

Table 4.4.1: Summary of wildlife features or areas, their importance, and suggested forest management treatment.

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>amphibian breeding ponds</u></p>	<ul style="list-style-type: none"> • areas of standing water used by a variety of frogs, toads, and salamanders during their breeding season • most amphibians require a source of water to reproduce • these areas are often very important to local populations because they tend to support concentrations of amphibians 	<ul style="list-style-type: none"> • identify potential sites close to summer habitat i.e., the stand to be managed (e.g., shallow, unpolluted water, either temporary or permanent, with the former holding water long enough for larvae to develop into adults; emergent and submergent vegetation, logs and shoreline shrubs for calling and egg-laying; surrounding woodland providing closed canopy offering a shaded, moist understory and an abundance of downed woody debris for cover while amphibians are on terrestrial habitats) • ensure that all forestry activities in the vicinity of the breeding pond do not change the moisture regime of the pond or the adjacent woodland (e.g., no major decrease in shade in surrounding forest or loss of water) • activities should not fragment existing forests in a way that reduces the habitat for adults of certain species after they leave the breeding pond • activities should not sever the travel corridors from breeding ponds to summer habitat • logging roads should be at least 20 m from potential amphibian breeding ponds 	<ul style="list-style-type: none"> • OMNR offices for general location of some important sites; species habitat requirements; a source of contact with experts • the Natural Heritage Information Centre (NHIC) maintains database on location of reptiles and amphibians and includes location of known concentration areas • Canadian Wildlife Service, Burlington for contact with volunteers participating in Amphibian Road Call Counts and the Backyard Amphibian Survey who know locally important sites • Bird Studies Canada for contact with local volunteers participating in Marsh Monitoring Program who know locally important sites • other sources including consultants and naturalist club reports, and atlas results, may provide some important site locations and species descriptions. They may be found at OMNR, NHIC, Conservation Authority, Ontario Power Generation, municipality offices



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<p><u>cavities</u></p>	<ul style="list-style-type: none"> cavities are hollows in living or dead trees that usually develop following injury to the trees or excavation by woodpeckers and allow wildlife access to their interior at least 50 species require cavities for nesting, denning, roosting and/or feeding cavities made by primary excavators (e.g., woodpeckers) are used by other species (e.g., owls, squirrels), thus increasing the wildlife diversity of the area the protection from exposure that cavities provide can be critical to winter survival of some species (e.g., gray and flying squirrels) in southwestern Ontario, the southern flying squirrel, a vulnerable species, is dependent on cavities 	<ul style="list-style-type: none"> try to retain cavity trees that will last at least 20 years (e.g., cavities in living tolerant hardwoods are likely to last longer than cavities in intolerant species such as poplar or white birch) retain large-diameter cavity trees (usually at least 45 cm DBH) because they provide potential cavities for both large and small animals retain cavity trees providing multiple wildlife benefits (e.g., oaks, hickories, beech, black cherry, basswood, ironwood provide mast for a wide variety of wildlife; conifer cavity trees provide protection from cold, snow, predators and will eventually form long-lasting standing dead trees) give preference to trees with cavities in the upper portion of the bole adhere to existing guidelines (e.g., retain at least 6 cavity trees of at least 25 cm DBH per hectare in all harvest blocks; retain at least 1 cavity tree/ha that is at least 40 cm DBH) Select cavity trees to leave using the following order of priority: <ul style="list-style-type: none"> Pileated woodpecker roost or nest trees Trees with nest cavities of other woodpeckers or natural nest or den cavities Trees with feeding excavations Trees with the potential to develop cavities 	<ul style="list-style-type: none"> <i>Extension Note:</i> "Cavity Trees are Refuges for Wildlife" forest management guidelines for the provision of pileated woodpecker habitat, Appendix 2: Criteria for Selecting Cavity Trees for Retention (Naylor <i>et al.</i> 1996).



Table 4.4.1: continued

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>downed woody debris (DWD)</u></p>	<ul style="list-style-type: none"> • DWD refers to fallen trees, limbs and branches, and their remains found on the forest floor • provides important habitat for a variety of wildlife (e.g., invertebrates, salamanders, ruffed grouse, wildflowers, mosses, ferns, fungi, bacteria) <ul style="list-style-type: none"> • increases wildlife diversity of the stand • provides insulation from heat and cold • absorbs and retains moisture (even during drought) • their decomposition adds organic matter and nutrients to the soil, improving tree growth • provides required seedbed for regeneration of some species (e.g., yellow birch, hemlock and cedar) 	<ul style="list-style-type: none"> • identify areas in the stand with high DWD that should be retained within the management plan • ensure skid trails are efficiently laid out to minimize skidding disturbance • use narrow trails instead of roads • remove branches and tree tops from harvested trees at the felling site rather than at a landing • do not remove down organic debris • do not disturb large rotting logs, hollow logs • whenever feasible, limit damage to organic debris and soil by using non-mechanical means to haul timber 	<p><i>Extension Notes:</i></p> <ul style="list-style-type: none"> • “Restoring Old-growth Features to Managed Forests in Southern Ontario” • “Careful Harvesting with Cut and Skid Crews”



Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>stands supporting birds vulnerable to forest fragmentation (i.e., forest interior or area sensitive species)</u></p>	<ul style="list-style-type: none"> • forest interior refers to the sheltered, secluded environment away from the influence of forest edges and open habitats; generally at least 100 m in from the edge of the forest • provide shelter, nesting habitat, food, resting areas, refuge from predators • help to maintain local populations of birds dependent on these habitats which are in short supply in the fragmented forests of southern Ontario • serve to maintain the biodiversity of the area or region • help to maintain forest health by supporting birds that provide important ecological services (e.g., pest control, seed dispersal, pruning, fertilization) 	<ul style="list-style-type: none"> • identify important stands (e.g., often the largest, contiguous forest stands in the area; larger stands with few internal openings and few irregular edges) • where they exist, maintain blocks of forest of at least 30 ha, and preferably with 50 ha or more in closed canopy condition (e.g., at least 70 % canopy closure) through single-tree selection • ensure that forestry activities do not reduce the overall area of the forest, or increase fragmentation or edge habitat • avoid forestry activities during the breeding season (Mar. 20 to Aug. 31) • consider reducing the harvesting of trees within the forest interior; protection of forest interior for wildlife habitat (e.g., as an AOC or core protected area) is a management objective • minimize removal of larger trees and snags • leave some clumps of larger diameter trees • carefully weigh potentially conflicting objectives for creating gaps (e.g., silvicultural objective of regenerating less tolerant species) vs. wildlife objective of maintaining forest interior bird habitat • maintain dense stands of trees at edges of woodlots and minimize the number of exit laneways particularly on vulnerable edges (e.g., southwest-facing) 	<ul style="list-style-type: none"> • aerial photographs are especially helpful for determining the area of contiguous closed-canopy forest cover • OMNR Forest Resource Inventory (FRI) maps (scale 1:15,840), although outdated, indicate the dominant tree species, percent composition of the stand, and approximate age of the forest stands; latter information particularly helpful because older deciduous stands with abundant and diverse forest structure tend to be preferred by these species • local birders may know location of premier woodlands for interior sensitive species, the location of some forest nesting raptors • Bird Studies Canada webpage www.bsc-eoc.org lists bird species of conservation concern by municipality • <i>Extension Note</i>: “Conserving the Forest Interior—A Threatened Wildlife Habitat” • <i>Factsheet</i>: “Conserving Woodland Birds in Southern Ontario” (available from Bird Studies Canada 1-888-448-2473)



