COSEWIC
Assessment and Status Report

on the

Rusty Blackbird
Euphagus carolinus

in Canada

SPECIAL CONCERN
2006

COSEWIC
COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE
IN CANADA

COSEPAC
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DES ESPÈCES EN PÉRIL
AU CANADA

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COSEWIC
Assessment Summary

Assessment Summary – April 2006

Common name
Rusty Blackbird

Scientific name
Euphagus carolinus

Status
Special Concern

Reason for designation
More than 70% of the breeding range of the species is in Canada's boreal forest. The species has experienced a severe decline that appears to be ongoing, albeit at a slower rate. There is no evidence to suggest that this trend will be reversed. Known threats occur primarily on the winter range, and include habitat conversion and blackbird control programs in the United States.

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

Status history
Designated Special Concern in April 2006. Assessment based on a new status report.

COSEWIC
Executive Summary

Rusty Blackbird
Euphagus carolinus

Species information

The Rusty Blackbird (*Euphagus carolinus*) is a medium-sized passerine with a slightly rounded tail that is as long as its wings. Both sexes have pale yellow eyes and a black, slightly curved bill. During the breeding season, the adult male is uniformly black, with a faint greenish gloss to its body and slight violet gloss to its head and neck. The female is brownish grey with no gloss. In winter, the plumage of both sexes is more rust-colored. In the western provinces, the Rusty Blackbird can easily be confused with the Brewer's Blackbird (*E. cyanocephalus*), which has similar plumage and morphology.

Distribution

The Rusty Blackbird has a breeding range of 7.6 million km^2, including most Canadian provinces and territories, the state of Alaska, several Great Lakes states and most New England states. The winter range of the Rusty Blackbird includes most of the mid- to eastern states of the United States, although it winters irregularly in the southern part of most Canadian provinces.

Habitat

The breeding habitat of the Rusty Blackbird corresponds closely to the boreal forest. Within this biome, its habitat is characterized by forest wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps, beaver ponds and pasture edges. In winter, it occurs primarily in damp woodlands and cultivated fields. The primary cause of habitat loss for the Rusty Blackbird, particularly in its winter range, is the conversion of wetland for agriculture and urban development.

Biology

Rusty Blackbirds are typically monogamous and nest in isolated pairs on the margins of wetlands. The nests are built by the female and are located over or near water in riparian vegetation. Only the female incubates the eggs, which generally number 3 to 6. Incubation lasts 14 days, and usually begins as soon as the first egg is laid. The chicks remain in the nest for approximately 13 days.

Population size and trend

The Canadian population, which includes approximately 70% of the global breeding population, is estimated at between 110,400 and 1.4 million individuals. Several indices suggest that the Rusty Blackbird population has declined significantly over the last 40 years. Long-term trend analyses based on Christmas Bird Counts showed a decline of -5.1%/year since 1966. At this rate of decline, the population would have decreased by approximately 85% since the mid-1960s. Short-term analyses based on the same survey methods show an annual rate of decline of -2.1% between 1994 and 2003. At this rate, the population would have decreased by 18.3% over the last 10 years.

Limiting factors and threats

The most serious threats to the Rusty Blackbird are thought to be the conversion of the Mississippi Valley flood plain forests, the species' primary habitat in the winter range, to agricultural land and urban zones and bird control programs in the southeastern United States that have occurred since the 1970s.

Special significance of the species

Seventy percent of the Rusty Blackbird’s breeding range is located in Canada, so it is considered a species for which Canada has a major responsibility in terms of conservation.

Existing protection or other status designations

For North America as a whole, the Rusty Blackbird is considered apparently secure. The Rusty Blackbird has no protection in Canada under the *Migratory Birds Convention Act* (1994). Blackbirds are considered pests in Canada and the United States, and so the Rusty Blackbird can be killed during control programs for nuisance birds.

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 5th 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 (2006)

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 it 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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SPECIES INFORMATION

Name and classification

The English name for the species *Euphagus carolinus* Müller (1776) is the Rusty Blackbird. The French name is Quiscale rouilleux. Its taxonomy is as follows:

Class:	Aves
Order:	Passeriformes
Family	Icteridae
Genus:	*Euphagus*
Species:	carolinus

Two species of blackbirds of the genus *Euphagus* occur in North America: Rusty Blackbird and Brewer's Blackbird (*E. cyanocephalus*; American Ornithologists' Union 1998). The genus *Euphagus* is believed to be more closely related to the genus *Quiscalus* than to the genus *Agelaius* (Lanyon 1994).

There are two recognized subspecies of Rusty Blackbird: *E. c. carolinus*, which occurs throughout most of the species' range, and *E. c. nigrans* (Burleigh and Peters 1948), which breeds in Newfoundland and Labrador, Nova Scotia and the Magdalen Islands in Québec (Godfrey 1986; American Ornithologists' Union 1998). While *E. c. nigrans* is generally darker in the body and has a blue sheen to the head, the differences between its plumage and that of *E. c. carolinus* are small when individual variation is taken into consideration (Pyle 1997). This status report covers *E. carolinus* and its subspecies.

Morphological description

The Rusty Blackbird is a medium-sized passerine (body length: 21-25 cm; body mass: 64 g), with relatively long, narrow, pointed wings, and a fine, slightly curved bill (Godfrey 1986). Both sexes have pale yellow eyes, black bills that are shorter than the head and entirely black feet. The tail is similar in length to the wings and is slightly rounded. During the breeding season, the adult male is uniformly black, with a faint greenish gloss on the body and slight violet gloss on the head and neck. In fall, the plumage changes slightly, with the edges of the tertiary feathers, scapulars, wing coverts and the head, breast and back feathers becoming rust coloured (Pyle 1997). The plumage of the female during the breeding season is brownish grey, with no gloss (Pyle 1997). The winter plumage of the female differs from the breeding plumage, being generally rust coloured, with a dark grey back, tail and wings. The edges of the tertiary feathers, scapulars and the coverts are rust coloured. In the fall, the characteristics of immature birds (i.e., feathers and iris colour) are similar to those of adults (Pyle 1997), although young juveniles have a dark iris.

