# COSEWIC
# Rapid Review of Classification

on the

# Coastal Manroot
## *Marah oregana*

**in Canada**

**ENDANGERED**
**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:

COSEWIC. 2022. COSEWIC Rapid Review of Classification on the Coastal Manroot *Marah oregana* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xil pp. (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html).

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# COSEWIC
# Assessment Summary

**Assessment Summary – December 2022**

**Common name**
Coastal Manroot

**Scientific name**
*Marah oregana*

**Status**
Endangered

**Reason for designation**
This long–lived perennial vine occurs in Canada at only four widely separated subpopulations on southeastern Vancouver Island and adjacent Gulf Islands. Fewer than 50 mature plants remain, with evidence of seedling production at only one site. Losses of habitat, subpopulations, and mature individuals are projected in its Canadian range. Main threats are development of the few known sites, alien species, and random events affecting the handful of remaining individuals. This is a medicinal plant cared for by some west coast First Nations.

**Occurrence**
British Columbia

**Status history**
Designated Endangered in November 2009. Status re-examined and confirmed in December 2022.

# COSEWIC
# Rapid Review of Classification

## PREFACE

Coastal Manroot (*Marah oregana*) (Nesom 2015) was formerly called "Coast Manroot" *(Marah oreganum)* in the previous assessment (COSEWIC 2009). A single new (previously overlooked) occurrence at Thetis Island and a few additional individuals of Coastal Manroot have been found since the last COSEWIC assessment. This increases the EOO by 23%, the IAO slightly and the number of mature individuals by 30%–90%. The distribution of the species (Figure 1) remains the same as described in the Recovery Strategy (BC Ministry of Environment 2012).

Although not emphasized in COSEWIC (2009), it is possible that not all the subpopulations have dispersed into Canada naturally. The first collection of the plant from Union Bay Indian Reserve No. 1, noted that it occurred in "Indian villages and gardens." The fruit had medicinal uses among the Washington Salish (Turner and Bell 1971). Turner and Bell (1971) suggested it was planted, and Ms. Melburn, a collector in 1958, noted "escaped from cultivation" on her collection label. However, while the current plants are not obviously connected to cultivated areas, some do occur in disturbed sites. The other subpopulations are not obviously linked to sites with Indigenous cultivation. The Kwixin Field Station (2018) characterizes the management by one W̱SÁNEĆ community of the Saanich and Salt Spring occurrences as "stewardship." All sites where the species occurs with no direct evidence of cultivation have been treated as native in this report. Two individual plants, one in a private garden in Victoria and another in a public garden in Saanich were not included in this assessment.

Exact counts of mature individuals have not been possible for two reasons:

- There are new and known sites on private lands and access and permission has not been obtained from landowners to gather[1] or release these data.
- Some visits have not occurred at the correct time of year to determine whether the plants were flowering or fruiting. BC MOE (2012) notes that a very small number of stems are known to produce flowers or fruit and the total number of plants tallied may be higher than the number of mature individuals.

1. A member of the BC Conservation Data Centre visited one of the sites on Thetis Island in 2016.

However, even with these caveats, the number of mature individuals in Canada is estimated to be below 50 (Donovan pers. comm. 2021) and possibly much lower if stems that are not fruiting are removed from this estimate. The range of mature individuals used in this reassessment is 24– 34.

Some of the subpopulations are in maturing forests and may no longer receive enough light to reproduce properly (Fraser pers. obs.).

Coastal Manroot is not listed in the Canadian *Species at Risk Act*, nor is it protected in legislation in British Columbia. No occurrences are in protected areas and all are on First Nations or private lands.

Indigenous traditional knowledge: The Saanich plant and the subpopulation on Salt Spring Island are stewarded by the W̱SÁNEĆ community as a medicinal plant (K̲EXMIN Field Station 2018).

## Status history

Designated Endangered in November 2009. Status re-examined and confirmed in December 2022.

