

MANAGEMENT STRATEGY

OWL WOODS



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EXECUTIVE SUMMARY

Located on the eastern end of Amherst Island, Owl Woods is no longer a quiet little birding site. Once largely shared by word-of-mouth between birders, Owl Woods is now being promoted through a variety of mediums to a much broader audience to the point where its greatest threat may be its increasing popularity. Concerns over increasing incidents of owl harassment and the implications on the sustainable use of this regionally unique habitat by ever increasing numbers of visitors has prompted the development of this management strategy

It was produced after consultation with the stakeholders whose input provided many of the issues, as well as potential solutions. It is primarily aimed at winter owl conservation and should be viewed as a flexible working document that can be implemented when appropriate opportunities and/or resources become available.

A prioritized list of recommendations is provided in the Appendix, with the first being the most urgent and most easily achieved (i.e., planting a conifer plantation). This will enhance the function of the existing, but ageing plantation that provides critical roosting habitat for overwintering owls. The second recommendation, and perhaps most important, is to form a Friends of Owl Woods group, as there needs to be an implementing body to push the bulk of this management strategy forward.

Owl protection would be easier to implement if Owl Woods was a public conservation park with clearly defined boundaries, fees, dedicated on-site staff, an enforcement arm, gates, fences, and operational hours. Although the reality is more complicated, the objectives of this strategy are aimed at achieving similar management goals.

1.0 OWL WOODS OBJECTIVES

The view of all stakeholders was that owl protection should be the primary objective of Owl Woods. Education and/or tourism were important, but if a demonstrated conflict situation should arise, then owl protection should take precedence.

Objective 1. Provide a safe and sustainable habitat for wintering owls.

Objective 2. Provide non-conflicting educational opportunities with the aim of supporting wildlife conservation.

Recommendations to help achieve these objectives are inserted (numbered and boldfaced) in the different sections of the management plan.

2.0 METHODOLOGY

This management plan was primarily set up by Rob Snetsinger of Ecological Services as a result of input from the stakeholders. The base ecology for Owl Woods was developed after site visits in the fall of 2010, and that work was supplemented with an aerial flight over the site, also in the fall of 2010. An initial list of stakeholders was provided, although the list grew as more questions were raised and new directions were explored. Likewise, some stakeholders were contacted several times in order to get feedback as new ideas were put forth by others.

3.0 OWNERSHIP

Although Owl Woods itself has no defined boundary, there are five owners whose lands are regularly used by visitors. These owners and their approximate property boundaries are presented in Figure 1. Loyalist Township owns the 40 ft wide right of way running east to west in the middle of the island, and the main access trail entrance starts on township lands. The Cataraqui Region Conservation Authority (CRCA) owns the lands to the north of the right of way, and directly east of Marshall 40 Foot Road. The lands south of the CRCA lands were owned by the Marshall family. The Marshall family ownership of those lands continues in the name of the Barr family. East of the CRCA lands is the Lauret property and east of the Barr lands is the Hubbard property. The Hubbard family has not been considered in Owl Woods deliberations in the past, perhaps because their lands are further removed from the center of Owl Woods activity. However, we encountered evidence of visitor use on their property and feel that they have a role to play in the future of Owl Woods.

There is a common and widespread perception that Owl Woods is public land, akin to a conservation area or provincial park. Loyalist Township benefit when they encourage visitors to come visit the “Sanctuary” on their web page. School groups benefit from visits to Owl Woods. Companies earn income by bringing in groups of birders or photographers. It seems extraordinary that groups would consider unrestricted access on private land without direct landowner permission.

There may be several reasons for this. It may be due to historic precedent, it may be due to the initial access point being on public land. Regardless, clear indicators are needed (signs and entrance portals) that parts of Owl Woods are on private land. This may result in a greater level of respect by visitors if they realize they are on private property. Aside from key words, such as “Private Property”, the wording on the signs could reflect how the landowner wants their property to be viewed. For example, it was suggested that the “The Marshall Farm” be a possibility for property owned by the Barr family.

- 1. It is recommended that trail access points be demarcated with entrance portals and professional signs clearly indicating private property. The specific wording and any other associated signs must be discussed with the landowners. Costs should not be borne by the landowners.**

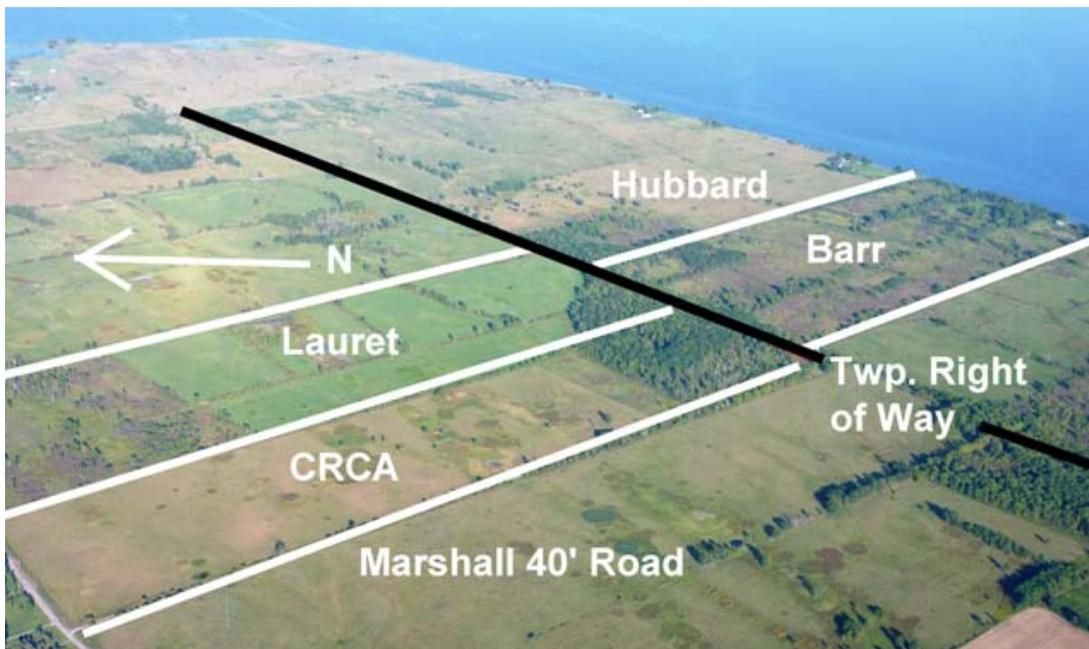


Figure 1. Property boundaries, Owl Woods. The township right-of-way (i.e., road allowance) is the black line running approximately east to west. Base photo taken by report author in the Fall 2010.

