

COSEWIC
Status Appraisal Summary

on the

Nuttall's Cottontail *nuttallii* subspecies
Sylvilagus nuttallii nuttallii

in Canada

SPECIAL CONCERN
2016

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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Production note:

COSEWIC acknowledges David Nagorsen for writing the status appraisal summary on Nuttall's Cottontail *nutallii* subspecies, *Sylvilagus nuttallii nuttallii*, prepared under contract with Environment and Climate Change Canada. This status appraisal summary was overseen and edited by Justina Ray, Co-chair of the COSEWIC Terrestrial Mammals Specialist Subcommittee.

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Également disponible en français sous le titre Sommaire du statut de l'espèce du COSEPAC sur le Lapin de Nuttall de la sous-espèce *nutallii* (*Sylvilagus nuttallii nuttallii*) au Canada.



COSEWIC Assessment Summary

Assessment Summary – November 2016

Common name

Nuttall's Cottontail *nutallii* subspecies

Scientific name

Sylvilagus nuttallii nuttallii

Status

Special Concern

Reason for designation

This small rabbit is confined to shrub-steppe habitats in the southern Okanagan-Similkameen valleys of British Columbia near the border with Washington State (US). Remaining habitat in British Columbia is in continuing decline from urbanization and agriculture, particularly conversion to vineyards, but population impacts are unquantified due to lack of survey effort. Rescue potential from Washington is minimal because of declining availability of habitat in Canada and new protected areas in the region are outside the core range of this animal. This species may become threatened if trends in habitat loss in the valleys are not reversed.

Occurrence

British Columbia

Status history

Designated Special Concern in April 1994, April 2006, and November 2016.



COSEWIC Status Appraisal Summary

Sylvilagus nuttallii nuttallii

Nuttall's Cottontail *nuttallii* subspecies

Lapin de Nuttall de la sous-espèce *nuttallii*

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

Status History:

Designated Special Concern in April 1994, April 2006, and November 2016.

Wildlife species:

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

Explanation:

There is no change. *S. n. nuttallii* is still considered one of two subspecies of Nuttall's Cottontail in Canada; *S. n. grangeri* is the Prairie subspecies and not considered in this status report. No genetic studies have been published assessing the validity of subspecies in *S. nuttallii*.

Range:

Change in Extent of Occurrence (EOO): yes ☒ no ☐ unk ☐

Change in Index of Area of Occupancy (IAO) : yes ☐ no ☐ unk ☒

Change in number of known or inferred current locations¹: yes ☐ no ☐ unk ☒

Significant new survey information yes ☒ no ☐

Explanation:

In Canada *S. n. nuttallii* occupies the Okanagan Basin of British Columbia. COSEWIC (2006) estimated the extent of occurrence (EOO) as 1,380 km² and the area of occupancy (AO) as unknown. The range map and estimate of EOO in the recently published management plan (BC Ministry of Environment 2013; Environment Canada 2015) were taken from the 2006 COSEWIC assessment.

About 200 geo-referenced records (Figure 1) have been obtained since the 2006 assessment. Most are from presence-absence surveys by the BC Conservation Corps in 2006, 2008 and 2009 employing pellet stations supplemented by opportunistic observations (Noble 2006; Marks and Young 2009) and observations from a database maintained by Mike Sarell (Ophiuchus Consulting). Limited to areas south of Okanagan Lake, the pellet station surveys exclude the northern part of the range extent (Figure 1). Other records include opportunistic observations from BC Ministry of Environment staff, consultants and a few animals live-trapped on the Osoyoos Indian Reserve by Emily Herdman in 2008 (Herdman and Hodges, submitted manuscript). All are within the general range extent defined in the last COSEWIC

¹ Use the IUCN definition of "location"

report (Figure 2). Although a live capture by Summit Environmental Consultants (2010) was reported as a northern range extension, the location is within the range limits defined in 2006.

Criteria used to discriminate *S. n. nuttallii* pellets from those of the Snowshoe Hare (*Lepus americanus*), a leporid species also found in the BC southern interior, were not described for any new observations based on faecal pellets. As demonstrated by Zahratka and Buskirk (2007) in the Rocky Mountains of the US, pellets of the two species can be identified reliably only from measurements of pellet diameter size, although immature animals of these two species may overlap in size. Nevertheless, the steppe-grassland habitat descriptions associated with these new British Columbian records are habitats rarely occupied by *L. americanus* in the Okanagan Valley.

