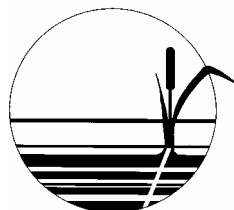


# **Picton - Hallowell Planning Area:**

## **Ecological Land Classification, Prince Edward County**

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## 1.0 INTRODUCTION

The Natural Heritage values of the Picton - Hallowell planning area are important features that may be protected through planning. Our focus was on undertaking a natural heritage assessment and preparing ecological land classification (ELC) mapping, based on the ELC system for southern Ontario (Lee *et al.* 1998<sup>1</sup>). To undertake this task, we acquired aerial or satellite imagery through IBI Group, and did some additional aerial surveillance to supplement that available. These images were reviewed to target areas within the study area for fieldwork.

Fieldwork was undertaken on July 3 and 15, and September 12, 2010 (two personnel each time). The planning area was walked, with particular emphasis on the individual areas selected, to confirm the appropriate ecological land classification. The information gathered was used to prepare ELC mapping to the 'ELC Community Series' as described in the Ecological Land Classification for Southern Ontario (Lee *et al.* 1998). Aerial reconnaissance was also carried out (early May 2010), and the photographs used to help in ELC mapping.

Mapping is provided on the aerial/satellite image base provided for our use, and is attached. This report provides a detail description of each of the ELC classes observed in the Picton – Hallowell planning area, along with some preliminary recommendations for policies and land use designations to ensure the protection of the ecological functions of the identified natural areas.

The ELC mapping Picton-Hallowell planning area is presented in Attachment 1. The sections following provide more detail on the characteristics of the classification units.

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<sup>1</sup> Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02. 225 pp.

## 2.0 NON ECOLOGICAL LANDCOVER TYPES

**Cultural (Cu):** Examples of cultural sites in Picton would be urban areas, playing fields, the cemetery, and the golf course. They are considered to have relatively low ecological value, although some have ecological value due to their association with waterways. 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).

**AGRICULTURAL (Agr):** Applied to ongoing farming operations, either as pasture or cultivated fields. Agricultural sites are generally considered to have low ecological value, although some have ecological value due to their association with riparian (waterway) systems. 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).

## 3.0 ECOLOGICAL LAND CLASSIFICATION DESIGNATIONS

### 3.1 CULTURAL

The term cultural was applied as a stand alone term (Cu) to some sites in Picton (described above), as well as in association with cultural meadows (CUM), cultural thickets (CUT), cultural woodlands (CUW), and cultural plantation (CUP). The “cultural” term applies to sites that are heavily influenced by human disturbance, either historically or ongoing. All are considered to have relatively low ecological value due to the dominance of ornamental and/or non-native and/or invasive species, and because of many disturbance factors such as trails and garbage dumping. Despite this, some of the cultural sites have some ecological value due to their association with waterways.

**Cultural Meadow (CUM):** This term applies to 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 often develop on abandoned agricultural land. Through ecological succession they may eventually turn into woodland, but the amount of time that takes varies widely due to site conditions and the influence of nearby disturbances. Cultural meadows are considered to have low ecological value.

**Cultural Thicket (CUT):** This term applies to woody areas that have greater than 25% shrub coverage, but less than 25% tree coverage. There is debate on how to define a tree for ELC designation, and this was especially the case with Picton. We applied two criteria: height and species composition. If the species present was a recognized tree species (e.g., White Ash and Red Cedar), we used a height minimum of 4 meters. For example, an area dominated by Red Cedar saplings of 2 meters in height would be considered a thicket, but if the saplings were 4 or more meters, the area would be considered woodland (Figure 1). This happened at several sites where the dominance of young short Red Cedar saplings resulted in a designation of CUT. In other sites with very similar stand compositions, but with taller and older Red Cedar, the designation became coniferous forest. If the dominant species present was a recognized shrub species

we would consider the site a thicket, even if those shrub species attained heights greater than 4 m. This happened at sites dominated by European Buckthorn and Prickly Ash, the two most common shrubs encountered in Picton. Both species can grow taller than 4 m. The minimum area for an ELC site is 0.5 hectares. This area minimum was applied where possible, but there were numerous instances where different vegetative patches would diffusely exist within a larger ELC type. In these cases, only the dominant ELC designation would apply. For example, in the Cultural Thicket north of Nery Ave., Prickly Ash, European Buckthorn, and young short Red Cedars were the overall dominants. The site also contained numerous small woodland patches including an interesting patch of Chinquapin Oak (*Quercus muehlenbergii*), just north of the abandoned school. Since, in our view, there was less than 25% tree coverage in the overall site, it was designated CUT.



