

COSEWIC
Status Appraisal Summary

on the

Long-billed Curlew
Numenius americanus

in Canada

SPECIAL CONCERN
2011

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 2011

Common name

Long-billed Curlew

Scientific name

Numenius americanus

Status

Special Concern

Reason for designation

In Canada, this large shorebird breeds in British Columbia, Alberta and Saskatchewan. Limited survey evidence suggests that the population has not changed significantly over the last 10 years, but there is anecdotal evidence suggesting regional declines. Historically, the extent and quality of its habitat has been significantly reduced by the conversion of native grasslands to agricultural crops and urban development. Ongoing threats include i) habitat loss and degradation from urban encroachment, cultivation of marginal native habitat and oil and gas development, ii) increased frequency of droughts associated with climate change, and iii) increase in predators associated with habitat fragmentation.

Occurrence

British Columbia, Alberta, Saskatchewan

Status history

Designated Special Concern in April 1992. Status re-examined and confirmed in November 2002 and May 2011.



COSEWIC Status Appraisal Summary

Numenius americanus

Long-billed Curlew

Courlis à long bec

Range of occurrence in Canada (province/territory/ocean): British Columbia, Alberta, Saskatchewan

Current COSEWIC Assessment: **Special Concern**

Status category:

XT E T SC

Date of last assessment: November 2002

Reason for designation at last assessment: The species is associated with prairie habitat that has declined and is projected to decline further. The global population is in decline.

Criteria applied at last assessment: None

Special Concern (Definition at last assessment) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events.

Special Concern (Current definition) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

If the earlier version of criteria was applied¹, provide correspondence to current version of the criteria:

SSC Recommendation:

No change in status and criteria
 No change in status, new criteria

Evidence (indicate as applicable):

Wildlife species:

Change in eligibility, taxonomy or designatable units:

yes no

Explanation:

Range:

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

Explanation:

There is no evidence to suggest a change in EO or IAO since the last status report in 2002. As in the previous report, there continues to be anecdotal evidence suggesting a possible contraction of the eastern edge of the Long-billed Curlew's breeding range (COSEWIC 2002; Foster-Willfong pers. comm. 2010), but this has not been confirmed.

* Use the IUCN definition of "location"

Population Information:

Change in number of mature individuals: yes no unk
Change in total population trend: yes no unk
Change in severity of population fragmentation: yes no unk
Change in trend in area and/or quality of habitat: yes no unk
Significant new survey information yes no unk

Explanation:

Population Estimates

The previous status report (COSEWIC 2002) suggested a conservative population estimate of 23,500 Long-billed Curlews in Canada, with approximately 4,000 in Saskatchewan, 19,000 in Alberta, and 500 in British Columbia (Table 1). There have been a variety of surveys conducted since the last report that provide updated population estimates (Table 1). These estimates are, however, highly variable because of potential weaknesses in the survey methods and because the dispersed and patchy distribution of the birds on their breeding grounds make them challenging to survey (Morrison et al. 2006).

Surveys by Jones et al. (2008) suggest a Canadian population of approximately 17,000 to 43,000 individuals (Table 1). Unpublished estimates based on Breeding Bird Survey (BBS) data from 1996-2005 (analysis by P. Blancher from C. Gratto-Trevor's assumptions of 1.6 individuals per bird observed and a detection range of 500 m) suggest 5,000 Long-billed Curlews in Saskatchewan and 38,000 in Alberta. Numbers in British Columbia were not estimated. The BBS does not, however, adequately monitor Long-billed Curlews (Fellows and Jones 2009). This is because of their low densities, an insufficient number of routes in appropriate areas, and the timing of the survey.

Based on recent surveys, a crude estimate of the Long-billed Curlew population in Canada is between 25,000 and 50,000 birds (C. Gratto-Trevor pers. comm. 2010). This estimate is higher than the estimate provided in the last report (i.e. 23,500 individuals), but given the low accuracy and imprecision of the survey estimates, it is not likely to represent a population increase.

Population Trends

Trend information from the 2002 status report based on the Breeding Bird Survey showed non-significant declines in Long-billed Curlew numbers between 1980 and 2000 in Canada. This pattern was also evident for Saskatchewan and Alberta, but not for British Columbia, which showed non-significant increases.