Nagorsen (2005) reported the elevational range as 320-1200 m asl, with most occurrences below 800 m. A GIS analysis of the post-2006 records revealed an elevational range of 300-980 m asl (D. Nagorsen unpubl. data). The only occurrences above 800 m asl were at the southern edge of the Canadian range in the Nature Conservancy of Canada (NCC) conservation lands and the South Okanagan Grasslands Protected Area (BC Parks) near the international border.

Based on a minimum convex polygon (Figure 2) drawn around new (post-2006) and previous (pre-2006) sites, the EOO is 1,776 km² — an increase of 396 km² relative to COSEWIC (2006). This increase is an artifact of calculation methodology, and does not reflect any change in range extent. The index of area of occupancy (IAO) calculated from 2 km x 2 km grids over all sites is 340 km² (Figure 2). The number of locations subject to a threatening event is unknown but is certainly >10 (the threshold for quantitative criteria), given the diversity and number of landowners and land use regimes within the range of *S. n. nuttallii*.

Population Information:

Change in number of mature individuals:	yes <input type="checkbox"/> no <input type="checkbox"/> unk <input checked="" type="checkbox"/>
Change in population trend:	yes <input type="checkbox"/> no <input type="checkbox"/> unk <input checked="" type="checkbox"/>
Change in severity of population fragmentation:	yes <input type="checkbox"/> no <input type="checkbox"/> unk <input checked="" type="checkbox"/>
Change in trend in area and/or quality of habitat:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
Significant new survey information	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>

Explanation:

The number of mature individuals is unknown. The technical summary of COSEWIC (2006) provided an estimate of < 3,500 “based on available habitat”, but provided no explanation for this in the report itself, which stated that the number of mature animals was unknown. Based on three years of trapping data within one 25.6 ha grid, Sullivan *et al.* (1989) estimated the *S. n. nuttallii* density to be 0.23-0.43 animals per ha. Most of the study area was natural undisturbed habitat, precluding extrapolation of the results from this trapping study to the full range of habitats occupied by this species to yield an overall population estimate.

Threats:

Change in nature and/or severity of threats:	yes <input type="checkbox"/> no <input checked="" type="checkbox"/> unk <input type="checkbox"/>
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Explanation:

From the mid-1800s to 2005, 20.5% of the grassland habitat in Okanagan Basin was lost (BC Ministry of Environment 2007). Some Antelope-brush (*Purshia tridentata*) and sagebrush communities have declined 33-70% since historical times (Lea 2008). Habitat loss from both urban and agricultural development were identified as major threats in the last COSEWIC report (COSEWIC 2006).

The recent Management Plan (BC Ministry of Environment 2013) included a threats assessment using the IUCN Threats Calculator based on data largely from the 2006 COSEWIC assessment. The overall threat impact was calculated as Low with habitat loss from residential/commercial and agricultural development identified as the two most significant threats. No explanation was provided for the assigned relative severity of impact from this habitat loss, which was described as “ongoing” (human settlement) and “continuing” (agriculture); no estimate was provided for rate of habitat loss since 2006 (BC Ministry of Environment 2013). A status report for the Antelope-Brush Ecosystem in BC — a shrub-steppe community at low elevations in the southern Okanagan Valley, where Nuttall’s Cottontails occur but to which they are not limited — reported a 26% loss from 1995-2008 and future extirpation of this ecological community on all unprotected sites (Iverson 2012).

BC Stats (2016) estimated a 2015 human population of 81,841 for the Okanagan-Similkameen Regional District, a slight decrease from the 2004 population and less than was predicted in the last status report (112,000 by 2021; COSEWIC [2006]). The most recent prediction for the population for this regional district is an increase of 12% to 92,599 by 2036 (BC Stats 2016). As a consequence of its geography, the Okanagan Valley has a concentration of development along the valley bottom that has negatively affected grassland habitats and associated species (Transboundary Connectivity Group 2016). Future development will be concentrated in existing urban areas located in the Okanagan and Similkameen valleys, Summerland, Penticton, Okanagan Falls, Oliver, Osoyoos, and Keremeos (South Okanagan Regional District 2011). Development can also be expected on First Nations lands: SnPink’tn-Penticton Indian Band, Lower Similkameen Band, and Osoyoos Band.

Recent habitat loss from agriculture is mostly from the development of vineyards. COSEWIC (2006) reported a 517 ha increase in vineyards in the south Okanagan-Similkameen valleys from 1999-2004. Habitat loss continues from vineyard expansion. Based on data from the five agricultural regions within the range extent of *S. n. nuttallii* (Bremmer and Bremmer 2008; Bremmer 2014), new vineyards increased by 25% (711 ha) from 2008-2014, representing an annual increase of ~102 ha/yr. The amount of suitable *S. n. nuttallii* habitat lost from these developments has not been quantified. Some vineyards were developed on old orchards, but others were in native steppe-grassland.

