

COSSARO Candidate Species at Risk Evaluation
for
Wood Thrush (*Hylocichla mustelina*)

**Committee on the Status of Species at Risk in Ontario
(COSSARO)**

Assessed by COSSARO as SPECIAL CONCERN

January 2013

FINAL

Grive des bois (*Hylocichla mustelina*)

La grive des bois est un oiseau répandu des forêts décidues de l'est de l'Amérique du Nord. En Ontario, on la trouve dans les forêts du centre et du sud de l'Ontario, avec une aire de répartition largement continue au sud des rivières des Français et Mattawa, une répartition éparpillée au nord de la rive nord de la baie Georgienne et une petite population isolée dans le district de Rainy River, dans le nord-ouest de l'Ontario. Il existe une seule unité désignable au Canada, et la grive des bois a été désignée comme étant menacée par le COSEPAC. La grive des bois a connu des déclin importants sur le plan de son abondance dans toute son aire de répartition canadienne, bien que ces déclin semblent s'être estompés au cours des récentes décennies. Les données du Relevé des oiseaux nicheurs révèlent un déclin non considérable dans le nombre de carrés d'atlas de façon générale et un déclin important dans la région sud du Bouclier canadien. Parmi les menaces majeures qui semblent peser sur l'espèce, il y a la fragmentation des forêts, l'aménagement urbain et des banlieues et la construction de chalets, le broutage excessif de la part des chevreuils en certains endroits et les activités prédatrices du vacher à tête brune. L'aménagement dans les aires forestières, en particulier, a des répercussions négatives sur la reproduction de la grive des bois. La perte et la fragmentation de l'habitat d'hiver pourraient aussi être une préoccupation. La répartition et les populations de la grive des bois semblent être relativement robustes en Ontario, malgré les déclin qu'elles ont subis. La grive des bois est considérée comme étant une espèce **préoccupante** en Ontario.

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PART 1

CURRENT STATUS AND DISTRIBUTION

Current Designations:

GRANK – G5 (Assessed 23/08/2000) (NatureServe, 2013)

<http://www.natureserve.org/explorer/>

NRANK Canada – N4B (Assessed 09/09/2011) (NatureServe, 2013)

COSEWIC – Threatened (Assessed November 2012)(COSEWIC, 2012)

SARA – No status (not included on Schedules) (Environment Canada 2013)

ESA 2007 – No status (not included on Species at Risk in Ontario [SARO] List) (OMNR, 2013))

SRANK – S4B (NatureServe 2013, NHIC 2013)

Distribution in Ontario:

The Wood Thrush is continuously distributed across southern Ontario, south of the northern shore of Georgian Bay and the French-Mattawa river system (Friesen 2007). It is more sparsely distributed across the north shore of Lake Huron westward to Sault Ste. Marie and the southeastern tip of Lake Superior; there is a very small isolated population in the western Rainy River District near Lake of the Woods (ibid). There are very rare and scattered occurrences in the southern and central boreal region (Friesen 2007).

Distribution and Status Outside Ontario:

The Wood Thrush is a woodland bird that occurs across the eastern United States and southeastern Canada (COSEWIC 2012). Its distribution is continuous in the east from the Canadian Maritime provinces south to Florida, and in the west from northwestern Ontario south to eastern Texas. It winters in Central America, mainly in lowlands along the Pacific and Atlantic slopes from southern Mexico to Panama (COSEWIC 2012). It is generally common, but declining throughout its range.

PART 2

ELIGIBILITY FOR ONTARIO STATUS ASSESSMENT

2.1 APPLICATION OF ELIGIBILITY CRITERIA

Taxonomic Distinctness

Yes. There is no dispute as to the validity of Wood Thrush as a recognized species.

Designatable Units

The entire Canadian (and Ontario) population is recognized as a single Designatable Unit (COSEWIC 2012).

Native Status

Yes. This is clearly a native species to Ontario.

Presence/Absence

Present. This species is clearly present in Ontario.

