

# Ontario Landbird Conservation Plan:

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**April 2005**

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## Appendix A: Ontario BCR 13 Technical Advisory Committee

*This Appendix will be updated again to incorporate plan review stage.*

<b>Name</b>	<b>Organization</b>	<b>Role</b>
Ken Abraham	Ontario Ministry of Natural Resources (OMNR)	Workshop 1
Rhonda Barkley	Ontario Federation of Anglers and Hunters (OFAH)	Workshops 1 & 2
Gregor Beck	Ontario Nature	Workshop 1
Dawn Burke	OMNR	Workshops 1 & 2
Mike Cadman	Environment Canada (EC)	Workshop 1
Bill Crins	OMNR	Workshops 1 & 2
Martin Damus	EC	Workshops 1 & 2
Sherry Hambly	OMNR	Workshop 1
Jean Iron	Ontario Field Ornithologists (OFO)	Workshops 1 & 2
Eva Kennedy	OMNR	
Dan Kraus	Nature Conservancy of Canada (NCC)	Workshop 2
Kathryn Lindsay	EC, National Wildlife Research Centre (NWRC)	Workshops 1 & 2
Marg McLaren	OMNR	Workshops 1 & 2
Deb Pella Keen	OMNR	Workshop 2
Robert Pineo	OFAH	Workshop 2
Deb Stetson	OMNR	Workshop 1
Mark Stabb	Wildlife Habitat Canada (WHC) – Wetland Habitat Fund	Workshops 1 & 2
Don Sutherland	OMNR	Workshops 1 & 2
Ken Towle	Ganaraska Region Conservation Authority	Workshops 1 & 2
Steve Wendt	EC, Partners in Flight National Working Group	Workshop 1
Sarah Wren	Nature Canada	Workshops 1 & 2

**BCR 13 Technical Workshop 1:** 28-29 October 2003, OMNR, Peterborough, ON

**BCR 13 Technical Workshop 2:** 15-16 April 2004, OMNR, Peterborough, ON

## **Appendix B: Avian and Habitat Datasets and Data Analyses**

Information on the distribution, abundance and trends of landbirds in the Ontario portion of BCR 13 is generally good as the result of existing landbird monitoring programs, as described in the Canadian Landbird Monitoring Strategy (Downes et al. 2000), and the Ontario Wildlife Monitoring Programs summary (Konze 1998).

Breeding season datasets are particularly robust. Few monitoring programs collect standardized data on the distribution and abundance of wintering landbirds in this region. Standardized migration monitoring datasets are available for some locations within ONBCR 13, but comparable data are not available elsewhere.

Only the avian datasets used in preparing this plan are described below.

### **Breeding Bird Survey (BBS)**

The Breeding Bird Survey (BBS) is the primary large-scale, long-term bird monitoring program in North America (see <http://www.pwrc.usgs.gov/bbs/>, [http://www.cws-scf.ec.gc.ca/birds/Trends/disclaimer\\_e.cfm](http://www.cws-scf.ec.gc.ca/birds/Trends/disclaimer_e.cfm)).

BBS data are used for several purposes in this plan:

- To determine population trends used in species assessment,
- To establish the relative importance of southern Ontario to the species, and
- To set measurable population abundance objectives.

BBS coverage in southern Ontario is generally very good. A total of 66 routes have been run at least once and 48 are run regularly (at least 5 times in the past 10 years).

Count data from all 66 BBS routes within Ontario BCR 13 were converted to annual abundance indices, using the current Canadian BBS trend program (provided by Brian Collins, EC) to remove the effect of different routes being run in a given year. Use of annual indices allows annual assessment of progress towards objectives. BBS trend data for the 1968-2003 period from the Ontario portion of BCR 13 could be calculated for 142 species, including 115 landbirds.

### **Ontario Breeding Bird Atlases (BBA)**

The other major, comprehensive datasets for Ontario's breeding birds are the Ontario Breeding Bird Atlases. The first Ontario Atlas (Cadman et al. 1987) provided a snapshot of breeding bird distribution for each 10 km x 10 km square across southern Ontario during the 1981-1985 period. The second Atlas project (<http://www.birdsontario.org/atlas/atlasmain.html>) will provide a comparable picture for the 2001-2005 period. The second Atlas is also collecting bird abundance (point count) data. Atlas coverage across southern Ontario ranges from good to excellent.

BBA data are used for several purposes in this plan:

- To measure changes in bird distribution over the past 20 years for comparison with BBS long-term population trend information.
- To set measurable population distribution objectives.
- To identify areas with southern Ontario of particular importance to the various priority landbird suites.

All data from the first Atlas and preliminary data from the first four years (2001-04) of the current Atlas project were used in several technical analyses for this plan. To compensate for differences in survey effort, only squares with a minimum of 20 hours of survey coverage in both Atlas periods were included in the analyses.

### **Christmas Bird Counts (CBC)**

Christmas Bird Count (CBC) data (<http://www.audubon.org/bird/cbc/index.html>) are the best available source of information on the abundance and distribution of wintering landbirds in southern Ontario. CBC data from BCR 13 for the 1990/91 to 1997/98 period were analysed, along with comparable data from elsewhere in North America, to determine the relative density scores for wintering landbirds in this BCR.

Trend information from the CBC data is not currently available. New statistical analysis methods (Sauer et al. 2004) have the potential to make the CBC dataset more relevant for conservation purposes (e.g. could be used to set objectives and evaluate progress for priority wintering birds).

## **Knowledge Gaps**

Current information and knowledge gaps include:

- Population trends for rare and uncommon species
- Population demographics (productivity, survival, location and characteristics of population sources and sinks)
- Habitat requirement and habitat availability information for setting habitat objectives.
- Causes of population change, including season of greatest limitation for declining migrants.
- Migratory stopover habitat needs
- Wintering habitat needs

## **Appendix C: Identifying Priority Species at a Regional Scale – the PIF Approach**

Partners In Flight uses standard methods to identify species most in need of attention in a region (Panjabi et al. 2001). Species assessment methods and data continue to evolve and be updated over time, as it is important to ensure that priorities are based on the latest and most objective data and methods available. The PIF methods used in this Ontario Plan are described below. They have been updated to include revisions adopted by the PIF Science Committee as of January 2005. In particular, they incorporate "Species of Continental Importance" identified for Canada and the United States in the PIF North American Landbird Conservation Plan (Rich et al. 2004).

### **Species Assessment**

PIF uses six measures of species status to assess the vulnerability of each species. Together, these measures reflect a species' vulnerability to current and future conditions, the direction in which its population is headed, and the importance of the region to the bird's global population. Species are assessed separately in breeding and non-breeding seasons.

#### **Species Vulnerability – 2 Global Measures:**

##### **A) Distribution – Breeding Distribution (BD) and Non-breeding Distribution (ND)**

Underlying Assumption: Broadly distributed species are less vulnerable to a variety of known and unanticipated impacts than species with a restricted geographic range.

A measure of the geographic extent of a species' global range during the breeding and wintering periods. Distribution or degree of concentration during migration is not assessed at this time, though it could be in the future.

Scores range from 1 (least vulnerable) to 5 (most vulnerable), as follows:

- |   |  |
|---|--|
| 1 | Range size > 4,000,000 km <sup>2</sup> |
| 2 | Range size > 2,000,000 km <sup>2</sup> |
| 3 | Range size > 1,000,000 km <sup>2</sup> |
| 4 | Range size > 500,000 km <sup>2</sup>   |
| 5 | Range size < 500,000 km <sup>2</sup>   |

##### **B) Population Size (PS)**

Underlying assumption: Species with large populations are generally less vulnerable than species with small populations.

This score is based on an estimate of the size of the world breeding population (methods in Rich et al. 2004). A global estimate is used to reflect the potential for regional populations to be replenished (in numbers and genetic diversity) from elsewhere in the species' range.

Scores range from 1 (least vulnerable) to 5 (most vulnerable) as follows:

- 1 World breeding population > 50,000,000
- 2 World breeding population > 5,000,000
- 3 World breeding population > 500,000
- 4 World breeding population > 50,000
- 5 World breeding population < 50,000

**Concern for Species Population – 2 Measures, each scored Globally and BCR-wide:**

C) Population Trend – Global (PT\_G) and BCR-wide (PT\_B)

Underlying assumption: Conditions that resulted in recent population declines may continue to cause declines in future. Declining populations may be significantly below natural levels of abundance and distribution.

The direction and magnitude of change in a species population over the past 30 years is measured, across its range and within the BCR. For most landbirds, Breeding Bird Survey (BBS) data have been used, supplemented by Christmas Bird Count trends and other sources (e.g., censuses of endangered species) for species without BBS trends.

Scores range from 1 (least concern) to 5 (greatest concern), as follows:

- 1 Pop'n Increase > 50% over 30 years
- 2 Pop'n Increase > 15% over 30 years, or Pop'n Stable (< 15% change)
- 3 Pop'n Trend is Unknown (no trend data) or Uncertain (highly variable)
- 4 Pop'n Decrease > 15% over 30 years
- 5 Pop'n Decrease > 50% over 30 years

D) Threats – Global Breeding (TB\_G) and Non-breeding (TN\_G),  
BCR Breeding (TB\_L) and Non-breeding (TN\_L)

Underlying assumption: Knowledge of changing environmental conditions, and potential threats facing birds in future, helps identify birds and habitats that may decline in future without corrective action now.

Threats to species due to current and probable future conditions are assessed by landbird experts as a measure of how a species population is expected to fare in the future, both range-wide and within the BCR, and on the breeding and wintering grounds.

Scores range from 1 (least concern) to 5 (greatest concern), as follows:

- 1 Expected future conditions for breeding / non-breeding populations are enhanced by human activities or land-uses;
- 2 Expected future conditions are expected to remain stable; no known threats;
- 3 Slight to moderate decline in the future suitability of conditions is expected;
- 4 Severe deterioration in the future suitability of conditions is expected;
- 5 Extreme deterioration in the future suitability of conditions is expected; species is in danger of regional extirpation or major range contraction, or has a low probability of successful reintroduction where already extirpated.

## **Area Importance – 2 Regional Measures:**

### **E) Relative Density – Breeding (RD\_B) and Non-breeding (RD\_N)**

Underlying assumption: Regions with densities approaching maximum density for the species are assumed to have highest importance to range-wide population; management action here will affect highest numbers of birds per unit area.

Density of a species across the full BCR is measured relative to the BCR with highest density for that species, for the breeding and non-breeding seasons. Relative densities (RD) for most species have been calculated from BBS data for the breeding season, and using CBC data for the non-breeding season. Other sources of data and expert opinion have been used for species with few range-wide abundance data.

Scores range from 1 (lowest area importance) to 5 (highest area importance) as follows:

- 1 BCR density > 50% of maximum density across all other BCRs
- 2 BCR density 25-50% of maximum density
- 3 BCR density 10-25% of maximum density
- 4 BCR density 1-10% of maximum density
- 5 BCR density < 1% of maximum density

### **F) Percent of World Population (% Pop) – Breeding and Non-breeding**

Underlying assumption: Regions with high proportions of a species population are assumed to have high importance to range-wide population; region-wide actions will affect largest numbers of birds in these regions.

The percent of a species' world population in each BCR has been estimated by PIF (Rich et al. 2004), as an alternative measure of area importance. Unlike RD, % Pop is area-dependant, so the two measures provide complementary perspectives on area importance across the spectrum of BCR sizes: RD emphasizes BCRs with high region-wide density, whereas % Pop highlights BCRs with high total numbers of birds.

Species with at least 25% of their world or western hemisphere population in a single BCR are highlighted.

## Priority Species

PIF highlights those species that are in most need of conservation attention in a region, in order to focus efforts where they are needed most. Species are included on a region's priority list for a variety of reasons. All Species of Continental Importance (Rich et al. 2004) that have significant populations in the BCR are included on the regional list, so that local efforts will contribute to continental conservation. Results of BCR-wide species assessment (above) are used to add species with high vulnerability and concern at the regional level, and species with high area importance in the BCR. Listed species at risk that occur in the region are also included on the list. Finally, species lists are screened to ensure all species on the list occur regularly and in significant numbers in the Planning area (i.e., in the Ontario portion of the BCR), and additional species of management interest/concern in Ontario may be added.

Criteria for each of these categories of priority species are outlined below.

### **Species of Continental Importance – 2 Categories:**

A) Continental Concern; Species must meet all of the following criteria:

- ◆ Listed on PIF Watch List (in PIF North American Plan, Rich et al. 2004)
- ◆ Occurs regularly in significant numbers in the BCR, i.e.  $RD > 1$
- ◆ Future conditions are not enhanced by human activities, i.e. Threat score  $> 1$

B) Continental Stewardship; Species must meet all of the following criteria:

- ◆ Listed as a Stewardship Species (in PIF North American Plan)
- ◆ High Area Importance in the BCR; % Pop  $\geq 25\%$  OR ( $RD=5$  & %Pop  $\geq 5\%$ )
- ◆ Future conditions are not enhanced by human activities – Threat Score  $> 1$

### **Species identified by PIF regional Species Assessment – 2 Categories:**

For these 2 categories, a Total Assessment Score (maximum of 25) is calculated for the species in the BCR by summing scores for Distribution, Population Size, Population Trend, Threats, and Relative Density. Score pertinent to each season are used, as shown in this table:

	Breeding Distribution	Non-breeding Distribution	Population Size	Population Trend - Global	Population Trend - local Breeding	Regional Threats - Breeding	Regional Threats - Non-breeding	Relative Density - Breeding	Relative Density - Non-breeding
	BD	ND	PS	PT_G	PT_B	TB_L	TN_L	RD_B	RD_N
Total Breeding Score	•		•		•	•		•	
Total Non-breeding Score (permanent resident)		•	•		•		•	•	
Total Non-breeding Score (winter resident only)		•	•	•			•		•

C) Regional Concern – species must meet all criteria in the season(s) for which it is listed:

- ◆ Total Assessment Score > 13
- ◆ High Regional Threats (> 3) or Moderate Regional Threat (3) combined with significant Pop'n Decline (PT > 3)
- ◆ Occurs regularly in significant numbers in the BCR, i.e. RD > 1

D) Regional Stewardship – species must meet all criteria in the season(s) for which it is listed:

- ◆ High Area Importance in the BCR; % Pop ≥ 25% OR (RD=5 & %Pop ≥ 5%)
- ◆ Total Assessment Score > 13
- ◆ Future conditions are not enhanced by human activities, i.e. Threat Score > 1

### **Species at Risk – 2 Categories:**

Listed species at risk that currently occur or potentially occur in the Ontario portion of the BCR are included, regardless of their Total Score, population density (RD) or threat score

E) Federal Species at Risk – Listed according to Canada's Species At Risk Act

F) Provincial Species at Risk – Listed Species at Risk in Ontario

### **Other Species of Management Concern:**

Following input from two PIF Workshops in southern Ontario, any landbird species not already on the BCR 13 priority list was added if it is showing steep, long-term declines (PT=5) in combination with elevated Threat scores (3 or higher) and regular occurrence in significant numbers in the Ontario portion of the BCR (RD > 1). These are species for which there is concern that steep declines will continue into the future, if corrective actions are not taken now. For this category, species were included if they have shown 1) steep declines according to BBS, or 2) statistically-significant steep declines in the number of atlas squares with breeding evidence between the first (1981-85) and second (2001-03 data) atlases. Steep declines in both BBS and atlas exceeded rates equivalent to a 50% decline over 30 years.

## Appendix D: Landbirds Occurring Regularly in Ontario BCR 13 during the Breeding and/or Wintering Seasons

Table D-1 is a listing all landbirds occurring regularly in southern Ontario during the breeding and/or wintering seasons, along with additional information on their residency status, Species At Risk (SAR) status, habitat guild assignments, other habitat requirements, and current monitoring coverage during the breeding season. An explanation of the information in the columns and the various codes used in Table D-1 is provided below, along with the sources of information used in developing this table.

### Explanatory Notes for Table D-1

**Bold** = species on priority list in Ontario BCR 13; [...] = introduced species

**Residency:** **PR:** permanent resident in southern Ontario; **B:** resident during breeding season only; **W:** resident during wintering season only. **BW:** species is resident during breeding and wintering seasons (but not a permanent resident). **Source:** James 1991.

**SAR Status CA/ON:** Federal (CA) and Provincial (ON) Species at Risk status designations: **EN:** Endangered. (**EN**): Endangered (Schedule 2 or not regulated); **TH:** Threatened; **SC:** Special Concern; (**SC**): Special Concern (Schedule 3); **UR:** Under Review by COSEWIC (currently not listed). **Sources:** SARA Public Registry 2005, COSEWIC 2004, and OMNR 2004.

**Habitat Guilds:** Habitat-associations as used for guild analyses in this Plan. **forest:** includes closed forests, treed swamps, and open woodlands; **shrub:** includes thickets, carrs and early successional stages of forests; **grass / ag:** includes native and agricultural grasslands, other agricultural fields, and other open rural lands; **wetland:** includes marshes, riparian habitats, shoreline, and open water but not treed swamps; **other:** includes habitat generalist species that use a variety of habitats, and species found primarily in human-dominated urban areas or suburban / parkland. **Source:** modified from habitat assignments used in BBS guild analyses as reported on the BBS web sites (BBS 2005).

**Habitat Obligate – Yes:** Species is dependent on, or largely restricted to, a particular habitat during breeding season. **Source:** Ontario BCR 13 Technical Advisory Committee Workshop, April 2004.

**Area Sensitive - Yes:** Species requires large blocks of suitable habitat and/or is potentially sensitive to habitat fragmentation (adapted from Appendix G in OMNR 2000).

**Table D-1: List of Landbirds Occurring Regularly in Ontario BCR 13 during Breeding and/or Wintering Seasons, along with additional information on Residency status, Species at Risk status, and Breeding Habitat requirements.**

Common Name	Scientific Name	Residency Status	SAR Status CA/ON	Breeding Habitat		
				Habitat Guild	Habitat Obligate	Area-Sensitive
[Gray Partridge]	<i>Perdix perdix</i>	PR		grass / ag		
[Ring-necked Pheasant]	<i>Phasianus colchicus</i>	PR		grass / ag		
Ruffed Grouse	<i>Bonasa umbellus</i>	PR		forest		
[Sharp-tailed Grouse]	<i>Tympanuchus phasianellus</i>	PR		grass / ag		
Wild Turkey	<i>Meleagris gallopavo</i>	PR		forest		
<b>Northern Bobwhite</b>	<i>Colinus virginianus</i>	PR	(EN)/(EN)	grass/ ag		
Turkey Vulture	<i>Cathartes aura</i>	B		other		
Osprey	<i>Pandion haliaetus</i>	B		wetland		
<b>Bald Eagle</b>	<i>Haliaeetus leucocephalus</i>	BW	-- /(EN)	wetland		Yes
<b>Northern Harrier</b>	<i>Circus cyaneus</i>	BW		grass / ag		Yes
Sharp-shinned Hawk	<i>Accipiter striatus</i>	BW		forest		Yes
Cooper's Hawk	<i>Accipiter cooperii</i>	BW		forest		Yes
Northern Goshawk	<i>Accipiter gentiles</i>	BW		forest		Yes
<b>Red-shouldered Hawk</b>	<i>Buteo lineatus</i>	B	(SC)/SC	forest	Yes	Yes
Broad-winged Hawk	<i>Buteo platypterus</i>	B		forest	Yes	Yes
Red-tailed Hawk	<i>Buteo jamaicensis</i>	BW		other		
Rough-legged Hawk	<i>Buteo lagopus</i>	W				
Golden Eagle	<i>Aquila chrysaetos</i>	W	-- /EN			
<b>American Kestrel</b>	<i>Falco sparverius</i>	BW		grass / ag		
Merlin	<i>Falco columbarius</i>	BW		forest		
Gyrfalcon	<i>Falco rusticolus</i>	W				
<b>Peregrine Falcon</b>	<i>Falco peregrinus</i>	BW	TH/EN	other		
[Rock Pigeon]	<i>Columba livia</i>	PR		other		
Mourning Dove	<i>Zenaida macroura</i>	BW		other		
<b>Black-billed Cuckoo</b>	<i>Coccyzus erythrophthalmus</i>	B		shrub		

Common Name	Scientific Name	Residency Status	SAR Status CA/ON	Breeding Habitat		
				Habitat Guild	Habitat Obligate	Area-Sensitive
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	B	EN/(EN)	forest		
<b>Barn Owl</b>	<i>Tyto alba</i>	B		grass / ag	Yes	
Eastern Screech-Owl	<i>Megascops asio</i>	PR		forest		
Great Horned Owl	<i>Bubo virginianus</i>	PR		forest		
Snowy Owl	<i>Bubo scandiacus</i>	W				
Barred Owl	<i>Strix varia</i>	PR	(SC)/SC	forest	Yes	Yes
Long-eared Owl	<i>Asio otus</i>	BW		forest		
<b>Short-eared Owl</b>	<i>Asio flammeus</i>	BW		grass / ag	Yes	Yes
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	BW		forest		
Common Nighthawk	<i>Chordeiles minor</i>	B		forest		
<b>Whip-poor-will</b>	<i>Caprimulgus vociferus</i>	B		forest		Yes
<b>Chimney Swift</b>	<i>Chaetura pelagica</i>	B			other	
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	B	SC/SC	forest		
<b>Belted Kingfisher</b>	<i>Ceryle alcyon</i>	BW		wetland		
<b>Red-headed Woodpecker</b>	<i>Melanerpes erythrocephalus</i>	B		forest		
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	PR		forest		
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	B		forest	Yes	Yes
Downy Woodpecker	<i>Picoides pubescens</i>	PR	EN/(EN)	forest		
Hairy Woodpecker	<i>Picoides villosus</i>	PR		forest		Yes
<b>Northern Flicker</b>	<i>Colaptes auratus</i>	BW		forest		
Pileated Woodpecker	<i>Dryocopus pileatus</i>	PR		forest		Yes
Olive-sided Flycatcher	<i>Contopus cooperi</i>	B		forest		
<b>Eastern Wood-Pewee</b>	<i>Contopus virens</i>	B		forest		
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	B		EN/(EN)	forest	
<b>Acadian Flycatcher</b>	<i>Empidonax virens</i>	B	forest		Yes	Yes
Alder Flycatcher	<i>Empidonax alnorum</i>	B	shrub		Yes	
<b>Willow Flycatcher</b>	<i>Empidonax traillii</i>	B	shrub		Yes	
Least Flycatcher	<i>Empidonax minimus</i>	B	forest		Yes	Yes

Common Name	Scientific Name	Residency Status	SAR Status CA/ON	Breeding Habitat		
				Habitat Guild	Habitat Obligate	Area-Sensitive
Eastern Phoebe	<i>Sayornis phoebe</i>	B		other		
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	B		forest		
<b>Eastern Kingbird</b>	<i>Tyrannus tyrannus</i>	B	EN/EN	grass / ag		
<b>Loggerhead Shrike</b>	<i>Lanius ludovicianus</i>	B		grass / ag		Yes
Northern Shrike	<i>Lanius excubitor</i>	W				
White-eyed Vireo	<i>Vireo griseus</i>	B		shrub		
Yellow-throated Vireo	<i>Vireo flavifrons</i>	B		forest	Yes	Yes
Blue-headed Vireo	<i>Vireo solitarius</i>	B		forest	Yes	Yes
Warbling Vireo	<i>Vireo gilvus</i>	B		forest		
Philadelphia Vireo	<i>Vireo philadelphicus</i>	B		forest		
Red-eyed Vireo	<i>Vireo olivaceus</i>	B		forest		
Blue Jay	<i>Cyanocitta cristata</i>	BW		other		
American Crow	<i>Corvus brachyrhynchos</i>	BW		other		
Common Raven	<i>Corvus corax</i>	PR		forest		
Horned Lark	<i>Eremophila alpestris</i>	BW		grass / ag	Yes	
Purple Martin	<i>Progne subis</i>	B		other		
Tree Swallow	<i>Tachycineta bicolor</i>	B		wetland		
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	B		other		
<b>Bank Swallow</b>	<i>Riparia riparia</i>	B		other		
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	B		other		
Barn Swallow	<i>Hirundo rustica</i>	B		grass / ag		
Black-capped Chickadee	<i>Poecile atricapillus</i>	PR		forest		
Tufted Titmouse	<i>Baeolophus bicolor</i>	PR		forest		Yes
Red-breasted Nuthatch	<i>Sitta canadensis</i>	BW		forest		Yes
White-breasted Nuthatch	<i>Sitta carolinensis</i>	PR		forest		Yes
Brown Creeper	<i>Certhia americana</i>	BW		forest	Yes	Yes
Carolina Wren	<i>Thryothorus ludovicianus</i>	PR		shrub		
House Wren	<i>Troglodytes aedon</i>	B		shrub		

Common Name	Scientific Name	Residency Status	SAR Status CA/ON	Breeding Habitat		
				Habitat Guild	Habitat Obligate	Area-Sensitive
Winter Wren	<i>Troglodytes troglodytes</i>	BW		forest	Yes	Yes
Sedge Wren	<i>Cistothorus platensis</i>	B		grass / ag		
Marsh Wren	<i>Cistothorus palustris</i>	B		wetland	Yes	
Golden-crowned Kinglet	<i>Regulus satrapa</i>	BW		forest	Yes	
Ruby-crowned Kinglet	<i>Regulus calendula</i>	B		forest		
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	B		forest		Yes
Eastern Bluebird	<i>Sialia sialis</i>	B		other		
Veery	<i>Catharus fuscescens</i>	B		forest	Yes	Yes
Swainson's Thrush	<i>Catharus ustulatus</i>	B		forest	Yes	
Hermit Thrush	<i>Catharus guttatus</i>	B		forest	Yes	Yes
<b>Wood Thrush</b>	<i>Hylocichla mustelina</i>	B		forest	Yes	Yes
American Robin	<i>Turdus migratorius</i>	BW		other		
Gray Catbird	<i>Dumetella carolinensis</i>	B		shrub		
Northern Mockingbird	<i>Mimus polyglottos</i>	PR		other		
<b>Brown Thrasher</b>	<i>Toxostoma rufum</i>	BW		shrub	Yes	
[European Starling]	<i>Sturnus vulgaris</i>	BW		other		
Bohemian Waxwing	<i>Bombycilla garrulus</i>	W				
Cedar Waxwing	<i>Bombycilla cedrorum</i>	BW		forest		
<b>Blue-winged Warbler</b>	<i>Vermivora pinus</i>	B		shrub	Yes	
<b>Golden-winged Warbler</b>	<i>Vermivora chrysoptera</i>	B	UR/--	shrub	Yes	
Tennessee Warbler	<i>Vermivora peregrina</i>	B		forest		
Orange-crowned Warbler	<i>Vermivora celata</i>	B		shrub		
Nashville Warbler	<i>Vermivora ruficapilla</i>	B		shrub		
Northern Parula	<i>Parula americana</i>	B		forest		Yes
Yellow Warbler	<i>Dendroica petechia</i>	B		shrub		
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	B		shrub	Yes	
Magnolia Warbler	<i>Dendroica magnolia</i>	B		forest	Yes	Yes
Cape May Warbler	<i>Dendroica tigrina</i>	B		forest		