Protection:

Change in effective protection:

yes ☒ no ☐ unk ☐

Explanation:

Since the last COSEWIC report, ~8,400 ha (84 km²) of habitat has received new protection within the general range extent of *S. n. nuttallii* (Figure 3). Skaha Bluffs Provincial Park (489 ha) and the adjacent McTaggart-Cowan/Nsək'lniw't Wildlife Management Area (6,491 ha) south of Penticton on the east of Skaha Lake were established in 2010 and 2013, respectively. At the southern edge of the range, the Nature Conservancy of Canada (NCC) acquired four properties for the Sage and Sparrow Conservation Area from 2012-2015 that protect an additional 1,350 ha. The NCC properties are contiguous with BC Parks' South Okanagan Grasslands Protected Area near the international border. Between 2013-2016, The Nature Trust of British Columbia acquired 152 ha of Antelope-Brush habitat in the south Okanagan.

The extent to which these new acquisitions have offset the loss of natural grassland habitat from development since 2006 is unknown. Suitable *S. n. nuttallii* habitat in these new protected areas has not been analyzed; no surveys with pellet stations conducted by the BC Conservation Corps since 2006 have been done in these areas (see **Range**; Figure 1). The McTaggart-Cowan/Nsək'lniw't Wildlife Management Area and the NCC properties include habitats 800-1200 m asl that may be above the elevational range of *S. n. nuttallii*.

Rescue Effect:

Change in evidence of rescue effect:

yes ☐ no ☒**Explanation:**

The Technical Summary of the 2006 COSEWIC assessment rated the potential for rescue from Washington State as minimal because of declining availability of habitat. Rescue effect was not addressed in the provincial management plan (BC Ministry of Environment 2013). New relevant information since the 2006 COSEWIC assessment includes 1) new survey records in BC (see **Range**); 2) updated harvest statistics in Washington, and 3) the addition of more protected habitat in British Columbia adjacent to the international boundary (see **Protection**).

The Global NatureServe status is G5T5 (Secure); status in Washington, the jurisdiction bordering the Canadian range, is S5 (secure). The southern portion of the South Okanagan Grasslands Protected Area and the contiguous Sage and Sparrow Conservation Area purchased by the NCC now provide some contiguous protected grassland habitat in BC adjacent to the international border that extends from the southern Similkameen to the southern Okanagan valleys (Figure 3). Suitability of this new protected habitat remains unconfirmed due to lack of survey effort; however, these are mostly in higher elevation grassland habitats, which are of lower habitat suitability than the valley grasslands (D. Nagorsen, pers. obs.). Relatively little land is protected within the Okanagan or Similkameen valleys, where most Nuttall's Cottontail observations have been recorded, including along the international border (Figure 3).

Habitat modelling by Johnson and Cassidy (1997) revealed potential habitat for *S. n. nuttallii* in Okanogan County, Washington adjacent to the Canadian border (Figures 1 and 3). There are, however, no data on population densities or trends for the Washington population of this species. Washington State harvest data for 2014 (the most recent available harvest data) listed 97 cottontail rabbits (reported separately from similar species like Snowshoe Hares) taken in Okanogan County, resulting from a statewide hunting season including the four game management units that border British Columbia (WA Dept. Fish and Wildlife 2015). According to John Fleckstein (pers. comm. 2016) biologists report cottontail rabbits as common 15-20 km south of the international border, just south of Palmer Lake, Washington. This corresponds to a distance slightly larger than the projected dispersal distance for lagomorphs of this size. Presumably these reports are *S. n. nuttallii*. Although the Eastern Cottontail Rabbit (*Sylvilagus floridanus*) was introduced to Washington, Johnson and Cassidy (1997) reported it absent from Okanogan County. Most museum records for this species are south of Okanogan County (Figure 4).

Notwithstanding habitat potential, this lack of spatially explicit harvest statistics or museum records precludes confirmation of *S. n. nuttallii* presence within dispersal distance of the international border. As no studies have estimated immigration rates, the degree of dependence on extra-regional sources is unclear, but Sullivan *et al.* (1989) reported a recruitment rate in BC that replaced mortality. This species occupies similar habitat in both British Columbia and Washington and there is no evidence of local adaptations. A recent analysis of connectivity within the transboundary Okanagan-Kettle region (Transboundary Connectivity Group 2016) demonstrated the diminishing opportunities for wildlife movements across the remaining shrub-steppe habitats in the valley. This is particularly the case in BC, which is experiencing higher rates of conversion of shrub-steppe habitat due to urbanization and agriculture than Washington State. This means that even if immigration is occurring, it is unlikely to decrease extinction risk for this species in Canada, so rescue potential remains unchanged since COSEWIC (2006).