2.2 ELIGIBILITY RESULTS

1. The putative taxon or DU is valid. **Yes**
2. The taxon or DU is native to Ontario. **Yes**
3. The taxon or DU is present in Ontario, extirpated from Ontario or extinct?
Present

PART 3

ONTARIO STATUS BASED ON COSSARO EVALUATION CRITERIA

3.1 APPLICATION OF PRIMARY CRITERIA (Rarity and Declines)

1. Global Rank

Not in any category. G5

2. Global Decline

Not in any category. This species has shown significant long and short-term declines in abundance. This species was assessed as “Least Concern” by BirdLife International and the IUCN in 2009 because, although the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Threatened under the population trend criterion (>30% decline over 10 years or three generations) (BirdLife International, 2012). While there has been a decline throughout its range, it is approaching but less than the COSSARO threshold of 30% for this criterion.

3. Northeastern North America Ranks

Not in any category. Ranked as S1, S2, SX or SH in 8% of northeastern North American jurisdictions where it is present and has been ranked (Appendix 1).

4. Northeastern North America Decline

Endangered. The northeastern North American states represent approximately the northern 2/3 of the global Wood Thrush breeding range.

Regionally, BBS data indicate that there were significant population declines in the Eastern BBS region of North America in the periods 1966-2010 (-1.9% annually, -57.0% overall) and 2000-2010 (-1.9% annually, -17.5% overall); there were similarly significant decreases in the Central BBS region of North America in the periods 1966-2010 (-1.2% annually, -41.2% overall) and 2000-2010 (-1.4% annually, -13.2% overall) (Sauer *et al.*, 2011). Of 25 jurisdictions in northeastern North America where the species is present, 20 showed a negative population trend, 16 of those showed a significant negative population trend, and only 5 showed a nonsignificant positive trend (Appendix 1, Sauer *et al.* 2011). These statistics indicate a population decline of greater than 50% in northeastern North America. BBS data show the extensive area of decline in northeastern North America (Figure 1)(Sauer *et al.* 2011).

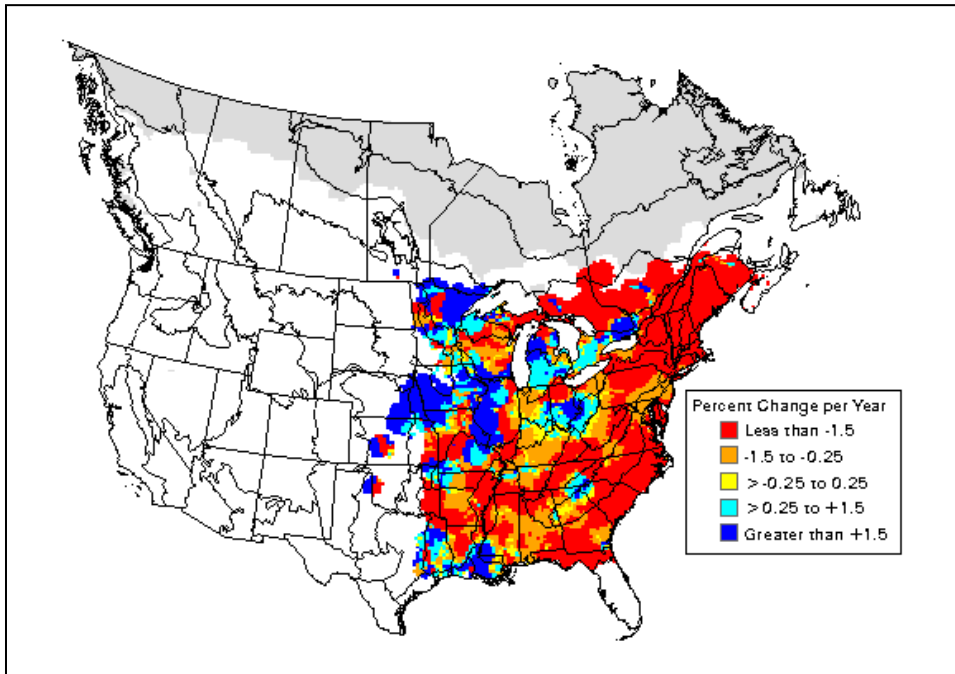


Figure 1. Geographic pattern of population change in Wood Thrush (1966-2003), based upon BBS data (from Sauer *et al.* 2011).