Common Name	Scientific Name	Residency Status	SAR Status CA/ON	Breeding Habitat		
				Habitat Guild	Habitat Obligate	Area-Sensitive
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	B		forest	Yes	Yes
Yellow-rumped Warbler	<i>Dendroica coronata</i>	BW		forest		
Black-throated Green Warbler	<i>Dendroica virens</i>	B		forest	Yes	Yes
Blackburnian Warbler	<i>Dendroica fusca</i>	B		forest	Yes	Yes
Pine Warbler	<i>Dendroica pinus</i>	B		forest		Yes
<b>Kirtland's Warbler</b>	<i>Dendroica kirtlandii</i>	B	EN/EN	shrub	Yes	Yes
<b>Prairie Warbler</b>	<i>Dendroica discolor</i>	B		shrub	Yes	
Palm Warbler	<i>Dendroica palmarum</i>	B		shrub		
Bay-breasted Warbler	<i>Dendroica castanea</i>	B		forest		
<b>Cerulean Warbler</b>	<i>Dendroica cerulea</i>	B	SC/SC	forest	Yes	Yes
Black-and-white Warbler	<i>Mniotilta varia</i>	B		forest		Yes
American Redstart	<i>Setophaga ruticilla</i>	B		forest		Yes
<b>Prothonotary Warbler</b>	<i>Protonotaria citrea</i>	B	EN/EN	forest	Yes	Yes
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	B		forest		
Ovenbird	<i>Seiurus aurocapilla</i>	B		forest	Yes	Yes
Northern Waterthrush	<i>Seiurus noveboracensis</i>	B		forest	Yes	Yes
<b>Louisiana Waterthrush</b>	<i>Seiurus motacilla</i>	B	(SC)/SC	forest	Yes	Yes
Kentucky Warbler	<i>Oporornis formosus</i>	B		forest		
Mourning Warbler	<i>Oporornis philadelphia</i>	B		shrub		
Common Yellowthroat	<i>Geothlypis trichas</i>	B		shrub		
<b>Hooded Warbler</b>	<i>Wilsonia citrina</i>	B	TH/TH	forest	Yes	
Wilson's Warbler	<i>Wilsonia pusilla</i>	B		shrub		
<b>Canada Warbler</b>	<i>Wilsonia canadensis</i>	B		forest	Yes	Yes
<b>Yellow-breasted Chat</b>	<i>Icteria virens</i>	B	SC/SC	shrub	Yes	
Summer Tanager	<i>Piranga rubra</i>	B		forest		
Scarlet Tanager	<i>Piranga olivacea</i>	B		forest	Yes	Yes
<b>Eastern Towhee</b>	<i>Pipilo erythrophthalmus</i>	BW		shrub	Yes	
American Tree Sparrow	<i>Spizella arborea</i>	W				

Common Name	Scientific Name	Residency Status	SAR Status CA/ON	Breeding Habitat		
				Habitat Guild	Habitat Obligate	Area-Sensitive
Chipping Sparrow	<i>Spizella passerina</i>	BW		other		
Clay-colored Sparrow	<i>Spizella pallida</i>	B		shrub	Yes	
<b>Field Sparrow</b>	<i>Spizella pusilla</i>	BW		shrub	Yes	
<b>Vesper Sparrow</b>	<i>Poocetes gramineus</i>	B		grass / ag	Yes	
<b>Savannah Sparrow</b>	<i>Passerculus sandwichensis</i>	B		grass / ag	Yes	Yes
<b>Grasshopper Sparrow</b>	<i>Ammodramus savannarum</i>	B		grass / ag	Yes	Yes
<b>Henslow's Sparrow</b>	<i>Ammodramus henslowii</i>	B	EN/EN	grass / ag	Yes	Yes
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	B		grass / ag		
Fox Sparrow	<i>Passerella iliaca</i>	W				
Song Sparrow	<i>Melospiza melodia</i>	BW		shrub		
Lincoln's Sparrow	<i>Melospiza lincolni</i>	B		shrub		
Swamp Sparrow	<i>Melospiza georgiana</i>	BW		wetland	Yes	
White-throated Sparrow	<i>Zonotrichia albicollis</i>	BW		shrub		
White-crowned Sparrow	<b>Zonotrichia leucophrys</b>	W				
Dark-eyed Junco	<i>Junco hyemalis</i>	BW		forest		
Lapland Longspur	<i>Calcarius lapponicus</i>	W				
Snow Bunting	<i>Plectrophenax nivalis</i>	W				
Northern Cardinal	<i>Cardinalis cardinalis</i>	PR		shrub		
<b>Rose-breasted Grosbeak</b>	<i>Pheucticus ludovicianus</i>	B		forest		
Indigo Bunting	<i>Passerina cyanea</i>	B		shrub	Yes	
Dickcissel	<i>Spiza americana</i>	B		grass / ag		
<b>Bobolink</b>	<i>Dolichonyx oryzivorus</i>	B		grass / ag	Yes	Yes
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	BW		other		
<b>Eastern Meadowlark</b>	<i>Sturnella magna</i>	B		grass / ag	Yes	Yes
Western Meadowlark	<i>Sturnella neglecta</i>	B		grass / ag	Yes	Yes
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	B		wetland		
Rusty Blackbird	<i>Euphagus carolinus</i>	B		wetland		
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	B		other		

Common Name	Scientific Name	Residency Status	SAR Status CA/ON	Breeding Habitat		
				Habitat Guild	Habitat Obligate	Area-Sensitive
Common Grackle	<i>Quiscalus quiscula</i>	BW		other		
Brown-headed Cowbird	<i>Molothrus ater</i>	BW		grass / ag		
Orchard Oriole	<i>Icterus spurius</i>	B		other		
<b>Baltimore Oriole</b>	<i>Icterus galbula</i>	B		other		
Pine Grosbeak	<i>Pinicola enucleator</i>	W				
Purple Finch	<i>Carpodacus purpureus</i>	BW		forest		
[House Finch]	<i>Carpodacus mexicanus</i>	BW		other		
Red Crossbill	<i>Loxia curvirostra</i>	BW		forest		
White-winged Crossbill	<i>Loxia leucoptera</i>	BW		forest		
Common Redpoll	<i>Carduelis flammea</i>	W				
Hoary Redpoll	<i>Carduelis hornemanni</i>	W				
Pine Siskin	<i>Carduelis pinus</i>	BW		forest		
American Goldfinch	<i>Carduelis tristis</i>	BW		shrub		
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	BW		forest		
[House Sparrow]	<i>Passer domesticus</i>	PR		other		

## Appendix E: PIF Species Assessment Scores for Landbirds in Ontario BCR 13

### Explanatory Notes for Table E-1

**Bold** = species on priority list in Ontario BCR 13; [...] = introduced species

**Total:** Sum of BD + PS + PT Breeding + TB + RD Breeding

**Breeding Assessment Scores:** 1 (low) to 5 (high vulnerability, concern or responsibility).

**BD** = Breeding Distribution Score, based on global range

**PS** = Population Size Score, based on estimated global breeding population

**PT** = Population Trend Score, based on BCR-wide BBS trend since 1966

\* = Large loss in % squares with breeding between 1st and 2nd BBA, equivalent to PT score of 5

**TB** = Threats Breeding Score, based on BCR-wide assessment of threats

**RD** = Relative Density Score, based on BCR-wide breeding density relative to density in other North American BCRs

**WHem %Pop** = Estimated percent of Western Hemisphere population breeding in BCR 13

**Breeding Evidence** = % of surveyed Ontario Atlas squares (20+ hrs effort) with breeding evidence. **1<sup>st</sup> Atlas** = 1981-85; **2<sup>nd</sup> Atlas** = 2001-04 (i.e. preliminary results from 1st four years in squares with 20+ hrs of effort)

**Wintering Assessment Scores:** 1 (low) to 5 (high vulnerability, concern or responsibility).

**ND** = Non-breeding Distribution Score, based on global range in winter

**PS** = Population Size Score, based on estimated global breeding population

**PT** = Population Trend Score, based on global trend.

**TN** = Threats Non-Breeding Score, based on global assessment of threats in the non-breeding season.

**RD** = Relative Density Score, based on BCR-wide wintering density relative to density in other North American BCRs.

**WHem %Pop** = Estimated percent of Western Hemisphere population wintering in BCR 13.

Table E-1: PIF species assessment scores for landbirds in Ontario's portion of BCR 13

Common Name	Breeding Assessment Scores						WHem %Pop	Breeding Evidence		Winter Assessment Scores						WHem %Pop
	Total	BD	PS	PT	TB	RD		1 <sup>st</sup> Atlas	2 <sup>nd</sup> Atlas	Total	ND	PS	PT	TN	RD	
[Gray Partridge]	11	1	3	3*	3	1	1%	12%	6%	11	1	3	3	3	1	1%
[Ring-necked Pheasant]	12	1	2	5	2	2	<1%	35%	28%	12	1	2	5	2	2	<1%
Ruffed Grouse	13	2	2	3	3	3	1%	83%	72%	12	2	2	3	2	3	1%
[Sharp-tailed Grouse]	12	2	3	3	3	1	<1%	1%	1%	11	2	3	3	2	1	<1%
Wild Turkey	11	2	3	1	2	3	2%	2%	67%	11	2	3	1	2	3	2%
<b>Northern Bobwhite</b>	14	2	2	5*	4	1	<1%	8%	3%	14	2	2	5	4	1	<1%
Turkey Vulture	9	1	3	1	2	2	<1%	72%	84%							
Osprey	13	1	4	3	3	2	1%	20%	36%							
<b>Bald Eagle</b>	13	2	4	3	3	1	<1%	1%	10%	11	1	4	1	3	2	<1%
<b>Northern Harrier</b>	15	1	3	3	4	4	1%	79%	77%	13	1	3	4	3	2	<1%
Sharp-shinned Hawk	15	1	3	3	3	5	2%	36%	59%	10	1	3	2	2	2	1%
Cooper's Hawk	11	1	3	1	2	4	2%	17%	53%	10	1	3	1	2	3	2%
Northern Goshawk	14	1	4	3	3	3	1%	13%	18%	14	1	4	3	3	3	1%
<b>Red-shouldered Hawk</b>	13	2	3	3	3	2	1%	22%	23%							
Broad-winged Hawk	13	1	3	3	3	3	1%	35%	37%							
Red-tailed Hawk	11	1	3	3	1	3	1%	94%	92%	8	1	3	1	1	2	2%
Rough-legged Hawk										11	1	3	2	2	3	1%
Golden Eagle										12	1	4	3	3	1	<1%
<b>American Kestrel</b>	14	1	2	4	3	4	1%	96%	89%	9	1	2	2	2	2	<1%
Merlin	11	1	3	3	2	2	<1%	3%	18%	9	1	3	1	2	2	<1%
Gyrfalcon										9	1	4	1	2	1	<1%
<b>Peregrine Falcon</b>	11	1	3	3	3	1	<1%	<1%	2%	9	1	3	1	3	1	<1%
[Rock Pigeon]	12	1	1	4	1	5	6%	93%	94%	12	1	1	4	1	5	6%
Mourning Dove	8	1	1	1	1	4	2%	98%	100%	8	1	1	2	1	3	3%
<b>Black-billed Cuckoo</b>	18	2	3	5	3	5	6%	75%	75%							

Common Name	Breeding Assessment Scores						WHem %Pop	Breeding Evidence		Winter Assessment Scores						WHem %Pop
	Total	BD	PS	PT	TB	RD		1 <sup>st</sup> Atlas	2 <sup>nd</sup> Atlas	Total	ND	PS	PT	TN	RD	
Yellow-billed Cuckoo	11	1	2	3	3	2	<1%	32%	29%							
<b>Barn Owl</b>	11	1	3	3	3	1	<1%	1%	<1%							
Eastern Screech-Owl	14	2	3	3	3	3	2%	61%	66%	13	2	3	3	2	3	2%
Great Horned Owl	12	1	2	5	2	2	<1%	90%	71%	12	1	2	5	2	2	<1%
Snowy Owl										10	1	4	2	2	1	3%
Barred Owl	12	1	3	3	3	2	<1%	13%	24%	11	1	3	3	2	2	<1%
Long-eared Owl	12	1	4	3*	2	2	1%	16%	10%	14	1	4	4	2	3	2%
<b>Short-eared Owl</b>	13	1	3	3	4	2	<1%	5%	5%	15	1	3	5	4	2	2%
Northern Saw-whet Owl	12	2	3	3*	3	1	<1%	21%	13%	12	2	3	2	2	3	2%
Common Nighthawk	12	1	2	4*	4	1	<1%	54%	30%							
<b>Whip-poor-will</b>	14	2	3	4*	3	2	<1%	42%	24%							
<b>Chimney Swift</b>	12	1	2	3*	3	3	3%	75%	49%							
Ruby-throated Hummingbird	10	1	2	1	2	4	3%	88%	94%							
<b>Belted Kingfisher</b>	16	1	3	4	3	5	2%	97%	93%	12	1	3	4	2	2	<1%
<b>Red-headed Woodpecker</b>	16	2	3	5*	4	2	1%	70%	30%							
Red-bellied Woodpecker	9	2	2	1	2	2	1%	11%	39%	10	3	2	1	2	2	1%
Yellow-bellied Sapsucker	11	2	2	1	3	3	1%	56%	63%							
Downy Woodpecker	11	1	2	2	2	4	3%	97%	98%	10	1	2	2	1	4	3%
Hairy Woodpecker	10	1	2	1	3	3	1%	93%	94%	9	1	2	1	2	3	1%
<b>Northern Flicker</b>	16	1	2	5	3	5	2%	100%	100%	12	1	2	4	2	3	<1%
Pileated Woodpecker	11	1	3	1	3	3	1%	64%	73%	10	1	3	1	2	3	1%
Olive-sided Flycatcher	11	1	3	3*	3	1	<1%	9%	6%							
<b>Eastern Wood-Pewee</b>	14	1	2	4	3	4	4%	98%	96%							
Yellow-bellied Flycatcher	11	2	2	3	3	1	<1%	3%	3%							
<b>Acadian Flycatcher</b>	13	2	3	3	3	2	1%	3%	5%							

Common Name	Breeding Assessment Scores						WHem %Pop	Breeding Evidence		Winter Assessment Scores						WHem %Pop
	Total	BD	PS	PT	TB	RD		1 <sup>st</sup> Atlas	2 <sup>nd</sup> Atlas	Total	ND	PS	PT	TN	RD	
Alder Flycatcher	10	1	2	2	2	3	<1%	59%	70%							
<b>Willow Flycatcher</b>	13	1	3	2	2	5	6%	69%	73%							
Least Flycatcher	13	1	2	4	3	3	1%	89%	85%							
Eastern Phoebe	12	1	2	2	2	5	4%	88%	96%							
Great Crested Flycatcher	12	1	2	3	2	4	4%	98%	98%							
<b>Eastern Kingbird</b>	15	1	2	4	3	5	3%	99%	99%							
<b>Loggerhead Shrike</b>	14	1	3	4*	5	1	<1%	13%	4%							
Northern Shrike										12	1	4	2	2	3	2%
White-eyed Vireo	10	2	2	3	2	1	<1%	2%	2%							
Yellow-throated Vireo	14	2	3	3	3	3	2%	32%	27%							
Blue-headed Vireo	9	2	2	1	2	2	1%	7%	21%							
Warbling Vireo	10	1	2	1	2	4	2%	94%	94%							
Philadelphia Vireo	12	2	3	3	2	2	<1%	2%	5%							
Red-eyed Vireo	10	2	1	1	2	4	2%	98%	99%							
Blue Jay	10	1	2	2	1	4	3%	99%	100%	12	2	2	4	1	3	4%
American Crow	10	1	2	1	1	5	4%	100%	100%	10	1	2	2	1	4	7%
Common Raven	9	1	2	2	2	2	<1%	9%	32%	8	1	2	2	1	2	<1%
Horned Lark	10	1	1	3	3	2	<1%	88%	76%	10	1	1	4	2	2	<1%
Purple Martin	11	1	2	3	3	2	1%	71%	53%							
Tree Swallow	11	1	2	1	2	5	6%	100%	99%							
Northern Rough-winged Swallow	12	1	2	3	2	4	1%	85%	74%							
<b>Bank Swallow</b>	14	1	2	3	3	5	5%	84%	69%							
Cliff Swallow	9	1	1	3	2	2	<1%	70%	66%							
Barn Swallow	12	1	1	2	3	5	4%	99%	99%							
Black-capped Chickadee	11	1	2	1	2	5	5%	96%	99%	10	1	2	1	1	5	5%

Common Name	Breeding Assessment Scores						WHem %Pop	Breeding Evidence		Winter Assessment Scores						WHem %Pop
	Total	BD	PS	PT	TB	RD		1 <sup>st</sup> Atlas	2 <sup>nd</sup> Atlas	Total	ND	PS	PT	TN	RD	
Tufted Titmouse	10	2	2	1	2	3	2%	2%	9%	9	2	2	1	1	3	2%
Red-breasted Nuthatch	8	1	2	1	2	2	<1%	45%	63%	9	1	2	1	2	3	1%
White-breasted Nuthatch	9	1	2	1	2	3	3%	89%	90%	9	1	2	1	2	3	3%
Brown Creeper	11	1	2	3	3	2	1%	47%	49%	13	1	2	3	2	5	2%
Carolina Wren	8	2	2	1	2	1	<1%	4%	21%	8	2	2	1	2	1	<1%
House Wren	12	1	2	3	1	5	3%	95%	96%							
Winter Wren	10	1	2	2	3	2	<1%	46%	50%	9	1	2	1	2	3	1%
Sedge Wren	13	3	2	3	4	1	<1%	17%	18%							
Marsh Wren	12	2	2	3	3	2	1%	37%	39%							
Golden-crowned Kinglet	12	2	2	3	3	2	<1%	15%	18%	10	1	2	3	2	2	1%
Ruby-crowned Kinglet	8	1	1	3	2	1	<1%	8%	7%							
Blue-gray Gnatcatcher	9	1	1	3	2	2	<1%	23%	32%							
Eastern Bluebird	9	1	2	1	2	3	1%	46%	83%							
Veery	13	2	2	2	3	4	3%	89%	82%							
Swainson's Thrush	7	1	1	2	2	1	<1%	7%	7%							
Hermit Thrush	9	1	1	2	3	2	<1%	19%	33%							
<b>Wood Thrush</b>	15	2	2	4	3	4	6%	92%	92%							
American Robin	10	1	1	2	1	5	3%	100%	100%	7	1	1	2	1	2	<1%
Gray Catbird	12	1	2	3	2	4	8%	99%	99%							
Northern Mockingbird	6	1	2	1	1	1	<1%	13%	29%	6	1	2	1	1	1	<1%
<b>Brown Thrasher</b>	14	1	2	5	3	3	2%	98%	93%	12	3	2	4	2	1	<1%
[European Starling]	12	1	1	4	1	5	8%	99%	100%	12	1	1	4	1	5	2%
Bohemian Waxwing										11	1	3	2	2	3	<1%
Cedar Waxwing	11	1	2	1	2	5	7%	99%	99%	9	1	2	2	2	2	1%
<b>Blue-winged Warbler</b>	17	3	4	3	3	4	10%	14%	21%							

Common Name	Breeding Assessment Scores						WHem %Pop	Breeding Evidence		Winter Assessment Scores						WHem %Pop	
	Total	BD	PS	PT	TB	RD		1 <sup>st</sup> Atlas	2 <sup>nd</sup> Atlas	Total	ND	PS	PT	TN	RD		
<b>Golden-winged Warbler</b>	18	4	4	3	4	3	5%	22%	18%								
Tennessee Warbler	9	2	1	3	2	1	<1%	2%	2%								
Orange-crowned Warbler	--	1	1	3	2	--	<1%	0%	<1%								
Nashville Warbler	12	2	2	3	3	2	<1%	56%	55%								
Northern Parula	11	2	2	3	3	1	<1%	5%	6%								
Yellow Warbler	12	1	2	2	2	5	3%	99%	100%								
Chestnut-sided Warbler	11	2	2	2	2	3	2%	66%	73%								
Magnolia Warbler	9	1	2	2	2	2	<1%	20%	38%								
Cape May Warbler	12	2	3	3	3	1	<1%	2%	2%								
Black-throated Blue Warbler	14	3	3	2	3	3	2%	11%	28%								
Yellow-rumped Warbler	9	1	1	3	2	2	<1%	32%	49%	8	1	1	2	2	2		<1%
Black-throated Green Warbler	12	2	2	3	3	2	1%	31%	57%								
Blackburnian Warbler	10	2	2	1	3	2	1%	25%	28%								
Pine Warbler	9	3	2	1	2	1	<1%	23%	51%								
<b>Kirtland's Warbler</b>	--	5	5	3	4	--	<1%	<1%	0%								
<b>Prairie Warbler</b>	14	3	3	3	3	2	<1%	1%	1%								
Palm Warbler	10	2	2	3	2	1	<1%	<1%	<1%								
Bay-breasted Warbler	14	3	3	3	3	2	<1%	1%	2%								
<b>Cerulean Warbler</b>	17	4	3	3	4	3	4%	8%	6%								
Black-and-white Warbler	12	2	2	1	3	4	2%	62%	67%								
American Redstart	11	1	2	2	3	3	2%	83%	84%								
<b>Prothonotary Warbler</b>	13	3	3	3	3	1	<1%	2%	2%								
Worm-eating Warbler	14	3	3	3	3	2	<1%	0%	<1%								
Ovenbird	12	2	2	2	3	3	2%	89%	86%								
Northern Waterthrush	10	1	2	2	3	2	<1%	58%	62%								

Common Name	Breeding Assessment Scores						WHem %Pop	Breeding Evidence		Winter Assessment Scores						WHem %Pop
	Total	BD	PS	PT	TB	RD		1 <sup>st</sup> Atlas	2 <sup>nd</sup> Atlas	Total	ND	PS	PT	TN	RD	
<b>Louisiana Waterthrush</b>	14	2	4	3	3	2	1%	4%	4%							
Kentucky Warbler	13	3	3	3	3	1	<1%	1%	<1%							
Mourning Warbler	12	3	2	3	2	2	1%	63%	60%							
Common Yellowthroat	12	1	2	2	2	5	4%	99%	98%							
<b>Hooded Warbler</b>	11	2	3	1	3	2	2%	2%	8%							
Wilson's Warbler	9	1	2	3	2	1	<1%	<1%	1%							
<b>Canada Warbler</b>	15	2	3	5	3	2	1%	32%	29%							
<b>Yellow-breasted Chat</b>	13	1	2	5*	4	1	<1%	5%	2%							
Summer Tanager	--	2	3	3	3	--	<1%	<1%	1%							
Scarlet Tanager	13	2	3	2	3	3	4%	76%	74%							
<b>Eastern Towhee</b>	14	2	2	5	3	2	1%	67%	62%	12	2	2	4	2	2	<1%
American Tree Sparrow										13	2	2	4	2	3	4%
Chipping Sparrow	10	1	1	2	1	5	2%	100%	100%	8	2	1	2	2	1	<1%
Clay-colored Sparrow	10	2	2	3	2	1	<1%	11%	25%							
<b>Field Sparrow</b>	15	2	2	5	3	3	3%	83%	80%	13	2	2	5	2	2	<1%
<b>Vesper Sparrow</b>	13	1	2	5	3	2	1%	91%	77%							
<b>Savannah Sparrow</b>	14	1	1	4	3	5	3%	97%	96%							
<b>Grasshopper Sparrow</b>	13	1	2	5	3	2	<1%	45%	41%							
<b>Henslow's Sparrow</b>	19	3	4	5*	4	3	3%	4%	1%							
Le Conte's Sparrow	--	2	3	3	3	--	<1%	<1%	<1%							
Fox Sparrow										10	2	2	2	2	2	<1%
Song Sparrow	13	1	1	4	2	5	7%	100%	100%	10	1	1	4	2	2	1%
Lincoln's Sparrow	10	1	2	3	3	1	<1%	2%	5%							
Swamp Sparrow	12	2	2	1	2	5	2%	83%	84%	9	2	2	1	2	2	1%
White-throated Sparrow	11	2	1	4	2	2	<1%	69%	66%	11	2	1	4	2	2	<1%

Common Name	Breeding Assessment Scores						WHem %Pop	Breeding Evidence		Winter Assessment Scores						WHem %Pop
	Total	BD	PS	PT	TB	RD		1 <sup>st</sup> Atlas	2 <sup>nd</sup> Atlas	Total	ND	PS	PT	TN	RD	
White-crowned Sparrow										11	2	1	4	2	2	<1%
Dark-eyed Junco	9	1	1	4	2	1	<1%	8%	9%	11	1	1	4	2	3	1%
Lapland Longspur										9	1	1	3	2	2	<1%
Snow Bunting										11	1	2	2	2	4	4%
Northern Cardinal	7	1	1	1	1	3	2%	76%	94%	7	1	1	1	1	3	2%
<b>Rose-breasted Grosbeak</b>	15	2	3	3	2	5	5%	96%	96%							
Indigo Bunting	10	1	2	2	2	3	1%	97%	95%							
Dickcissel	11	2	2	3	3	1	<1%	<1%	0%							
<b>Bobolink</b>	16	2	2	4	3	5	20%	97%	96%							
Red-winged Blackbird	12	1	1	4	2	4	4%	100%	100%	10	1	1	4	2	2	<1%
<b>Eastern Meadowlark</b>	15	1	2	5	3	4	2%	97%	93%							
Western Meadowlark	11	1	2	4*	3	1	<1%	7%	1%							
Yellow-headed Blackbird	11	2	2	3	3	1	<1%	1%	<1%							
Rusty Blackbird	12	1	3	3	3	2	<1%	1%	1%							
Brewer's Blackbird	10	2	2	3	2	1	<1%	3%	3%							
Common Grackle	13	1	1	5	1	5	5%	100%	99%	10	2	1	4	1	2	<1%
Brown-headed Cowbird	11	1	1	4	1	4	2%	99%	98%	9	1	1	4	1	2	<1%
Orchard Oriole	11	2	3	1	3	2	<1%	12%	26%							
<b>Baltimore Oriole</b>	16	2	2	4	3	5	7%	98%	98%							
Pine Grosbeak										12	1	3	3	2	3	<1%
Purple Finch	14	2	3	3	3	3	2%	45%	53%	12	1	3	4	2	2	3%
[House Finch]	8	1	2	1	1	3	4%	20%	85%	8	1	2	1	1	3	4%
Red Crossbill	10	1	2	3*	3	1	<1%	6%	1%	11	1	2	3	3	2	<1%
White-winged Crossbill	10	1	2	3	3	1	<1%	2%	4%	10	1	2	2	2	3	<1%
Common Redpoll										10	1	1	2	2	4	1%

Common Name	Breeding Assessment Scores						WHem %Pop	Breeding Evidence		Winter Assessment Scores						WHem %Pop
	Total	BD	PS	PT	TB	RD		1 <sup>st</sup> Atlas	2 <sup>nd</sup> Atlas	Total	ND	PS	PT	TN	RD	
Hoary Redpoll										9	1	2	3	2	1	<1%
Pine Siskin	9	1	2	3*	2	1	<1%	17%	11%	12	1	2	4	2	3	<1%
American Goldfinch	12	1	2	2	2	5	9%	99%	100%	9	1	2	2	1	3	2%
Evening Grosbeak	11	2	2	3	2	2	<1%	12%	10%	12	1	2	4	2	3	1%
[House Sparrow]	11	1	1	4	1	4	2%	96%	93%	11	1	1	4	1	4	2%

## Appendix F. Priority Species Accounts

The species accounts in this Appendix summarize the conservation status, biology, threats, objectives and recommended actions for each of the 42 priority species identified in the Ontario BCR 13 Landbird Conservation Plan. The accounts follow a standard format as shown in the template (Figure 1). Additional information on the format, content, and sources of information used in these accounts is provided below.

