

**COSEWIC**  
**Rapid Review of Classification**

on the

**Northern Bobwhite**  
*Colinus virginianus*

in Canada

**ENDANGERED**  
**2023**

**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 was initially reviewed by the relevant Species Specialist Subcommittees before being reviewed by COSEWIC. The following is a summary of the relevant information.

COSEWIC Rapid Review of Classification are working documents used in assigning the status of wildlife species suspected of being at risk in Canada. This document may be cited as follows:

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Production note:

COSEWIC would like to acknowledge Dave F. Fraser for writing the Rapid Review of Classification on Northern Bobwhite, *Colinus virginianus*, in Canada, prepared under contract with Environment and Climate Change Canada. This report was overseen and edited by Richard Elliot, Co-chair of the COSEWIC Birds Specialist Subcommittee.

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## COSEWIC Assessment Summary

### Assessment Summary – May 2023

**Common name**

Northern Bobwhite

**Scientific name**

*Colinus virginianus*

**Status**

Endangered

**Reason for designation**

This bird of open and semi-open habitats is widespread across the eastern United States, but range and numbers have declined dramatically from historical levels in Canada. With fewer than 250 birds remaining, all on Walpole Island in southwestern Ontario, the Canadian population may be close to extirpation. There have been no Christmas Bird Count records since 2001, and no eBird reports since 2014. However, occasional recent sightings by Walpole Island Indigenous community members indicate that a very small population likely still persists. Declines are attributed to deterioration of habitat quality owing to intensification of agriculture, and the loss of early succession woodland and semi-open habitats.

**Occurrence**

Ontario

**Status history**

Designated Endangered in April 1994. Status re-examined and confirmed in November 2003, May 2013, and May 2023.



## COSEWIC Rapid Review of Classification

### Assessment Summary

#### English name

Northern Bobwhite

#### French name

Colin de Virginie

#### Scientific name

*Colinus virginianus*

#### Status

Endangered

#### Reasons for designation (COSEWIC 2013)

Owing to habitat loss, this grassland bird's population has declined dramatically over historical levels and shows no sign of recovery. There is only one viable population remaining in Canada, located on Walpole Island, Ontario. The status of this species is complicated by the presence of introduced pen-reared birds whose genetic composition is believed to pose a threat to the remaining native population.

### PREFACE

Northern Bobwhite (*Colinus virginianus*) formerly ranged across southern Ontario, but has almost disappeared in the wild from Canada, with a native population of fewer than 250 mature individuals confined to Walpole Island, in extreme southwestern Ontario (Wyshynski 2019). The overall status of the wild population has been confused in the past by the large number of captive-reared and released Northern Bobwhite, although such releases have not usually been successful in restoring populations (literature reviewed in Brennan *et al.* 2020), and non-native birds are no longer released on Walpole Island. Brennan (1991) documented similar declines of the species nearly range-wide across the eastern United States, beginning in the 1960s.

Walpole Island is thought to host the entire remaining wild stock of Northern Bobwhite in Canada (Risley 2007; COSEWIC 2013; ECCC 2018; Wyshynski 2019). Genetic analysis of Northern Bobwhite samples from Ontario supports the conclusion that birds occurring on the Walpole Island First Nation territory are native (Chabot 2014). However, all Northern Bobwhite reported from mainland Ontario in recent years are presumed to be of captive-reared origin (Risley 2007; Chabot 2014), including the scattered mainland records on eBird (2021) and iNaturalist (2021) in the last ten years.

In 2000, 92 male Northern Bobwhite were detected on Walpole Island First Nation territory during ground surveys for whistling males (MacIntyre 2002). Using a conservative extrapolation, MacIntyre (2002) estimated the population at 230 mature individuals. Five observers reported seeing Northern Bobwhite on Walpole Island in 2015, and seven others reported sightings in 2016. While most reports were of 1–2 birds, three coveys were reported in 2015 of five, nine, and 30 birds, and another three in 2016 of approximately 12, 20, and 30 birds (Jacobs and Johnson 2016; C. Jacobs pers. comm. 2016 cited in Wyshynski 2019). Wyshynski (2019) reported that recent local community knowledge confirmed the persistence of Northern Bobwhite on Walpole Island First Nation up to 2016, and there have been occasional sightings by Indigenous community members since then (Jacobs pers. comm. 2021).