## Updated map

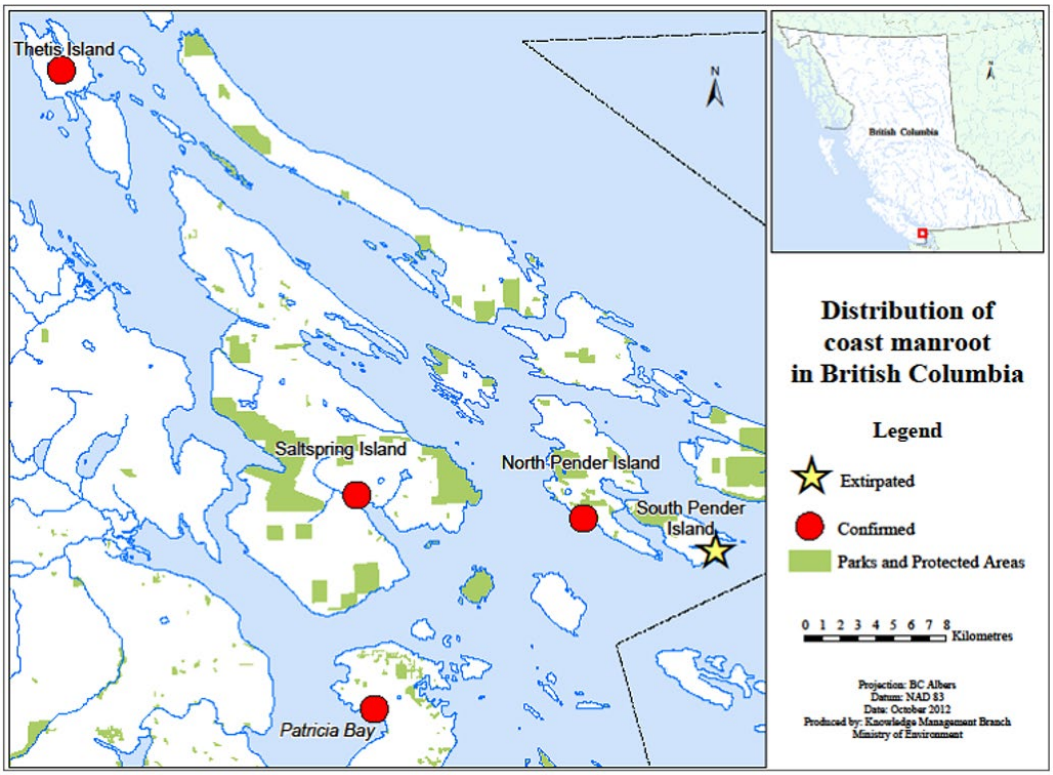


Figure 1. Distribution of Coastal Manroot in Canada (from BC Ministry of Environment 2012). Note: the name of the plant is now “Coastal Manroot,” not “Coast Manroot.”

# TECHNICAL SUMMARY

*Marah oregana*

Coastal Manroot

Marah d'Orégon

Range of occurrence in Canada: British Columbia

**Demographic Information**

| | |
|---|---|
| Generation time | Twenty years or more, the best-known plant in Canada on the Saanich Peninsula is thought to be at least 79 years old (BC MOE 2012). |
| Is there an [observed, inferred, or projected] continuing decline in number of mature individuals? | Yes, one or two plants possibly destroyed by clearing in 2021 (Costanzo 2021). |
| 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] | N/A |
| [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]. | Yes, one subpopulation has become extirpated within the last 3 generations, and one or two plants may have been destroyed by land clearing activities in 2021 (Costanzo 2021). |
| [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]. | N/A |
| [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. | N/A |
| Are the causes of the decline a. clearly reversible and b. understood and c. ceased? | a. Yes<br>b. Yes<br>c. No |
| Are there extreme fluctuations in number of mature individuals? | No |