### Additional Information on the Format of the Priority Species Accounts

#### Status

**PIF Continental Watch List Species** = Identified as Watch List species in the North American Landbird Conservation Plan (Rich et al. 2004).

**PIF Continental Stewardship Species** = Identified as Stewardship species in the North American Landbird Conservation Plan (Rich et al. 2004), with at least 5% of North American population in BCR 13.

**COSEWIC Status:** Identified as Endangered, Threatened or Special Concern by the Committee on the Status of Endangered Wildlife in Canada, November 2004 ([www.cosewic.gc.ca](http://www.cosewic.gc.ca)).

**COSSARO Status:** Identified as Endangered, Threatened or Special Concern by the Committee on the Status of Species at Risk in Ontario, April 2004 ([www.ontarioparks.com/saro-list.pdf](http://www.ontarioparks.com/saro-list.pdf)).

**BCR 13 Priority Species:** Identified as a priority breeding or wintering species in this plan.

#### Reasons for Concern:

Priority categories and reasons why species is considered a priority species in BCR 13. See Appendix B for a detailed explanation of the PIF approach to identifying priority species at a regional scale.

#### ON BCR 13 Population

Summary of the current status of the species in southern Ontario including: relative abundance (from James 1991); available quantitative information on current abundance and distribution, and trend; and proportion of global population occurring in ON BCR 13.

#### Range map

Range maps constructed by Bird Studies Canada using data provided by NatureServe in collaboration with Robert Ridgely, James Zook, The Nature Conservancy - Migratory Bird Program, Conservation International - Center for Applied Biodiversity Science, World Wildlife Fund - US, and Environment Canada – WILDSpace (Ridgely et al 2003).

#### Objectives

Objectives for the conservation of the species in southern Ontario, as established in this plan (except for Endangered and Threatened Species), are provided. Objectives for Endangered and Threatened Species are taken from current Recovery Strategies (if available) or Recovery Plans.

#### Conservation Actions

“Fine filter” priority actions specific to the conservation of the particular species in southern Ontario are included in the species accounts. “Coarse filter” actions that apply to all or most species in a particular habitat suite or foraging guild are included in the relevant chapters in the Plan.

#### Key References

The main sources of information (mostly secondary references) used in preparing the species account.

**Figure 1. Template for the Priority Species Accounts**

<p><b>Common Name</b> <i>Scientific name</i></p> <p><b>Status</b></p> <ul style="list-style-type: none"> <li>• PIF Status in North America (Continental Watch List or Continental Stewardship Species in Rich et al. 2004)</li> <li>• SAR Status in Canada (COSEWIC 2004).</li> <li>• SAR Status in Ontario (MNR 2004).</li> <li>• PIF Status in BCR 13 (Breeding or Wintering Priority Species as identified in this plan).</li> </ul> <p><b>Reasons for Concern</b></p> <ul style="list-style-type: none"> <li>• <i>Continental Concern</i>: Supporting criteria</li> <li>• <i>Regional Concern</i>: Supporting criteria</li> <li>• <i>Regional Stewardship</i>: Supporting criteria</li> <li>• <i>Species at Risk</i>: Reasons for designation.</li> <li>• <i>Management Interest</i>: Supporting criteria</li> <li>• Population trend in BCR 13</li> <li>• % of global population in BCR 13.</li> </ul> <p><b>ON BCR 13 population</b></p> <ul style="list-style-type: none"> <li>• Relative abundance in southern Ontario (James 1991).</li> <li>• Current BBS Index (2001-03) and population estimate (or best available population estimate).</li> <li>• Current BBA distribution (preliminary data from 2001-04 period only) of % of Atlas squares (minimum of 20 hours of coverage) with breeding evidence in each sub-region.</li> <li>• Population trend in ON BCR 13 (based on BBS 1968-2003 data).</li> <li>• % of global population in ON BCR 13 (population estimates in this report and comparable estimates in Rich et al. 2004).</li> </ul> <p style="text-align: center;"><b>Range map</b></p> <p style="text-align: center;"> <span style="color: red;">Red</span> = breeding range;  <span style="color: yellow;">Yellow</span> = passage migrant  <span style="color: blue;">Blue</span> = wintering range;  <span style="color: purple;">Purple</span> = year-round range         </p> <p><b>Ecology</b></p> <ul style="list-style-type: none"> <li>• Key ecological factors such as including area sensitivity, breeding habitat, specific habitat or nesting requirements, foraging strategy, etc.</li> </ul> <p><b>Threats and Management Issues</b></p> <p>Main threats or management issues affecting the conservation of this species such as:</p> <ul style="list-style-type: none"> <li>• <i>Habitat Loss, Habitat fragmentation and Isolation, Habitat Alteration or Degradation, Brood Parasitism, Competition.</i></li> </ul>	<p><b>Priority Suite</b></p> <p><b>Overall Objective:</b></p> <ul style="list-style-type: none"> <li>• General description of overall objective for this species.</li> </ul> <p><b>Population Objective</b></p> <ul style="list-style-type: none"> <li>• Quantitative population objective and graph of BBS indices (1968-2003) and population objective, where available.</li> </ul> <p><b>Distribution Objective</b></p> <ul style="list-style-type: none"> <li>• Quantitative distribution objective based on BBA data. Current distribution objectives are preliminary (2001-04 data only) and will be finalized once data collection for current Atlas is complete.</li> </ul> <p><b>Conservation Focus</b></p> <ul style="list-style-type: none"> <li>• Main limiting factor(s) that need to be rectified to ensure conservation of this species.</li> </ul> <p><b>Conservation Actions</b></p> <p>Priority actions in one or more of the following categories:</p> <ul style="list-style-type: none"> <li>• <i>Monitoring</i></li> <li>• <i>Research and Evaluation</i></li> <li>• <i>Planning and Policy</i></li> <li>• <i>Outreach and Education</i></li> <li>• <i>Applied Conservation/ Habitat Management and Protection</i></li> </ul> <p><b>Key References</b></p> <p><u>BNA</u>: Birds of North America species accounts.  <u>SAR</u>: Online Species at Risk accounts  <u>COSEWIC</u>: COSEWIC status report  <u>RENEW</u>: RENEW recovery plan  <u>SARRS</u>: SARA recovery strategy.  <u>NANCLC</u>: National Action Needs of Canadian Landbird Conservation, v.1.  <u>CWLRMN</u>: PIF Continental Watch List Research and Monitoring Needs species accounts.  <u>NPWRC</u>: Grassland species accounts by Northern Prairie Wildlife Research Center.  <u>TNC SMA</u>: Species Management Abstract prepared by The Nature Conservancy.  <u>NatureServe</u>: Species accounts on NatureServe online encyclopedia.  <u>OMNR HMG</u>: Habitat Management Guidelines prepared for Ontario Ministry of Natural Resources.  <u>Other</u>: Additional references.</p>
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## Acadian Flycatcher *Empidonax virescens*

### Status

- Endangered in Canada.
- Endangered (but not regulated) in Ontario.
- BCR 13 Breeding Priority Species

### Reasons for Concern

- *Species at Risk*: Very small population in Canada (southern Ontario only) with specialized breeding habitat requirements that are relatively scarce (Friesen et al. 2000).
- Small winter range (ND=4)
- Population trend in BCR 13 uncertain, tending downwards.
- ~1% of global population in BCR 13.

### ON BCR 13 population

- Rare (James 1991).
- Current population estimate of 35 to 50 nesting pairs (Friesen and Stabb 2001).
- Current BBA distribution (preliminary) of 15% of squares in SW and 2% in CE sub-regions (absent elsewhere).
- Population trend in ON BCR 13 unknown.
- <1% of global population in ON BCR 13.



### Ecology

- Forest obligate
- Area sensitive (20 ha minimum patch size but prefers >100 ha)
- Prefers >80% regional forest cover
- Breeds only in relatively undisturbed mature forests with open understorey including upland deciduous forest, deciduous swamp forest, and deciduous or mixed wooded ravines.

### Threats and Management Issues

- *Monitoring*: Not well sampled by BBS.
  - *Restricted range*: Most of the Canadian population is restricted to Southwest sub-region of ON BCR 13.
  - *Habitat Specialist*: Requires mature, closed canopy forests or forested ravines.
- Fragmentation*: Negatively impacted by forest fragmentation due to higher cowbird parasitism and higher predation rates.

## Forest Suite

### Overall Objective

- **Recovery**: improve status of Canadian population to a level where it is self-sustaining and no longer endangered.

### Population Objective

- Restore Ontario breeding population to at least 250 pairs.

### Distribution Objective

- Multiple pairs established in at least 15 separate breeding sites (in SW subregion).

### Conservation Focus

- *Recovery*: Complete and implement the updated SAR Recovery Strategy (in conjunction with Hooded Warbler).

### Conservation Actions

The current Recovery Plan (in conjunction with Hooded Warbler) includes the following ongoing recovery initiatives:

- *Monitoring*: Monitor populations periodically (intensive survey every five years) to determine population trends in Ontario
- *Research*: Identify factors affecting productivity in Ontario.
- *Research*: Determine habitat requirements and evaluate the availability of breeding habitat.
- *Habitat Securement and Restoration*: Protect and enhance core habitat complexes.
- *Habitat Management*: Monitor and assess the effectiveness of forest management activities in maintaining or enhancing breeding habitat for this species and other forest interior species.
- *Outreach and Education*: Increase awareness and support for recovery activities amongst the public, landowners and forest managers.

### Key References

BNA: Whitehead and Taylor 2002  
SAR: Environment Canada 2004.  
COSEWIC: James 2000  
RENEW: Friesen et al. 2000.  
Other: Friesen and Stabb 2001  
TNC SMA: Sallabanks 1993.  
NatureServe: NatureServe 2005.

## American Kestrel *Falco sparverius*

### Status

- BCR 13 Breeding Priority Species

### Reasons for Concern

- *Regional Concern:* Regional population decline (PT=4) and high relative density (RD=4) in BCR 13.
- 1% of global population in BCR 13.

### ON BCR 13 population

- Common (James 1991).
- Current BBS Index of 0.59, ~ 20,000 birds.
- Current BBA distribution (preliminary) of 90% of squares in SW, 91% in CE, 88% in EA and 81% in NW sub-regions.
- Population trend in ON BCR 13 uncertain, tending downwards.
- <1% of global population in ON BCR 13.



### Ecology

- Breeds in range of open settings, including grasslands and agricultural habitats, roadsides, utility corridors, and suburban areas.
- Secondary cavity nesting species, uses existing cavities in snags or trees >30 cm dbh, also uses artificial nest boxes.
- Forages in patches of short ground vegetation with hunting perches.
- During breeding season, feeds primarily on insects (grasshoppers and crickets), also eats voles, mice, small birds, and frogs.

### Threats and Management Issues

- *Loss of habitat:* Decrease in open areas due to increased forest cover; also loss of agricultural grasslands and fencerow habitats.
- *Habitat degradation:* Agricultural intensification leading to loss of hunting perches and a decrease in food availability.
- *Nest site availability:* Availability of nesting cavities and/or hunting perches may limit breeding population in some areas.

## Grassland & Agricultural Suite

### Threats and Management Issues (cont'd)

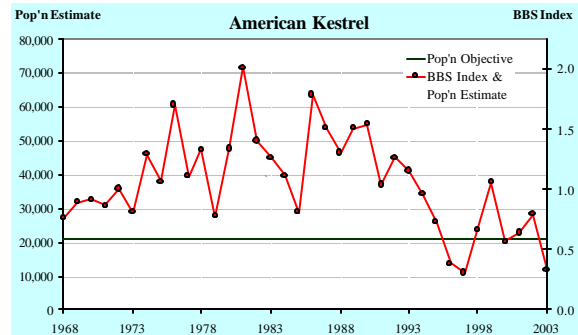
- *Competition:* Competes with European Starlings and squirrels for nest sites.
- *Direct mortality:* Mortality rate due to collisions with vehicles a concern.

### Overall Objective

- **Halt Decline**

### Population Objective

- Maintain current (2001-03) population level, BBS Index of 0.59, ~ 20,000 birds.



### Distribution Objective

- Maintain current breeding distribution (BBA 2001-05) in all sub-regions.

### Conservation Focus

- *Habitat:* Open agricultural settings with grassland habitat, scattered hunting perches and nesting cavities in trees >30 cm.

### Conservation Actions

- *Monitor:* Compile and analyze productivity data collected by nest box monitors.
- *Research:* Determine factors (nest cavities, perches, habitat, and/or food supply) limiting population abundance and productivity.
- *Habitat Management:* Retain large snags and mature trees in open situations for nesting cavities and hunting perches.
- *Habitat Enhancement:* Install nest boxes in areas of suitable habitat where natural cavities are not available.

### Key References

- BNA: Smallwood and Bird 2002.
- OMNR HMG: James 1984a.
- NatureServe: NatureServe 2005.
- Other: WHMI & WHC 1999.

## Bald Eagle

### *Haliaeetus leucocephalus*

#### Status

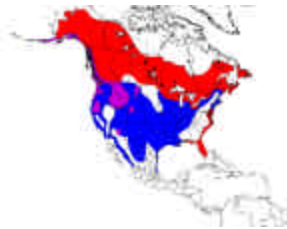
- Endangered in Ontario (current status report proposes change to Threatened for southern Ontario breeding population).
- ON BCR 13 Breeding and Wintering Priority.

#### Reasons for Concern

- *Species at Risk*: Ontario population recovering from severe decline due to pesticide (DDT) contamination but faces ongoing threats from toxins and human disturbance impacts.
- Population trend in BCR 13 unknown.
- <1% of global population in BCR 13.

#### ON BCR 13 population

- Rare (James 1991).
- Current breeding population of 25+ pairs in southern Ontario, increasing (Badzinski 2004).
- Current BBA distribution (preliminary) of 14% of squares in SW, 4% in CE, 9% in EA and 35% in NW sub-regions.
- Winter population estimate and trend are not available.
- <1% of global population in ON BCR 13.



#### Ecology

- Associated with water, including shoreline and riparian habitats.
- Large forested nesting territory (ca. 260 ha) close to large lake or river with large tall trees and/or platform for nest sites (frequently re-used) and additional super-canopy trees or snags for perching and roosting.
- Feeds primarily on fish, also carrion, small mammals, and waterfowl.

#### Threats and Management Issues

- *Habitat Alteration*: Modification of shoreline or riparian nesting habitat or nest trees due to logging, marinas, development, or other activities a threat in some areas.
- *Habitat degradation*: Food supply quality depends on the health of aquatic ecosystems.
- *Disturbance*: Sensitive to disturbance near nest site during breeding season.

## Other Habitats

#### Threats and Management Issues (cont'd)

- *Disturbance*: Sensitive to disturbance near nest site during breeding season
- *Toxic contaminants*: Bioaccumulation of toxins (e.g. mercury, lead shot) may be reducing the adult life span of birds in this region.
- *Direct mortality*: Vulnerable to disease (e.g. West Nile Virus), and to collisions with power lines.

#### Overall Objective

- **Recovery**: goal to be determined.

#### Population Objective

- Recover population to former level (e.g. estimate of 200 pairs in southern Ontario around 1900).

#### Distribution Objective

- Re-establish former breeding distribution, including along the north shore of Lake Ontario.

#### Conservation Focus:

- *Monitoring*: Continue monitoring the recovery of this bio-sentinel species.

#### Conservation Actions

Continue to implement provincial habitat management guidelines for Bald Eagles, complete provincial Recovery Plan, and continue ongoing recovery activities including:

- *Monitoring*: Annual monitoring of nest site productivity in southern Ontario.
- *Monitoring*: Periodically survey and assess wintering population in southern Ontario.
- *Research*: Toxicological and foraging studies to determine cause of shortened life span of adult eagles in southern Ontario.
- *Outreach and Education*: Promote this popular species as an indicator species to evaluate the health of the aquatic environment.
- *Habitat Protection*: Conserve and restore suitable nesting habitat including nest trees and/or platforms, and additional large super-canopy trees for nesting, perching and roosting.
- *Nest Site Protection*: Avoid disturbance of active nest sites (February to mid-June), and avoid destruction of nest trees at any time.

#### Key References

BNA: Buehler 2000.

COSSARO: Grier et al. 2003.

HMG: OMNR 1987.

NatureServe: NatureServe 2005.

Other: (Badzinski 2004).

## Baltimore Oriole

### *Icterus galbula*

#### Status

- BCR 13 Breeding Priority

#### Reasons for Concern

- Range-wide population decline (PT=4)
- *Regional Concern*: Regional population decline (PT=4) and moderate threats (TB=3) in BCR 13.
- *Regional Stewardship Species*: Very high relative density (RD=5) and moderate concern (total score of 16) in BCR 13.
- Long-term population decline in BCR 13.
- 7% of global population in BCR 13.

#### ON BCR 13 population

- Common (James 1991).
- Current BBS Index (2001-03) of 7.4, ~200,000 birds.
- Current BBA distribution (preliminary) of 100% of squares in SW, 99% in CE, 99% in EA and 84% in NW sub-regions.
- Long-term population decline in ON BCR 13.
- ~ 3% of global population



#### Ecology

- Breeds in open riparian woodlands, edges of deciduous forest, and in suburban and parkland settings.
- Strong preference for deciduous trees.
- During breeding season feeds on caterpillars, fruits, adult insects, spiders and nectar.

#### Threats and Management Issues

- *Habitat loss and degradation*: Concern about habitat conditions on the wintering grounds, particularly loss of shade coffee plantations.
- *Environmental contaminants*: Vulnerable to pesticide poisoning and to decreased food supply due to insect control measures.
- *Climate change*: Severe weather in spring and early summer increases mortality due to exposure and reduces productivity.
- *Direct mortality*: Vulnerable to collisions with vehicles, particularly during early spring.

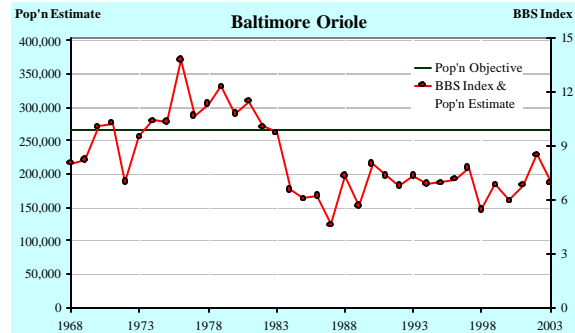
## Other Habitats

### Overall Objective

- Reverse decline

### Population Objective

- Restore population to 1968-1977 level, BBS Index 9.8, ~250,000 birds.



### Distribution Objective

- Maintain current distribution in all sub-regions of southern Ontario.

### Conservation Focus

- *Research*: Identify factors causing population decline and limiting population growth.

### Conservation Actions

- *Research*: Quantify the impact of pesticides and climate on nesting populations, and the impact of coffee and cacao plantation management on wintering populations
- *Habitat*: Maintain large deciduous trees in riparian, roadside, suburban and forest-edge settings.

### Key References

- BNA: Rising and Flood 1998.  
NatureServe: NatureServe 2005.

## Bank Swallow

### *Riparia riparia*

#### Status

- BCR 13 Breeding Priority

#### Reasons for Concern

- *Regional Stewardship Species*: Very high relative density (RD=5) and moderate concern (total score of 14) in BCR 13.
- Population trend in BCR 13 uncertain, tending downwards.
- 5% of global population in BCR 13.

#### ON BCR 13 population

- Locally common to abundant (James 1991).
- Current BBS Index (2001-03) of 8.8, ~250,000 birds.
- Current BBA distribution (preliminary) of 70% of squares in SW, 78% in CE, 55% in EA and 30% in NW sub-regions.
- Population trend in ON BCR 13 uncertain, tending strongly downwards.
- <1% of global population in ON BCR 13.



#### Ecology

- Associated with water, including shoreline and riparian habitats.
- Nests in burrows dug into vertical surfaces composed of soft sand or silt sediments, including eroded riverbanks and excavated quarry faces.
- Usually nests in small colonies of 5 to 100 pairs, rarely more than a 1000 pairs.
- Diurnal aerial foraging insectivore.

#### Threats and Management Issues

- *Direct or indirect mortality*: Vulnerable to disturbance at nesting colonies during breeding season (late May-July), particularly in active quarries.
- *Habitat Loss*: Loss of nesting sites in riverbanks due to flooding and erosion control measures.

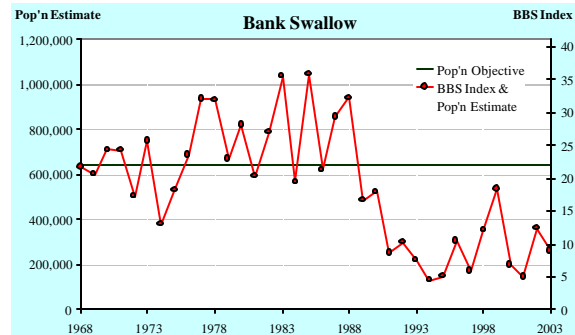
## Other Habitats & Aerial Insectivore Suite

### Overall Objective

- **Reverse Decline**

### Population Objective

- Restore population to 1968-1977 level, BBS Index 22.1, ~600,000 birds.



### Distribution Objective

- Restore distribution to 1981-85 BBA levels of 85% of squares in SW, 92% in CE, 78% in EA and 52% in NW sub-regions.

### Conservation Focus

- *Outreach*: Develop and promote BMPs for bank-nesting birds to minimize destruction or disturbance of nest sites during the breeding season.

### Conservation Actions

- *Research*: Investigate potential causes of the population decline including changes in the availability of nest sites, and population demographics at a variety of nesting sites throughout southern Ontario.
- *Habitat*: Maintain availability of suitable nesting sites, particularly for large colonies.
- *Nest protection*: Avoid destruction of nests during breeding season.
- *Research*: Investigate habitat use during migration and winter.

### Key References

- BNA: Garrison 1999.  
NANCLC: Dunn 2002.  
NatureServe: NatureServe 2005.

## Barn Owl

### *Tyto alba*

#### Status

- Endangered in Canada.
- Endangered (not regulated) in Ontario.
- BCR 13 Breeding Priority Species

#### Reasons for Concern

- *Species at Risk*: Very small and declining population in southern Ontario.
- Population trend in BCR 13 unknown.
- <1% of global population in BCR 13.

#### ON BCR 13 population

- Rare (James 1991).
- No recent breeding records from Ontario, but a few recent roadkills and sighting records..
- Population trend in ON BCR 13 is unknown.
- <1% of global population in ON BCR 13.



#### Ecology

- Grassland obligate.
- Found in open habitats including agricultural grasslands, native grasslands, and marshes.
- Cavity nester that will nest in hollow trees (>50 cm dbh), nest boxes, and human structures.
- Requires high densities of voles and other prey species.

#### Threats and Management Issues

- *Knowledge Gap*: Rare, nocturnal species; not monitored by general surveys.
- *Habitat Loss and Degradation*: Decrease in pastures and agricultural intensification have resulted in loss and degradation of high-quality foraging habitat and loss of nest sites.
- *Direct Mortality*: Vulnerable to severe winter weather (does not appear to over-winter in Ontario), collisions with vehicles, and to bioaccumulation of toxins.
- *Public Profile*: Considered a flagship species for grassland birds due to high level of public interest, particularly in rural areas.

## Grassland & Agricultural Suite

#### Overall Objective

- **Recovery**: re-establish a wild breeding population in southern Ontario (Solymar and McCracken 2002).

#### Population Objective

- At least 20 breeding pairs in SW sub-region.

#### Distribution Objective

- Breeding population in SW sub-region.

#### Habitat Objective

- Restore and conserve at least 1000 ha of rough grassland habitat to benefit Barn Owls and other grassland species.

#### Conservation Focus

- *Outreach and Education*: Promote this popular, charismatic species as a flagship species for focusing interest in grassland conservation in rural communities.

#### Conservation Actions

- Continue to implement draft provincial recovery plan (and implement national recovery strategy when available) including following actions:
- *Monitoring*: Continue Barn Owl nest box monitoring and sightings reporting program in SW sub-region (over 300 boxes installed in 1999-2000).
  - *Habitat Management and Enhancement*: Promote best management practices for grassland birds (Solymar 2005).
  - *Outreach and Education*: Continue to develop and distribute communication materials to inform rural residents about Barn Owl and grassland conservation and engage the cooperation of community groups.

#### Key References

- BNA: Marti 1992.  
COSEWIC: Kirk 1999, COSEWIC 2004.  
SAR: Environment Canada 2004.  
ON Recovery Plan: Solymar and McCracken 2002.  
NANCLC: Dunn 2002.  
TNC SMA: Rosenberg et al. 1992.  
OMNR HMG: James 1984a.

## Belted Kingfisher *Ceryle alcyon*

### Status

- BCR 13 Breeding Priority

### Reasons for Concern

- Range-wide population decline (PT=4).
- *Regional Concern*: Regional population decline (PT=4) and very high relative density (RD=5) in BCR 13.
- 2% of global population in BCR 13.

### ON BCR 13 population

- Common (James 1991).
- Current (2001-03) BBS Index of 0.45, ~15,000 birds
- Current BBA distribution (preliminary) of 88% of squares in SW, 98% in CE, 92% in EA and 78% in NW sub-regions.
- Long-term population decline in ON BCR 13.
- <1% of global population



### Ecology

- Riparian obligate, occurs in shoreline, riparian and wetland habitats.
- Nests in burrows dug into vertical surfaces composed of soft sand or silt sediments, including eroded riverbanks and excavated quarry faces.
- Forages on primarily on small fish, also crayfish, tadpoles, insects and other prey in clear, slow-moving water.
- Uses hunting perches.

### Threats and Management Issues

- *Habitat quality*: Water quality and clarity affects food availability
- *Direct or indirect mortality*: Sensitive to disturbance at nest sites during breeding season (April-July), particularly at active quarries.
- *Habitat Loss*: Loss of nesting sites in riverbanks due to flooding and erosion control measures.
- *Direct Mortality*: Active control measures may be occurring at some fish hatcheries.

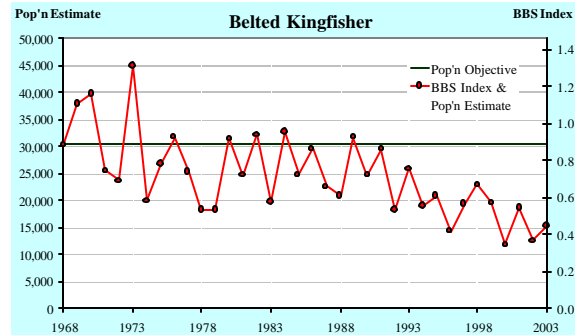
## Other Habitats

### Overall Objective

- **Reverse Decline**

### Population Objective

- Restore population to 1968-1977 level, BBS Index 0.89, ~30,000 birds.



