

Chapter 4

LANDBIRD PLAN



OHIO BIRD



CONSERVATION
INITIATIVE

SUMMARY

This chapter is based on the UMRGLRJV Landbird Habitat Conservation Strategy (Potter et al. 2007): http://www.uppermissgreatlakesjv.org/docs/UMRGLR_JV_LandbirdHCS.pdf



Indigo bunting, Photo: ODNR Div. of Wildlife

We have included information from the JV plan that is most applicable to Ohio, but also suggest reviewing the UMRGLRJV plan for detailed information on their biological models, methodologies, and species accounts for UMRGLRJV focal species. Here we summarize Joint Venture (JV) efforts to “step-down” continental landbird conservation priorities to the Joint Venture (JV) region, and we have initiated step-down to a smaller scale, the

state of Ohio. Tables have been modified to reflect only species or information applicable to Ohio. This will ultimately guide conservationists in effectively increasing landscape carrying capacity through the protection, restoration, and enhancement of landbird habitats. Using the UMRGLRJV planning, we have summarized where, what, when and how much habitat is needed to increase and sustain populations of priority landbird species at target levels.

To link population and habitat objectives for this diverse bird group, 16 JV focal species were selected for landbird breeding habitat planning and monitoring (Potter et al. 2007). Each JV focal species represents a primary cover type and landbird guild, an assemblage of species that share similar life requisites. The assumption was that habitat actions designed for JV focal species would accommodate populations of other breeding landbirds dependent on designated cover types. Likewise, foraging guilds that correspond to different cover types were selected for habitat planning during the non-breeding period. These focal species provide the basis for the habitat goals set by the joint venture.

BACKGROUND

The term “landbird” refers to a diverse group of species that are typically associated with non-aquatic habitats (e.g., forests, grasslands, bottomlands, prairies, riparian forests, and shrublands). Birds in this group include: songbirds, woodpeckers, raptors, owls, nighthawks, vultures, nuthatches, swallows, swifts, and hummingbirds. Included here are two shorebirds associated with upland habitat (American Woodcock, Upland Sandpiper).



Cooper's Hawk, Photo: TK Tolford

Ohio has over 170 species of landbirds that regularly breed within the state, with many more that are regular migrants. The Cerulean Warbler and other species of conservation concern breed in large numbers within Ohio, giving the state high responsibility to increase the population within the UMRGLRJV. Although not covered in-depth in this version of the All-Bird Plan, Ohio has important stopover sites for migrating landbirds especially within the Western Lake Erie Basin where songbirds accumulate in continentally significant numbers during migration. For information on stopover habitat, see The Nature Conservancy's report, Migratory Stopover Site Attributes in the Western Lake Erie Basin (Ewert et al. 2006).



Brown-headed cowbird. Photo: ODNR Div. of Wildlife

Important habitats for landbirds have changed dramatically over the past 150 years in Ohio. Early settlers deforested nearly all of Ohio, and wetland and grassland habitats have been strongly modified. The marshes and oak savannas found near Lake Erie were drained or cut down. Changes to Ohio's landscape have come from agriculture, land development, invasive species, strip-mining, and logging. Landscape changes continue with agriculture declining, and urbanization increasing. Although there is more forest cover in Ohio today than in the early 1900's, forested landscapes are more fragmented, which can result in higher rates of nest predation and brood parasitism by Brown-headed Cowbirds. Grassland birds have been heavily affected by loss of grassland and the switch to industrial farming (e.g., Henslow's Sparrow, Dickcissel, Eastern Meadowlark) (Table 1), whereas Cerulean Warblers have declined precipitously within declines in mature deciduous forests.

Table 1. Modified from the UMRGLRJV Landbird Conservation Strategy Plan. Shows breeding population trends for species that breed within Ohio and are considered continental priority species by the North American Landbird Conservation Plan (Rich et al. 2004). Trends are estimated from Breeding Bird Survey Data (Sauer et al. 2005).