**Extent and Occupancy Information**

| | |
|---|---|
| Estimated extent of occurrence (EOO) | 330 km² |
| Index of area of occupancy (IAO)<br>(Always report 2x2 grid value). | 16 km² |
| 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? | Probably. Seeds in USA are dispersed by rodents and freshwater movement. All subpopulations are very small and may not be viable in the longer term. |

| | |
|---|---|
| Number of “locations”* (use plausible range to reflect uncertainty if appropriate)<br><br>Saanich Peninsula Union Bay Indian Reserve 1<br>North Pender Island 1<br>Salt Spring Island (undisclosed location)<br>1 landowner<br>Thetis Island (undisclosed location) 2 landowners | Most plausible threats vary by landowners.<br><br>5 |
| Is there an [observed, inferred, or projected] decline in extent of occurrence? | Possible, since the loss of any one site due to development or shading (seedlings) would reduce EOO. The increase in reported EOO from the previous status report is from new sites being recorded, not an actual increase in the range of the species. |
| Is there an [observed, inferred, or projected] decline in index of area of occupancy? | Possible |
| Is there an [observed, inferred, or projected] decline in number of subpopulations? | Yes, observed. One subpopulation was lost on South Pender Island (1960s). |
| Is there an [observed, inferred, or projected] decline in number of “locations”*? | Yes, observed. One subpopulation was lost on South Pender Island (1960s). |
| Is there an [observed, inferred, or projected] decline in [area, extent and/or quality] of habitat? | Yes, decline in quantity and quality of habitat due to threats and recent land clearing at one site. |
| Are there extreme fluctuations in number of subpopulations? | No |
| Are there extreme fluctuations in number of “locations”∗? | No |
| Are there extreme fluctuations in extent of occurrence? | No |
| Are there extreme fluctuations in index of area of occupancy? | No |

**Number of Mature Individuals (in each subpopulation)**

| **Subpopulations (give plausible ranges)** | **No. Mature Individuals** |
|---|---|
| Saanich Peninsula, Patricia Bay, Tseycum First Nation, Union Bay IR4<br>South Pender Island<br>North Pender Island<br>Salt Spring Island (undisclosed locality)<br>Thetis Island (undisclosed locality) | 1– 2*<br>Presumed extirpated<br>2<br>Estimated (6–15)<br>Estimated (15) |
| *range reflects uncertainty in counts and numbers of plants that are actually capable of reproduction | |
| Total | 24–34 |

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

**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]? | Not done. |

**Threats (direct, from highest impact to least, as per IUCN Threats Calculator)**

Was a threats calculator completed for this species?

A threats calculator was developed for the recovery plan (BC MOE 2012). Overall threat impact was not reported in the recovery plan but one Medium and four Low, Level 1 threats would result in an overall **High** threat impact. The following are the Threats Category numbers, and name and impact scores.

1. Residential and Commercial Development: Medium impact
    1.1 Housing & Urban Areas: Medium impact

4. Transportation and Service Corridors: Low impact
    4.1 Roads and Railways: Low impact

6. Human Intrusions & Disturbance: Low impact
    6.1 Recreational Activities: Low/Negligible impact (trampling)?

7. Natural System Modifications: Low impact
    7.1 Fire & Fire Suppression: Low/Negligible impact
    7.3 Other Ecosystem Modifications: Low impact

8. Invasive & Other Problematic Species & Genes: Low impact
    8.1 Invasive Non-native/Alien Species: Low impact

What additional limiting factors are relevant?

- Manroot may be self-incompatible (Schlising 1966 cited in BC MOE 2012) and subpopulations with single individuals may not count as “mature individuals” if pollinator dispersal distances from other plants are exceeded.

- The species is very long-lived and seedling recruitment may be low. Only the Thetis Island site appears to have seedling recruitment (Donovan pers. comm. 2021).