### Distribution Objective

- Restore distribution to 1981-85 levels of 95% of squares in SW, 99% in CE, 96% in EA, and 89% in NW sub-regions.

### Conservation Focus

- *Outreach*: Develop and promote BMPs for bank-nesting birds to minimize destruction or disturbance of nest sites during the breeding season.

### Conservation Actions

- *Research*: Investigate potential causes of the population decline including assessing changes in the availability of nest sites, and population demographics at a variety of nesting sites throughout southern Ontario.
- *Habitat Management*: Promote measures to maintain or restore water clarity, water quality and food availability in riparian systems (e.g. buffer strips).
- *Nest Site Protection*: Avoid destruction or disturbance of nest sites during breeding season
- *Monitoring*: Indicator species that can be used to evaluate stream rehabilitation and management efforts.

### Key References

- BNA: Hamas 1994  
NANCLC: Dunn 2002.  
NatureServe: NatureServe 2005.  
Other: McHattie et al. 1995.

## Black-billed Cuckoo *Coccyzus erythrophthalmus*

### Status

- BCR 13 Breeding Priority Species

### Reasons for Concern

- Range-wide population decline (PT=4)
- *Regional Concern*: Severe long-term regional population decline (PT=5) and moderate regional threats (TB=3) in BCR 13.
- *Regional Stewardship Species*: High relative density (RD = 5) and >5% of global population in BCR 13.
- ~6% of global population in BCR 13.

### ON BCR 13 population

- Uncommon to locally common (James 1991).
- Current BBS Index of 0.85, ~ 40,000 birds.
- Current BBA distribution (preliminary) of 73% of squares in SW, 80% in CE, 69% in EA, and 64% in NW sub-regions
- ~ 3% of global population in ON BCR 13.
- Long-term population decline in ON BCR 13.



### Ecology

- Uses variety of successional forests, dense deciduous thickets, open woodland, riparian and forest-edge habitats.
- Insectivore, feeding primarily on large insects including caterpillars, cicadas, katydids, tree crickets and grasshoppers.
- Breeding densities vary in apparent response to caterpillar and cicada outbreaks.
- Facultative brood parasite.

### Threats and Management Issues

- *Habitat Loss*: Deforestation in winter range may be an issue.
- *Direct and Indirect Mortality*: Use of pesticides to control insect outbreaks may have adverse impact on survival and/or productivity.
- *Direct Mortality*: Vulnerable to collisions with traffic when foraging, collisions with lighted structures during migration.

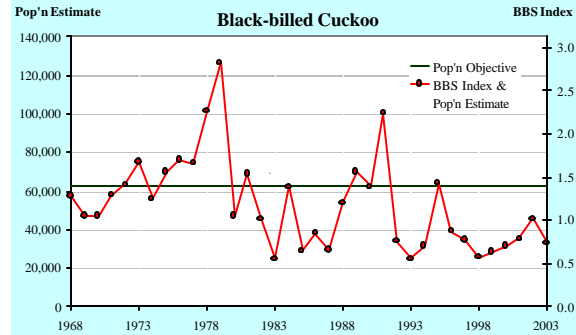
## Shrub/ Successional and Forest Suites

### Overall Objective

- Reverse Decline

### Population Objective

- Restore population to 1968-1977 levels: BBS Index of 1.4, ~ 60,000 birds.



### Distribution Objective

- Restore distribution to 1981-85 BBA levels of 85% in EA sub-region. Maintain current distribution in SW, CE and NW sub-regions.

### Conservation Focus

- *Research* needed to determine factors causing population decline in this region and elsewhere in North America.

### Conservation Actions

- *Research* needed to determine cause of population decline (and past fluctuations) in this region and elsewhere in North America.
- *Research* needed on breeding ecology, winter ecology, sensitivity to pesticides, and response to habitat management.

### Key References

- BNA: Hughes 2001.  
NANCLC: Dunn 2002  
NatureServe: NatureServe 2005.  
TNC SMA: Deeble et al. 2001.

## Blue-winged Warbler

### *Vermivora pinus*

#### Status

- PIF Continental Watch List Species
- PIF Continental Stewardship Species
- BCR 13 Breeding Priority Species

#### Reasons for Concern

- *Continental Concern*: Small global population (PS=4), small global wintering range (ND=4), and range-wide population decline (PT=4).
- Moderate relative density in BCR 13 (RD=4).
- Population trend in BCR 13 uncertain.
- 

#### ON BCR 13 population

- Rare to locally uncommon (James 1991).
- Current BBS Index of 0.07, ~ 2,000 birds.
- Current BBA distribution (preliminary) of 43% of squares in SW, 20% in CE, 1% in EA and 3% in NW sub-regions
- <1% of global population in ON BCR 13.
- Population trend in ON BCR 13 uncertain.



#### Ecology

- Uses range of natural or disturbed, early- to mid-successional shrub habitats including overgrown old fields, clearcuts, power line right-of-ways, and forest-field edge habitats with low, open canopy.
- Nests on or near the ground in dense patches of forbs, graminoids or shrubs
- Fire-adapted species.
- Breeding range has been shifting northwards for more than a century.
- Feeds on insects and spiders.

#### Threats and Management Issues

- *Habitat Loss*: Decrease in early to mid-successional habitats due to natural succession and development.
- *Brood Parasitism*: High levels of nest parasitism by cowbirds reported in parts of species range.
- *Predation*: Nest predation by cats and mammals a concern in some areas.

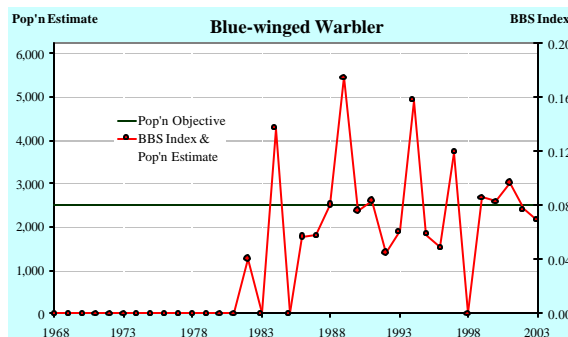
## Shrub/ Successional Suite

#### Overall Objective

- **Maintain Current**

#### Population Objective

- Maintain current population: BBS Index 0.07, ~ 2,000 birds



#### Distribution Objective

- Maintain current BBA distribution in all sub-regions.

#### Conservation Focus

*Habitat*: Population sustainability is dependent on periodic disturbance to create or restore early successional habitat.

#### Conservation Actions

- *Monitor*: Periodically assess status of population in southern Ontario.
- *Monitor*: Improve precision of BBS trends in southern Ontario if feasible.
- *Research*: assess the effect of silvicultural and successional habitat (right-of-way) management practices on the abundance, productivity, recruitment, and site fidelity of Blue-winged Warblers and other shrubland birds.
- Research needed on inter-specific interactions and hybridization of Blue-winged Warblers and Golden-winged Warblers to understand causal factors of species displacement.

#### Key References

- BNA: Gill et al. 2001.
- NANCLC: Dunn 2002.
- TNC SMA: Brown et al. 1999.
- CWLRMN: PIF US 2005.
- NatureServe: NatureServe 2005.

## Bobolink

### *Dolichonyx oryzivorus*

#### Status

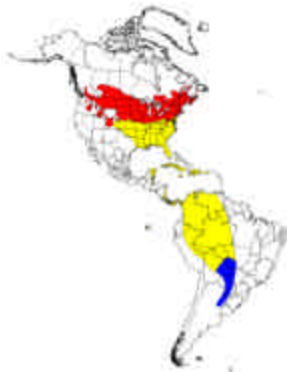
- BCR 13 Breeding Priority Species

#### Reasons for Concern

- Range-wide population decline (PT=4).
- *Regional Concern*: Regional population decline (PT=4) and moderate threats on breeding and wintering grounds (TB=3, TN=3).
- *Regional Stewardship*: Very high relative density (RD=5) and 20% of global population in BCR 13.

#### ON BCR 13 population

- Common (James 1991)
- Current BBS Index of 26.0, ~1,000,000 birds
- Current BBA distribution (preliminary) of 93% of squares in SW, 98% in CE, 99% in EA and 86% in NW sub-regions.
- Long-term population decline in ON BCR 13.
- ~ 11% of global population in ON BCR 13.



#### Ecology

- Grassland dependent.
- Area sensitive, minimum of 2 ha of grassland habitat but higher abundance and productivity in large (100 ha+) tracts.
- Breeds in native or agricultural grasslands, especially hayfields and pastures, but also grassy meadows, fallow fields and small grain crops.
- Nests in large patches of moderately tall, dense grasslands with high grass-to-forb ratio, moderately dense litter, and no woody vegetation.
- Ground nesting.

#### Threats and Management Issues

- *Habitat Loss*: Loss of high quality habitat due to conversion of pasture to cropland, changes in hayfield management, and natural succession on inactive grasslands.

## Grassland & Agricultural Suite

#### Threats and Management Issues (cont'd)

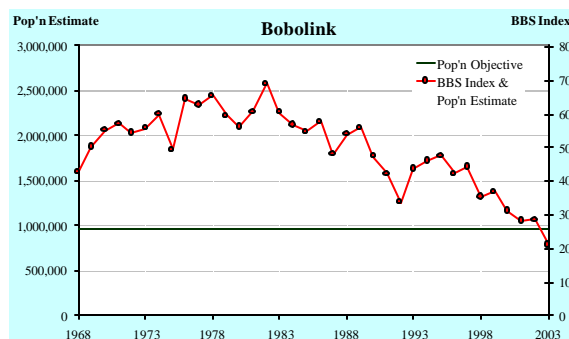
- *Habitat quality*: Periodic mowing, burning or light grazing treatments are important to maintaining habitat suitability.
- *Direct Mortality*: Reduced or no productivity if haying, grazing, habitat management or other disturbances occur during nesting period (mid-May to mid-July).

#### Overall Objective

- **Halt Decline**

#### Population Objective

- Maintain current (2001-03) population level, BBS Index of 26.0, ~1,000,000 birds.



#### Distribution Objective

- Maintain current breeding distribution (BBA 2001-05) in all sub-regions.

#### Conservation Focus

- *Outreach*: Promote adoption of BMPs for grassland birds.

#### Conservation Actions

- *Research*: Identify source populations in southern Ontario.
- *Outreach and Education*: Information to farmers and land managers on BMP for grassland birds.

#### Key References

- BNA: Martin and Gavin 1995.
- NANCLC: Dunn 2002.
- TNC SMA: Dechant et al. 1999.
- NPWRC: Dechant et al. 2003.
- Other: Solymar 2005.

## Brown Thrasher

### *Toxostoma rufum*

#### Status

- PIF Continental Stewardship Species
- BCR 13 Breeding Priority Species

#### Reasons for Concern

- Range-wide population decline (PT=4)
- *Regional Concern:* Severe regional population decline (PT=5) and moderate regional threats (TB=3).
- ~1.6% of global population in BCR 13.

#### ON BCR 13 population

- Common (James 1991).
- Current BBS Index of 2.4, ~ 80,000 birds.
- Widespread: current BBA distribution (preliminary) of 88% of squares in SW, 95% in CE, 93% in EA and 89% in NW sub-regions.
- ~1% of global population in ON BCR 13.
- Long-term population decline in ON BCR 13.



#### Ecology

- Breeds in thickets, hedgerows, forest edges, alvars, shrubby pastures and shrubby clearings, and open deciduous forest
- Ground nester.
- Forages on or near the ground on insects, other invertebrates and fruit.

#### Threats and Management Issues

- *Habitat loss:* Decrease in shrub/early successional habitat due to natural succession, removal of hedgerows, and development.

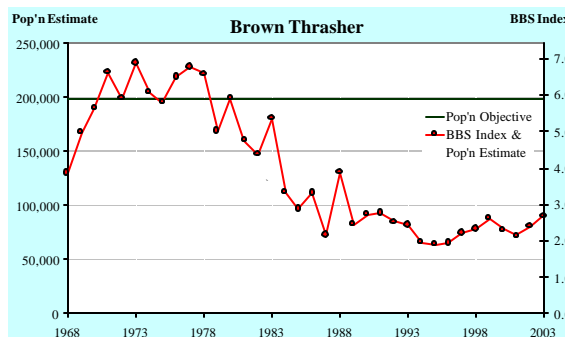
## Shrub/ Successional Suite

### Overall Objective

- **Reverse Decline**

### Population Objective

- Restore population to 1968-1977 levels: BBS Index 5.9, ~200,000 birds



### Distribution Objective

- Restore distribution to 1981-85 BBA levels of 99% of squares in SW, 100% in CE, and 98% in EA sub-regions. Maintain current distribution in NW sub-region.

### Conservation Focus

- *Habitat Management/Evaluation:* Evaluate the effects of increasing the amount of shrub/early successional habitat at select sites in SW, CE or EA sub-regions.

### Conservation Actions

- *Habitat Management:* Increase amount of shrub/successional habitat at select sites in SW, CE and EA sub-regions and evaluate the effect on the abundance and productivity of Brown Thrasher and other shrub/successional birds.
- *Research:* Determine the effects of land management practices on productivity, determine predation rates, and assess the species' susceptibility to agricultural chemicals.

### Key References

- BNA: Cavitt and Hass 2000.
- NANCLC: Dunn 2002.
- NatureServe: NatureServe 2005.

## Canada Warbler

*Wilsonia canadensis*

### Status

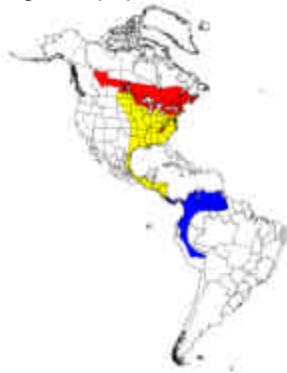
- PIF Continental Watch List
- BCR 13 Breeding Priority Species

### Reasons for Concern

- *Continental Concern:* Range-wide population decline (PT=4) and high threats on wintering grounds (TN=4).
- *Regional Concern:* Severe long-term regional population decline (PT=5) and moderate threats (TB=3) in BCR 13
- ~1% of global population in BCR 13.

### ON BCR 13 population

- Uncommon to rare (James 1991).
- Current BBS Index of 0.10, ~ 3,000 birds.
- Current BBA distribution (preliminary): 10% of squares in SW, 39% in CE, 24% in EA and 41% in NW sub-regions.
- Population trend in ON BCR 13 is uncertain.
- <1% of global population in ON BCR 13.



### Ecology

- Forest obligate
- Area sensitive (forest patches >400 ha)
- Most abundant in cool, moist, mixed forest with dense understorey and abundant moss cover, but will use a range of forest types.
- Ground nesting

### Threats and Management Issues

- *Monitoring:* Not well sampled by BBS.
- *Habitat loss:* Loss of breeding (forested wetland/swamps) and wintering habitat the main threat.
- *Habitat quality:* Affected by change in forest structure (succession and disturbances) that impact on understorey density
- *Fragmentation:* Sensitive to fragmentation of forest patches.

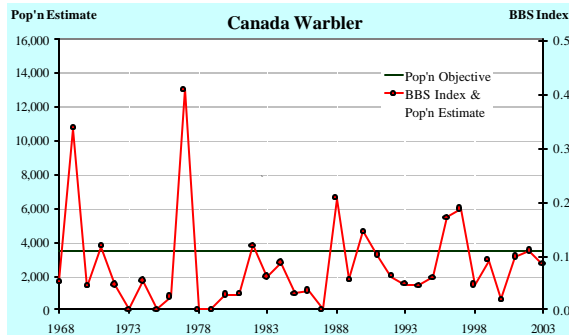
## Forest Suite

### Overall Objective

- **Reverse Decline**

### Population Objective

- Maintain population at or above current level, BBS Index of 0.10, ~ 3,000 birds



### Distribution Objective

- Restore distribution to 1981-85 levels of 19% of squares in SW, 52% in CE, and 32% in EA sub-regions. Maintain or increase current breeding distribution in NW sub-region.

### Conservation Focus

- *Habitat Protection:* Mature, mixed swamp forest with dense understorey within large (>400 ha) forest patches in southern Ontario, also over-wintering habitat in northern Andes.

### Conservation Actions

- *Research:* Determine cause of general population decline, including impact of forest management treatments on breeding density, productivity, and survivorship.
- *Habitat Protection:* Prevent further habitat loss on breeding and wintering grounds.

### Key References

BNA: Conway 1999.  
NANCLC: Dunn 2002.  
CWLRMN: PIF 2005.  
NatureServe: NatureServe 2005.  
TNC SMA: Catlin, D. 1999.

## Cerulean Warbler

### *Dendroica cerulea*

#### Status

- PIF Continental Watch List Species
- Special Concern in Canada and Ontario.
- BCR 13 Breeding Priority Species

#### Reasons for Concern

- *Continental Concern:* Severe range-wide population decline (PT=5), small breeding range (BD=4), small wintering range (ND=4), high threats on breeding ground (TB=4), and high threats on wintering grounds (TN=4).
- *Regional Concern:* High regional threats (TB=4) in BCR 13.
- *Species at Risk:* Special Concern status due to low numbers in Canada, population declines elsewhere, and habitat loss and fragmentation on breeding, migration and wintering grounds.
- Population trend in BCR 13 uncertain, tending upwards.
- 4% of global population in BCR 13.

#### ON BCR 13 population

- Rare to locally uncommon (James 1991).
- Population estimate of 700 to 3000 pairs in Canada, mostly in eastern Ontario (BCRs 13 and 12) (COSEWIC 2003).
- Current BBA distribution (preliminary) of 10% of squares in SW, 5% in CE, 7% in EA and 2% in NW sub-regions.
- Population trend in ON BCR 13 is unknown.
- <1% of global population in ON BCR 13.



#### Ecology

- Forest obligate
- Usually considered an area sensitive species, though found in tracts as small as 10 ha in eastern Ontario
- Breeds in large mature and older deciduous forests with broken canopies and an open understory.

## Forest Suite

#### Threats and Management Issues

- *Loss and fragmentation of breeding habitat:* Conversion of mature deciduous forests to young even-aged stands or non-forested land use, and fragmentation of deciduous forests.
- *Loss and fragmentation of wintering habitat:* loss and fragmentation of montane forests.
- *Brood parasitism:* Cowbird parasitism may affect productivity in some populations
- *Monitoring:* Not well sampled by BBS.

#### Overall Objective

- **Assess Status**

#### Population Objective

- Assess abundance and population trend of breeding population in Ontario.

#### Distribution Objective

- Restore distribution to 1981-85 levels of 19% of squares in SW, and 4% in NW sub-regions and maintain current distribution in CE and EA sub-regions.

#### Conservation Focus

- *Habitat:* Identify and protect large mature deciduous forest tracts supporting important source populations of this species.

#### Conservation Actions

- *Policy:* Develop and implement a management plan for this species of Special Concern.
- *Monitor:* Continue to periodically (5 year) assess population status and distribution in Ontario (and Quebec).
- *Research:* Determine effects of silvicultural and land-use on breeding density, productivity and survivorship.
- *Research:* Study needed on ecology and habitat needs on wintering grounds.
- *Outreach and Education:* Encourage forest owners and managers to manage forests to maintain or enhance suitable breeding habitat for this and other forest interior species.

#### Key References

- BNA: Hamel 2000.
- COSEWIC: COSEWIC 2003.
- SAR: Environment Canada 2004.
- NANCLC: Friesen 2002 (in Dunn 2002).
- CWLRMN: PIF 2005.
- NatureServe: NatureServe 2005.
- TNC SMA: Hamel 1992..

# Chimney Swift

## *Chaetura pelagica*

### Status

- BCR 13 Breeding Priority

### Reasons for Concern

- Range-wide population decline (PT=4).
- Population trend in BCR 13 uncertain.
- *Management Interest:* Severe decline in breeding population and distribution in ON BCR 13, moderate threats (TB=3) and significant numbers present (RD=3).
- 3% of global population in BCR 13.

### ON BCR 13 population

- Uncommon (James 1991).
- Current BBS (2001-03) Index of 0.43, ~10,000 birds
- Current BBA distribution (preliminary) of 68% of squares in SW, 47% in CE, 42% in EA and 18% in NW sub-regions.
- Severe population and distribution decline in ON BCR 13.
- < 1% of global population



### Ecology

- Habitat generalist found in urban and rural settings.
- Nests principally in chimneys, also in hollow trees and on the interior vertical surfaces of man-made structures.
- Diurnal aerial foraging insectivore.

### Threats and Management Issues

- *Habitat Loss:* Loss of nesting habitat due to demolition of chimneys, installation of screening, and lack of suitable nesting sites on most new buildings and structures, but will colonize new man-made structures if dark, rough-textured vertical surfaces are available.
- *Direct Mortality/Climate Change:* Episodic high mortality due to lack of flying insects during severe weather.

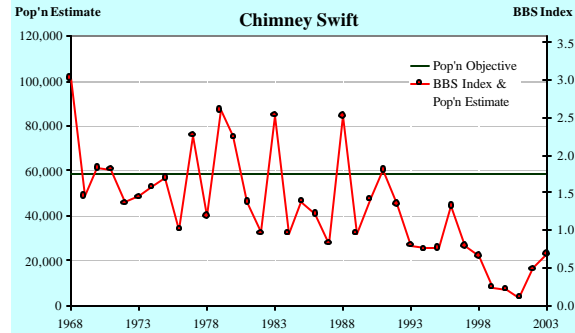
### Other Habitats & Aerial Insectivore Suite

### Overall Objective

- **Reverse Decline**

### Population Objective

- Restore population to 1968-1977 level, BBS Index 1.7, ~60,000 birds.



### Distribution Objective

- Restore distribution to 1981-85 BBA levels of 85% of squares in SW, 75% in CE, 67% in EA and 61% in NW sub-regions.

### Conservation Focus

- *Nest Site Protection, Enhancement and Monitoring:* Identify, monitor and protect existing nesting sites (chimneys and hollow trees) and construct and monitor artificial nesting structures to offset losses.

### Conservation Actions

- *Research:* Identify factors causing population decline and/or limiting population growth.
- *Research:* Breeding, migration and wintering ecology studies, including availability of nest sites and post-breeding roosts, and the impact of weather and food availability on productivity and survival.

### Key References

- BNA: Cink and Collins 2002.  
NANCLC: Dunn 2002.  
TNC SMA: Pallis and Cannings 2000.  
NatureServe: NatureServe 2005.

## Eastern Kingbird *Tyrannus tyrannus*

### Status

- BCR 13 Breeding Priority Species

### Reasons for Concern

- Range-wide population decline (PT=4).
- *Regional Concern*: Regional population decline (PT=4) and very high relative density (RD=5) in BCR 13.
- 3% of global population in BCR 13.

### ON BCR 13 population

- Common to abundant (James 1991).
- Current BBS Index 7.2, ~ 200,000 birds.
- Current BBA distribution (preliminary) of 98% of squares in SW, 100% in CE, 100% in EA, and 95% in NW sub-regions.
- Population trend in ON BCR 13 uncertain, recent decrease after earlier increase.
- ~ 2% of global population



### Ecology

- Breeds mostly in open agricultural settings with small trees and shrubs for nesting and foraging perches (e.g., orchards, hedgerows, forest edges), also savannahs, parkland, open wetlands with scattered trees, and along shorelines.
- Aerial hawking insectivore, feeding on large to medium sized flying insects.

### Threats and Management Issues

- *Habitat loss*: Decrease in breeding habitat due to agricultural intensification (loss of hedgerows), human development and natural succession.
- *Food supply*: Availability of flying insects, particularly during cool wet weather, may limit annual productivity.
- *Over-wintering Survival*: Adult survivorship during migration and winter may limit population size.

## Grassland & Agricultural Suite

### Threats and Management Issues (cont'd)

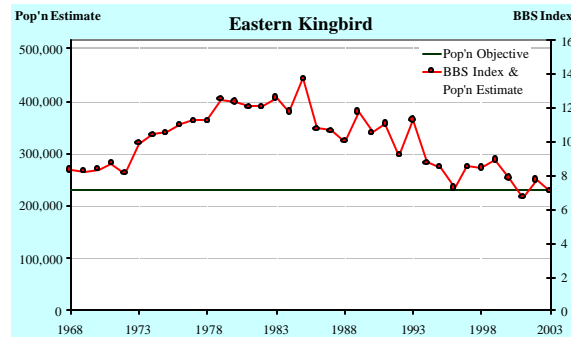
- *Direct mortality*: Vulnerable to collisions with vehicles when foraging along roadsides.
- *Toxins*: Pesticides are considered a possible source of egg and nestling mortality.

### Overall Objective

- **Halt Decline**

### Population Objective

- Maintain current population level, BBS Index 7.2, ~200,000 birds.



### Distribution Objective

- Maintain current breeding distribution (BBA 2001-05) in all sub-regions.

### Conservation Focus

- *Research*: Increase understanding of factors causing population decline in southern Ontario.

### Conservation Actions

- *Research*: Determine causes of population decline in southern Ontario and elsewhere.
- *Research*: Study winter ecology, distribution and mortality.

### Key References

- BNA: Murphy 1996.  
NANCLC: Dunn 2002.  
NatureServe: NatureServe 2005.

## Eastern Meadowlark *Sturnella magna*

### Status

- BCR 13 Breeding Priority Species

### Reasons for Concern

- Range-wide population decline (PT=4) and moderate threats on wintering grounds (TN=3).
- *Regional Concern:* Severe regional population decline (PT=5), moderate threats on breeding grounds (TB=3), and high relative density in BCR 13 (RD=4).
- 2% of global population in BCR 13.

### ON BCR 13 population

- Common (James 1991).
- Current BBS Index of 13.1, ~100,000 birds.
- Current BBA distribution (preliminary) of 87% of squares in SW, 97% in CE, 98% in EA and 81% in NW sub-regions.
- Severe population decline in ON BCR 13.
- ~ 1% of global population in ON BCR 13.



### Ecology

- Area sensitive requiring minimum of 5 ha of grassland habitat, and preferring larger areas.
- Breeds in moderately tall grasslands and savanna habitats with moderate forb density, abundant litter cover, and little woody vegetation, such as hayfields, idle pasture, roadsides, alvar, and riparian meadows.
- Ground nesting.

### Threats and Management Issues

- *Habitat loss:* Decrease in habitat due to agricultural intensification, development and natural succession.
- *Direct Mortality:* Reduced or no productivity if haying, heavy grazing, habitat management or other disturbances occur during nesting period (mid-May to mid-July).
- *Brood parasitism:* Cowbird parasitism may affect productivity in some areas.
- *Direct mortality:* High mortality during severe winters in eastern US.
- *Other:* Very sensitive to disturbance when nesting.