The Rusty Blackbird can sometimes be confused with the Brewer's Blackbird, which is similar in size and colouring (Avery 1995). The plumage of the male Brewer's

Blackbird is more glossy than that of the Rusty Blackbird. The Brewer's Blackbird also has a violet and greenish gloss on the head, but has a shorter, straighter, and thicker bill than the Rusty Blackbird (Avery 1995). Moreover, the Brewer's Blackbird's legs and tail are generally longer than those of the Rusty Blackbird (Avery 1995). The females of both species differ in the colouring of their iris; the Rusty Blackbird's iris is yellow whereas the Brewer's Blackbird's is dark (Avery 1995). The females of both species also differ in overall colouring, which is grey for the Rusty Blackbird, and rather brown for the Brewer's Blackbird (Avery 1995).

Genetic description

Few molecular or genetic studies have been conducted on the relationships between the Rusty Blackbird and other species or subspecies (Lanyon and Omland 1999).

DISTRIBUTION

Global range

The Rusty Blackbird is an exclusively North American species with a range of occurrence of over 7.6 million km^2, which includes almost all of the Canadian provinces and the Yukon and Northwest Territories, most of the U.S. state of Alaska, and some parts of Minnesota, Michigan, Vermont, New Hampshire, Maine, New York and Massachusetts (Avery 1995; Figure 1).

The winter range of the Rusty Blackbird includes southern Massachusetts, southeastern New York, southeastern Pennsylvania, southwestern Virginia, northern Ohio, southeastern Michigan, southeastern Wisconsin, central Iowa, central Kansas, central Oklahoma; and the remaining Atlantic coast states. The Rusty Blackbird also winters locally and sporadically in very small numbers in the southern part of most Canadian provinces (Avery 1995; Figure 1).

Canadian range

The Canadian range of the Rusty Blackbird extends from Newfoundland and Labrador to the Yukon and includes all Canadian provinces and territories (Godfrey 1986; J. Richards pers. comm.; Figure 1).

The northern limit of the Rusty Blackbird's breeding range in Canada is delineated by the Old Crow region in northern Yukon; the Mackenzie River delta, Great Bear Lake and Great Slave Lake in the Northwest Territories (NWT); the Thelon and Arviat rivers in Nunavut; the south shore of Hudson Bay from Churchill, Manitoba, to central Ontario; Guillaume-Delisle Lake and Kuujjuaq in northern Québec; Davis Inlet in Labrador; and the north coast of Newfoundland (Cadman *et al.* 1987; Erskine 1992; Gauthier and Aubry 1995; Norment *et al.* 1999; Manitoba Avian Research Committee 2003; Sinclair *et al.* 2003; J. Richards pers. comm.). The southern limit of its range includes central

British Columbia east of the Coast Mountains, central Alberta, central Saskatchewan, northeastern Michigan, southern Ontario (i.e., Bruce Peninsula), southern Québec (i.e., the Outaouais and Eastern Townships), and southern New Brunswick and Nova Scotia (Figure 1).

Figure 1. North American distribution of the Rusty Blackbird during breeding (light grey) and wintering (dark grey) seasons. The Rusty Blackbird also winters irregularly within the dotted area (adapted from Avery 1995, based on Gauthier and Aubry 1995; Campbell *et al.* 1997; Norment *et al.* 1999; Manitoba Avian Research Committee 2003; Sinclair *et al.* 2003, and http://www.birdsource.org).

The range of occurrence of the species is generally continuous and relatively unfragmented (Godfrey 1986). The species' extent of occurrence in Canada is estimated at approximately 5.3 million km^2, which is 70% of their 7.6 million km^2 North American breeding range (Blancher 2003). The species' area of occupancy in Canada is unknown, but presumably very large.

HABITAT

Habitat requirements

Wintering habitat

On its migration routes and wintering grounds, the Rusty Blackbird is generally associated with wetlands, such as flooded forests, scrub along the edges of lakes, rivers and streams and beaver ponds (Avery 1995; Cyr and Larivée 1995; Campbell *et al*. 1997). It also occurs to a lesser degree in human-made habitats, such as pastures, plowed fields, sewage treatment ponds, and small landfill sites (Avery 1995; Campbell *et al.* 1997; Sinclair *et al.* 2003).

Breeding habitat

The breeding range of the Rusty Blackbird corresponds closely to the boreal forest and taiga terrestrial ecozones (Godfrey 1986; Cadman *et al.* 1987; Erskine 1992; Semenchuk 1992; Avery 1995; Gauthier and Aubry 1995; Campbell *et al.* 1997; Sinclair *et al.* 2003). Within these biomes, Rusty Blackbird habitat is generally characterized by conifer forest wetlands (Erskine 1977; Gunn *et al.* 1977; DesGranges and Houde 1989; Gauthier and Aubry 1995). The Rusty Blackbird is generally absent from wetlands in regions above the tree line, such as the alpine tundra and Arctic tundra, and it is not abundant in high mountain wetlands (DesGranges and Houde 1989; Campbell *et al.* 1997).

