COSEWIC
Rapid Review of Classification

on the

Island Marble
Euchloe ausonides insulanus

in Canada

EXTIRPATED
2022

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada

COSEPAC
Comité sur la situation
des espèces en péril
au Canada

The rapid review of classification process is used by COSEWIC for wildlife species that have not changed status since the previous COSEWIC assessment. Readily available information from the previous status report or status appraisal summary, recovery documents, recovery teams, jurisdictions, conservation data centres, and species experts is initially reviewed by the relevant Species Specialist Subcommittees before being reviewed by COSEWIC. The following is a summary of the relevant information.

COSEWIC Rapid Review of Classification 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:

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For additional copies contact:

COSEWIC Secretariat
c/o Canadian Wildlife Service
Environment and Climate Change Canada
Ottawa, ON
K1A 0H3

Tel.: 819-938-4125
Fax: 819-938-3984
E-mail: ec.cosepac-cosewic.ec@canada.ca
www.cosewic.ca

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COSEWIC
Assessment Summary

Assessment Summary – December 2022

Common name
Island Marble

Scientific name
Euchloe ausonides insulanus

Status
Extirpated

Reason for designation
This butterfly has not been found in Canada since 1908, and availability of suitable habitat is limited. Historically, the species occurred on southern Vancouver Island and adjacent Gulf Islands. This area has been well surveyed for butterflies, with targeted surveys from 2001 to 2008. These surveys were informed by recent advances in understanding of the species ecology from studies of the small extant population on San Juan Island in Washington State. Rescue is unlikely, as the closest population on San Juan Island is 15 km over open ocean.

Occurrence
British Columbia

Status history
Extirpated by 1908. Designated Extirpated in April 1999. Status re-examined and confirmed in May 2000, April 2010, and December 2022.

COSEWIC
Rapid Review of Classification

PREFACE

Island Marble (*Euchloe ausonides insulanus*) was designated Extirpated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in April 1999, and the status was re-examined and confirmed in May 2000 and April 2010 (COSEWIC 2010). Island Marble was listed as Extirpated on Schedule 1 under the federal *Species at Risk Act* (SARA) in 2003.

Island Marble ranges in a small geographic area of North America, from the southern tip of Vancouver Island, British Columbia (B.C.), south into the San Juan Islands of Washington State. In Canada, Island Marble historically occurred on and around the Victoria area and Gabriola Island (BC CDC 2021); the last known record is 1908 from Gabriola Island. Currently it is only found in Washington State. The historical records are summarized in a multi-species recovery strategy that includes Island Marble (Parks Canada Agency 2006). Suitable habitat, based on habitat use in the San Juan Islands, is limited in B.C. (COSEWIC 2010).

The historical range of Island Marble is an area well surveyed for butterflies, including targeted surveys for the subspecies from 2001 to 2008 that were informed by recent advances in understanding of the species ecology from the small extant population on San Juan Island (COSEWIC 2010). Incidental observations posted to online butterfly forums (e.g., iNaturalist [2022], Victoria Natural History Society Invertebrate Alert [2021]) have no B.C. records.

The definition of wildlife species[1] under the *Species at Risk Act* gives COSEWIC a mandate to assess units that are below the level of a recognized taxonomic species as a Designatable Unit (DU) if it has attributes that make it both discrete[2] and evolutionarily significant[3]. Island Marble is one of seven described subspecies of the Large Marble (*E. ausonides*) (Pelham 2022), which has a broad range across North America (Layberry *et al.* 1998; Pohl *et al.* 2018; Pelham 2022). The subspecies was described in 2001 (Guppy and Shepard 2001), and there are no taxonomic disputes in the literature (Guppy and Shepard 2001; Pelham 2008; Pohl *et al.* 2018; Guppy pers. comm. 2022; Pelham 2022).

[1] Under the *Species At Risk Act* (SARA), the definition of ***wildlife species*** is 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 **(a)** is native to Canada; or **(b)** has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.

[2] *Discrete* means that there is currently very little transmission of heritable (cultural or genetic) information from other such units.

