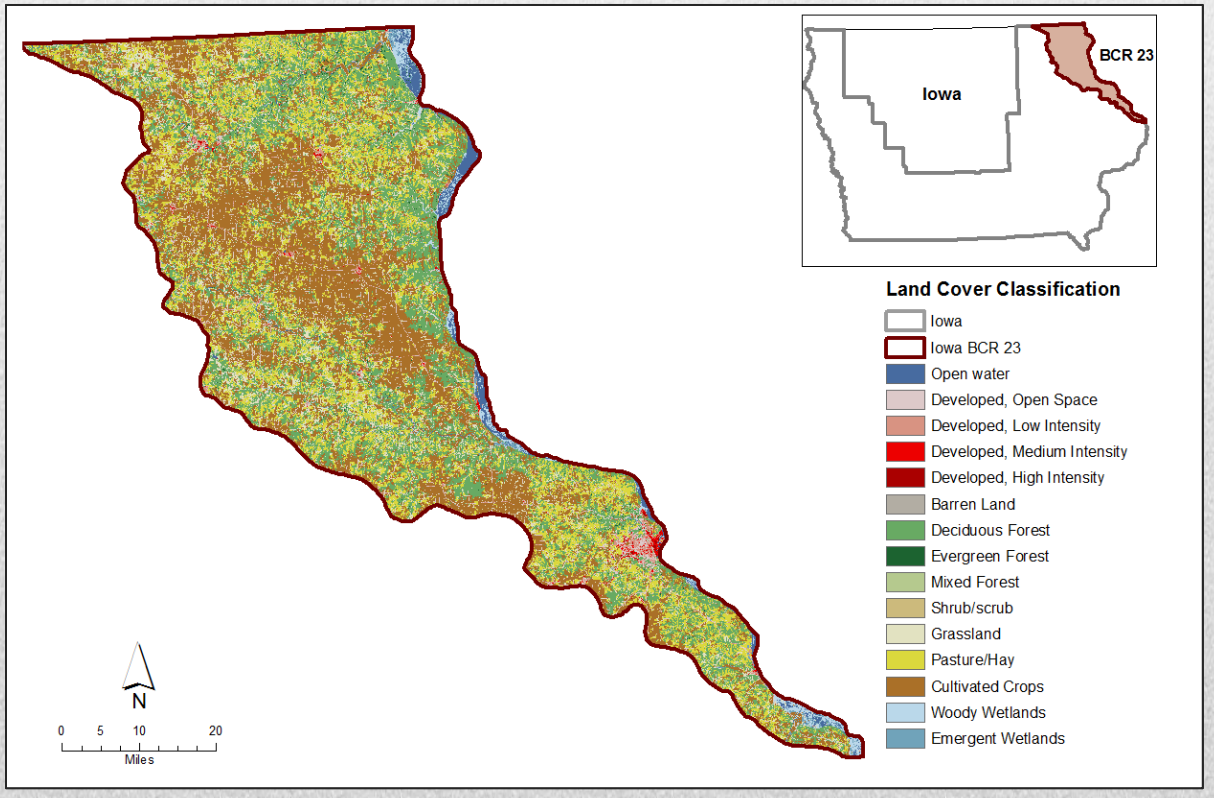
UPPER MISSISSIPPI RIVER & GREAT LAKES REGION
JOINT VENTURE
Delivering bird conservation through partnerships

Iowa BCR 23 – Assessment Summary

Bird conservation Joint Ventures (JVs) were established to help achieve continental bird population goals by designing and managing landscapes with high value to birds at regional, state, and local scales. JVs develop Implementation Plans where "focal species" are used to represent guilds and biological models are employed to translate population objectives into habitat objectives. This summary includes highlights from a JV assessment of bird habitat objectives and landscape trends in the Iowa BCR 23 (IA-23) "State x Bird Conservation Region." Objectives in the 2007 JV Implementation Plan were developed using spatial data from 2001, and JV partners have reported significant conservation accomplishments since objectives were established. However, trends in landscape cover types suggest mixed results in maintaining and increasing those land covers associated with key bird habitats. We provide general landscape trends based on the National Land Cover Database (2001 to 2006), comparisons between JV bird habitat objectives and cover type availability, and broad implications of those land-cover trends to bird habitat conservation. **Please see the complete IA-23 assessment for more details.**



Primary cover-types

IA-23 is dominated by row crop (33%), pasture/hay/grassland (32%), and upland forest (24%). Urban cover in also extensive (6% overall) in some areas. Emergent wetlands have increased (+2,000 ac) in recent years and urban land (+1,500 ac) also expanded, whereas total acreage of pasture/hay/grassland (-1,500 ac) and row crop (-1,400 ac) declined slightly between 2001 and 2006.

Comparison (acres) of Joint Venture bird habitat objectives (maintenance and restoration combined, from 2007 JV Plan) and estimated cover type availability (NLCD 2006) and trend (NLCD 2001 to 2006) in Iowa Bird Conservation Region 23. Wetland and open water availability based on NWI, not NLCD. Note: Bird "conservation objectives" represent quality habitats (high recruitment/high survival) needed for JV focal species whereas "cover type availability" reflects cover types on the landscape not necessarily quality habitats.

