

IMPORTANT AMPHIBIAN AND REPTILE AREA: PELEE ISLAND

Location

Site names: Pelee Island

Province/Territory: Ontario County/Region/District(s): Essex County

Closest City/Town: Leamington

UTM/Geographical Coordinates: 41°45' N, 82°45' W

Directions to Site: Pelee Island is only accessible by ferry during the summer months. The ferry operates from Leamington, which is on the north shore of lake Erie (Hwy 401, exit at Hwy 77 south near Tilbury).

Maps (please attach): see any road map of southern Ontario

Physical Description

Area (please specify units): 4261 ha (King et al. 1997)

Pelee Island is the largest island in the western Lake Erie archipelago and part of the Carolinian zone in southwestern Ontario. When it was first occupied by European settlers, most of the interior of Pelee Island was taken up by wetland and supported large populations of amphibians and reptiles. Soon after, however, the swamp was drained and cleared for agriculture, which remains the dominant land use on the island. Currently, the island is crisscrossed with a network of dykes and drainage ditches, which collect rainwater and agricultural run-off. This water is pumped out into Lake Erie by several pump-houses around the perimeter of the island. The interior of Pelee is dominated by agricultural fields. The fields are separated by hedgerows, which are used by the island's wildlife, including blue racers. The perimeter of the island is made up of a combination of sandy beaches, man-made rock stabilization walls (built to keep Lake Erie out), and forested shoreline ending with either short pebbly beaches or limestone. The presence of sandy beaches means that those parts of the island's perimeter are occupied by summer cottages. Within the island there are areas of: alvar, deciduous forest, oak and cedar savannah and old fields. Fish Point Nature Reserve, in the south of the island, contains Fox pond, one of the few remaining wetlands on Pelee Island. The Nature Reserve itself is mostly made up of deciduous forest, which harbours many species of salamanders and frogs. In the north is the Lighthouse Point Nature Reserve, which also contains wetland.

Major Land Owners

Name: Erie Sand & Gravel Ltd., Pelee Quarry

Address: County Rd. 31, Box 627

City/Town: Leamington

Province/Territory: Ontario

Postal Code: N8H 3X4

Telephone: 519-326-6101 **Fax:** 519-326-3567

Name: Pelee Island Winery

Address: 455 Seacliff Drive (County Road #20)

City/Town: Kingsville

Province/Territory: Ontario

Postal Code: N9Y 2K5

Telephone: 519-733-6551 **Fax:** 519-733-6553

E-mail: inquiries@peleeisland.com

Webpage: www.peleeisland.com

Name: Essex Region Conservation Authority

Address: 360 Fairview Avenue West

City/Town: Essex

Province/Territory: Ontario

Postal Code: N8M 1Y6

Telephone: 519-776-5209 **Fax:** 519-766-8688

E-mail: admin@erca.org

Webpage: www.wincom.net/~erca/

Name: Nature Conservancy of Canada, Ontario Region
Address: 121 Wyndham St. N.
 Suite 202
City/Town: Guelph **Province/Territory:** Ontario
Postal Code: N1H 4E9
Telephone: 1-877-343-3532 Fax:
E-mail: ontario@natureconservancy.ca
Webpage: www.natureconservancy.ca

Others: Roughly 250 to 275 year-round residents.

Are the land owners/managers aware of the importance of the site to amphibian and reptile conservation?

Yes, they are aware of the importance of Pelee Island to amphibian and reptile conservation. Erie Sand & Gravel is currently in a legal battle over the right to expand their Pelee Quarry operation at the expense of blue racer hibernation sites.

Are they aware of this site nomination and if so, did they participate in the process?

No, they are not aware of this site nomination.

Amphibian and Reptile Species

In the table provided, please list all species of amphibians and reptiles recorded at the site, numbers of individuals of each species (if known), and any references from which information was obtained (include the name of an observer if information is not published). Provide a Literature Cited section at the end of the nomination.

