthorn (*Rhamnus cathartica*), Russian olive (*Elaeagnus angustifolia*), chokecherry (*Prunus virginiana*), and blackberry (*Rubus sp.*). The previously described herbaceous forbs and grasses representative of the old fields on Nation lands were also commonly observed in shrubland communities.

Beech maple mesic forests located on the Nation's lands are dominated by sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) with lesser numbers of other tree species including white ash (*Fraxinus americana*), American elm (*Ulmus americana*), and basswood (*Tilia americana*). Typical shrubs included American hornbeam (*Carpinus caroliniana*) and saplings of the dominant tree species, while characteristic herbaceous plants included white trillium (*Trillium grandiflorum*), Canada mayflower (*Maianthemum canadensis*), white baneberry (*Actaea pachypoda*), and sharp-leaved hepatica (*Hepatica acutiloba*).

The hemlock- northern hardwood forests observed on the Nation's lands were dominated by eastern hemlock (*Tsuga canadensis*) and various hardwood species including American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), and yellow birch (*Betula alleghaniensis*). The understory in these dense stands was typically sparse, but often included some shrubs, such as maple-leaf viburnum (*Viburnum acerfolia*) and flowering

dogwood (*Cornus florida*), and herbaceous plants including Canada mayflower (*Maianthemum canadensis*), miterwort (*Mitella diphylla*), Christmas fern (*Polystichum acrostichoides*), and white trillium (*Trillium grandiflorum*).

Successional forests on the Nation's lands were typically observed on Parcels that also featured agricultural fields, successional fields, and/or successional shrub lands. These successional forests were most often found on the tops of ridges or hills in which the hill slopes are actively utilized for agriculture or exhibit early successional fields or shrub lands. Dominant tree species in these successional forests included white ash (*Fraxinus americana*), American elm (*Ulmus americana*), quaking aspen (*Populus tremuloides*), box elder (*Acer negundo*), black cherry (*Prunus serotina*), and various species of shrubs typical of successional shrub lands.

Emergent marshes located on the Nation's lands are generally comprised of a mix of species that vary depending upon location but often include reed canary grass (*Phalaris arundinacea*), broad- and narrow- leaf cattail (*Typha latifolia* and *angustifolia*), woolgrass (*Scirpus cyperinus*), rice cutgrass (*Leersia oryzoides*), soft rush (*Juncus effusus*), blue-flag iris (*Iris versicolor*), water smartweed (*Polygonum punctatum*) and various sedges including tussock sedge (*Carex stricta*), fox sedge (*Carex vulpinoidea*), and graceful sedge (*Carex gracilima*).

Shrub swamps tended to be located adjacent to streams, creeks, lakes, or emergent marshes and were typically dominated by red osier dogwood (*Cornus stolonifera*), silky dogwood (*Cornus amomum*), willow (*Salix sp.*), highbush blueberry (*Vaccinium corymbosum*), and tartarian honeysuckle (*Lonicera tartaria*). The herbaceous forbs and grasses commonly observed in emergent marshes on Nation lands were also typical of its shrub swamps.

Red maple hardwood swamps observed on the Nation's lands were dominated by red maple (*Acer rubrum*), American elm (*Ulmus Americana*), green ash (*Fraxinus pennsylvanica*), and silver maple (*Acer saccharinum*) along with various shrubs including willows (*Salix sp.*), common elderberry (*Sambucus canadensis*), and nannyberry (*Viburnum lentago*). Common herbaceous plants found in these communities included sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), skunk cabbage (*Symplocarpus foetidus*), boneset (*Eupatorium perfoliatum*), false hellebore (*Veratrum virida*), and sphagnum moss (*Sphagnum sp.*).

Hemlock hardwood swamps were dominated by eastern hemlock (*Tsuga canadensis*) but featured various hardwood tree species including green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), and swamp white oak (*Quercus bicolor*). The herbaceous layer of these communities were typically comprised of sensitive fern (*Onoclea sensibilis*), royal fern (*Osmunda regalis*), marsh marigold (*Calthra palustris*), and skunk cabbage (*Symplocarpus foetidus*).

Floodplain forests located on the Nation's lands typically included silver maple (*Acer saccharinum*), American elm (*Ulmus Americana*), and ashes (*Fraxinus pennsylvanica*, *F. nigra*, and *F. americana*). The most abundant shrubs in these forests included alders (*Alnus sp.*), gray-stemmed dogwood (*Cornus racemosa*), and silky dogwood (*Cornus amomum*), while the herbaceous layer featured sensitive fern (*Onoclea sensibilis*) and jewelweed (*Impatiens capensis*).

Small areas of Northern white cedar swamp were present along the margins of larger emergent wetlands on Nation lands. These areas featured tree stands consisting nearly entirely of northern white cedar (*Thuja occidentalis*) although some white pine (*Pinus strobus*) was present. The shrub layer was sparse and included some flowering dogwood (*Cornus florida*) and alder (*Alnus sp.*), while the herbaceous layer was comprised of lady fern (*Athyrium filix-femina*) and sensitive fern (*Onoclea sensibilis*).

Aquatic macrophytes in canals and farm ponds contain species of pondweed (*Potamogeton sp.*) and milfoil (*Myriophyllum sp.*) while native species in Oneida Lake include stargrass (*Heteranthera dubia*), coontail (*Ceratophyllum demersum*), naiad (*Najas flexilis*), tapegrass (*Vallisneria americana*) and waterweed (*Elodea sp.*).

3.5.3.4 Protected Species

The Endangered Species Act of 1973 (ESA) considers a species to be endangered if it is in danger of extinction throughout all or a significant portion of its range {ESA §3(6)}, while a species is considered to be threatened if it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range {ESA §3(20)}. Section 7 of the ESA (16 U.S.C. 1531 et seq.) outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats. Section 7(a) 1 directs the Secretary of the Interior/Secretary of Commerce to review other programs administered by their department and utilize such programs to further the purposes of the Act. Section 7(a) 2 of the ESA states that each federal agency shall, in consultation with the Secretary of the Interior/Secretary of Commerce, assure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

The conveyance of Nation lands into trust by either the Proposed Action or any of the other trust alternatives does not require or propose the physical destruction or modification of designated critical habitat to species protected by Section 7 of the ESA.

The New York State Protected Native Plant Program was created in 1989 pursuant to section 9-1503 of the Environmental Conservation Law. The regulation enforcing the law is found at 6 NYCRR Part 193.3 entitled Protected Native Plants. The regulation defines four categories of protected plants including: endangered, threatened, rare and exploitably vulnerable.

Endangered plants are in danger of extirpation throughout all or a significant portion of their ranges within New York State and require remedial action to prevent such extinction. Endangered plants are present at five or fewer extant sites, have fewer than 1,000 individuals, or are restricted to fewer than four U.S.G.S. 7.5 minute series maps, or are species listed as endangered by the U.S. Department of the Interior.

Threatened plants are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges in New York State. Threatened plants are present at six to fewer than 20 extant sites, have 1,000 to fewer than 3,000 individuals, are restricted to not less than four or more than seven U.S.G.S. 7.5 minute series maps, or are species listed as threatened by the U.S. Department of the Interior.

Rare plants are present at 20 to 35 extant sites or have 3,000 to 5,000 individuals in New York State. Exploitably vulnerable plants are likely to become threatened in the near future throughout all or a significant portion of their ranges within New York State if causal factors continue unchecked.

According to ECL § 9-1503 and 6 NYCRR Part 193.3(f), “it is a violation for any person, anywhere in New York State, to pick, pluck, sever, remove, damage by the application of herbicides or defoliants, or carry away, without the consent of the owner, any protected plant. Each protected plant so picked, plucked, severed, removed, damaged or carried away shall constitute a separate violation (NYSDECa).”

Oneida and Madison Counties

There are eleven species of plants in New York State that are federally listed as endangered or threatened. Ten of the plant species appear on both the USFWS and USDA lists, the eleventh only appears on the USDA list. Three of these species are listed as endangered and eight are listed as threatened. Most of these plants are also protected by the New York State; the NYSDEC lists six of these species as endangered, two are listed as threatened, while three species are unprotected. Of the eleven federally protected plant species, only American hart’s-tongue fern (*Asplenium scolopendrium var. americanum*) is listed as occurring in Madison County. This fern is listed as threatened and is known to occur specifically in Chittenango Falls State Park. None of these species are known to occur in Oneida County.

