COSEWIC
Assessment and Status Report

on the

Short-eared Owl
Asio flammeus

in Canada

THREATENED
2021

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada

COSEPAC
Comité sur la situation
des espèces en péril
au Canada

COSEWIC status reports are working documents used in assigning the status of wildlife species suspected of being at risk. This report may be cited as follows:

COSEWIC. 2021. COSEWIC assessment and status report on the Short-eared Owl *Asio flammeus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 69 pp. (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html).

Previous report(s):

COSEWIC. 2008. COSEWIC assessment and update status report on the Short-eared Owl *Asio flammeus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

Cadman, M.D, and Page A.M. 1994. COSEWIC status report on the Short-eared Owl *Asio flammeus* in Canada. Committee on the Status of Endangered Wildlife in Canada. i + ii - 53 pp.

Production note:
COSEWIC would like to acknowledge Marcel Gahbauer for writing the status report on Short-eared Owl, *Asio flammeus*, 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.

For additional copies contact:

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

Tel.: 819-938-4125
Fax: 819-938-3984
E-mail: ec.cosepac-cosewic.ec@canada.ca
www.cosewic.ca

Également disponible en français sous le titre Évaluation et Rapport de situation du COSEPAC sur le Hibou des marais (*Asio flammeus*) au Canada.

Cover illustration/photo:
Short-eared Owl — Photo credit: Marcel Gahbauer.

Catalogue No. CW69-14/7-2021E-PDF
ISBN 978-0-660-39580-7

COSEWIC
Assessment Summary

Assessment Summary – April 2021

Common name
Short-eared Owl

Scientific name
Asio flammeus

Status
Threatened

Reason for designation
The Canadian population of this widespread nomadic owl breeds in open grassland, tundra, and wetland habitats in all provinces and territories, and winters in southern Canada and the United States. The use of new atlas-based population estimation procedures suggests that the size of the Canadian population is about 31,000 mature individuals, roughly 10% of previous estimates. Its numbers vary over space and time in response to cycles in the availability of small mammals—its main prey. This adds uncertainty to estimates of the rate of decline in the Canadian population. Data from both the Breeding Bird Survey and Christmas Bird Counts indicate a decline of more than 30% over the past three generations. The Canadian population is projected to continue to decline because of future threats, including reduced availability of nesting and wintering habitat resulting from crop conversion, agricultural intensification, urbanization, and invasive plants. In low Arctic habitats, increased growth of shrubs as a result of climate warming (shrubification) will further reduce prey availability and increase predation risk.

Occurrence
Yukon, Northwest Territories, Nunavut, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Prince Edward Island, Nova Scotia, Newfoundland and Labrador

Status history
Designated Special Concern in April 1994 and April 2008. Status re-examined and designated Threatened in May 2021.

COSEWIC
Executive Summary

Short-eared Owl
Asio flammeus

Wildlife Species Description and Significance

Short-eared Owl (*Asio flammeus*) is a medium-sized owl, approximately 34-42 cm in length. Plumage is mottled brown above and buff with heavy streaking below, varying only slightly by sex and age. Short-eared Owl is largely crepuscular and hunts through the evening and into the night, and is recognizable by its agile, moth-like flight over open areas.

Distribution

Short-eared Owl has the broadest global distribution of any owl, with a range that includes most of North America and Eurasia, parts of South America, Africa, and many oceanic islands. North American breeding range extends from the Canadian Arctic south to Nevada in the west and Massachusetts in the east, and the winter range spans from southern Canada to Mexico. It breeds across Canada, regularly in the subarctic tundra and prairies, and more sparsely elsewhere.

Habitat

Short-eared Owl favours open habitats throughout the year, including grasslands, tundra, and wetlands. Breeding typically occurs in open landscapes at least 50-100 ha in area, and nests are preferentially located on the ground near clumps of taller vegetation that provide concealment. In winter, Short-eared Owls roost in conifers adjacent to open areas used for hunting or on the ground in the shelter of tall grasses or forbs. Declines in the extent and quality of open grassland and wetland habitats have likely reduced the distribution and abundance of Short-eared Owl in southern Canada.

Biology

Age of first breeding is thought to be one year; lifespan is poorly documented but generation time is considered to be about 4 years. A single brood is raised annually, although a replacement clutch may be laid in cases of early nest failure. Diet primarily comprises voles, lemmings, and other small mammals. Short-eared Owls tend to be nomadic, often moving relatively long distances through the year to areas with high rodent abundance. This results in substantial fluctuations in abundance at local and regional scales, complicating the estimation of overall numbers and population trends.

Population Sizes and Trends

The previous COSEWIC estimate of the size of the Canadian Short-eared Owl population of about 350,000 mature individuals was based on Breeding Bird Survey (BBS) data. However, the BBS samples only a small part of the Canadian breeding range with low sample sizes. Interpretation and extrapolation of breeding bird atlas results from the past two decades likely provide a more accurate estimate of approximately 31,000 mature individuals, over half of which breed in Northwest Territories and Nunavut.

Short-eared Owl population trends estimated from BBS data indicate declines of -70% between 1970 and 2019, and -31% over the most recent three-generation period, although the BBS does not sample the core of the Canadian population breeding in the tundra. There is greater overlap between the wintering range and coverage by the Christmas Bird Count (CBC). CBC trends for Canada show similar declines of -79% between 1970 and 2019, and -27% over the past three generations, with steepest decreases in Alberta, Manitoba, Ontario, and Quebec. The winter distribution of Canadian birds is poorly known, but most individuals likely overwinter in the United States. At a continental scale, CBC trend estimates for 2007 to 2019 range from -6.5% to -33.6%, depending on the method of analysis. Declines in numbers and range have also been documented by breeding bird atlases completed in British Columbia and Quebec since the previous status report.

Threats and Limiting Factors

Natural system modifications, and climate change and severe weather, are the most important threats to Short-eared Owl, and each is expected to have a low to medium impact on populations. In low Arctic habitats, where a large percentage of the population nests, increased growth of shrubs as a result of climate warming (shrubification) will further reduce