Species	Status (date of designation)	No. of Individuals	References
Amphibians			
Blanchard's Cricket Frog (<i>Acris crepitans blanchardi</i>)	Nationally Endangered (COSEWIC 1990), Probably Extirpated	Probably None	King et al. 1997
American Toad (<i>Bufo americanus</i>)			King et al. 1997
Fowler's Toad (<i>Bufo fowleri</i>)	Nationally Threatened (COSEWIC 1999), Extirpated	None	King et al. 1997
Bullfrog (<i>Rana catesbeianus</i>)	Provincially Sensitive (GSWG* 2000)		King et al. 1997
Green Frog (<i>Rana clamitans</i>)			King et al. 1997
Northern Leopard Frog (<i>Rana pipiens</i>)	Not At Risk (COSEWIC 1999)		King et al. 1997
<i>Ambystoma</i> spp. Hybrids			King et al. 1997
Blue-spotted Salamander (<i>Ambystoma laterale</i>)	Provincially Sensitive (GSWG 2000)		King et al. 1997

Smallmouth Salamander (<i>Ambystoma texanum</i>)	Nat. Vulnerable (COSEWIC 1991)		King et al. 1997
Eastern Newt (<i>Notophthalmus viridescens</i>)			King et al. 1997
Reptiles			
Blue Racer (<i>Coluber constrictor foxii</i>)	Nationally Endangered (COSEWIC 1991)	1993 - 311 Racers, 1994 - 252 Racers, 1995 -205 Racers	King et al. 1997, Porchuk 1996, Campbell et al. 1997
Eastern Foxsnake (<i>Elaphe vulpina gloydi</i>)	Nationally Threatened (COSEWIC 1999)		King et al. 1997
Lake Erie Water Snake (<i>Nerodia sipedon insularum</i>)	Nationally Endangered (COSEWIC 1991)	1000 (R. King, unpublished data; cited in Campbell 1991)	King et al. 1997
Northern Water Snake (<i>Nerodia sipedon sipedon</i>)			King et al. 1997
Dekay's Brownsnake (<i>Storeria dekayi</i>)			King et al. 1997
Common Gartersnake (<i>Thamnophis sirtalis</i>)			King et al. 1997
Eastern Spiny Softshell Turtle (<i>Apalone spinifera spinifera</i>)	Nationally. Threatened (COSEWIC 1991)	Probably just transient individuals (R. Willson, pers. comm.)	King et al. 1997
Common Snapping Turtle (<i>Chelydra serpentina</i>)			King et al. 1997
Painted Turtle (<i>Chrysemys picta</i>)			King et al. 1997
Spotted Turtle (<i>Clemmys guttata</i>)	Nat. Vulnerable (COSEWIC 1991), Probably Extirpated	Unknown	King et al. 1997
Blanding's Turtle (<i>Emydoidea blandingii</i>)	Provincially Sensitive (GSWG 2000)		King et al. 1997
Northern Map Turtle (<i>Graptemys geographica</i>)	Provincially Sensitive (GSWG 2000), Probably Extirpated	Unknown	King et al. 1997
Eastern Box Turtle (<i>Terrapene carolina</i>)			King et al. 1997

* GSWG = [General Status of Wildlife in Canada Working Group](#)

Other Species

Please list major, non-amphibian and non-reptile (especially rare or endemic) species present at the site and describe the importance of the site to these species.