In forested areas, the Rusty Blackbird is strictly riparian and rarely uses the forest interior (Whitaker and Montevecchi 1999). It occurs primarily in wetlands associated with recent burns, wooded heathland, and peat bogs with or without ponds, as well as in riparian scrub, open moss- and lichen-spruce woodlands, and areas dominated by conifer forest edges and lakes and bogs (Consortium Gauthier et Guillemet – G.R.E.B.E. 1991, 1992; Avery 1995). The Rusty Blackbird also occurs in sedge meadows, marshes, muskegs, swamps and estuaries (Schweinsburg 1974; Erskine 1977; Gunn *et al*. 1975, 1977; Spindler and Kessel 1980; DesGranges and Houde 1989; Semenchuk 1992; Avery 1995; Gauthier and Aubry 1995; Campbell *et al.* 1997; Sinclair *et al*. 2003). In eastern Canada, the Rusty Blackbird uses scrub riparian habitats of islands, lakes, rivers and streams as well as alder and willow thickets (Darveau *et al.* 1995; Larue *et al.* 1995; Whitaker and Montevecchi 1999). In the southeastern portion of its breeding range, the Rusty Blackbird's habitat is reportedly also associated with natural disturbances that favour early successional habitats, such

as fire, windthrow and wetlands created by beavers (*Castor canadensis*; Ellison 1990). In Nova Scotia, and more specifically Cape Breton, it also occurs in drier environments, such as pasture (Erskine 1992).

Habitat trends

Wintering habitat

A large portion of the Rusty Blackbird's winter range includes the flood plains of the Mississippi Valley from southern Illinois to the Louisiana coast (Avery 1995). The conversion of the wetland forests in these areas for agriculture and urban development is considered one of the most significant factors in the decline of the Rusty Blackbird (Greenberg and Droege 1999). This forest massif, with an area of 97,124 km^2 has decreased in size by 80% over the last 150 years, and now consists of 20,234 km^2 of detached forest tracts (Hefner and Brown 1984). Between 1950 and 1980, alone, more than 25% of flood plain forests along the Mississippi were converted (Hefner and Brown 1984).

Breeding habitat

In Canada, Rusty Blackbird breeding habitat, particularly in the southern part of the species' breeding range, has been lost with the conversion of wetlands to agriculture and urban development (Hobson *et al.* 2002).

Current habitat is also potentially affected by several other factors. For example, the flooding of vast areas of land to create hydroelectric reservoirs could have adverse effects on Rusty Blackbird habitat. In northern Québec and Newfoundland and Labrador, the creation of reservoirs currently affects 1.5% of the boreal forest and that figure is expected to increase in the coming decades (Hayeur 2001). Although the creation of new wetlands under mitigation programs compensates to some extent for wetland loss caused by the creation of reservoirs (Hayeur 2001), the quality of the new habitat for the Rusty Blackbird is not yet known.

Rusty Blackbird habitat may also be affected by drainage and pumping activities associated with oil and gas extraction, which remove large volumes of freshwater from underground and surface reserves (Griffiths and Woynillowicz 2003). The demand for water resources by the Alberta oil and gas industry for oil sands extraction activities is expected to increase by a factor of three by 2020 (Griffiths and Woynillowicz 2003).

Finally, rising temperatures caused by climate change could affect northern wetlands by melting permafrost and drying peatlands (Natural Resources Canada 2004).

A rough estimate of Rusty Blackbird habitat conversion in Canada's boreal forest suggests that the area rendered non-viable for this species is around 5%. With the increase in industrial development that is anticipated in the medium term (i.e., in the

next 50 years) there is a predicted additional conversion of 4% of Rusty Blackbird breeding habitat (based on data from: Global Forest Watch Canada 2000; Hayeur 2001; Griffiths and Woynillowicz 2003; Kling *et al.* 2003; Wildlife Habitat Canada 2003).

Habitat protection/ownership

In Canada, approximately 94% of Rusty Blackbird habitat is located on public lands (Global Forest Watch Canada 2000). Only 9% of the boreal forests and wetlands in northern ecozones is protected; an area equivalent to approximately 125,000 km^2 (Wildlife Habitat Canada 2003; Table 1). The percentage of wetlands protected in each ecozone ranges from 14.4% in the Hudson Plains ecozone to 5.3% in the Atlantic Maritime ecozone (Table 1).

Table 1. Total protected area of potential Rusty Blackbird habitat, by ecozone, within its Canadian breeding range (based on Wildlife Habitat Canada 2003). Protected areas include all IUCN Protected Area Management categories such as: Strict nature reserve/wilderness protection areas; Wilderness areas; National parks; Natural monuments; Habitat/Species Management Areas; Protected Landscape/Seascape and Managed Resource Protected Areas.

Ecozones	Total area (km^2)	Area protected (km^2)	Percentage protected per ecozone
Hudson Plains	295,349	42,395	14.4
Taiga Plains	231,119	16,525	7.2
Taiga Shield	166,487	10,022	6.0
Taiga Cordillera	21,142	1,361	6.4
Boreal Plains	309,644	31,477	10.2
Boreal Shield	333,658	19,276	5.7
Boreal Cordillera	15,732	1,143	7.3
Montane Cordillera	28,441	1,582	5.6
Atlantic Maritime	17,558	924	5.3
Total	1,419,130	124,705	8.8

In the wintering range, protected sites with significant amounts of Rusty Blackbird habitat are mainly located in the Mississippi Valley, notably in the Cache River National Wildlife Refuge in Arkansas (223 km^2), the largest remaining area of intact flood plain forest alongside the Mississippi (http://www.fws.gov/cacheriver), and the Pearl River Wildlife Management Area in Louisiana (142 km^2, http://www.wlf.state.la.us).

BIOLOGY

General

Few studies have been conducted on the Rusty Blackbird and, as a result, little is known about the biology and ecology of this species in Canada.

Reproduction

The Rusty Blackbird is normally monogamous and nests solitarily, although there are records of loose colonies in the Atlantic provinces and in some parts of Alaska (Kennard 1920; Spindler and Kessel 1980; Orians 1985; Avery 1995). In the south of the breeding range, birds generally arrive on the breeding grounds from early April to late May, with most arriving in mid-April (Avery 1995; Cyr and Larivée 1995; Campbell *et al.* 1997). In the most northerly regions, the Rusty Blackbird arrives on its breeding grounds towards mid-May (Sinclair *et al*. 2003).