The only current trend information for the Long-billed Curlew in Canada comes from the Breeding Bird Survey. Over the most recent 10-year period (1999–2009), BBS data showed a non-significant decline of 4.5% per year ($N = 72$ routes, $0.05 < P < 0.10$) in Canada (Environment Canada 2010). Similarly, over the same time period, BBS data for Alberta showed a non-significant decline of 4.3% per year ($N = 41$ routes, $P > 0.10$). Trend information could not be calculated for Saskatchewan and British Columbia because there are too few routes. The results of both the previous and current BBS results should be viewed with some caution, because as mentioned above, there are a number of limitations associated with using this method to survey Long-Billed Curlews.

Several regional surveys have also been conducted since the last report and are described briefly below.

British Columbia

From 2002-2004, volunteers conducted Long-billed Curlew surveys in the Cariboo-Chilcotin Region and detected between 211-232 individuals. These numbers represent minima for this region primarily because the survey was road-based and did not consider detectability issues (Fellows and Jones 2009). The East Kootenay area was surveyed and studied by P. Ohanjanian from 2002-2004. Long-billed Curlew numbers in this region did not vary appreciably over the survey period, however, the birds are no longer present at two sites in Invermere because of a recent development (P. Ohanjanian pers. comm. 2010).

In general, there is very little new survey or monitoring information available for British Columbia, and no evidence to indicate a change in population size over the last 10 years. The 2002 status report suggested an estimate of 500 birds in British Columbia and this estimate is still considered reasonable (J. Surgenor pers. comm. 2010).

Alberta

Surveys conducted in parts of Alberta from 2001-2007 indicated no change in numbers during that period (B. Downey pers. comm. 2010).

Saskatchewan

Surveys were conducted in 2003 and compared to surveys conducted in 1988, 1999, and 2000 (Foster-Willfong 2004). There were no significant differences in the number of birds observed over this time period (Foster-Willfong 2004). Anecdotal evidence, however, suggests a decline in Long-billed Curlew numbers in southwest Saskatchewan over the last five years (J. Foster-Willfong pers. comm. 2010) and decreased numbers in the Great Sandhills of Saskatchewan over the last 10 years (A. Smith pers. comm. 2010).

Table 1. Summary of previous and current population estimates for Long-billed Curlews.

| Region | 2002 Status Report ¹ | Other Estimates | Blancher & Gratto-Trevor ² (unpublished data) | Jones <i>et al.</i> 2008 |
|------------------|---------------------------------|--|---|--------------------------|
| Canada | 23,500 | | | 17,000-43,000 |
| British Columbia | 500 | 400-500 (J. Surgenor pers. comm. 2010) | | |
| Alberta | 19,000 | 23,884 (Saunders 2001) | 38,000 | |
| Saskatchewan | 4,000 | 3,000 (Smith 1996) | 5,000 | |

¹Minimum population estimates

²Based on North American Breeding Bird Surveys

Threats:

Change in nature and/or severity of threats:

yes no unk

Explanation:

Threats to Long-billed Curlew populations breeding in Canada, as assessed in 2002, still exist and are potentially more severe. These include: habitat loss and degradation associated with agricultural activities (e.g. grassland conversion, spread of invasive species, ploughing, livestock trampling), urban encroachment, fire suppression and forest encroachment. Other threats previously considered include rising sea levels on wintering grounds, illegal shooting, vehicle collisions, and increasing predator populations (primarily coyotes).

Development and agricultural activities are ongoing. Additional threats since 2002 include: changes in the natural fire regime, energy development, off road vehicle use, and pesticide use (Fellows and Jones 2009). In addition, increased temperatures and drought events associated with climate change are predicted to impact the prairie region (Barrow and Yu 2005) and likely pose a long-term threat to Long-billed Curlew habitat. See Tables 2 and 3.

Habitat availability:

In the Prairie Ecosystem of Canada only about 30% of the original mixed grass prairie remains (Davis 2010; see Table 2). Grasslands cover less than 1% of BC (Grassland Conservation Council 2002) and Long-billed Curlew habitat is primarily found on private land (J. Surgenor pers. comm. 2010). In Saskatchewan, only 20 percent of the native prairie remains and 85% of the remaining 12.5 million acres of native prairie is privately managed with 45% under private ownership (Hammermeister et al. 2001). In Alberta less than 43% of native prairie remains (Nerberg and Ingstrup 2005). Given a large proportion of native grasslands are unprotected, loss of available habitat is expected to continue.