4.0 ECOLOGY

Amherst Island, and indirectly Owl Woods, have been the focus of various research studies, primarily in the 1970's and 80's. These studies include a focus on Meadow Voles (Phelan 1976, Boonstra et al. 1984, Pavone 1985, Boonstra and Boag 1992, Plante and Boag 1989) with the general conclusion that Amherst Island voles are somewhat unique in their population demographics. Bumble Bees have been studied (Harder 1985, 1986, 1988, Lavery and Plowright 1985) as have various avifauna (Wasserman 1977, Phelan and Robertson 1978).

The KFN has been studying Owl Woods for many years, primarily through Bird Counts and it has been the subject of numerous articles in *The Blue Bill*, the periodical produced by the KFN.

The base ecology of Owl Woods has not been reported on, and one of the purposes of this management plan was to categorize the property using Ecological Land Classification (ELC) (after Lee et al. 1988). The ELC map for Owl Woods is presented in Figure 2. The minimum plot size for ELC designation is 0.5 ha., which means small ecological site types may go unrecognized. For example, there is a small stand of aspen at Owl Woods on the Hubbard property that was not classified as it exists within the much larger Sugar Maple stand.

The base ecology (i.e., ecological site types) of Owl Woods is not particularly valuable. Habitat types are small, fragmented, heavily disturbed, lack biodiversity, and invasive species are becoming pronounced and will become more so. Most of the ELC types are cultural ones, and the natural vegetation class (FOD5-8) is very common in Ontario.

The site types identified in Figure 2 are as follows:

Agricultural (Agr): Applied to ongoing farming operations either as pasture or forage crop. This type of land use is not considered an ecological type in the Ontario Ecological Land Classification Manual (ELC Manual, after Lee *et al.*, 1998).

Cultural Meadow (CUM): This term applies to non-agricultural semi-natural fields that result from or are maintained by cultural disturbances. Trees or shrubs may be present, but must be less than 25% coverage to be considered a meadow. Cultural meadows usually develop from abandoned agricultural land. Through ecological succession they may eventually turn into woodland, but the amount of time that takes varies widely as a result of site conditions and the influence of disturbances.

The cultural meadow at Owl Woods is located south and north of the Jack Pine plantation on the Barr property. It is dominated by remnant pasture grasses such as *Poa pratensis* and *Bromus inermis*, as well as herbaceous forbs such as *Solidago canadensis*, *Aster* spp., and

Daucus carota. Some colonizing shrubs are also present such as Gray Dogwood, Staghorn Sumac, and Prickly Ash.

The cultural meadows and agricultural lands of Amherst Island are vole producing habitats that attract and support the owl populations throughout the winter. The cultural meadow outlined in Figure 2 on the Barr property is being considered for cattle pasturing. Parts of it would make a good location for a new conifer plantation.

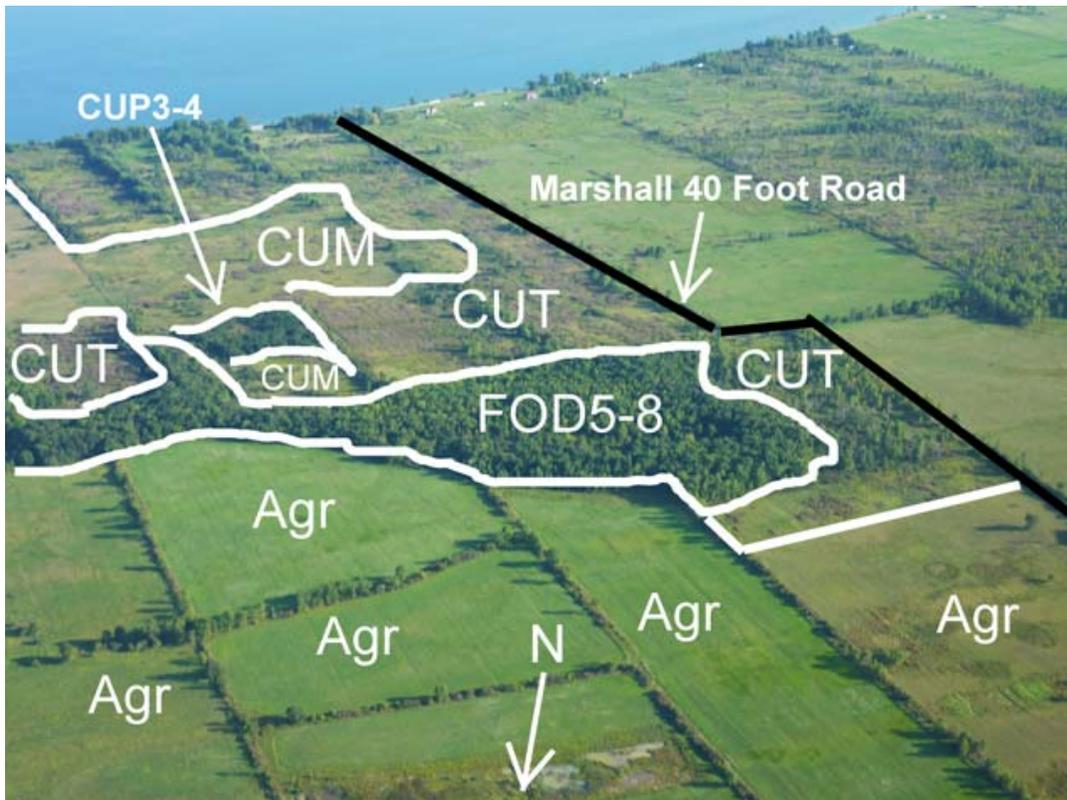


Figure 2. Ecological Land Classification of Owl Woods. Base photo taken by report author in the Fall of 2010.

Cultural Thicket (CUT): This term applies to woody areas that have greater than 25% shrub coverage, but less than 25% tree coverage. There are several different shrub associations at Owl Woods that all fall under the name Cultural Thicket. Dominance by different shrub species varies from site to site but includes Gray Dogwood, European Buckthorn, and Tartarian Honeysuckle. There are a variety of associate species such as American Elm, Strawberry spp., Virginia Creeper, Wild Grape, Prickly Ash, Dog Strangling Vine, grasses, and numerous herbaceous perennials. Non-native and/or invasive species are prevalent.

Cultural thicket communities are generally considered to have low ecological value, and the types found at Owl Woods are of a long lived type, meaning it will be many years before they

develop into forest. These thicket areas could be considered for conversion into conifer plantations, although there will be an associated cost for land clearing. The thicket areas could also be converted back to grasslands for the purposes of Vole production. The Barr family is considering the option of converting thickets to grassland for cattle grazing purposes, which may have the benefit of increasing vole numbers.

Jack Pine Coniferous Plantation Type (CUP3-4): This Jack Pine plantation was planted by Rod Barr over 30 years ago. It has never been thinned and is showing signs of decline, as well as loss by succession from understory deciduous species.