5. Ontario Occurrences

Not in any category. This species is not yet tracked in the NHIC database, and consequently there are no EO data available (Tanya Taylor, pers. comm.). The Canadian population is estimated at between 260,000-665,000, with an estimated 520,000 individuals in Ontario (COSEWIC 2012). The Ontario population is more or less continuous across the core of its southern Ontario range, with more dispersed distribution across the north shore of Lake Huron and the Rainy River area (Friesen 2007), and it seems clear that the EO threshold will not be reached for any category with this criterion.

6. Ontario Decline

Special Concern. Breeding Bird Survey (BBS) data indicate that the overall Canadian population has decreased by approximately 83% between 1970 and 2011 (COSEWIC 2012). Data from the most recent decade (2001-2011) indicate a 38% decline over 10 years or approximately 3 generations (*ibid*).

Similar significant negative declines are also in effect for Ontario, although with somewhat smaller annual rates of change, particularly for the 40-year period. Annual indices of population change show a negative trend from the early 1970s to the early 1990s, followed by an increasing trend from 1989 to 2009 (Environment Canada 2013) (Figure 2). BBS data indicated a decline in Ontario from 1966-1990 of -3.7% annually or -59.2% overall, followed by a 20-year period of increase from 1990-2010 of 0.82% annually and 17.7% overall (Sauer *et al.* 2011). These trends are highly variable in Ontario (see Figure 2) with Wood

Thrush increasing in southern, eastern and northwestern Ontario, and declining in central Ontario.

The Ontario Breeding Bird Atlas (OBBA) showed a non-significant decline of 7% in the frequency of observations in an atlas square (10 km x 10 km) provincially from the 1980s to the 2000s, with a significant 15% decline in the Southern Shield (Friesen 2007) which comprises approximately 50% of the provincial core range. OBBA data show a large number of atlas squares on the Canadian Shield northward where the Wood Thrush was observed on the 1st atlas but not the second one (Friesen 2007); conversely there are a number of atlas squares in the Lake Simcoe-Rideau zone and Manitoulin Island where the species was observed in the second atlas but not the first one. The positive increase in atlas squares occupied in some regions may be due in part to an increase in forest cover in eastern Ontario and the Niagara Escarpment (Friesen 2007). Overall, the Breeding Atlas concluded “the Wood Thrush’s breeding distribution in Ontario has not changed significantly since the first atlas” (Friesen 2007). The main limitation of the OBBA is that it only reflects occurrence in a square and does not reflect abundance; this means that it underestimates the change in actual population size for more common species (Francis *et al.* 2009).

Migration monitoring trends from the Long Point Bird observatory indicate a negative near-significant ($P=.0855$) decline from 1967-2006 of $-1.59\%/year$ (Figure 3) (Canadian Migration Monitoring Network 2013).

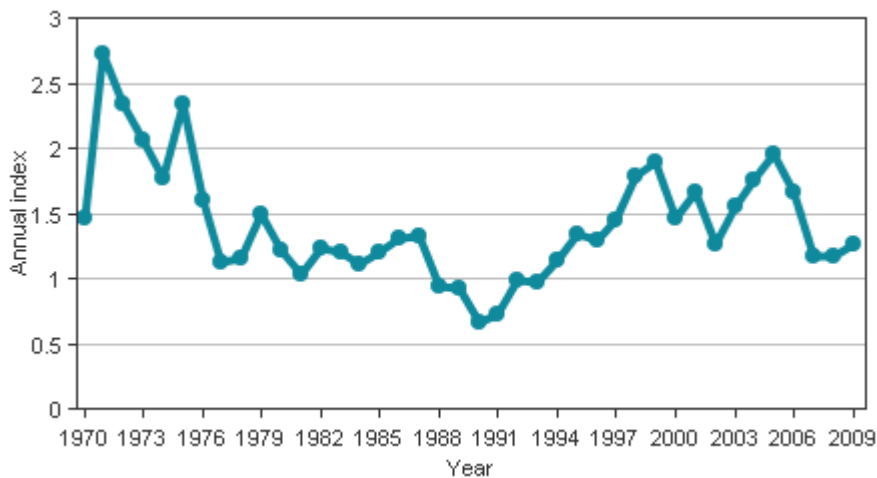


Figure 2. Annual indices of population change for the Wood Thrush in Ontario based on Breeding Bird Survey data (1970 - 2009)(from Environment Canada 2013b).