According to the NYNHP Rare Plant Status List, the NYSDEC Protected Plant List, and official correspondence received from the NYNHP on September 9, 2005, a total of 153 protected plant species have been identified in either or both Madison and Oneida Counties. A brief description of the number of protected plant species found in Madison and/or Oneida Counties and their categorization by the NYNHP and NYSDEC is presented in Table 3.5-1.

**Table 3.5-1
NYNHP and NYSDEC Protected Plant Species for Oneida and Madison Counties**

Category	Oneida County Species Only	Madison County Species Only	Species Found In Both Counties	Total Number of Species by Category
Endangered	40	12	21	73
Threatened	34	7	12	53
Rare	4	1	2	7
Unprotected	15	2	3	20
Exploitably Vulnerable	0	0	1	1

Source: NYNHP Rare Plant Status List, NYSDEC Protected Plant List, and NYNHP correspondence (September 9, 2005)

Note: The number of protected plant species in this table is 154 and not 153, as presented in Section 3.5.3.4 Protected Species, because one of NYSDEC 'exploitably vulnerable' plant species is categorized as 'unprotected' by the NYNHP Rare Plant Status List.

A complete list of these protected plant species and their occurrence by County, their NYSDEC and NYNHP categorizations, and NYNHP designations for certainty of occurrence can be found in Appendix C. The NYNHP designations of certainty of occurrence categorize protected plants as confirmed, probable, or possible. Confirmed plants are known within the county. Probable plants were last documented by a specimen more than 20 years ago. A plant species is categorized as possible when there have been unconfirmed reports of its existence (i.e. oral report/plant list/literature citation).

Nation Lands

Twenty six plant species are identified as rare or New York State-listed and have the potential to occur on or in the vicinity of Nation lands according to NYNHP official correspondence received on September 9, 2005. Table 3.5-2 contains a list of these species and their county and town of occurrence, NYSDEC protection status, and NYNHP designations of certainty of occurrence.

The NYNHP indicates that 22 of these plant species were last reported in 1945 or earlier. Plant species that are categorized as confirmed by the NYNHP include three species that are known to occur in Chittenango Falls State Park (roseroot [*Sedum rosea*], American hart's tongue fern, and Schweinitz's sedge [*Carex schweinitzii*]), golden-seal (*Hydrastis canadensis*) in the City of Oneida, Hart's tongue fern (*A. scolopendrium var. americanum*) in the Town of Stockbridge, and Wright's spikerush (*Eleocharis diandra*) in the Town of Verona.

Literature-, electronic-, and field-based research was performed to determine the likelihood that any of these listed species occur on the Nation's lands. Reviewed literature included available Nation reference materials and previous studies dating to 1996, regulatory databases, and other available reference materials. Information from the NYNHP electronic GIS database, obtained on June 9, 2006, was also reviewed. This database information contained the recent (from the past 25 years) and historical (prior to the past 25 years) locations of rare species and significant natural communities for the

portions of Oneida and Madison Counties in the vicinity of the Nation's lands. In addition, field reconnaissance of representative Nation lands was completed during October 2005 and May 2006. These literature-, electronic- and field-based investigations indicate that only one of the plant species listed in Table 3.5-2 has been observed or reported to occur on the Nation's lands that are proposed for conveyance into trust. The protected plant species that is known to occur on the Nation's lands is the New York State threatened Schweinitz's sedge, according to the NYNHP GIS database. Schweinitz's sedge was last reported on June 15, 2004 on Parcel 255 (Group 3). The conveyance of the Nation's lands into trust by either the Proposed Action or any of the other proposed trust land alternatives does not require the physical destruction or modification to the habitat of Schweinitz's sedge or any other New York State protected plant species.

**Table 3.5-2
NYNHP Rare or State-Listed Planted Species Potentially Present on or in the
vicinity of Nation Lands**

Common Name	Latin Name	County(s) of Occurrence	Town(s) of Occurrence	NYSDEC Protection Status	NYNHP Occurrence Category
Hart's-tongue Fern	<i>Asplenium scolopendrium var. americanum</i>	Madison	Stockbridge	Threatened	Confirmed
Rugulose Grape Fern	<i>Botrychium rugulosum</i>	Madison	Lenox	Endangered	Probable
Frank's Sedge	<i>Carex frankii</i>	Oneida	Vernon & Verona	Endangered	Probable
Loose Flowered Sedge	<i>Carex laxiflora var. serrulata</i>	Madison	Lincoln	Endangered	Unknown: Not listed in NYNHP Rare Plant Status List
Sartwell's Sedge	<i>Carex sartwellii var. sartwellii</i>	Madison	Smithfield	Threatened	Probable
Schweinitz's Sedge	<i>Carex schweinitzii</i>	Madison	Fenner, Lincoln, Stockbridge & City of Oneida	Threatened	Confirmed
Bent Sedge	<i>Carex styloflexa</i>	Madison	Lincoln	Endangered	Probable
Big Shell Bark Hickory	<i>Carya laciniosa</i>	Oneida	Verona & Vienna	Threatened	Probable
Blue-eyed-Mary	<i>Collinsia verna</i>	Oneida & Madison	Verona (O) & Lenox (M)	Endangered	Probable (for both counties)
Ram's head Ladyslipper	<i>Cypripedium arietinum</i>	Oneida & Madison	Verona, Vienna (O) & Smithfield (M)	Threatened	Probable (O) & Possible (M)
Rough Panic Grass	<i>Dichanthelium scabriusculum</i>	Oneida	Verona	Endangered	Probable
Wright's Spikerush	<i>Eleocharis diandra</i>	Oneida	Verona	Exploitable Vulnerable	Confirmed
Rough Avens	<i>Geum virginianum</i>	Oneida	Verona	Endangered	Probable
Golden-seal	<i>Hydrastis canadensis</i>	Madison	City of Oneida	Threatened	Confirmed
Creeping Juniper	<i>Juniperus horizontalis</i>	Madison	City of Oneida	Endangered	Probable
Lake-cress	<i>Neobeckia aquatica</i>	Oneida & Madison	Verona, Vienna (O) & Lenox (M) & Oneida Lake	Threatened	Probable (for both counties)
Jacob's-ladder	<i>Polemonium vanbruntiae</i>	Madison	Smithfield	Rare	Extirpated
Small's Knotweed	<i>Polygonum buxiforme</i>	Oneida & Madison	Oneida Lake	Endangered	Probable (for both counties)
Swamp Smartweed	<i>Polygonum setaceum</i>	Madison	Lenox & Sullivan	Endangered	Probable
Northern Pondweed	<i>Potamogeton alpinus</i>	Oneida	Verona & Vienna	Threatened	Probable
Straight-leaf Pondweed	<i>Potamogeton strictifolius</i>	Oneida & Madison	Oneida Lake	Endangered	Probable (for both counties)
Pink Wintergreen	<i>Pyrola asarifolia ssp. asarifolia</i>	Madison	Fenner	Threatened	Probable

Roseroot	<i>Sedum rosea</i>	Madison	Cazenovia & Fenner	Endangered	Confirmed
Marsh Arrow-grass	<i>Triglochin palustre</i>	Oneida	Verona	Threatened	Probable
Nodding Pogonia	<i>Triphora trianthophora</i>	Oneida	Verona	Endangered	Probable
Spreading Globeflower	<i>Trollius laxus</i>	Madison	Cazenovia	Rare	Confirmed
Cork Elm	<i>Ulmus thomasii</i>	Madison	Cazenovia & Fenner	Threatened	Probable

Source: Personal Communication, NYSDEC (2006)

Note: NYNHP Occurrence Category is identified only in the NYNHP Rare Plant Status List, June 2005.

Representative Nation lands were investigated in October 2005 and May 2006 for both the presence of these rare or New York State-listed plant species and the specific habitats that are likely to support these species. The assessment of the presence of suitable habitat for these rare or New York State-listed species is important in determining the likelihood of the occurrence of these species on Nation lands considering the extensive land area proposed for conveyance into trust, the rarity of the plant species of concern, and the length of time since most of these plants were last reported in either Oneida or Madison Counties.