Quantitative Analysis:

Change in estimated probability of extirpation:

yes ☐ no ☐ unk ☒

Details:

No analysis has been done.

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

Nuttall's Cottontail has a restricted range in the south Okanagan and Similkameen valleys of BC where it is associated with native shrub-steppe habitats. These habitats have been in decline since the mid-1800s and with development associated with increasing population growth and the expansion of vineyards habitat loss is expected to continue. A threats assessment (BC Ministry of Environment 2013) using the IUCN Threats Calculator based on data largely from the 2006 COSEWIC assessment calculated an overall threat impact of Low with threats rated small in scope. Some 8,400 ha of protected area have been acquired within the general range extent of *S. n. nuttallii* in BC since the last COSEWIC assessment. The amount of suitable habitat in these areas has not been determined and the extent to which these new acquisitions have offset the ongoing loss of natural grassland habitat since 2006 is unknown.

A Management Plan developed by the BC Ministry of Environment (2013) recommended 13 management actions that focus on inventory, habitat protection and private land stewardship. A systematic inventory applying a standardized inventory protocol is required to determine sites currently occupied within the full range extent, habitat fragmentation, connectivity among sites, and important habitat corridors. Occurrences north of Penticton near Okanagan Lake appear to be isolated from those south of Penticton. However, this distributional pattern may simply reflect inadequate sampling. Systematic sampling with pellet stations was limited to areas south of Okanagan Lake. Rescue potential from the U.S. remains unconfirmed. Except for opportunistic observations, no systematic inventory has been done in many of the protected areas within the species' range. The development of a habitat map based on occupied sites as recommended in the Management Plan is essential for identifying areas for survey and conservation initiatives.

Acknowledgements and authorities contacted:

*information was provided by authority contacted

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Dr. Tom Sullivan, Department of Forest Sciences, University of British Columbia, Vancouver

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Author of SAS: David Nagorsen, with substantive edits by Justina Ray.