The first Ontario Breeding Bird Atlas (1981–1985) reported Northern Bobwhite on 27% of 27 point counts in the 10x10 km square that contains Walpole Island, but on only 8% of 27 point counts in the second atlas (2001–2005; Ontario Breeding Bird Atlas Database 2022). The third atlas reported male Northern Bobwhite calling in that square during the first season of observations in 2021, but breeding has not been confirmed (Birds Canada NatureCounts Database; Bumelis pers. comm. 2022).

The last report of Northern Bobwhite on Walpole Island in eBird was in 2014 (eBird 2021), and none of the 107 eBird checklists submitted for Walpole Island from 2015 to 2021 reported this species (eBird 2021). The Wallaceburg Christmas Bird Count, which covers most of the suitable habitat on Walpole Island (Risley 2007), shows a declining trend from 1991–1992 until 2000–2001, with no Northern Bobwhite records from 2001 to 2020 (National Audubon Society 2020).

Wyshynski (2019) concludes that the population has declined significantly from the estimate reported in MacIntyre (2002), and Jacobs and Johnson (2016) indicate that local knowledge also demonstrates appreciable declines.

The evidence from the Breeding Bird Atlas projects, local Indigenous knowledge, and eBird support the inference that there has been a marked continuing population decline, and Northern Bobwhite likely only persists in very small numbers on Walpole Island.

Walpole Island Heritage Centre and the Walpole Island Land Trust have undertaken the restoration and protection of tallgrass prairie and savannah sites used by Northern Bobwhite in the past (Jacobs and Johnson 2016), although it is uncertain whether there is an appropriate mixture of early successional wooded areas and open and semi-open habitats to maintain this species (Wyshynski 2019).

### **Current status**

Endangered (2013)

### **Reasons for designation (COSEWIC 2013)**

Owing to habitat loss, this grassland bird's population has declined dramatically from historical levels and shows no sign of recovery. There is only one viable population remaining in Canada, located on Walpole Island, Ontario. The status of this species is complicated by the presence of introduced pen-reared birds whose genetic composition is believed to pose a threat to the remaining native population.

### **Updated map**

Not required

### **Explanation**

Map not required. See maps in previous assessment (COSEWIC 2013) and recovery strategies (ECCC 2018; Wyshynski 2019).

## TECHNICAL SUMMARY

*Colinus virginianus*

Northern Bobwhite

Colin de Virginie

Range of occurrence in Canada: Ontario

### Demographic Information

Generation time (usually average age of parents in the population)	2.3 years	Based on generation time in Bird <i>et al.</i> 2020.
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	Yes, inferred continuing decline, although no recent survey data are available.	Based on extremely limited number of sightings in recent years, with no eBird records since 2015.
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations, whichever is longer up to a maximum of 100 years].	Unknown	Insufficient data are available to estimate rate of inferred continuing decline.
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations, whichever is longer up to a maximum of 100 years].	Unknown	Insufficient data are available to estimate rate of reduction.
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations, whichever is longer up to a maximum of 100 years].	Unknown	Insufficient data are available to project future trends.
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any period [10 years, or 3 generations, whichever is longer up to a maximum of 100 years], including both the past and the future.	Unknown	Insufficient data are available to estimate recent population trends and project future trends.
Are the causes of the decline clearly understood?	Yes	Likely a combination of habitat loss and other threats (ECCC 2018; Wyshynski 2019)

