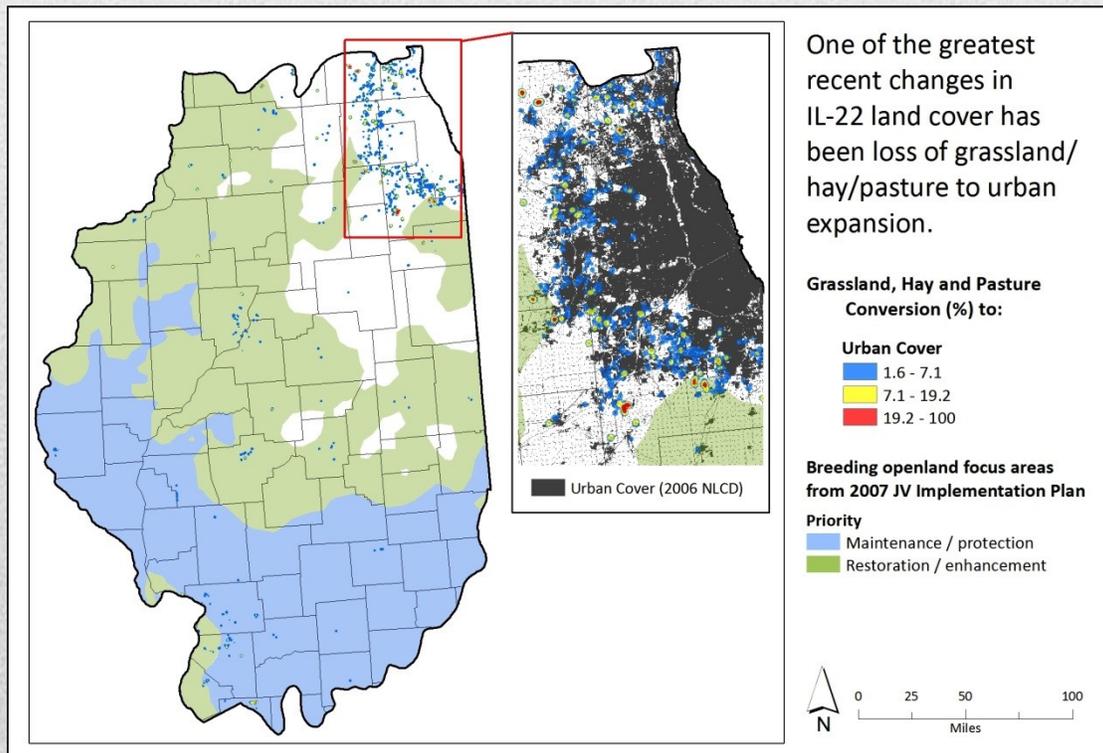




Illinois BCR 22 – Assessment Summary

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 Illinois BCR 22 (IL-22) “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 IL-22 assessment for more details.**



Primary cover-types

IL-22 consists of extensive upland forest (13%), urban cover (12%), and grassland/hay/pasture (8%), but its primary cover type is row crop (64%). The urban landscape expanded (+109,600 ac) between 2001 and 2006, whereas total acreage of row crop (-84,100 ac), grassland/hay/pasture (-24,000), and upland forest (-21,500 ac) declined. Gain in urban acreage was largely the result of conversion from agricultural land.

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 Illinois Bird Conservation Region 22. Wetland and open water availability based on recent NWI, not NLCD. **Note: Bird "conservation objectives" represent quality habitats (high recruitment/high survival) for JV focal species whereas "cover type availability" reflects landscape cover types but not necessarily quality habitats.**

Habitat/cover types	Conservation objective	Cover type availability	Short-term land cover trend (%)
Openland and woodland			
Grassland	1,790,750	187,776	-4.5
Savanna	5,763,498	n/a	n/a
Deciduous forest	22,971	3,820,416	-0.5
Evergreen forest	0	6,363	2.7
Shrubland	608,361	12,963	16.3
Other forest	0	22,417	-6.3
Marsh, mudflat, and open water			
Emergent wetland	216,656 ^a	179,652	13.1
Woody wetland	88,384 ^b	528,308	-0.9
Dry mudflat	104,395	19,602,715 ^c	-0.4
Open water	60,318	490,881	1.0

^a Includes habitat objectives for multiple focal species combined: deep water marsh, shallow semi-permanent marsh, wet meadow with open water, wet mudflat/moist soil plants, 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 crops, which can provide some value to dry mudflat bird species.

Management Implications

Openland:

- Grassland availability is only a fraction of that needed to meet breeding grassland bird objectives, and the area of savanna (mixed wooded openland) could not be determined with NLCD spatial data, but it is far below the current objective for species dependent on this openland cover type.
- Managers should seek opportunity to convert row crop back to native cover, particularly grassland, when conditions are suitable. However, current JV population and habitat objectives for grassland / openland birds are likely not achievable with current economic and land use trends.

Woodland:

- Forest cover is greater than needed to meet current JV breeding bird objectives, yet fragmentation should be reduced through conservation planning.
- Migrating and wintering landbird objectives were not developed for the 2007 JV Plan, but maintaining forest bird migration corridors, especially along river floodplains, should be a management priority.
- Area of available shrubland is substantially lower than habitat objectives for shrubland / young-growth forest birds, and restoration of this cover type remains a priority.