Species	JV focal species	Trend			Trend		
		1966-2004	p-value ^a	n ^b	1995-2004	p-value	n
Upland Sandpiper	x	-0.8	0.43	191	3.1	0.19	90
American Woodcock	x	-2.4	0.76	33	-15.1	0.10	7
Short-eared Owl		5.9	0.00	8	57.3	0.29	3
Whip-poor-will^c	x	-2.4	0.03	136	-1.9	0.41	52
Chimney Swift	x	-1.8	0.00	529	-3.3	0.00	430
Red-headed Woodpecker	x	-4.1	0.00	468	-4.6	0.00	326
Willow Flycatcher	x	-0.5	0.31	340	1.0	0.27	247
Bell's Vireo		-4.4	0.22	75	4.0	0.40	34
Wood Thrush	x	0.3	0.32	451	2.1	0.00	333
Blue-winged Warbler	x	0.7	0.51	142	-2.7	0.10	100
Golden-winged Warbler	x	-1.4	0.04	103	-7.5	0.00	63
Cerulean Warbler	x	-6.3	0.00	68	-9.2	0.07	33
Prothonotary Warbler	x	1.1	0.18	44	6.6	0.02	32
Worm-eating Warbler		3.8	0.04	35	2.9	0.64	26
Louisiana Waterthrush	x	4.1	0.04	58	-0.2	0.97	32
Kentucky Warbler	x	0.8	0.11	119	-0.5	0.83	92
Yellow-breasted Chat	x	-1.3	0.01	225	0.3	0.71	155
Henslow's Sparrow	x	-7.7	0.00	106	5.7	0.33	41
Dickcissel		-3.0	0.00	382	-0.4	0.63	297
Rusty Blackbird		na	na	na	na	na	na
Eastern Meadowlark	x	-2.5	0.00	527	-2.5	0.00	450

^ap-values represent confidence in trend direction with values closer to 0.0 reflecting a stronger trend; for example, values <0.05 reflect >95% confidence in trend direction.

^bn = number of BBS routes used for UMRGLRJV regional trend average.

^cbold species have a significant negative trend.

PLANNING FRAMEWORK

The UMRGLRJV Landbird Habitat Conservation Strategy Plan used the Partners in Flight “five element process” to design landscapes (Will et al. 2005). The five elements include: 1) landscape characterization and assessment, 2) bird population modeling, 3) conservation opportunities assessment, 4) landscape design and 5) monitoring and evaluation. The UMRGLRJV produced population status and goals for all focal species but ultimately used a focal species approach for planning with each species representing a different community type. Population estimates, population goals, and population deficit are given for each focal species for conservation planning. Using these goals, the UMRGLRJV set specific, biologically driven habitat goals that each state within the JV should try to reach, broken down by bird conservation region.

The following information needs were identified by the UMRGLRJV (Potter et al. 2007):

- Identify and map important breeding (source populations), migration, and winter habitats for species of conservation concern in the JV.

- Use biological models to link population goals with habitat objectives.
- Identify and map areas where habitat should be restored or maintained to meet population objectives.
- Clearly identify the habitat needs of JV focal species at multiple spatial scales (landscape to local) so that site-specific management contributes to species needs across all scales.
- Identify the consequences of specific land management actions on landbirds of conservation concern.
- Consider issues outside the JV region such as events during migration or on the wintering grounds that may affect bird populations of concern, and improve inter-JV collaboration.
- Map critical migration habitat for protection, where isolated forest patches, stretches of Great Lakes shoreline, and north-south riparian corridors are most needed for stopover areas.
- Provide guidance to those implementing the U.S. Farm Bill and other landscape scale land management programs to assure substantive contributions to bird population goals identified in this strategy are achieved (e.g., Conservation Reserve Program and Wetland Reserve Program).

Population Goals and Focal Species

The UMRGLRJV has provided population goals for focal species within the region (Table 2) and the typical habitat that each focal species is found in (Table 3). Focal species are representative of a certain habitat type, with the assumption that they would represent other species found in the same cover type. Specifically, the UMRGLRJV chose species that would be less sensitive to habitat structure, landscape, and habitat management. A summary of information of UMRGLRJV landbird focal species for in Ohio is given in Appendix E. For more detailed information on these focal species, see Appendix A in Potter et al. (2007).

Table 2. Population estimates, goals, deficits and habitat objectives (km²) for 15 focal species breeding in UMRGLRJV and Ohio (Potter et al. 2007). Data are presented by BCR for both the entire UMRGLRJV and the BCR within Ohio.

Species	UMRGLRJV population information for BCRs			Ohio population information		Relative concentration	Ohio habitat objectives in km ²	
	Estimate	Goal	Deficit	Estimate	Deficit		Protection	Restoration
Upland Sandpiper ^a								
BCR 22	33,000	45,000	12,000	na	na	na	1	0
Total	33,000	45,000	12,000	na	na	na	1	0
American Woodcock ^b								
BCR 13	13,200	24,100	10,800	13,200	18,100	na ^b	2,360	780
BCR 22	62,700	100,600	37,900	14,400	21,100	na	1,100	1,610
BCR 24	11,900	20,300	8,400	200	0	na	140	0
BCR 28	na ^b	na ^b	na ^b	8,700	10,000	na	1,500	1,370
Total	860,000	1,070,000	212,000	36,500	49,200	na	5,100	3,760
Whip-poor-will								
BCR 28	12,000	18,000	6,000	12,000	6,000	0.39	1,348	674
Total	12,000	18,000	6,000	12,000	6,000		1,348	674
Chimney Swift								

