

**COSEWIC**  
**Status Appraisal Summary**

on the

**Karner Blue**  
*Lycaeides melissa samuelis*

in Canada

**EXTIRPATED**  
**2010**

**COSEWIC**  
Committee on the Status  
of Endangered Wildlife  
in Canada



**COSEPAC**  
Comité sur la situation  
des espèces en péril  
au Canada

COSEWIC status appraisal summaries are working documents used in assigning the status of wildlife species suspected of being at risk in Canada. This document may be cited as follows:

COSEWIC. 2010. COSEWIC status appraisal summary on the Karner Blue *Lycaeides melissa samuelis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii pp. ([www.sararegistry.gc.ca/status/status\\_e.cfm](http://www.sararegistry.gc.ca/status/status_e.cfm)).

Production note:

This status appraisal summary constitutes a review of classification of the Karner Blue *Lycaeides melissa samuelis* in Canada which was last assessed by COSEWIC in 2000. The 2000 COSEWIC Status Report on the Karner Blue *Lycaeides melissa samuelis* in Canada is posted on the Species at Risk Public Registry at this link: [http://www.sararegistry.gc.ca/species/speciesDetails\\_e.cfm?sid=293](http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=293)

COSEWIC would like to acknowledge Colin Jones for writing the status appraisal summary on the Karner Blue *Lycaeides melissa samuelis* in Canada. This status appraisal summary was overseen and edited by Laurence Packer, Co-chair of the Arthropods Specialist Subcommittee.

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## COSEWIC Assessment Summary

### Assessment Summary – April 2010

**Common name**

Karner Blue

**Scientific name**

*Lycaeides melissa samuelis*

**Status**

Extirpated

**Reason for designation**

*\* A reason for designation is not specified when a review of classification is conducted by means of a status appraisal summary.*

**Occurrence**

Ontario

**Status history**

Has not been observed since 1991. Designated Extirpated in April 1997. Status re-examined and confirmed in May 2000 and April 2010.



## Status Appraisal Summary

*Lycaeides melissa samuelis*  
Karner Blue

Bleu mélissa

Jurisdictions: Ontario

### Current COSEWIC Assessment:

#### Status category:

XT    E    T    SC

Date of last assessment: May 2000

Reason for designation at last assessment: This species and its habitat originally occurred in a restricted range. The butterfly's population decline and the degradation of its habitat are well documented. The species has not been seen since at least 1988.

Criteria applied at last assessment: None

If earlier version of criteria was applied<sup>1</sup>, provide correspondence to current criteria: Not applicable.

### Recommendation: Update to the status report NOT required (species' status category remains unchanged)

#### Reason:

- sufficient information to conclude there has been no change in status category  
 not enough additional information available to warrant a re-assessment

### Evidence (indicate as applicable):

#### Wildlife species:

*Change in eligibility, taxonomy or designatable units:*

yes  no

Explanation:

No change

<sup>1</sup>An earlier version of the quantitative criteria was used by COSEWIC from October 1999 to May 2001 and is available on the COSEWIC website: . [http://www.cosewic.gc.ca/eng/sct0/original\\_criteria\\_e.cfm](http://www.cosewic.gc.ca/eng/sct0/original_criteria_e.cfm).

**Range:**

*Change in Extent of Occurrence (EO):* yes  no   
*Change in Area of Occupancy (AO) :* yes  no   
*Change in number of known or inferred current locations:* yes  no   
*Significant new survey information* yes  no

Explanation:

The butterfly remains extirpated from the province and has not been seen at any of the historic locations, and additional larval hostplant sites in Norfolk County and the Pinery-Port Franks area, despite survey efforts including by experts capable of recognising it, such as Kirk Zufelt, Ken Stead and W.G. Lamond.

**Population Information:**

*Change in number of mature individuals:* yes  no   
*Change in total population trend:* yes  no   
*Change in severity of population fragmentation:* yes  no   
*Significant new survey information* yes  no

Explanation:

No change

**Threats:**

*Change in nature and/or severity of threats:* yes  no

Explanation:

No change

**Protection:**

*Change in effective protection:* yes  no

Explanation:

There has been no change in effective protection for this species at the federal level. There is a federal recovery team but this team has been largely inactive in recent years and no recovery strategy has been finalized. Provincially, there have been some recent changes in effective protection. The species was originally listed as Endangered in 1990 under Ontario's old Endangered Species Act (1971) and was at first maintained as Endangered under the new Endangered Species Act, 2007 (ESA 2007). As Endangered, the species received both species and habitat protection, although no habitat was actually protected since there were no extant sites. In February of 2009, however, the classification of Karner Blue was changed from Endangered to Extirpated (the appropriate designation) in the Species at Risk in Ontario List regulation under the ESA 2007. Under the act, species listed as Extirpated receive species protection but not habitat protection, unless a habitat regulation is prescribed. General habitat protection would automatically apply if the designation is changed to Endangered or Threatened. At the provincial level, under the ESA 2007, there are no requirements for recovery planning until such time that the province determines that reintroduction is feasible. Its SRANK in Ontario is SX (extirpated) and its Ontario and Canadian General Status is "Extirpated". There have been no confirmed sightings in Ontario since 1988. Although the Toronto Zoo has explored the possibility of a captive rearing program in the past, and it is felt that the species could be successfully reared in captivity for release, to this date no captive breeding/release programs have been initiated (T. Mason, pers. comm.).

**Rescue Effect:***Evidence of rescue effect.*yes  no 

Explanation:

Given that the Karner Blue is endangered rangewide, it is very unlikely that the species will recolonize any of the historical locations in Ontario without human assistance (i.e. a reintroduction program).

**Quantitative Analysis:***Change in estimated probability of extirpation:*yes  no 

Details:

**Summary and Additional Considerations:****List of reviewers:**

The Status Appraisal Summary was sent to the following jurisdictions for review:

- Canadian Wildlife Service
- Parks Canada Agency
- Province of Ontario (Alan Dextrase and Michael Oldham)
- Members of the COSEWIC Arthropods Species Specialist Subcommittee
- Members of the Aboriginal Traditional Knowledge Subcommittee (Donna Hurlburt and Dan Benoit)
- Karner Blue Recovery Team Co-chairs (Dawn Burke and Peter Carson)

**Consultations:**

Dawn Burke, Chair (former), Ontario Karner Blue Recovery Team.

Cathy Darevic, Species at Risk Biologist, Species at Risk Branch, Ontario Ministry of Natural Resources.

Anite Imrie, Species at Risk Biologist, Species at Risk Branch, Ontario Ministry of Natural Resources.

Tom Mason, Curator of Invertebrates and Birds, Toronto Zoo – RE: captive rearing and release of Karner Blue in Ontario for the recovery plan.

Chris Risley, Listing Biologist, Species at Risk Branch, Ontario Ministry of Natural Resources.

Don Sutherland, Zoologist, Natural Heritage Information Centre, Ontario Ministry of Natural Resources.

## Sources of information:

- Carson, P.J. 1996. Draft. Status report on the Karner Blue butterfly *Lycaeides melissa samuelis* in Canada. COSEWIC - Committee on the Status of Endangered Wildlife in Canada. 24 pp.
- Chan, P.K. and L. Packer. (2006). Assessment of potential Karner blue butterfly (*Lycaeides melissa samuelis*) (Family Lycaenidae) reintroduction sites in Ontario, Canada. *Restoration Ecology* 14: 645-652.
- Dextrase, A. 2009. Personal communication to Laurence Packer.
- Mason, T. 1996. An update on the Karner blue captive breeding project. *Ontario Insects, Newsjournal of the Toronto Entomologists' Association*, Vol. 1(2): 24.
- Packer, L., 1987. Status report on the Karner Blue butterfly, *Lycaeides melissa samuelis* Nabokov, in Canada. A report prepared for the World Wildlife Fund and the Ontario Ministry of Natural Resources, Wildlife Branch, Nongame Program. Unpublished. 66 pp.
- Packer, L. 1990. The status of two butterflies, Karner Blue (*Lycaeides melissa samuelis*) and Frosted Elfin (*Incisalia irus*), restricted to oak savannah in Ontario. pp. 253-271 In G.M. Allen, P.F.J. Eagles, and S.D. Price (eds.). *Conserving Carolinian Canada: Conservation Biology in the Deciduous Forest Region*. University of Waterloo Press, Waterloo, Ontario. 346pp.
- Schweitzer, D.F. 1993. A Recovery Plan for the Karner Blue Butterfly (*Lycaeides melissa samuelis* Nabokov) for the Province of Ontario, with discussions of other rare oak savanna species. Prepared for the Ontario Ministry of Natural Resources, Pinery Provincial Park. 63 pp.



### COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

### COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

### COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

### DEFINITIONS (2010)

Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

\* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

\*\* Formerly described as "Not In Any Category", or "No Designation Required."

\*\*\* Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.



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