Females build the nests, which are typically placed in thickets of small conifers, deciduous shrubs or in dead trees, usually over or close to water (Kennard 1920; Gauthier and Aubry 1995; Campbell *et al.* 1997). Nests are generally constructed of conifer twigs, dead grasses with small roots and other parts of plants, mosses and lichens, and are lined with fine grasses and occasionally feathers, mammal hairs and sphagnum (Campbell *et al.* 1997).

The Rusty Blackbird generally produces one clutch per year, although replacement nests may be built (Avery 1995). The eggs vary from pale blue-green to pale grey and have dark to light brown markings (Avery 1995). The female alone incubates the eggs, and the male brings food to the incubating female (Avery 1995). Incubation begins after the first egg is laid and lasts 14 days (Bent 1958). The number of eggs/clutch is 3 to 6, with an average of 4.47 ± 0.08 (n = 80 nests; Avery 1995). Young generally remain in the nest for 11-13 days (Bent 1958; Gauthier and Aubry 1995; Campbell *et al.* 1997) and may leave the nest several days before they are able to fly (Campbell *et al.* 1997). Depending on the latitude, groups of birds gather and begin dispersing in late July and early August (Campbell *et al.* 1997), with migration beginning in late August and continuing until early October (Sinclair *et al.* 2003).

Survival

Although there are no studies of adult Rusty Blackbird survival, there are some data available on nestling survival. A study carried out in New England at the beginning of the 20th century found that 93% of nests raised at least one chick to fledging (n = 14; Kennard 1920), while a more recent survey in British Columbia found that 25% of nests produced at least one chick to fledging (n = 4; Campbell *et al.* 1997).

There are a few reported cases of predation on the Rusty Blackbird. For example, Campbell *et al.* (1997) reported a Gray Jay (*Perisoreus canadensis*) killing three young

in a nest in British Columbia. Also, the aggressive behaviour of adult blackbirds toward American Marten (*Martes americana*), Northern Harrier (*Circus cyaneus*) and Sharp-shinned Hawk (*Accipiter striatus*; Avery 1995; C. Savignac, unpubl. data) suggest these species may be potential predators.

Dispersal/migration

In the northern part of the breeding range, groups of a few dozen to several hundred individuals begin to gather at the end of July (Avery 1995; Manitoba Avian Research Committee 2003). In Alberta and northeastern British Columbia the species has been reported to migrate east in early October (Semenchuk 1992; Campbell *et al.* 1997). Returns of banded birds in North America suggest that Saskatchewan and Manitoba populations migrate southeastward toward the winter range, which probably corresponds to the Mississippi Valley area; whereas populations breeding in northeastern regions tend to migrate southwest, overwintering mostly east of the Mississippi (Brewer *et al.* 2000).

Diet and foraging

The Rusty Blackbird feeds mostly on invertebrates, such as aquatic insect larvae, crustaceans and snails that are associated with aquatic environments. It may also include salamanders and small fish in its diet (Avery 1995). The species forages for food primarily on humid soils, along the banks of riparian zones and in shallow, slow-moving water (Avery 1995). In the fall and winter, although still primarily feeding on aquatic invertebrates, the Rusty Blackbird supplements its diet with seeds and small fruits (Avery 1995). During severe winter conditions, the Rusty Blackbird can also attack and feed on passerines and shorebirds (Bent 1958; Avery 1995). The Rusty Blackbird may also make irregular use of feeders in winter (Cyr and Larivée 1995; Campbell *et al.* 1997).

Interspecific interactions

Few data are available on interspecific interactions during the breeding period (Avery 1995). On its migration routes and wintering areas, the Rusty Blackbird can join mixed flocks composed of other blackbird species, such as the Red-winged Blackbird (*Agelaius phoeniceus*), European Starling (*Sturnus vulgaris*) and Common Grackle (*Quiscalus quiscula*; Avery 1995; Dolbeer *et al.* 1997). Ellison (1990) suggests that habitat conversion on the breeding grounds could encourage colonization by Red-winged Blackbirds and Common Grackles, the former of which is known to displace Rusty Blackbirds during the breeding season (Avery 1995).

Territory

No data currently exist on Rusty Blackbird home range sizes. However, intensive efforts to locate Rusty Blackbird nests in New England at the beginning of the 20th century never found adjacent nests closer than 400 m (Kennard 1920).

Adaptability

During the breeding season, the Rusty Blackbird prefers riparian areas in forested wetlands. However, the species will use wetlands remaining in regeneration cutovers (Campbell *et al.* 1997), riparian areas in cutovers (Darveau *et al.* 1995; Whitaker and Montevecchi 1999), stream buffers untouched by fire in recent burns (Consortium Gauthier et Guillemet – G.R.E.B.E. 1991), treatment ponds in forested areas (R. Popko pers. comm.) and the banks of hydroelectric reservoirs (J. Gauthier pers. comm.). Productivity in these habitats is unknown.

POPULATION SIZE AND TREND

Search effort

A variety of methods are used to survey Rusty Blackbird populations. Below, is a description of each method and its limitations for monitoring Rusty Blackbirds.

The Christmas Bird Count (CBC)

The Christmas Bird Count is a program that tracks North American bird populations in winter, and has been providing estimates of Rusty Blackbird wintering population trends for several decades (Sauer *et al.* 1996). Volunteers note all species found within a 24-km diameter circle on a single day between 14 December and 5 January (Sauer *et al.* 1996). The main advantage of this method is that it samples Rusty Blackbird populations throughout their wintering range in the U.S. (Sauer *et al.* 1996). One of the major disadvantages of this method is that Rusty Blackbirds may be underestimated because they mix with groups of similar species on the wintering grounds and, thus, may be difficult to detect.