Habitat/cover types	Conservation objective	Cover type availability	Short-term land cover trend (%)
Openland and woodland			
Grassland	46,436	175,229	-0.3
Savanna	386,802	n/a	n/a
Deciduous forest	0	427,988	-0.1
Evergreen forest	0	7,225	-0.6
Shrubland	0	584	2.9
Other forest	0	47	6.0
Marsh, mudflat, and open water			
Emergent wetland	16,816[a]	7,161	21.8
Woody wetland	1,257[b]	28,143	2.6
Dry mudflat	5,017	590,889[c]	-0.2
Open water	4,493	49,221	-2.1

[a] Includes habitat objectives for several focal species combined: shallow semi-permanent marsh, wet meadow with open water, wet mudflat/moist soil, shallow water depth (<2 in), and moderate water depth (2-8 in) subcategories.

[b] Includes habitat objectives for multiple focal species combined: marsh with associated shrub/forest and forested wetlands.

[c] Area of row crop, which can provide some value to dry mudflat bird species.

Management Implications

Openland:

- Grassland area appears adequate to meet breeding grassland bird objectives, but savanna (mixed wooded openland) area could not be determined with NLCD spatial data.
- Future grassland abundance will be largely related to private land management (e.g., CRP), and recent high commodity prices will likely result in conversion of some grassland to row crops.
- Strategically placed grassland, savanna, and shrubland restoration can help achieve bird conservation goals while also reducing nutrient loading in waterways that contribute to hypoxia in the Gulf of Mexico.

Woodland:

- Species dependent on forest cover have a substantial habitat base in IA-23. Although habitat objectives were not established for forest-dependent landbirds in the 2007 JV Plan, maintaining forest-bird habitat, especially migration corridors along river systems should be a management priority.

Marsh, mudflat, and open water:

- Despite recent gains, the estimated area of shallow and deep marsh wetland remains below the amount needed to meet JV focal species habitat objectives.
- The current areas of open water and mudflat appear adequate to meet habitat objectives for JV focal species and deep marsh is nearly adequate. However, the quality (high survival and reproduction) of these potential bird-habitats could not be assessed using available data and most are unprotected; “dry mudflat” availability is simply the area of row crop, which may provide some value in spring.
- IA-23 partners should continue to restore and expand emergent marsh protection, plus enhance quality of wetland bird habitat, including implementing control of invasive plants (e.g., *Phragmites australis*) where needed.

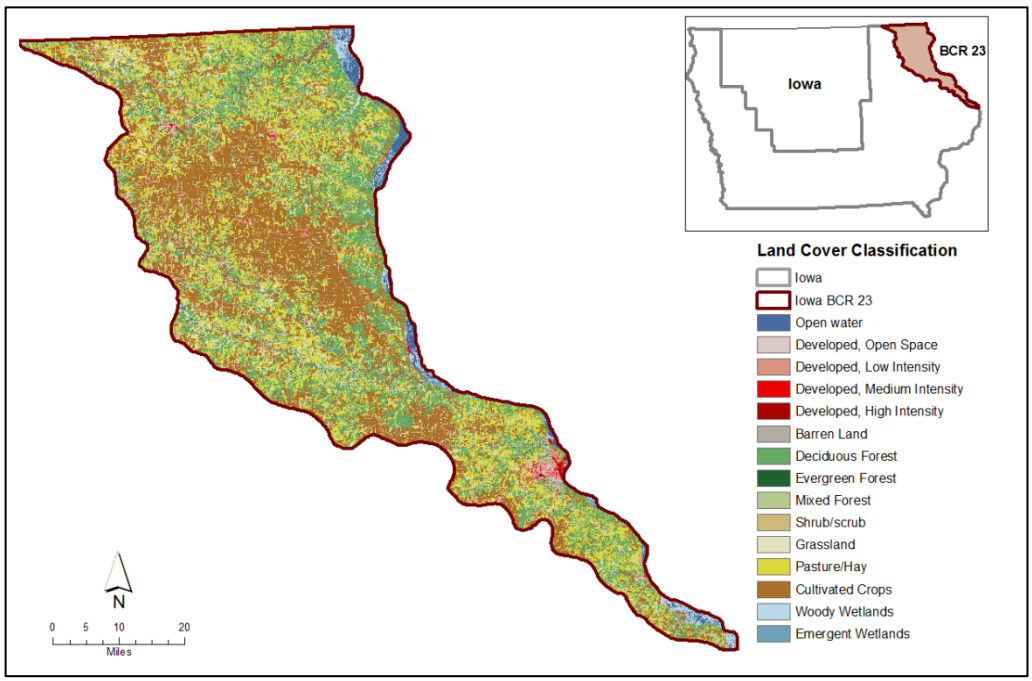
UPPER MISSISSIPPI RIVER & GREAT LAKES REGION
JOINT VENTURE
Delivering bird conservation through partnerships