Species	UMRGLRJV population information for BCRs			Ohio population information		Relative concentration	Ohio habitat objectives in km ²	
	Estimate	Goal	Deficit	Estimate	Deficit		Protection	Restoration
BCR 13	180,000	270,000	90,000	180,000	90,000	8.21	9,184	4,592
BCR 22	2,093,200	3,105,100	1,011,900	330,000	120,000	6.32	16,837	6,122
BCR 24	343,600	515,400	171,800	3,600	1,800	2	184	92
BCR 28	270,000	410,000	140,000	270,000	140,000	9	13,776	7,143
Total	2,886,800	4,300,500	1,413,700	783,600	351,800		39,981	17,949
Red-headed Woodpecker								
BCR 13	9,000	18,000	9,000	9,000	9,000	0.41	750	750
BCR 24	9,000	18,000	9,000	24,000	24,000	0.46	2,000	2,000
BCR 28	76,000	152,000	76,000	2,200	2,200	0.07	183	183
Total	94,000	188,000	94,000	35,200	35,200		2,933	2,933
Willow Flycatcher								
BCR 13	46,000	69,000	23,000	46,000	23,000	2.1	2,556	1,278
BCR 22	141,360	213,600	72,240	40,000	20,000	0.77	2,222	1,111
BCR 24	10,870	16,760	5,890	380	190	0.2	21	11
BCR 28	42,000	63,000	21,000	42,000	21,000	1.36	2,333	1,167
Total	240,230	362,360	122,130	82,380	41,190		4,576	2,289
Wood Thrush								
BCR 13	66,000	99,000	33,000	66,000	33,000	3.01	660	330
BCR 22	210,130	312,350	102,220	76,000	34,000	1.46	760	340
BCR 24	250,000	375,000	125,000	12,000	6,000	6.25	120	60
BCR 28	430,000	650,000	220,000	430,000	220,000	13.91	4,300	2,200
Total	956,130	1,436,350	480,220	518,000	260,000		5,180	2,600
Blue-winged Warbler								
BCR 13	7,600	11,000	3,400	7,600	3,400	0.35	152	68
BCR 22	4,230	6,300	2,070	900	500	0.02	18	10
BCR 24	7,500	11,300	3,800	1,500	800	0.78	30	16
BCR 28	41,000	62,000	21,000	41,000	21,000	1.33	820	420
Total	60,330	90,600	30,270	51,000	25,700		1,020	514
Cerulean Warbler								
BCR 13	18,000	36,000	18,000	18,000	18,000	0.82	375	375
BCR 22	4,300	8,600	4,300	2,800	2,800	0.05	58	58
BCR 24	19,850	39,700	19,850	850	850	0.44	18	18
BCR 28	54,000	108,000	54,000	54,000	54,000	1.75	1,125	1,125
Total	96,150	192,300	96,150	75,650	75,650		1,576	1,576
Prothonotary Warbler								
BCR 22	26,810	40,215	13,405	140	70	0	2	1
BCR 28	120	180	60	120	60	0	2	1
Total	26,930	40,395	13,465	260	130		4	2
Louisiana Waterthrush								
BCR 22	4,140	4,140	0	220	0	0	55	0
BCR 24	6,500	6,500	0	1,100	0	0.57	275	0
BCR 28	6,200	6,200	0	6,200	0	0.2	1,550	0
Total	16,840	16,840	0	7,520	0		1,880	0

Species	UMRGLRJV population information for BCRs			Ohio population information			Ohio habitat objectives in km ²	
	Estimate	Goal	Deficit	Estimate	Deficit	Relative concentration	Protection	Restoration
Kentucky Warbler								
BCR 13	60	90	30	60	30	0	1	1
BCR 22	20,570	30,885	10,315	1,100	550	0.02	26	13
BCR 24	61,700	92,550	30,850	1,700	850	0.89	40	20
BCR 28	116,330	174,525	58,195	34,000	17,000	1.1	810	405
Total	198,660	298,050	99,390	36,860	18,430		877	439
Yellow-breasted Chat								
BCR 13	6,400	6,400	0	6,400	0	0.29	64	0
BCR 22	89,800	89,800	0	9,800	0	0.19	98	0
BCR 24	242,000	242,000	0	14,000	0	7.3	140	0
BCR 28	150,000	150,000	0	150,000	0	4.85	1,500	0
Total	488,200	488,200	0	180,200	0		1,802	0
Henslow's Sparrow								
BCR 13	350	700	350	350	350	0.02	3	3
BCR 22	19,030	38,060	19,030	600	600	0.01	5	5
BCR 24	7,540	15,080	7,540	200	200	0.1	2	2
BCR 28	5,000	10,000	5,000	5,000	5,000	0.16	44	44
Total	31,920	63,840	31,920	6,150	6,150		54	54
Eastern Meadowlark								
BCR 13	30,000	60,000	30,000	30,000	30,000	1.37	375	375
BCR 22	1,399,300	2,798,600	1,399,300	87,000	87,000	1.67	1,088	1,088
BCR 24	114,100	228,200	114,100	2,100	2,100	1.09	26	26
BCR 28	36,000	72,000	36,000	36,000	36,000	1.16	450	450
Total	1,579,400	3,158,800	1,579,400	155,100	155,100		1,939	1,939