The Breeding Bird Survey (BBS)

The Breeding Bird Survey is a program that surveys North American bird populations during the breeding season (Sauer *et al.* 2004). Bird abundance data are collected by volunteers at listening stations located along randomly selected roadside routes throughout North America (Downes *et al.* 2003). The BBS has several disadvantages in terms of monitoring Rusty Blackbird populations. One limitation is that it samples well under one-third of the breeding range of this species, much of which is in less populated and inaccessible locations (Cyr and Larivée 1995). Also, BBSs are usually conducted in June, when Rusty Blackbirds are relatively quiet and, therefore, less detectable (C. Savignac pers. obs.).

The Canadian Migration Monitoring Program

The Canadian Migration Monitoring Program aims to track migratory passerines through a series of monitoring stations across Canada. The main activity carried out at these stations is bird banding and visual migration tracking. The main disadvantage of this

program in terms of Rusty Blackbird monitoring is that relatively few of the stations get Rusty Blackbirds on migration and for those that do, it is often difficult to detect the birds because they are found in mixed flocks with similar species (C. Savignac pers. obs.).

Étude des populations d'oiseaux du Québec (EPOQ)

The Étude des populations d'oiseaux du Québec has been managing ornithological checklists produced by thousands of volunteers since 1969 and is the basic reference for determining Rusty Blackbird population trends in Québec (Cyr and Larivée 1995). The EPOQ database covers all regions south of latitude 52º north and includes all seasons (Cyr and Larivée 1995). The main disadvantage of this method is that it tends to cover mostly inhabited areas where access is easier. Nevertheless, this program is able to survey the Rusty Blackbird during its migration and can provide seasonal trends for the species (Cyr and Larivée 1995). Furthermore, the EPOQ database trends correlate roughly with those of the BBS, and can accurately highlight serious population declines (Dunn *et al.* 1996).

Ontario Breeding Bird Atlas (OBBA)

The work of the Ontario Breeding Bird Atlas between 1981-1985 (Cadman *et al.* 1987) and the current atlas (2001-2005) provides information on changes in the distribution of Rusty Blackbirds in the province in the 20 years between surveys.

Abundance

Breeding range

Rusty Blackbird densities vary greatly according to region. Although many monitoring techniques do not adequately survey the Rusty Blackbird (Consortium Gauthier et Guillemet – G.R.E.B.E. 1991; Drapeau *et al.* 2000; Schieck and Hobson 2000; M.-A. Villard pers. comm.; S. Van Wilgenburg pers. comm.), the densities reported below provide some information on the range of densities that have been reported during the breeding season.

In eastern Canada, breeding bird surveys show that Rusty Blackbird densities vary from region to region, but are generally low. In Newfoundland and Labrador, densities of 6 birds/km^2 have been reported, while in Nova Scotia 2/km^2 have been observed (Erskine 1977). In Québec, recent surveys have found densities of 0.2/km^2 in riparian zones of lakes and hydroelectric reservoirs from James Bay to Labrador (220 transects of 400 m over 500 km^2; J. Gauthier unpubl. data), 0.6/km^2 in riparian strips within Québec's boreal forest (Darveau *et al.* 1995), 17.4/km^2 in the riparian areas of streams of the St. Lawrence Valley (Larue *et al.* 1995) and 100/km^2 in bordering coniferous forests and peatlands in the Grande-Baleine River watershed of northwestern Québec (Consortium Gauthier et Guillemet – G.R.E.B.E. 1991).

In the northwest of the Rusty Blackbird's breeding range, densities appear to be generally higher than those reported in eastern Canada. For example, surveys conducted in the early 1970s in riparian areas along the Mackenzie River, NWT, found densities ranging from 15 to 100/km^2 (Schweinsburg 1974; Gunn *et al*. 1975, 1977). More recent studies conducted in several types of wetlands in northern Saskatchewan found densities ranging from 2 to 31/km^2 (Hobson *et al.* 2000). In contrast, a 2003/2004 survey by Ducks Unlimited covering over 150,000 km^2 of northern Saskatchewan and Alberta found only seven Rusty Blackbirds (J. Morissette pers. comm.). Breeding bird surveys conducted in the Hudson Bay lowlands of northern Manitoba found densities of 20/km^2 (Gillespie 1982).

The total Rusty Blackbird population is difficult to estimate because of the small number of studies conducted in riparian areas and survey techniques that are not suitable for surveying Rusty Blackbird populations. However, some population estimates have been made. Using data from the *Atlas of Breeding Birds of the Maritime Provinces*, Erskine (1992) estimated the Rusty Blackbird populations of New Brunswick, Nova Scotia and Prince Edward Island at 13,400 $\pm$ 3,200, 22,000 $\pm$ 4,000, and 1,600 $\pm$ 1,000 individuals, respectively. An estimate of the Canadian population, which comes from the Canadian BBS and the Canadian Breeding Bird Census Database (Kennedy *et al.* 1999), suggests a population of approximately 1.4 million individuals. This estimate is based on Canada including approximately 70% of the global breeding population of 2 million individuals (Blancher 2003). Another estimate of the Canadian population comes from an extrapolation of counts made at roosts across the U.S. during the winter of 1974-75 (Meanley 1976). This nationwide survey suggested that the global population at that time was approximately 1,103,000 birds (number of birds counted + number missed given 35 main roosts were not surveyed). Assuming that 70% of the global population breeds in Canada (Blancher 2003), then the Canadian population in the mid-70s was approximately 772,100 birds. Assuming that 85.7% of the population has been lost over the last 38 years based on Christmas Bird Count trends (see below), the current Canadian population is estimated at 110,400 individuals. Thus, the Rusty Blackbird population in Canada ranges roughly from a minimum of 110,400 to a maximum of 1.4 million individuals.