Dry-Fresh Sugar Maple – White Ash Deciduous Forest Type (FOD5-8): This is the main forest type at Owl Woods. The top canopy layer is dominated by Sugar Maple and White Ash, although Shagbark Hickory, White Birch, Beech, and Red Oak are also common. The sub-canopy layer is mostly Ironwood. The shrub layer is very sparse, with Tartarian Honeysuckle being the most common species. Although very sparsely covered, the main groundcover species are Garlic Mustard, Ironwood saplings, and Tartarian Honeysuckle.

This forest type is often associated with a disturbance history such as grazing, and there are numerous recent disturbance indicators. These include the trail systems, very sparse understory layers, almost total lack of canopy tree regeneration, and invasive species. It is also clear that there is much indiscriminate trampling by visitors throughout this forest, which ultimately will not be sustainable. There are parallels here with the Sugar Maple forest at Lemoine Point Conservation Area, and the experiences of the Friends of Lemoine Point may be of value.

2. It is recommended that preservation of hardwood forest integrity be considered as a necessary part of Owl Woods management. Actions that discourage indiscriminate forest access need to be considered, as well as means to reduce the effects of invasive species.

5.0 CONIFER PLANTATIONS

Many people come to the small Jack Pine plantation as their “owl woods” destination. While this spot provides a convenient winter concentration of owls for viewing, owls also roost nearby and use the adjacent fields for hunting. As such, Owl Woods is more than a Jack Pine plantation, and where Owl Woods begins and ends will always be in flux. For the purposes of this project, we consider Owl Woods to have an indistinct boundary that encompasses the Jack Pine plantation, the surrounding fields, the surrounding thickets, and the adjacent semi-mature Sugar Maple woodlot.

Visitors come to Owl Woods year round, but the largest influx occurs in the winter months, with some estimates going as high as 400 visitors on some days. They primarily come to see owls and the most common sightings include the Long-eared Owl (*Asio otus*), Short-eared Owl (*Asio flammeus*), Northern Saw-whet Owl (*Aegolius acadicus*), Boreal Owl (*Aegolius funereus*) and Barred Owl (*Strix varia*). These owls hunt for voles in the nearby fields, and use the conifers for thermal regulation and cover during the day, where they may be visible to visitors.

Less frequently seen, or seen nearby are the Great Horned Owl (*Bubo virginianus*), Snowy Owl (*Bubo scandiacus*), Great Gray Owl (*Strix nebulosa*) and, most rarely, the Northern Hawk Owl (*Surnia ulula*).

The Jack Pine plantation is a critical component for owl winter survival. Bosakowski (1987) notes the importance of conifers with dense foliage for daytime roosting and observed that Long-eared Owls had strong fidelity for the same tree over a winter season, although not necessarily returning to that tree the following winter. In the late 1980's, "Owl Woods" was primarily a White Cedar stand located roughly in the Loyalist Township 40 foot right of way. Since then, the cedars have been overtaken by hardwood species and the remaining few cedars are sparsely used by owls.

The Jack Pine plantation has become the favored spot for owls. Unfortunately, the plantation is degrading. As is typical with un-thinned plantations, many of the trees are poorly formed and have cankers. Un-thinned trees are also more susceptible to competition, insects and disease, and this can be exacerbated by indiscriminate human intrusion of the type that takes place here.

Un-thinned plantations are also at a greater risk of a total loss due to fire. One accidental match in an adjacent field in summer could easily take out the plantation in a dry summer. Finally, pine plantations are often managed as an intermediate successional stage for hardwood forest regeneration. There are numerous indicators that this is happening, and we estimate the plantation will be much reduced in functional size in as few as 15 years. Since it will take at least that long for a plantation to reach functional owl roosting size, there is urgency for a (or multiple) new plantation(s) to be started.

It does not appear that owls have any great preference for a particular conifer type. The original stand was White Cedar, the next stand was Jack Pine. Bosakowski (1987) observed that the owls in his study had little preference to specific conifer species.

Conifer plantations have been attempted several times on Amherst Island without success, due to sapling girdling by voles. However there have been recent successful plantation starts on the island, such as the Raymond property to the east of Owl Woods. Rick Knapton, Forestry Technician for the CRCA, feels that White Spruce and Norway Spruce will be the least

susceptible to vole damage. Plantation success would be greatly enhanced with selective herbicide use and periodic grass cutting in the first three years, to reduce vole cover and grass competition to the seedlings. There has been some discussion that limited sheep grazing might achieve the same effect. Newsome et al. (1995) noted that sheep will eat conifer seedlings but spruce plantations could be grazed safely at any time during the growing season if adequate amounts of acceptable forage are present. Electric fencing grazer rows might also be considered in concert with sheep grazing. Mark Ritchie and Cherry Allen of Foot Flats Farm currently graze sheep on the CRCA lands and would be receptive to the idea of using their sheep for plantation management.

There are several possible locations where the additional plantations could be located. The CRCA has made a commitment for tree planting on their property. Peter and Elizabeth Barr would consider more planting on their property to supplement or replace the existing Jack Pine plantation. The Barr location may provide a better microclimate as it would have some protection from north winds by the intervening deciduous woodland. The advantage of the CRCA property (Figure 3) is that there would be greater management control. In the short term the CRCA lands can be planted in 2012 with minimal consultation, but ideally both sites should be planted. A 2011 planting is not possible as the deadline for ordering spruce is past and Rick Knapton will need to survey the site in the summer months prior to planting.

- 3. It is recommended that CRCA begin planting spruce at its earliest possible convenience, and to phase planting on their lands in 3 x 5 acre blocks, each separated by 10 years as well as a fire break. It is normally preferred to plant native species, but owl conservation is a greater priority at Owl Woods, and so both White Spruce and Norway Spruce should be considered. Norway Spruce is not an invasive threat in Southern Ontario.**
- 4. It is recommended that discussions take place with the Barr family, with the aim of having a second plantation on their property, either immediately south or immediately west of the existing plantation.**
- 5. It is recommended that the other landowners be considered and approached with the possibility of planting.**
- 6. It is recommended that a post-planting protocol be developed in order to minimize seedling loss by vole girdling. Options to consider include selective herbicide use, grass cutting, and sheep grazing. Selective herbicide application is used in existing CRCA plantation agreements, and grass cutting could be done by volunteers or through a summer student program. Sheep grazing is possible, but would first need to be done on an experimental basis due to the potential risk of seedling loss.**



Figure 3. CRCA lands. The grazing use of these lands will make initial planting easier and reduce the initial amount of vole girdling.