Species	Status (date of designation)	Importance of Site	References
Yellow-breasted Chat (<i>Icteria virens virens</i>)	Nat. Vulnerable (COSEWIC 1994)	One of the largest concentrations of breeding <i>I. v. virens</i> in eastern Canada.	COSEWIC 1999, Bird Studies Canada 1999
Henslow's Sparrow (<i>Ammodramus henslowii</i>)	Nat. Endangered (COSEWIC 1993)	Intermittent resident breeder.	COSEWIC 1999, Bird Studies Canada 1999
Hooded Warbler (<i>Wilsonia citrina</i>)	Nat. Threatened (COSEWIC 1994)	Intermittent resident breeder.	COSEWIC 1999, Bird Studies Canada 1999
Prothonotary Warbler (<i>Protonotaria citrea</i>)	Nat. Endangered (COSEWIC 1996)	Intermittent resident breeder.	COSEWIC 1999, Bird Studies Canada 1999
Eastern Prickly Pear Cactus (<i>Opuntia humifusa</i>)	Nat. Endangered (COSEWIC 1998)		COSEWIC 1999
Red Mulberry (<i>Morus rubra</i>)	Nat. Endangered (COSEWIC 1999)	One of only ten sites in Canada (Ambrose 1998)	COSEWIC 1999
Wild Hyacinth (<i>Camassia scilloides</i>)	Nat. Vulnerable (COSEWIC 1990)		COSEWIC 1999
Dwarf Hackberry (<i>Celtis tenuifolia</i>)	Nat. Vulnerable (COSEWIC 1985)		COSEWIC 1999
Blue Ash (<i>Fraxinus quadrangulata</i>)	Nat. Threatened (COSEWIC 1983)		COSEWIC 1999
Kentucky Coffee Tree (<i>Gymnocladus dioica</i>)	Nat. Threatened (COSEWIC 1983)		COSEWIC 1999
Swamp Rose Mallow (<i>Hibiscus moscheutos</i>)	Nat. Vulnerable (COSEWIC 1987)		COSEWIC 1999
American Water Willow (<i>Justicia americana</i>)	Nat. Threatened (COSEWIC 1984)		COSEWIC 1999
Hop Tree (<i>Ptelea trifoliata</i>)	Nat. Vulnerable (COSEWIC 1984)		COSEWIC 1999
Climbing Prairie Rose (<i>Rosa setigera</i>)	Nat. Vulnerable (COSEWIC 1986)		COSEWIC 1999

Site Criteria

Under each category, please provide a description of how this site fulfills the Important Amphibian and Reptile Areas criteria. If a category does not apply to this site then simply leave it blank (e.g. if there are no threatened species present then leave the Species of Conservation Concern category blank).

1. Species of Conservation Concern

Pelee Island may contain one of the largest concentrations of endangered organisms in Canada (B. Porchuk, pers. comm.). The blue racer (*Coluber constrictor foxii*) and smallmouth salamander (*Ambystoma texanum*) are both only found in Canada on Pelee Island, and are listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Endangered (1991) and Vulnerable (1991), respectively. The Lake Erie water snake (*Nerodia sipedon insularum*) is listed by COSEWIC as Endangered (1991). It is restricted to Pelee Island and Middle, East Sister and Hen Islands, of which Pelee holds the majority of the individuals (Campbell 1991). The eastern fox snake (*Elaphe vulpina gloydi*), listed as Threatened (COSEWIC 1999), is present at a number of locations in southern Ontario. However, its occurrences in southern Ontario represent 65-70% of the entire range of this species, and Pelee Island probably represents one of the 100 most important sites supporting the fox snake. Two anuran species, Blanchard's cricket frog (*Acris crepitans blanchardi*) and Fowler's toad (*Bufo fowleri*) have been extirpated from Pelee Island (last recorded sightings in 1987 and 1973, respectively). *A. c. blanchardi* is listed as Endangered (COSEWIC 1990), although probably extirpated from Canada. *B. fowleri* is listed as Threatened (COSEWIC 1999). A national recovery plan exists for *A. c. blanchardi*, although it has yet to be implemented, and CARCN has hired consultants to construct a recovery plan for *B. fowleri* (and other amphibian and reptile species of concern). Therefore Pelee Island represents prime habitat to which these two species may be repatriated. Another species listed by COSEWIC that is occasionally sighted on Pelee is the eastern spiny softshell turtle (*Apalone spinifera spinifera*), which is designated as Threatened (COSEWIC 1991). Species listed as of conservation concern in Ontario by the General Status of Wildlife in Canada Working Group are: bullfrog (*Rana catesbeiana*; Sensitive, GSWG 2000), blue-spotted salamander (*Ambystoma laterale*; Sensitive, GSWG 2000), Blanding's turtle (*Emydoidea blandingii*; Sensitive, GSWG 2000), and map turtle (*Graptemys geographica*; Sensitive, GSWG 2000).