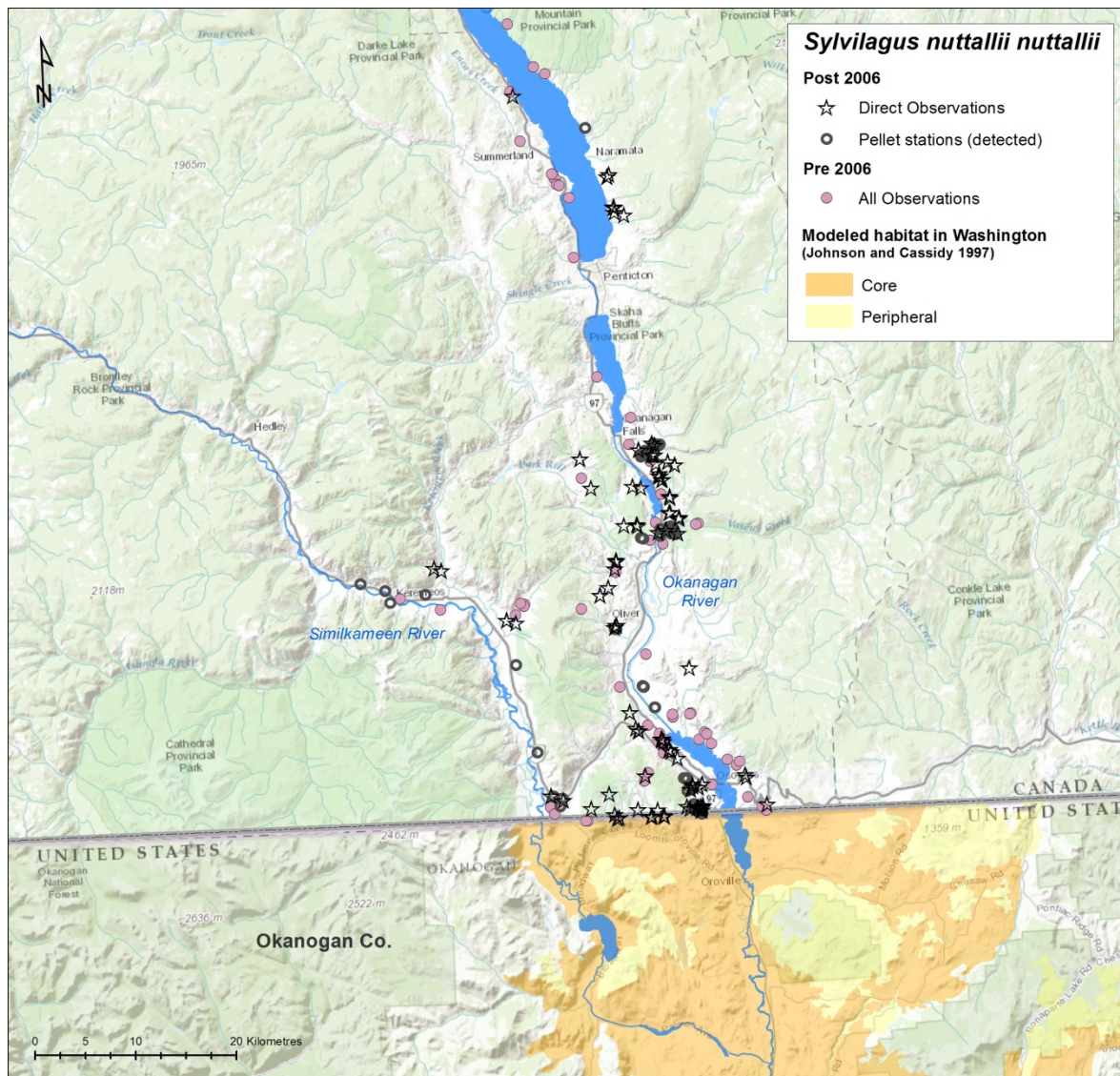


Figure 1. Known occurrences of the Nuttall's Cottontail, *nuttallii* subspecies (*Sylvilagus nuttallii nuttallii*) in Canada. Observations pre-2006 are from the last COSEWIC assessment (COSEWIC 2006); post-2006 are new observations from M. Sarell (unpubl. data), pellet station sites sampled in 2008-2009 by the BC Conservation Corps (Noble 2006, Marks and Young 2009), and the BC Conservation Data Centre.