**Figure 1. Cultural thicket dominated by Red Cedar. Photo taken July 3, 2010 by report authors.**

**Cultural Woodland (CUW):** This term applies to woodlands that result from or are maintained by cultural disturbances. Two CUW areas were designated, one on the east shore of Picton Harbor, and the other associated with Macaulay Heritage Park.

**Coniferous Plantation (CUP3):** The coniferous plantation on Sandy Hook Rd. is near the minimum 0.5 ha. borderline threshold for ELC plot size. It was included because it is

distinct from the surrounding cultural and agricultural areas, although we consider it to have low ecological value.

### 3.2 ALVAR

Although we did not designate any Picton site as an alvar, we encountered several small alvar patches and areas with alvar-like conditions all within 1 km of the Picton Airport on lands we designated as CUT, CUM, and FOC2-1. Alvars are flat areas with shallow soils that contain characteristic plant species, which require a relatively high degree of botanical knowledge to identify. Some of the species seen in the alvar patches at Picton included False Pennyroyal, Fragrant Sumac (Figure 2), Chinquapin Oak, *Carex aurea*, *Eleocharis compressa*, Dropseed, *Veronica perigrana*, and Wild Bergamot, among others.



**Figure 2. Fragrant Sumac (*Rhus aromatica*). Photo taken July 3, 2010 by report authors.**

We did not designate any Picton site as alvar because those that had alvar-like conditions were too small (less than 0.5 ha.). They were also in a state of change, becoming dominated by weedy and non-native invasive species. A good quality alvar should be able to maintain itself, and the ongoing changes suggest these alvar-like areas are of a lower quality. In our opinion, these sites will continue to become less alvar-like as invasive species such as European Buckthorn, Lilac, Prickly Ash, and Dog Strangling

Vine become even more dominant, or as existing young Red Cedars grow and mature to form mostly monotype habitats.

In a review of 1978 aerial photographs it is apparent that some areas that appeared to be alvar in 1978 are now red cedar woodland. It also appears in the photos that some current non woodland areas with alvar patches occur on lands that were scraped of soil. Scraping away the top soil can cause a site to have alvar like conditions.

However unlikely, it is possible that these sites will become more alvar like over time. Since most alvars are considered globally significant and would therefore be ecologically significant in regards to Provincial Planning Policy, we recommend that any future development of the CUM, CUT, and FOC2-1 sites within 1 km of the airport be preceded with an Environmental Impact Assessment that investigates the possible presence of alvars.

### 3.3 WOODLANDS

The two main woodlands in Picton are those dominated by Sugar Maple and those dominated by Red Cedar, with each type having a characteristic species association. The woodland descriptions for Picton are based on the ELC Manual, and for each woodland type, the dominant trees of the top canopy are described, along with the younger sub-canopy trees, the shrub layer species (tree saplings or shrubs), and the ground cover species. A woodland type is classified by the trees with the greatest presence in the top canopy.

It was not the mandate of this study to do woodland valuation, but the following criteria were taken into consideration when in the field.

**Size.** A woodland greater than 4 hectares has potential significance in municipalities with between 5 and 15% woodland coverage. We did a rough estimate of woodland coverage in Picton and determined that it was in this range, and there are several 4 ha. woodlands in Picton.

**Erosion buffering.** This best applies to areas with steep slopes, such as those woodlands associated with the Macaulay Mountain Conservation Area and the Picton cemetery. Also, many of the woodlands in Picton are adjacent to stream systems.

**Linkages.** This category refers to the importance of the woodland at providing species a movement corridor. Some of the Picton woodlands are part of a larger system of woodlands in Prince Edward County.

**Uncommon characteristics:** Examples would include rarities or significant animal concentrations. Few were observed during the field work.

**Age.** Forests that are dominated by trees in the 100+ year range can be considered significant. Although some 100+ year old trees are present, the dominant canopy age of the older Picton woodlands was in the 70-80 year range.

**Shape.** Forests with less edge (e.g., blocky or round shapes) have more significance than forests with an irregular edge.

**Diversity.** Woodlands with high biodiversity have greater significance. There was a moderate degree of biodiversity observed in some of the Picton woodlands.