American hart’s tongue fern, listed as threatened by the USFWS and the NYSDEC, is typically found on moist limestone rocks and cliffs (Lellinger, 1985). Due to its protected status under the federal Endangered Species Act, conveyance of Group 3 Nation lands into trust as part of the Proposed Action would require the Nation to consult with USFWS if future actions would impact this species or its known habitat. Nation lands located in the Town of Stockbridge were surveyed for the presence of this species and for limestone cliff habitats. Field investigations of Group 3 (Parcels 136, 171, 211, 212, 213, 310) lands indicated that these parcels were dominated by cultivated fields and successional fields, shrub lands, and hardwood forests located on the slopes of north-south oriented ridges. Some areas of Parcels 136 and 213 featured steep gullies with streams and rock outcrops. The bedrock in the Town of Stockbridge is largely calcereous limestone derived from the Onondaga limestone and Port Ewen formations (Fig. 3.2-14) and may therefore serve as suitable habitat for this fern. However, this distinctive fern was not observed on the exposed rock in the gullies found on these Parcels in May 2006.

Cork elm (*Ulmus thomasii*), listed as threatened in the Towns of Cazenovia and Fenner, and creeping juniper (*Juniperus horizontalis*), listed as endangered in the City of Oneida, both prefer open habitats. Cork elm is found on dry uplands and rocky ridges (Burns and Honkala, 1990) and creeping juniper prefers sand dunes, prairies, slopes, rock outcrops, and other sandy soils (Adams, 1993). Roseroot, listed as endangered in the Towns of Cazenovia and Fenner, is typically found on calcereous cliffs and rocky outcrops. Nation lands in the Towns of Cazenovia and Fenner (Parcel 57 of Group 2 and Parcel 255 of Group 3, respectively) featured successional old fields and a northern white cedar swamp. Group 2 (Parcels 2, 127, 227) and Group 3 lands (Parcels 188 and 281) in the City of

Oneida are largely comprised of cultivated fields or successional old fields, shrub lands, and hardwood forests. Therefore, suitable habitat for cork elm, creeping juniper, and roseroot does not occur on Nation lands, nor were these plant species observed during field reconnaissance of these Parcels in May 2006.

Three of the rare or New York State-listed plant species are typically found in rich woods. Nodding pogonia (*Triphora trianthophora*), listed as endangered in the Town of Verona, is found in woods and hollows dominated by American beech (*Fagus grandifolia*) that are filled with deep leaf litter (Ramstetter, 2001). Blue-eyed mary (*Collinsia verna*), listed as endangered in the Towns of Verona and Lenox, is typically observed in rich woods especially those in alluvial floodplains (Steyermark, 1963). Goldenseal (*Hydrastis canadensis*), listed as threatened in the City of Oneida, inhabits shady forests often dominated by beech and sugar maple (Sharp, 2003). Rich woods habitats such as beech maple mesic forests and hemlock northern hardwood forests were commonly observed on the Nation's lands. However, a survey of the representative habitats present in the Town of Verona and Lenox on Group 2 (Parcels 30, 37, 264) and Group 3 (Parcels 26, 28, 220, 221 and 222) lands in May 2006 found that Nation lands in these Towns were comprised of emergent marshes, shrub swamps, hardwood swamps, successional old field, and successional hardwood forests. As a result, suitable habitat for nodding pogonia and blue-eyed mary is not likely to be abundant on the Nation lands proposed for conveyance into trust. Rich woods habitats were observed on Nation lands in the City of Oneida on steep north-facing slopes terminating at a reservoir located on Parcel 188 (Group 1). These habitats may provide suitable habitat for goldenseal (*Hydrastis canadensis*) but will not be directly or indirectly impacted by the proposed conveyance of Nation lands.

Big shellbark hickory (*Carya laciniosa*), listed as threatened in the Towns of Verona and Vienna, is typically found in bottomland forests associated with elms, ashes, basswood, and red maple (Burns and Honkala, 1990). These forests may be common on the Nation's lands located near the many meandering streams, inland lakes, and wetlands (such as the Great Verona Swamp). As a result, suitable habitat for big shellbark hickory may potentially occur on Group 3 (Parcels 220, 221, 222, 224) lands. Big shellbark hickory was not observed during field reconnaissance of these Parcels in May 2006.

Three of the rare or New York State-listed plant species are typically observed in various early successional habitats such as meadows, thickets, and woodland borders. These species are the loose-flowered sedge (*Carex laxiflora* var. *serrulata*) and bent sedge (*Carex styloflexa*), both listed as endangered in the Town of Lincoln, and rough avens (*Geum virginianum*), listed as endangered in the Town of Verona (Britton and Brown, 1970). These habitats were observed on Group 3 lands in Lincoln (Parcel 304) and Group 1 lands in Verona (Parcels 158 and 244) and are prevalent on other Nation lands and throughout Oneida and Madison Counties. Loose-flowered sedge (*Carex laxiflora* var. *serrulata*),

bent sedge (*Carex styloflexa*), and rough avens (*Geum virginianum*) were not observed on Parcels 158 and 244 (Group 1) and Parcel 304 (Group 3) in May 2006.

Thirteen of these New York State-listed plant species are found exclusively in wetland or aquatic habitats including Frank's sedge (*Carex frankii*), Sartwell's sedge (*Carex sartwellii* var. *sartwellii*), Schweinitz's sedge, rough panic grass (*Dichanthelium scabriusculum*), Jacob's-ladder (*Polemonium vanbruntiae*), lake-cress (*Neobeckia aquatica*), Small's knotweed (*Polygonum buxiforme*), swamp smartweed (*Polygonum setaceum*), northern pondweed (*Potamogeton alpinus*), straight-leaf pondweed (*Potamogeton strictifolius*), pink wintergreen (*Pyrola asarifolia* ssp. *asarifolia*), marsh arrow-grass (*Triglochin palustre*), and spreading globeflower (*Trollius laxus*). Two other species, rugulose grapefern (*Botrychium rugulosum*) and ram's head lady slipper (*Cypripedium arietinum*) may be found in wetland and upland habitats. Suitable wetland habitat for spreading globeflower (*Trollius laxus*) was not observed on the Nation lands in the towns in which this species may occur. Spreading globeflower (*Trollius laxus*), listed as rare in the Town of Cazenovia, is found in shady fens and seepage swamps dominated by red maple (*Acer rubrum*) and other hardwoods (Niovi Jones, 2000). The only Nation land located within the Town of Cazenovia is Parcel 57 (Group 2) and consists of an old field with a small stream surrounded by quaking aspen (*Populus tremuloides*), box elder (*Acer negundo*), and various shrubs.

According to the NYNHP GIS database, Schweintz's sedge was reported on Parcel 255 (Group 3) at the Clockville Creek Headwaters on June 15, 2004. Parcel 255 is approximately 12.7 acres in size and overlaps both the Towns of Lincoln and Fenner. As indicated by NYNHP there are 5000 plants at this site in good habitat with little threat.

Despite the preponderance of active agricultural areas and successional old fields and shrub lands on the Nation's lands also contain a variety of wetland habitats including emergent wetlands, shrub swamps, and forested swamps. Field reconnaissance of wetland habitats on Nation lands in October 2005 and May 2006 did not observe any of the rare or New York State-listed wetland plants listed above. However, these wetlands may indeed provide suitable habitat for these plant species. The wetlands present on the Nation's lands are typically part of larger wetland systems that extend beyond the boundaries of the Nation's lands. As a result, suitable wetland habitats for these rare or New York State-listed plant species are also likely to occur on other neighboring and/or similar sites within Oneida and Madison Counties.

As has been previously discussed in Section 3.3.4 Regulated Wetlands and Waters of the U.S., the Nation has a commitment to and history of protecting and enhancing wetland resources on its lands, as well as, in surrounding areas (e.g. through its involvement with the Great Swamp Conservancy). Continued adherence to these federal wetland protection policies and implementation of Nation wetland management practices would serve to

protect wetland habitat for the New York State-listed plant species that may potentially be found in wetlands on Nation lands.