State by BCR Assessment

Iowa 23 –Prairie Hardwood Transition

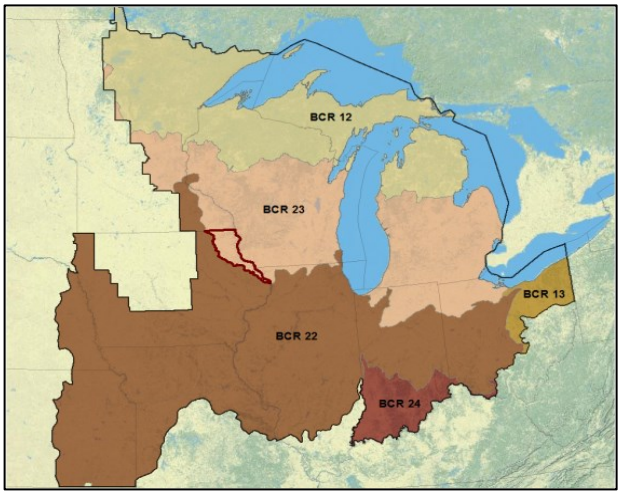
This document was developed to serve as a stepped-down version of the 2007 Joint Venture (JV) Implementation Plan with focus on Iowa BCR 23, the State x Bird Conservation Region encompassing northeastern Iowa. It includes lists of bird species used for JV regional planning (i.e., focal species) that represent land cover types, or bird habitat associations, important to bird guilds occurring in IA-23. Bird habitat (cover type) objectives are presented for maintenance/protection and restoration/enhancement based on the 2007 JV Plan.

Spatial data were not available to assess each bird habitat type identified in the JV Plan, but recent trends in broad land cover categories believed to be important to JV focal species are provided. Land cover trend analyses are based on quantities (acres) calculated from the 2001 and 2006 National Land Cover Database (NLCD). Although area estimates do not translate into high quality bird habitats, significant increases or decreases in specific cover types likely result in similar population trends for species associated with those cover types. Also included in this assessment are the amount and location of land currently protected, primary modes of recent cover type conversion, and general management implications for IA-23 bird conservation partners.



JV focal species were selected to facilitate planning and monitoring when developing the 2007 Implementation Plan. Population and habitat objectives for landbirds and waterbirds included the breeding period only, whereas objectives generated for waterfowl and shorebirds also included the non-breeding period (migration/winter). The following JV focal species represent bird guilds requiring specific cover types found in IA-23 (species within guild may be more common than focal species, see 2007 JV Plan).

Landbird	Waterbird
Whip-poor-will	Black-crowned Night-Heron
Chimney Swift	Yellow Rail
Red-headed Woodpecker	King Rail
Willow Flycatcher	Black Tern
Wood Thrush	
Eastern Meadowlark	
Shorebird	**Waterfowl**
American Golden-Plover	Tundra Swan
Killdeer	Wood Duck
Upland Sandpiper	American Black Duck
Sanderling	Mallard
Dunlin	Blue-winged Teal
Short-billed Dowitcher	Canvasback
Wilson's Snipe	Lesser Scaup
Wilson's Phalarope	



Bird Conservation Regions (BCR's) in the Upper Mississippi River and Great Lakes JV region.

Introduction

A primary goal of bird conservation Joint Ventures is to achieve continental bird population targets by designing landscapes with greater value to birds and employing conservation actions at regional, state, and smaller scales. To contribute to this goal, the UMRGLR JV developed an all-bird Implementation Plan in 2007, which included explicit regional bird population and habitat conservation objectives. These objectives were created by sequentially stepping-down continental population goals to the JV region, Bird Conservation Regions (BCRs), and the intersections of states and BCRs (e.g., IA-23). This "top-down" planning process relied on accurate population estimates and biological models to determine the amount of high quality habitat area needed to achieve bird population goals. A key assumption of the planning process was that goal populations could be achieved with current and potential bird habitat cover types available on the landscape. JV planners also assumed exiting bird habitats would remain available through time, but given the dynamic nature of some landscapes, this is not always the case.

Compared to the 2007 JV Implementation Plan, this complementary document includes updated and refined information to help guide IA-23 managers in decision making for bird habitat conservation. Its primary purpose was to use existing spatial data to evaluate the suitability of established focal species habitat objectives by comparing them with the area of cover type associated with that species (i.e., capacity of the landscape to support the objectives). Spatial data used in this analysis were the National Land Cover Database (NLCD) and National Wetland Inventory (NWI), however these data are imperfect. Classification accuracy is 80-85% but lower for some cover types such as grassland, shrubland, and pasture/hay. In addition, these spatial data do not necessarily identify "high quality" bird habitats, where focal species abundance, survival and reproduction are relatively high. Despite these inadequacies, NLCD and NWI are useful for indicating current land use and patterns of change, and they are sufficient for identifying gross disparities between the JV's bird habitat objectives and available land covers. Updated cover type information, coupled with new bird research and monitoring data and JV partner priorities, will be used to improve future versions of the JV Implementation Plan.