Table 4.4.1: continued

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>clumps of large-diameter trees of either medium sawlog (38-48 cm DBH) or large sawlog (50 – 60 cm), and extra-large sawlog (>62 cm) size</u></p>	<ul style="list-style-type: none"> some forest interior species prefer nesting in the vicinity of large-diameter trees (e.g., Acadian flycatcher, wood thrush, veery, scarlet tanager, cerulean warbler, American redstart) 	<ul style="list-style-type: none"> where possible, retain clumps of larger diameter trees, especially if the stand is within a core forest area that provides more than 40 ha of forest interior where possible, use tree marking and single-tree selection cutting to encourage the development of some clumps of larger trees especially within the forest interior avoid forestry activities during the breeding season (Mar. 20 to Aug. 31) 	<ul style="list-style-type: none"> Bird Studies Canada/OMNR/CWS study in the South Walsingham forest tract (McCracken 1999)
<p><u>marten and fisher habitat (e.g., denning and home range habitat)</u></p>	<ul style="list-style-type: none"> member of the weasel family having large home ranges and a preference for larger, older forests in general, provision of habitat for fisher supplies at least some of the habitat required by various other species that are also associated with larger, mature and old-growth forests, cavity trees, and downed woody debris provide some income for trappers 	<p>OMNR's guidelines for marten wildlife habitat should also benefit fisher:</p> <ul style="list-style-type: none"> at the regional scale, determine whether sufficient marten habitat exists or has the potential to develop, given current land use patterns, policy initiatives set preliminary objectives for marten populations and habitat if sufficient habitat exists in the region at the regional scale and over the long-term, aim for at least 30 % of the forest area in mature and old-growth conditions partial harvesting can occur in as much as 30 % of the core habitat area if it retains 50 % of the original conifer basal area and a canopy closure of at least 50 % (hardwoods and conifers) avoid fragmenting existing forest stands 	<ul style="list-style-type: none"> <i>Wild Furbearer and Conservation Management in Ontario</i> (Novak et al. 1987) <i>Forest Management Guidelines for the Provision of Marten Habitat</i> (Watt et al. 1996) <i>Development and Validation of a Habitat Suitability Index Model for the American Marten in Central Ontario</i> (Naylor et al. 1994)



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		<ul style="list-style-type: none"> • maintain wooded corridors/links between core areas of suitable habitat (i.e., unharvested areas) with no gaps or gaps of less than 1 km • identify sites with potential to support marten and fisher • maintain 10 to 20 % of the forest with potential to support marten and fisher (i.e., large enough, at maturity- spruce, fir, or cedar dominated or mixed forest condition) • on appropriate sites, use selective silvicultural techniques to encourage an overstory greater than 40 % spruce, fir, or cedar with a canopy closure of conifers of at least 50 % and average height of 15 m • to provide resting sites and dens, as well as habitat for prey species, employ harvesting practices that retain at least 6 dead or declining trees per hectare, with at least 2 of these exceeding 30 cm DBH, as well as logs, stumps and other downed woody debris on the site (e.g., leave slash at the stump, use site preparation techniques that minimize slash removal and alignment) 	



Table 4.4.1: *continued*

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>mast trees</u> (e.g., beech, oaks, hickories, basswood, black cherry, ironwood, butternut, black walnut, honey locust, tulip tree, red mulberry, eastern flowering dogwood, American chestnut)</p>	<ul style="list-style-type: none"> trees (and shrubs) producing edible fruits (e.g., acorns, beech nuts, berries) at least 75 species of wildlife eat the fruits, berries, nuts (known as mast) produced by a variety of trees and shrubs availability of mast can influence weight gain, reproductive rate, and even survival of some animals red mulberry, serviceberries, pin cherry and alternate-leaved dogwood produce berries in midsummer that are eaten by adult breeding birds at a time when they require extra energy mast-producing species increase the wildlife diversity within the stand and surrounding area 	<ul style="list-style-type: none"> retain a minimum of 8 trees/ha of mast species (no more than 50 m apart) with DBH > 25 cm prefer to retain healthy, mature trees with large, rounded, vigorous crowns because these trees generally produce more mast retain numerous oak trees with 40-65 cm DBH because such trees produce the heaviest acorn crops on appropriate sites, encourage the growth and regeneration of mast producers through tree marking and silvicultural activities however, consider the regeneration requirements of these species, especially if they are mature or old (e.g., many mast species are intermediate in light tolerance and will require larger openings and sometimes seedbed treatment to encourage regeneration) refer to autecology tables (Appendix B) for specific species' regeneration requirements 	<ul style="list-style-type: none"> stand inventory will determine distribution and average size of mast species in stand topographical maps and aerial photographs can indicate features like ridges and rock barrens that often have oaks and berry-producing shrubs, respectively tree marking certification course study notes: wildlife habitat concerns (Naylor 1999) <i>Extension Note:</i> "Restoring Old-growth Features to Managed Forests in Southern Ontario"



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<p><u>old growth or mature forest</u></p>	<ul style="list-style-type: none"> refers to stands in the region or planning unit that are considerably older than most other stands (hence age in years is relative, but frequently at least 80-100 years old), often with numerous big trees and canopy gaps, large amount of downed woody debris provides benchmarks for research and education supports associated species that are now uncommon or rare due to limited old growth forest habitat contributes to habitat and community diversity at a regional scale provides habitat for some species with specialized habitat requirements meets specialized timber requirements (e.g., high-value veneer or specialty wood products) meets spiritual and aesthetic needs of some people 	<ul style="list-style-type: none"> identify prospective sites at both the stand and landscape level (e.g., old growth potential exists; minimal or no human disturbance; potential to manage stands for old growth characteristics is possible and desirable) plan to encourage or maintain some oldgrowth stands at both the stand and landscape levels consider preserving some exemplary stands (i.e., no management, no cutting) initiate old growth stands by extending rotation periods and using the recommended diameter distribution and stocking given in Table 6.1.6 refrain from removing dead wood from potential oldgrowth stands consider treating stands adjacent to potential sites with an old-growth prescription (Table 6.1.6 or 6.1.7) that leaves higher basal area in larger diameter trees to manage these stands for oldgrowth characteristics 	<ul style="list-style-type: none"> <i>Woodland Heritage of Southern Ontario</i> (Larson <i>et al.</i> 1999) documents 34 southern Ontario woodlands with some old-growth characteristics OMNR FRI maps, although outdated, will indicate potential woodlands containing larger, older trees that are likely to provide large-diameter trees, snags, and abundant downed woody debris <i>Extension Notes:</i> <ul style="list-style-type: none"> “Restoring Old-growth Features to Managed Forests in Southern Ontario” “The Old-growth Forests of Southern Ontario”