**Disturbance.** Woodlands that have developed without minimal cultural influences have greater significance. All of the woodlands in Picton have some degree of disturbance. Evidence of cultural influences include non-native and invasive species, trails, bush roads, cattle use, garbage, and a lack of normal forest structural development.

**Dry-Fresh Red Cedar Coniferous Forest Ecosite (FOC2-1):** This woodland type was found in the eastern half of Picton, north and south of Union Street. As the name implies it is dominated by Red Cedar, although Prickly Ash and European Buckthorn were often a dominant presence as well, which resulted in a dense sub-canopy of interlocking thorny braches that makes access difficult. Red Cedar stands such as this tend to have low understory diversity because the dense canopy reduces the amount of available sunlight for ground cover species. However many of the FOC2-1 sites also contained open patches where meadow and thicket species could be found.

It can be seen, after a review of 1978 aerial photographs of Picton, that this ecosite has been expanding in area. OMNR (2000<sup>2</sup>) suggests that Red Cedar stands are much more prevalent today because they are a pioneering species that will cover abandoned farmland. The stands usually last for about 60 years, at which point hardwoods begin to dominate. This appears to be happening at several of the FOC2-1 sites, although the succession process may be hindered by invasive shrub species. These stands are often considered to have low ecological value; although they are sometimes considered to have value as Loggerhead Shrike habitat, they are too dense in Picton for Shrike habitat.

The Red Cedar stands in Picton were often crisscrossed with various trails (walking and ATV), contained garbage, and show evidence of past earth moving activities.

**Dry-Fresh Sugar Maple – White Ash Deciduous Forest Type (FOD5-8):** This forest type was mainly found on the sloping lands associated with the ridge that is west of London Ave. and Church St., although smaller patches of this forest type were also found elsewhere (Figure 3). This is the most predominant forest type in Picton and the most ecologically valuable. All of the FOD5-8 in Picton have some association with a nearby creek or riparian system. The top and sub-canopy layers are dominated by Sugar Maple with lesser amounts of White Ash, having a varied age range, but trees in the 70-80 year range were common. Other species observed included Eastern Cottonwood, Ironwood, Red and White Oak, American Beech, Black Walnut, and Black Cherry. A shrub layer was largely absent and the ground cover was often sparse, but did contain a diversity of species such as tree saplings, May Apple, Trillium Cohosh, and Trout Lily. Isolated areas of disturbance were present including cattle use, trails, garbage, lack of normal vertical stand development and non-native species. Positive value indicators include a low percentage of invasive non-native species, association with riparian systems, common

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<sup>2</sup> Ontario Ministry of Natural Resources OMNR. 2000. *A Silvicultural Guide for Managing Southern Ontario Forests, Version 1.1*. Queen's Printer for Ontario, Toronto, 648 pp.

location on steep slopes (i.e., erosion buffering), moderate size, and value as linkage habitat.



**Figure 3. Sloped FOD5-8 hillside. Photo taken July 15, 2010 by report authors.**

**Deciduous Forest (FOD):** This indistinct term is applied to a deciduous forest when there is not a clear dominant species present. There is one small FOD woodlot, northwest off the tip of Jasper Ave that contained a variety of species including Black Walnut, Manitoba Maple, Black Locust, and American Elm. There was much refuse on the ground and the site contained many invasive ground cover species.

**Mixed Forest (FOM):** Only two small woodlots were identified as mixed woodlands in Picton. To be considered a mixed forest, both the coniferous and deciduous canopy trees must each have greater than 25% coverage. There was no clear dominant canopy species in either woodlot, in that they both contained a diffuse mix of many species including aspens, maples, oaks, ash, and pine. Both woodlots contained a high amount of edge habitat and corresponding thicket vegetation including Prickly Ash, European Buckthorn, Tartarian Honeysuckle, and brambles. Examples of ground cover vegetation included Poison Ivy, Enchanters Nightshade, Virginia Creeper, and May Apple. The FOM woodlot in the northwest corner of Picton contains swampy portions in association with local drainage. It is too small and disturbed to have significant ecological value, although

it does stand out in a landscape of agricultural land. The FOM woodlot located near the Cemetery is smaller, has more disturbance indicators, and contains a higher proportion of weedy and invasive species. However, one Butternut tree (Endangered, *Species at Risk Act*) was found here, infected with Butternut canker.

**Fresh-Moist Willow Lowland Deciduous Forest Type (FOD7-3):** This woodland type is often found in a riparian zone, as is the case here, where it is associated with part of the creek that runs from Talbot St. to Johnson St., next to the abandoned rail line. Crack Willow is a dominant presence along with Eastern Cottonwood. Other common species present include Black Walnut, American Elm, and Green Ash. There is a very high shrub (mostly European Buckthorn) and weedy component due to the narrow width that creates much edge habitat.