Land Cover Change

Bird habitat objectives and decision-support maps in the 2007 JV Plan were developed using population information and 2001 NLCD. Although NLCD categories were often more general than JV habitat categories, NLCD (supplemented with NWI) provided a source of spatial data for the whole JV region. However, smaller-scale landscape conditions, trends in land cover, or how these conditions might correspond with JV objectives were not considered. Landscapes are not static, which inevitably has a strong bearing on the attainability of bird habitat objectives. As such, this assessment aims to provide a better understanding of land cover conditions in IA-23 and to illustrate how the landscape has changed since development of the 2007 JV Plan. Periodic assessment of landscape conditions allows us to identify land cover trajectories and provides a means to continually reevaluate the feasibility of achieving bird population and habitat objectives. Further, knowledge of whether we are gaining or losing priority bird habitats and where on the landscape this change is occurring provides managers with an additional tool to assist in focusing on-the-ground conservation efforts.

Table 1. General land cover types (acres) and percent change between 2001 and 2006 in Iowa BCR 23 based on NLCD. Note: The correct classification rate of NLCD is 80 to 85%; misclassification often occurs between pasture and grassland categories and forested wetlands and upland forest categories.

	Year			
Cover Type	2001	2006	% change	Acres gained/lost
Open Water	42,414	41,537	-2.1	-877
Urban	101,323	102,850	1.5	1,527
Barren	929	891	-4.1	-38
Upland Forest	435,972	435,669	-0.1	-303
Shrub/Scrub	569	586	2.9	16
Grassland/Hay/Pasture	587,577	586,060	-0.3	-1,517
Grassland	176,059	175,229	-0.5	-830
Row Crops	592,294	590,899	-0.2	-1,395
Wetlands	31,851	34,437	8.1	2,586
Emergent Wetlands	9,138	11,125	21.8	1,988
Woody Wetlands	22,713	23,312	2.6	598
Total	1,792,928	1,792,928		

IA-23 is dominated by row crop, hay and pasture, upland forest, and grassland (Table 1).[1] Grassland and hay/pasture declined slightly between 2001 and 2006, accounting for a 1,500 acre loss. Likewise, row crop area declined by nearly 1,400 acres. Conversely, urban cover increased by 1,500 acres, roughly the footprint of Backbone State Park (Iowa's oldest). Gains in urban cover came primarily from land previously in agriculture and grassland (Figure 1, Table 2) and this change represents permanent habitat loss for some JV focal species. While most row crop conversion to urban cover occurred adjacent to metropolitan areas, gains in wetland were primarily along the Mississippi River; some of this increase may have been temporary, a result of higher precipitation in 2006. Relative to other areas in the JV region, IA-23 primary land covers were largely stable in area between 2001 and 2006.

[1] To evaluate landscape change, we compared satellite imagery (NLCD) of IA-23 between 2001 and 2006. We used ArcGIS to determine whether a given pixel (30 x 30 m resolution) changed from one cover type to another. We collapsed cover types into eight distinct categories; open water, urban, barren, upland forest, shrub/scrub, grassland/hay/pasture, row crops, and wetlands. Although coarse, these broad cover types provide a good indication of landscape composition and a means for prioritizing finer scale analyses.