Fluctuations and trends

The Christmas Bird Count

Despite its limitations (see above), the CBC is the best method for determining Rusty Blackbird population trends because it surveys most of the wintering range in the U.S. CBC data show a significant decline of -5.1%/year between 1966 and 2003 (Figure 2; Table 2). Given this rate of decline, the Rusty Blackbird population will have decreased by 85.7% over the last 38 years (Niven *et al*. 2004). The decline in the most recent 10-year period (1994-2003) has been approximately -2.1%/year (Figure 3, Table 2). At this rate, the population will have decreased by 18.3% over the last decade.

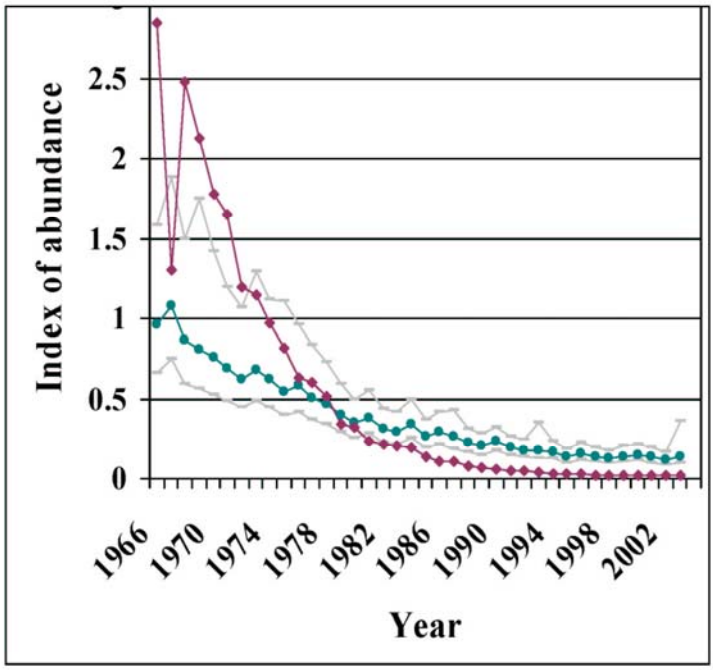

Figure 2. Population trends for the Rusty Blackbird taken from the North American CBC (circles) and BBS (diamonds) surveys for 1966-2003 (taken from Niven *et al.* 2004). Credible intervals (the Bayesian equivalent of confidence intervals) for the CBC are shown as bars.

Table 2. Summary of Rusty Blackbird population trends according to various population monitoring programs. * P<0.05, ** P<0.001, ns = non-significant.

Region	Period	Annual rate of decline (%/yr)	p	n	Tracking program	Source
North America	1966-2003	-5.1	*	-	CBC	Niven *et al*. 2004
North America	1994-2003	-2.1	*	-	CBC	Data provided courtesy of Dan Niven. Trend calculated by Peter Blancher by E. Dunn, (National Wildlife Research Centre, Canadian Wildlife Service)
North America	1966-2003	-9.97	*	96	BBS	Sauer *et al*. 2004
Canada	1968-2002	-10.3	*	198	BBS	Downes *et al*. 2003
Canada	1993-2002	-6.0	ns	88	BBS	Downes *et al*. 2003
Northern British Columbia	1996-2002	-24.3	*	-	Mackenzie Nature Observatory	Bird Studies Canada 2004
Lake Superior	1996-2002	-3.76	ns		Thunder Cape Bird Observatory	Bird Studies Canada 2004
Québec (south of the 52nd parallel)	1970-1995	-4.6	*	-	ÉPOQ.	Cyr and Larivée 1995
Québec (south of the 52nd parallel)	1970-2003	-2.7	**	-	ÉPOQ.	J. Larivée, unpubl. data

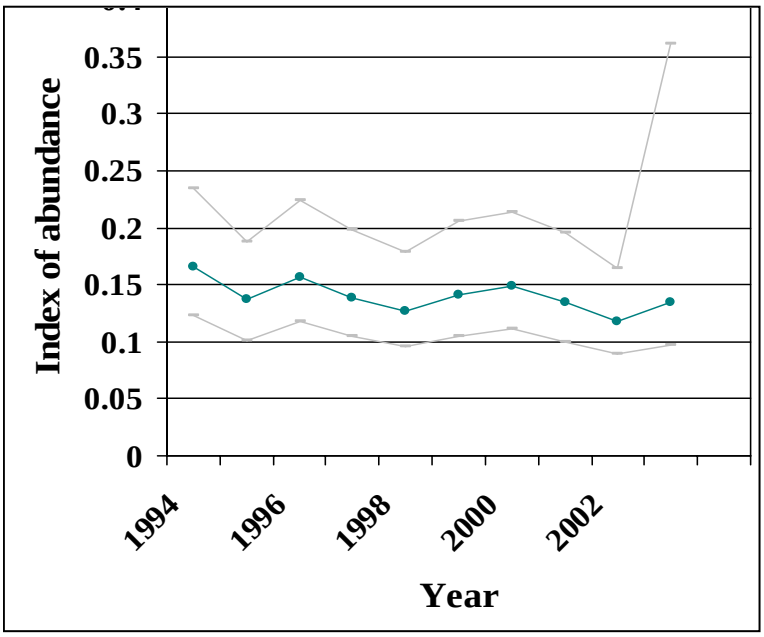

Figure 3. Trends for the Rusty Blackbird taken from the North American CBC for 1994-2003. Credible intervals (the Bayesian equivalent of confidence intervals) are shown as bars. (data courtesy of Dan Niven).