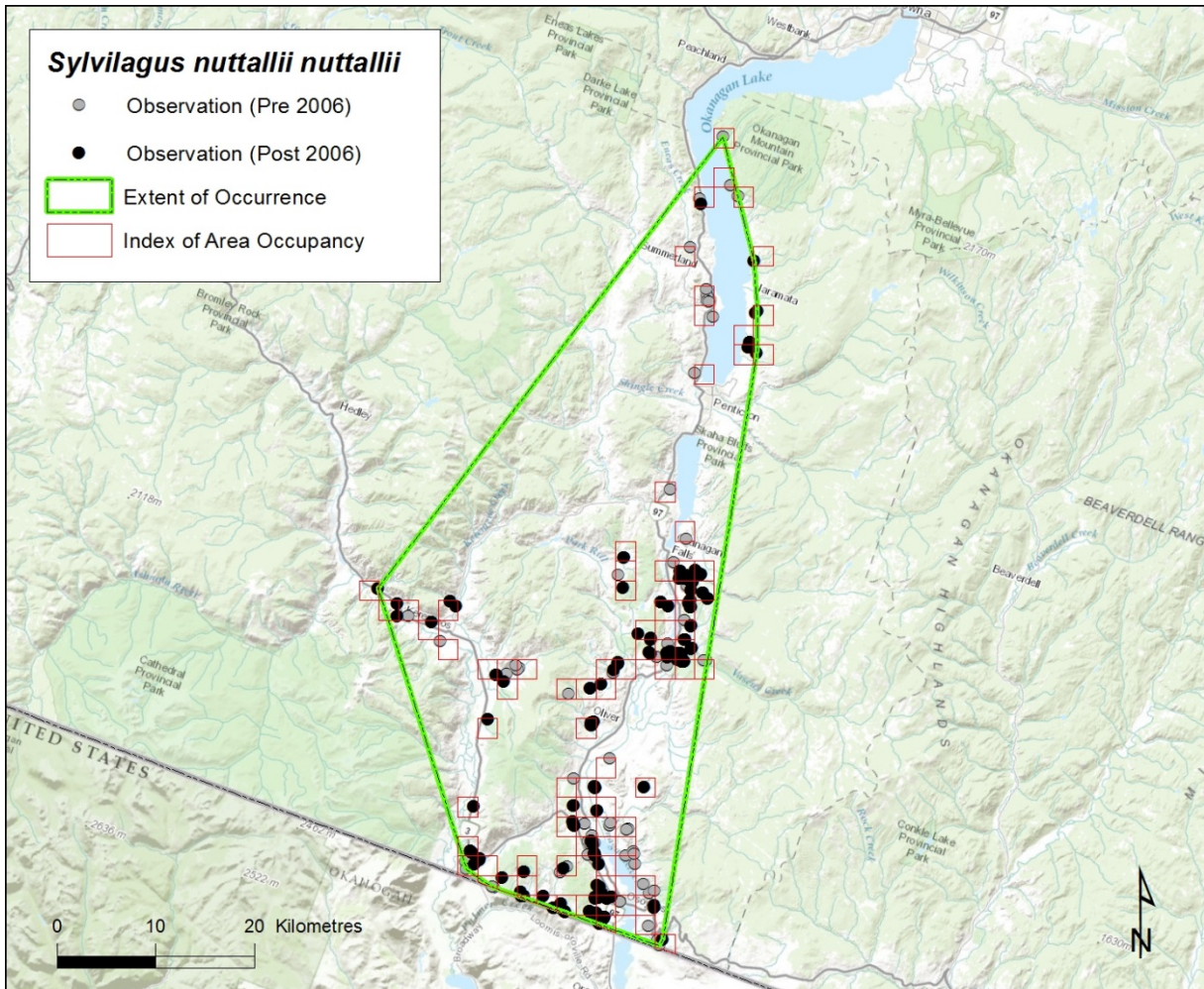


Figure 2. Extent of occurrence and index of area of occupancy of the Nuttall's Cottontail, *nuttallii* subspecies (*Sylvilagus nuttallii nuttallii*) in Canada. Observations pre-2006 are from the last COSEWIC assessment (COSEWIC 2006); post-2006 are new observations (see Figure 1).