6.0 ECOLOGICAL SUCCESSION

The typical ecological succession that takes place on Amherst Island is for abandoned farm fields to go from grasslands to fields dominated by weedy forbs. These then become dominated by shrubs, such as Gray Dogwood, although invasive species such as Black Swallowwort, Prickly Ash, Tartarian Honeysuckle and European Buckthorn are becoming more dominant on the island. These invasive species can delay or prevent the next stage of succession into forest, but eventual dominance by Sugar Maple, Oaks, and White Ash is presumed. If a conifer plantation is planted, it typically gets gradually supplanted by a hardwood forest. The rate of replacement increases if the stand is thinned manually or naturally through windfall and disease and there is a hardwood seed source nearby.

The relevance to this for Owl Woods is that meadow voles only thrive in grasslands and, a loss of grasslands will have an indirect impact to owls. Succession from grasslands to thicket has occurred on Amherst Island, such as on the Barr lands, however it has not yet occurred to any significant degree on the island. At the present time, the use of the fields around Owl Woods by Foot Flats Farm helps to maintain them as grassland and hence serves as optimal habitat for vole production.

The loss of conifers by succession to hardwoods will also be a detriment to the owls. New plantations will solve this potential problem, but longer term thinking is required. For example, plantations could be managed for timber production and be replanted after harvest,

7. It is recommended that long term grassland and plantation viability be part of future Owl Woods management considerations.

7.0 ACCESS

An earlier recommendation was to clearly demarcate land ownership with signs. One problem that may result from this is that landowners could get aggravated by excessive permission requests. A fee based access permit system may solve this potential problem. Permit systems of various types are used at other popular birding areas, such as at the Amherstview sewage lagoon. Ideally it would be administered through the CRCA as they have a legal framework in place for setting up and issuing permits, as well as enforcement capability. Other advantages of a permit system are that fees gathered could be used for Owl Woods conservation projects. Permits could be issued with information on the do's and don'ts of visiting (e.g., no flashbulbs), and it would provide leverage for non-CRCA staff to approach visitors exhibiting inappropriate behavior. The specifics of what is inappropriate behavior would need to be determined, although the KFN has posted a list in the past that could be considered as a starting point for discussions.

8. It is recommended that a memorandum of understanding be written up that included consent from landowners for the various activities and recommendations involved in this plan. This would not be a legal document, but instead would provide clarification that would help reduce future misinterpretation.

9. It is recommended that a permit system be considered for Owl Woods. The cost of the permit, who would be eligible, and the nature of associated cautionary literature would need to be determined. Private landowners would need to be included in permit discussions.

Another way of diverting attention away from private landowners is to change the nature of access. In discussions with the CRCA, it was suggested that the north and south ends of Marshall 40 Foot Rd. be closed with gates in the wintertime. An official access point to Owl Woods, with a gravel parking lot, would be constructed at the north end of the CRCA lands, along with a new access trail extending south through the CRCA lands to the woods. Since the road is not maintained in winter, a gate should not be a problem, although local landowners and emergency services would need to be given keys. It was also suggested that the current

trail access point at the midway (the bend) point of Marshall 40 Foot Road be closed and blocked in some manner, such as with the construction of a large pond for amphibian use at this low wet point. There are several advantages to having an official entrance point at the north end of the CRCA lands including:

- a) greater control over access, including no delays if a period of closure is deemed urgent and necessary;
- b) eliminate the traffic hazard created by road blockage that occurs when road access on Marshal 40 Foot Rd. is blocked by snow accumulation;
- c) with the recommended tree planting on CRCA lands, this newer system would eventually reduce incursion onto private lands, and take pressure off owls in those locations;
- d) a roofed kiosk similar to the one at Lemoine Point could be constructed at the parking area with professional signs to help educate users;
- e) greater ability to survey users for future management purposes;
- f) this access concept also enhances the zoo concept for Owl Woods suggested by some stakeholders, which is imagining Owl Woods like a zoo. As such, access can be controlled, and although there may be some impacts to owls, these may be offset by the educational benefits, and by reducing potential impacts to owls elsewhere on the island from indiscriminate intrusion.
- g) an amphibian pond would result in greater biodiversity at Owl Woods.

It is understood that a parking lot with official CRCA signs might attract greater numbers of visitors. This can be partly minimized by not advertising the site, or designating it with some sort of restrictive conservation status. Regardless, the advantage of a controlled system is that it allows for expeditious access restrictions, which currently do not exist, but are needed due to the ever increasing popularity of the site.

Township officials were receptive to the idea of a gated road, and this has been done elsewhere, but it would need a By-law change that would have to be passed by an Order in Council. The Township receives an economic benefit from the use of Owl Woods and actively promotes its use, and therefore should be receptive to approaches that insure its long-term sustainability.

10. It is recommended that CRCA construct a new entrance, along with a graveled parking lot, gate, trails, and a kiosk at the north end of their property.

11. It is recommended that talks be initiated with Loyalist Township for the purpose of establishing winter gates at both ends of Marshall 40 Foot Rd.

12. It is recommended that CRCA construct an amphibian pond at the current access point to prevent access to Owl Woods at that location. The details of this would have to be worked out with Loyalist Township, in regards to the right-of-way and preventing road flooding.

8.0 VISITOR IMPACTS

It is accepted that human activity, no matter how benign, will always have a negative impact on biodiversity and so the concept of sustainability was developed in order to find an acceptable level of loss. Sometimes called a visitor threshold or visitor carrying capacity, it can be difficult to determine, but many park agencies attempt to find the threshold in order to balance the accepted benefits of education with conservation. The question might be less complicated if owls were all considered rare or their populations were in decline, and they had a heavy dependence on Owl Woods. In that case, rarity legislation could be used to enforce blanket controls on disturbances to owl populations. However, this is not the case. Blancher et al. (2009) looked at population trends of Ontario owls and found that Saw-Whet and Great Gray numbers were stable, Long Eared Owls and Barred Owls were having a moderate increase, and Great Horned and Boreal were in moderate decline. Short Eared Owls are listed as a species Special Concern, federally and provincially, but the general impression is that they are not as dependent on Owl Woods as much as other species and will readily move to some other site if they feel harassed.

Visitor impacts are a common issue in areas that support a valuable ecological resource. Manning (2001) reviewed park carrying capacity research and noted the obvious in that increasing numbers of visitors caused increased impacts. Understandably, Manning (2001) noted that visitor threshold was difficult to determine and often based on a subjective viewpoint. Monz et al. (2010) also reviewed the subject and noted that most studies have focused on vegetation trampling and soil response to increased traffic, which is relatively easy to quantify. There are fewer data on wildlife/visitor thresholds, and we could find no information relating to owls.

Direct visitor caused mortality of owls would make a compelling argument for decision making, although to date there is only anecdotal information between cause and effect at Owl Woods. Maintaining Owl Woods information in a large single data base is needed.