**Fresh-Moist Ash Lowland Deciduous Forest Type (FOD7-2):** This woodland type is often associated with areas that experience spring flooding. In Picton, these forest types are associated with areas where spring flooding is possible. Green Ash is the most common tree species present, and European Buckthorn is a common shrub species. Most of the FOD7-2 forests in Picton are small, and may not be larger than the 0.5 hectare habitat minimum for ELC mapping.

**Dry-Fresh White Ash Deciduous Forest Type (FOD4-2)/ Fresh-Moist Ash Lowland Deciduous Forest Type (FOD7-2):** This woodland is located along the north edge of the golf course, where the two forest types listed above are too diffusely associated to be mapped separately. The larger component is likely the FOD4-2, where White Ash is the dominant canopy tree present, although Eastern Cottonwood is also common. This forest type is common on lands that have a history of management or disturbance.

### 3.4 WETLANDS

The wetlands observed in Picton are small, and most are within a narrow floodplain in association with a narrow floodplain.

**Reed Canary Grass Mineral Meadow Marsh Type (MAM2-2):** There are two locations where this marsh type is found. Both may be less than 0.5 ha. The first is near the northern tip of Picton in association with a creek that runs along the north edge of the golf course. The second location is as part of a waterway that comes from under Church St (about 200 m west of Hwy. 10) and extends north through the golf course before eventually flowing into Picton Bay. This marsh type is dominated by the non-native invasive form of Reed Canary Grass, which is a very robust type that can withstand numerous impacts.

**Cattail Mineral Shallow Marsh Type (MAS2-1):** This long narrow wetland may also be less than 0.5 ha. It is also part of the creek system that comes from under Church St., but is located further north than the above mentioned MAM2-2. This marsh type is also very robust and can withstand numerous impacts.

**Green Ash Mineral Deciduous Swamp Ecosite (SWD2-2):** This narrow riparian wetland connects Macaulay Conservation Area to Macaulay Heritage Park, and it may be slightly below the 0.5 ha. ELC type minimum size. The top canopy is dominated by Green Ash, but American Elm, Silver Maple, Manitoba Maple, Sugar Maple, and Eastern Cottonwood were also present. The ground cover is quite varied, with a mix of upland and wetland species such as Riverbank Grape, Joe Pye Weed, Jewelweed, Grape, and Nettles. Due to its close association with the Conservation Area and the Park, it receives disturbances in the form of trampling, garbage, and trail use.

**Pondweed Submerged Shallow Aquatic Type (SAS1-1):** Located just west of Upper Lake Street, this recently dug pond qualifies as a wetland due to its shallow depth and growth of *Potamogeton* species. It is possibly too small (< 0.5 ha.) to be considered a distinct habitat type, but its ecological distinctness as aquatic habitat within Picton warrants mention. A large number of fish were also observed, and as such the pond would be considered fish habitat under the *Fisheries Act*.

**Mineral Thicket Swamp (SWT):** This wetland patch is located directly north of the above noted SAS1-1 pond, separated by an access road. It is a low-value artificial wetland that is dominated by various wetland shrubs. It is less than 0.5 ha.

**Willow Mineral Thicket Swamp Type (SWT2-2):** There are two locations where this swamp type is located. The first is located along Sandy Hook Rd., where it may appear to be dominated by the large Crack Willow trees that line the road, however further in, the greater presence of willow shrubs, such as *Salix petiolaris* becomes more apparent. Other common species observed included *Typha angustifolia* and *Phalaris arundinacea*. It is approximately 2 ha., in size.

The second SWT2-2 location is at the eastern border of Picton along Kingsley Road, and next to the closed Craig Complex. From the road it may appear to be dominated by *Typha angustifolia*, but further south, the greater presence of willow shrubs can be seen. It represents a small portion of a larger wetland, that is located east of Picton. The area south of the Craig Complex, which is mostly Cultural Thicket, may have been part of a larger wetland complex at one time. We encountered numerous drainage channels, and a large derelict storm drain system, which suggests there were past efforts to drain this area.