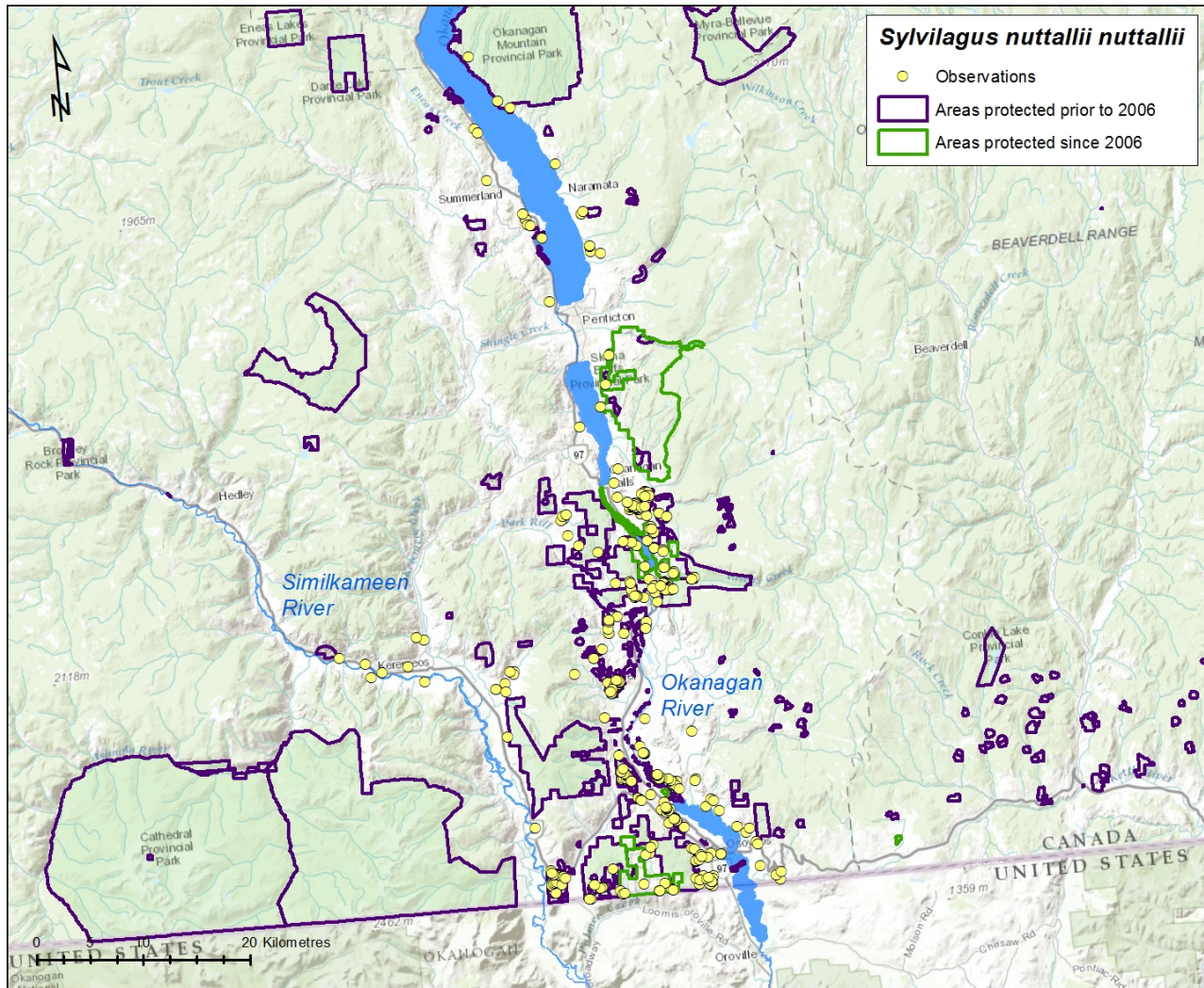


Figure 3. Protected areas within the range of the Nuttall's Cottontail in British Columbia. Areas that have received recent protection are from BC Ministry of Environment, Nature Conservancy of Canada, and The Nature Trust of British Columbia. Observations are from Figure 1.

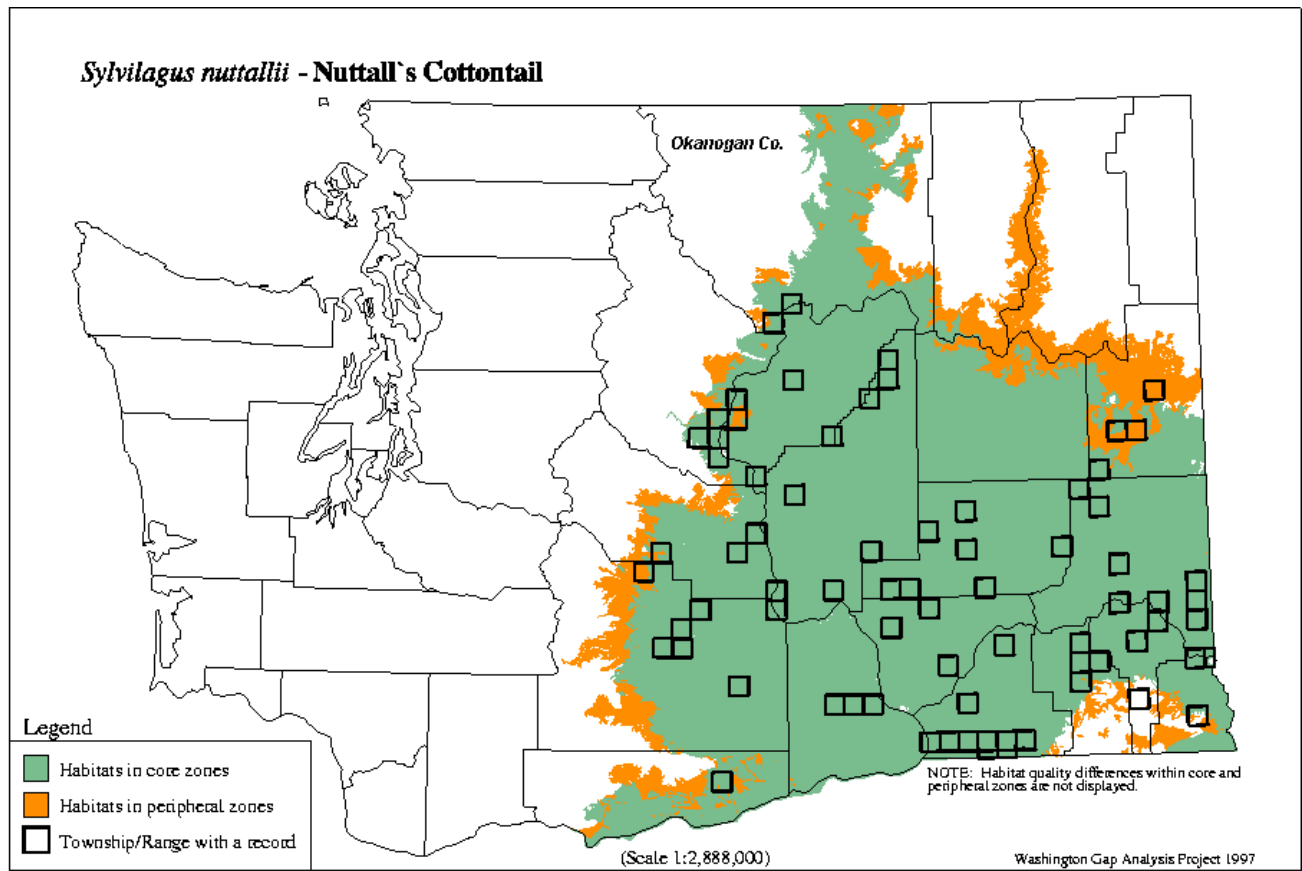


Figure 4. Estimated Nuttall's Cottontail (*Sylvilagus nuttallii*) habitat in Washington State. From the Washington State Gap Analysis project (Johnson and Cassidy 1997). Occurrences (open squares) are mostly from museum specimen records.