The Breeding Bird Survey

Based on BBS data, the Rusty Blackbird population in North America has shown a significant decline of -9.97%/year over the last 38 years (1966-2003; Figure 2, Table 2). At this annual rate of decline, the global Rusty Blackbird population will have decreased by 98% since 1966. In Canada, Rusty Blackbird populations have shown a significant decline of -10.3%/year over a similar time period (1968-2002; Table 2) and a non-significant decline of -6%/year for the most recent 10-year period (1993-2002; Table 2). For the majority of Canadian provinces, a precise picture of trends cannot be obtained because of low sample sizes (Downes *et al.* 2003). Of seven provinces with BBS information, however, all showed negative trends in the 1968-2003 period.

The Canadian Migration Monitoring Program

Of the 22 monitoring stations, only three record sufficient numbers of Rusty Blackbirds to produce trends. The Mackenzie Nature Observatory station in northeastern British Columbia, showed a significant decline of -24.3%/year in migrating populations of Rusty Blackbirds between 1996 and 2002, while Thunder Cape Bird Observatory showed a non-significant decline of -3.76%/year between 1995 and 2002 (Table 2). Neither period is long enough to use the most appropriate analysis of migration data, which includes adjustment for weather effects on numbers recorded (E. Dunn pers. comm.). Finally, analyses based on 13 standardized counts (9131 hours of observation) from the Observatoire d'oiseaux de Tadoussac between 1996 and 2005

suggested a negative correlation (R^2 = 0.45) between year and the abundance of Rusty Blackbirds observed on the fall migration. Data from this site also suggest that population size might fluctuate over a 5-year cycle, which could also increase the vulnerability of the species (B. Drolet pers. comm.).

Étude des populations d'oiseaux du Québec

The EPOQ database showed a decline of -4.6%/year between 1970 and 1995, which is equivalent to a total decline of 59% since 1970 (Cyr and Larivée 1995). A more recent analysis of the database for the period 1970-2003 showed further decline in Rusty Blackbird numbers, but at the lower rate of -2.7%/year (Table 2).

The Ontario Breeding Bird Atlas

A comparison of data from the second Ontario Breeding Bird Atlas (2001-2005) with those from the first atlas (1981-1985, Cadman *et al.* 1987) show a significant decline in the number of "matched" squares (i.e., well-covered squares where the species was reported in both atlases) of 12% in the northern shield area and 4% in the southern shield (M. Cadman pers. comm.). Interestingly, there was a non-significant increase in the number of matched squares in the Hudson Bay Lowland, suggesting that this may be an important breeding area for this species (M. Cadman pers. comm.).

Rescue effect

Although there is no direct evidence of immigration from the U.S., some immigration almost certainly occurs, particularly from Rusty Blackbird populations in eastern Alaska, where there are relatively large breeding populations (International Rusty Blackbird Technical Group 2005). Immigration from these areas would probably affect only populations in northern British Columbia, Northwest Territories and the Yukon, however. Rusty Blackbird populations from the New England states are probably too low to provide a rescue effect for populations in the Maritimes, southern Québec or Ontario.

LIMITING FACTORS AND THREATS

Habitat loss

Wintering habitat

The conversion of the wetland forests in the south of the United States, on the wintering grounds of the Rusty Blackbird, is thought to be one of the most significant factors in the decline of this species (Greenberg and Droege 1999). Over the last 150 years approximately 80% of the forest massif has disappeared and this area now consists of detached forest tracts (Hefner and Brown 1984). Loss of other important habitats has also been reported for the upper Mississippi (http://www.birds.cornell.edu/ivory/story11.htm).

Breeding habitat

Wetland conversion for agriculture and urban development has also resulted in habitat loss in the southern part of the species' breeding range in Canada (Hobson *et al.* 2002). Approximately 5% of Rusty Blackbird habitat in Canada has been lost and another 4% loss is anticipated in the next 50 years (Global Forest Watch Canada 2000; Hayeur 2001; Griffiths and Woynillowicz 2003; Kling *et al.* 2003; Wildlife Habitat Canada 2003)

Bird control programs

Rusty Blackbird populations may also be affected by bird control programs in the U.S. that are designed to reduce populations of nuisance birds that damage crops (Avery 1995). Between 1974 and 1992, Red-winged Blackbird and European Starling control programs were responsible for the extermination of 100,000 Rusty Blackbirds, which was 1% of the total number of birds killed in roosts (Dolbeer *et al.* 1997). Although blackbird control is currently carried out in several American states there are no studies showing the number of Rusty Blackbirds exterminated by these programs.

Migratory populations of Rusty Blackbirds could also be affected by bird control programs currently being planned in central and southeastern U.S. states where sunflower and rice crops are subject to significant damage from Red-winged Blackbirds (Linz *et al.* 2002; Blackwell *et al.* 2003; Custer *et al*. 2003).

Habitat degradation on breeding grounds

Although no studies have been conducted, Rusty Blackbird populations could also be affected by: 1) the degradation of boreal forest wetlands due to climate change (Sillett *et al.* 2000; Jones *et al.* 2003; Both *et al*. 2004); 2) the acidification of wetlands by industrial waste (Schindler 1988; Graveland *et al.* 1994, but see DesGranges *et al.* 1998); 3) mercury contamination of boreal wetlands following forestry activities and the creation of hydroelectric reservoirs (DesGranges *et al.* 1998; Gracia and Carignan 2000; Gerrard and St. Louis 2001).

Other limiting factors

Rusty Blackbirds might also be affected by the invasion of dominant species such as the Red-winged Blackbird into boreal wetlands (Ellison 1990; Erskine 1992).

SPECIAL SIGNIFICANCE OF SPECIES

Given that 70% of the breeding range of the Rusty Blackbird is located in Canada (Blancher 2003), it is currently considered a species of high responsibility in terms of conservation in Canada (Dunn *et al.* 1999; Downes *et al*. 2000).