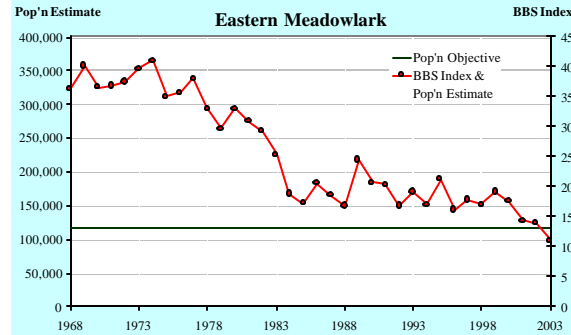
## Grassland & Agricultural Suite

### Overall Objective

- **Halt Decline**

### Population Objective

- Maintain current (2001-03) population level, BBS Index of 13.1, ~ 100,000 birds.



### Distribution Objective

- Maintain current breeding distribution (BBA 2001-05) in all sub-regions.

### Conservation Focus

- *Outreach:* Promote adoption of BMPs for grassland birds.

### Conservation Actions

- *Research:* Conduct demographic studies to identify the location of source populations in southern Ontario.
- *Outreach and Education:* Information to farmers on BMP for grassland birds

### Key References

- BNA: Lanyon 1995.  
NANCLC: Dunn 2002.  
NPWRC: Hull 2003.  
NatureServe: NatureServe 2005.

## Eastern Towhee

### *Pipilo erythrophthalmus*

#### Status

- PIF Continental Stewardship Species
- BCR 13 Breeding Priority Species

#### Reasons for Concern

- Range-wide population decline (PT=4).
- *Regional Concern:* Severe population decline in BCR 13 (PT=5) and moderate threats on breeding grounds in BCR 13 (TB=3).
- ~1% of global population.

#### Current ON BCR 13 population

- Uncommon (James 1991).
- BBS Index of 0.74, ~25,000 birds
- BBA distribution (preliminary) of 74% of squares in SW, 69% in CE, 38% in EA, and 30% in NW sub-regions.
- <1% of global population in ON BCR 13..
- Population trend in ON BCR 13 uncertain.



#### Ecology

- Breeds in a variety of mid- to late-stage successional upland habitats including open second-growth forest, old field thickets, alvar, sand dune scrub and shrubby savanna
- Nests on, or near, ground in areas of dense shrub-small tree cover with well-developed litter layer.

#### Threats and Management Issues

- *Habitat Loss:* Decrease in early successional habitat due to natural succession and development.
- *Habitat Degradation:* Lower densities in areas with heavy grazing by White-tailed Deer.
- *Brood Parasitism:* Cowbird parasitism a major concern in some areas outside of southern Ontario.

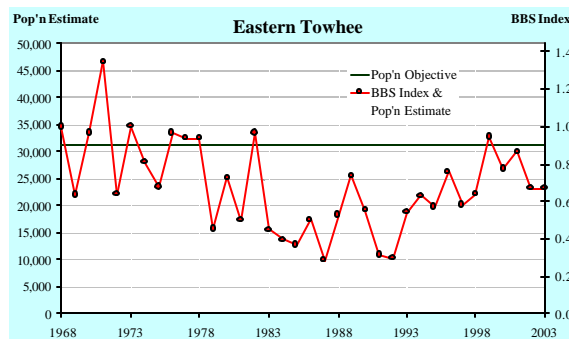
## Shrub/ Successional Suite

### Overall Objective

- Reverse Decline

### Population Objective

- Reverse possible population decline, BBS Index of 0.90, ~ 30,000 birds.



### Distribution Objective

- Restore distribution to 1981-85 BBA levels of 85% of squares in SW, 48% in EA, and 40% in NW sub-regions. Maintain current distribution in CE sub-region.

### Conservation Focus

- *Habitat Management/Evaluation:* Evaluate the effect of various shrub/successional habitat management techniques on the distribution, abundance and productivity of this and other shrubland species.

### Conservation Actions

- *Monitoring:* Improve precision of BBS trends in southern Ontario if feasible.
- *Monitoring:* Periodic (five years) surveys and assessments of the status of population in southern Ontario.
- *Research:* Determine productivity and survivorship at important sites in southern Ontario.
- *Habitat management:* Maintain areas of mid-successional habitat to benefit this and other shrubland species.

### Key References

- BNA: Greenlaw. 1996.
- TNC SMA:
- NANCLC: Dunn 2002

## Eastern Wood-Pewee

*Contopus virens*

### Status

- BCR 13 Breeding Priority Species

### Reasons for Concern

- Range-wide population decline (PT=4)
- *Regional Concern*: Regional population decline (PT=4) and high relative density (RD=4) in BCR 13.
- 4% of global population in BCR 13

### ON BCR 13 population

- Common (James 1991).
- Current BBS Index of 2.7, ~ 80,000 birds.
- Current BBA distribution (preliminary) of 97% of squares in SW, 99% in CE, 97% in EA and 78% in NW sub-regions.
- Population trend in ON BCR 13 uncertain, tending downwards.
- ~1% of global population in ON BCR 13



### Ecology

- Breeds in a wide range of forests, including very small patches and forested strips.
- Prefers intermediate-aged forests with little understorey.
- Aerial hawking/sallying insectivore

### Threats and Management Issues

- *Habitat degradation*: may be sensitive to changes in forest structure due to high deer populations.
- *Brood parasitism*: Some populations experience high levels of Brown-headed Cowbird parasitism.
- *Forest management* maintain large tracts of intermediate aged forest with closed canopy and limited clear cuts (<10 ha) along with thinning to remove mature trees and woody growth < 7 cm dbh should provide adequate habitat.

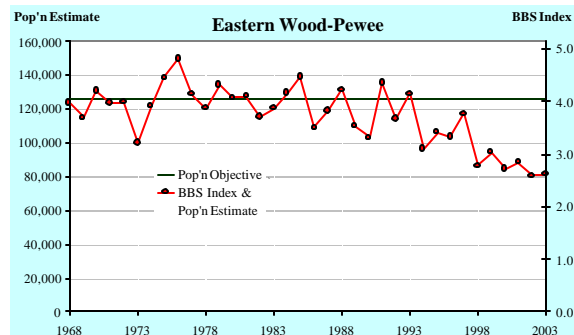
## Forest Suite

### Overall Objective

- Reverse decline

### Population Objective

- Restore population to 1968-77 levels, BBS Index of 4.0, ~100,000 birds (BBS index of



4.0).

### Distribution Objective

- Restore distribution to 1981-85 levels of 91% of squares in NW sub-region. Maintain current BBA distribution in all other sub-regions.

### Conservation Focus

- *Research*: Identify factors causing population decline and limiting population growth.

### Conservation Actions

- *Research*: Study the nesting ecology and demographics of breeding populations in various locations throughout southern Ontario.
- *Research*: Study the winter ecology and threats to wintering birds.

### Key References

BNA: McCarty 1996.

NANCLC: Dunn 2002

TNC SMA: Palis 2000.

NatureServe: NatureServe 2005.

## Field Sparrow

### *Spizella pusilla*

#### Status

- BCR 13 Breeding Priority Species

#### Reasons for Concern

- Severe range-wide population decline (PT=5)
- *Regional Concern*: Severe regional population decline in BCR 13 (PT=5) and moderate threats on breeding grounds (TB=3).
- ~3% of global population.

#### ON BCR 13 population

- Common (James 1991).
- Current BBS Index 2.4, ~ 65,000 birds
- Current BBA distribution (preliminary): 87% of squares in SW, 89% in CE, 64% in EA and 37% in NW sub-regions.
- Population trend in ON BCR 13 uncertain.
- <1% of global population.



#### Ecology

- Breeds in shrubby successional fields, pastures, orchards, alvars, other shrubby grasslands or shrub-dominated areas bordering grasslands.
- Nests on or near the ground

#### Threats and Management Issues

- *Habitat loss*: Decrease in shrub/successional habitat due to natural succession and development.
- *Brood parasitism*: High rates of cowbird parasitism in some populations but generally a poor host

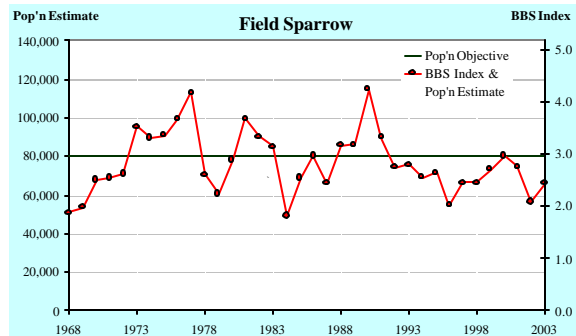
## Shrub/ Successional Suite

### Overall Objective

- Reverse Decline

### Population Objective

- Restore/maintain population at 1968-1977 levels, BBS Index 3.0, ~80,000 birds.



### Distribution Objective

- Restore distribution to 1981-85 BBA levels of 94% of squares in SW and 78% in EA sub-region. Assess possible decline in NW sub-region. Maintain current distribution in CE sub-region.

### Conservation Focus

- *Habitat Management/Evaluation*: Evaluate the effects of increasing the amount of shrubby grassland or shrub thickets adjacent to grassland habitat.

### Conservation Actions

- *Habitat management*: Maintain availability of shrubby grassland habitat and avoid management practices that totally remove woody vegetation

### Key References

- BNA: Carey et al. 1994.
- TNC SMA: Dechant et al. 1999.
- PWRC: Dechant et al. 2003.
- NANCLC: Dunn 2002

## Golden-winged Warbler *Vermivora chrysoptera*

### Status

- PIF Continental Watch List Species
- BCR 13 Breeding Priority Species
- COSEWIC status report under review

### Reasons for Concern

- *Continental Concern:* Small global population (PS=4), small global breeding range (BD=4), small global wintering range (ND=4), high threats to breeding range (TB=4), and severe range-wide population decline (PT=5)
- *Regional concern:* High threats to breeding range in BCR 13 (TB=4).
- ~5% of global population

### Current ON BCR 13 population

- Rare to locally uncommon (James 1991).
- Current BBS Index of 0.13, ~5,000 birds
- Current BBA distribution (preliminary) of 10% of squares in SW, 25% in CE, 16% in EA and 13% in NW sub-regions.
- ~2% of global population
- Population trend in ON BCR 13 uncertain, tending upwards.



### Ecology

- Breeds in disturbed or natural shrub and early-successional habitats, including regenerating abandoned fields, clearcuts, utility right-of-ways, alder swamps, and bogs.
- Nests on the ground in dense patches of herbs and shrubs with scattered trees with a forested perimeter.
- Breeding range has been shifting northwards for more than a century.

### Threats and Management Issues

- *Habitat Loss:* Decrease in early successional habitat due to natural succession and development.
- *Habitat Loss:* Loss of wintering habitat may be an issue.
- *Brood Parasitism:* Nest parasitism by cowbirds may be an issue.
- *Inter-specific Competition:* Hybridization with and/or displacement by Blue-winged Warbler in areas of overlap.

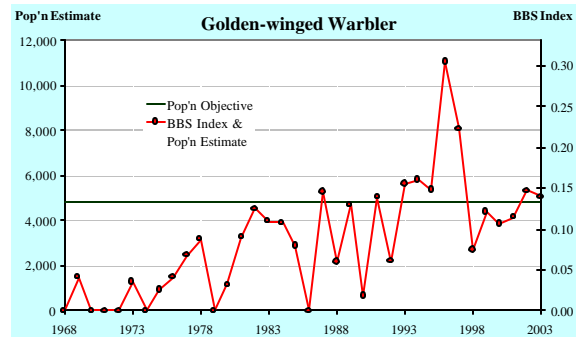
## Shrub/ Successional Suite

### Overall Objective

- **Maintain Current**

### Population Objective

- Maintain population at or above current level (2001-03), BBS Index of 0.13, ~ 5,000 birds



### Distribution Objective

- Restore distribution to 1981-85 levels of 26% of squares in SW and 23% in NW subregions. Maintain current distribution in CE and EA sub-regions.

### Conservation Focus

- *Habitat Management/Evaluation:* Evaluate the effect of various shrub/successional habitat management techniques on the distribution, abundance and productivity of this and other shrubland species.

### Conservation Actions

- *Monitoring:* Periodic surveys to monitor changes in distribution and abundance, especially along northern portion of range.
- *Habitat Management.* Actively manage habitat for this species in some areas to evaluate the recommended regime of burning 10-20 hectare plots on a 40-year management cycle.
- *Research:* Determine over-winter survival rates.

### Key References

- BNA: Confer 1992.  
TNC SMA: Confer et al. 1992.  
COSEWIC: (in preparation).  
NANCLC: Dunn 2002.  
CWLRMN: PIF 2005.

## Grasshopper Sparrow *Ammodramus savannarum*

### Status

- Continental Stewardship Species
- BCR 13 Breeding Priority Species

### Reasons for Concern

- Range-wide population decline (PT=4)
- *Regional Concern:* Severe regional population decline (PT=4) and moderate threats to breeding grounds (TB=3)
- Moderate threats on wintering grounds (TN=3)
- <1% of global population in BCR 13.

### Current ON BCR 13 population

- Uncommon (James 1991).
- Current BBS Index of 0.89, ~ 30,000 birds
- Current BBA distribution (preliminary) of 23% of squares in SW, 57% in CE, 28% in EA and 27% in NW sub-regions.
- Population trend in ON BCR 13 uncertain, tending downwards.
- <1% of global population in ON BCR 13.



### Ecology

- Grassland dependent.
- In southern Ontario, breeds in dry, sparse native or agricultural grassland habitats with little shrub cover, especially alvars and sparse pasture, but also in unmowed fields, hayfields and grain fields.
- Area sensitive, requiring at least 10 to 30 ha of suitable habitat.
- Ground nesting.

### Threats and Management Issues

- *Habitat loss and fragmentation:* Loss and fragmentation of breeding habitat due to conversion of agricultural grasslands to row crops and natural succession of abandoned agricultural lands.
- *Habitat degradation:* Habitat quality declines without active management such as mowing, light to moderate grazing, or prescribed burns.
- *Brood parasitism:* Cowbird parasitism high in some populations

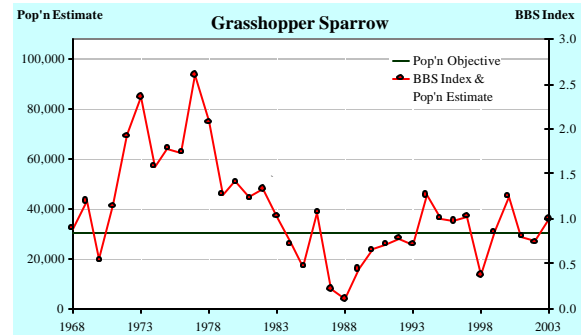
## Grassland & Agricultural Suite

### Overall Objective

- **Halt Decline**

### Population Objective

- Maintain current (2001-03) population level, BBS Index of 0.89, ~30,000 birds.



### Distribution Objective

- Maintain current breeding distribution (BBA 2001-05) in all sub-regions.

### Conservation Focus

- *Habitat:* Identify and conserve sites with important populations in southern Ontario.

### Conservation Actions

- *Research:* Conduct breeding ecology studies to identify habitat associations and population demographics at a range of sites in southern Ontario.
- *Research:* Study the winter ecology and sources of winter mortality.
- *Habitat Management:* Identify and conserve large sites with important populations in each sub-region of southern Ontario.

### Key References

- BNA: Vickery 1996  
NANCLC: Dunn 2002.  
NPWRC GB: Dechant et al. 2003.  
TNC SMA: Johnson et al. 1998.

## Henslow's Sparrow *Ammodramus henslowii*

### Status

- Continental Watch List Species
- Endangered in Canada and Ontario
- BCR 13 Breeding Priority Species

### Reasons for Concern

- *Continental Concern:* Small global population (PS=4), very small wintering range (ND=5), high threats on breeding range (TB=4) and high threats on wintering range (TN=4), severe range-wide population decline (PT=4).
- *Regional Concern:* Severe regional population decline (PT=5) and high threats on breeding range (TB=4) in BCR 13.
- *Species at Risk:* Population and number of breeding sites have declined to point where species has disappeared from most of its former limited breeding range in Canada.
- 3% of global population in BCR 13.

### Current ON BCR 13 population

- Rare to absent (James 1991)
- Current Canadian population estimated as fewer than 10 pairs, all in Ontario (SAR and COSEWIC websites 2004).
- Current BBA distribution (preliminary) of 1% of squares in SW, 1% in CE, 0% in EA and 2% in NW sub-regions.
- Population trend in ON BCR 13 unknown, apparently declining since 1950s.
- <1% of global population in ON BCR 13.



### Ecology

- Grassland obligate; area sensitive (requires minimum of 30 ha of suitable habitat).
- Breeds in small, loose colonies in large grasslands that have not been disturbed for several years including idle fields, lightly grazed pastures, wet meadows, fallow hayfields, and tallgrass prairie.
- Avoids wooded edges and areas that have been burned or grazed.
- Nests in areas with thick litter layer, and tall dense grasses with occasional forbs.
- Low site fidelity.
- Ground nesting

## Grassland & Agricultural Suite

### Threats and Management Issues

- *Habitat Loss, Fragmentation and Degradation:* Loss and degradation of idle grassland habitats on breeding grounds considered leading cause of population decline.
- *Wintering Habitat:* Loss and degradation of wintering habitat also a concern.

### Overall Objective

- **Recovery** to point where the population is no longer endangered.

### Population Objective

- A stable or increasing breeding population of 500 adults in Ontario.

### Distribution Objective

- Several breeding colonies (e.g. 50 colonies with minimum of 10 birds each).

### Conservation Focus

- *Habitat:* Restore and maintain one or more large tracts of grassland habitat suitable for this species in an area close to current breeding populations in US.

### Conservation Actions

Implement actions in national recovery strategy including:

- *Monitoring:* Continue periodic surveillance surveys of suitable habitat.
- *Habitat:* Protect, restore and manage areas of suitable habitat at historic breeding sites in southern Ontario.
- *Research:* Breeding and wintering ecology studies in core of range in US to determine effect of different grassland management techniques on productivity, over-winter survival, and habitat suitability.

### Key References

- BNA: Herkert et al. 2002.  
SAR: Environment Canada 2004.  
RENEW: Austen et al. 1997.  
COSEWIC: James 2000, COSEWIC 2004.  
NANCLC: Dunn 2002.  
TNC SMA: Smith and Mehlman 1992.  
NPWRC: Herkert 2003.  
NatureServe: NatureServe 2005.

## Hooded Warbler

### *Wilsonia citrina*

#### Status

- PIF Continental Stewardship Species.
- Threatened in Canada and Ontario.
- BCR 13 Breeding Priority Species.

#### Reasons for Concern

- *Species at Risk*: Small population in Canada (southern Ontario only) with specialized breeding habitat requirements that are relatively scarce (Friesen et al. 2000).
- Small wintering range (ND=4).
- Strong population increase in BCR 13.
- 2% of global population in BCR 13.

#### ON BCR 13 population

- Rare to locally uncommon (James 1991).
- Current population estimate of 150 to 210 nesting pairs (Friesen and Stabb 2001).
- Current BBA distribution (preliminary) of 24% of squares in SW, and 3% in CE sub-regions (absent elsewhere).
- Population trend in ON BCR 13 unknown, apparently increasing.
- <1% of global population in ON BCR 13.



#### Ecology

- Area sensitive, forest obligate species generally restricted to large woodlots (>100 ha), but minimum patch size of 15 ha in areas with high regional forest cover.
- Breeds in large mature deciduous or mixed forests, or less commonly in pine plantations.
- Nests in dense shrub understorey created by tree fall gaps or selective logging.

#### Threats and Management Issues

- *Restricted range*: Canadian population is restricted to southern Ontario, mostly in the Southwest sub-region of ON BCR 13.
- *Habitat fragmentation*: Forest fragmentation is the main threat in southern Ontario.
- *Brood parasitism*: Cowbird parasitism can result in lower productivity.

## Forest Suite

#### Overall Objective

- **Recovery**: improve status of Canadian population to a level where it is self-sustaining and no longer threatened.

#### Population Objective

- Increase Ontario breeding population to at least 500 pairs.

#### Distribution Objective

- Multiple pairs established in at least 15 separate breeding sites (mostly in SW sub-region).

#### Conservation Focus

- *Recovery*: Complete and implement the updated SAR Recovery Strategy (in conjunction with Acadian Flycatcher).

#### Conservation Actions

The current Recovery Plan (in conjunction with Acadian Flycatcher) includes the following ongoing recovery initiatives:

- *Monitoring*: Monitor populations periodically (intensive survey every five years) to determine population trends in Ontario
- *Research*: Conduct research on productivity and factors affecting productivity.
- *Research*: Determine habitat requirements and the availability of breeding habitat.
- *Habitat Securement and Restoration*: Protect and enhance core habitat complexes.
- *Habitat Management*: Monitor and assess the effectiveness of forest management activities in maintaining or enhancing breeding habitat for this species and other forest interior species.
- *Outreach and Education*: Increase awareness and support for recovery activities amongst the public, landowners and forest managers.

#### Key References

BNA: Evans Ogden and Stutchbury 1994.  
SAR: Environment Canada 2004.  
COSEWIC: James 2000  
RENEW: Friesen et al. 2000.  
NANCLC: Dunn 2002.  
NatureServe: NatureServe 2005.  
TNC SMA: Heckscher 1999.  
Other: Friesen and Stabb 2001

## Kirtland's Warbler

### *Dendroica kirtlandii*

#### Status

- Endangered in Canada and Ontario.
- PIF Continental Watch List Species
- BCR 13 Breeding Priority Species

#### Reasons for Concern

- *Continental Concern:* Very small global population, very small breeding range, very small wintering range, high threats on breeding grounds, very high threats on wintering grounds, severe range-wide population decline prior to 1990; strong population increase since 1990.
- *SAR in Canada and Ontario:* No recent breeding records in Canada but there are historic breeding reports from ON BCR 13 and the potential exists to establish a breeding population, as suitable habitat is available.

#### Current ON BCR 13 population

- Extremely rare or absent a breeding bird but single birds are occasionally seen in suitable habitat in Ontario (James 1999).
- <1% of global population



#### Ecology

- Fire-dependent habitat specialist
- Requires extensive stands of homogenous, even-aged jack pine.
- Area sensitive (minimum 30 ha, higher productivity in patches >200 ha).
- Breeds in dense clumps of young jack pine, 2-4 m high with low branches, interspersed with grassy areas.
- Ground nesting.

#### Threats and Management Issues

- *Habitat loss:* Decrease in breeding habitat due to fire suppression.
- *Brood parasitism:* Cowbird parasitism reduces productivity.
- *Wintering grounds:* Low over-winter survival.

## Shrub/ Successional Suite

#### Overall Objective

- **Recovery:**

#### Population Objective

- Determine whether there is a breeding population in Ontario.

#### Distribution Objective

- Determine whether there is a breeding population in Ontario.

#### Conservation Focus

- *Planning:* Complete and implement Recovery Strategy (in development).

#### Conservation Actions

Implement Recovery Strategy including:

- *Monitoring:* Periodically evaluate availability of suitable breeding habitat (e.g. extensive stands (>30 ha) of early successional jack pine).
- *Monitoring:* Periodically survey areas of suitable habitat for presence of breeding birds.

#### Key References

BNA: Mayfield 1992.

COSEWIC: James 1999.

SAR: Environment Canada 2004.

NatureServe: NatureServe 2005.

CWLRMN: PIF 2005

## Loggerhead Shrike *Lanius ludovicianus*

### Status

- Eastern *migrans* subspecies is Endangered in Canada and Ontario
- BCR 13 Breeding Priority Species

### Reasons for Concern

- Severe range-wide population decline (PT=5).
- Regional population decline (PT=5) and very high threats on breeding range (TB=5) in BCR 13 but very low relative density (RD=1).
- *Species at Risk*: Canadian population is very small, declining and faced with several threats on breeding and wintering grounds.
- <1% of global population in BCR 13.

### Current ON BCR 13 population

- Rare (James 1991).
- Current population estimate of about 40 pairs breeding in Ontario (Environment Canada 2004), all in BCR 13.
- Current BBA distribution (preliminary) of 0% of squares in SW, 6% in CE, 3% in EA and 2% in NW sub-regions.
- Severe decrease in population and breeding distribution in ON BCR 13.
- <1% of global population in ON BCR 13.



### Ecology

- In southern Ontario, breed primarily in moderately grazed pastures, alvars or sparse grasslands with hunting perches, areas of short grass, and suitable nest sites.
- Area sensitive, minimum of 5 ha to 25 ha.
- Nests in dense prickly shrubs or small trees, typically hawthorn or juniper.
- Feed on variety of prey items including insects (grasshoppers, beetles), mice, voles, small birds, snakes, and frogs.

### Threats and Management Issues

*Habitat loss, fragmentation and degradation:* Decrease in habitat quantity and quality on breeding and wintering grounds due to changing land use, particularly conversion of pastures to croplands, natural succession of abandoned pastures, and changes in pasture management.

## Grassland & Agricultural Suite

### Threats and Management Issues (cont'd)

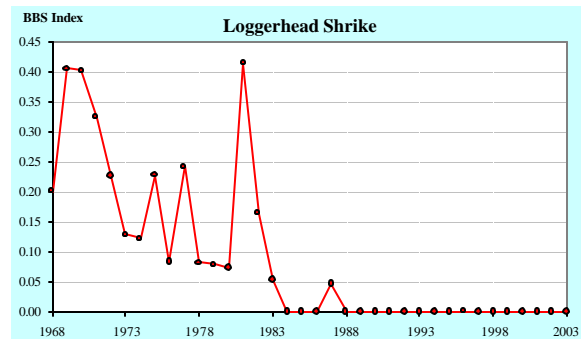
- *Direct mortality:* Vulnerable to collisions with vehicles when foraging along roadsides.
- *Toxins:* Use of pesticides reduces food availability, and bioaccumulation of toxins is also a potential concern.

### Overall Objective

- **Recovery:** Halt population decline and recovery to point where no longer endangered.

### Population Objective

- Recover to viable population size (to be determined).



### Conservation Focus

- *Research:* Determine factors causing population decline including research on the breeding and wintering grounds to examine habitat issues, prey and pesticide issues, mortality along roads, and climate effects on productivity and survival.

### Conservation Actions

Continue to implement actions in current Recovery Strategy including;

- *Research:* Identify factors causing population decline and limiting population growth.
- *Monitor:* Continue to monitor abundance, distribution, productivity and survivorship.
- *Population Preservation:* Maintain a captive population to preserve the genetic diversity.
- *Habitat:* Maintain or restore extensive tracts of grassland habitats with scattered small trees.

### Key References

BNA: Yosef 1996.  
SAR: Environment Canada 2004.  
COSEWIC: James 2000, COSEWIC 2004.  
RENEW: Johns et al. 1994  
SARRS: Smith 2002.  
NANCLC: Dunn 2002.  
NPWRC: Dechant et al. 2003.  
TNC SMA: Bartgis et al. 1992.

## Louisiana Waterthrush

### *Seiurus motacilla*

#### Status

- PIF Continental Stewardship Species
- Special Concern in Canada and Ontario.
- BCR 13 Breeding Priority Species.

#### Reasons for Concern

- *Species at Risk*: Small population in Canada (southern Ontario only) with specialized breeding habitat requirements.
- Small global population (PS=4).
- High threats on wintering grounds (TN=4).
- Population trend in BCR 13 uncertain.
- 1% of global population in BCR 13.