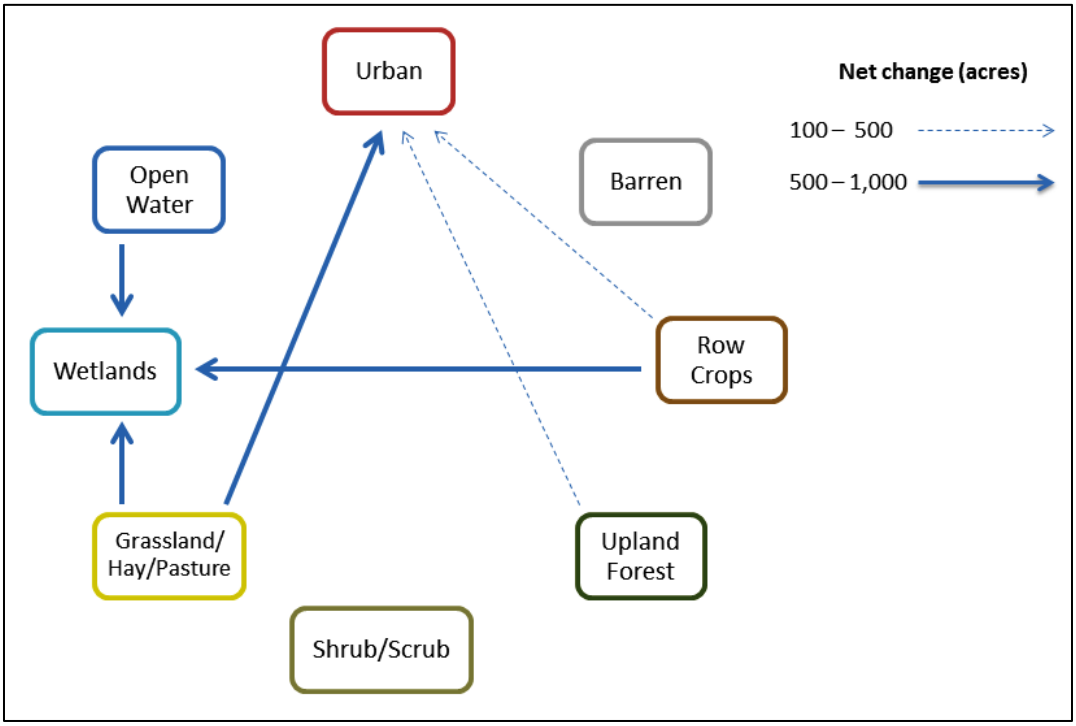


Figure 1. Net change of general land cover types (>1,000 acres converted) in Iowa BCR 23 between 2001 and 2006 (NLCD). Arrows point in the direction of change between two cover types and line thickness increases in proportion to amount of net change. "Wetlands" include woody and emergent herbaceous wetland, whereas "upland forest" represents upland (non-wetland) forest cover.

Table 2. Conversion (acres) of primary land cover types in Iowa BCR 23 between 2001 and 2006. Grey cells represent the acreage in which no change occurred, whereas remaining cells represent the area of 2001 cover types (vertical axis) coverted to other cover types by 2006 (horizontal axis). For example, between 2001 and 2006, an estiamted 1,652 acres of open water converted to wetland and 673 acres of wetland converted to open water, for a net gain of 979 wetland acres (also see Figure 1). Note: The correct classification rate of NLCD is 80 to 85%; misclassification often occurs between pasture and grassland categories and forested wetlands and upland forest categories.

Land Cover Type		2006							
		Open Water	Urban	Barren	Upland Forest	Shrub/Scrub	Grassland/ Hay/Pasture	Row Crops	Wetlands
2001	Open Water	40,571	36	0	9	0	1	76	1,652
	Urban	0	101,158	0	0	0	0	0	0
	Barren	2	32	880	0	0	2	10	1
	Upland Forest	24	135	7	434,931	3	82	20	58
	Shrub/Scrub	0	1	0	0	562	0	3	2
	Grassland/Hay/Pasture	85	882	0	10	17	584,944	20	659
	Row Crops	114	428	0	8	3	41	589,803	929
	Wetlands	673	10	2	0	0	32	1	31,081

Bird Habitat Objectives and Cover Type Availability

JV bird habitat conservation objectives fall under two categories: "maintain and protect" (here after maintenance) and "restore and enhance" (hereafter restoration). Maintenance objectives reflect estimated area of habitat needed to maintain current bird populations, whereas restoration objectives were generated based on population deficits (deficit = population goal - current population) and reflect the amount of new habitat needed to achieve JV population goals. For each category, there are breeding and non-breeding bird habitat objectives. Breeding objectives were established for all four bird groups – waterfowl, waterbirds, shorebirds, and landbirds – whereas non-breeding (migration and wintering) objectives were developed for only shorebirds and waterfowl. Breeding habitat was calculated based on cover-type area needed for successful reproduction and non-breeding habitat was based on food-energy needs critical to survival.

The area of cover types potentially providing bird habitat was estimated using the National Wetland Inventory for wetlands and National Land Cover Database (NLCD 2006) for upland / openland. Location and ownership of public lands was also assessed. Spatial data from the Protected Areas Database (PAD), the Conservation and Recreation Lands Database (CARL), and the National Conservation Easement Database were pooled to display IA-22 protected land configuration and ownership composition (Figure 2). In December 2013, 1.47 million acres were enrolled in the Conservation Reserve Program (CRP) in Iowa with roughly 517,000 acres scheduled to expire by 2018. We were unable to partition total Iowa CRP acreage to the IA-23 portion of the state or assess the land cover composition of CRP lands due to privacy protections in the U.S. Farm Bill.