The literature-, electronic- and field-based investigations found that only Schweinitz's sedge has been reported or observed on Nation Parcel 255 (Group 3). None of the other species listed in Table 3.5-2 have been observed or were reported to occur on the Nation lands proposed for conveyance into trust. Habitat for cork elm, creeping juniper, roseroot, nodding pogonia, and blue-eyed mary was not observed on the Nation lands located in the Towns in which these species may potentially occur. Suitable habitat for New York State-listed wetland plants may occur on Nation lands; however, the Nation's wetland protection policies would continue to ensure the health of the habitat of these plant species. Suitable habitat for American hart's tongue fern, golden-seal, big shellbark hickory, loose flowered sedge, bent sedge, and rough avens may also potentially occur on Nation lands. These species were not observed during field reconnaissance of representative Nation lands during October 2005 and May 2006. Furthermore, none of the Nation lands proposed for conveyance into trust require the physical destruction or modification to the habitat of known protected plant species in order to undertake the Proposed Action or any of the other proposed alternatives.

3.5.4 Wildlife

3.5.4.1 Introduction

The Nation's lands comprising Groups 1, 2, and 3 and the surrounding watershed provide diverse habitat and food for local wildlife. Farm fields and pastures are often the first areas free of snow and are capable of providing feeding opportunities to wildlife. Shrub lands fringe the areas between these open fields and woodlands, and provide cover for foraging and shelter, while lakes, ponds, rivers and streams provide habitat for aquatic and semi-aquatic species.

3.5.4.2 Common Species

Terrestrial Fauna

Mammals

The agricultural areas, pastures, grassy fields, and meadows that are common in the Oneida Lake Watershed provide habitat for a variety of mammalian species, including small rodents (e.g. shrews, voles and mice) and predators (e.g. weasels, fox, and coyote). Table 3.5-3 provides a list of mammal species that are common in the watershed (Central New York Regional Planning and Development Board, 2003).

**Table 3.5-3
Mammals Occurring in the Oneida Lake Watershed**

Common Name	Scientific Name
Virginia Opossum	<i>Didelphis virginiana</i>
Masked Shrew	<i>Sorex cinereus</i>
Smokey Shrew	<i>Sorex fumeus</i>
Longtail Shrew	<i>Sorex dispar</i>
Northern Water Shrew	<i>Sorex palustris</i>
Pygmy Shrew	<i>Sorex hoyi</i>
Least Shrew	<i>Cryptotis parva</i>
Shorttail Shrew	<i>Blarina brevicauda</i>
Star-nose Mole	<i>Condylura cristata</i>
Hairytail Mole	<i>Parascalops breweri</i>
Little Brown Myotis	<i>Myotis lucifugus</i>
Keen's Myotis	<i>Myotis keenii</i>
Indiana Bat	<i>Myotis sodalis</i>
Small-footed Bat	<i>Myotis leibii</i>
Silver-haired Bat	<i>Lasionycteris noctivagans</i>
Eastern Pipistrelle	<i>Pipistrellus subflavus</i>
Big Brown Bat	<i>Eptesicus fuscus</i>
Red Bat	<i>Lasiurus borealis</i>
Hoary Bat	<i>Lasiurus cinereus</i>
Black Bear	<i>Ursus americanus</i>
Raccoon	<i>Procyon lotor</i>
Fisher	<i>Martes pennanti</i>
Shorttail Weasel	<i>Mustela erminea</i>
Long-tailed Weasel	<i>Mustela frenata</i>
Mink	<i>Mustela vison</i>
River Otter	<i>Lutra canadensis</i>
Southern Bog Lemming	<i>Synaptomys cooperi</i>
Boreal red-backed Vole	<i>Clethrionomys gapperi</i>
Red Fox	<i>Vulpes vulpes</i>
Grey Fox	<i>Urocyon cinereoargenteus</i>
Bobcat	<i>Felis rufus</i>
Woodchuck	<i>Marmota monax</i>
Eastern Chipmunk	<i>Tamias striatus</i>
Grey Squirrel	<i>Sciurus carolinensis</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Southern Flying Squirrel	<i>Glaucomys volans</i>
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>
Meadow Jumping Mouse	<i>Zapus hudsonius</i>
Woodland Jumping Mouse	<i>Napaeozapus insignis</i>
White-footed Mouse	<i>Peromyscus leucopus</i>
Striped Skunk	<i>Mephitis mephitis</i>
Coyote	<i>Canis latrans</i>
Meadow Vole	<i>Microtus pennsylvanicus</i>
Yellownose Vole	<i>Microtus chrotorrhinus</i>
Pine Vole	<i>Microtus pinetorum</i>
Muskrat	<i>Ondatra zibethicus</i>
Beaver	<i>Castor canadensis</i>
Deer Mouse	<i>Peromyscus maniculatus</i>
Porcupine	<i>Erethizon dorsatum</i>
Snowshoe Hare	<i>Lepus americanus</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

Source: Central New York Regional Planning and Development Board, 2003.

The observed mammals are mix of species that are widely distributed throughout the continental U. S. (e.g., opossum, red fox, mink), or in the Oneida Lake Watershed. Many of these species are close to the either the northern (e.g., least shrew) or southern (e.g., snowshoe hare) limits of their range (University of Michigan, 2006).

Birds

The bird species that utilize the agricultural fields, pastures, shrub lands, forests, and wetlands found in the watershed varies seasonally. Some species are likely to use the watershed as breeding habitat in the spring and summer months while other bird species from more northern geographic areas, such as grosbeaks and crossbills, may be found in the watershed only during winter months. Lastly, many bird species may be found in the fields, forests, and wetlands of the watershed throughout the entire year.

The Breeding Bird Atlas is a compilation of the results of a comprehensive survey sponsored by the NYSDEC and the New York State Ornithological Association and conducted by more than 1,100 registered volunteers. The survey's purpose is to record the current distribution of breeding birds in New York State (NYSDEC Breeding Bird Atlas, 2005).

A list of breeding birds observed on and in the vicinity of the Nation's lands during the 2000-2005 survey was generated by using Geographic Information System data to select those blocks that contained Group 1, 2, and 3 lands. A list of breeding bird species observed in these blocks is included in Appendix C.

Reptiles and Amphibians

The fields, wet meadows, woodlands, wetlands, lakes, and streams found throughout the watershed provide a variety of habitats for reptiles and amphibians. Amphibians typically spend at least part of their life cycle in aquatic (or in a few cases, damp) environments. Reptiles are less dependent upon water than amphibians, but some species spend much of their lives in or near water, and many others utilize aquatic environments as foraging or breeding habitat. Tables 3.5-4 and 3.5-5 list representative reptiles and amphibians that occur in the Oneida Lake Watershed.

**Table 3.5-4
Reptiles Occurring in the Oneida Lake Watershed**

Common Name	Scientific Name
Eastern Painted Turtle	<i>Chrysemys picta picta</i>
Stinkpot	<i>Sternotherus odoratus</i>
Spotted Turtle*	<i>Clemmys guttata</i>
Wood Turtle*	<i>Clemmys insculpta</i>
Snapping Turtle	<i>Chelydra serpentina</i>
Northern Water Snake	<i>Nerodia sipedon</i>
Eastern Milk Snake	<i>Lampropeltis triangulum triangulum</i>
Northern Brown Snake	<i>Storeria dekayi</i>
Northern Red-bellied Snake	<i>Storeria occipitomaculata</i>
Eastern Garter Snake	<i>Thamnophis sirtalis sirtalis</i>
Eastern Ribbon Snake	<i>Thamnophis sauritus</i>
Northern Ringneck Snake	<i>Diadophis punctatus edwardsi</i>
Smooth Green Snake	<i>Opheodrys vernalis</i>

Source: Central New York Regional Planning and Development Board, 2003

* NYSDEC status as species of special concern.

**Table 3.5-5
Amphibians Occurring in the Oneida Lake Watershed**

Common Name	Scientific Name
Mudpuppy	<i>Necturus maculosus</i>
Jefferson Salamander*	<i>Ambystoma jeffersonianum</i>
Blue-spotted Salamander*	<i>Ambystoma laterale</i>
Spotted Salamander	<i>Ambystoma maculatum</i>
Red-spotted Newt	<i>Notophthalmus viridescens</i>
Northern Dusky Salamander	<i>Desmognathus fuscus</i>
Mountain Dusky Salamander	<i>Desmognathus ochrophaeus</i>
Redback Salamander	<i>Plethodon cinereus</i>
Northern Spring Salamander	<i>Gyrinophilus porphyriticus</i>
Mink Frog	<i>Rana septentrionalis</i>
Four-toed Salamander	<i>Hemidactylium scutatum</i>
Northern Two-lined Salamander	<i>Eurycea bislineata</i>
American Toad	<i>Bufo americanus</i>
Northern Spring Peeper	<i>Hyla crucifer crucifer</i>
Northern Leopard Frog	<i>Rana pipiens</i>
Pickerel Frog	<i>Rana palustris</i>
Bullfrog	<i>Rana catesbeiana</i>
Green Frog	<i>Rana clamitans</i>
Wood Frog	<i>Rana sylvatica</i>
Gray Treefrog	<i>Hyla versicolor</i>

Source: Central New York Regional Planning and Development Board, 2003

* NYSDEC status as species of special concern.