Table 4.4.1: *continued*

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>reptile or bat winter hibernacula</u></p>	<ul style="list-style-type: none"> • caves and mines (bats); subterranean areas below the frost line (reptiles) with openings to above ground where these animals can safely hibernate during the winter months • hibernacula may be critical to long-term survival of local or even regional populations • some hibernacula may be used by several species of snakes or bats • in some areas hibernacula (especially for bats, large snakes near northern limit of their range) may be scarce and therefore very important to their users • some hibernacula may support large numbers of bats or snakes due to their scarcity 	<ul style="list-style-type: none"> • no forestry operations within 200 m of entrance to a bat hibernaculum • no forestry operations within 50 m of reptile hibernacula • in order to maintain movement corridors for snakes, only single-tree selection is recommended for use in forests with known hibernacula • operations should not disrupt surface microhabitats such as vegetation, downed woody debris, rocks and talus, or movement to summer range • overstory canopy closure should not be opened up too much 	<ul style="list-style-type: none"> • little available information on location of bat hibernacula • Natural Heritage Information Centre for locations of hibernacula • Ontario Ministry of Northern Development and Mines for locations of abandoned mines that may provide potentially significant bat hibernacula • some members of outdoor recreation clubs (e.g., Sierra Club) explore caves and may know location of hibernacula • University Biology Departments for bat experts who may know locations of important sites and habitat requirements



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<p><u>seeps, springs, streams (including intermittent)</u></p>	<ul style="list-style-type: none"> • areas where water is found at or very near the surface of the ground throughout all or much of the year • these areas provide important habitat for many aquatic and terrestrial species • rare or uncommon species are often found in these areas (e.g., ginseng and numerous other plants; two-lined salamander) • they can serve to maintain or influence the hydrological regime of adjacent areas such as wetlands • seepage areas are often important overwintering habitat for frogs 	<ul style="list-style-type: none"> • retain high canopy-closure (e.g., at least 75 %) in the vicinity of these areas • avoid marking trees that will likely be felled across these areas • avoid locating roads or landings in these areas • avoid crossing these areas with heavy equipment (Section 8.3) 	<ul style="list-style-type: none"> • topographical maps and aerial photographs indicate headwaters of streams where springs may be found • County soil survey reports and maps describe local physical characteristics such as soils, landforms, and drainage patterns that can narrow the search for springs and seeps • local naturalists and landowners may know of some locations • Municipalities may have surveyed drainage systems and headwater areas may be mapped • many Conservation Authorities monitor stream flows and consequently may know locations of springs and seeps • OMNR staff and local anglers may know location of some springs/seeps that can affect the distribution of sportfish such as brook trout or plants often associated with seeps (e.g., ginseng)
<p><u>snags</u></p>	<ul style="list-style-type: none"> • snags are standing dead trees • barred owls, pileated woodpeckers, hairy woodpeckers, silver-haired bats, raccoons, some snakes and amphibians, many insects, fungi and other life forms rely on snags for food and shelter • when snags fall over, they add to the level of decomposing wood on the ground • some raptors use snags during hunting to observe the surrounding area • during sunny weather, some birds perch on snags to dry plumage, warm themselves 	<ul style="list-style-type: none"> • leave as many snags as possible, preferably exhibiting a variety of different stages of decay • retain at least 4 smaller (< 50 cm DBH) and 1 larger (> 50 cm DBH) for a total of 5 snags/ha • in stands where few natural snags occur, consider girdling (by removing a strip of bark from around a tree) to allow some trees to become snags 	<ul style="list-style-type: none"> • <i>Extension Note: “Restoring Old-growth Features to Managed Forests in Southern Ontario”</i>



Table 4.4.1: *continued*

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>stick nests</u></p>	<ul style="list-style-type: none"> stick nests are platforms made predominantly of twigs, sticks, and/or small branches usually located in or just below the crown of a tree, in primary or secondary forks or on a sturdy lateral limb stick nests are primarily built by raptors (hawks, eagles, owls, falcons) for nesting their maintenance can help to offset declines of some raptor species these nests can increase the wildlife diversity of an area because they may be used by a variety of animals including barred owls, great horned owls, long-eared owls, merlins, ravens, crows, and squirrels different species will use each other's nests 	<ul style="list-style-type: none"> retain all trees with stick nests, whether nests are active or inactive if stick nest is active, retain surrounding trees within a radius of 150 m for active red-shouldered or Cooper's hawk nests, maintain an additional 20 ha of suitable nesting habitat located to encompass adjacent suitable habitat and satellite nests do not schedule harvesting during Mar. 1 - July 31 breeding season only selection harvesting, designed to retain at least 70% canopy closure, should be used avoid locating roads or landings within 200 m of stick nests 	<ul style="list-style-type: none"> <i>Forest Raptors and their Nests in Central Ontario: A Guide to Stick Nests and Their Users</i> (Szuba and Naylor 1998) OMNR/Bird Studies Canada Ontario Birds at Risk Program (OBAR) runs the red-shouldered hawk survey; volunteers monitor many stands in southwest and central Ontario and the records of nest locations can help to locate sites important to these area sensitive species; these forest stands are often equally important to forest interior or area sensitive species as well local landowners and naturalists may know the location of some raptor nests or stands supporting raptors



Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>supercanopy trees</u></p>	<ul style="list-style-type: none"> • living trees that stick up above the main canopy of a stand • used by large raptors such as bald eagles and • used by black bears as refuge trees and bedding sites • may be important as a potential seed source for surrounding stand 	<ul style="list-style-type: none"> • retain some supercanopy trees in all cuts • retention of at least 1 supercanopy pine or hemlock of at least 50 cm DBH (or preferably a cluster of at least 3 trees) per 4 ha of cut can enhance habitat suitability for bears • try to retain at least 1 supercanopy tree per 16 ha around eagle nests • give special protection to pines, hemlocks or spruces near wetlands--try to retain at least 1 supercanopy tree (or preferably a cluster of at least 3 trees) per 500 m of shoreline 	<ul style="list-style-type: none"> • tree marking certification course study notes: wildlife habitat concerns (Naylor 1999) • <i>Extension Note: "Restoring Old-growth Features to Managed Forests in Southern Ontario"</i>