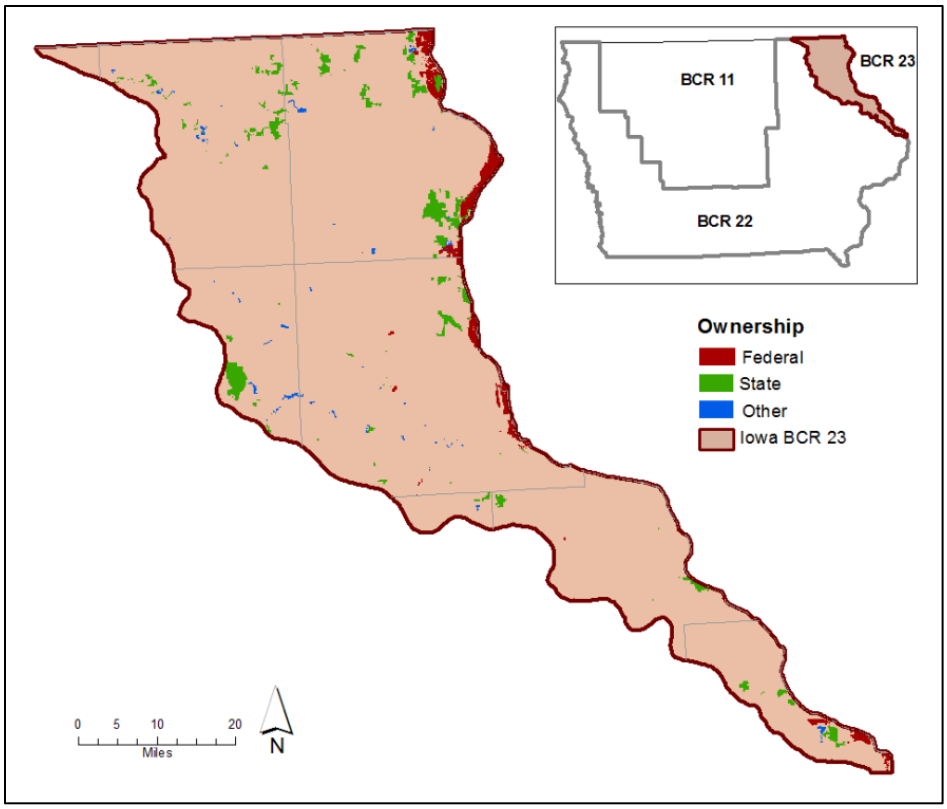


Figure 2. Location of federal, state, or other conservation lands in Iowa Bird Conservation Region 23. "Other" ownership category includes private land with temporary and permanent easements, conservancy land, and county, township and city owned land. Total land area conserved is about 82,000 acres (excluding CRP), including 52,800 woodland/grassland acres and 27,900 acres of open water, marsh wetland, and row crop.

Openland and Woodland

Grassland and savanna openlands were the primary focus for IA-23 upland bird conservation in the 2007 JV Implementation Plan. Although the region contains substantial forest area and woodland bird populations, habitat objectives for woodland cover types were not established in the 2007 Plan. This will likely change in future planning efforts for landbirds, especially as JV planning expands to include the non-breeding period.

Landbird cover types and focal species	
Deciduous forest	Whip-poor-will, Wood Thrush
Forest generalist	Chimney Swift
Shrubland	Willow Flycatcher
Grassland	Upland Sandpiper, Eastern Meadowlark
Savanna	Red-headed Woodpecker

Openland.—The estimated amount of openland/grassland needed in a high quality habitat condition to maintain current landbird populations is 216,600 acres (Table 3). An additional 216,600 acres of restored high quality habitat are required to achieve landscape carrying capacity for goal populations of openland birds. This represents 24% of the total area of IA-23 and considerably more land than is currently under federal, state or other protection (Table 3). The majority (89%) of this estimated habitat need is to maintain and increase landbird populations occupying savanna (mixed wooded openland).

Table 3. Upland bird habitat maintenance and restoration objectives (acres) by primary openland and woodland cover types and the estimated amount of each currently on the landscape in Iowa BCR 23. Objectives are from the 2007 JV Implementation Plan and represent estimated area of high quality habitat required to meet the needs of JV focal species during the breeding period. Cover types were measured using the National Land Cover Database (2006), except forested wetland which was determined using National Wetland Inventory. Conservation status (protected land) and ownership was determined using the Protected Areas Database, Conservation and Recreation Lands Database, and National Conservation Easement Database.

Bird habitat categories	Habitat objective[a]		Land cover				
	Maintenance	Restoration	Cover type area on landscape	Conservation status (protected)			
				Federal	State	Other	Total
Openland							
Grassland	23,218	23,218	175,229	413	3,716	1,090	5,219
Pasture/hay[b]	--	--	410,831	99	2,955	469	3,523
Savanna	193,401	193,401	na[c]	na	na	na	na
Woodland							
Deciduous forest[b]	--	--	427,988	1,717	26,729	2,874	31,320
Evergreen forest[b]	--	--	7,225	225	867	99	1,191
Forested wetland[b]	--	--	26,690	9,474	1,648	430	11,552
Shrub/scrub[b]	--	--	586	7	17	0	24
Other forest[b]	--	--	44	2	10	2	14
Total	216,619	216,619	1,048,593	11,937	35,942	4,964	52,843

[a]Upland bird habitat objectives are for the breeding period only; non-breeding habitat objectives were not calculated for landbirds (see 2007 JV Implementation Plan for more detail).

[b]Bird habitat objectives were not established for this primary NLCD cover type providing bird habitat value.

[c]na indicates cover type could not be estimated due to resolution limitations of spatial data.

The grassland-bird guild used for JV planning requires 46,400 acres of high quality habitat in IA-23, and the region contains an estimated 175,000 acres of grassland plus 411,000 acres of pasture/hay based on the 2006

NLCD (Table 3). The amount of grassland appears adequate to meet objectives, however changes in agricultural practices (i.e., early hay mowing), recent intensive conversion (grassland, pasture, and hay to row crops), and fragmentation of large grasslands have been detrimental to breeding grassland birds.