#### 4.0 RECOMMENDATIONS

The Provincial Policy Statement, 2005 came into effect on March 1, 2005, and is currently undergoing a five-year review. The *Planning Act* requires that all decisions affecting land use planning matters are consistent with the Provincial Policy Statement (PPS). The PPS expresses provincial interests on several matters related to planning and development. Issued under Section 3 of the *Planning Act* (MMAH 2005), PPS Policy 2.1 requires that municipalities consider natural heritage features in assessing development proposals. Enshrining recognition and protection of natural heritage features into municipal planning documents is an effective means of complying with the PPS.

The PPS identifies several natural heritage features of concern, including: significant habitat of endangered and threatened species, significant wetlands, significant coastal wetlands, significant woodlands, significant valleylands, significant wildlife habitat, significant areas of natural and scientific interest, and fish habitat. Additionally, the PPS identifies and potentially restricts development and site alteration on adjacent lands. For all but earth science ANSIs, the adjacent lands compromise *120 m of land around the natural heritage feature*. It should be clear, however, that the adjacent lands are *not* recommended as a setback area; rather, they are an area of caution, within which an EIS may be required to assure the planning authorities that a proposed land use will not significantly affect an identified natural heritage value. Several natural features of potential significance occur within the Picton-Hallowell planning area.

Setbacks are an effective means to initiate protection of natural heritage features. Maintaining a distance between development (buildings, roads, and other land alteration) and an identified natural heritage feature provides some degree of protection by separating the land uses. Setbacks also serve to protect people and property from possible adverse effects of some features (e.g., protection from flooding of a watercourse).

1. Implement setbacks from identified watercourses and other natural heritage features.

Waring Creek has been identified as a natural heritage area of specific interest to the municipality. The headwaters of this watercourse are within the planning area (in the western corner), although the majority of the watershed lies to the south and west. Waring Creek is reported to have historically supported trout populations, and there is some interest in protection of the watershed and in ecological restoration of the system. Within the ELC mapping, the headwaters lands are primarily Agricultural (Agr), with some small patches of natural vegetation cover (FOD5-8, SWT2-2 and SWT2). We found no evidence of a defined channel in this area, and there was no riparian corridor distinguishable as a separate ELC class. The majority of the land was under crops. The SWT2-2 area does provide some ecosystem services in terms of filtering water that runs off the agricultural land, but did not have characteristics that would make it appropriate to trout. The pond (SAS1-1) appears to be relatively recent, and its creation may have altered the water budget in this area. While this part of the Waring Creek watershed is of low ecological value, setbacks from the channel or floodplain may be a valuable tool in protecting what remains and fostering ecological restoration of the system, particularly in a restoration effort.

The PPS does not identify or recommend setback distances, but does recognize the impacts of adjacent development. The most recent implementation guidelines for the natural heritage sections of the PPS identify “adjacent lands” as those lands within 120 m of the identified natural heritage feature (with the exception of earth science ANSIs, where adjacent lands are 50 m from the feature). A setback of 120 m is not often necessary to protect a natural heritage feature. The most important aspect of a setback is its ability to provide an effective buffer between the natural area and the adjacent land

use. A buffer is an area that effectively reduces impact or damage due to contact. Where a buffer lies between a natural heritage feature and an adjacent land use, it provides a protective barrier. For example, where natural vegetation dominates a buffer, it provides natural habitat for plants and animals, reduces runoff from adjacent developed lands, absorbs nutrients and other chemicals, and provides separation that will protect the natural heritage feature from negative impacts.

2. In selecting the size of setback required, consider the effectiveness of the setback in providing a buffer.
3. Consider implementing a two-part setback, consisting of a total setback distance, within which a smaller buffer cannot be altered in any way (particularly alteration of vegetation or soil mantle). For example: 45 m setback, with a 30 m no-touch buffer closest to the natural heritage feature.

The Picton-Hallowell planning area is highly modified, with residential and agricultural development and transportation infrastructure affecting the majority of the land. It is only in scatter remnants of the planning area, and associated with strips along watercourses, that natural ecological land classifications were identified. Within this sort of urban/agricultural area, the opportunity to protect natural heritage features is more limited. There may be some opportunity to restore natural areas, however.

4. Consider opportunities to support ecological restoration as land use alters in the future.

Finally, the observation of alvar characteristics on lands near the airport indicate the possible presence of an unusual habitat type. Although we did not designate any alvar, as discussed above, it is possible that some of these areas may develop into stable alvars over time.

5. Future development of areas within 1 km of the airport that are naturalizing (e.g., old fields, thickets and cedar woodlands) should be preceded by an Environmental Impact Assessment that includes investigation of the possible presence of alvars.