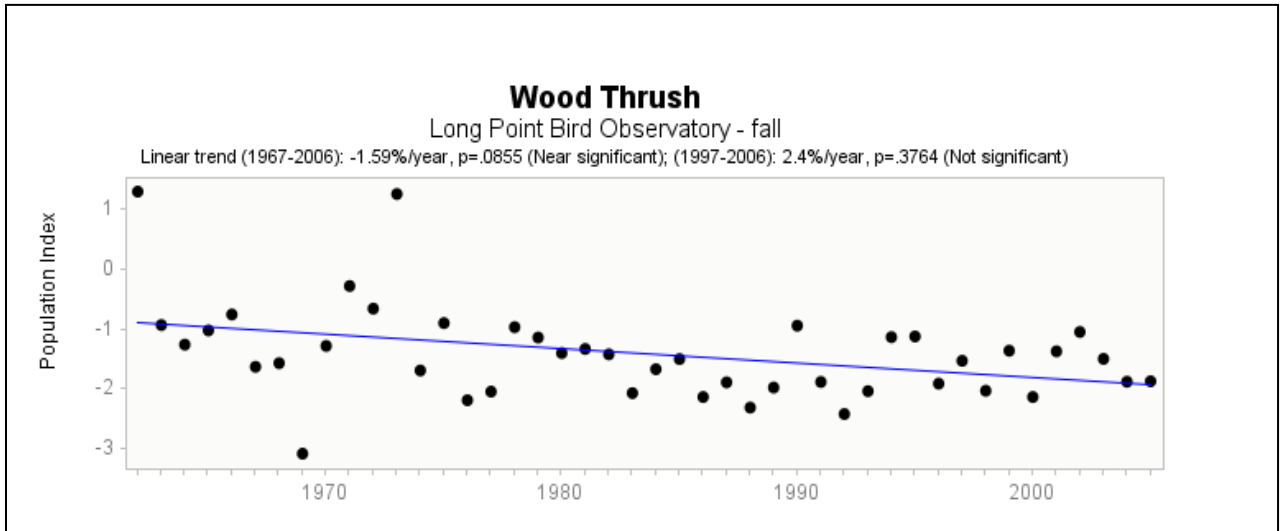


Figure 3. Trends in fall population index of Wood Thrush at Long Point Bird Observatory (from Canadian Migration Monitoring Network 2013)

Overall, although there are different monitoring results that can be interpreted in different manners and the species appears to be increasing in some regions of Ontario while decreasing in others, there has clearly been a population decline of this species of >25% and the threshold for Special Concern is met.

7. Ontario's Conservation Responsibility

Not in any category. Ontario has 4.6% of the global population (COSEWIC 2012).

3.2 APPLICATION OF SECONDARY CRITERIA (Threats and Vulnerability)

8. Population Sustainability

Insufficient information. No population viability analyses have been conducted. Cowbird parasitism has an identified impact on reproductive success.

9. Lack of Regulatory Protection for Exploited Wild Populations

Not in any category. The species and its nest are protected under the Migratory Birds Convention Act. There is no known illegal harvest.