#### ON BCR 13 population

- Rare (James 1991).
- Current population estimate of less than 1000 birds in southern Ontario, mostly in southwestern sub-region (COSEWIC in prep.).
- Current BBA distribution (preliminary) of 10% of squares in SW, 3% in CE, 1% in EA and 3% in NW sub-regions.
- Population trend in ON BCR 13 unknown, but apparently stable.
- <1% of global population in ON BCR 13



#### Ecology

- Area sensitive, forest obligate, habitat specialist.
- Requires large (>100 ha) patches of mature deciduous or mixed riparian forest with cold, clean running water, or deciduous swamp forest with pools of standing water.
- In Ontario, breeds primarily along wooded ravines on the Norfolk Sand Plain, ravines along the Niagara Escarpment, and on wooded headwater streams and in large swamp forests.
- Ground nesting.

#### Threats and Management Issues

- *Monitoring needs*: Not well sampled by BBS.
- *Habitat degradation*: Sensitive to declining water quality (affects food availability), loss of wooded riparian buffer, flash flooding due to development of watershed, and fragmentation.
- *Brood parasitism*: cowbird parasitism may affect productivity in some populations

## Forest Suite

### Overall Objective

- **Maintain Current and Assess Status**

### Population Objective

- Maintain current Ontario breeding population.

### Distribution Objective

- Maintain current distribution in all sub-regions of southern Ontario.

### Conservation Focus

- *Habitat Protection*: Identify and protect forested cold-water riparian corridors and large tracts of mature deciduous swamp forests.

### Conservation Actions

Continue existing monitoring and management initiatives for this species of Special Concern including following actions:

- *Monitoring*: Periodically assess population status in Canada, including periodic surveys of known and potential sites to track population abundance and distribution in southern Ontario.
- *Planning*: Encourage municipalities in southern Ontario to identify and protect wooded headwater and coldwater stream systems, including a riparian corridor at least 100 m wide, as Significant Wildlife Habitat for this Special Concern species and other species of concern.
- *Outreach*: Encourage landowners to manage forested stream systems and large tracts of swamp forest to maintain or enhance suitable breeding habitat for this riparian and wetland forest species.
- *Research*: Research needed on wintering ecology

### Key References

BNA: Robinson 1995.  
SAR: Environment Canada 2004.  
COSEWIC: COSEWIC in prep.  
NANCLC: Dunn 2002.  
NatureServe: NatureServe 2005.  
TNC SMA: Brown et al.1999.

## Northern Bobwhite

### *Colinus virginianus*

#### Status

- Endangered in Canada.
- Endangered (not regulated) in Ontario.
- BCR 13 Breeding and Wintering Priority Species.

#### Reasons for Concern

- Severe range-wide population decline (PT=5).
- Severe regional population decline (PT=5) and high threats on breeding grounds (TB=4) but low relative density (RD=1) in BCR 13.
- *Species at Risk*: Drastic population decline over past 30 years, due to loss of tallgrass prairie and old meadow habitats, has reduced Canadian population to single viable native population in southern Ontario (James and Cannings 2003).
- <1% of global population in BCR 13.

#### ON BCR 13 population

- Uncommon permanent resident (James 1991), but now considered rare.
- Current population estimate is less than 1000 birds, probably less than 500, including only one natural viable population of about 230 birds on Walpole Island (James and Cannings 2003). Additional birds elsewhere are considered to be the result of releases of pen-reared birds.
- Current BBA distribution (preliminary) of 7% of squares in SW, and 3% in CE sub-regions (includes released birds, absent elsewhere).
- Severe decrease in population and breeding distribution in ON BCR 13.
- <1% of global population.



#### Ecology

- Requires interspersed tallgrass prairie or agricultural grasslands, cropland, and areas of brushy cover or early successional habitat.
- Ground nesting
- Forms coveys containing 10 to 15 birds.

## Grassland & Agricultural Suite

#### Threats and Management Issues

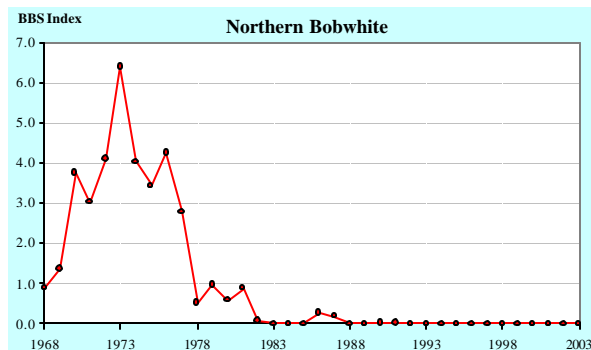
- *Habitat loss*: Decrease in grasslands, fencerows, and brushy cover due to agricultural intensification.
- *Habitat degradation*: Depletion of food sources by pesticides and herbicides, increased populations of mammalian predators.
- *Other*: Dilution of the native gene pool due to interbreeding with non-native pen-reared birds.

#### Overall Objective

- **Recovery**: Recovery Strategy in preparation.

#### Population Objective

- To be determined by Recovery Strategy.



#### Distribution Objective

- To be determined by Recovery Strategy.

#### Conservation Focus

- *Habitat*: Restore areas of tallgrass prairie and patches of brushy cover in agricultural areas in Southwest sub-region.

#### Conservation Actions

- *Planning*: CWS and/or MNR to form a Recovery Team and prepare and implement a Recovery Strategy.
- *Monitoring*: Continue periodic species-specific surveys (roadside whistling surveys) of known sites and potential habitat to monitor and assess Northern Bobwhite abundance and distribution in southern Ontario.

#### Key References

- BNA: Brennan 1999.  
COSEWIC: James and Cannings. 2003, COSEWIC 2004.  
SAR: Environment Canada 2004.  
NANCLC: Dunn 2002.  
TNC SMA: Palis et al. 2000.  
NatureServe: NatureServe 2005.

## Northern Flicker

*Colaptes auratus*

### Status

- BCR 13 Priority Species Species.

### Reasons for Concern

- *Regional Concern:* Severe regional population decline (PT=5) and very high relative density (RD=5).
- Range-wide population decline (PT=4).
- 2% of global population in BCR 13.

### ON BCR 13 population

- Common (James 1991).
- Current BBS Index of 2.5, ~90,000 birds
- Current BBA distribution (preliminary) of 100% of squares in SW, 100% in CE, 100% in EA, and 98% in NW sub-regions.
- Severe long-term population decline in ON BCR 13.
- <1% of global population in ON BCR 13



### Ecology

- Uses forest edges, open woodlands, and savannas, including suburban and rural areas.
- Primary cavity nester that usually excavates nests in large (>30 cm dbh) dead or diseased trees.
- This species plays a key ecological role in creating cavities for hole-dwelling species, and as the primary predator on ants.

### Threats and Management Issues

- *Nest site availability:* Availability of nesting substrate (snags >30 cm dbh, dead limbs, diseased trees) may limit population in some areas
- *Competition:* Competes with European Starlings for nest cavities (impact on productivity not known).

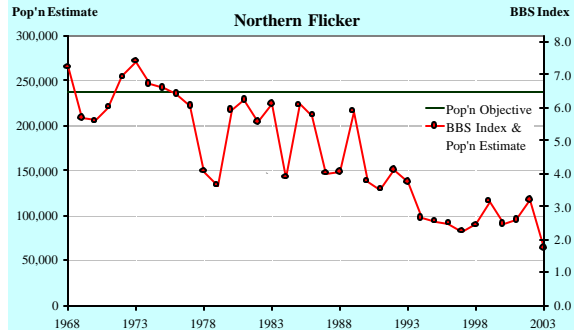
## Forest Suite

### Overall Objective

- Reverse decline

### Population Objective

- Restore population to 1968-77 levels, BBS Index of 6.5, ~ 200,000 birds.



### Distribution Objective

- Maintain current BBA distribution in all sub-regions.

### Conservation Focus

- *Habitat Enhancement/Evaluation:* Evaluate the effects of increasing the supply of nest sites at selected study sites.

### Conservation Actions

- *Habitat Enhancement/Evaluation:* Evaluate the impact of increasing the availability of large snags (>30 cm dbh) and/or nest boxes on Northern Flicker abundance and productivity at several sites throughout southern Ontario.
- *Research:* Investigate effect of fire ant control on the wintering grounds and other insecticide use on wintering ecology.

### Key References

- BNA: Moore 1995
- NANCLC: Dunn 2002.
- OMNR HMG: James 1984a.
- NatureServe: NatureServe 2005.

## Northern Harrier

### *Circus cyaneus*

#### Status

- BCR 13 Breeding Priority Species.

#### Reasons for Concern

- Range-wide population decline (PT=4).
- *Regional Concern:* High threats on breeding grounds (TB=4) and high relative density (RD=4) in BCR 13.
- Population trend in BCR 13 is uncertain, apparently stable.
- 1% of global population in BCR 13.

#### ON BCR 13 population

- Uncommon (James 1991).
- Current BBS Index of 0.45, ~4,000 birds.
- Current BBA distribution (preliminary) of 59% of squares in SW, 85% in CE, 87% in EA and 70% in NW sub-regions.
- Population trend in ON BCR 13 uncertain, apparently stable.
- <1% of global population in ON BCR 13.



#### Ecology

- Breeds in open habitats including wetlands (marshes and wet meadows) and rough grasslands (alvar, pasture and hayfield) with dense cover and infrequent disturbance.
- Area sensitive, prefers areas with high regional grassland cover or contiguous habitat blocks of >100 ha.
- Nomadic, local population density varies with prey (primarily voles) availability.

#### Threats and Management Issues

- *Habitat Loss:* Decrease in habitat quantity and quality due to wetland drainage, agricultural intensification, reforestation and development.
- *Direct Mortality:* Nests are vulnerable to predation and disturbance (mowing, trampling).

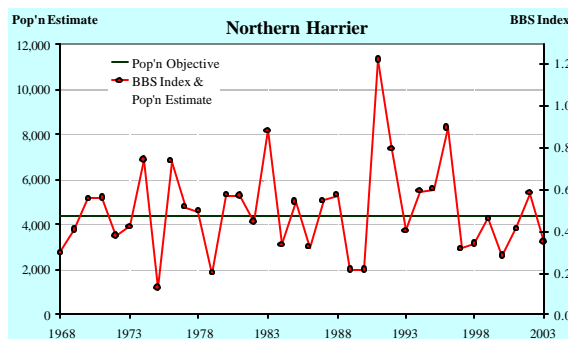
## Grassland & Agricultural Suite

### Overall Objective

- **Maintain Current**

### Population Objective

- Maintain current population (2001-03) levels, BBS Index 0.45, ~ 4,000 birds.



### Distribution Objective

- Restore breeding distribution in CE sub-region to 1981-85 BBA level of 92% squares. Maintain current breeding distribution in all other sub-regions.

### Conservation Focus

- *Habitat:* Large (>100 ha) blocks of marsh, wet meadow, rough pasture, alvar, or hayfields with thick vegetation and abundant prey (particularly voles).

### Conservation Actions

- *Habitat Protection:* Maintain availability of dense nesting habitat with high prey populations nearby.
- *Habitat Management:* Avoid disturbing nesting areas during nesting season, mid-April through mid-July.

### Key References

BNA: MacWhirter and Bildstein 1996.

NANCLC: Dunn 2002.

NPWRC: Dechant et al. 2003.

TNC SMA: Serrentino et al. 1992.

NatureServe: NatureServe 2005.

## Peregrine Falcon

### *Falco peregrinus anatum*

#### Status

- *Anatum* subspecies listed as Threatened in Canada and Endangered (regulated) in Ontario
- BCR 13 Breeding Priority
- Continental Stewardship Species

#### Reasons for Concern

- *Species at Risk*: Population recovering from severe regional population decline due to pesticide contamination (DDT), but faces ongoing threats, especially on the wintering grounds, due to vulnerability to bioaccumulation of toxins.
- Population trend in BCR 13 unknown, likely increasing.
- <1% of global population in BCR 13.

#### ON BCR 13 population

- Rare (James 1991).
- 10 breeding pairs in southern Ontario in 2000 survey (Rowell et al. 2003)
- Current BBA distribution (preliminary) of 6% of squares in SW, 0.2% in CE, 2% in EA and 0% in NW sub-regions.
- Population in ON BCR 13 increasing.
- <1% of global population



#### Ecology

- Rare and local (James 1991).
- Most nest sites in southern Ontario are on tall buildings in urban settings, but a few are on natural cliffs near large lakes or rivers.
- Requires vertical faces with ledges for nesting, including cliff faces and tall buildings
- Requires open area with adequate food supply (mostly birds, including landbirds, shorebirds and waterfowl) for hunting

## Other Habitats

#### Threats and Management Issues

- *Nest Site Availability*: Limited number of natural or artificial nest sites.
- *Toxins*: Bioaccumulation of toxins an ongoing concern.
- *Direct mortality*: Vulnerable to collisions with buildings, vehicles and power lines.

#### Overall Objective

- Recovery: Goals and objectives of 1998 recovery plan, including minimum of 10 pairs producing 15 young annually in area covering Ontario BCRs 12 and 13 combined, have been met. Updated Recovery Strategy in preparation.

#### Population Objective

- To be determined in Recovery Strategy.

#### Distribution Objective

- To be determined in Recovery Strategy.

#### Conservation Focus

- *Monitoring*: Continue periodic surveys to monitor the recovery of this bio-sentinel species.

#### Conservation Actions

Implement Recovery Strategy actions including:

- *Monitoring*: Periodic surveys (every five years) of current and historic sites to monitor population recovery.
- *Monitoring*: Monitor productivity and survivorship at select sites, particularly in urban settings, of this high profile bio-sentinel species.
- *Nest site protection*: Avoid destruction or disturbance of active and historic nest sites.

#### Key References

- BNA: White et al. 2002.  
COSEWIC: Johnstone 1998, COSEWIC 2004.  
SAR: Environment Canada 2004.  
RENEW: Erickson et al. 1988  
NANCLC: Dunn 2002.  
OMNR HMG: OMNR 1987b.  
NatureServe: NatureServe 2005.  
Other: Rowell et al. 2003.

## Prairie Warbler *Dendroica discolor*

### Status

- PIF Continental Watch List Species
- BCR 13 Breeding Priority Species

### Reasons for Concern

- *Continental Concern*: Small wintering range (ND=4) and range-wide population decline (PT=4).
- Occurs regularly in BCR 13 in small (<1% of global population) but significant numbers (RD=2)
- Population trend in BCR 13 uncertain.

### ON BCR 13 population

- Rare (James 1991).
- Very small population in Ontario (less than 500 pairs in 1985) with specialized habitat needs.
- Current BBA distribution (preliminary) of about 1% of squares in each of SW, CE, and EA sub-regions (absent in NW sub-region).
- <1% of global population in ON BCR 13.
- Population trend in ON BCR 13 unknown.



### Ecology

- Breeding habitats in southern Ontario include natural pine-oak-juniper communities on rock barrens, and shrubby or early successional habitats associated with pine plantations on sand plains or alvars in southern Ontario.
- Formerly breed locally in sand dunes habitats along Great Lakes shoreline in ON BCR 13
- Fire adapted species
- Ground nesting

### Threats and Management Issues

- *Monitoring*: Regional population trends are not adequately monitored by BBS.
- *Habitat Loss*: Loss and degradation of natural sand dune shrub habitats due to cottage development and increased human disturbance.

## Shrub/ Successional Suite

### Overall Objective

- **Assess Status**

### Population Objective

- Determine current population status.

### Distribution Objective

- Restore to 1981-85 BBA levels of 3% of squares in SW sub-region. Maintain or increase current distribution in CE, and EA sub-regions.

### Conservation Focus

- *Monitoring*: Periodically assess status of this species in Canada, including southern Ontario

### Conservation Actions

- *Monitoring*: Re-assess status of this species in Ontario once current BBA is complete.
- *Monitoring*: Assess the status of this species in Canada at 5 to 10 year intervals.
- *Habitat*: Identify and preserve areas of natural sand dune and rock barren shrub habitats in southern Ontario that support populations of this species or other priority shrub/successional species.
- *Research*: Determine the habitat requirements and productivity of Prairie Warblers breeding in managed habitats (pine plantations, utility right-of-ways) in southern Ontario.

### Key References

- BNA: Nolan et al. 1999.
- TNC SMA: Staicer et al. 1995.
- COSEWIC: **1999 Status Report?**
- NANCLC: Dunn 2002.
- CWLRMN: PIF 2005.

## Prothonotary Warbler

### *Protonotaria citrea*

#### Status

- PIF Continental Watch List Species
- Endangered in Canada and Ontario.
- BCR 13 Breeding Priority Species.

#### Reasons for Concern

- *Species at Risk*: Very small population and breeding range in Canada (mostly along north shore of Lake Erie) with specialized breeding habitat requirements.
- Population trend in BCR 13 unknown.
- <1% of global population in BCR 13.

#### Current ON BCR 13 population

##### ON BCR 13 population

- Rare (James 1991).
- Current population estimate of ~ 5 to 25 nesting pairs (McCracken pers. comm. 2005).
- Current BBA distribution (preliminary) of 5% of squares in SW and 1% in CE sub-regions.
- Population trend in ON BCR 13 is unknown, evidence of declines over the past 20 years (McCracken et al., in prep.).
- <1% of global population in ON BCR 13.



#### Ecology

- Forest obligate, habitat specialist.
- Possibly area sensitive (avoids forests <100 ha, or riparian forests <30 m wide).
- Breeds in mature, deciduous swamp forests and riparian floodplains with seasonal or permanent standing or slow-moving water.
- Secondary cavity nester; uses nest boxes.

#### Threats and Management Issues

- *Habitat Loss*: Habitat loss on wintering grounds a particular concern.
- *Habitat Degradation*: Sensitive to changes in drainage patterns and forest management practices that change water levels, open the canopy, or remove old trees and stumps.
- *Competition*: Nest-site competition with House Wrens affects productivity
- *Brood Parasitism*: Nests are frequently parasitized by Brown-headed Cowbirds
- *Availability of nest sites*: Requires old trees or stumps with cavities, or nest boxes.

## Forest Suite

#### Overall Objective

- **Recovery**: improve status to a level where Ontario population is self-sustaining and does not become extirpated.

#### Population Objective

- Increase Ontario breeding population to at least 100 nesting pairs.

#### Distribution Objective

- Multiple pairs established in at least 6 geographically distinct nesting areas, each separated by at least 25 km (in SW subregion).

#### Conservation Focus

- Finalize and implement the draft SAR Recovery Strategy.

#### Conservation Actions

Implement SAR Recovery Strategy (McCracken et al., in prep.), including the following research and habitat management activities:

- *Monitoring*: Conduct annual monitoring of the breeding population in Canada.
- *Research*: Evaluate impact of insect infestations on critical habitat for this species.
- *Habitat Restoration*: Restore large tracts of mature, deciduous swamp forest and riparian forest at suitable sites, especially in the Southwest sub-region.
- *Habitat Enhancement*: Continue nest box provisioning and monitoring program.

#### Key References

BNA: Petit 1999.

COSEWIC: Page 1996.

RENEW: McCracken et al. xxxx.

SAR: Environment Canada 2004.

SARRS: McCracken et al., in prep.

NANCLC: Dunn 2002.

CWLRMN: PIF 2005.

NatureServe: NatureServe 2005.

OMNR HMG: James 1984a.

TNC SMA: Sallabanks et al. 1993.

Other: Bird Studies 2001.

## Red-headed Woodpecker *Melanerpes erythrocephalus*

### Status

- PIF Continental Watch List
- Special Concern in Canada and Ontario.
- BCR 13 Breeding Priority Species.

### Reasons for Concern

- *Continental Concern:* Severe range-wide population decline (PT=5) and occurs in significant numbers in BCR 13 (RD=2).
- *Regional Concern:* Severe regional population decline (PT=5) and high threats on breeding grounds in BCR 13 (TB=4).
- *Species at Risk:* Species has declined significantly in a large portion of its Canadian range, especially in Ontario.
- 1% of global population in BCR 13.

### ON BCR 13 population

- Rare to uncommon (James 1991).
- Current BBS Index of 0.07, ~2500 birds.
- Ontario population estimate of 700 pairs, down from 10,000 pairs in 1980s (Page 1996).
- Current BBA distribution (preliminary) of 44% of squares in SW, 30% in CE, 7% in EA and 27% in NW sub-regions.
- Severe population decline in ON BCR 13.
- <1% of global population in ON BCR 13



### Ecology

- Breeds in open deciduous forest and savanna habitats.
- Primary cavity nester in large dead deciduous snags > 40 cm dbh.
- Forages on insects, including flying insects, and mast, especially acorns.
- Population has undergone major fluctuations in the past.

### Threats and Management Issues

- *Nest site availability:* Supply of large snags for nesting cavities can be a limiting factor.
- *Competition:* Competes with European Starlings for cavities.
- *Food Supply:* Fluctuations in mast production influence migration and wintering locations and over-winter survival.

## Forest Suite

### Threats and Management Issues (cont'd)

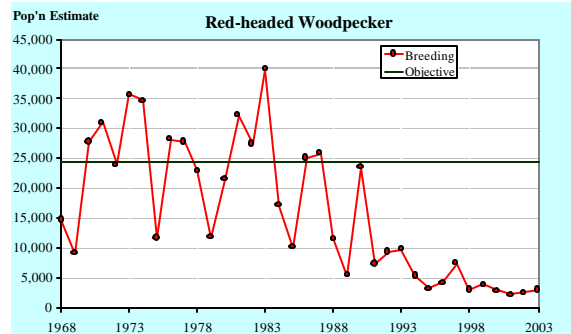
- *Direct Mortality:* Prone to collisions with traffic when foraging along roads.

### Overall Objective

- **Reverse Decline**

### Population Objective

- Restore population to 1968-1977 level, BBS Index of 0.65, ~ 25,000 birds



### Distribution Objective

- Restore distribution to 1981-85 BBA levels of 89% of squares in SW, 79% in CE, 22% in EA, and 57% in NW sub-regions.

### Conservation Focus

- *Habitat Enhancement/Evaluation:* Evaluate the effects of increasing the supply of nest sites (deciduous snags >40 cm dbh and/or nest boxes) in open woodlands and savannas with mast-producing trees.

### Conservation Actions

- *Research:* Conduct breeding ecology studies to increase understanding of species habitat requirements and to determine the limiting factors and causes of population decline in southern Ontario population.
- *Research:* Determine the factors causing past population fluctuations and the recent range-wide population decline.
- *Habitat management and enhancement:* Manage forests to maintain supply of large deciduous snags, forest openings and forests with little ground cover.

### Key References

- BNA: Smith et al. 2000.  
COSEWIC: Page 1996, COSEWIC 2004.  
SAR: Environment Canada 2004.  
NANCLC: Dunn 2002.  
CWLRMN: PIF 2005.  
NatureServe: NatureServe 2005.  
OMNR HMG: James 1984a.  
TNC SMA: Brown 1999.

## Red-shouldered Hawk

### *Buteo lineatus*

#### Status

- PIF Continental Stewardship Species
- Special Concern in Canada and Ontario.
- BCR 13 Breeding Priority Species.

#### Reasons for Concern

- *Species at Risk*: Population in Canada and Ontario is small but fairly stable, although considerably lower than historic status, but faces ongoing threats from urban expansion and cottage developments (Badzinski 2004, COSEWIC in prep.).
- Population trend in BCR 13 uncertain, tending downwards.
- 1% of global population

#### ON BCR 13 population

- Rare to locally uncommon (James 1991).
- Current population estimate of about 5000 birds in Ontario (COSEWIC in prep.).
- Current BBA distribution (preliminary) of 7% of squares in SW, 27% in CE, 36% in EA and 29% in NW sub-regions.
- Population trend in ON BCR 13 is unknown.
- No significant long-term change (1991-2004) in population detected by species-specific surveys covering core of Ontario range (Badzinski 2004).
- <1% of global population in ON BCR 13



#### Ecology

- Area sensitive (minimum of 10 ha but prefer 100 ha+).
- Forest obligate: favours extensive, mature, closed canopy, deciduous or mixed forest with little understorey, especially riparian and swamp forests.
- Stick nest is often used for several years. May build alternate nest in same territory.

#### Threats and Management Issues

- *Monitoring needs*: Not well sampled by BBS
- *Habitat alteration*: Vulnerable to forest management practices that reduce the availability of extensive, mature, closed canopy forests.

## Forest Suite

#### Threats and Management Issues (cont'd)

- *Competition*: Displaced by Red-tailed Hawks and Great Horned Owls in more open, or fragmented woods.

#### Overall Objective

- **Maintain Current and Assess Status**

#### Population Objective

- Maintain breeding population at or above current level.

#### Distribution Objective

- Maintain current breeding distribution in all sub-regions.

#### Conservation Focus

- *Habitat Protection*: Maintain extensive tracts (>100 ha) of mature, closed canopy, mixed or deciduous forest habitat with riparian and swamp forest habitats.

#### Conservation Actions

Continue current conservation initiatives for this species of Special Concern including:

- *Monitoring*: Monitor population trends in core of Ontario breeding range using annual roadside playback survey.
- *Monitoring*: Periodically (every 5 to 10 years) assess the status of the entire Canadian breeding population of this species.
- *Habitat Management*: Implementation of OMNR Habitat Management Guidelines for this species (James 1984b).

#### Key References

BNA: Crocoll 1994.  
SAR: Environment Canada 2004.  
COSEWIC: COSEWIC in prep.  
NANCLC: Dunn 2002.  
NatureServe: NatureServe 2005.  
OMNR HMG: James 1984b.  
TNC SMA: Peterson et al. 1995.  
Other: Badzinski 2004.

## Rose-breasted Grosbeak

*Pheucticus ludovicianus*

### Status

- BCR 13 Breeding Priority Species

### Reasons for Concern

- *Regional Stewardship*: Range-wide population decline (PT=4), very high relative density (RD=5) and 5% of global population in BCR 13.
- Population trend in BCR 13 uncertain, shows a pattern of increase followed by decline.

### ON BCR 13 population

- Common (James 1991).
- Current BBS Index of 3.4, ~ 100,000 birds.
- Current BBA distribution (preliminary) of 96% of squares in SW, 98% in CE, 97% in EA and 81% in NW sub-regions.
- Population trend in ON BCR 13 uncertain.
- ~2% of global population in ON BCR 13.



### Ecology

- Breeds in wide range of primary and secondary, deciduous and mixed forests and thickets, including suburban settings.
- Nests typically located in forest openings.

### Threats and Management Issues

- *Habitat loss*: Maturation of forests may reduce nesting opportunities.
- *Direct Exploitation*: This Neotropical migrant is captured on migration and on wintering grounds for the cage bird trade.