^aPopulation estimate, goal, deficit, relative concentration not provided for species in Ohio (Potter et al. 2007).

^bPopulation estimate, goal, deficit for singing males based on American Woodcock Conservation Plan (Kelley et al. 2008). Values not provided in table were not included in the woodcock plan.

Table 3. UMRGLRJV focal landbird species and the habitats where they occur. Table only shows focal species that regularly breed within Ohio.

Species	Deciduous forest	Woody wetland	Mixed forest	Scrub	Grassland	Savanna	Residential Commercial
Upland Sandpiper					X		
American Woodcock				X			
Whip-poor-will	X		X				
Chimney Swift	X						X
Red-headed Woodpecker	X					X	
Willow Flycatcher		X		X			
Wood Thrush	X		X				
Blue-winged Warbler				X			
Cerulean Warbler	X						
Prothonotary Warbler		X					
Louisiana Waterthrush	X						
Kentucky Warbler	X						
Yellow-breasted Chat				X			
Henslow's Sparrow					X		
Eastern Meadowlark					X		

HABITAT GOALS AND OBJECTIVES

Habitat Goals

Protecting large and intact landscapes will most likely protect and maintain avian populations. Also, these landscapes are most likely to work as source populations that can possibly drive metapopulations. Conserving the largest and most intact landscapes or habitat patches will result in the best benefits to avian populations.

Habitat goals and objectives are based on desired population numbers for the JV focal species. Specifically, these goals are based on breeding habitat for landbirds because the JV could use simple models to generate habitat goals. Stopover habitat was not considered in the initial version of the JV plan but will be added in other versions. The focal species approach to derive habitat goals assumes that protecting and enhancing for focal species will also enhance populations for other landbird species. Habitat objectives derived by the UMRGLRJV will be refined as more information about focal species becomes available.

Maintenance and Protection Objectives

Maintenance and protection objectives were based on habitat needs of the landbird focal species (Table 4). For BCR's that had more than one focal species that represented the same habitat type, the JV used the one with greatest need within each BCR. Maintenance and protection goals for Ohio include maintaining and protecting 1,092 km² of deciduous forest, 4 km² of forested wetland, 5,100 km² of shrublands, 1,939 km² of grassland and 2,933 km² of mixed-wooded openland (Table 4.) Areas to emphasize for grassland and mixed openland habitats (Chapter 5, Figure 1), evergreen and mixed forest habitats (Chapter 5, Figure 2), deciduous forest habitats (Chapter 5, Figure 3), and forested wetland habitats (Chapter 5, Figure 4) were based on JV focal species.

Table 4. Maintenance and Habitat protection goals for Ohio and the UMRGLRJV region presented by (Bird Conservation Region (BCR) and cover type in km². See Table 1 in Chapter 5 for habitat descriptions.

	BCR	Deciduous forest ^c	Forested wetland	Shrubland	Grassland	Mixed wooded openland
Ohio	13	209	0	2,360	375	750
	22	33	2	1,100	1,088	2,000
	24	40	0	140	26	0
	28	810	2	1,500	450	183
	Total	1,092	4	5,100	1,939	2,933
All States	12	606	0	21,900	1,193	908
	13	209	0	2,360	375	750
	22	506	419	5,039	17,592	61,826
	23	115	54	6,532	3,177	10,709
	24	1,583	217	3,320	1,426	6,333
	28	810	2	1,500	450	183
	Total	3,829	692	40,651	24,213	80,709

Restoration and Enhancement Objectives

The UMRGLRJV restoration and enhancement goals were based on focal species population deficits and habitat models. The term “restoration” implies converting a human altered landscape to a community type that would benefit the focal or target species. With any restoration or enhancement work, landscape context and capabilities are always important considerations, and these include current cover, hydrology, and historical vegetation.