Table 4.4.1: *continued*

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>vulnerable, threatened or endangered (VTE) understory vegetation</u> (Tables 4.4.2 to 4.4.4)</p>	<ul style="list-style-type: none"> several understory herbaceous species (e.g., ginseng) have low populations due to any number of factors including forest fragmentation to ensure that tree harvesting operations do not contribute to further declines of these species careful harvesting practices (Section 8.3) must be employed 	<ul style="list-style-type: none"> minimize soil disturbance from skidding of logs and equipment movement by carefully logging in winter, frozen-ground conditions winter timing of tree harvesting does not negatively affect the underground root meristems of herbaceous species (Reader 1987) to avoid damage or loss, small patches of provincially rare plants (e.g., ginseng, Hart's tongue fern) should be well-marked and a buffer area left between them and subsequently laid out logging roads and skid trails; this practice will avoid disturbing the forest floor in these locations (Reader 1987) prevent introduction of invasive exotic species by requiring that logging equipment be steamer/pressure-washed before entering the site 	<ul style="list-style-type: none"> Natural Heritage Information Center (NHIC) database (http://www.mnr.gov.on.ca/MNR/nhic/queries/detquery.html) maintains element occurrences for VTE species, and although one cannot determine the name of the species, existence of an occurrence in the geographic area in the vicinity of the stand will indicate that caution may be required local naturalists may be aware of locations for populations of VTE understory vegetation species in local forest stands



Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>winter deer yards</u></p>	<ul style="list-style-type: none"> • areas of forested habitat where concentrations of white-tailed deer spend much of their time during the winter months • provide protection from cold, snow, predators • permit increased mobility and ease of access to feeding areas • of value to other wildlife during winter (e.g., wild turkey) 	<ul style="list-style-type: none"> • ideally 10 - 30 % of total deer range should be conifer dominated stands, with a minimum conifer component of 70 % and crown closure of 60 % • in stand thinning operations, aim for clumping (i.e., 3-5 trees with interlocking crowns) rather than uniform spacing of residual conifers because the former approach provides better thermal cover and snow interception • retain at least 80 % conifer canopy closure on knobs and knolls (prime deer bedding areas) • ideally a minimum of 40 % of deer range should be second growth or regenerating stands, occurring within 800 m of conifer shelter 	<ul style="list-style-type: none"> • <i>Forest Management Guidelines for the Provision of White-tailed Deer Habitat</i> (Voigt et al. 1997). • OMNR for location and relative importance of many yards • in southwestern Ontario, deer do not winter in yards



Table 4.4.1: *continued*

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>Potentially of concern in forest stands with a conifer component</u></p> <p><u>conifer patches within a predominantly hardwood/mixed stand</u></p>	<ul style="list-style-type: none"> provides important thermal protection during winter for deer, moose, numerous small mammals, birds, wild turkeys and raptors adds to the wildlife diversity of an area/stand by providing habitat for some species commonly associated with conifer forests serves as natural seed source for regeneration of conifers species such as white pine or hemlock that historically were more widespread 	<ul style="list-style-type: none"> generally, only remove conifers when they compete with very high quality hardwoods retain long-lived conifers such as hemlock, white pine, white spruce, and white cedar where there are 10 or fewer conifers/ha ($\leq 2 \text{ m}^2 \text{ BA/ha}$), retain at least 5 conifers/ha where there are at least 10 conifers/ha ($> 2 \text{ m}^2 \text{ BA/ha}$), retain at least 10 conifers/ha retain trees at least 25 cm DBH, but preferably those of at least 40 cm DBH for deer in hardwood stands, where possible, retain clumps of 3 to 5 conifers, at least 10 m tall, with interlocking crowns (ideally at a spacing of 30 to 60 m apart) retain trees with high vigor and low risk unless retained to meet cavity tree objectives retain trees in clumps of 3 or more because they are especially valuable to wildlife on appropriate sites, mark and use silvicultural activities to encourage the regeneration of conifers 	<ul style="list-style-type: none"> tree marking certification course study notes: wildlife habitat concerns (Naylor 1999) <i>Extension Note: "Restoring Old-growth Features to Managed Forests in Southern Ontario"</i>



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<p><u>raptor winter roosting areas (patches of conifers)</u></p>	<ul style="list-style-type: none"> • areas where concentrations of raptors sleep or rest for long periods during the winter months • important for overwintering survival • mature coniferous trees provide thermal protection and concealment, and protection from winter storms • important to many other species of wildlife 	<ul style="list-style-type: none"> • identify potential areas (e.g., existing coniferous patches, in woods adjacent to open fields where birds are regularly seen hunting in winter) • retain conifers (clumps and single trees) • consider planting conifers inside woodlands adjacent to open fields used by hunting raptors 	<ul style="list-style-type: none"> • OMNR; local birders and area residents for location of some areas
<p><u>wild turkey winter roosting and feeding areas (patches of conifers)</u></p>	<ul style="list-style-type: none"> • areas where concentrations of wild turkeys sleep, rest or feed during the winter months • important for overwintering survival • mature coniferous trees provide thermal protection and concealment • protection from winter storms • permit movement by turkeys when snow conditions restrict movement in other areas • important to many other species of wildlife 	<ul style="list-style-type: none"> • identify potential areas (e.g., existing coniferous patches, particularly those in valleylands or on lower slopes with southern exposure/seepts) • encourage development of mature trees, especially hemlock and white pine (e. g., by longer rotations) • to provide immediate cover and future roosts, consider planting conifers around suitable seepage areas where planted trees will not dry up the seep 	<ul style="list-style-type: none"> • OMNR; local birders and area residents for location of some areas • guidelines for wild turkey habitat (Reid 1991).



Table 4.4.1: *continued*

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p>Potentially of concern in lowland forests or forest/wetland complexes</p> <p><u>colonial bird nesting sites</u> ⇒ <u>heronries</u></p>	<ul style="list-style-type: none"> • areas of numerous standing trees (living or dead), usually in wetlands or along shorelines, providing undisturbed nesting habitat for seasonal concentrations of herons • due to the colonial nature of the birds, loss of some heronries can result in the loss of many birds • in some areas, sites assume greater importance because they may be in limited supply 	<ul style="list-style-type: none"> • identify all sites within the vicinity of the forest stand to be managed • no construction or forestry activities should be conducted within 1 km of a site during the nesting season (Mar. 1- Aug. 31) • normal operations could be permitted beyond 300 m from Sept. 1- Feb. 28 • dead trees should not be removed from the heronry • buffer width will vary depending on sensitivity of birds, local site conditions, and adjacent land use; normally such buffers would range from 100 to 300 m • forestry activities (e.g., logging road construction) should not reduce the area of individual wetland or result in changes to normal water level fluctuations or degradation of water quality in the marsh 	<ul style="list-style-type: none"> • OMNR wetland evaluations identify colonial nest sites (e.g., black terns, heronries) if they were observed at time of wetland evaluation • guidelines for heronry protection (Bowman and Siderius 1984)



Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p>colonial bird breeding sites</p> <p>⇒ <u>birds of marshes</u></p>	<ul style="list-style-type: none"> • areas found in or adjacent to marshes providing essential food, cover, and nesting habitat for seasonal concentrations of species that nest colonially • provide important breeding habitat for many species, including numerous rare species • often provides other important habitats (e.g., foraging, cover) • important to many wildlife species 	<ul style="list-style-type: none"> • identify all sites within the vicinity of the forest stand to be managed • no construction or forestry activities should be conducted within 200 m of a site during the breeding season (Mar. 1 - Aug. 31) • normal operations could be permitted beyond 100 m from Sept. 1 - Feb. 28 • protection of larger wetlands (e.g., at least 100 ha) is important for area sensitive species and maintenance of long-term populations • forestry activities (e.g., logging road construction) should not reduce the area of individual wetland or result in changes to normal water-level fluctuations or degradation of water quality in the marsh 	<ul style="list-style-type: none"> • OMNR for location of regionally and locally significant sites • OMNR wetland evaluations identify locally significant areas • Canadian Wildlife Service for location of regionally and provincially significant sites; species habitat requirements; species of conservation concern; source of several potentially helpful publications • Ontario Nest Records Scheme (ONAR); Royal Ontario Museum database provides information on breeding distribution, nest locations for 283 species • Ducks Unlimited Canada for location of important local sites; species habitat requirements; restoration of waterfowl nesting habitat • local birders for location of some locally important areas; location of some nesting species of conservation concern
<p>Potentially of concern in forest stands associated with shorelines</p> <p><u>bald eagle wintering areas (shorelines)</u></p>	<ul style="list-style-type: none"> • undisturbed areas of large trees providing shelter and unobstructed view, located near productive (fish) water bodies remaining open during all or most of the winter months • important for the recovery of this endangered species • provide protective cover within a reasonable distance from important winter feeding areas • provide hunting perches 	<ul style="list-style-type: none"> • identify potential areas (e.g., abundant supply of undisturbed mature trees and distributed evenly along shorelines near areas of open water and fish) • retain most, if not all, mature or tall trees and snags in the vicinity of this habitat that provide an unobstructed view and easy access from all sides • no logging during winter months within 1 km of these areas 	<ul style="list-style-type: none"> • OMNR; local birders and area residents for location of some areas



Table 4.4.1: continued

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>mink and otter foraging and denning sites</u></p>	<ul style="list-style-type: none"> relatively undisturbed shoreline areas with abundant downed woody debris and shrubs, with adjacent coniferous or mixed forest cover and a productive littoral zone; in addition, for otters- nearshore habitats containing relatively large and productive fish populations provide undisturbed sites for resting, escaping predators, protection from inclement weather, and bearing and raising young 	<ul style="list-style-type: none"> identify potential sites in the vicinity of the stand to be managed retain at least a 10 m width of shoreline vegetation, including downed woody debris forestry activities should not disrupt normal water- level fluctuations 	<p>These sites are difficult to find but the following sources will provide assistance:</p> <ul style="list-style-type: none"> aerial photographs can help to locate prime areas-- undisturbed shorelines with abundant vegetation and downed woody debris (e.g., dead falls, large logs) OMNR for contact with local trappers for information on locations of potentially important shorelines OMNR wetland evaluations record observations and signs of these mammals (e.g., tracks, scat) as well as presence in other years, through interviews with local trappers <i>Wild Furbearer and Conservation Management in Ontario</i> (Novak et al. 1987)
<p><u>turtle-nesting areas (shoreline areas)</u></p>	<ul style="list-style-type: none"> areas adjacent to waterbodies and wetlands supporting seasonal concentrations of nesting turtles better sites permit egg-laying females to dig out nest, provide good exposure to sun, and allow faster development of eggs these sites may be very important to local populations in some areas where sand or gravel is in limited supply 	<ul style="list-style-type: none"> forestry activities should not disrupt turtle-nesting areas such as shorelines of wetlands, lakes, and rivers do not build logging roads that separate water from backshore areas as they may increase the incidence of road-killed turtles 	<ul style="list-style-type: none"> OMNR for contact with local trappers for information on locations of potentially important shorelines OMNR wetland evaluations record observations and signs of these mammals (e.g., tracks, scat) as well as presence in other years, through interviews with local trappers local residents may know some areas



Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p>Potentially of concern in parts of southern Ontario</p> <p>moose winter habitat (moose guidelines, while included, have limited relevance to southern Ontario forests)</p>	<ul style="list-style-type: none"> • areas of dense coniferous cover and less snow accumulation supporting concentrations of moose during winter months • areas improve overwintering survival by reducing energy lost through movement and wind chill • can be very important to survival of pregnant females 	<p>intercept with moose range</p> <ul style="list-style-type: none"> • manage for coniferous stand of at least 4 ha that is surrounded by adjacent forested land with an understory stocked with browse for animals • try to enlarge area of smaller existing conifers stands • encourage growth of clumps of conifers to at least 6 m high and 60 percent canopy closure • prefer hemlock, balsam fir, and white spruce because of their superior ability to intercept snow • prefer habitat with some south-facing slopes and open areas where moose can move to on sunny days to absorb the radiant energy • do not locate logging roads near this habitat, if they will be used in winter • generally try to provide sufficient conifer forest and patches of conifers within hardwood forests to support number of moose in the planning area based on OMNR biologist estimates 	<ul style="list-style-type: none"> • OMNR for possible locations of some sites • tree marking certification course study notes: wildlife habitat concerns (Naylor 1997) • timber management guidelines for the provision of moose habitat (OMNR 1988) • <i>Late winter habitat selection by moose in the northern Great Lakes-St. Lawrence Forest</i> (Bellhouse et al. 1993)



Table 4.4.1: *continued*

Wildlife Feature or Area	Importance	Suggested Treatment	Sources of Information or References
<p><u>moose aquatic feeding areas</u> (moose guidelines, while included, have limited relevance to southern Ontario forests)</p>	<ul style="list-style-type: none"> undisturbed areas with abundant aquatic plants that are used by moose during June and July aquatic feeding areas provides large amounts of aquatic plants high in sodium, required by moose in June and July for antler development, lactation, and basic neurophysiological functions 	<ul style="list-style-type: none"> identify potential sites in vicinity of stand to be managed (e.g., abundance of preferred aquatic plants such as pondweeds, yellow water-lily, water-milfoil, others; located adjacent to conifer stand) ensure that forestry activities have no adverse impacts on associated shoreline vegetation (conifer cover), water-level fluctuation, or water quality and clarity provide buffer zone with width depending on local site conditions, adjacent land use, importance of site to moose; normally will range from 50 to 150 m for aquatic areas 	<ul style="list-style-type: none"> OMNR for location of some important aquatic feeding areas and description of such habitats; moose habitat requirements; contact with knowledgeable local residents/cottagers aerial photographs can help to identify sections of creeks and bays with high potential as aquatic feeding areas timber management guidelines for the provision of moose habitat (OMNR 1988) guidelines for assessment of moose aquatic feeding areas (Ranta 1998)
<p><u>moose calving areas</u> (moose guidelines, while included, have limited relevance to southern Ontario forests)</p>	<ul style="list-style-type: none"> undisturbed areas where moose bear their young may be used by moose for many years 	<ul style="list-style-type: none"> identify potential sites in vicinity of stand to be managed (e.g., undisturbed islands or peninsulas, shorelines less than 100 m from open water; elevated) forestry activities should not occur in the vicinity of calving sites (mid-May) logging roads should not be located near known calving areas 	<ul style="list-style-type: none"> timber management guidelines for the provision of moose habitat (OMNR, 1988) aerial photographs can help to identify undisturbed islands or peninsulas, shorelines less than 100 m from open water; elevated with high potential as calving areas



Table 4.4.2: Summary of rare and uncommon tree species in southern Ontario: status and distribution.