Savanna objectives (387,000 acres; Table 3) are based on the breeding habitat requirements of birds occupying savanna-like open woodlands (e.g. Red-headed Woodpecker). This cover type is not mapped by NLCD and assessing the landscape's capacity for supporting populations of savanna birds is not possible with these spatial data. In addition, the mixed wooded openland objective will likely be reduced substantially in future JV planning based on new information.

Marsh, Mudflat, and Open Water

The estimated area of high quality habitat needed in IA-23 to maintain current populations of birds dependent on marsh, mudflat/shallows, and open water is about 20,200 acres (Table 4)[2]. This area, plus an additional 6,500 acres of restored high quality wetland is predicted to achieve a landscape design adequate (i.e., provide carrying capacity) to meet JV goal populations for breeding and non-breeding wetland birds in IA-23. The overall 26,700-acre wetland bird habitat objective represents about 1.5% of the area in IA-23.

Wetland and open water cover types and focal species	
Deep water marsh	Tundra Swan, American Black Duck, Black Tern
Wet meadow w/ open water	Blue-winged Teal, Yellow Rail
Semi-permanent/hemi-marsh	American Black Duck, Mallard, King Rail
Marsh with shrub/forest	Wood Duck, Black-crowned Night-Heron
Wet mudflat/moist soil plants	Blue-winged Teal, Dunlin, Wilson's Snipe
Shallow water (<5 cm)	Short-billed Dowitcher
Moderate water (5-20 cm)	Wilson's Phalarope
Dry mudlfat	American Golden-Plover, Killdeer
Open water	Canvasback, Lesser Scaup
Beach	Sanderling

Marsh.—Habitat objectives were developed in the JV Plan for breeding wetland bird groups dependent on three marsh categories and totaling 16,200 acres: wet meadow with open water and shallow semi-permanent marsh (13,180 ac), deep-water marsh (1,780 ac), and marsh with associated shrub or forest (1,260 ac). Based on NWI, there were a total 8,600 acres of available marsh / shrub wetlands on the landscape; an estimated 31% were protected (Table 4). JV conservation objectives for marsh cover types, driven largely by the needs of non-breeding waterfowl, are significantly greater than the estimated area of marsh wetland currently available.

Although shallow and deep marsh available during the breeding season will also accommodate wetland birds during the non-breeding period, marsh objectives for IA-23 were greatest for the non-breeding period (Table 4). We were unable to determine the quality of existing marsh for breeding and non-breeding wetland birds based on NWI spatial data. Moreover, there were significant differences in indicated wetland area for the NWI and NLCD spatial data, and local-scale planners for wetland protection / restoration in IA-23 should be aware of discrepancies between these data.

Mudflat and Shallows.—Objectives for wet mudflat, shallow (<2 in), and moderate-depth (2-8 in) open wetland communities were based on the energetic needs of migrating shorebirds and waterfowl. These objectives total about 920 acres of high quality wet mudflat and shallow-water habitat for wetland birds (Table 4). However, assessments of these cover types are difficult using remotely sensed data and are not adequately identified by NWI. These cover types are also dynamic and conditions can change daily and seasonally making one-time static

[2] Acreage totals for habitat objectives in this section represent cumulative total of highest values between breeding and non-breeding habitat objectives for each cover type. For example, the estimated area of high quality habitat needed in IA-23 to maintain current populations of birds dependent on dry mudflat is 2,058 acres, as the breeding objective (2,058 ac) is greater than the non-breeding objective (44 ac) (See Table 4).

assessments (i.e., NWI) poor estimators of cover type availability. The area of dry mudflat (i.e., area represented by row crop) is abundant, with an estimated 2,500 acres protected, including 1,900 acres of state and federal lands apparently in row crop (Table 4).

Open Water and Beach.—Objectives for extensive open-water areas are based on the habitat needs of migrating and wintering diving ducks. This group requires an estimated 4,500 acres of quality foraging and resting habitat when populations are at goal levels. Whereas the region has abundant open water (Table 4), low food availability and human disturbance may negatively influence waterfowl use of some open-water areas. A few species of shorebirds and terns occurring in IA-23 use beach, and objectives for this cover type total about 30 acres. Beach appears adequate to meet objectives and is found largely along major river corridors.

Table 4. Wetland bird habitat maintenance and restoration objectives (acres) for marsh, mudflat and open water and the estimated amount of each cover type currently on the landscape in Iowa BCR 23. Objectives are from the 2007 JV Implementation Plan and represent estimated area of high quality habitat required to meet the needs of JV focal species and planning guilds during both breeding (B) and non-breeding (N) periods. Cover types were measured using National Wetland Inventory; National Landcover Database (2006) was used for dry mudflat and beach. Conservation status (protected land) and ownership was determined using the Protected Areas Database, Conservation and Recreation Lands Database, and National Conservation Easement Database.