Several of the reptile and amphibian species listed above are widely distributed throughout the eastern United States (e.g., musk turtle, red spotted newt, grey tree frog) while others are, in the Oneida Lake Watershed, close to the southern (e.g. mink frog, blue spotted salamander) or northern (e.g. four-toed salamander, mountain dusky salamander) limit of their range (University of Michigan, 2006).

Aquatic Fauna

The Oneida Lake Watershed contains a variety of aquatic habitats, including lakes, reservoirs, streams, farm ponds, and a section of the Erie Canal. Fish common to the watershed are listed in Table 3.5-6 below.

**Table 3.5-6
Fish Occurring in the Oneida Lake Watershed**

Common Name	Scientific Name
Largemouth Bass	<i>Micropterus salmoides</i>
Walleye	<i>Stizostedion vitreum</i>
Yellow Perch	<i>Perca flavescens</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
Northern Pike	<i>Esox lucius</i>
White Perch	<i>Morone americana</i>
Crappie	<i>Pomoxis spp</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Brown Bullhead	<i>Ameiurus nebulosus</i>
Bluegill	<i>Lepomis macrochirus</i>
White Sucker	<i>Catostomus commersonii</i>
Brown Trout*	<i>Salmo trutta</i>
Sunfish	<i>Lepomis spp.</i>
Fathead Minnow	<i>Pimephales promelas</i>
Northern Redbelly Dace	<i>Phoxinus eos</i>
Golden Shiner	<i>Notemigonus crysoleucas</i>
Central Mudminnow	<i>Umbra limi</i>
Brook Stickleback	<i>Culaea inconstans</i>
Brook Silverside	<i>Labidesthes sicculus</i>

Source: NYDEC 2006m, 2006n

Note: *Stocked by NYSDEC

Many of the above fish species are widely distributed throughout New York State. Northern pike, northern red-bellied dace, central mud minnow, brook stickleback, and brook silverside are common in northern and western New York State, while white perch are typically found in the Hudson River drainage, the Great Lake region, and the Erie Canal (NYSDEC, 2002).

Aquatic Invertebrates

The NYSDEC Division of Water's Rotating Intensive Basin Studies Program conducts periodic aquatic macroinvertebrate sampling in several streams in the watershed. Common macroinvertebrates typically observed in samples collected in the watershed were riffle beetles (*Coleoptera*), the aquatic larvae of midges (*Chironomidae*), caddisflies (*Trichoptera*), mayflies (*Ephemeroptera*) and black flies (*Simuliidae*), and oligochaete worms (*Oligochaeta*) (NYSDEC, 1999). The non-native, invasive zebra mussel (*Dreissena polymorpha*) is abundant in several water bodies in the watershed, including Oneida Lake (Central New York Regional Planning and Development Board, 2003).

Chronic Wasting Disease

Chronic Wasting Disease (CWD) is a rare, fatal neurological disease affecting deer and elk first discovered in wild deer in Wisconsin in 2002. CWD causes abnormal behavior and progressive emaciation, ending in the death of infected animals. Although the exact manner of transmission is not yet fully understood, evidence exists that CWD can be transmitted between deer through direct contact via saliva, urine, and feces or through indirect contact by exposure to contaminated environmental materials. At this time, there is no evidence that CWD can be transmitted from infected animals to domestic cattle or humans. A CWD management plan is currently being developed by the U.S. Department of Agriculture's Animal and Plant Health Inspection Services to support surveillance and management of wild and captive deer populations at the national level.

CWD was discovered in five white-tailed deer in two captive herds in Oneida County in March 2005 (NYSDEC, 2006a). The NYSDEC has implemented an intensive monitoring program for CWD in local wild deer populations, collecting samples from wild deer in various locations in the county, including Nation lands. In April 2005, the disease was found in two wild deer in the Town of Verona in Oneida County. The two infected deer were not collected on the Nation's lands, but were collected near Parcels 220, 228 (Group 3) and 264 (Group 2).

In the intervening period, NYSDEC has established a CWD containment area in parts of Oneida and Madison Counties to help minimize the spread of the disease. Figure 3.5-1 shows the location of the containment area relative to the Nation's lands, as well as, the location of samples collected in the area. A few of these samples have been collected on or immediately adjacent to some of the Nation's lands proposed for conveyance into trust. The containment area includes all Group 1, 2, and 3 lands with the exception of several Group 3 (Parcels 57, 120, 162 and 163) and Group 2 (Parcels 161, 200, 255, and part of 160) lands.

Special rules are in effect in the containment area. These rules help to regulate the possession, transport and disposal of harvested deer and specific deer parts. All wild deer taken within the containment area must be submitted to a NYSDEC check station for examination (NYSDEC, 2006b).

To date, NYSDEC has collected over 3,700 samples from wild white-tailed deer as part of its monitoring program. Only the two Town of Verona deer discussed above have been found to be infected, as shown in Figure 3.5-1. NYSDEC continues to work with the NYS Department of Health and the NYS Department of Agriculture and Markets to develop a comprehensive plan for New York State to respond to the threat posed by CWD (NYSDEC, 2006c). In October 2005, at New York State's request, Arthur F. Pierce, the Nation's Commissioner of Public Safety, met with Dr. Ward Stone, NYSDEC's point person on CWD. The Nation has agreed to work with New York State to control CWD, giving New York State permission to implement its Chronic Wasting Disease Response

Plan on the Nation’s lands. Although NYSDEC has not yet approached the Nation in 2006 on this issue, the Nation has stated its willingness to continue cooperation with New York State in the monitoring and reporting of CWD on their lands. Conveyance of the Nation’s lands into trust would not alter this spirit of cooperation.

Nation Lands

Each Grouping of the Nation’s lands contains agricultural or undeveloped land that is utilized as habitat by various wildlife species. Given the relative amount of undeveloped or agricultural land in Groups 2 and 3, these Groupings represent the most extensive wildlife habitat followed by Group 1.

3.5.4.3 Protected Species

The United States Fish and Wildlife Service (USFWS) and NYSDEC Natural Heritage Program were contacted for information regarding the possible presence of federal and New York State protected species on the Nation’s lands. The details of this information are discussed below and summarized in Table 3.5-7.

**Table 3.5-7
Protected Species Potentially Occurring on or in the Vicinity of Nation Lands**

County	Town	Common Name	Scientific Name	Federal Status	New York State Status
Onondaga	Note 1	Indiana Bat	<i>Myotis sodalis</i>	E	Note 2
Madison	Chittenango State Park	Chittenango Ovate Amber Snail	<i>Novisuccinea chittenangoensis</i>	Note 3	E
Oneida	Verona	Short-eared Owl	<i>Asio flammeus</i>	----	E
Madison/Oneida	Cazenovia, Sullivan, Fenner/Verona	Upland Sandpiper	<i>Bartramia longicauda</i>	----	T
Madison	Cazenovia	Pied-billed Grebe	<i>Podilymbus podiceps</i>	----	T
Madison/Oneida	Smithfield, Sullivan/Verona	Northern Harrier	<i>Circus cyaneus</i>	----	T
Madison/Oneida	Oneida Lake	Lake Sturgeon	<i>Acipenser fulvescens</i>	----	T
Oneida	Verona	Eastern Spiny Softshell	<i>Apalone spinifera spinifera</i>	----	SC

Source: Personal Communication, USFWS (2005) and NYSDEC (2005)
 Notes E: Endangered; T: Threatened; SC: Special Concern; Note 1: Location not reported by USFWS; Note 2: New York State listed as Endangered, but not reported as occurring in project area by NYSDEC; Note 3: federally listed as Threatened, but not reported as occurring in project area by USFWS; ----: Not listed.