Scientific Name	Common Name	NHIC Status ¹	COSEWIC (National) ²	COSSARO (Ontario) ²	Site Region	
					6E	7E
<i>Acer nigrum</i>	Black Maple	S4			X	X
<i>Aesculus glabra</i>	Ohio Buckeye	S1				X
<i>Betula lenta</i> ³	Cherry Birch, Sweet Birch	S1				X
<i>Betula populifolia</i>	Gray Birch	S5			X	
<i>Carya laciniosa</i>	Big Shellbark Hickory	S3				X
<i>Carya glabra</i>	Sweet Pignut Hickory	S3				X
<i>Castanea dentata</i>	American Chestnut	S3	thr			X
<i>Celtis occidentalis</i>	Hackberry	S4			X	X
<i>Cercis canadensis</i>	Redbud	SX				X
<i>Crataegus spp.</i> ⁴	Hawthorn (several species)	SH-S3				X
<i>Fraxinus profunda</i>	Pumpkin Ash	S2				X
<i>Fraxinus quadrangulata</i>	Blue Ash	S3	thr	vul		X
<i>Gleditsia triacanthos</i> ³	Honey Locust	S2				X
<i>Gymnocladus dioicus</i>	Kentucky Coffee Tree	S2	thr	thr		X
<i>Juglans nigra</i>	Black Walnut	S4			X	X
<i>Liriodendron tulipifera</i>	Tulip Tree	S4				X
<i>Magnolia acuminata</i>	Cucumber Tree	S2	end	end		X
<i>Morus rubra</i> ⁵	Red Mulberry	S2	end			X
<i>Nyssa sylvatica</i> ³	Black Gum	S3				X
<i>Picea rubens</i>	Red Spruce	S4			X	
<i>Pinus rigida</i>	Pitch Pine	S2S3			X	
<i>Platanus occidentalis</i>	Sycamore, Plane Tree	S4			X	X
<i>Ptelea trifoliata</i>	Hoptree	S3	vul			X
<i>Quercus bicolor</i>	Swamp White Oak	S4			X	X
<i>Quercus ellipsoidalis</i>	Hill's Oak (Northern Pin Oak)	S3				X
<i>Quercus muhlenbergii</i>	Chinquapin Oak	S4			X	X
<i>Quercus palustris</i>	Pin Oak	S3				X
<i>Quercus shumardii</i>	Shumard Oak	S3	vul	vul		X
<i>Quercus velutina</i>	Black Oak	S4			X	X
<i>Salix nigra</i>	Black Willow	S4?			X	X
<i>Sassafras albidum</i>	Sassafras	S4				X

¹(S1) - extremely rare, usually 5 or fewer occurrences in Ontario; (S2) - very rare, usually between 6-20 occurrences; in Ontario, or few remaining hectares; (S3) – rare to uncommon in Ontario, usually between 21-100 occurrences, may have fewer occurrences, but with some extensive examples remaining; (S4) – apparently secure in Ontario (but rare in much of southern Ontario); SH – historically known from Ontario but not verified recently; Note: combinations of ranks indicate that information is insufficient to accurately assign a single rank

²end = endangered, thr = threatened, vul = vulnerable; status report prepared for all species with COSEWIC status

³MNR status report has been prepared but has not been approved by COSEWIC or COSSARO

⁴approximately 15 “species” ranging from SH to S3, but most species difficult to identify

⁵recovery plan in preparation

Table 4.4.3: Summary of rare and uncommon shrub and woody vine species in southern Ontario: status and distribution.

Scientific Name	Common Name	NHIC Status ¹	COSEWIC (National) ²	COSSARO (Ontario) ²	Site Region	
					6E	7E
<i>Amelanchier amabilis</i>	Juneberry	S2S3			X	X
<i>Asimina triloba</i> ⁴	Pawpaw	S3				X
<i>Campsis radicans</i>	Trumpet Creeper	S2				X
<i>Ceanothus americanus</i>	New Jersey Tea	S4			X	X
<i>Ceanothus herbaceus</i>	Narrow-leaved New Jersey Tea	S4			X	X
<i>Celtis tenuifolia</i>	Dwarf Hackberry	S2	vul	vul	X	X
<i>Chimaphila maculata</i>	Spotted Wintergreen	S1	end			X
<i>Cornus drummondii</i>	Rough-leaved Dogwood	S4				X
<i>Cornus florida</i>	Flowering Dogwood	S3?				X
<i>Corylus americana</i> ⁴	American Hazel	S5			X	X
<i>Crataegus douglasii</i>	Douglas' Hawthorn	S4?			X	
<i>Euonymus atropurpurea</i>	Burning Bush	S3				X
<i>Hamamelis virginiana</i> ⁴	Witch-hazel	S5			X	X
<i>Hudsonia tomentosa</i>	Woolly Beach-heath	S2-S3			X	X
<i>Hypericum kalmianum</i>	Kalm's St. John's-wort	S4			X	X
<i>Hypericum prolificum</i>	Shrubby St. John's-wort	S2				X
<i>Gaylussacia baccata</i>	Black Huckleberry	S4			X	X
<i>Lindera benzoin</i> ⁴	Spicebush	S5			X	X
<i>Malus coronaria</i>	Wild Crabapple	S4				X
<i>Myrica pensylvanica</i>	Bayberry	S1				X
<i>Prunus americana</i>	Wild plum	S4				X
<i>Quercus ilicifolia</i>	Bear Oak	S1			X	
<i>Quercus prinoides</i> ³	Dwarf Chinquapin Oak	S2				X
<i>Rhododendron canadense</i>	Rhodora	S1			X	
<i>Rhus copallina</i>	Shining Sumac	S3-S4			X	X
<i>Rhus vernix</i>	Poison Sumach	S4			X	X
<i>Rosa carolina</i>	Pasture Rose	S4				X
<i>Rosa setigera</i>	Prairie Rose	S3	vul	vul	X	X
<i>Rubus flagellaris</i>	Northern Dewberry	S4			X	X
<i>Rubus parviflorus</i>	White-flowering Raspberry	S4			X	
<i>Rubus setosus</i>	Bristly Blackberry	S4?			X	X
<i>Smilax hispida</i>	Bristly Greenbrier	S4			X	X
<i>Smilax rotundifolia</i>	Round-leaved Greenbrier	S2	thr	vul		X
<i>Staphylea trifoliata</i>	Bladder-nut	S4			X	X
<i>Vaccinium corymbosum</i>	High-bush Blueberry	S4			X	X
<i>Vaccinium pallidum</i>	Dryland Blueberry	S4			X	X
<i>Vaccinium stamineum</i>	Deerberry	S1	thr		X	X
<i>Viburnum recognitum</i>	Southern Arrowwood	S4			X	X
<i>Vitis aestivalis</i>	Summer Grape	S4				X
<i>Vitis labrusca</i>	Fox Grape	S1			X	X
<i>Vitis vulpina</i>	Frost Grape	S1				X