It may not be possible to link reductions in overall winter owl numbers in with Owl Woods visitor impacts. There are many other factors on global, national, and regional scales that influence owl numbers at Owl Woods, as well as the transient nature of some owl species that move in and out of Owl Woods for short periods of time. Even accounting for that, Francis et al (2009) noted that the current methods of counting bird species in Ontario are inconsistent and raised questions about their reliability on a provincial scale.

We don't dispute that visitors can have a negative impact to Owl Woods owls, but a means to assess visitor impacts beyond direct mortality is needed. Visitor numbers at Owl Woods are highest in the winter months. During food scarcities or extreme cold, winter birds can wait out these periods by going into short term dormancy, resulting in a lower metabolism and body temperature. This is known as hypothermic torpor. For the most part, owls do not use hypothermic torpor as a cold temperature survival mechanism (Thouzeau and Handrick 1999, Hohtola 1994; McKechnie and Lovegrove 2002; Solheim 2009), and instead must constantly eat throughout the winter, or they will lose body fat or muscle. They also require a temperature and predator refuge (i.e, conifers) during non-hunting periods in order to survive the winter. The negative impacts of flushing caused by humans have been discussed by Knight & Cole (1995) Gutzwiller (1995), and Fernández-Juricic (2000). Flushing and other disturbances can cause an energetic loss, and in a harsh winter, may tip food or cold stressed owls over the threshold into death.

Flushing response also puts some owl species at greater risk to disturbance related mortality. Long Eared Owls flush readily, whereas Saw-whet Owls appear to be quite tolerant of intruders (Randle and Austing 1952). Nocturnal Long Eared Owls have also been reported to be disoriented and clumsy when flushed in daytime, making them more susceptible to predatory birds such as Goshawks. There have been some anecdotal suggestions that significant Goshawk predation on Long Eared Owls at Owl Woods has occurred in the past.

Bosakowski (1987) observed Long Eared Owls being tolerant of noisy and close human activity that was not focused on them; however they became skittish, or were flushed, when people looked directly at them. This selective attention to a potential predator's eye is known in birds (Suarez and Gallup 1983). Birdwatchers can probably recount stories of birds that hopped out of sight as soon as viewing attention was focused on them.

Certain owl responses to human winter intrusion can result in stress and energetic loss. For the purposes of this management plan these owl responses are considered to have a possible negative impact. Examples of owl responses would be flushing, elongating/freezing, or eye-tracking. Repeated responses could eventually cause physiologically significant stress and result in owl mortality from energetic loss.

8.1 Photographers: Nature photography plays an important role in environmental conservation by engendering public interest. For example the mission of the International League of Conservation Photographers (ILCP) is to undertake environmental conservation through the use of photographic images. The official list of ILCP field practices is admirable and includes:

- 1. We always place the welfare of our subjects above all else. Special care must be afforded breeding animals to avoid having a negative impact on reproductive success or add to the risk of predation. Key to this is the maintenance of safe, informed and responsible working distances.*
- 2. Minimize our impact on the landscape by following the "Leave No Trace - Pack It In, Pack it Out" ethic that maintains the integrity and character of the places we work.*
- 3. Be aware of and follow all regulations and customs that might impact our behavior in the field.*
- 4. Treat our partners in conservation - scientists, landowners, guides, and government officials - with respect and professionalism.*

It would be good if all photographers using Owl Woods adhered to field practices such as those of the ILCP. Unfortunately there are unethical or ignorant photographers who take pictures without concern for the welfare of their subject. Anecdotal reports of this are numerous throughout the world and some examples reported for Owl Woods include throwing snowballs at owls, chasing owls, approaching too close, staying too long, baiting with lures, damaging vegetation, and the excessive use of flashbulbs.

In signs and communications, there are currently several restrictions aimed at photographers who use Owl Woods such as no flash photography, no removing vegetation, and no lures. Despite this, reports of abuse still occur. In some management areas, such as at Carlsbad Caverns, Oamaru, and Philip Island Nature Park photographic restrictions were tried, but failed because impacts from flash photography to sensitive species still occurred. The restrictions were ultimately expanded to include a ban on all cameras.

The various recommendations such as permit systems, new access controls, and improved signs may reduce camera infractions to an acceptable minimum. However there may be a point where infractions have reached unacceptable levels as ever increasing numbers of visitors use Owl Woods.

13. It is recommended that some camera restrictions be part of new and improved signs and permit systems.

14. It is recommended that a census of photography visitors be undertaken to determine the types, locations, time of day, and numbers of owl threat responses caused by photographers. Census data must be meticulously maintained to avoid the problems associated with anecdotal bias.

15. If deemed necessary, it is recommended that a camera ban be considered by committee, backed up with defensible data. Various ban options can be considered including a total ban, moratorium, or in increments (e.g., alternate weeks).

8.2 Birdwatchers: Few would doubt the value and enjoyment of birding. It is typically a low impact activity and birdwatchers are considered ideal tourists as they tend to be well educated with above average incomes. There are many studies that link the conservation benefits of birding, usually through economic tourism (see Kerlinger and Brett 1995 and Butts and Sukhdeo-Singh 2010). Other examples of birding activities that aid in conservation include the bird counts of field naturalists groups such as the KFN, or events such as the Great Texas Classic (Jones *et al.* 1997).

However, the overzealous pursuit of certain species can be a problem and there are many studies that have shown negative impacts of birdwatching (reviews by Sekercioglu 2002 and Buckley 2004). Typical examples include nest abandonment, increased nest predation, trampling, habitat destruction, garbage, disease introduction, and increased mortality rates.

16. It is recommended that a census of birdwatching visitors be undertaken to determine the type of visitor, locations, time of day, and incidences of owl disturbances. Census data must be meticulously maintained to avoid the problems associated with anecdotal bias. The intention of the census is to set up defensible guidelines and a birdwatching ban (or timing restrictions) if necessary.

8.3 Setback Distances: The KFN has posted several birding rules for Owl Woods aimed at minimizing disturbances, such as keeping a minimum distance of five meters from owls, not lingering around owls, no dogs, and being quiet. Owl tolerance to approaching birders has not been studied, but it would be useful to establish appropriate setback distances. One of the posted Owl Woods rules called for a distance of 5 m, however Fernandez-Juricic (2001) found alert distances of between 12 and 18 m, and suggested that larger birds (such as owls) needed the greatest set back distances.

17. Until information can be provided that shows a lesser setback distance is acceptable, it is recommended that larger setback distances (at least 12 m) be set for visitors approaching owls at Owl Woods.

8.4 School Groups: School groups currently funnel through the Lauret property, and do not use Owl Woods during the important winter period. The image of school groups could be of that special quiet moment when a wide eyed youngster makes their first deep contact with a unique natural resource, a moment that can be a life changing experience. At the other extreme is a bus load of unruly children with pent up energy just waiting to get out. The former is the conservation educational dream, the latter is the headache. The more likely scenario is somewhere in the middle. However, without monitoring it is not possible to take steps that can enhance the former while restricting the latter.

