# COSEWIC
# Status Appraisal Summary

on the

# Pacific Pond Turtle
## *Actinemys marmorata*

**in Canada**

**EXTIRPATED**
**2012**

**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:

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For additional copies contact:

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

Tel.: 819-953-3215
Fax: 819-994-3684
E-mail: COSEWIC/COSEPAC@ec.gc.ca
http://www.cosewic.gc.ca

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# COSEWIC
# Assessment Summary

**Assessment Summary – May 2012**

**Common name**
Pacific Pond Turtle

**Scientific name**
*Actinemys marmorata*

**Status**
Extirpated

**Reason for designation**
This species has not been observed in the Canadian wild in over 50 years.

**Occurrence**
British Columbia

**Status history**
Designated Extirpated in May 2002. Status re-examined and confirmed in May 2012.

# COSEWIC
# Status Appraisal Summary

*Actinemys marmorata* (formerly *Clemmys marmorata*)
Pacific Pond Turtle Tortue de l'Ouest
Jurisdictions: British Columbia

**Current COSEWIC Assessment:**

**Status category:**
☒ **XT** ☐ **E** ☐ **T** ☐ **SC**

**Date of last assessment: May 2002**

Reason for designation at last assessment:

This species was found occasionally in southern B.C. up to 1959. This species is at risk throughout its range and has disappeared from the northern parts of its range, in B.C. and most of Washington, Oregon and northern California. As it has not been recorded in B.C. since 1959, it can be considered to be extirpated from Canada.

**Criteria applied at last assessment:**

Not applicable.

**If earlier version of criteria was applied[1], provide correspondence to current criteria:**

**Recommendation:**
Update to the status report NOT required (wildlife 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 fully updated status report

**Evidence (indicate as applicable):**
No confirmed sightings have been received since 1959 apart from one record of a released captive in 1966 (Cook *et al.* 2005), despite ongoing related wildlife surveys and public awareness efforts (Cook *et al*. 2005; Govindarajulu pers. comm. 2011; Ramsay pers. comm. 2011; Welstead pers. comm. 2011).

[1] 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

**Wildlife species:**

*Change in eligibility, taxonomy or designatable units:* yes ☒ no ☐

Explanation:

Recent changes to systematics have resulted in the acceptance of the taxon formerly known as *Clemmys marmorata* changing to *Actinemys marmorata*. Other than a change in name, this change does not have implications to the taxon's validity or designatable units in Canada. Fritz *et al*. (2011) state that "the formerly recognized genus *Clemmys sensu latu* clearly is paraphyletic. Two of its former species, now *Glyptemys insculpta* and *G. muhlenbergii*, constitute a well-supported basal clade within the Emydinae. However, the phylogenetic position of the other two species traditionally placed in *Clemmys* remains controversial. Mitochondrial data suggest a clade embracing *Actinemys* (formerly *Clemmys*) *marmorata*, *Emydoidea* and *Emys* and, as its sister, either another clade (*Clemmys guttata* + *Terrapene*) or *Terrapene* alone. One recently proposed classification scheme placed *Actinemys marmorata, Emydoidea blandingii, Emys orbicularis*, and *Emys trinacris* in one genus (*Emys*), whereas another classification scheme treats *Actinemys, Emydoidea*, and *Emys* as distinct genera. Their morphological divergence exceeds by far the differences that typically occur among species of the same genus, so that a continued usage of the distinct genera *Actinemys, Emydoidea* and *Emys* is recommended". Spinks and Shaffer (2005) suggest that mtDNA and nDNA data imply that most northern populations of *Actinemys marmorata* are genetically similar, whereas populations beginning from approximately San Francisco south are considerably more subdivided than is currently suggested in the two currently recognized subspecific separations (*Actinemys marmorata marmorata* and *Actinemys marmorata pallida*). Ernst and Lovich (2009) suggest these two weakly defined subspecies may exist, though Rhodin *et al*. (2010) do not recognize these subspecies, referring to the species only as *Actinemys marmorata*.