[3] *Evolutionarily significant* means that the unit harbours heritable adaptive traits or an evolutionary history not found elsewhere in Canada.

The following discusses how Island Marble meets the criteria for both discreteness and significance.

A putative DU may be considered discrete based on one or both of the following criteria, each of which indicate little or no transmission of heritable information between it and other DUs:

- D1. Evidence of heritable traits or markers that clearly distinguish the putative DU from other DUs (e.g., evidence from genetic markers or heritable morphology, behaviour, life history, phenology), indicating limited transmission of this heritable information to other DUs. There is morphological information that separates Island Marble from the geographically closest subspecies *mayi* (see Guppy and Shepard 2001 for the full taxonomic description). Island Marble is larger, differs in wing pattern, has expanded marbling on the ventral hindwings, and is strongly suffused with yellow scales and hairs in comparison to the subspecies *mayi* on mainland B.C. There is little additional information on natural history, genetic, or heritable markers that are evidence to support this criterion.

- D2. Natural (i.e., not the product of human disturbance) geographic disjunction between putative DUs, such that transmission of information (e.g., individuals, gametes) between these "range portions" has been severely limited for an extended time and is not likely in the foreseeable future. “Extended time” is intended to mean that sufficient time has passed that either natural selection or genetic drift are likely to have produced discrete units, given the specific biology of the taxon. Island Marble has a natural geographic disjunction between its range and the geographically closest subspecies, *E. a. mayi*. *Euchloe ausonides mayi* ranges throughout mainland B.C. (except for the coastal regions), north to the Yukon and east to Alberta (Layberry et al. 1998; Guppy and Shepard 2001). The closest confirmed record of *E. a. mayi* is the Squamish/Whistler corridor, which is an approximately 100 km straight-line distance through unsuitable habitat, including the Strait of Georgia, from the most recent record (Gabriola Island in 1908) of Island Marble on southeastern Vancouver Island. There are habitat differences between Island Marble (see Parks Canada Agency 2006) and *E.a.mayi* (see Layberry *et al.* 1998; Guppy and Shepard 2001). It is inferred that Island Marble has been on an independent evolutionary trajectory since the retreat of the glaciers, approximately 11,700 years before present. The subspecies has a restricted geographic range (i.e., southeastern Vancouver Island and the Gulf Islands, including some islands in the United States) and has been geographically separated from individuals on the adjacent mainland (i.e., *E. a. mayi*) (see Fuchs 2001; GOERT 2002) since glacial retreat. Island Marble meets this criterion for discreteness.

A DU is considered significant based on one or more of the following criteria:

- S1. Direct evidence or strong inference that the putative DU has been on an independent evolutionary trajectory for an evolutionarily significant period, usually intraspecific phylogenetic divergence indicating origins in separate Pleistocene refugia. See D2.

- S2. Direct evidence or strong inference that can be used to infer that the putative DU possesses adaptive, heritable traits that cannot be practically reconstituted if lost, for example, persistence of the discrete, putative DU in an ecological setting where a selective regime is likely to have given rise to DU-wide local adaptations that could not be reconstituted. Historical records for Island Marble are from the Garry Oak and associated ecosystems, which are restricted to southeastern Vancouver Island and a few isolated pockets of habitat near Sumas and Yale in the Fraser Valley. These ecosystems originate with the retreat of the glaciers, approximately 11,700 years before present, and reached their largest extent approximately 5000 to 8000 years ago (Erickson 1993). Island Marble ranges only within these ecosystems, which have provided the unique ecological setting (see Fuchs 2001; GOERT 2002 for further information on the ecological setting) for adaptive traits that are not likely to be reconstituted. Extant populations of Island Marble in San Juan County, Washington, are found in old fields adjacent to dunes, along eroding shorelines, in disturbed native grassland, and around tidal lagoons. Larval host plants are all within the family Brassicaceae and include Field Mustard (*Brassica campestris*), Tall Tumble Mustard (*Sisymbrium altissimum*), and Tall Peppergrass (*Lepidium virginicum*). Only the latter is a native species, suggesting that Island Marble can switch hostplants. The habitat where these extant subpopulations occur has qualities like the historical sites in B.C.; both habitats are within low elevation (<50 m) warm, mild/temperate maritime climates. Subspecies *mayi* occupies inland areas (e.g., southern and central interior, Kootenays and northeast), that experience much colder, wetter climates, and the subspecies occurs within a broad range of open habitats from dry grasslands to subalpine and alpine areas (Guppy and Shepard 2001; iNaturalist 2022). The larval host plants for subspecies *mayi* are also within the family Brassicaceae (Guppy and Shepard 2001).