18. It is recommended that school groups be monitored in the same manner as birdwatchers and photographers in order to determine educational enhancements and possible restrictions.

8.5 Visitor Density: In recent years, the density of visitors to Owl Woods has increased, and may continue to get higher with increasing popularity. Higher density could result from a few large groups, such as a school group, or from visits by several small groups at the same time. We could find no research linking visitor density to negative impacts to owls, but it seems intuitive that a greater density of people would be perceived as a greater threat. As well, there are studies (e.g., Knight and Cole (1995) and Frid and Dill (2002)) that discuss how wildlife can be more sensitive to larger groups.

19. As part of an overall census of visitors, it is recommended that visitor density be a parameter of study in regards to owl disturbance.

8.6 Time of Day: Although night visits are currently discouraged at Owl Woods, there have still been incidents of night disruptions reported. We could find no published research on the subject, but since many of the owls are nocturnal hunters, it would be prudent to allow them to obtain important energy supplies unimpeded. It would be difficult to provide night time monitors and so the most practical solution would be to close the woods in the evening.

20. It is recommended that Owl Woods be closed to visitors in the evening hours. This could be done through a combination of posted hours and gate closings. An arrangement with a local resident would likely be needed for this.

During the daylight hours it is not known when owls are more sensitive to disturbance by visitors, or even if there is a temporal variation in sensitivity. Due to monitoring limitations it may be that setting limited opening hours (e.g., 11:00-3:00) will also be an expeditious manner in controlling disturbance activity, regardless of owl daytime sensitivity.

21. It is recommended that time of day be a parameter in flushing surveys in order to support time of day visitor guidelines.

22. It is recommended that limiting hours of access be used as a management tool for controlling negative visitor behavior.

8.7 Visitor Destination: Most visitors head to the Jack Pine plantation to see roosting owls. It has been suggested that fencing off part of the plantation as a no-go zone would be a good compromise between education and conservation. A trial fence using yellow rope was tried and anecdotal views were that it had some success. However, a single rope is not much of an impediment and subsequent reports were that people were crossing into the roped off area. A more robust fence with professional no-entry signs (linked with the *Trespass to Property Act* prohibitions) would be a better deterrent, but the landowners are resistant to the idea out of the legitimate concern that it reduces their property autonomy. It is possible that they may be swayed in their opinion if they could be provided with good quality data showing the negative impacts of visitor intrusions. On the other hand, negative intrusion data may also convince them to close off access. Although we feel the fence option should not be abandoned, it may be more practical to see if other recommendations will be effective in reducing owl harassment. As well, the long term goal of developing alternative plantations may solve this issue.

9.0 LEGISLATION

During interviews we encountered several misconceptions about environmental legislation, including the erroneous assumption that certain activities were legally prohibited. Nevertheless, there are laws that can provide a means to protect the owls at Owl Woods from harmful activities.

Despite the rarity status of the Short Eared Owl, the *Species at Risk Act* does not apply to Owl Woods as none of the owl species are Threatened or Endangered. Likewise, owls are not included in the federal *Migratory Birds Convention Act*. The Ontario *Fish and Wildlife Conservation Act* may apply if it is deemed that birdwatching and photograph taking are considered hunting. Under the Act, hunting includes:

(a) lying in wait for, searching for, being on the trail of, pursuing, chasing whether or not the wildlife is killed, injured, captured or harassed

One could argue that “searching for” applies to both birders and photographers. Furthermore the Act states that it is illegal to *kill, injure, capture or harass* certain species, including those in Schedule 7 (all Ontario Owls) as a result of these “hunting” activities. For Owl Woods, one could argue that any photographer or birdwatcher that harasses owls is guilty of an offense under the Act. Maximum fines are \$25,000.00 and imprisonment. Despite this, Ontario Ministry of Natural Resources (OMNR) representatives felt that birding harassment would be a difficult case to prove, and at best could only be used as a threat.

Regardless, we add a cautionary note that the Act notes that any agent of a corporation that encourages people to come to Owl Woods after hearing of harassing activities, may be complicit in future harassment if they don’t take steps to curb that harassment. In that circumstance, individuals (e.g., employees) of the corporation can be charged under the Act. Loyalist Township is a corporation; the corporate nature of the KFN and the CRCA is less clear.

There have been convictions concerning wild animals under the *Criminal Code* of Canada section 445, which is intended to prevent the cruelty to animals. Specifically:

445.1(1) Every one commits an offence who

(a) wilfully causes or, being the owner, wilfully permits to be caused unnecessary pain, suffering or injury to an animal or a bird;

Recent convictions in Ontario have included several involving the deaths of Mute Swans. However, those cases involved direct intent to kill. It would likely be difficult to prove “unnecessary pain” to owls that were harassed, unless they died as a result of the harassment, and even then, it would likely be difficult to make a link between intent and outcome.

We feel that the least complicated, and therefore most effective, legislative method to protect owls from harassment is with the *Trespass to Property Act*. This approach was also recommended by enforcement officials with the OMNR. Under this Act, a landowner may decide which activities they deem unacceptable on their property, and can lay a charge of trespass against people undertaking those prohibited activities and can charge them or evict

them. Signs would need to be posted, **clearly** stating prohibited activities (e.g., current prohibited postings at Owl Woods) as well as yellow property markers. Enforcement can be done by an occupier, including anybody authorized by the property owner. This is similar to having bouncers in a bar, and in that regards Owl Woods supporters could undertake enforcement and even use force (Asante-Mensah case). However, we caution against unskilled and untrained naturalists acting as bouncers to evict somebody, and suggest a less confrontational means in dealing with perpetrators. The relevant wording of the Act:

Where entry on premises is not prohibited and notice is given that a particular activity is prohibited, that activity and entry for the purpose is prohibitedR.S.O. 1990, c. T.21, s. 4 (2).

A police officer, or the occupier of premises, or a person authorized by the occupier may arrest without warrant any person he or she believes on reasonable and probable grounds to be on the premises in contravention of section 2. R.S.O. 1990, c. T.21, s. 9 (1).

23. It is recommended that the *Trespass to Property Act* be investigated as a possible means to protect owls at Owl Woods from harassment. This will not be possible without landowner involvement.

24. It is recommended that professional quality signs be used for posting prohibited activities and demarcating private property. Although well intentioned, the current postings are of a low quality and may not make an effective impression. Careful consideration must be given in determining the wording of prohibited activities.

25. It is recommended that careful consideration be given, involving consultation with enforcement officials, in determining enforcement methods, and these methods should be formalized in a procedures manual.