Have the causes of the decline ceased?	No	Although some tallgrass prairie and savannah sites have been restored on Walpole Island (Jacobs and Johnson 2016), it is uncertain whether there is an appropriate mix of early successional woodland and open/semi-open habitats to sustain Northern Bobwhite numbers (Wyshynski 2019). Habitat conditions in the historical range in mainland Ontario have continued to decline.
Are the causes of the decline clearly reversible?	No	
Are there extreme fluctuations in number of mature individuals.	No	

### Extent and Occupancy information

Estimated extent of occurrence (EOO)	<72 km <sup>2</sup>	As estimated EOO of Walpole Island is smaller than maximum IAO, the value for IAO is used here for EOO (IUCN 2022).
Index of area of occupancy (IAO), reported as 2x2 km grid value.	<72 km <sup>2</sup>	Maximum IAO of 72 km <sup>2</sup> calculated on basis of 2x2 km grid squares with suitable upland habitat for Northern Bobwhite mapped on Walpole Island (Burrell pers. comm. 2022).
Is the population “severely fragmented” i.e., is > 50% of its total area of occupancy in habitat patches that are (a) smaller than would be required to support a viable population, and (b) separated from other habitat patches by a distance larger than the species can be expected to disperse?	a) Unknown b) Possibly	a) remaining population is at a single site that may be smaller than required to support a viable population. b) long-distance dispersal is rare in this species, with dispersal range usually < 1.6 km.
Number of “locations”* (use plausible range to reflect uncertainty if appropriate)	One	The entire Canadian population breeds on Walpole Island, so the whole population would be affected by one threat such as habitat loss and fragmentation.
Is there an [observed, inferred, or projected] continuing decline in extent of occurrence?	Possibly	Insufficient recent observations available to determine decline in EOO

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



Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy?	Yes	Inferred decline in IAO based on observed decline in availability of suitable habitat and inferred decline in number of individuals
Is there an [observed, inferred, or projected] continuing decline in number of subpopulations?	Not applicable	No subpopulations
Is there an [observed, inferred, or projected] continuing decline in number of "locations" **?	Not applicable	Only one location, based on threat of habitat loss and fragmentation due to agricultural expansion and intensification
Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality of] habitat?	Yes	Restoration activities have improved habitat quality in small areas of Walpole Island and adjacent Lambton County, but habitat extent and quality continue to decline overall due to intensification of agriculture and loss of cover due to burning.
Are there extreme fluctuations in number of subpopulations?	No	No subpopulations
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

	N Mature Individuals (give plausible ranges)	Notes on individual estimates
Total (no subpopulations)	<<250, high probability of <50, and perhaps close to extirpation.	Canadian population may be close to extirpation on Walpole Island, with no Christmas Bird Count records since 2001, no eBird reports since 2014, and very few sightings since 2016.

### Quantitative Analysis

Is the probability of extinction in the wild at least [20% within 20 years or 5 generations whichever is longer up to a maximum of 100 years, or 10% within 100 years]?	Unknown	Analysis not conducted
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\*See Definitions and Abbreviations on [COSEWIC website](#) for more information on this term.

### Threats and Limiting Factors

Was a threats calculator completed for this species?	Threats assessments included in provincial (Wyshynski 2019) and national (ECCC 2018) recovery strategies	
<p>The main threats to Northern Bobwhite in Canada, in decreasing order of impact, are (Wyshynski 2019):</p> <ul style="list-style-type: none"> <li>• habitat loss and fragmentation, mainly through agricultural expansion and intensification, residential development, and invasion by European Common Reed (<i>Phragmites australis</i>);</li> <li>• predation;</li> <li>• indiscriminate burning;</li> <li>• release of non-native, captive-reared Northern Bobwhites (no longer released on Walpole Island);</li> <li>• herbicide/pesticide use; and</li> <li>• potentially European Fire Ant (<i>Myrmica rubra</i>), feral cats, and feral pigs.</li> </ul> <p>What additional limiting factors are relevant? High site fidelity (COSEWIC 2013) which limits movement among alternate areas.</p>		