Island Marble is globally listed as G5T1 (critically imperilled), NTH (historical) for Canada, and NT1 nationally for the United States. Work continues to support the small population in Washington State (Lambert 2011; Anderson 2017; Anderson and Lambert 2019).

Status History

Extirpated by 1908. Designated Extirpated in April 1999. Status re-examined and confirmed in May 2000, April 2010, and December 2022.

Updated Map

No change in distribution known; see previous assessments (COSEWIC 2000; COSEWIC 2010).

TECHNICAL SUMMARY

Island Marble

Marbré insulaire

Euchloe ausonides insulanus

Range of occurrence in Canada: British Columbia

Demographic Information

Generation time	Approximately 1 year	There is no evidence the species overwinters more than one year.
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	Unknown	No data available
Estimated percent of continuing decline in total number of mature individuals within [5 years, or 2 generations, whichever is longer up to a maximum of 100 years]	Unknown	No data available
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations, whichever is longer up to a maximum of 100 years].	Unknown	No data available
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations, whichever is longer up to a maximum of 100 years].	Unknown	No data available
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any period [10 years, or 3 generations, whichever is longer up to a maximum of 100 years], including both the past and the future.	Unknown	No data available
Are the causes of the decline clearly understood?	Unknown	No data available
Have the causes of the decline ceased?	Unknown	No data available
Are the causes of the decline clearly reversible?	Unknown	No data available
Are there extreme fluctuations in number of mature individuals?	Not likely	Records from San Juan Island, in the United States, do not exhibit extreme fluctuations.

Extent and Occupancy Information

Estimated extent of occurrence (EOO)	Not applicable	The most recent record in Canada is 1908.
Index of area of occupancy (IAO), reported as 2x2 km grid value.	Not applicable	The most recent record in Canada is 1908.
Is the population "severely fragmented", i.e., is >50% of its total area of occupancy in habitat patches that are (a) smaller than would be required to support a viable population, and (b) separated from other habitat patches by a distance larger than the species can be expected to disperse?	a. Not applicable b. Not applicable	
Number of "locations"*	0	The most recent record in Canada is 1908.
Is there an [observed, inferred, or projected] continuing decline in extent of occurrence?	Not applicable.	Historical decline to extirpation.
Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy?	Not applicable.	Historical decline to extirpation.
Is there an [observed, inferred, or projected] continuing decline in number of subpopulations?	Not applicable.	Historical decline to extirpation.
Is there an [observed, inferred, or projected] continuing decline in number of "locations"*?	Not applicable.	Historical decline to extirpation.
Is there an [observed, inferred, or projected] continuing decline in [area, extent, and/or quality of] habitat?	Unknown	In the San Juan Islands, the species has switched to feeding on a variety of weedy introduced plants that occur in its former Canadian range.
Are there extreme fluctuations in number of subpopulations?	Unknown	No historical evidence of extreme fluctuations in number of subpopulations.
Are there extreme fluctuations in number of "locations"*?	Unknown	No historical evidence of extreme fluctuations in number of locations.
Are there extreme fluctuations in extent of occurrence?	Unknown	No historical evidence of extreme fluctuations in extent of occurrence.
Are there extreme fluctuations in index of area of occupancy?	Unknown	No historical evidence of extreme fluctuations in index of area of occupancy.

* See Definitions and Abbreviations on the COSEWIC website for more information on this term.