10. Direct Threats

Special Concern. Causes of Wood Thrush decline are not well understood. The major identified threats include habitat degradation and fragmentation related to development, overbrowsing by White-tailed Deer (*Odocoileus virginianus*), Brown-headed Cowbird (*Molothrus ater*) brood parasitism and nest predation (COSEWIC 2013). Even though Wood Thrush may nest in fragmented forests, residential development is a demonstrated threat and has a demonstrated negative impact. A study in southern Ontario found that the number of breeding thrushes decreased markedly as the number of residences surrounding forest patches increased (COSEWIC 2012). NatureServe (2013) noted “the importance of protecting large, unfragmented forests for breeding habitat cannot be overstated. Where possible, forest preserves should be on the order of 10,000+ ha.” In a Pennsylvania study, nest survival was positively correlated with forest area, forest core area, and percent forest within a 2-km radius of each study site, and was best predicted by forest area (Hoover *et al.* 1995). Nest depredation was the primary cause of nesting failure and varied significantly with forest size, with nest losses of 56% in small forests, 22% in large fragments, and 10% within contiguous forest (56% and 19% respectively)(*ibid*). Cowbird parasitism and nest predation are both directly related to forest fragmentation. Cowbird parasitism is relatively high in Ontario, with parasitism rates between 11-60% recorded in various studies (COSEWIC 2012). However, Brown-headed Cowbird populations in Ontario also show a negative population trend of –4.0% annually or –83.4% overall from 1966-2010 (Sauer *et al.* 2011), and the probability of observation in the Ontario Breeding Bird Atlas declined by 35% from the first atlas (Falk 2007), so this does not appear to be an increasing threat.

Whereas forest cover has been increasing in much of southern and central Ontario for many decades (Larson *et al.* 1999) and may have had a positive effect on the availability of Wood Thrush habitat, this has stabilized and even decreased in Ecological Region 6E (Ontario Biodiversity Council 2010). Recent reporting on the state of Ontario’s forests show an increase in forest fragmentation in both the Mixedwood Plains and southern Ontario Shield ecozones from 1996-2008 (OMNR 2012).

Habitat degradation and loss may also be a factor on wintering grounds, although Wood Thrush will use much smaller patches on wintering habitat than when

breeding.

11. Specialized Life History or Habitat-use Characteristics

Not in any category. The Wood Thrush breeds in moist, deciduous or mixed wood stands with both a dense understory and tall trees for song perches; often these sites have been recently disturbed. (COSEWIC 2007). It is typically associated with Sugar Maple (*Acer saccharum*) stands (COSEWIC 2012). Friesen (2007) noted that the widespread and highly destructive ice storm of 1998 created large areas of regenerating forest that provide high-density Wood Thrush habitat.

3.3 COSSARO EVALUATION RESULTS

1. Criteria satisfied in each status category

Number of primary and secondary criteria met in each status category:

ENDANGERED –	[1/0]
THREATENED –	[0/0]
SPECIAL CONCERN –	[1/1]

Number of Ontario-specific criteria met in each status category:

ENDANGERED –	[0]
THREATENED –	[0]
SPECIAL CONCERN –	[1]

2. Data Deficiency

No. Sufficient data are available to determine status.

3. Status Based on COSSARO Evaluation Criteria

The application of COSSARO evaluation criteria suggests that **Wood Thrush** is **Special Concern** in Ontario.

PART 4

ONTARIO STATUS BASED ON COSEWIC EVALUATION CRITERIA

4.1 APPLICATION OF COSEWIC CRITERIA

Regional (Ontario) COSEWIC Criteria Assessment

Criterion A – Decline in Total Number of Mature Individuals

Not in any category. At the national level, Wood Thrush meets criterion A2b because the population has declined by more than 30% over the past 3 generations (10 years) based upon various indices of abundance. However in Ontario, the spatial decline in range, although negative, is non-significant, and the apparent population decline, although it has occurred, does not appear to be as steep as elsewhere in its Canadian range.

Criterion B – Small Distribution Range and Decline or Fluctuation

Not in any category. Range area exceeds threshold.

Criterion C – Small and Declining Number of Mature Individuals

Not in any category. Population size exceeds threshold.

Criterion D – Very Small or Restricted Total Population

Not in any category. Population size and area of distribution exceed threshold.

Criterion E – Quantitative Analysis

Insufficient information.

Rescue Effect

Yes. Rescue effect is possible, however there are declining populations in the provinces to the east and in the adjacent U.S.A. jurisdictions to the south.

Special Concern Status

Yes. Species meets this criterion because:

- the species is likely to become Threatened if factors suspected of negatively influencing the persistence of the species are neither reversed nor managed with demonstrable effectiveness; and
- the species is near to qualifying, under Criterion A, for Threatened status.

The species' status and trends in Ontario appear to be somewhat better than for other Canadian jurisdictions.