Regulatory Framework

Federal Regulations

The Endangered Species Act of 1973 (40 CFR 1508.27(b)(9)) provides the regulatory authority for the United States government to preserve and protect species deemed endangered or threatened, and provides for the conservation of such species. Section 16

USCA 1532 (15) requires consultation with the United State Fish and Wildlife Service in order to protect endangered and threatened species. Additionally, 40 CFR 1508.27(b)(10) requires consideration as to whether a proposed action could violate federal, New York State, or local laws intended to protect the environment.

Indian tribes are obligated to comply with provisions of the Endangered Species Act with respect to lands held in trust status for them by the United States. The Nation would be required to comply with the Endangered Species Act and consult with the USFWS if future actions potentially affect federally protected species or their habitat.

The Endangered Species Act defines an endangered species as an animal or plant species in danger of extinction throughout all or a significant portion of its range. Similarly, threatened species are defined as an animal or plant species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Endangered Species Act defines species of special concern as species that might be in need of conservation action. Species of special concern receive no legal protection.

New York State Regulations

Section 6 NYCRR Part 182 of the New York State Code of Rules and Regulations also defines and identifies endangered and threatened species and species of special concern. Under New York State law, endangered and threatened species cannot be taken, imported, transported, possessed or sold. Species of special concern are not afforded protection under New York State law.

New York State defines endangered species as native species in imminent danger of extirpation or extinction in New York or species listed as endangered by the United States Department of the Interior. Threatened species are native species likely to become an endangered species within the foreseeable future in New York or species listed as threatened by the United States Department of the Interior. Species of special concern are species of fish and wildlife found by the department to be at risk of becoming either endangered or threatened in New York. Species of special concern do not qualify as either endangered or threatened at this time and receive no legal protection.

Oneida Lake Watershed

Federally Listed Species

The USFWS was consulted by letter dated August 17, 2005 (Appendix J) about the possible presence of federally protected species on or in the vicinity of the Nation's lands proposed for conveyance into trust. The USFWS response, dated October 24, 2005 and included in Appendices J, indicated that there was potential for a federally listed endangered species, the Indiana bat (*Myotis sodalis*), to occur on or near the Nation's lands as a known hibernaculum (site used for hibernation during winter) is located nearby in Onondaga County, New York.

No other federally-listed or proposed endangered or threatened species are known to potentially occur on the Nation's lands. Additionally, there is no habitat currently designated or proposed as critical habitat for endangered or threatened species on the Nation's lands.

Indiana Bat

Indiana bats winter in underground locations (e.g. caves, mines) called hibernacula, where they hibernate in dense clusters of more than 3,000 bats per square meter. Indiana bats usually enter the hibernaculum in late August-September. Prior to entering for the winter, bats swarm outside the hibernaculum and mate. Females emerge then from the hibernaculum in late March-early May, while males typically do not leave until mid to late April. Females give birth to a single offspring, typically in late June. The young are able to fly about a month after birth (Luensmann, 2005).

Many males summer in areas near the hibernaculum. Females, and some males, typically migrate further distances to summer habitat, in extreme cases, up to hundreds of miles away from the hibernaculum. Males roost during daylight hours alone or in small groups while females form nursery colonies under the loose bark of dead trees. These female colonies typically can contain 50-100 individuals (NYSDEC 2006d).

Habitat requirements of the Indiana bat are not completely understood. Indiana bats prefer to day roost in trees with exfoliating (shedding) bark. Several tree species are utilized as day roosts, though shagbark hickory, silver maple, or white oak trees are frequently chosen. Day roosts are often found near forest edges or canopy gaps. Alternate roosts are usually found in a shaded part of the interior forest and occasionally at the forest edge. Indiana bats also roost for short periods of time (i.e. 10 minutes or less) during the night to rest between feeding bouts.

Studies in Illinois and Michigan indicate that open fields and agricultural land comprise a significant portion of Indiana bat feeding habitat (Luensmann, 2005). Approximately 77 percent of the Nation's lands (and much of the greater surrounding area throughout Oneida and Madison Counties) are composed of these agricultural and old field habitats, underscoring the potential that some of the lands proposed for conveyance into trust could be used for feeding by Indiana bat. Mature stands of deciduous trees with exfoliating bark, if present, near such feeding areas could be utilized as habitat for day roosting. The presence or absence of Indiana bat or the location of specific day roosting sites on the Nation's lands or in the greater Oneida and Madison County vicinity has not been confirmed by the USFWS, the New York State, or the Nation. New York State reports the potential for this species to occur on Nation lands as unlikely. Regardless, implementation of the Proposed Action or any of the other trust alternatives would not require and do not propose, the physical alteration or modification to potential Indiana bat feeding or roosting habitat, if present, on or in the vicinity of the Nation's lands.

New York State Listed Species

The NYSDEC was consulted by letter dated August 17, 2005 (Appendix J) about the possible presence of New York State-protected species on or in the vicinity of the Nation lands proposed for conveyance into trust. The NYSDEC response, in a letter dated September 9, 2005 and in phone conversations on September 16 and 19, 2005, indicated that there was potential for the following New York State listed species to occur on or in the vicinity of the Nation's lands. Endangered species that may potentially occur on or in the vicinity of the Nation lands include the Chittenango ovate amber snail (*Novisuccinea chittenangoensis*) and short-eared owl (*Asio flammeus*). The Chittenango ovate amber snail occurs only in Chittenango Falls State Park in Madison County. Short-eared owl may potentially occur in the Town of Verona in Oneida County. Although New York State lists the Indiana bat as an endangered species, NYSDEC does not report the bat as 'likely to occur' in the vicinity of or on the Nation's lands. Threatened species that may potentially occur on or in the vicinity of the Nation's lands include the upland sandpiper (*Bartramia longicauda*), pied-billed grebe (*Podilymbus podiceps*), Northern harrier (*Circus cyaneus*). Species of special concern that may occur on or in the vicinity of the Nation's lands include Eastern spiny softshell (*Apalone spinifera spinifera* – formerly *Trionyx spiniferus*), spotted turtle (*Clemmys guttata*), wood turtle (*Clemmys insculpta*), Jefferson salamander (*Ambystoma jeffersonianum*) and blue spotted salamander (*Ambystoma laterale*).

Upland sandpiper occurs in the Towns of Cazenovia, Sullivan, and Fenner in Madison County and the town of Verona in Oneida County. Pied-billed grebe occurs in the Town of Cazenovia in Madison County. Northern harrier occurs in the Towns of Smithfield and Sullivan in Madison County and the Town of Verona in Oneida County. Eastern spiny softshell is reported as occurring in the Town of Verona in Oneida County. Spotted turtle, wood turtle, Jefferson salamander, and blue spotted salamander (*Ambystoma laterale*) are known to occur in the watershed but have not in the town in which the Nation's lands are located.

The approximate locations where New York State listed species have been reported in the vicinity of the Nation's lands are shown in Figure 3.5-2.

Additionally, the NYNHP provided data on June 9, 2006 in the form of GIS files that augmented the previously referenced information contained in their correspondence of September 9th, 2005 and in phone conversations that took place on September 15 and 16, 2005. The GIS information indicated that the short-eared owl's known area of occurrence includes or is near Group 3 lands (Parcels 206 and 52). The northern harrier's known area of occurrence includes or is near Group 3 lands (Parcels 163 and 314). The upland sandpiper's known area of occurrence includes or is near Group 3 (Parcel 239) and Group 2 (Parcels 230 and 147).

In addition to the species listed above, the NYSDEC also reports endangered, threatened or rare species in Madison County (14 species) and Oneida County (10 species) that have not been observed in these areas since 1945 or earlier. NYSDEC also lists four endangered or threatened species in Oneida Lake; three of these species have not been observed in the lake since 1945 or earlier; the fourth species, the lake sturgeon (*Acipenser fulvescens*), is briefly discussed below. All of these additional species and their New York State status are contained in Appendix J.

Chittenango Ovate Amber Snail

This terrestrial snail, listed as endangered by NYSDEC, is known to occur only in a section of the Chittenango Falls State Park in Madison County, New York. Chittenango ovate amber snails feed on algae and other flora. This species mates in the period April–June. Eggs, typically ranging in number from four to fifteen, are laid about a month after mating and usually hatch within 2-3 weeks. The snail is found on the vegetated slopes adjacent to the waterfall in Chittenango Falls State Park, often among patches of mosses, liverworts, and touch-me-nots (NYSDEC, 2006e).