Bird habitat categories	Habitat objective				Land cover				
	Maintenance		Restoration		Cover type area on landscape	Conservation status (protected)			
	B	N	B	N		Federal	State	Other	Total
Marsh									
Deep-water marsh	699	1,433	351	0	67	17	12	0	29
Shallow semi-permanent marsh[a]	5,760	11,271	1,909	210	7,094[b]	568	904	620	2,092
Marsh with shrub/ forest	1,047	0	210	0	1,453	272	210	64	546
Mudflat and shallows									
Wet mudflat/ shallows[c]	0	699	0	225	na[d]	na	na	na	na
Dry mudflat[e]	2,058	44	2,959	27	590,899	208	1,665	662	2,535
Open water and beach									
Extensive open water	0	3,717	0	776	49,221[f]	19,123	2,006	1,520	22,649
Beach	0	7	0	20	927[f]	25	2	0	27
Total	9,564	17,171	5,429	1,257	649,661	20,213	4,799	2,866	27,878

[a]Bird habitat objectives for "shallow semi-permanent marsh" also include objectives for "wet meadow with areas of open water" in the 2007 JV Plan.
[b]Cover type area for "shallow semi-permanent marsh" includes emergent marsh within palustrian, lacustrine, and riverine categories in NWI.
[c]Bird habitat objectives for "wet mudflat/shallows" category incorporates objectives for "wet mudflat," "shallow water depth(<2 in)" and "moderate water depth (2-8 in)" open flats in the 2007 JV Plan.
[d]na indicates cover type area could not be estimated due to resolution limitations of spatial data.
[e]Dry mudflat/agriculture was a bird habitat category in the 2007 JV Plan and "row crop" (NLCD) is the land cover measured on the landscape.
[f]Cover type area for "extensive open water" represents lacustrine, riverine, and unconsolidated bottom and shore categories (NWI) whereas beach is the area of sand/gravel/bedrock with little vegetation (NLCD).

Management Implications

A substantial amount of IA-23 is agriculture, but much of the region remains ecologically diverse with land cover important to birds. The area is unique for its value to breeding grassland and marsh birds, migrating shorebirds,

and migrating and wintering waterfowl. Although habitat objectives were not established for breeding landbirds dependent on forest cover, IA-23 likely provides abundant breeding habitat and migration corridors for forest dependent landbirds.

The amount of available grassland in IA-23 currently exceeds the estimated need to meet habitat objectives for JV focal species. However, grassland declined slightly between 2001 and 2006, and this cover type likely has continued to decline in recent years due to high crop values. Only a small portion of grassland area is protected and most existing grassland and hay/pasture is of unknown quality for breeding birds. The 2007 JV Plan established significant habitat objectives for bird species dependent on savanna in IA-23. Although we could not assess the abundance or quality of this cover type given the spatial data available, we encourage IA-23 partners to investigate ways to evaluate habitat objectives and conservation targeting for savanna birds.

Future grassland/openland abundance in IA-23 will be largely related to private land management (e.g., bird-friendly hay and pasture management, CRP) and potentially associated with other (non-wildlife) programs. For example, strategically placed large-scale conservation easements in agriculturally dominated areas of the Mississippi River watershed can help alleviate nutrient loading in streams and rivers that contribute to hypoxia in the Gulf of Mexico. There may also be opportunities to promote grasslands valuable to birds in working landscapes through methods other than taking land out of production; value of pasture and hay cover for grassland birds may be increased through timing and or intensity of grazing/mowing, maintaining both ecological and economic benefits. Where possible, connecting "permanent" openings such as grasslands associated with highways, perpetual grassland/pasture easements, and large marsh complexes can result in greater management efficiency by providing larger openland areas/unit cost. Although current high commodity prices may result in conversion of openland bird habitats to agriculture in the near term, conservation planners should prepare and target areas in anticipation for an eventual turn in commodity and farmland prices.

In general, the current area of open water and mudflat appears adequate to meet habitat objectives for JV focal species. However, the area of wet mudflat and shallows providing forage to migrating wetland birds could not be determined using existing spatial data. Where capacity exists, active management may be necessary to assure mudflat is available during shorebird migration periods. Additionally, where open water locations have limited bird value due to low water quality, restoration of native cover in uplands may be a beneficial practice.

The area of marsh is well below objectives in the JV Plan and like wet mudflat and shallows, spatial data were inadequate to assess emergent wetland types (hemi-marsh vs. wet meadow), quality (high vs. low reproduction / survival), and timing of availability (recently wet vs. wet when image was taken). Nevertheless, modest gains in emergent and forested wetland between 2001 and 2006 were concentrated primarily along the Mississippi River in northeastern IA-23, an area with significant potential for habitat protection and restoration targeted at breeding and non-breeding wetland birds (see 2007 JV Plan). IA-23 partners should continue expanding protection of marsh and wet meadow providing quality wetland bird habitat. Implementing effective inventory and control of invasive plants such as Phragmites and hybrid cattail may also be a viable means to maintain high quality marshes to help achieve wetland-bird habitat objectives.

Recommended citation: Kahler, B.M., R.L. Pierce, and G.J. Soulliere. 2014. State X BCR Assessment: Iowa 23 – Prairie Hardwood Transition. Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington, MN, USA.

This assessment document and JV Implementation Plan available at: www.UpperMissGreatLakesJV.org (*Last revised 24 July 2014).*