4.2 COSEWIC EVALUATION RESULTS

1. Criteria satisfied in each status category

ENDANGERED –	No
THREATENED –	No
SPECIAL CONCERN –	Yes

2. Data Deficiency

No

3. Status Based on COSEWIC Evaluation Criteria

The application of COSEWIC evaluation criteria suggests that **Wood Thrush** is **Special Concern** in Ontario.

PART 5

ONTARIO STATUS DETERMINATION

5.1 APPLICATION OF COSSARO AND COSEWIC CRITERIA

COSSARO and COSEWIC criteria give the same result. **Yes**

5.2 SUMMARY OF STATUS EVALUATION

Wood Thrush is classified as **Special Concern** in Ontario.

Wood Thrush is a widespread bird of the deciduous forests of eastern North America. In Ontario it occurs in the forests of central and southern Ontario, with a broadly continuous distribution south of the French and Mattawa rivers, a scattered distribution north of the north shore of Georgian Bay, and a small isolated population in the Rainy River District of northwestern Ontario. There is one recognized DU in Canada, and Wood Thrush has been designated as Threatened by COSEWIC. The Wood Thrush has undergone significant declines in abundance across its Canadian range, although the declines appear to have lessened in Ontario in recent decades. Breeding Bird Atlas data indicate a non-significant decline in the number of occupied atlas squares overall, and a significant decline in the Southern Shield. Major threats appear to be forest fragmentation, urban, suburban and cottage development, overbrowsing by White-tailed Deer in some locales, and Brown-headed Cowbird parasitism. Development in forested areas in particular has negative impacts on Wood Thrush breeding. Loss and fragmentation of winter habitat may also be a concern. Wood Thrush distribution and populations still appear to be relatively robust in Ontario, despite declines. The species is considered to be Special Concern in Ontario.

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APPENDIX 1
NORTHEASTERN NORTH AMERICA STATUS RANK AND DECLINE

	Subnational Rank <i>Give SRANK or write "Not Present" for each jurisdiction</i>	Sources	Decline	Sources
CT	S5B	NatureServe (2013)	-1.9%	Sauer et al. (2011)
DE	S5B	"	-1.0%	Sauer et al. (2011)
IL	S4	"	-1.5%	Sauer et al. (2011)
IN	S4B	"	-0.5%	Sauer et al. (2011)
IA	S4B, S4N	"	+1.5%	Sauer et al. (2011)
LB	Not present	"		
KY	S5B	"	-0.5%	Sauer et al. (2011)
MA	S5B	"	-3.1%	Sauer et al. (2011)
MB	Not present	"		
MD	S5B	"	-1.9%	Sauer et al. (2011)
ME	S4B	"	-5.0%	Sauer et al. (2011)
MI	S4	"	-2.0%	Sauer et al. (2011)
MN	SNRB (Not ranked)	"	+1.4%	Sauer et al. (2011)
NB	S1S2B	"	-3.4%	Sauer et al. (2011)
NF	Not present	"		
NH	S5B	"	-3.9%	Sauer et al. (2011)
NJ	S3B	"	-1.4%	Sauer et al. (2011)
NS	S1B	"	+1.2%	Sauer et al. (2011)
NY	S5	"	-2.7%	Sauer et al. (2011)
OH	S5	"	+0.5%	Sauer et al. (2011)
ON	S4B	"	-1.7%	Sauer et al. (2011)
PA	S5B	"	-1.6%	Sauer et al. (2011)
PE	SNA (Not applicable)	"		
QC	S3S4	"	-4.7%	Sauer et al. (2011)
RI	S5B	"	-1.2%	Sauer et al. (2011)
VA	S5	"	-2.6%	Sauer et al. (2011)
VT	S5B	"	-3.0%	Sauer et al. (2011)
WI	S4B	"	+0.2%	Sauer et al. (2011)
WV	S5B	"	-0.9%	Sauer et al. (2011)

Occurs as a native species in 25 of 29 northeastern jurisdictions

SRank or equivalent information available for 24 of 25 jurisdictions = (96%)

S1, S2, SH, or SX in 2 of 24 = (8%)