¹S1 - extremely rare, usually 5 or fewer occurrences in Ontario; S2 - very rare, usually between 6-20 occurrences in Ontario; S3 - rare in Ontario, usually between 21-100 occurrences in Ontario; S4 - uncommon to locally common and apparently secure in Ontario (but rare in much of southern Ontario); S5 - demonstrably secure in Ontario but may be rare in some regions; SH - historically known from Ontario but not verified recently; SX - apparently extirpated from Ontario

²end = endangered; thr = threatened; vul = vulnerable; status report prepared for all COSEWIC designated species

³MNR status report has been prepared but not approved by COSEWIC or COSSARO

⁴rare throughout most of Site Region 6E

Table 4.4.4: Summary of some¹ rare and uncommon herbaceous plant species of southern Ontario forests and woodlands: status and distribution.

Scientific Name	Common Name	NHIC Status ²	COSEWIC (National) ³	COSSARO (Ontario) ³	Site Region	
					6E	7E
<i>Agrimonia parviflora</i>	Swamp Agrimony	S3				X
<i>Aletris farinosa</i>	Colic Root	S2	thr	thr		X
<i>Allium cernuum</i>	Nodding Onion	S2				X
<i>Anemonella thalictroides</i>	Rue-anemone	S3			X	X
<i>Aplectrum hyemale</i>	Putty-root	S2			X	X
<i>Arisaema dracontium</i>	Green Dragon	S3	vul	vul		X
<i>Asclepias verticillata</i>	Whorled Milkweed	S2			X	X
<i>Asclepias viridiflora</i>	Green Milkweed	S2			X	X
<i>Asplenium scolopendrium</i>	Hart's-tongue Fern	S3			X	X
<i>Aster divaricatus</i>	White Wood Aster	S1	thr			X
<i>Aster prenanthoides</i>	Crooked-stem Aster	S2	vul	vul		X
<i>Aster schreberi</i>	Schreber's Aster	S2				X
<i>Aster shortii</i>	Short's Aster	S2				X
<i>Astragalus neglectus</i>	Cooper's Milk Vetch	S3			X	X
<i>Aureolaria pedicularia</i>	Fern-leaved False Foxglove	S3				X
<i>Baptisia tinctoria</i>	Yellow Wild Indigo	S2				X
<i>Botrychium lanceolatum</i>	Narrow Triangle Moonwort	S3			X	X
<i>Botrychium oneidense</i>	Blunt-lobed Grapefern	S3			X	X
<i>Botrychium rugulosum</i>	Rugulose Grapefern	S2			X	X
<i>Camassia scilloides</i>	Wild Hyacinth	S2	vul			X
<i>Carex careyana</i>	Carey's Wood Sedge	S2				X
<i>Carex davisii</i>	Awned Graceful Sedge	S2				X
<i>Carex gracilescens</i>	Slender Wood Sedge	S3				X
<i>Carex hirsutella</i>	Hairy Green Sedge	S3				X
<i>Carex jamesii</i>	Grass Sedge	S3				X
<i>Carex muskingumensis</i>	Swamp Oval Sedge	S2				X
<i>Carex seorsa</i>	Swamp Star Sedge	S2				X
<i>Carex squarrosa</i>	Narrow-leaved Cattail Sedge	S2				X
<i>Carex swanii</i>	Downy Green Sedge	S3				X
<i>Carex virescens</i>	Slender Green Sedge	S3				X
<i>Chaerophyllum procumbens</i>	Spreading Chervil	S2				X
<i>Chenopodium standleyanum</i>	Woodland Goosefoot	S2				X
<i>Cimicifuga racemosa</i>	Black Cohosh	S2				X
<i>Conioselinum chinense</i>	Hemlock-parsley	S3				X
<i>Corallorhiza odontorhiza</i>	Autumn Coral-root	S2			X	X
<i>Corydalis flavula</i>	Yellow Corydalis	S2				X
<i>Cypripedium arietinum</i>	Ram's-head Lady's-slipper	S3			X	X
<i>Cystopteris laurentiana</i>	Laurentian Bladder Fern	S2S3			X	
<i>Cystopteris protrusa</i>	Lowland Brittle Fern	S2				X
<i>Desmodium canescens</i>	Hairy Tick-trefoil	S2				X
<i>Desmodium cuspidatum</i>	Bracted Tick-trefoil	S3			X	X
<i>Desmodium rotundifolium</i>	Round-leaved Tick-trefoil	S2			X	X
<i>Erigenia bulbosa</i>	Harbinger-of-spring	S3				X
<i>Eupatorium purpureum</i>	Purple-jointed Joe Pye Weed	S3				X
<i>Frasera caroliniensis</i>	American Columbo	S1	vul	vul		X
<i>Galium pilosum</i>	Hairy Bedstraw	S3			X	X
<i>Geum vernum</i>	Spring Avens	S3				X
<i>Gymnocarpium robertianum</i>	Limestone Oak Fern	S2			X	
<i>Heuchera americana</i>	Rock Geranium	S2				X
<i>Hibiscus moscheutos</i>	Swamp Rose Mallow	S3	vul		X	X
<i>Hieracium paniculatum</i>	Panicled Hawkweed	S2			X	X
<i>Hieracium venosum</i>	Rattlesnake Hawkweed	S2			X	X
<i>Hybanthus concolor</i>	Green Violet	S2			X	X
<i>Hydrastis canadensis</i>	Golden Seal	S2	thr	thr	X	X