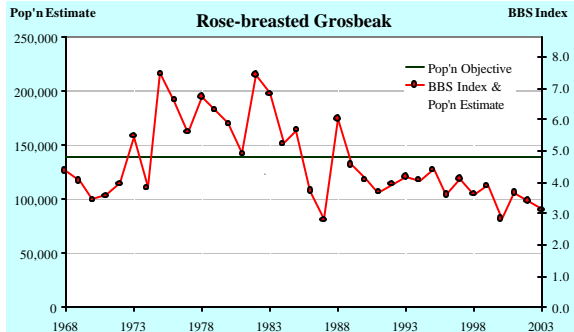
## Forest Suite

### Overall Objective

- **Maintain current**

### Population Objective

- Maintain current population, BBS Index of 3.4, ~ 100,000 birds.



### Distribution Objective

- Restore BBA distribution to 1981-85 level of 92% in NW sub-region. Maintain current distribution in all other sub-regions.

### Conservation Focus

- *Monitoring*: Re-evaluate change in distribution in NW sub-region once BBA is complete.

### Conservation Actions

- *Research*: Further research needed on the impact of forest fragmentation on productivity.

### Key References

BNA: Wyatt and Francis 2002

NANCLC: Dunn 2002.

NatureServe: NatureServe 2005.

## Savannah Sparrow

### *Passerculus sandwichensis*

#### Status

- BCR 13 Breeding Priority Species

#### Reasons for Concern

- Range-wide population decline (PT=4)
- *Regional Concern:* Regional population decline (PT=4), moderate threats on breeding ground (TB=3), and very high relative density (RD=5).
- 3% of global population in BCR 13.

#### Current ON BCR 13 population

- Abundant (James 1991).
- Current BBS Index of 30.1, ~1,000,000 birds
- Current BBA distribution (preliminary) of 95% of squares in SW, 98% in CE, 99% in EA and 91% in NW sub-regions.
- Population decline in ON BCR 13.
- ~1% of global population in ON BCR 13.



#### Ecology

- Grassland obligate.
- Breeds in open grassland and agricultural habitats including hayfields, lightly grazed pastures, cropland, orchards, riparian grasslands, meadows, and road verges.
- Area sensitive (minimum 20-40+ ha patch size) and edge sensitive grassland species.
- Prefers extensive grasslands with variable mixture of grasses and forbs, little or no woody vegetation, short to intermediate vegetation height, intermediate vegetation density, and a well-developed litter layer.
- Ground nesting.
- Populations known to fluctuate for unknown reasons not linked to events on the breeding grounds.

#### Threats and Management Issues

- *Loss of habitat:* Decrease in suitable grasslands due to conversion to intensive agriculture or other land uses, or invasion of woody species on unmanaged grasslands.
- *Habitat fragmentation:* Decreased productivity in small habitat patches due to increased cowbird brood parasitism, increased predation or other edge effects.

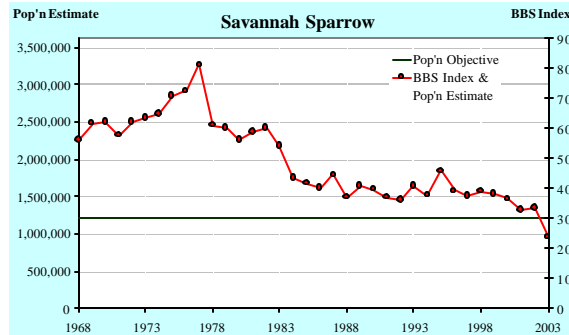
## Grassland & Agricultural Suite

#### Overall Objective

- **Halt Decline**

#### Population Objective

- Maintain current (2001-03) population level, BBS Index of 30.1, ~1,000,000 birds.



#### Distribution Objective

- Maintain current breeding distribution (BBA 2001-05) in all sub-regions.

#### Conservation Focus

- *Habitat:* Large areas (>50 ha) of agricultural or native grasslands of intermediate height and density with well-developed litter and no woody vegetation.

#### Conservation Actions

- *Habitat Management and Protection:* Conserve and manage large areas (>50 ha) of grasslands to maintain suitable habitat (grasslands of intermediate height and density with well-developed litter and no woody vegetation).
- *Habitat Management:* Avoid disturbing nesting areas during nesting season, mid-May through early August.

#### Key References

- BNA: Wheelwright and Rising. 1993.  
TNC SMA: Swanson et al. 1998.  
NPWRC EMPGB: Swanson 2003.

## Short-eared Owl

### *Asio flammeus*

#### Status

- PIF Continental Watch List Species.
- Special Concern in Canada and Ontario.
- BCR 13 Breeding and Wintering Priority Species.

#### Reasons for Concern

- *Continental Concern for Winter Population:* High threats on wintering grounds (TN=4) and severe range-wide population decline (PT=5).
- *Regional Concern for Wintering Population:* High threats (TN=4), severe population decline (PT=5), and significant numbers (RD=2) on wintering grounds in BCR 13.
- *Species at Risk:* Long-term, widespread decline in Canada, including Ontario, due to loss of preferred breeding and wintering habitat.
- 1% of global population breeding in BCR 13.
- 2% of global population wintering in BCR 13.

#### ON BCR 13 Breeding Population

- Rare (James 1991).
- Current population in southern Ontario unknown, likely less than 100 pairs
- Current BBA distribution (preliminary) of 3% of squares in SW, 5% in CE, 9% in EA and 5% in NW sub-regions.
- Population trend in ON BCR 13 is unknown.
- <1% of global population in ON BCR 13.

#### ON BCR 13 Wintering Population

- Uncommon (James 1991).
- Current wintering population estimate not available.



#### Ecology

- Breeds in large open grasslands or wetlands including hayfields, idle pasture, alvar, wet meadows, and marsh.
- Area sensitive (requires patches >100 ha but will use smaller patches if additional habitat nearby)
- Ground nesting.

## Grassland & Agricultural Suite

#### Ecology (cont'd)

- Winters in large open grassland and wetland habitat, including hayfields, idle pasture, stubble fields, airfields, wet meadows, and marsh.
- During winter, will roost communally on the ground, or in trees or thickets
- Nomadic behavior in response to fluctuating food supply (voles and other prey items).

#### Threats and Management Issues

- *Habitat loss:* Decrease in extent of suitable hayfields, pasture and open wetland habitats with abundant food supply.
- *Direct Mortality:* Early haying of nesting area, and collisions with vehicles, fences, and power lines.

#### Overall Objective

- **Assess Status**

#### Population Objective

- Determine status of breeding population.
- Determine status of wintering population.

#### Distribution Objective

- Maintain current breeding distribution (BBA 2001-05) in all sub-regions.

#### Conservation Focus

- *Habitat:* Large areas of grassland and open wetland, supporting high densities of voles.

#### Conservation Actions

- *Monitoring:* Improve CBC analysis of winter population size and trends in southern Ontario and elsewhere.
- *Monitoring:* Periodic surveys and assessments of the status of breeding and wintering populations in southern Ontario.
- *Research:* Information needed on the demographics of wintering and breeding populations in southern Ontario.
- *Habitat Protection and Management:* Conserve and manage large (>100 ha) grassland and wetland areas.

#### Key References

- BNA: Holt, D.W. and S.M. Leasure. 1993.
- COSEWIC: Cadman1994, COSEWIC 2004.
- SAR: Environment Canada 2004.
- NANCLC: Dunn 2002.
- CWLRMN: PIF 2005.
- NPWRC: Dechant et al. 2003.
- TNC SMA: Tate, G.R. 1997.
- NatureServe: NatureServe 2005.

## Vesper Sparrow

### *Pooecetes gramineus*

#### Status

- Continental Stewardship Species
- BCR 13 Breeding Priority Species

#### Reasons for Concern

- Range-wide population decline (PT=4).
- *Regional Management Interest*: Severe regional population decline (PT=5) and moderate threats on breeding grounds in BCR 13 (but total score 13).
- 1% of global population in BCR 13.

#### Current ON BCR 13 population

- Common (James 1991).
- Current BBS Index of 2.2, ~ 90,000 birds
- Current BBA distribution (preliminary) of 79% of squares in SW, 86% in CE, 59% in EA and 57% in NW sub-regions.
- Severe population decline in ON BCR 13.
- <1% of global population



#### Ecology

- Grassland obligate
- Breeds in dry, short native and agricultural grasslands, often interspersed with shrubs, trees or near forest edge. Also found in open conifer plantations, grain fields, pastures, hayfields and grassy road verges.
- Ground nesting.

#### Threats and Management Issues

- *Loss of habitat*: Decrease in suitable habitat due to conversion to intensive agriculture and natural succession of abandoned farmland.
- *Brood Parasitism*: High rates of cowbird parasitism in some areas, particularly near habitat edges.

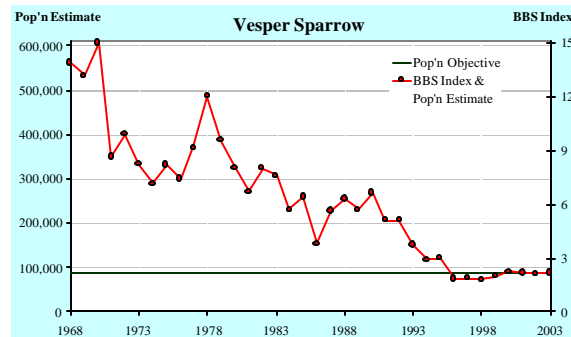
## Grassland & Agricultural Suite

#### Overall Objective

- Halt Decline

#### Population Objective

- Maintain current (2001-03) population level, BBS Index of 2.2, ~ 90,000 birds.



#### Distribution Objective

- Maintain current breeding distribution (BBA 2001-05) in all sub-regions.

#### Conservation Focus

- *Habitat*: Dry, sparse grassland vegetation with scattered woody vegetation to provide singing perches.

#### Conservation Actions

- *Habitat Protection and Management*: Conserve and manage areas of suitable grassland habitat.

#### Key References

- BNA: Jones and Cornely 2002.  
NANCLC: Dale 2002 in Dunn 2002.  
NPWRC: Dechant et al. 2003  
NatureServe: NatureServe 2005.

## Whip-poor-will *Caprimulgus vociferus*

### Status

- BCR 13 Breeding Priority Species.

### Reasons for Concern

- *Regional Concern:* Regional population decline (PT=4), severe decline in distribution within ON BCR 13, and moderate threats on breeding grounds in BCR 13 (TB=3).
- Range-wide population decline (PT=4).
- < 1% of global population in BCR 13.

### ON BCR 13 population

- Rare to uncommon (James 1991).
- Current BBS Index of 0.02, ~2,500 birds.
- Current BBA distribution (preliminary) of 10% of squares in SW, 27% in CE, 35% in EA and 27% in NW sub-regions.
- Population trend in ON BCR 13 uncertain, tending downwards.
- <1% of global population in ON BCR 13



### Ecology

- Breeds in dry deciduous or mixed forests with little or no underbrush and an open canopy.
- Crepuscular aerial-foraging insectivore feeds on moths, and other flying insects.
- Ground nesting.

### Threats and Management Issues

- *Monitoring needs:* Not well sampled by BBS.
- *Research:* Cause of population decline in Ontario and elsewhere not known, possible factors include:
  - Decrease in food availability due to insect control or other reasons.
  - Increased nest predation near rural housing,
  - Habitat loss (development or forest maturation), and
  - Increased collisions with vehicles.

## Forest Suite & Aerial Insectivore Suite

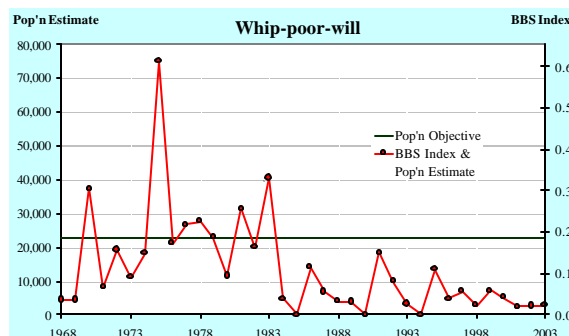
### Overall Objective

- **Reverse Decline**

### Population Objective

- Restore population to 1968-1977 level, BBS Index 0.18, ~ 20,000 birds.

•



### Distribution Objective

- Restore distribution to 1981-85 levels of 23% in squares in SW, 44% in CE, 56% in EA and 67% in NW sub-regions.

### Conservation Focus

- *Research:* Determine cause of regional and range-wide population decline, including impact of land-use and food supply on breeding density, productivity, and survivorship.

### Conservation Actions

- *Monitoring:* Periodic crepuscular surveys needed to determine abundance, distribution and assess status.
- *Research:* Determine cause of regional and range-wide population decline.

### Key References

BNA: Cink 2002.

NANCLC: Dunn 2002.

NatureServe: NatureServe 2005.

TNC SMA: Brown, et al 1999.

## Willow Flycatcher *Empidonax traillii*

### Status

- PIF Continental Watch List Species
- BCR 13 Breeding Priority Species

### Reasons for Concern

- *Continental Concern*: Small global wintering range (ND=4) and range-wide population decline (PT=4).
- Very high relative density in BCR 13 (RD=5).
- ~6.5% of global population in BCR 13.
- Long-term population trend in BCR 13 uncertain.

### ON BCR 13 population

- Locally common (James 1991).
- Current BBS Index of 1.6, ~ 50,000 birds.
- Current BBA distribution (preliminary) of 92% of squares in SW, 76% in CE, 60% in EA and 25% in NW sub-regions.
- ~1.5% of global population
- Long-term population increase in ON BCR13.
- Breeding range may be expanding northwards in Ontario.



### Ecology

- Breeds in deciduous shrublands, especially riparian thickets, wetland carrs, and successional fields
- Feeds primarily on flying insects.

### Threats and Management Issues

- *Brood Parasitism*: Cowbird parasitism a major concern for some populations elsewhere
- *Habitat Alteration*: Potential for loss or degradation of riparian shrub habitats due to flood control measures or cattle grazing.

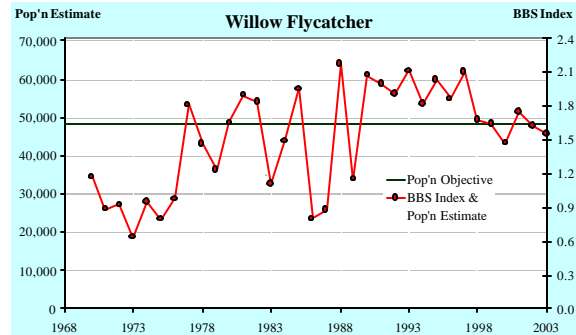
## Shrub/ Successional Suite

### Overall Objective

- **Maintain Current**

### Population Objective

- Maintain current population, BBS Index 1.6, ~ 50,000 birds.



### Distribution Objective

- Maintain current distribution based on BBA 2001-05 data.

### Conservation Focus

- *Habitat*: Riparian and wetland shrub thickets.

### Conservation Actions

- *Habitat*: Restore or maintain un-grazed riparian buffer strips with native shrubs along watercourses as habitat for this and other wet shrub species (and to improve water quality).
- *Research*: Research needed on the winter and migration ecology of this species.

### Key References

- BNA: Sedgwick 2000.  
NANCLC: Dunn 2002.  
CWLRMN: PIF 2005  
TNC SMA: Paige et al. 1999.  
NatureServe: NatureServe 2005.

## Wood Thrush

*Hylocichla mustelina*

### Status

- PIF Continental Watch List
- BCR 13 Breeding Priority Species

### Reasons for Concern

- *Continental Concern:* Range-wide population decline (PT=4), small wintering range (ND=4), and high threats on wintering grounds (TN=4).
- *Regional Concern:* Regional population decline (PT=4) and high relative density (RD=4) in BCR 13.
- 6% of global population in BCR 13

### ON BCR 13 population

- Common (James 1991).
- Current BBS Index of 2.7, ~150,000 birds.
- Current BBA distribution (preliminary) of 96% of squares in SW, 94% in CE, 92% in EA and 64% in NW sub-regions.
- Population trend in ON BCR 13 uncertain.
- ~1% of global population in ON BCR 13



### Ecology

- Area sensitive, forest obligate.
- Breeds in upland deciduous and mixed forests with moderate to dense understorey.
- Breeds in woodlands as small as 5 ha but large patches support higher densities and generally have higher productivity.

### Threats and Management Issues

- *Habitat Fragmentation and Degradation:* Reduced productivity due to fragmentation and degradation (increased predators and parasitism) of forest habitat on breeding grounds.
- *Habitat Loss:* Loss of forest habitat on breeding and wintering grounds.

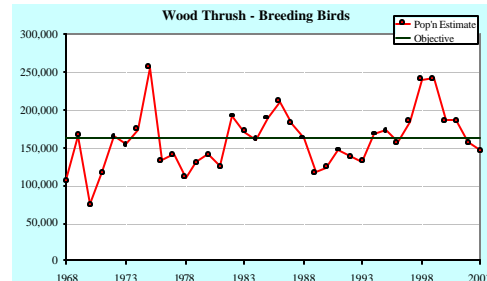
## Forest Suite

### Overall Objective

- **Maintain current**

### Population Objective

- Maintain population at or above current level, BBS Index 2.7, ~150,000 birds.



### Distribution Objective

- Restore BBA distribution to 1981-85 level of 97% in EA sub-region. Maintain current distribution in all other sub-regions.

### Conservation Focus

- *Habitat:* Upland deciduous or mixed forest with dense understorey, preferably in patches of 100 ha or greater.

### Conservation Actions

- *Habitat Restoration and Enhancement:* Increase forest cover and reduce forest fragmentation in landscapes with less than 30% regional forest cover, including most of the SW sub-region.
- *Habitat Management and Securement:* Conserve at least 10% of the landscape of southern Ontario as upland forest, including several patches \$100 ha in each sub-region, to support Wood Thrush and other area-sensitive, upland forest species.

### Key References

- BNA: Roth et al. 1996.
- NANCLC: Dunn 2002.
- NatureServe: NatureServe 2005.
- TNC SMA: Sallabanks 1993.
- BMP: Rosenberg et al. 2003.

## Yellow-breasted Chat

### *Icteria virens*

#### Status

- Special Concern in Canada and Ontario
- ON BCR 13 Breeding Priority Species

#### Reasons for Concern

- Apparent severe regional population decline (PT=5) and high threats (TB=4) in BCR 13 where it is a rare breeding species (RD=1).
- *SAR Species*: Special Concern Status in Ontario and Canada.
- <1% of global population

#### Current ON BCR 13 population

- Rare, local breeder in SW sub-region of ON BCR 13.
- In 1994, the Ontario population was estimated as 30 to 60 pairs. (Cadman and Page 1994)
- BBA distribution (preliminary) of 9% of squares in SW sub-region, none elsewhere. Population trend in ON BCR 13 unknown.
- <1% of global population



#### Ecology

- Nests close to ground in dense shrub thickets or tangles along woodland edges, and in forest gaps, riparian areas and hedgerows.
- Forages on insects and berries.
- Able to colonize small, short-lived patches of suitable habitat.
- Local populations are often small and sporadic.

#### Threats and Management Issues

- *Monitoring*: Ontario population not monitored by BBS.
- *Habitat loss*: Reduction in dense shrub and early successional habitat due to natural succession, reforestation, and heavy deer browsing.
- *Brood Parasitism*: High rates of cowbird parasitism observed elsewhere but low impact on productivity.

## Shrub/ Successional Suite

### Overall Objective

- **Reverse Decline & Assess Status**

### Population Objective

- Determine current population level and maintain population at or above 2001-2003 level

### Distribution Objective

- Restore distribution to 1981-85 levels of 15% of squares in SW and 2% in CE sub-regions (not present elsewhere).

### Conservation Focus

- *Habitat Management*: Assess feasibility of increasing the amount of dense shrub thicket habitat at sites in the Southwestern sub-region.

### Conservation Actions

- *Monitoring*: Re-assess species status in Ontario and Canada once current BBA is complete.
- *Monitoring*: Periodic monitoring of known sites and other areas with suitable habitat
- *Habitat*: Assess feasibility of restoring dense shrub habitat at former sites (e.g. Point Pelee NP) to support this and other shrub species.

### Key References

- BNA: Eckerle and Thompson 2001.
- COSEWIC: Cadman and Page 1994
- SAR: Environment Canada 2004.
- NANCLC: Dunn 2002
- TNC SMA: Thompson et al. 1996.
- NatureServe: NatureServe 2005.

## Appendix G: Wetland-associated Priority Landbirds in BCR 13

Conservation efforts for waterfowl, waterbirds, and shorebirds often focus on wetlands and surrounding landscapes. These efforts can be effective in aiding wetland-associated landbirds too. In the interests of promoting all-bird conservation, Table G-1 shows which of the priority landbirds in BCR 13 stand to benefit most from conservation of wetlands in southern Ontario.

In addition, southern Ontario wetlands are very important to swallows, martins and blackbirds as post-breeding roosts (marshes, swamp thickets), serve as concentration areas for hordes of passing migrants (especially lakeshore wetlands), and provide essential foraging sites for swallows on cold days early in the breeding season (wetlands with open water).

**Table G-1: Wetland-associated Priority Landbirds in BCR 13.**

Species	Wetland Habitats and Associated Landscape Settings Used by Priority Landbirds	Seasonal Usage
Acadian Flycatcher	Swamp forest, riparian	Breeding
Bald Eagle	Lakeshore, riparian	Breeding, Wintering, Migration
Baltimore Oriole	Riparian habitats	Breeding
Bank Swallow	Riparian, lakeshore	Breeding
Belted Kingfisher	Riparian, lakeshore	Breeding, Migration
Blue-winged Warbler	Swamp thicket, riparian	Breeding, Migration
Canada Warbler	Swamp forest, riparian	Breeding, Migration
Cerulean Warbler	Swamp forest	Breeding
Eastern Kingbird	Marsh edges, treed bog, treed fen, lakeshore.	Breeding, Migration
Golden-winged Warbler	Swamp thicket	Breeding, Migration
Henslow's Sparrow	Wet meadow/fields	Breeding
Louisiana Waterthrush	Swamp forest, riparian	Breeding
Northern Harrier	Marsh, wet meadow, fen.	Breeding, Wintering, Migration
Peregrine Falcon	Lakeshore, marsh	Breeding, Migration
Prothonotary Warbler	Swamp forest	Breeding
Red-shouldered Hawk	Swamp, riparian, lakeshore	Breeding, Migration?
Rusty Blackbird	Swamp forest	Breeding, Migration
Short-eared Owl	Marsh, wet meadow, fen.	Breeding, Wintering, Migration
Willow Flycatcher	Swamp thicket, riparian	Breeding, Migration

**Notes:** "Wetland" includes: marsh, swamp forest, swamp thicket (carr), bog, fen, and wet meadow, and shallow open water. Many of these wetlands occur in riparian or lakeshore settings.

**Appendix H: Importance of Ontario BCR 13 to Landbirds during Migration**

Huge numbers of migrating landbirds funnel through southern Ontario every spring and fall. The conservation implications of these large concentrations of landbirds are twofold:

- The quantity, quality and distribution of migratory stopover habitat in BCR 13 is of critical importance to the conservation of migratory landbirds breeding in more northern BCRs, including several Species of Continental Importance (Rich et al. 2004); and
- Many northern-breeding landbirds that are not adequately monitored by the BBS or otherwise (Rich et al. 2004) are monitored at migration monitoring stations in southern Ontario.

*Landbird Migratory Stopover Areas*

All habitats in southern Ontario are occasionally used by migrating landbirds during bad flying weather. Forest, shrubland, grassland and wetland habitats within 2 to 10 km of Great Lake shorelines, especially along the north shores of Lakes Erie and Ontario, are considered particularly important as rest stops and refuelling areas as they consistently support the highest concentrations and highest diversity of migrants (OMNR 2000). Many migrating grassland birds feed in agricultural fields, especially no-till croplands (Boutin et al. 1999, Best et al. 2001). Linear features such as riparian corridors and the ribbon of forest along the Niagara Escarpment form natural corridors for migrating landbirds (OMNR 2000).

Twenty PIF Species of Continental Importance (Rich et al. 2004) that breed mainly in boreal and boreal transition forests to the north of BCR 13 migrate through southern Ontario in substantial numbers (Box H-1). Most of these species are neotropical migrants.

**Box H-1: PIF Species of Continental Importance that breed mainly in boreal forests to the north of BCR 13, and migrate through BCR 13 in substantial numbers.**

<b>PIF Watch List species:</b>		
Bay-breasted Warbler	Canada Warbler	Rusty Blackbird
<b>PIF Stewardship Species:</b>		
Yellow-bellied Sapsucker	Nashville Warbler	Palm Warbler
Yellow-bellied Flycatcher	Chestnut-sided Warbler	Mourning Warbler
Alder Flycatcher	Magnolia Warbler	Lincoln's Sparrow
Blue-headed Vireo	Cape May Warbler	Swamp Sparrow
Philadelphia Vireo	Black-throated Green Warbler	White-throated Sparrow
Tennessee Warbler	Blackburnian Warbler	

*Migration Monitoring*

Some 48 small landbird species with continentally-important gaps in monitoring coverage (Mo3 species in Rich et al. 2004) are monitored at Canadian Migration Monitoring Network (CMMN) stations in southern Ontario, according to a 1999 analysis that included data from four CMMN stations in Ontario BCR 13 (Badzinski and Francis 2000) (Box H-2). Most of these species are neotropical migrants. The coverage analysis requires updating to include data from additional CMMN stations in this region.

Nine raptor species with continentally-important gaps in monitoring coverage are counted at hawkwatch stations in southern Ontario ([www.hmana.org](http://www.hmana.org)).

**Box H-2:** Migratory Landbirds with inadequate northern coverage that are monitored at Canadian Migration Monitoring Network (CMMN) stations in southern Ontario.

Belted Kingfisher	Hermit Thrush	Wilson's Warbler
<b><i>Yellow-bellied Sapsucker</i></b>	American Robin	<b>Canada Warbler</b>
Northern Flicker	American Pipit	American Tree Sparrow
<b><i>Yellow-bellied Flycatcher</i></b>	<b><i>Tennessee Warbler</i></b>	Savannah Sparrow
<i>Alder Flycatcher</i>	Orange-crowned Warbler	Fox Sparrow
Least Flycatcher	Yellow Warbler	<b><i>Lincoln's Sparrow</i></b>
<b><i>Blue-headed Vireo</i></b>	<b><i>Magnolia Warbler</i></b>	<i>Swamp Sparrow</i>
<i>Philadelphia Vireo</i>	<i>Cape May Warbler</i>	<i>White-throated Sparrow</i>
Horned Lark	Yellow-rumped Warbler	White-crowned Sparrow
Tree Swallow	<b><i>Black-throated Green Warbler</i></b>	Dark-eyed Junco
Bank Swallow	<i>Palm Warbler</i>	Lapland Longspur
Winter Wren	<b>Bay-breasted Warbler</b>	Snow Bunting
Golden-crowned Kinglet	Blackpoll Warbler	<b>Rusty Blackbird</b>
Ruby-crowned Kinglet	American Redstart	Purple Finch
Gray-cheeked Thrush	Northern Waterthrush	Common Redpoll
Swainson's Thrush	<b><i>Mourning Warbler</i></b>	Pine Siskin

**Sources:** Rich et al. 2004, Badzinski and Francis 2000. CMMN stations in southern Ontario included in 2000 analysis were Long Point Bird Observatory (3 sites spring and fall coverage), Haldimand Bird Observatory (2 sites spring and fall coverage), Prince Edward Point Bird Observatory (spring only) and Innis Point Bird Observatory (spring only).