2. High Species Diversity - state whether the site is of national, provincial, or regional importance.

At most, only eight species of amphibian occur on Pelee (*A. crepitans*, *B. americanus*, *R. catesbeiana*, *R. clamitans*, *R. pipiens*, *A. laterale*, *A. texanum*, *N. viridescens*), or 28% of Ontario's 25 species. This is not an exceptionally large proportion of Ontario's complement of amphibians, or even a large proportion of the region's amphibian fauna.

Pelee has at least 10 reptiles (*C. constrictor foxii*, *E. vulpina gloydi*, *N. sipedon*, *S. dekayi*, *T. sirtalis*, *A. spinifera*, *C. serpentina*, *C. picta*, *E. blandingii*, *T. carolina*; it is uncertain whether *C. guttata* and *G. geographica* still occur on the island) of the 27 species of reptile present in Ontario. Like its amphibian diversity, Pelee's reptile diversity cannot be considered high.

3. Important Life History Requirements

Not applicable, i.e. there are no exceptionally large congregations of amphibians or reptiles. Although threatened species that are found only at this site represent an unusually large proportion of the individuals found in Canada, they are not considered under this criterion but under Species of Conservation Concern. The degree to which the site is considered significant for threatened species is dealt with under the three methods of assessing the significance of a population of threatened species. Important Life History Requirements is intended to refer to species that are not of immediate conservation concern.

Human Impacts

Please describe how humans are impacting the site and the immediately surrounding areas in the following ways:

Current site usage (if any), e.g. industrial, residential, farming, logging, camping, recreation, etc. (please indicate relative importance).

The majority of the surface area of Pelee Island is under cultivation by private farmers. Major secondary land usages are: resource extraction (Pelee Quarry), grape cultivation (Pelee Island Winery), conservation (Fish Point and Lighthouse Point Nature Reserves) and private residences.

Pollution, e.g. air, water, light, noise, etc.

Pollution does not seem to be a major problem on Pelee Island, although the impact of agricultural runoff on the amphibian and reptile residents of the dyke system has not been studied in detail.

Threats to habitat, e.g. development, habitat loss or degradation, succession, fire, etc.

Development is a constant threat on Pelee Island, which is dependent upon tourism as a fundamental part of its economy. Continued cottage development along the shoreline destroys critical nesting habitat of the blue racer and fox snakes. Resource extraction, namely quarrying, threatens to destroy several key snake hibernacula.

Habitat conservation or restoration.

Approximately 8.8%(880 acres?) of Pelee Island is currently protected by OMNR, FON, ERCA and private land easements. However, close to 1100 acres of natural habitat is still unprotected (B. Porchuk, pers. comm.). The natural areas of Pelee Island have also been designated as an Important Bird Area, largely because of the presence of breeding pairs of the Yellow-breasted Chat (*Icteria virens virens*).

Recommended conservation actions for this area

Please describe any conservation actions that are needed/recommended for this area.

The continued purchase of land by conservation groups is the best way of ensuring that significant parcels of Pelee Island remain available for wildlife. However, the most sensitive areas for endangered wildlife are either already owned by organizations wishing to develop them (i.e. Pelee Quarry), or they are too expensive to purchase outright (i.e. shoreline cottage property). In these cases efforts must be made to persuade developers to avoid destroying critical habitat. Some suggested methods are: 1) direct legal action to prevent habitat from being developed, 2) advising developers on suitable alternatives to proposed plans, 3) creation of buffer areas around critical sites, and 4) public education to increase awareness of sensitive habitat and to help prevent people from unwittingly destroying important habitat (e.g. clearing away woody debris from beaches). Public education should play an important role at all stages of conservation on Pelee, from leading school groups on nature walks, to posting signs warning motorists to slow down in certain areas, to informing local government when important decisions are made concerning their land. Other conservation actions aimed more at improving the quality of existing habitat include the creation of artificial hibernacula and nest sites on property belonging to conservation-friendly groups or individuals. Measures should be taken to curtail the number of cars that visit the island by: subsidizing bicycle rentals, encouraging tourists to hike or bring their own bikes, and establishing an extensive shuttle system (perhaps based on the Pelee Island Winery tour bus model). Efforts should also be made to use the natural history of the island to bring in more tourist dollars (a large number of birders already visit the island). If the island's fauna and flora were perceived by the resident islanders to be an economic positive then this would go far in promoting a conservation ethic on the island. A good model for this has been started by Ben Porchuk, who in the past, has run nature tours of the island.