Table 4.4.4: continued

Scientific Name	Common Name	NHIC Status ²	COSEWIC (National) ³	COSSARO (Ontario) ³	Site Region	
					6E	7E
<i>Hydrophyllum appendiculatum</i>	Appendaged Waterleaf	S2				X
<i>Isopyrum biternatum</i>	False Rue-anemone	S2	vul	vul		X
<i>Isotria medeoloides</i>	Small Whorled Pogonia	S1	end	end		X
<i>Isotria verticillata</i>	Large Whorled Pogonia	S1	end	end		X
<i>Krigia biflora</i>	Two-flowered Cynthia	S2				X
<i>Lactuca floridana</i>	Woodland Blue Lettuce	S2				X
<i>Linum virginianum</i>	Slender Yellow Flax	S2				X
<i>Liparis liliifolia</i>	Purple Twayblade	S2	end	thr	X	X
<i>Listera australis</i>	Southern Twayblade	S2			X	
<i>Lithospermum latifolium</i>	Broad-leaved Puccoon	S3				X
<i>Lupinus perennis</i>	Wild Lupine	S3			X	X
<i>Lycopus rubellus</i>	Stalked Water Horehound	S2				X
<i>Mertensia virginica</i>	Bluebells	S3				X
<i>Mimulus alatus</i>	Winged Monkey Flower	S2				X
<i>Oxytropis rigidior</i>	Stiff Cowbane	S2				X
<i>Panax quinquefolium</i>	American Ginseng	S3	end	thr	X	X
<i>Panicum clandestinum</i>	Broadleaf Panic-grass	S2				X
<i>Panicum dichotomum</i>	Forked Panic-grass	S2			X	X
<i>Peltandra virginica</i>	Arrow Arum	S2			X	X
<i>Phegopteris hexagonoptera</i>	Broad Beech Fern	S3	vul	vul	X	X
<i>Plantago cordata</i>	Heart-leaved Plantain	S1	end	end		X
<i>Platanthera macrophylla</i>	Large Round-leaved Orchid	S2			X	
<i>Poa languida</i>	Weak Bluegrass	S3			X	X
<i>Poa sylvestris</i>	Woodland Bluegrass	S2				X
<i>Polygonum arifolium</i>	Halbard-leaved Tear-thumb	S3			X	X
<i>Pterospora andromedea</i>	Giant Pinedrops	S2			X	X
<i>Sanicula canadensis var. grandis</i>	Long-styled Canadian Snakeroot	S2				X
<i>Smilax ecirrata</i>	Upright Carrion-flower	S3?				X
<i>Smilax illinoensis</i>	Illinois Carrion-flower	S2?				X
<i>Solidago arguta</i>	Sharp-leaved Goldenrod	S3			X	X
<i>Stylophorum diphyllum</i>	Wood Poppy	S1	end	end		X
<i>Tephrosia virginiana</i>	Goat's Rue	S1	thr			X
<i>Thalictrum revolutum</i>	Waxy Meadow-rue	S2				X
<i>Thaspium trifoliatum</i>	Meadow Parsnip	S2				X
<i>Tradescantia ohioensis</i>	Ohio Spiderwort	S2				X
<i>Trillium flexipes</i>	Drooping Trillium	S1	end			X
<i>Triphora trianthophora</i>	Nodding Pogonia	S1	thr			X
<i>Verbesina alternifolia</i>	Wingstem	S2S3				X
<i>Veronia gigantea</i>	Giant Ironweed	S1S2				X
<i>Veronia missurica</i>	Missouri Ironweed	S1S3				X
<i>Veronicastrum virginicum</i>	Culver's-root	S2				X
<i>Vicia caroliniana</i>	Wood Vetch	S2			X	X
<i>Viola palmata</i>	Palmate Violet	S2				X
<i>Viola striata</i>	Cream Violet	S3				X
<i>Woodsia obtusa</i>	Blunt-lobed Woodsia	S1	thr		X	

¹this is a partial list only; for the most part, only S2 and S3 species have been included; for a complete current listing of Ontario's rare plant species contact the NHIC (www.mnr.gov.on.ca/MNR/nhic/nhic)

²S1 - extremely rare, usually 5 or fewer occurrences in Ontario; S2 - very rare, usually between 6-20 occurrences in Ontario; S3 - rare in Ontario, usually between 21-100 occurrences in Ontario; S4 - uncommon to locally common and apparently secure in Ontario (but rare in much of southern Ontario); S5 - very common and demonstrably obscure in Ontario (but rare in one or more of the site regions of southern Ontario)

³end = endangered; thr = threatened; vul = vulnerable. Species for which a COSEWIC status is given have a status report

Table 4.4.5: Summary of rare forest types in southern Ontario and their status.

Forest Type	Status ¹	Comments
ELC Community Class: Forest		
ELC Community Series: Deciduous Forest		
Dry-Fresh Oak Deciduous Forest Ecosite:		
Dry-Fresh Black Oak Deciduous Forest Type	S3	may not be found in Site Region 6E
Dry-Fresh Mixed Oak Deciduous Forest Type	S3S4	
Dry-Fresh-Oak-Maple-Hickory Deciduous Forest Ecosite:		
Dry-Fresh Oak-Hickory Deciduous Forest Type	S3S4	
Dry-Fresh Hickory Deciduous Forest Type	S3S4	
Dry-Fresh Deciduous Forest Ecosite:		
Dry-Fresh Hackberry Deciduous Forest Type	S2	occurs on calcareous sites; not found in Site Region 6E
Fresh-Moist Lowland Deciduous Forest Ecosite:		
Fresh-Moist Black Walnut Lowland Deciduous Forest Type	S2S3	not found in Site Region 6E
Fresh-Moist Black Maple Lowland Deciduous Forest Type	S3	on dry sites and river terraces
Dry Oak- Pine Mixed Forest Ecosite:		
Dry Oak- Pitch Pine Mixed Forest Type	S1	not found in Site Region 7E; Pitch Pine stands declining due to fire suppression
Dry Chinquapin Oak- Pine Mixed Forest Type	S2	not found in Site Region 6E
ELC Community Class: Swamp		
ELC Community Series: Coniferous Swamp		
White Pine-Hemlock Mineral Coniferous Swamp Ecosite:		
White Pine Mineral Coniferous Swamp Type	S2	areas where flooding duration is short—substrate aerated by early to mid-summer
ELC Community Series: Deciduous Swamp:		
Oak Mineral Deciduous Swamp Ecosite:		
Swamp White Oak Mineral Deciduous Swamp Type	S2S3	areas where flooding duration is short—substrate aerated by early to mid-summer
Bur Oak Mineral Deciduous Swamp Type	S3	areas where flooding duration is short—substrate aerated by early to mid-summer
Pin Oak Mineral Deciduous Swamp Type	S2S3	areas where flooding duration is short—substrate aerated by early to mid-summer

¹ S1 extremely rare in Ontario, usually 5 or fewer occurrences or very few remaining hectares; S2 very rare in Ontario, usually between 6 and 20 occurrences, or few remaining hectares; S3 rare to uncommon in Ontario, usually between 21-100 occurrences, may have fewer occurrences, but with some extensive examples remaining; S4 apparently secure in Ontario