**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:

Three validated historical records have been reported for the species in Canada (COSEWIC 2002). These records were from 1933, 1936, and 1959, all from the Greater Vancouver area in B.C. No additional confirmed observations of this species have occurred in Canada since September 8, 1966 when a released captive was reported (Cook *et al*. 2005). Cook *et al*. (2005) suggest the species was never native to Canada, and proclaim that all specimens observed in the country were released or escaped animals. However, Bruce Bury of USGS (Bury pers. comm. 2011) suggests that the species could have naturally made its way to Canada given its tendency to move large distances overland, and citing the example of a similarly disjunct population of Sharp-tailed Snake (*Contia tenuis*) in British Columbia, as support for the Pacific Pond Turtle being native to Canada. COSEWIC (2002, p. 10) concluded that the species is native to Canada based on the following evidence: "Considering that the climate in southern British Columbia and Vancouver Island provided suitable habitat for this species, that mid-nineteenth century records describe *Clemmys marmorata* as being found in that area, that the species was once common in Washington right up to the Canadian border, and that the species has undergone a rapid and widespread decline in the 20th century from the northern part of its range (B.C., Washington, Oregon), there is little doubt that this species is native to Canada".

**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 ☒
*Change in trend in area and/or quality of habitat:* yes ☐ no ☒
*Significant new survey information:* yes ☐ no ☒

Explanation:

No targeted surveys have been conducted for the species in its historical range (Govindarajulu pers. comm. 2011; Welstead pers. comm. 2011), although surveys for other species in the general vicinity where pond turtles were previously recorded have been conducted with no additional observations (Ramsay pers. comm. 2011; Welstead pers. comm. 2011). Additionally, no recent anecdotal records have been submitted (Govindarajulu pers. comm. 2011). Wildlife surveys in the Lower Fraser Valley were conducted from 1973 through 2005, with no pond turtles found (Cook *et al*. 2005). More recent Western Painted Turtle (*Chrysemys picta bellii*) surveys in the Lower Fraser Valley have been conducted with no pond turtles reported (Semproni and Ogilvie 2007; Kilburn 2010; Welstead pers. comm. 2011). Surveys of over 100 water bodies on the Sunshine Coast, Vancouver Island, and the Gulf Islands from 2008-2011 found no Pacific Pond Turtles (Engelstoft and Ovaska 2008; Ovaska and Engelstoft 2009, 2010; Engelstoft and Ovaska 2011; Ovaska pers. comm. 2011)

**Threats:**

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

Explanation:

Since the 2002 assessment, no evidence of significant changes in the nature and/or severity of threats to habitat in the species' historical range is available. However, continuing stresses on habitat especially near urban centres are likely.

**Protection:**

*Change in effective protection*: yes ☐ no ☒

Explanation:

No change in effective protection has occurred.

**Rescue Effect:**

*Evidence of rescue effect*: yes ☐ no ☒

Explanation:

The nearest U.S. population of Pacific Pond Turtles in Washington State is small, fragmented, and at risk (S1 NatureServe 2011). Furthermore, the landscape is intersected by roads and other anthropogenic features. Such limitations would prevent natural movement between U.S. and Canadian sites. Captive breeding efforts in parts of the U.S. have been successful (Bury and Germano 2008), though similar efforts in Canada would be premature at the present time. Reasons for extirpation are unknown, and it would be difficult to obtain the large numbers of young or adults necessary to initiate a reintroduction or headstart program. Survival in a more northern latitude in B.C. is unknown, especially because reintroduced animals may be adapted to areas and climates further south.

**Quantitative Analysis:**

*Change in estimated probability of extirpation*: yes ☐ no ☒

Details:

No quantitative analyses are available.

**Summary and Additional Considerations:** [e.g., recovery efforts]

No specific recovery efforts for the Pacific Pond Turtle have been initiated with the exception of the development of a draft recovery strategy through the B.C. Ministry of Environment (Welstead pers. comm.). Research, survey, and recovery efforts, including habitat restoration, for other species in the vicinity of the Pacific Pond Turtle's historical range could be beneficial, especially those directed at the Western Painted Turtle (*Chrysemys picta bellii*). Due to the ambiguous nature of historical observations and length of time since the species was last observed in the wild, it is unlikely that intensive recovery efforts will be initiated in the near future.

## Consultations:

The following individuals were contacted via email.