**Rescue Effect (immigration from outside Canada)**

| | |
|---|---|
| Status of outside population(s) most likely to provide immigrants to Canada. | Extant, but uncommon in the San Juan Islands of Washington State. Seeds are large and heavy and thought to be mostly animal-dispersed. |
| Is immigration known or possible? | Unlikely, because the seeds would need to disperse from island to island and most seed dispersal is done by rodents. |
| Would immigrants be adapted to survive in Canada? | Yes |
| Is there sufficient habitat for immigrants in Canada? | Possibly, but alien plants are present in much of the suitable habitat. |

| | |
|---|---|
| Are conditions deteriorating in Canada?[+] | Yes |
| Are conditions for the source (i.e., outside) population deteriorating?[+] | Yes, similar suite of alien species in the San Juan Islands of Washington State. |
| Is the Canadian population considered to be a sink?[+] | No |
| Is rescue from outside populations likely? | Unlikely |

**Data Sensitive Species**

| | |
|---|---|
| Is this a data sensitive species? | No, but all occurrences take place on Indigenous or private lands. |

**Status and Reasons for Designation**

| **Status:** | **Alpha-numeric codes:** |
|---|---|
| Endangered | B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(i); D1 |
| **Reasons for designation:**<br>This long–lived perennial vine occurs in Canada at only four widely separated subpopulations on southeastern Vancouver Island and adjacent Gulf Islands. Fewer than 50 mature plants remain, with evidence of seedling production at only one site. Losses of habitat, subpopulations, and mature individuals are projected in its Canadian range. Main threats are development of the few known sites, alien species, and random events affecting the handful of remaining individuals. This is a medicinal plant cared for by some west coast First Nations. | |

**Applicability of Criteria**

| |
|---|
| Criterion A (Decline in Total Number of Mature Individuals): Not applicable. Decline insufficient to meet threshold. |
| Criterion B (Small Distribution Range and Decline or Fluctuation):<br>Meets Endangered, B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v). EOO (330 km$^2$) and IAO (16 km$^2$) are both below thresholds for Endangered. The species is known from 5 locations (landowners) and there is a continuing observed and inferred decline in the quality of the habitat, inferred decline in EOO, IAO, observed decline in locations and number of subpopulations, and observed and inferred decline in number of mature individuals. |
| Criterion C (Small and Declining Number of Mature Individuals):<br>Meets Endangered, C2a(i). There has been an observed decline in mature individuals in the past, and threats are ongoing that could qualify for “continuing decline.” No subpopulation is larger than 50 individuals. |
| Criterion D (Very Small or Restricted Population):<br>Meets Endangered, D1. Population estimate is fewer than 50 individuals, far below the threshold of 250 mature individuals. |
| Criterion E (Quantitative Analysis):<br>Not applicable. Analysis not conducted. |

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

## ACKNOWLEDGEMENTS

Sincere thanks are extended to all the authorities contacted (below) for the information and discussion of the current status of Coastal Manroot. Leah Ramsay and Jenifer Penny (BC CDC) provided useful comments on an early draft of this RRoC. Katrina Stipec (BC CDC) updated the values for the IAO and EOO. Marta Donovan (BC CDC) provided information on recent surveys on Thetis Island and provided useful comments on an earlier draft. Brenda Costanzo (BC Ministry of Environment and Climate Change) provided recent observations of the Saanich Peninsula population.

## AUTHORITIES CONTACTED

- Brenda Costanzo, Vegetation Specialist, BC Ministry of Environment and Climate Change, Victoria.
- Jenifer Penny, Botanist, BC Conservation Data Centre, Victoria.
- Katrina Stipec, Data Specialist, BC Conservation Data Centre, Victoria.
- Marta Donovan, Botanist. BC Conservation Data Centre, Victoria.

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## Writer of Rapid Review of Classification:

- David F. Fraser

## 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.

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The Canadian Wildlife Service, Environment and Climate Change Canada, provides full administrative and financial support to the COSEWIC Secretariat.