At the time of the 2002 COSEWIC assessment, there was little known on the extent to which Long-billed Curlews bred in agricultural habitats or their breeding productivity in these habitats relative to native grassland (COSEWIC 2002). Over the last decade, several breeding studies have confirmed a preference for native grasslands as compared to cultivated landscapes (Dugger and Dugger 2002; Foster-Willfong 2003; Ackerman 2007). Since 1999, however, at least 11 Long-billed Curlew nests have been found in agricultural land in Canada (Foster-Willfong 2003; Devries et al. 2010; M. Giovanni pers. comm. 2010; Table 2), including eight nests in Alberta in 2007, four of which hatched young (Devries et al. 2010). The latter studies suggest that nesting in agricultural land may be more common than previously thought (Stanley and Skagen 2007; Hartman and Oring 2009). In turn, this suggests there may be a wider range of habitat available to these birds than reported in 2002.

Although agricultural lands may be used as breeding habitat in some areas, in general intensive agriculture likely poses a threat to the species. For example, agricultural areas that supported Long-billed Curlews in British Columbia are now being more intensively cropped (from pastures to alfalfa

and vegetables). Habitat loss from this type of land conversion could potentially threaten Long-billed Curlew populations over the long term (J. Surgenor pers. comm. 2010).

Energy development:

Oil and gas development in native grasslands used by Long-billed Curlews is a significant and increasingly prevalent threat. For example, a large proportion of the oil and gas wells that have been established over the last 25 years in prairie Canada have occurred in native grassland habitats (60% in Alberta, 30% in Saskatchewan; S. Davis pers. comm. 2010). Rapid development of energy infrastructure (pipeline and transmission lines) in the grasslands of British Columbia and elsewhere are also of concern (Fellows and Jones 2009). In addition, recent and intensive renewable energy development (e.g. biofuel production and wind power development) within the primary breeding range of Long-billed Curlews may threaten long term population viability as demand is projected to increase.

Predation:

The 2002 status report stated that increasing predator populations, primarily coyotes, may be a limiting factor for Long-billed Curlews and cited evidence for increasing numbers of coyotes in Saskatchewan and Alberta. Although data on coyote populations are lacking for Alberta (D. Prescott pers. comm. 2010) and Saskatchewan, count data from Nature Saskatchewan show a decline in numbers from 2001-2008 (T. Herriot pers. comm. 2010). Notably, 71,000 coyotes were recently removed under the pilot Saskatchewan Coyote Control Program (November 2009 through March 2010; Government of Saskatchewan 2010). The removal of predators, such as coyotes, may reduce predation by that predator, but it can also increase predation by mesopredators that tend to benefit from the removal of top predators (Prugh et al. 2009).

The abundance and distribution of Red Fox (*Vulpes vulpes*), American Crow (*Corvus brachyrhynchos*; Sargent et al. 1993), and other predators of the Long-billed Curlew have increased with the expansion of agriculture on the prairies. More recently, waterfowl studies have demonstrated nesting habitat fragmentation leads to enhanced foraging efficiency of predators (Phillips et al. 2003; Drever et al. 2007) and this likely limits Long-billed Curlew productivity in an increasingly patchy grassland ecosystem.

Table 2. Summary of previous and current information on habitat availability for Long-billed Curlews.

| | 2002 Status Report | Prairie Ecosystem of Canada | British Columbia | Alberta | Saskatchewan |
|------------------------|---------------------------------------|---|---|---|---|
| Loss of Native Prairie | Yes | 30% of mixed grass prairie remains (Davis 2010) | | 43% of native prairie remains (Nerberg and Ingstrup 2005) | <20% of native prairie remains (Nerberg and Ingstrup 2005) |
| Nesting in Cropland | Likely, but nothing known or reported | | Unknown; Numbers may be stable or increasing in agricultural areas in the Okanagan Valley (D. Cannings pers. comm. 2010). | Yes - 8 nests in 2007 (Devries et al. 2010) Yes - 1 nest in 2008 (M.Giovanni pers. comm. 2010) | Yes- 2 nests (Foster-Willfong 2003; G. Maty pers. comm. 2010) |

| | 2002 Status Report | Prairie Ecosystem of Canada | British Columbia | Alberta | Saskatchewan |
|-------------------|---------------------------------|--|---|----------------|--|
| Protected Habitat | < 5% of total habitat in Canada | 30% of prairie is private (Gauthier et al. 2003) | 8% (Grasslands Conservation Council of BC 2004) | | 11% of habitat part of Representative Areas Network; oil and gas developments are restricted in these areas (J. Pepper pers. comm. 2010) |