*Denotes that information was provided by authority contacted.

*Bury, R.Bruce. September 2011. USGS Forest and Rangeland Ecosystem Science Center. Corvallis, OR

Cameron, Melissa. August 2011. Landscape Architect. Stantec Consulting. Mount Laurel, N.J., USA.

Gelling, Lea. August 2011. Zoologist. B.C. Conservation Data Centre, Ministry of Environment Victoria, B.C. (no response)

*Govindarajulu, Purnima. August 2011. Species At Risk Biologist. B.C. Ministry of Environment, Victoria, B.C.

Gregory, Patrick. August 2011. Professor, Department of Biology, University of Victoria, Victoria, B.C.

Hughes, Elinor. August 2011. Ecologist, Vancouver, B.C.

*Ovaska, Kristiina. September 2011. Biologist, Co-chair COSEWIC Amphibian and Reptile Specialist Subcommittee. Victoria, B.C.

*Ramsay, Leah. August 2011. Program Zoologist. Conservation Data Centre, Ministry of Environment Victoria, B.C.

Stacey, Joanne. August 2011. Ecologist. Conservation Data Centre, Ministry of Environment Victoria, B.C. (no response)

Webb, Debbie. August 2011. Conservation Data Specialist. Conservation Data Centre, Ministry of Environment Victoria, B.C. (no response)

*Welstead, Kym. August 2011. Species At Risk Biologist. Ministry of Environment. Surrey, B.C.

**Sources of information:**


Bury, R. B., and D. J. Germano. 2008. *Actinemys marmorata* (Baird and Girard 1852) – western pond turtle, Pacific pond turtle. In: Rhodin, A. G. J., P. C. H. Pritchard, P. P. van Dijk, R. A. Saumure, K. A. Buhlmann, and J. B. Iverson (eds.). Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN-SSC Tortoise and Freshwater Turtle Specialist Group. Chelonian Research Monographs No. 5, pp. 001.1-001.9.

Bury, R.B. pers. comm. 2011. *Email correspondence to S.Gillingwater. September 2011*. USGS Forest and Rangeland Ecosystem Science Center. Corvallis, OR

Cook, F. R., R. W. Campbell, and G. R. Ryder. 2005. Origin and current status of the Pacific Pond Turtle (*Actinemys marmorata*) in British Columbia. Wildlife Afield 2:58-63.

COSEWIC 2002. COSEWIC assessment and status report on the Pacific pond turtle *Clemmys marmorata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa.vi + 17 pp.

Engelstoft, C., and K. Ovaska. 2008. Western Painted Turtle surveys on Galiano, Pender, and Vancouver Island, 2008, including surveys in selected CRD Regional Parks. Report prepared for the Habitat Acquisition Trust, Victoria, BC. 34 pp.

Engelstoft, C., and K. Ovaska. 2011. Western Painted Turtle surveys and stewardship activities on Vancouver Island and the Gulf Islands in 2010. Report prepared for the Habitat Acquisition Trust, Victoria, BC. 68 pp.Ernst, C.H. and J.E. Lovich. 2009. Turtles of the United States and Canada. Second edition. Johns Hopkins University Press. 827 pages.

Fritz, U., Schmidt, C., and Ernst, C. H. 2011. Competing generic concepts for Blanding's, Pacific and European pond turtles (*Emydoidea, Actinemys* and *Emys*)-Which is best?. Zootaxa, 2791: 41-53.

Govindarajulu, P., pers. comm. 2011. *Email correspondence to S.Gillingwater. August 2011*. Species At Risk Biologist. B.C. Ministry of Environment, Victoria B.C.

Kilburn, V. 2010. South Coast Western Painted Turtle Recovery Project: final report. Report prepared for the B.C. Min. Environ., Surrey, BC. and the Fraser Valley Conservancy, Abbotsford, BC.

NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Web site: http://www.natureserve.org/explorer [Accessed December 31 2011].

Ovaska, K., pers. comm. 2011. *Email correspondence to S.Gillingwater. September 2011*. Biologist, Co-chair COSEWIC Amphibian and Reptile Specialist Subcommittee. Victoria, B.C.