Other Concerned Organizations

Please provide contact information for organizations or individuals that are involved in protection/conservation of this site, e.g. World Wildlife Fund Canada, Nature Conservancy Canada, Ducks Unlimited, Federation of Nova Scotia Naturalists.

- World Wildlife Fund Canada (contact: Ben Porchuk, bporchuk@sprint.ca)
- Nature Conservancy Canada (contact: Michelle Kanter, michellek@natureconservancy.ca)
- Essex Region Conservation Authority (contact: Dan Lebedyk, 519-776-5209, x409, dlebedyk@erca.org)
- Essex County Field Naturalist's Club (contact: Betty Learmouth, 519-944-0825)
- Pelee Island Heritage Centre (contact: Ron Thiessen)
- Ontario Ministry of Natural Resources (contact: Allen Woodliffe, allen.woodliffe@mnr.gov.on.ca)
- Ontario Herpetological Society
- Canadian Wildlife Service (contact: Christine Bishop, cab.bishop@ec.gc.ca)
- Federation of Ontario Naturalists (416-444-8419)
- Township of Pelee
- University of Guelph, Department of Zoology (contacts: Jim Bogart, jbogart@uoguelph.ca; Ron Brooks, rjbrooks@uoguelph.ca)
- University of Guelph, Department of Botany (contact: Kevin Burgess)

Previous Work

Please list studies/documents/papers that have been derived from this site. Please provide enough information so that such sources can be retrieved by CARCNET.