Table 3. Summary of previous and current threats for Long-billed Curlews.

| | 2002 Status Report | Fellows and Jones 2009 and references therein | British Columbia | Alberta | Saskatchewan |
|---|---|---|---|---|---|
| Habitat Loss and Degradation ¹ (also see Table 2, above) | Yes | | Development and forest ingrowth (P. Ohanjanian pers. comm. 2010) | Cultivation of marginal native habitat (COSEWIC in press) | Conversion of prairie to cropland (J. Pepper pers. comm. 2010) Cultivation of marginal native habitat (COSEWIC in press) |
| Predation | Yes | | | No new information (D. Prescott pers. comm. 2010) | Coyotes may be in decline (T. Herriot pers. comm. 2010) |
| Climate Change | Yes (sea level change on wintering grounds) | Sea level rise- loss of intertidal habitat (Colwell and Mathis 2001) Increased drought | Increased drought (Barrow and Yu 2005) | Increased drought (Barrow and Yu 2005) | Increased drought (Barrow and Yu 2005) |
| Energy Development | No | | Rapid transmission line and pipeline development (World Wildlife Fund 2001) | Increased energy development in grasslands (COSEWIC in press) | Increased energy development in grasslands (COSEWIC in press) |
| Off-road Vehicle (ORV) Use | No | Sensitivity to ORVs in nesting habitat | May pose risk in localized areas (Ohanjanian 2004) | | May pose risk in localized areas (J. Pepper pers. comm. 2010) |

| | 2002 Status Report | Fellows and Jones 2009 and references therein | British Columbia | Alberta | Saskatchewan |
|--------------|--------------------|--|------------------|---------|--------------|
| Contaminants | No | Reduced egg hatchability-contaminants on wintering grounds (Oring 2006) | | | |

1- Includes: grassland conversion, spread of invasive species, ploughing, grazing, and livestock trampling

Protection:
Change in effective protection: yes no
 Explanation:

Rescue Effect:
Change in evidence of rescue effect: yes no
 Explanation:
 Rescue is possible from border populations in the US (e.g. North Dakota), but no evidence of this exists.

Quantitative Analysis:
Change in estimated probability of extirpation: yes no
 Details:
 Quantitative analyses have not been conducted.

Summary and Additional Considerations:
 There are several ongoing efforts to conserve native prairie in Canada that may curb further large scale declines in breeding habitat available to Long-billed Curlews. Examples include the [Prairie Habitat Joint Venture](#), Canadian Intermountain Joint Venture and the [North American Waterfowl Management Plan](#), in addition to the Prairie Conservation Action Plans for Alberta, Saskatchewan, and Manitoba. Localized efforts are becoming increasingly important and effective. For example, the [South Okanagan-Similkameen Conservation Program](#) in BC works to raise landowner awareness of stewardship practices on privately owned grasslands.

Consultations:

- Dick Cannings, Consulting Biologist, Naramata, BC
- Peter Blancher, Research Scientist, S&T, Environment Canada, Ottawa
- Brenda Dale, Wildlife Biologist, Canadian Wildlife Service, Edmonton
- Steve Davis, Wildlife Biologist, CWS; Adjunct Professor, University of Regina/Saskatchewan
- Ken DeSmet, Species at Risk Specialist, Wildlife & Ecosystem Protection, Manitoba Conservation, Winnipeg, MB

Brandy Downey, Senior Species at Risk Biologist, Alberta Sustainable Resource Development, Lethbridge, AB

Pat Fargey, Species at Risk/Ecosystem Management Specialist, Grasslands National Park, Val Marie, SK

Suzanne Fellows, Assistant Nongame Migratory Bird Coordinator, USFWS, Denver

Janna Foster-Willfong, Senior Ecologist, Environmental Systems Assessment Canada Ltd., Regina

Trevor Herriot, Prairie Naturalist, Regina

Jeff Keith, Biologist, Saskatchewan Conservation Data Centre, Ministry of Environment, Regina