EXISTING PROTECTION OR OTHER STATUS DESIGNATIONS

The Rusty Blackbird receives no protection under the *Migratory Birds Convention Act* in Canada, but is protected under the U.S. *Migratory Bird Treaty Act*. Blackbirds are, however, considered pests in some circumstances and may be killed if they cause damage to human property (Northern Prairie Wildlife Research Center 2004).

Because the Rusty Blackbird is not considered to be at risk in most Canadian provinces, its population is not monitored by conservation data centres or natural heritage centres (M. Donovan pers. comm.). The species has a global rank of G4, i.e., apparently secure (NatureServe 2004; Table 3). The national ranks for Canada and the U.S. are secure. In Canadian provinces, the Rusty Blackbird is generally designated as being secure (Table 3), although some of the Atlantic provinces list the species as vulnerable (NatureServe 2004; Table 3). General status assessments published in 2000 considered the Rusty Blackbird Sensitive in the Northwest Territories, Prince Edward Island and Newfoundland and secure in all other provinces and territories, except Nunuvut, where its status was undermined (Canadian Endangered Species Conservation Council 2001).

Table 3. Status ranks of the Rusty Blackbird in North America according to NatureServe (2004).

Province/territory/state	Rank	Definition
World rank	G4	Apparently secure
Canada	N5B	Secure, breeding
United States	N5B, N5N	Secure, breeding and nonbreeding
Yukon	SNRB	No designation, breeding
Nunavut	SNRB	No designation, breeding
Northwest Territories	SNRB	No designation, breeding
British Columbia	S5B	Secure, breeding
Alberta	S5B, S1N	Secure, breeding; vulnerable - nonbreeding
Saskatchewan	S5B	Secure, breeding
Manitoba	S4S5B	Apparently secure - Secure, breeding
Ontario	S5B	Secure, breeding
Québec	S5	Secure
New Brunswick	S4B	Apparently secure
Nova Scotia	S3S4B	Vulnerable to apparently secure, breeding
Prince Edward Island	S3B	Vulnerable, breeding
Newfoundland	S3B	Vulnerable, breeding
Alaska	S4B	Apparently secure
Michigan	SNRN	No designation, nonbreeding
Minnesota	SNRB	No designation, nonbreeding
Maine	S3N	Vulnerable, nonbreeding
New Hampshire	S2	Imperiled
Vermont	S3B	Vulnerable, breeding
New York	S3	Vulnerable

TECHNICAL SUMMARY

Euphagus carolinus
Rusty Blackbird Quiscale rouilleux
Range of occurrence in Canada: Prince Edward Island, Nova Scotia, New Brunswick, Newfoundland and Labrador, Québec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, Yukon, NWT and Nunavut

Extent and Area Information	
• Extent of occurrence *(EO) (*km^2*)* 70% of the total North American breeding range of 7.6 million km^2	5.3 million km^2
• *Specify trend in EO*	stable
• *Are there extreme fluctuations in EO?*	no
• *Area of occupancy (AO) (*km^2*)*	unknown, but large
• *Specify trend in AO*	unknown
• *Are there extreme fluctuations in AO?*	not likely
• *Number of known or inferred current locations*	not applicable
• *Specify trend in #*	not applicable
• *Are there extreme fluctuations in number of locations?*	not applicable
• *Specify trend in area, extent or quality of habitat*	likely stable on breeding grounds, but declining on wintering grounds
Population Information	
• *Generation time (average age of parents in the population)*	2-3 years
• *Number of mature individuals* - minimum based on extrapolation of roost counts from 1970s - maximum based on Breeding Bird Survey data	110,400 to 1.4 million
• *Total population trend:*	decline
• *% decline over the last/next 10 years or 3 generations* • Based on Christmas Bird Count data: - decline of 85% between 1966 and 2003 - decline of 18.3% in last 10 years	18.3%
• *Are there extreme fluctuations in number of mature individuals?*	no
• *Is the total population severely fragmented?*	no
• *Specify trend in number of populations*	not applicable
• *Are there extreme fluctuations in number of populations?*	not applicable
• *List populations with number of mature individuals in each:*	not applicable
Threats (actual or imminent threats to populations or habitats)	
- Habitat loss caused by wetland conversion to agricultural land on wintering grounds - Some additional localized habitat loss on breeding grounds because of activities such as wetland conversion, creation of hydroelectric reservoirs - Bird control programs on wintering grounds	
Rescue Effect (immigration from an outside source)	
• *Status of outside population(s)?* **USA**: Declining	
• *Is immigration known or possible?*	yes
• *Would immigrants be adapted to survive in Canada?*	yes
• *Is there sufficient habitat for immigrants in Canada?*	yes
• *Is rescue from outside populations likely?*	limited rescue because most of range is in Canada
Quantitative Analysis	none
Current Status COSEWIC: Special Concern (2006)	

Status and Reasons for Designation

Status: Special Concern	**Alpha-numeric code**: Not applicable

Reasons for Designation:

More than 70% of the breeding range of this species is in Canada's boreal forest. The species has experienced a severe decline that appears to be ongoing, albeit at a slower rate. There is no evidence to suggest that this trend will be reversed. Known threats occur primarily on the winter range in the United States, and include habitat conversion and blackbird control programs.

Applicability of Criteria

Criterion A: (Declining Total Population): Does not meet criterion - population decline < 30%.

Criterion B: (Small Distribution and Decline or Fluctuation): Does not meet criterion - Extent of Occurrence > 20,000 km^2 and Area of Occupancy > 2,000 km^2.

Criterion C (Small Total Population Size and Decline): Does not meet criterion - total population size > than 10,000.

Criterion D: (Very Small Population or Restricted Distribution): Does not meet criterion - population size > than 1,000 and Area of Occupancy > than 20 km^2.

Criterion E: (Quantitative Analysis): None

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