Number of Mature Individuals (in each subpopulation)

Subpopulations	N Mature Individuals (give plausible ranges)	Notes on individual estimates
Total	No data	No data

Quantitative Analysis

Is the probability of extinction in the wild at least [20% within 20 years or 5 generations, whichever is longer up to a maximum of 100 years, or 10% within 100 years]?	Unknown	Analysis not conducted

Threats and Limiting Factors

Was a threats calculator completed for this species?	No	
Threats identified in the COSEWIC (2000) status report and the COSEWIC Status Appraisal Summary (2010) that may have led to the species' extirpation include: • Lack of habitat in historical range in Canada What additional limiting factors are relevant? • Limited dispersal ability		

Rescue Effect (natural immigration from outside Canada)

Status of outside population(s) most likely to provide immigrants to Canada.	Washington State status is S1	A small population on San Juan Island is located 15 km across the ocean from the closest habitat on southeastern Vancouver Island.
Is immigration known or possible?	Unknown, unlikely	Very unlikely, there is 15 km of unsuitable ocean habitat, and the butterfly has limited dispersal ability.
Would immigrants be adapted to survive in Canada?	Yes	Based on habitat information from San Juan Island subpopulation and distribution of host plant(s) in Canada.
Is there sufficient habitat for immigrants in Canada?	Unknown	There is limited suitable habitat in Canada.
Are conditions deteriorating in Canada?[+]	Yes	There is limited suitable habitat in Canada.
Are conditions for the source (i.e., outside) population deteriorating?[+]	Yes	San Juan Island population may be declining.
Is the Canadian population considered to be a sink?[+]	No	Not likely, dispersal distance from extant population in San Juan Island is beyond dispersal ability.

[+] See Table 3 (Guidelines for modifying status assessment based on rescue effect).

Is rescue from outside populations likely?	No	Not possible, the source populations are declining, and rescue would require active release programs.

Occurrence Data Sensitivity

Are occurrence data of this species sensitive?	No	

Status and Reasons for Designation

Status: Extirpated	**Final Criteria:** Not applicable.
Reason for change of status	No change in status
Reasons for designation: This butterfly has not been found in Canada since 1908, and availability of suitable habitat is limited. Historically, the species occurred on southern Vancouver Island and adjacent Gulf Islands. This area has been well surveyed for butterflies, with targeted surveys from 2001 to 2008. These surveys were informed by recent advances in understanding of the species ecology from studies of the small extant population on San Juan Island in Washington State. Rescue is unlikely, as the closest population on San Juan Island is 15 km over open ocean.	

Applicability of Criteria

A: Decline in total number of mature individuals Not applicable. Insufficient data to reliably infer, project, or suspect population trends.
B: Small distribution range and decline or fluctuation Not applicable. Does not meet criteria. This species has not been recorded in Canada since 1908 and suitable habitat is limited, based on information in the US San Juan Islands.
C: Small and declining number of mature individuals Not applicable. Insufficient data to determine number of mature individuals and/or continuing decline.
D: Very small or restricted population Not applicable. This species has not been found in Canada since 1908 and suitable habitat is limited, based on information in the US San Juan Islands.
E: Quantitative analysis Not applicable. Analysis not conducted.

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AUTHORITIES CONTACTED

Gelling, L. Program Zoologist. British Columbia Conservation Data Centre, Biodiversity Branch, Ministry of Environment and Climate Change Strategy. Victoria, British Columbia.

Guppy, C.S. Lepidopterist. Whitehorse, Yukon.

Heron, J. Invertebrate Conservation Specialist. Conservation Science Section, B.C. Ministry of Environment and Climate Change Strategy. Surrey, British Columbia.

Miskelly, J. Entomologist. Victoria, British Columbia.

INFORMATION SOURCES

Anderson, R.M. 2017. From non-native “weed” to butterfly “host”: knowledge, place, and belonging in ecological restoration. A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts. University of Washington, Seattle, Washington. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/40164/Anderson_washington_0250O_17099.pdf?sequence=1&isAllowed=y [accessed 07 July 2020].