The CRCA can apply regulations of the *Conservation Authorities Act* (Reg. 99) on their property, and there are several that could be directly applied for owl protection, including:

.... No person shall, in the conservation area,
(c) cut, remove, injure or destroy a plant, tree, shrub, flower or other growing thing;
(e) use abusive, insulting or threatening language, or make excessive noise or disturb other persons. R.R.O. 1990, Reg. 135, s. 4 (1).

... No person shall, in the conservation area, except under a permit issued by the Authority,
(a) kill, trap, pursue or disturb a wild bird, reptile or animal;

The CRCA can also make use of their regulations to protect owls through indirect methods, and some of these could indirectly benefit owls on private land. If the recommended CRCA parking lot and associated access trails are put in place, then Owl Woods visitors will initially funnel through CRCA land. The CRCA can prescribe permits for their lands, and a permit system is one way of regulating and controlling unruly behavior. In conjunction with a CRCA permit, private landowners could stipulate that a CRCA permit is required for access onto their property using the *Trespass to Property Act* as justification.

One advantage of a permit system is that it gives leverage to KFN members, a friends group, or others involved in enforcement, as a way to deal with unruly visitors. It would give them a means to ask people to leave if they are not carrying their permit. As well, if the permit comes with a list of prohibited activities, it also gives them a means to ask people to leave if they are breaking conditions of the permit.

The ultimate goal is to protect owls, and in this regards the nature of the permit system would need to be discussed, especially in regards to owl and conservation education. There is a concern that guides who bring in customers to take owl photographs might be compelled to bend the rules in order to justify fees, and so consideration might also be given for a more stringent permit process, or even certification, for guides.

29. (1) An authority may make regulations applicable to lands owned by the authority,

(a) regulating and governing the use by the public of the lands and the works, vehicles, boats, services and things of the authority;

(d) prescribing permits designating privileges in connection with use of the lands or any part thereof and prescribing fees for permits;

26. It is recommended that a permit system, administered through the CRCA, be developed for Owl Woods.

10.0 LAND ACQUISITION

The current land owners have expressed no interest to sell their lands. This desire must be respected, but selling may be a future eventuality and the new owners may not be as conservation minded as the current owners. Therefore land acquisition (in whole or in part) should always be an option.

The KFN owns land at the east end of Amherst Island with a restricted access system, but enforcement remains an issue. Conversely, the CRCA has a management infrastructure that

includes enforcement, and it is felt that they would be a more appropriate future owner. As part of their mandate, the KFN would continue in a monitoring and advisory role.

27. It is recommended that a dialogue be maintained with the current land owners on a variety of issues, including the possibility of eventual land acquisition.

The Land Conservancy for Kingston, Frontenac, Lennox and Addington is a third potential owner, and they may be able to provide a future ownership concept that is more appealing to the current land owners. The mandate of this land trust organization is to acquire lands with conservation value, such as Owl Woods in order to maintain them into perpetuity. They acquire land through fundraising and by land donation, whereby the donating land owner can receive a charitable receipt to offset taxes. The donating land owner can also achieve some immortality in the naming of the donation. For example, the Pangman Tract was donated by the Pangman family to the Queen's University Biology Station for conservation and education use.

The current land owners may want to pass the land on to future family generations, but at the same time want to preserve the important natural features. In that case a conservation easement could be considered. The landowner decides which features they want to preserve (e.g., conifer plantation) and enters into an agreement with the land trust as to how that can be achieved. One advantage to the landowner is this agreement can reduce the tax burden to future generations. Members of the Land Conservancy were approached and were amenable to being involved in Owl Woods ownership discussions.

28. It is recommended that representatives from the Land Conservancy be requested to meet with the land owners in order to make them aware of potential conservation options.

11.0 IMPLEMENTATION

It will take many years and much effort to implement all of the recommendations provided in this management plan, although some recommendations can be achieved with minimal effort. Some of the recommendations can be achieved by autonomous groups, but many will require a caretaker group with much patience and a long term commitment.

The "Owl Woods" is a contrary concept. As a diffuse amalgam of five different owners, it has no defined boundary. It is treated as public space and yet it is mostly privately owned. It has no official managing organization, but is loosely cared for by several different groups, some with no legal rights to the property. In this milieu, there are several different groups who could potentially oversee the management plan.

It is not fair to ask private landowners to oversee a complicated long range plan that has limited benefit to them. It is enough that they generously provide access to their property. In this regards, they should be highly commended for their altruistic attitude, which benefits a great number of people. However, private landowners must be involved in the management process, primarily to insure their continued support. It is critical that any procedure calling for landowner involvement show a clear record of that involvement. The current system of verbal memory suffers from interpretation and inconsistency. Furthermore, private landowners should not be expected to put in the time and money needed to implement the various aspects of the plan.

As the owner of the Owl Woods road allowance, and overseer of roads, Loyalist Township should also be involved in the management process. As a manager of municipal parks, they have the organizational ability to implement the management plan, including enforcement, and environmental conservation is enshrined in their Official Plan. However, Loyalist Township could be put in a conflict situation between owl conservation and the economic benefits of Owl Woods. This potential conflict realization may have been one of the reasons why the Township passed on ownership of the Parrott's Bay Conservation Area to the CRCA.

Similar to Loyalist Township., the CRCA has a dedicated management hierarchy that could implement many of the recommendations, and the CRCA is more focused on conservation issues than the township. The CRCA also oversees several conservation areas, including the mundane but necessary management activities such as cleaning portable latrines and emptying garbage pails. Furthermore, the management plan calls for much greater use of CRCA property in order to take pressure off of private lands, and so it makes sense in the long run for the CRCA to be the primary management agency at Owl Woods. However, the CRCA does not have the staff to oversee all of the Owl Woods recommendation objectives. This is a common problem with many resource agencies and is one of the motives behind the formation of volunteer organizations, such as the Friends of Frontenac Park. The kinds of activities that Friends groups often undertake can include monitoring, education, fund raising, maintaining web sites, monitoring web sites, promoting conservation, tree planting, vegetation management, organizing events, conducting user surveys, conducting biological surveys, and contributing to management plans.

As an organization with many other interests and demands on its resources, the CRCA could lapse into executive inertia regarding Owl Woods. A more focused Friends group could help keep the agenda fresh and active, and there are thousands of examples in the province where Friends groups work with conservation agencies. Nearby examples include the Friends of Lemoine Point and the CRCA; Friends of the Mac Johnson Wildlife Area and the CRCA; and Friends of Frontenac Park and the Ontario Ministry of Natural Resources.

The KFN should be involved in the management process in some capacity. They have a history with the site, as well as the biological knowledge, and unlike any other group, their members have the all-important “feet on the ground.” The management objectives for Owl Woods also fit with the Constitution of the KFN. In particular, the second constitutional objective:

2) To stimulate public interest in nature and in the protection and preservation of wildlife and natural habitats.