- Ambrose, J.D. 1998. Update status report for red mulberry, *Morus rubra* L. Committee on the Status of Endangered Wildlife in Canada, 7pp.
- Bird Studies Canada. 2000. Canadian Important Bird Area: Pelee Island Natural Areas. Accessed from the World Wide Web in January 2000, URL: <http://www.bsc.eoc.org/lba/ibasites/On013.html>.
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- Bogart, J.P. and L.E. Licht. 1987. Evidence for the requirement of sperm in unisexual salamander hybrids (genus *Ambystoma*). Canadian Field-Naturalist **101**:434-436.
- Bogart, J.P., L.E. Licht, M.J. Oldham and S.J. Darbyshire. 1985. Electrophoretic identification of *Ambystoma laterale* and *Ambystoma texanum* as well as their diploid and triploid interspecific hybrids (Amphibia:Caudata) on Pelee Island, Ontario (Canada). Canadian Journal Of Zoology **63**:340-347.
- Campbell, C.A. and R.B. King. 1991. Status report on the Lake Erie water snake (*Nerodia sipedon insularum*) in Canada. Committee on the Status of Endangered Wildlife in Canada, 30pp.
- Campbell, C.A., D.W. Perrin, J.M. MacCartney and B. Porchuk. 1997. Status of the racer (*Coluber constrictor*) in Canada. Committee on the Status of Endangered Wildlife in Canada, 34pp.
- Catling, P.M. 1995. The extent of confinement of vascular plants to alvars in southern Ontario. Canadian Field-Naturalist **109**:172-181.
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- Green, D.M. 1999. Status Report Update on Fowler's Toad (*Bufo fowleri*) in Canada. Committee on the Status of Endangered Wildlife in Canada, 18pp.
- Kellar, T. and G. Waldron. 1997. National recovery plan for Blanchard's cricket frog. Recovery of Nationally Endangered Wildlife Committee. 19pp.
- King, R.B. 1986. Population ecology of the Lake Erie water snake, *Nerodia sipedon insularum*. *Copeia* **1986**:757-772.
- King, R.B. 1987. Color pattern polymorphism in the Lake Erie water snake, *Nerodia sipedon insularum*. *Evolution* **41**:241-255.
- King, R.B. 1988. Polymorphic populations of the garter snake *Thamnophis sirtalis* near Lake Erie (Canada, USA). *Herpetologica* **44**:451-458.
- King, R.B. 1989. Body size variation among island and mainland snake populations. *Herpetologica* **45**:84-88.
- King, R.B. 1992. Lake Erie water snakes revisited: morph- and age-specific variation in relative crypsis. *Evolutionary Ecology* **6**:115-124.
- King, R.B. 1993a. Color pattern variation in Lake Erie water snakes: Inheritance. *Canadian Journal Of Zoology* **71**:1985-1990.
- King, R.B. 1993b. Color-pattern variation in Lake Erie water snakes: Prediction and measurement of natural selection. *Evolution* **47**:1819-1833.
- King, R.B. 1993c. Determinants of offspring number and size in the brown snake, *Storeria dekayi*. *Journal of Herpetology* **27**:175-185.
- King, R.B. 1997. Variation in brown snake (*Storeria dekayi*) morphology and scalation: Sex, family, and microgeographic differences. *Journal of Herpetology* **31**:335-346.
- King, R.B. and R. Lawson. 1995. Color-pattern variation in Lake Erie water snakes: The role of gene flow. *Evolution* **49**:885-896.
- King, R.B. and R. Lawson. 1997. Microevolution in island water snakes. What processes influence color pattern differences in Lake Erie island and mainland water snakes? *Bioscience* **47**:279-286.
- King, R.B., M.J. Oldham, W.F. Weller and D. Wynn. 1997. Historic and current amphibian and reptile distributions in the island region of western Lake Erie. *American Midland Naturalist* **138**:153-173.
- Kraus, F. and G.W. Schuett. 1982. A herpetofaunal survey of the coastal zone of northwest Ohio (USA). *Kirtlandia* **0**:21-54.
- Lawson, R. and R.B. King. 1996. Gene flow and melanism in Lake Erie garter snake populations. *Biological Journal of the Linnean Society* **59**:1-19.
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- Licht, L.E. and J.P. Bogart. 1990. Comparative rates of oxygen consumption and water loss in diploid and polyploid salamanders (genus *Ambystoma*). *Comparative Biochemistry And Physiology A Comparative Physiology* **97**:569-572.
- Metcalf, C.D., T.L. Metcalf, G. Riddle and G.D. Haffner. 1997. Aromatic hydrocarbons in biota from the

Detroit River and western Lake Erie. *Journal of Great Lakes Research* **23**:160-168.

Porchuk, B.D. 1996. Ecology and conservation of the endangered blue racer snake (*Coluber constrictor foxii*) on Pelee Island, Canada. M.Sc. thesis, University of Guelph, Ontario, 162pp.

Porchuk, B.D. 1998. Canadian blue racer snake recovery plan. Unpublished report for the Recovery of Nationally Endangered Wildlife Committee (RENEW), 55pp.

Porchuk, B.D. and R.J. Brooks. 1995. *Coluber constrictor*, *Elaphe vulpina*, and *Chelydra serpentina*: reproduction. *Herpetological Review* **26**:148.

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Weseloh, D.V., P. Mineau and J. Struger. 1990. Geographical distribution of contaminants and productivity measures of herring gulls in the Great Lakes: Lake Erie and connecting channels 1978/79. *Science Of The Total Environment* **91**:141-160.

Willson, R.J. and K.A. Prior. 1999. Status of the eastern fox snake (*Elaphe vulpina gloydi*) in Canada. Committee on the Status of Endangered Wildlife in Canada, 38pp.