Ovaska, K., and C. Engelstoft. 2009. Surveys for the endangered Western Painted Turtle within CRD Regional Parks in 2009. Report prepared for CRD Regional Parks. Victoria, BC. 33 pp.

Ovaska, K. and C. Engelstoft. 2010. Western Painted Turtle surveys and stewardship activities on Vancouver Island and the Gulf Islands in 2009. Report prepared for the Habitat Acquisition Trust, Victoria, BC. 60 pp.

Ramsay, L., pers. comm. 2011. *Email correspondence to S.Gillingwater. August 2011*. Program Zoologist. Conservation Data Centre, Ministry of Environment Victoria, B.C.

Rhodin, A.G.J., van Dijk, P.P., Iverson, J.B., and Shaffer, H.B. (2010). Turtles of the world, 2010 update: Annotated checklist of taxonomy, synonymy, distribution, and conservation status. Chelonian Research Monographs, 5: 85–164.

Semproni, M. and F. Ogilvie. 2007. Western Painted Turtle (*Chrysemys picta bellii*) presence/ not detected survey Lower Mainland Region Summer 2007. Report prepared for the B.C. Min. Environ.

Spinks, P.Q., and Shaffer, H.B. (2005), Range-wide molecular analysis of the western pond turtle (*Emys marmorata*): cryptic variation, isolation by distance, and their conservation implications. Molecular Ecology, 14: 2047–2064.

Thompson Rivers University and BC Ministry Of Environment. 2011. The Reptiles of British Columbia. Retrieved August 5, 2011. Website: http://www.bcreptiles.ca/SiteCM/i/upload/B17AFA9C0F69A2A9DE9215C4171EED4FD4F6B06F.gif

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# TECHNICAL SUMMARY

*Actinemys marmorata (formerly Clemmys marmorata)*
Pacific Pond Turtle Tortue de l'Ouest
Range of occurrence in Canada: British Columbia

**Demographic Information**

| | |
|---|---|
| Generation time | Unknown in Canada, but likely >25 yrs |
| Is there an [observed, inferred, or projected] continuing decline in number of mature individuals? | No |
| Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations] | NA |
| [Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations]. | NA |
| [Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations]. | NA |
| [Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any [10 years, or 3 generations] period, over a time period including both the past and the future. | NA |
| Are the causes of the decline clearly reversible and understood and ceased? | No |
| Are there extreme fluctuations in number of mature individuals? | No |

**Extent and Occupancy Information**

| | |
|---|---|
| Estimated extent of occurrence | 0 km² |
| Index of area of occupancy (IAO)<br>(Always report 2x2 grid value). | 0 km² |
| Is the total population severely fragmented? | No |
| Number of locations* | 0 |
| Is there an [observed, inferred, or projected] continuing decline in extent of occurrence? | No |
| Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy? | No |
| Is there an [observed, inferred, or projected] continuing decline in number of populations? | No |
| Is there an [observed, inferred, or projected] continuing decline in number of locations*? | No |
| Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality] of habitat? | No |
| Are there extreme fluctuations in number of populations? | 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 |

* See Definitions and Abbreviations on COSEWIC website and IUCN 2010 for more information on this term.

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

| Population | N Mature Individuals |
|---|---|
| | |
| | |
| Total | 0 |

**Quantitative Analysis**

| | |
|---|---|
| Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years]. | NA |

**Threats (actual or imminent, to populations or habitats)**

Not applicable as there are no remaining individuals.

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

| | |
|---|---|
| Status of outside population(s)? Washington is S1 | |
| Is immigration known or possible? | Improbable |
| Would immigrants be adapted to survive in Canada? | Unknown |
| Is there sufficient habitat for immigrants in Canada? | Unknown |
| Is rescue from outside populations likely? | No |

**Current Status**

COSEWIC: Designated Extirpated in May 2002 status re-examined in 2012 and confirmed extirpated.