Guy Morrison, Research Scientist, S&T, Environment Canada, Ottawa

Penny Ohanjanian, Consulting Biologist, Kimberly, BC

Jeanette Pepper, Species at Risk Ecologist, Saskatchewan Ministry of Environment, Regina

Dave Prescott, Endangered Species Specialist, Alberta Fish and Wildlife Division, AB Environment, Red Deer, AB

John Surgenor, Wildlife Biologist, Ministry of Environment, Kamloops, BC

Alan Smith, Consulting Biologist, Saskatchewan

Julie Steciw, Wildlife Biologist, Ministry of Environment, Williams Lake, BC

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Authors of status appraisal summary:

Deborah E. Perkins, First Light Consulting & Contract Services, New Gloucester, Maine, USA and Cheri L. Gratto-Trevor, S&T, Env Canada, Saskatoon, SK, Canada.

TECHNICAL SUMMARY

Numenius americanus

Long-billed Curlew

Courlis à long bec

Range of occurrence in Canada: BC, AB, SK

Demographic Information

| | |
|--|--------------|
| Generation time (usually average age of parents in the population; indicate if another method of estimating generation time indicated in the IUCN guidelines (2008) is being used) | 6 to 8 years |
| Is there an [observed, inferred, or projected] continuing decline in number of mature individuals? | Likely |
| Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations] | Unknown |
| [Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations] | Unknown |
| [Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations]. | Unknown |
| [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. | Unknown |
| 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 | 530,000 km ² (from original 2002 status report) |
| Index of area of occupancy (IAO) (Always report 2x2 grid value; other values may also be listed if they are clearly indicated (e.g., 1x1 grid, biological AO)). | > 2,000 km ² |
| Is the total population severely fragmented? | No |
| Number of "locations*" | Unknown |
| 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? | Unknown |
| 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? | Unknown |
| Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality] of habitat? | Likely, with ongoing agricultural activities, urban, encroachment, oil and gas development |
| 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 definition of location.

Number of Mature Individuals (in each population)

| Population | N Mature Individuals |
|------------|----------------------|
| | |
| | |
| Total | 25,000 – 50,000 |

Quantitative Analysis

| | |
|--|----------------|
| Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years]. | None conducted |
|--|----------------|

Threats (actual or imminent, to populations or habitats)

| |
|---|
| <ul style="list-style-type: none"> - habitat loss and degradation associated with urban development, agricultural activities and energy development - increased temperatures and droughts associated with climate change - increase in predators associated with habitat fragmentation |
|---|

Rescue Effect (immigration from outside Canada)

| | |
|---|------------------------------|
| Status of outside population(s)? Anecdotal evidence suggests declines | |
| Is immigration known or possible? | Not documented, but possible |
| Would immigrants be adapted to survive in Canada? | Yes |
| Is there sufficient habitat for immigrants in Canada? | Yes |
| Is rescue from outside populations likely? | Possible |

Current Status

| |
|-------------------------------------|
| COSEWIC: Special Concern (May 2011) |
|-------------------------------------|

Status and Reasons for Designation

| | |
|---|------------------------------------|
| Status: Special Concern | Alpha-numeric code: None |
| <p>Reasons for designation: In Canada, this large shorebird breeds in British Columbia, Alberta and Saskatchewan. Limited survey evidence suggests that the population has not changed significantly over the last 10 years, but there is anecdotal evidence suggesting regional declines. Historically, the extent and quality of its habitat has been significantly reduced by the conversion of native grasslands to agricultural crops and urban development. Ongoing threats include i) habitat loss and degradation from urban encroachment, cultivation of marginal native habitat and oil and gas development, ii) increased frequency of droughts associated with climate change, and iii) increase in predators associated with habitat fragmentation.</p> | |

Applicability of Criteria

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| Criterion A (Decline in Total Number of Mature Individuals): Does not meet criterion; no decline in number of mature individuals. |
| Criterion B (Small Distribution Range and Decline or Fluctuation): Does not meet criterion; both EO and IAO above thresholds. |
| Criterion C (Small and Declining Number of Mature Individuals): Does not meet criterion. Population is above thresholds and no evidence of a decline. |
| Criterion D (Very Small or Restricted Total Population): Does not meet criterion; population size and IAO above threshold and no information on number of locations. |
| Criterion E (Quantitative Analysis): None conducted. |



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 (2011)

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| 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 Canada, provides full administrative and financial support to the COSEWIC Secretariat.