Short-eared Owl

This medium sized owl is listed as endangered by NYSDEC. Short-eared owls are most frequently observed at dawn, dusk and late afternoon. Short-eared owls feed on small mammals and birds; young owls sometimes prey on insects. Breeding season begins in March. Four to nine eggs are typically laid after an incubation period of about one month. Fledging typically occurs in about thirty days. Nests, which are placed on the ground, have been observed in New York State in large marshes, and in active hayfields or pastures. Abandoned agricultural sites become unsuitable as nesting areas as they naturally develop into woodland.

Northern populations of this species are migratory, and the number of short-eared owls in New York State increases significantly in fall and winter. New York State represents the southern limit of the short-eared owl's breeding range. Short-eared owls favor habitat where small mammals are numerous, and the species can be found in marshes and grasslands. During winter, in areas with abundant prey, short-eared owls can form communal roosts in sheltered areas such as stump piles, abandoned quarries or conifer stands (NYSDEC 2006f).

Upland Sandpiper

This bird species, which winters in South America and migrates north in early February, is currently listed as threatened by NYSDEC. The upland sandpiper feeds chiefly on terrestrial invertebrates (e.g. insects, spiders, earthworms, snails, etc), a diet occasionally augmented by seeds and other plant material.

Upland sandpipers utilize open grasslands, meadows, prairies, farm fields and wetland clearings as breeding habitat; breeding usually commences in late April–early May.

Abandoned farm fields become less desirable as habitat as they become forested over time. A typical clutch contains four eggs, which are incubated by both parents. Eggs hatch in 21 days. The hatchlings are then protected by their parents until they are fully grown, approximately a month after hatching (Connecticut Department of Environmental Protection, 2000a).

Pied-billed Grebe

The pied-billed grebe, which breeds in the project vicinity and winters in southern parts of its range (i.e. areas with open water), is currently listed as threatened by NYSDEC. This species can typically be found in ponds and marshes with emergent or aquatic vegetation where it feeds on small fish and invertebrates (e.g. crayfish).

Pied-billed grebes mature sexually at 1-2 years of age and breed once a year. Breeding season typically commences in April and may last until October. Floating bowl-like nests are constructed from aquatic vegetation and anchored to emergent vegetation in shallow water areas.

Clutch size averages six eggs. Both parents incubate the eggs which hatch in 23-27 days. Offspring can swim and dive immediately after hatching and are fully independent 25-62 days after hatching (Smith, 2003).

Northern Harrier

This species, formerly known as the marsh hawk, is currently listed as threatened by NYSDEC. The northern harrier is a year-round resident of portions of central New York State including the project vicinity. Communal flocks roost on the ground in farm fields, abandoned fields, and marshes. Rodents and small birds are the preferred prey of Northern harriers.

Northern harriers build their nests on the ground often near shrubs in grasslands, farm fields, meadows, and marshes. Eggs are laid March-July and clutch size averages five eggs (Connecticut Department of Environmental Protection, 2000b). Eggs are incubated by the female typically hatch in 31-32 days. Offspring fledge in 30-41 days, but remain dependent upon their parents for an additional 3-4 weeks (NYSDEC, 2006g).

Eastern Spiny Softshell

This highly aquatic turtle is found from western New York and southern Ontario west through Wisconsin, south to Alabama, and east to Pennsylvania. Although common in the western Great Lakes region, they are less common in the eastern portion of the region. Softshell turtles rarely wander far from water and inhabit a variety of permanent water bodies, including lakes, reservoirs ponds, and streams (CRACM, 2006). Softshell turtles feed on a variety of aquatic prey, including fish, mollusks, and other aquatic invertebrates (Wisconsin Department of Natural Resources, 2005).

Lake Sturgeon

The lake sturgeon (*Acipenser fulvescens*) is currently listed by New York State as a “threatened” species. The lake sturgeon is one of New York State’s largest fish and some specimens can exceed seven feet in length (NYSDEC, 2006h). The species was once abundant in the border waters on the west, north, and northeast of New York State, including Oneida Lake. However, populations have declined significantly primarily due to over-fishing during the period 1879–1900 (USFWS 2006 a and b). Another factor thought to be instrumental in the species decline is the loss and degradation of spawning and nursery areas due to the creation of dams, channelization, and pollution of rivers utilized by sturgeon (NYSDEC, 2006h).

NYSDEC has initiated a program of artificial propagation for the species to reestablish populations in selected areas, including Oneida Lake, where large scale restoration efforts began in 1995. The NYSDEC Oneida Fish Hatchery produces approximately 5,000 lake sturgeon fingerlings each year (NYSDEC, 2006i). A 1999 evaluation of the Oneida Lake effort showed that hundreds of juveniles, up to 30-inches in length and 1–5 years in age, were present in the lake. Observed growth rates and individual body weights indicate that the lake sturgeon population is thriving (Jackson, 2002). In 2004, the most recent year with available data, 1,200 seven-inch lake sturgeons were released into Oneida Lake as part of the restoration effort (NYSDEC, 2006j). The program would be judged a success if the introduced fish reach maturity and again spawn in their historic habitat (NYSDEC, 2006i).

Nation Lands

Both New York State and federally protected wildlife species have the potential to occur within Oneida and Madison Counties as well as on Nation lands where suitable habitat exists. Each Grouping of the Nation’s lands contains, to various degrees, agricultural or undeveloped land that could be utilized as habitat by protected species. Group 2 and 3 lands, in terms of available habitat, their undeveloped nature and acreage, represent the greatest potential to provide habitat for some of these protected species, followed by Group 1 lands, which represent less potential. The presence or absence of New York State and federal species or their habitats on Nation lands proposed for conveyance into trust has not been confirmed by New York State, federal, or county agencies or by the Nation. Regardless, implementation of the Proposed Action or any of the other trust alternatives would not require or propose the physical alteration or modification to protected species habitat, if present, on or in the vicinity of Nation lands. The Nation would be obligated to comply with the federal Endangered Species Act and consult with the USFWS with respect to lands held in trust status, if future actions potentially affect federally protected species or their habitat.

3.5.5 Agriculture

Agriculture is the science, art, and business of cultivating soil, producing crops, and raising livestock on a tract of land known as a farm. Agriculture is an important part of the economy of both Madison and Oneida Counties with the many farms contributing to the landscape and historic character of this area. Agriculture is also culturally important to the Nation consisting of the cultivation of traditional crops such as white corn, beans, and squash (the Three Sisters). This section discusses farmland classifications, agricultural districts, livestock, and crops associated with Madison and Oneida Counties and the Nation lands proposed for conveyance into trust.

3.5.5.1 Introduction

The National Agricultural Land Study of 1980-81, which was published by the federal government identified that millions of acres of farmland in the U.S. are being converted to other uses. In 1981, Congress published the report, Compact Cities: Energy-Saving Strategies for the Eighties, which identified that programs and policies needed to be implemented by Congress to protect farmland and combat urban sprawl.

As a response to this work, Congress passed the Farmland Protection Policy Act (Public Law 97-98, Title XV, Subtitle I) in December 1981 to minimize the impact federal programs have on the conversion of farmland to other uses. If projects implemented by a federal agency or with assistance from a federal agency irreversibly convert farmland (directly or indirectly) to non-agricultural uses, they are subject to this legislation (U.S. Department of Agriculture, 2006a). The Natural Resource Conservation Service (NRCS) is the agency primarily responsible for the implementation of the Farmland Protection Policy Act by providing technical assistance to New York State and local governments, federal agencies, tribes, or nonprofit organizations that develop farmland protection programs and policies. The Proposed Action does not involve the conversion of farmland to non-agricultural uses as this is only a transfer of title to lands from the Nation to the federal government.

Agricultural protection measures have also been enacted at the local level as Madison County has recently developed an Agriculture and Farmland and Protection Plan (Madison County Farmland Protection Board, 2005). The objective of this Plan is to identify strategies for maintaining the economic health of the County's agricultural industry, preserving agricultural land uses on viable soils, promoting the diversification and growth of the County's agricultural industry, and increasing public awareness of the economic importance of agriculture. As will be described in Section 3.8.2.2 Agriculture, Nation Lands, agriculture is highly important both economically and culturally to the Nation and, as stated previously, the Proposed Action does not propose the conversion of any of the Nation's farmlands to non-agricultural uses.