Anderson, R.M., and A.M. Lambert. 2019. Endangered Butterflies and their non-native host plants: examining shifting values of belonging in restoration. Case Studies in the Environment 3:1-9. https://doi.org/10.1525/cse.2019.002147 [accessed 07 July 2020].

BC CDC (British Columbia Conservation Data Centre). 2021. Species summary: *Euchloe ausonides insulanus*. B.C. Ministry of Environment and Climate Change Strategy. Website: https://a100.gov.bc.ca/pub/eswp/ [accessed 09 March 2021].

COSEWIC. 2000. COSEWIC assessment and status report on the Island Marble *Euchloe ausonides insulanus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 7 pp.

COSEWIC. 2010. COSEWIC status appraisal on the Island Marble *Euchloe ausonides insulanus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii pp.

Erickson, W. 1993. Garry oak ecosystems. Province of British Columbia Ministry of Environment, Lands and Parks. Victoria, BC. 6 pp. Website: https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/conservation-data-centre/publications/erickson_garry_oak.pdf [accessed 18 December 2022].

Fuchs, M.A. 2001. Towards a recovery strategy for Garry oak and associated ecosystems in Canada: ecological assessment and literature review. Technical report GBEI/EC-00-030. Environment Canada, Canadian Wildlife Service, Pacific and Yukon Region. 118 pp. Website: http://parkscanadahistory.com/publications/fortroddhill/garry-oak-recovery.pdf [accessed 19 December 2022].

GOERT (Garry Oak Ecosystems Recovery Team). 2002. Recovery strategy for Garry Oak and associated ecosystems and their associated species at risk in Canada, 2001-2006. Draft 20 February 2002. 201 pp. Website: https://goert.ca/wp/wp-content/uploads/GOERT-Recovery-Strategy-GOE-SAR-2002.pdf [accessed 19 December 2022].

Guppy, C.S. pers. comm. 2022. *Email and personal communication with Jennifer Heron.* Lepidopterist. Whitehorse, Yukon.

Guppy, C.S., and J.H. Shepard. 2001. Butterflies of British Columbia. University of British Columbia Press, and Royal British Columbia Museum. Vancouver and Victoria, British Columbia.

iNaturalist. 2022. Online search for Island Marble (*Euchloe ausonides insulanus*) (no B.C. records). Website: https://inaturalist.ca/taxa/235937-Euchloe-ausonides-insulanus [accessed 19 December 2022].

Lambert, A. 2011. Natural history and population ecology of a rare pierid butterfly, *Euchloe ausonides insulanus* Guppy and Shepard (Pieridae). Ph.D. thesis, University of Washington, Seattle Washington. http://depts.washington.edu/pnwcesu/reports/J8W07070007_Lambert_dissertation.pdf

NatureServe. 2021. *Euchloe ausonides insulanus.* Large Marble *insulanus* subspecies. Website: https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.109980/Euchloe_ausonides_insulanus [accessed February 2022].

Parks Canada Agency. 2006. Recovery strategy for multi-species at risk in Maritime meadows associated with Garry Oak ecosystems in Canada. *In* Species at Risk Act Recovery Strategy Series. Parks Canada Agency. Ottawa. 93 pp.

Pelham, J. 2022. A catalogue of the butterflies of the United States and Canada. December 2022. Website: https://butterfliesofamerica.com/US-Can-Cat.htm [accessed 19 December 2022].

Pohl, G.R., J-F. Landry, B.C. Schmidt, J.D. Lafontaine, J.T. Troubridge, A.D. Macaulay, E.J. van Nieukerken, J.R. deWaard, J.J. Dombroskie, J. Klymko, V. Nazari, and K. Stead. 2018. Annotated checklist of the moths and butterflies (Lepidoptera) of Canada and Alaska. Pensoft Publishers. 580 pp.

Victoria Natural History Society Invertebrate Alert, online database. Website: https://www.vicnhs.bc.ca/?cat=8 [accessed 19 June 2021].

Writer of Rapid Review of Classification:

- David B. McCorquodale

RAMAS Graphic Output:

- RAMAS output not required, extirpated species.

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
(2022)

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.

Environment and Climate Change Canada
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