**Status and Reasons for Designation**

| **Status:** | **Alpha-numeric Code:** |
|---|---|
| Extirpated | Not applicable |
| **Reasons for Designation:** This species has not been observed in the Canadian wild in over 50 years | |

**Applicability of Criteria**

| |
|---|
| **Criterion A** (Decline in Total Number of Mature Individuals): Not applicable. |
| **Criterion B** (Small Distribution Range and Decline or Fluctuation): Not applicable. |
| **Criterion C** (Small and Declining Number of Mature Individuals): Not applicable. |
| **Criterion D** (Very Small or Restricted Total Population): Not applicable. |
| **Criterion E** (Quantitative Analysis): Not applicable. |

Author of Status Appraisal Summary: Scott Gillingwater

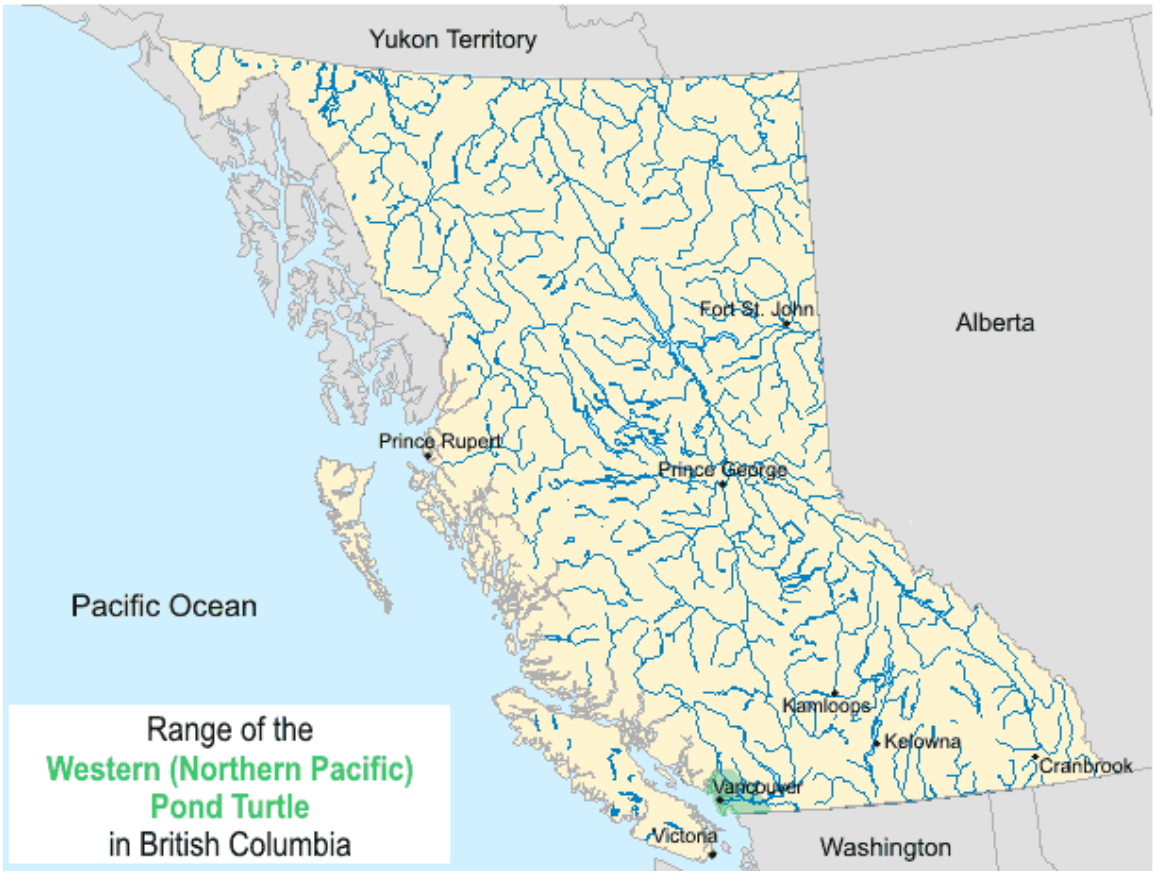


Figure 1. Historical range of the Pacific Pond Turtle in Canada, extrapolated from 3 confirmed records from 1933 - 1959 (Thompson Rivers University and BC MOE 2011). Some evidence suggests that the species may also have occurred on Vancouver Island.

## 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
## (2012)

| | |
|---|---|
| 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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