3.5.5.2 Farmland

In the Farmland Protection Policy Act, farmland is categorized as either prime farmland, unique farmland, or farmland of statewide importance. “Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops without intolerable soil erosion, as determined by the Secretary of Agriculture. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage” (U.S. Congress, 1981).

“Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops as determined by the Secretary of Agriculture. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Examples of such crops include; citrus, tree nuts, olives, cranberries, fruits, and vegetables. Farmland, other than prime or unique farmland, that is of statewide or local importance for the production of food feed, fiber, forage, or oilseed crops as determined by the appropriate State or unit of local government agency or agencies, and that the Secretary of Agriculture determines should be considered as farmland for the purposes of this subtitle” (U.S. Congress, 1981).

Prime farmland and farmland of statewide importance are located in both Madison and Oneida Counties. Land that must overcome a hazard or limitation such as flooding and wetness in order to be classified as prime farmland is identified as prime farmland – if drained. This type of farmland is also located in both Madison and Oneida Counties. The Madison County Agricultural and Farmland Protection Plan has indicated that the identification of critical agricultural soils and discouragement of non-agricultural uses on or near them is important to the economic health of agriculture in Madison County. In addition, the County intends to establish a system that accepts, administers, and possibly funds farmland preservation tools such as the purchase, transfer, or lease of development rights, as well as, the use of conservation easements and land conservancies.

In Madison County, there are 43 types of soil that are classified as prime farmland, 12 types of soil that are classified as prime farmland – if drained, and 39 types of soil that are classified as farmland of statewide importance by the NRCS. In Oneida County, there are 51 types of soil that are classified as prime farmland, 23 types of soil that are classified as prime farmland – if drained, and 65 types of soil that are classified as farmland of statewide importance by the NRCS (U.S. Department of Agriculture, 2006b).

Madison County farmland soils that are located on the Nation’s lands are identified in Table 3.5.5.A-1 (located in the Appendices). Table 3.5.5.A-2 (located in the Appendices) identifies these soils in Oneida County. Figure 3.5-3 illustrates the location of farmland soils on the Nation’s lands in both counties. Table 3.5.5.A-1 identifies that there are 30

types of soil that are classified as prime farmland, 11 types of soil that are classified as prime farmland – if drained, and 20 types of soil that are classified as farmland of statewide importance on Nation lands located in Madison County. Table 3.5.5.A-2 identifies that there are 20 types of soil that are classified as prime farmland, 14 types of soil that are classified as prime farmland – if drained, and 13 types of soil that are classified as farmland of statewide importance on Nation lands located in Oneida County.

Farmland occupies 860,322 acres or 69 percent of the total area (1,247,086 acres) of Madison and Oneida Counties. The following farmland statistics for Oneida County, Madison County, and Nation lands differ from those presented in Section 3.2 (Land Use) due to differences in the definition of agricultural lands used by NYSORPS (based on parcel size, recent agricultural activity, and gross agricultural sales) and the definitions of prime farmland, unique farmland, or farmland of statewide importance utilized by USDA Soil Conservation Service (based on soil type). There are approximately 313,629 acres of prime farmland, 141,157 acres of prime farmland – if drained, and 405,536 acres of farmland of statewide importance located in Madison and Oneida Counties. Based on the information contained in Tables 3.5.5.A-1 and 3.5.5.A-2, there are a total of approximately 6,291 acres of Nation lands classified as prime farmland, 5,385 acres classified as prime farmland – if drained, and 3,121 acres classified as farmland of statewide importance located in Madison and Oneida Counties. Approximately 2 percent of the prime farmland, 3.8 percent of the prime farmland – if drained, and 0.8 percent of the farmland of statewide importance located in Madison and Oneida Counties are on the Nation’s lands.

The farmland classification has been determined for each of the three Groupings of the Nation’s lands. As identified in Table 3.5-8, there are a total of approximately 14,817 acres of Nation lands that have these classifications. There are approximately 2,132 acres of prime farmland, 848 acres of prime farmland - if drained, and 188 acres of farmland of statewide importance located on Group 1 lands. Group 2 lands contain approximately 1,493 acres of prime farmland, 2,794 acres of prime farmland – if drained, and 1,392 acres of farmland of statewide importance. There are approximately 2,678 acres of prime farmland, 1,748 acres of prime farmland – if drained, and 1,544 acres of farmland of statewide importance located on Group 3 lands.

**Table 3.5-8
Acres and Percentage of Nation Lands in Farmland Classifications**

Soil Classification	Group 1 Acres	Group 1 Percentage	Group 2 Acres	Group 2 Percentage	Group 3 Acres	Group 3 Percentage	Total Acres
Prime Farmland	2,132	34	1,493	24	2,678	42	6,303
Farmland of Statewide Importance	188	6	1,392	45	1,544	49	3,124
Prime Farmland - if Drained	848	16	2,794	52	1,748	32	5,390
Total Acreage	3,168		5,679		5,970		14,817

3.5.5.3 Agricultural Districts

Many agricultural lands located throughout New York State are in jeopardy of being converted to non-agricultural uses due to development pressure. Many other farmland areas have been simply abandoned and are no longer under active agricultural production. Large areas of old field and shrub land successional habitats are evidence of this and are found throughout Oneida and Madison Counties, as well as, on the Nation's lands. In order to conserve, protect, and encourage the development of agricultural land for the production of food and other agricultural products, the New York State Legislature has created the Agricultural Districts Law (Article 25-AA of the Agriculture and Markets Law) on February 22, 1922 in order to authorize the establishment of local agricultural districts within New York State. The benefits of agricultural districting are the provision of a combination of landowner incentives, such as preferential real property tax treatment, and protections against government funded acquisition, overly restrictive local laws, and private nuisance suits involving agricultural practices (New York State Department of Agriculture and Markets, 2006). The Madison County Agricultural and Farmland Protection Plan has identified the promotion and encouragement of farmer participation in agricultural districts and the incorporation of districts into local comprehensive planning as important to maintenance of the economic health of agriculture in Madison County (Madison County Farmland Protection Board, 2005).

Under the New York State Agricultural Districts Law, landowners work with county agriculture and farmland protection boards and county legislative bodies in order to create agricultural districts within New York State. The agricultural districts that are established are typically reviewed by the county legislative bodies either every 8, 12 or 20 years depending upon the proposal accepted; these reviews are conducted in order to determine whether the agricultural district should be modified, remain unchanged or be terminated (New York State Legislature, 1922). As of April 2002, approximately 30 percent of the total land area of New York State (8.6 million acres) was contained within 341 agricultural districts (New York State Department of Agriculture and Markets, 2006).

Prior to 2001, there were 20 agricultural districts located within Oneida County established for 8 year periods. Sections of these agricultural districts were located in all of the towns in Oneida County except for the Town of Florence. Oneida County is in the process of consolidating these 20 agricultural districts down to 7, which should be completed by the summer of 2007 (Oneida County Planning Board, 2002). Madison County has 13 agricultural districts that were established for 8 year periods (Madison County Farmland Preservation Board, 2005). Madison County is considering recommendations, as of June 2006, regarding the recertification of and modifications to its Agricultural District #3 located in the Towns of Stockbridge, Eaton, and Smithfield and the City of Oneida (Madison County Planning and Agricultural and Farmland Protection Boards, 2006).

As depicted on Figure 3.5-4, many of the Nation’s lands are located in agricultural districts. Approximately 3,337 acres of the Nation’s lands are located in agricultural districts in Madison County while approximately 6,270 acres of the Nation’s lands are located in agricultural districts in Oneida County. There are approximately 155,660 acres of land in Madison County and 218,634 acres of land in Oneida County that are located in agricultural districts. Approximately 2.5 percent of the land located in agricultural districts in Madison County and Oneida County are located on the Nation’s lands. As identified in Table 3.5-9, there are a total of approximately 9,607 acres of Nation lands located in agricultural districts with 2,293 acres located on Group 1 lands, 2,027 acres located on Group 2 lands, and 5,287 acres located on Group 3 lands.

**Table 3.5-9
Acres and Percentage of Nation Lands Located in Agricultural Districts**

Group 1	Group 2	Group 3	Total
2,293 acres	2,027 acres	5,287 acres	9,607 acres
24%	21%	55%	100%