The UMRGLRJV restoration and enhancement goals for Ohio include maintaining and protecting an additional 890 km² of deciduous forest, 2 km² of forested wetland, 2,826 km² of shrublands, 1,939 km² of grassland and 193 km² of mixed-wooded openland (Table 5). Using land cover classes and focal species model, the JV has put together figures to help determine important areas for bird conservation (Chapter 5, Figures 1-4).

Table 5. Restoration and enhancement goals for Ohio by BCR and for all of the UMRGLRJV by cover type in km². See Table 1 in Chapter 5 for habitat descriptions.

		Forest	Deciduous forest	Forested wetland	Shrubland	Grassland	Mixed wooded openland
Ohio	13	0	209	0	780	375	750
	22	0	33	1	1,610	1,088	2,000
	24	0	20	0	16	26	0
	28	0	628	1	420	450	183
	Total	0	890	2	2,826	1,939	2,933
All States	12	4,133	19	0	3,560	1,193	908
	13	0	209	0	780	375	750
	22	0	277	209	2,861	17,592	61,826
	23	687	115	26	6,120	3,177	10,709
	24	0	735	108	2,090	1,426	6,333
	28	0	628	1	420	450	183
	Total	4,820	1,983	344	15,831	24,213	80,709

Conservation Strategies

Several strategies were identified by the UMRGLRJV (2007) to provide land managers with guidelines for maintaining and increasing landbird populations of conservation concern. These strategies have been adapted for Ohio and are included below:

- Promote “best practices” guidelines for land managers and promote planning across ownerships to ensure viable breeding populations of all landbirds in the region.
- Promote planning across joint ventures, state, and international boundaries.
- Promote private lands services within Ohio and within associated JV regions.
- Focus on land supporting viable populations of focal species, in relatively unfragmented landscapes >10,000 ha that have the fewest threats (e.g., low deer density, few invasive plants, low probability of being degraded; see Appendix D in Potter et al. 2007).
- Focus conservation efforts on landscapes that are >70% intact (undeveloped) and contain core sites with source populations of focal species. Landscapes with <70% cover should also be conserved if focal species habitat needs are met, especially if few or no landscapes meet the 70% criteria. In landscapes with <70% in cover, retain or increase size of forest and grassland tracts to enhance population viability (Pashley et al. 2000).
- Create coordinated conservation programs in countries where migrants winter and migrate, including identification and conservation of key sites (Rich et al. 2004).
- Identify and/or maintain critical breeding areas for Blue-winged Warbler, Cerulean Warbler, Kentucky Warbler, Louisiana Waterthrush, Yellow-breasted Chat, and Henslow’s Sparrow since UMRGLRJV is particularly important to breeding populations (>50% of the breeding population; Pashley et al. 2000).
- Areas where stopover sites are especially needed include Great Lakes shorelines and islands. These areas often will be different than sites important for breeding birds and require different conservation strategies (Ewert et al. 2006). Conservation strategies needed to maintain a network of stopover sites in the JV region include:

- Seek partnerships to create vegetation patches on small parcels, privately owned or municipal lands along the Lake Erie shoreline.
- Along Lake Erie, protect as much natural and restored habitat within 0.4 km of the lake edge and sites that are more than 4 km from other vegetation on the shoreline (Ewert et al. 2006).
- Near Lake Erie, in agriculture or urban areas, identify the most isolated natural and restored vegetation patches. Create strategies to protect and enhance these patches, especially those >4 km from other habitat.

RESEARCH NEEDS

Priority research needs were identified in the Landbird Habitat Conservation Strategy (Potter et al. 2007) for the Upper Mississippi River and Great Lakes Joint Venture. The five research objectives below are listed in order of importance. See Potter et al. (2007) for additional details.

Research objective 1. Identify landscape and habitat characteristics (e.g., composition, structure, configuration) associated with high productivity and/or survivorship, including source populations.

Research objective 2. For migrating birds, identify a network of sites to meet their energetic needs. Document key landscape and site-level features at important stopover sites, especially near the Great Lakes and in agricultural and urban settings. This information is needed to better manage habitats for migrant landbirds.

Research objective 3. Improve understanding of habitat requirements, management needs, and landscape attributes for species of high conservation concern. Information is needed to develop site specific management protocols for bird population maintenance and restoration.

Research objective 4. Quantify fine scale site characteristics important to JV focal species by providing information for explicit habitat prescriptions and identifying research/monitoring needs for fine scale characteristics that are unknown. This information is needed to develop site specific management protocols for bird population maintenance and restoration.

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