TECHNICAL SUMMARY

Sylvilagus nuttallii nuttallii

Nuttall's Cottontail *nuttallii* subspecies

Lapin de Nuttall de la sous-espèce *nuttallii*

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

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 (2011) is being used)	2.5 yrs calculated by Pacifi <i>et al.</i> (2013).
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	Unknown
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 a. clearly reversible and b. understood and c. ceased?	N/A
Are there extreme fluctuations in number of mature individuals?	Unknown

Extent and Occupancy Information

Estimated extent of occurrence	1,776 km ²
Index of area of occupancy (IAO) (Always report 2x2 grid value).	340 km ² (based on 85 2x2 km grids)
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?	Unknown
Number of "locations"* (use plausible range to reflect uncertainty if appropriate)	>10

* See Definitions and Abbreviations on [COSEWIC website](#) and [IUCN](#) (Feb 2014) for more information on this term.

Is there an [observed, inferred, or projected] decline in extent of occurrence?	No
Is there an [observed, inferred, or projected] decline in index of area of occupancy?	Unknown
Is there an [observed, inferred, or projected] decline in number of subpopulations?	Unknown
Is there an [observed, inferred, or projected] decline in number of "locations"?	Unknown
Is there an [observed, inferred, or projected] decline in [area, extent and/or quality] of habitat?	Yes; observed and projected in extent and quality
Are there extreme fluctuations in number of subpopulations?	Unknown
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?	Unknown.

Number of Mature Individuals (in each subpopulation)

Subpopulations (give plausible ranges)	N Mature Individuals
Total	Unknown

Quantitative Analysis

Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years].	N/A
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Threats (direct, from highest impact to least, as per the IUCN Threats Calculator)

<p>Was a threats calculator completed for this species? Yes (in 2013 BC MoE Management Plan). Overall impact score is low.</p> <p>i. Residential & commercial development ii. Agriculture & aquaculture — vineyards iii. Transportation & service corridors — road kills</p> <p>Additional limiting factors are habitat fragmentation creating reduced patch size and connectivity.</p>

Rescue Effect (immigration from outside Canada)

Status of outside population(s) most likely to provide immigrants to Canada.	No quantitative data available but likely secure
Is immigration known or possible?	Possible
Would immigrants be adapted to survive in Canada?	Yes, but habitat is scarce and declining
Is there sufficient habitat for immigrants in Canada?	Yes
Are conditions deteriorating in Canada?+	Yes

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

Are conditions for the source population deteriorating?	Unknown
Is the Canadian population considered to be a sink?	Unknown but likely
Is rescue from outside populations likely?	Unlikely, given deteriorating habitat conditions in BC especially

Data Sensitive Species

Is this a data sensitive species? No

Status History

COSEWIC: Designated Special Concern in April 1994, April 2006, and November 2016.

Status and Reasons for Designation:

Status: Special Concern	Alpha-numeric codes: Not applicable
Reasons for designation: This small rabbit is confined to shrub-steppe habitats in the southern Okanagan-Similkameen valleys of British Columbia near the border with Washington State (US). Remaining habitat in British Columbia is in continuing decline from urbanization and agriculture, particularly conversion to vineyards, but population impacts are unquantified due to lack of survey effort. Rescue potential from Washington is minimal because of declining availability of habitat in Canada and new protected areas in the region are outside the core range of this animal. This species may become threatened if trends in habitat loss in the valleys are not reversed.	

Applicability of Criteria

Criterion A (Decline in Total Number of Mature Individuals): Not applicable. Population numbers and trends are unknown.
Criterion B (Small Distribution Range and Decline or Fluctuation): Not applicable. Although both EOO and IAO meet thresholds for Endangered and habitat is declining, number of locations certainly exceeds 10. Severe fragmentation is unknown, and there is no evidence for extreme fluctuations.
Criterion C (Small and Declining Number of Mature Individuals): Not applicable. Population numbers and trends are unknown.
Criterion D (Very Small or Restricted Population): Not applicable. Although uncertain, number of mature individuals likely exceeds 1,000; IAO > 20 km ² .
Criterion E (Quantitative Analysis): No quantitative analyses have been 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 (2016)

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
Canadian Wildlife Service

Environnement et
Changement climatique Canada
Service canadien de la faune

Canada

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