## **Appendix I: Accuracy and Precision of Population Abundance Objectives and Estimated Population Size for Priority Species Breeding in Ontario BCR 13**

Count data from all Breeding Bird Survey (BBS) routes within Ontario BCR 13 were used to establish population abundance objectives for 26 of the 42 priority species and the four priority guilds (Table I-1). All population indices were converted to population estimates to show the magnitude of population change needed to reach objectives. These estimates are derived from BBS indices using methods described in Rich et al. (2004, Appendix B).

Table I-1 presents the BBS sample size, abundance objective, a measure of the standard deviation (precision) of the objective, the estimated population size at the objective, and an accuracy rating of the population estimate for the 26 priority species with BBS-based population objectives. The BBS sample size and abundance objectives for the four priority guilds are also included in Table I-1.

Accuracy ratings (Moderate, Fair, Poor, Very Poor) for the estimated population sizes at abundance objectives were assigned using methods outlined in Rich et al. (2004, Appendix B), and are based on species-specific survey sample sizes, number of birds detected on surveys, variance in counts across BBS routes within southern Ontario, and diurnal activity level (i.e. lower accuracy for primarily nocturnal species).

BBS-based abundance objectives were not set for 16 priority species including 10 species listed as Endangered or Threatened Species federally and/or in Ontario (objectives set through SAR recovery strategies), and six species that occur at low densities in southern Ontario and are not adequately monitored by the BBS. Five of these six unmonitored species are currently designated as of Special Concern. Under SARA regulations, the population status of current and former Special Concern species must be re-assessed at least every ten years. The population status of the other species, Prairie Warbler, is also periodically assessed as it was formerly designated as of Special Concern.

### **Explanatory Notes for Table I-1**

#### **BBS Routes:**

- **Trends 68-03:** Number of BBS routes in Southern Ontario with trends for 1968-2003 period.
- **1990s:** Number of BBS routes in Southern Ontario with abundance data for 1990s.

#### **BBS Index:**

- **Objective:** BBS-based population abundance objective
- **St. Error:** Standard Error, a measure of the standard deviation (precision) of the population abundance objective.

#### **Estimated Population Size**

- **At Objective:** Estimate of the magnitude of the population (number of breeding birds) in southern Ontario at the abundance objective level.
- **Accuracy:** A rating of the accuracy of the population estimate.

**Table I-1: BBS Sample Size, BBS Objective and Standard Error, Estimated Population Size and Accuracy Rating for Priority Species in Ontario BCR 13.**

Priority Species	BBS Routes		BBS Index		Estimated Population Size	
	trends 68-03	1990s	Objective	St. Error	at Objective	Accuracy
Northern Harrier	57	47	0.45	0.07	4,000	Fair
American Kestrel	60	51	0.59	0.13	20,000	Fair
Black-billed Cuckoo	60	50	1.4	0.08	60,000	Moderate
Whip-poor-will	16	4	0.18	0.05	20,000	Very Poor
Chimney Swift	45	31	1.7	0.18	60,000	Fair / Poor
Belted Kingfisher	54	47	0.89	0.07	30,000	Fair
Red-headed Woodpecker	37	22	0.65	0.08	25,000	Poor
Northern Flicker	62	58	6.5	0.20	250,000	Moderate
Eastern Wood-Pewee	62	57	4.0	0.14	120,000	Moderate
Willow Flycatcher	47	41	1.6	0.06	50,000	Moderate
Eastern Kingbird	63	59	7.2	0.29	200,000	Moderate
Bank Swallow	52	47	22.1	1.66	600,000	Poor
Wood Thrush	60	54	2.7	0.20	160,000	Moderate
Brown Thrasher	61	56	5.9	0.29	200,000	Moderate
Blue-winged Warbler	14	11	0.07	0.01	6,000	Poor
Golden-winged Warbler	18	12	0.13	0.01	12,000	Poor
Canada Warbler	18	12	0.10	0.01	3,000	Poor
Eastern Towhee	48	36	0.74	0.07	25,000	Fair
Field Sparrow	60	52	2.4	0.19	60,000	Moderate
Vesper Sparrow	62	57	2.2	0.01	80,000	Moderate
Savannah Sparrow	63	59	30.1	3.13	1,200,000	Moderate
Grasshopper Sparrow	47	33	0.89	0.08	30,000	Poor
Rose-breasted Grosbeak	62	57	3.4	0.15	90,000	Moderate
Bobolink	63	59	26.0	2.44	900,000	Moderate
Eastern Meadowlark	62	58	13.1	1.06	120,000	Moderate
Baltimore Oriole	62	58	9.8	0.59	250,000	Moderate
<u>Guilds</u>						
Forest Associated Spp	63	59	62.5	0.86		
Grassland Associated Spp	63	59	75.5	1.47		
Shrub Associated Spp	63	59	95.2	0.69		
Aerial Foragers	63	59	24.0	0.99		

## Appendix J: Evaluation of Current Monitoring Coverage for Landbirds in Ontario BCR 13, and Proposed Monitoring-related Actions

### Trend Monitoring Objectives:

#### **Monitoring Objective 1: For at least 80% of landbirds breeding regularly in BCR 13 Ontario (Relative Density >1):**

- **≥ 80% Power to detect 50% decline over 20 years within BCR 13 Ontario, or**
- **≥ 80% Power to detect 50% decline over 20 years in eastern BBS range AND less precise trend available for BCR 13 Ontario (df > 5)**

The objective of attaining 80% power to detect a 50% decline at  $P < 0.1$  (2-tailed), incorporates a 0.8%/yr estimate of potential bias, following the approach suggested by Bart et al. 2004.

**Evaluation:** Current monitoring coverage of all landbirds regularly breeding in southern Ontario was evaluated using BBS data from southern Ontario and in eastern North America (Table J-2). Power estimates used species-specific variance from past BBS trends as the basis for predicting trend variance, and power, of future trends. Variance for eastern North American was taken from 1966-2003 BBS trends; for southern Ontario we used 1983-2003 BBS trends.

Of the 113 breeding landbirds with Relative Density (RD) score of 2 or more in BCR 13 Ontario:

- 33 species with  $\geq 80\%$  power to detect 50% decline in 20 yr in BCR 13 Ontario;
- 29 species with 50-80% power to detect 50% decline in 20 yr in BCR 13 Ontario; and
- 36 species have trends with  $< 50\%$  power in BCR 13 Ontario, but  $\geq 80\%$  power in eastern North America.

Objective 1 is met (87% of regularly-breeding landbirds have trends of sufficient power).

### **Proposed Actions:**

- *Maintain BBS coverage at current participation level in southern Ontario (63 BBS routes with usable trend data, 61 in the past 20 years), adding 1 route in NW sub-region if feasible (currently 5 routes with trend data in NW)*
- *Continue active recruitment and training of new BBS volunteers to replace retiring participants.*
- *Measure bias in landscape / habitat coverage by BBS routes across southern Ontario*

Of the remaining 15 species (13%) not meeting the Monitoring Objective 1 power criteria:

- 6 have imprecise trends in southern Ontario and in eastern North America (Ruffed Grouse, Wild Turkey, Sharp-shinned Hawk, Winter Wren, Marsh Wren, Nashville Warbler)
- 4 are hawks that are counted at migration hawkwatch sites (Sharp-shinned Hawk, Cooper's Hawk, Northern Goshawk, Merlin)
- 4 are forest species with some Forest Bird Monitoring Program (FBMP) trend data (Brown Creeper, Winter Wren, Nashville Warbler, Cerulean Warbler) and 1 is a Wetland species with some Marsh Monitoring (MMP) trend data (Marsh Wren)
- 3 are listed Species at Risk (SAR) in Canada and Ontario (Cerulean Warbler, Louisiana Waterthrush, Henslow's Sparrow), subject to periodic status re-assessments
- 2 are owls (Long-eared Owl, Eastern Screech-Owl)

**Proposed Actions:**

- Evaluate adequacy of trends from migration hawkwatches to track Sharp-shinned Hawks, Cooper's Hawks, Northern Goshawks and Merlins in southern Ontario
- Evaluate adequacy of trends from Forest Bird Monitoring and Marsh Bird Monitoring to track Brown Creeper, Winter Wren, Nashville Warbler, Cerulean Warbler (FBMP) and Marsh Wren (MMP) in southern Ontario
- Rely on Breeding Bird Atlases at 20 year intervals to track owl populations and to validate population changes in species with trends from BBS, migration monitoring, FBMP and MMP
- Assess ability of Christmas Bird Counts to track Long-eared Owl populations in southern Ontario

**Monitoring Objective 2: Maintain current precision of BBS population abundance indices for all Priority Species and Priority Guilds that use BBS indices as the basis for population abundance objectives.**

**Evaluation:** BBS-based population abundance objectives are set for 26 of the 32 priority species that are not the subject of SAR recovery strategies. The current precision of these indices (and the accuracy of the associated population estimates) is presented in Appendix H.

**Proposed Action:** *Continue current BBS coverage in southern Ontario [as above]*

**Monitoring Objective 3. Periodic status assessments (at least every 5 years) for all other Priority Species not currently tracked by BBS.**

Of the 16 priority landbirds without BBS-based population abundance objectives:

- 10 species are listed Endangered or Threatened Species federally and/or in Ontario, with objectives set through SAR recovery programs as required (Northern Bobwhite, Bald Eagle, Peregrine Falcon, Barn Owl, Acadian Flycatcher, Loggerhead Shrike, Kirtland's Warbler, Prothonotary Warbler, Hooded Warbler, Henslow's Sparrow).
- 5 species are currently listed as Special Concern federally and/or in Ontario (Red-shouldered Hawk, Short-eared Owl, Cerulean Warbler, Louisiana Waterthrush, Yellow-breasted Chat).
- 1 species (Prairie Warbler) occurs at low density in the Ontario portion of BCR 13 and was formerly listed as of Special Concern.

**Proposed Action:** **Ensure all of these species are assessed regularly (at least every 5 years) to track changes in population status and threats**

**Objective 4. Contribute to range-wide monitoring for species poorly monitored at Continental Level, by conducting non-breeding season monitoring to detect trends in migrants and wintering species, especially PIF Species of Continental Importance (PIF North American Landbird Plan 2004)**

- **Conduct migration monitoring and/or winter surveys (e.g., CBC) to detect trends in poorly monitored species breeding further north**

**Evaluation:** At least 48 species small landbirds with continentally-important gaps in monitoring coverage (Mo3 species in Rich et al. 2004) are monitored during migration through southern Ontario. An additional 9 poorly monitored raptor species are counted regularly at hawkwatch stations in southern Ontario. Twenty PIF Species of Continental Importance (Rich et al. 2004)

that breed mainly in boreal and boreal transition forests to the north of BCR 13 are currently monitored at migration monitoring stations in southern Ontario. See Appendix xx for details.

**Proposed Actions:**

- *Maintain current network of migration monitoring stations in southern Ontario, regularly assessing population trends*
- *Update 1999 assessment of which landbird species are adequately tracked through migration monitoring at each station in southern Ontario*
- *Develop means for combining migration trends across network of stations, making use of the results of recent isotope analyses to guide stratification of stations*
- *Use results of comprehensive trend analysis for Christmas Bird Counts (currently underway) to guide actions with respect to CBC in southern Ontario*

**Distribution Objective:**

**Objective 5. For all landbirds breeding in BCR 13 Ontario:**

- **Ability to detect 15% change in size of breeding range at intervals of 20 years for at least 80% of landbirds with Relative Density >1 [15% decline matches PIF PT = 4 criterion]**
- **Ability to detect 50% change in size of breeding range [PT = 5] for all priority species including those with Relative Density =1 (relatively rare in southern Ontario)**

**Evaluation:** A comparison of the preliminary results of the current Breeding Bird Atlas (BBA) (2001-04 data) with the results of the first Atlas (1981-85) indicates that of the 113 breeding landbird species with RD>1:

- 15% declines and/or increases would have been detected at P<0.1 in 95 species in southern Ontario

The first part of Objective 5 is met (distribution changes can be detected for 84% of regularly-breeding landbirds, see Table J-2).

Of the 42 priority landbirds, 36 meet the distribution monitoring objective, as follows:

- 15% declines and/or increases would have been detected at P<0.1 in 26 species
- 50% declines and/or increases would have been detected at P<0.1 in an additional 10 species. With the exception of Blue-winged Warbler, all of these species are listed Species at Risk.
- 50% declines or increases would not have been detected at P<0.1 in 6 species. Five of these are listed Endangered Species in Ontario (Bald Eagle, Barn Owl, Kirtland's Warbler, Peregrine Falcon, Prothonotary Warbler), Prairie Warbler is unlisted.

**Proposed Actions:**

- *Continue to repeat Breeding Bird Atlases at 20 year intervals, aiming to achieve at least the same level of coverage as attained in 2001-04 of the current atlas*
- *Additional periodic distributional surveys are needed to supplement information on rare priority species, including listed Species at Risk, as well as rarer shrub-nesting species - Prairie Warbler, and possibly Blue-winged Warbler and Golden-winged Warbler.*

### **Demographic Objective:**

#### **Objective 6. Productivity, Survival and Fidelity tracked for species or study areas of high management concern / interest.**

This plan does not set any demographic objectives, but demographic research is a proposed conservation action for many of the priority species (see Species Accounts in Appendix E).

#### **Proposed Actions:**

- *Assess the value and feasibility of setting demographic objectives for priority species or study areas of high management concern/ interest.*

### **Habitat Monitoring Objective:**

#### **Objective 7. Measure and report changes in general land cover and land use, for the entire planning area, at regular intervals (approx. 5 years), ensuring data are directly comparable among time periods.**

This plan does not set specific habitat objectives for priority species of guilds, primarily because suitable habitat data are not available. Many of the proposed conservation actions for priority species involve research into species habitat requirements to provide a basis for setting habitat objectives in the future (see Species Accounts in Appendix E).

#### **Proposed Actions:**

- *Identify or develop land cover, land use and habitat monitoring program (e.g. Ontario Land Cover mapping, Agricultural Census data, Forest Resource Inventory, wetland mapping, Ecological Land Classification mapping) that could be used to set and measure habitat objectives for priority species and guilds.*
- *Investigate the feasibility of using information on land use change and/or disturbance rates (urban development, farmland retirement, extent of prescribed burns and wildfires, extent of intensive logging, right-of-way management activities) as surrogate measures for monitoring shrub/successional habitat.*

## Explanatory Notes for Table J-2

**Bold** = species on priority list in Ontario BCR 13; [...] = introduced species;  
*Italics* = species with Relative Density in Ontario BCR 13 of <2 during the breeding season.

**ON B13 RD > 1 – Yes:** indicates Relative Density (RD) score of 2 or higher in Ontario BCR 13; these species are the target of monitoring objectives.

**ON B13 BBS Trend** – Power of the Breeding Bird Survey (1968-2003) to measure population trends within southern Ontario.

**Yes:**  $\geq 80\%$  power to detect 50% decline in 20 years at  $P \leq 0.1$  in Ontario BCR 13; **Y:**  $\geq 50\%$  power; **(y):** trend calculated, but with <50% power to detect 50% decline in 20 years in Ontario.

**East N.A. BBS Trend** – Power of the Breeding Bird Survey (1968-2003) to measure population trends within eastern North America.

**Yes:**  $\geq 80\%$  power to detect 50% decline in 20 years at  $P \leq 0.1$  in eastern North America; **Y:**  $\geq 50\%$  power; **(y):** trend calculated, but with <50% power to detect 50% decline in 20 years in eastern North America.

**ON B13 Atlas Dist.** – Power of the Breeding Bird Atlases (1981-85 and 2001-05) to measure changes in breeding distribution in southern Ontario.

**Yes:**  $\leq 15\%$  increase and/or decrease in squares with breeding evidence detectable between atlases in Ontario BCR 13; **Y:**  $\leq 50\%$  increase and/or decrease detectable; **(y):** larger increases / decreases may be detectable.

\* **Kirtland's Warbler:** Trend in eastern North American known from intensive surveys and banding programs on the breeding grounds in Michigan.

Table J-2: Monitoring Coverage of Landbirds Breeding in Ontario BCR 13

Common Name	ON BCR13 RD > 1	ON BCR13 BBS Trend	East N.A. BBS Trend	ON BCR13 BBA Dist. <i>Preliminary</i>
<i>[Gray Partridge]</i>			(y)	Y
[Ring-necked Pheasant]	Yes	(y)	Yes	Yes
Ruffed Grouse	Yes	(y)	(y)	Yes
<i>[Sharp-tailed Grouse]</i>			(y)	(y)
Wild Turkey	Yes	(y)	(y)	Y
<b>Northern Bobwhite</b>		(y)	Yes	Y
Turkey Vulture	Yes	(y)	Yes	Yes
Osprey	Yes	(y)	Yes	Y
<b>Bald Eagle</b>			(y)	(y)
<b>Northern Harrier</b>	Yes	Y	Yes	Yes
Sharp-shinned Hawk	Yes	(y)	(y)	Yes
Cooper's Hawk	Yes		(y)	Y
Northern Goshawk	Yes		(y)	Y
<b>Red-shouldered Hawk</b>			Yes	Yes
Broad-winged Hawk	Yes	(y)	Yes	Yes
Red-tailed Hawk	Yes	Y	Yes	Yes
<b>American Kestrel</b>	Yes	Y	Yes	Yes
Merlin	Yes		(y)	Y
<b>Peregrine Falcon</b>				(y)
[Rock Pigeon]	Yes	Yes	Yes	Yes
Mourning Dove	Yes	Yes	Yes	Yes
<b>Black-billed Cuckoo</b>	Yes	Y	Yes	Yes
Yellow-billed Cuckoo	Yes	(y)	Yes	Yes
<b>Barn Owl</b>				(y)
Eastern Screech-Owl	Yes		(y)	Yes
Great Horned Owl	Yes	(y)	Yes	Yes
<i>Barred Owl</i>			Yes	Y
Long-eared Owl	Yes			Y
<b>Short-eared Owl</b>				Y
<i>Northern Saw-whet Owl</i>				Yes
<i>Common Nighthawk</i>		(y)	Yes	Yes
<b>Whip-poor-will</b>	Yes	(y)	Yes	Yes
<b>Chimney Swift</b>	Yes	(y)	Yes	Yes
Ruby-throated Hummingbird	Yes	(y)	Yes	Yes
<b>Belted Kingfisher</b>	Yes	Y	Yes	Yes
<b>Red-headed Woodpecker</b>	Yes	(y)	Yes	Yes
<i>Red-bellied Woodpecker</i>		(y)	Yes	Y
Yellow-bellied Sapsucker	Yes	(y)	Yes	Yes
Downy Woodpecker	Yes	Yes	Yes	Yes
Hairy Woodpecker	Yes	Y	Yes	Yes
<b>Northern Flicker</b>	Yes	Yes	Yes	Yes
Pileated Woodpecker	Yes	(y)	Yes	Yes
<i>Olive-sided Flycatcher</i>			Yes	Y
<b>Eastern Wood-Pewee</b>	Yes	Yes	Yes	Yes
<i>Yellow-bellied Flycatcher</i>			Yes	Y

Common Name	ON BCR13 RD > 1	ON BCR13 BBS Trend	East N.A. BBS Trend	ON BCR13 BBA Dist. <i>Preliminary</i>
<b>Acadian Flycatcher</b>			Yes	Y
Alder Flycatcher	Yes	Y	Yes	Yes
<b>Willow Flycatcher</b>	Yes	Y	Yes	Yes
Least Flycatcher	Yes	Y	Yes	Yes
Eastern Phoebe	Yes	Yes	Yes	Yes
Great Crested Flycatcher	Yes	Yes	Yes	Yes
<b>Eastern Kingbird</b>	Yes	Yes	Yes	Yes
<b>Loggerhead Shrike</b>		(y)	Yes	Y
<i>White-eyed Vireo</i>			Yes	Y
Yellow-throated Vireo	Yes	(y)	Yes	Yes
Blue-headed Vireo	Yes	(y)	Yes	Y
Warbling Vireo	Yes	Yes	Yes	Yes
<i>Philadelphia Vireo</i>			(y)	Y
Red-eyed Vireo	Yes	Yes	Yes	Yes
Blue Jay	Yes	Yes	Yes	Yes
American Crow	Yes	Yes	Yes	Yes
Common Raven	Yes	(y)	Yes	Y
Horned Lark	Yes	Y	Yes	Yes
Purple Martin	Yes	Y	Yes	Yes
Tree Swallow	Yes	Yes	Yes	Yes
Northern Rough-winged Swallow	Yes	Y	Yes	Yes
<b>Bank Swallow</b>	Yes	(y)	Yes	Yes
Cliff Swallow	Yes	Y	Yes	Yes
Barn Swallow	Yes	Yes	Yes	Yes
Black-capped Chickadee	Yes	Yes	Yes	Yes
<i>Tufted Titmouse</i>			Yes	Y
Red-breasted Nuthatch	Yes	(y)	Yes	Yes
White-breasted Nuthatch	Yes	Y	Yes	Yes
Brown Creeper	Yes	(y)	(y)	Yes
<i>Carolina Wren</i>			Yes	Y
House Wren	Yes	Yes	Yes	Yes
Winter Wren	Yes	(y)	(y)	Yes
Sedge Wren	Yes	(y)	Yes	Y
Marsh Wren	Yes	(y)	(y)	Yes
<i>Golden-crowned Kinglet</i>			(y)	Y
<i>Ruby-crowned Kinglet</i>			Yes	Y
<i>Blue-gray Gnatcatcher</i>		(y)	Yes	Yes
Eastern Bluebird	Yes	(y)	Yes	Yes
Veery	Yes	Yes	Yes	Yes
<i>Swainson's Thrush</i>			Yes	Y
Hermit Thrush	Yes	(y)	Yes	Y
<b>Wood Thrush</b>	Yes	Y	Yes	Yes
American Robin	Yes	Yes	Yes	Yes
Gray Catbird	Yes	Yes	Yes	Yes
<i>Northern Mockingbird</i>		(y)	Yes	Y
<b>Brown Thrasher</b>	Yes	Y	Yes	Yes
[European Starling]	Yes	Yes	Yes	Yes

Common Name	ON BCR13 RD > 1	ON BCR13 BBS Trend	East N.A. BBS Trend	ON BCR13 BBA Dist. <i>Preliminary</i>
Cedar Waxwing	Yes	Y	Yes	Yes
<b>Blue-winged Warbler</b>	Yes	(y)	Yes	Y
<b>Golden-winged Warbler</b>	Yes	(y)	Yes	Yes
<i>Tennessee Warbler</i>			(y)	(y)
<i>Orange-crowned Warbler</i>			(y)	(y)
Nashville Warbler	Yes	(y)	(y)	Yes
<i>Northern Parula</i>			Yes	Y
Yellow Warbler	Yes	Yes	Yes	Yes
Chestnut-sided Warbler	Yes	Y	Yes	Yes
Magnolia Warbler	Yes	(y)	Yes	Y
<i>Cape May Warbler</i>			(y)	Y
Black-throated Blue Warbler	Yes	(y)	Yes	Y
Yellow-rumped Warbler	Yes	(y)	Yes	Yes
Black-throated Green Warbler	Yes	(y)	Yes	Yes
Blackburnian Warbler	Yes	(y)	Yes	Yes
Pine Warbler	Yes	(y)	Yes	Yes
<b>Kirtland's Warbler</b>			*	(y)
<b>Prairie Warbler</b>			Yes	(y)
<i>Palm Warbler</i>			(y)	(y)
<i>Bay-breasted Warbler</i>			(y)	(y)
<b>Cerulean Warbler</b>	Yes		Yes	Y
Black-and-white Warbler	Yes	Y	Yes	Yes
American Redstart	Yes	(y)	Yes	Yes
<b>Prothonotary Warbler</b>			Yes	(y)
<i>Worm-eating Warbler</i>			Yes	(y)
Ovenbird	Yes	Y	Yes	Yes
Northern Waterthrush	Yes	(y)	Yes	Yes
<b>Louisiana Waterthrush</b>	Yes		Yes	Y
<i>Kentucky Warbler</i>			Yes	(y)
Mourning Warbler	Yes	Y	Yes	Yes
Common Yellowthroat	Yes	Yes	Yes	Yes
<b>Hooded Warbler</b>			Yes	Y
<i>Wilson's Warbler</i>			(y)	(y)
<b>Canada Warbler</b>	Yes	(y)	Yes	Yes
<b>Yellow-breasted Chat</b>			Yes	Y
<i>Summer Tanager</i>			Yes	(y)
Scarlet Tanager	Yes	(y)	Yes	Yes
<b>Eastern Towhee</b>	Yes	Y	Yes	Yes
Chipping Sparrow	Yes	Yes	Yes	Yes
<i>Clay-colored Sparrow</i>		(y)	Yes	Y
<b>Field Sparrow</b>	Yes	Y	Yes	Yes
<b>Vesper Sparrow</b>	Yes	Y	Yes	Yes
<b>Savannah Sparrow</b>	Yes	Yes	Yes	Yes
<b>Grasshopper Sparrow</b>	Yes	(y)	Yes	Yes
<b>Henslow's Sparrow</b>	Yes		(y)	Y
<i>Le Conte's Sparrow</i>			(y)	(y)
Song Sparrow	Yes	Yes	Yes	Yes

Common Name	ON BCR13 RD > 1	ON BCR13 BBS Trend	East N.A. BBS Trend	ON BCR13 BBA Dist. <i>Preliminary</i>
<i>Lincoln's Sparrow</i>			(y)	Y
Swamp Sparrow	Yes	Y	Yes	Yes
White-throated Sparrow	Yes	Y	Yes	Yes
<i>Dark-eyed Junco</i>			Yes	Y
Northern Cardinal	Yes	Y	Yes	Yes
<b>Rose-breasted Grosbeak</b>	Yes	Y	Yes	Yes
Indigo Bunting	Yes	Y	Yes	Yes
<i>Dickcissel</i>			Yes	(y)
<b>Bobolink</b>	Yes	Yes	Yes	Yes
Red-winged Blackbird	Yes	Yes	Yes	Yes
<b>Eastern Meadowlark</b>	Yes	Yes	Yes	Yes
<i>Western Meadowlark</i>		(y)	(y)	Y
<i>Yellow-headed Blackbird</i>			(y)	(y)
<i>Rusty Blackbird</i>			(y)	(y)
<i>Brewer's Blackbird</i>		(y)	Yes	Y
Common Grackle	Yes	Yes	Yes	Yes
Brown-headed Cowbird	Yes	Yes	Yes	Yes
Orchard Oriole	Yes	(y)	Yes	Y
<b>Baltimore Oriole</b>	Yes	Yes	Yes	Yes
Purple Finch	Yes	(y)	Yes	Yes
[House Finch]	Yes	(y)	Yes	Y
<i>Red Crossbill</i>			(y)	Y
<i>White-winged Crossbill</i>			(y)	(y)
<i>Pine Siskin</i>			Yes	Y
American Goldfinch	Yes	Yes	Yes	Yes
<i>Evening Grosbeak</i>			(y)	Y
[House Sparrow]	Yes	Yes	Yes	Yes