The KFN has many interests and may not be able to provide the level of effort needed to fully implement a management plan. This is one reason behind several KFN spin-off groups (e.g., “Friends of” groups and the Land Conservancy). In this regards, a Friends of Owl Woods group could be a better choice than the KFN for management implementation. The KFN would still be involved, but it would be implicit and necessary that the KFN cede authority to the Friends group for management objectives in the full knowledge of all that might entail.

29. It is recommended that the CRCA become the primary agency at Owl Woods for implementing long term management and conservation.

30. It is recommended that the KFN form a Friends of Owl Woods group (with a separate constitution and a code of ethics) to complement the CRCA management of Owl Woods, and to provide the driving force for management implementation and long term Owl Woods conservation.

12.0 PLAN UPDATE

Many of the recommendations and potential plans that might arise from this strategy can be achieved within seven years. Beyond that time period, new and different conflicts will likely arise and a new strategy or management plan will need to be initiated.

31. It is recommended that the need for a new management strategy be considered in 2018.

13.0 LITERATURE CITED

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APPENDIX I – LIST OF RECOMMENDATIONS

The recommendations from the body of the report have been re-ordered below, with those considered the most urgent, important, and/or easy to implement coming first. These factors were not necessarily given equal weight and are not necessarily mutually exclusive. The first recommendation is the most urgent, but once recommendation two and three are implemented, it follows that the order of the remaining recommendations may be influenced by fiscal restrictions and/or appropriate opportunities. As such, it will be up to the management groups to decide the order of the subsequent recommendations.

- 1. It is recommended that CRCA begin planting spruce at its earliest possible convenience, and to phase planting on their lands in 3 x 5 acre blocks, each separated by 10 years as well as a fire break. It is normally preferred to plant native species, but owl conservation is a greater priority at Owl Woods, and so both White Spruce and Norway Spruce should be considered. Norway Spruce is not an invasive threat in Southern Ontario.**
- 2. It is recommended that the KFN form a Friends of Owl Woods group (with a separate constitution and a code of ethics) to complement the CRCA management of Owl Woods, and to provide the driving force for management implementation and long term Owl Woods conservation.**
- 3. It is recommended that the CRCA become the primary agency at Owl Woods for implementing long term management and conservation.**
- 4. It is recommended that trail access points be demarcated with entrance portals and professional signs clearly indicating private property. The specific wording and any other associated signs must be discussed with the landowners. Costs should not be borne by the landowners.**
- 5. It is recommended that a memorandum of understanding be written up that included consent from landowners for the various activities and recommendations involved in this plan. This would not be a legal document, but instead would provide clarification that would help reduce future misinterpretation.**
- 6. It is recommended that professional quality signs be used for posting prohibited activities and demarcating private property. Although well intentioned, the current postings are of a low quality and may not make an effective impression. Careful consideration must be given in determining the wording of prohibited activities.**

- 7. It is recommended that talks be initiated with Loyalist Township for the purpose of establishing winter gates at both ends of Marshall 40 Foot Rd.**
- 8. It is recommended that discussions take place with the Barr family, with the aim of having a second plantation on their property, either immediately south or immediately west of the existing plantation.**
- 9. It is recommended that the other landowners be considered and approached with the possibility of planting.**
- 10. It is recommended that a post-planting protocol be developed in order to minimize seedling loss by vole girdling. Options to consider include selective herbicide use, grass cutting, and sheep grazing. Selective herbicide application is used in existing CRCA plantation agreements, and grass cutting could be done by volunteers or through a summer student program. Sheep grazing is possible, but would first need to be done on an experimental basis due to the potential risk of seedling loss.**
- 11. It is recommended that long term grassland and plantation viability be part of future Owl Woods management considerations.**
- 12. It is recommended that preservation of hardwood forest integrity be considered as a necessary part of Owl Woods management. Actions that discourage indiscriminate forest access need to be considered, as well as means to reduce the effects of invasive species.**
- 13. It is recommended that CRCA construct a new entrance, along with a graveled parking lot, gate, trails, and a kiosk at the north end of their property.**
- 14. It is recommended that CRCA construct an amphibian pond at the current access point to prevent access to Owl Woods at that location. The details of this would have to be worked out with Loyalist Township, in regards to the right-of-way and preventing road flooding.**
- 15. It is recommended that a permit system, administered through the CRCA, be developed for Owl Woods.**
- 16. It is recommended that the *Trespass to Property Act* be investigated as a possible means to protect owls at Owl Woods from harassment. This will not be possible without landowner involvement.**

- 17. It is recommended that careful consideration be given, involving consultation with enforcement officials, in determining enforcement methods, and these methods should be formalized in a procedures manual.**
- 18. It is recommended that a permit system be considered for Owl Woods. The cost of the permit, who would be eligible, and the nature of associated cautionary literature would need to be determined. Private landowners would need to be included in permit discussions.**
- 19. It is recommended that a dialogue be maintained with the current land owners on a variety of issues, including the possibility of eventual land acquisition.**
- 20. It is recommended that Owl Woods be closed to visitors in the evening hours. This could be done through a combination of posted hours and gate closings. An**
- 21. It is recommended that limiting hours of access be used as a management tool for controlling negative visitor behavior.**
- 22. It is recommended that some camera restrictions be part of new and improved signs and permit systems.**
- 23. If deemed necessary, it is recommended that a camera ban be considered by committee, backed up with defensible data. Various ban options can be considered including a total ban, moratorium, or in increments (e.g., alternate weeks).**
- 24. Until information can be provided that shows a lesser setback distance is acceptable, it is recommended that larger setback distances (at least 12 m) be set for visitors approaching owls at Owl Woods.**
- 25. It is recommended that representatives from the Land Conservancy be requested to meet with the land owners in order to make them aware of potential conservation options.**
- 26. It is recommended that time of day be a parameter in flushing surveys in order to support time of day visitor guidelines.**
- 27. It is recommended that a census of photography visitors be undertaken to determine the types, locations, time of day, and numbers of owl threat responses caused by photographers. Census data must be meticulously maintained to avoid the problems associated with anecdotal bias.**
- 28. It is recommended that a census of birdwatching visitors be undertaken to determine the type of visitor, locations, time of day, and incidences of owl**

disturbances. Census data must be meticulously maintained to avoid the problems associated with anecdotal bias. The intention of the census is to set up defensible guidelines and a birdwatching ban (or timing restrictions) if necessary.

29. It is recommended that school groups be monitored in the same manner as birdwatchers and photographers in order to determine educational enhancements and possible restrictions.

30. As part of an overall census of visitors, it is recommended that visitor density be a parameter of study in regards to owl disturbance.

31. It is recommended that the need for a new management strategy be considered in 2018.