### Rescue Effect (natural immigration from outside Canada)

Status of outside population(s) most likely to provide immigrants to Canada.	Declining	S2 (Imperiled) in Michigan, S4 (Apparently Secure) in New York, and S5 (Secure) in Ohio. BBS results indicate declines every year from 1987 to 2019.
Is immigration known or possible?	Possible, but unlikely	Northern Bobwhite does not disperse widely compared with other bird species (NatureServe 2022). Chabot (2014) found very little historical gene flow with Michigan birds.
Would immigrants be adapted to survive in Canada?	Possible, but unlikely	Translocated individuals often fail to become established (Brennan <i>et al.</i> 2020).
Is there sufficient habitat for immigrants in Canada?	No	Habitat is thought to be limiting in Canada.
Are conditions deteriorating in Canada?+	Yes	Habitat quality is declining due to intensification of agriculture.
Are conditions for the source (i.e., outside) population deteriorating?+	Yes	Declining in most adjacent U.S. states, likely due to similar declines in habitat quality
Is the Canadian population considered to be a sink?+	Unknown	
Is rescue from outside populations likely?	No	Numbers declining in adjacent U.S. states; habitat quality declining in Canada; and long-distance dispersal is rare.

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

**Occurrence Data Sensitivity**

Are occurrence data of this species sensitive?	No	
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**Status History**

<b>COSEWIC:</b> Designated Endangered in April 1994. Status re-examined and confirmed in November 2003, May 2013, and May 2023.
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**Status and Reasons for Designation**

Status:	Endangered
Alpha-numeric codes:	B1ab(ii,iii,v)+2ab(ii,iii,v); C2a(i,ii); D1
Reasons for designation (2023):	This bird of open and semi-open habitats is widespread across the eastern United States, but range and numbers have declined dramatically from historical levels in Canada. With fewer than 250 birds remaining, all on Walpole Island in southwestern Ontario, the Canadian population may be close to extirpation. There have been no Christmas Bird Count records since 2001, and no eBird reports since 2014. However, occasional recent sightings by Walpole Island Indigenous community members indicate that a very small population likely still persists. Declines are attributed to deterioration of habitat quality owing to intensification of agriculture, and the loss of early succession woodland and semi-open habitats.

**Applicability of Criteria**

<p>Criterion A (Decline in Total Number of Mature Individuals). Not applicable. There are insufficient data to calculate rate of population decline, and major declines likely occurred &gt; 10 years ago.</p>
<p>Criterion B (Small Distribution Range and Decline or Fluctuation). Meets Endangered, B1ab(ii,iii,v)+2ab(ii,iii,v), as EOO is &lt; 5,000 km<sup>2</sup>; IAO is &lt; 500 km<sup>2</sup>; the population occurs at one location; and there is a continuing decline inferred in the index of area of occupancy, observed in the quality of habitat, and inferred in the number of mature individuals.</p>
<p>Criterion C (Small and Declining Number of Mature Individuals): Meets Endangered, C2a(i,ii), as the total population is estimated to be &lt; 250 mature individuals, with an inferred decline in numbers that is liable to continue; and the only subpopulation having &lt; 250 mature individuals and 100% of all mature individuals.</p>
<p>Criterion D (Very Small or Restricted Population): Meets Endangered, D1, because the population is estimated to have &lt; 250 mature individuals.</p>
<p>Criterion E (Quantitative Analysis): Not applicable. Analysis not conducted.</p>

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## AUTHORITIES CONTACTED:

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- Jones, Colin. Provincial Zoologist - Arthropods, Ontario Natural Heritage Information Centre, Ministry of Northern Development, Mines, Natural Resources and Forestry, Peterborough, Ontario, and Member of COSEWIC for Ontario

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### **Writer of Rapid Review of Classification:**

- David F. Fraser, Non-government Science Member of COSEWIC: February 2022



## 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 (2023)

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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