Marsh, mudflat, and open water:

- Current area of woody wetland and dry mudflat (represented by agricultural fields in spring) appear adequate to meet habitat objectives for JV focal species. Open water area is also sufficient, although water quality and associated lack of waterfowl forage (e.g., aquatic plants, invertebrates) is a concern in many areas, especially the large rivers.
- Wetland cover types were relatively stable, except emergent marsh increased substantially between 2001 and 2006. Restoring and protecting quality marsh-bird habitat remains a priority as emergent wetland area is still below goal and most are unprotected.
- Partners should focus on expanding protection and restoration of emergent marsh and wet meadow and provide energy resources (e.g., shallows/moist-soil foods) where this practice is suitable.

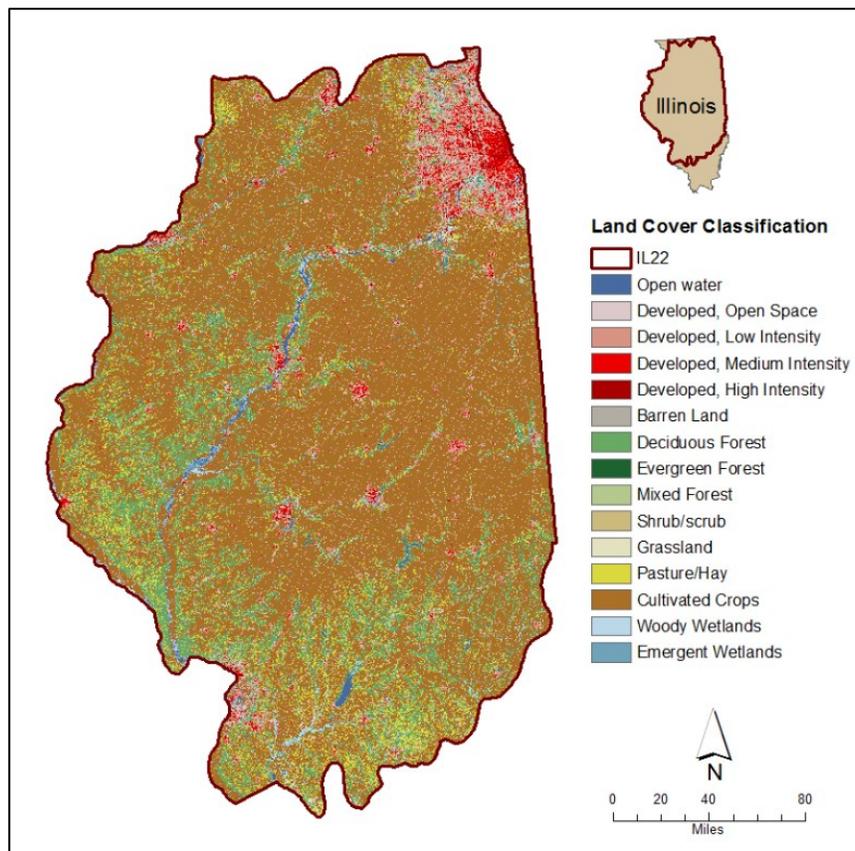


State by BCR Assessment

Illinois 22 – Eastern Tallgrass Prairie

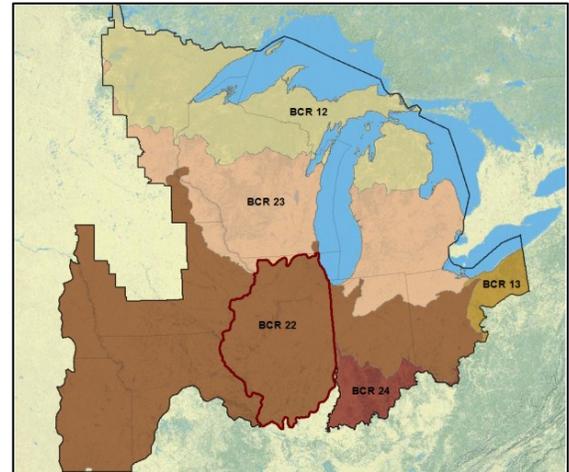
This document was developed to serve as a “stepped-down” version of the 2007 [Joint Venture \(JV\) Implementation Plan](#) with focus on Illinois BCR 22, the Eastern Tallgrass Prairie portion of Illinois. It includes lists of bird species used for JV regional planning (i.e., focal species) that represent land cover types, or bird habitat associations, important to bird guilds occurring in IL-22. 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 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 under protection, primary modes of recent cover type conversion, and general management implications for IL-22 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 IL-22 (species within guild may be more common in IL-22 than focal species, see 2007 JV Plan).

Landbird	Shorebird	Waterbird
Greater Prairie-Chicken	American Golden-Plover	Black-crowned Night-Heron
Whip-poor-will	Piping Plover	King Rail
Chimney Swift	Killdeer	Black Tern
Red-headed Woodpecker	Upland Sandpiper	Waterfowl
Willow Flycatcher	Sanderling	Tundra Swan
Wood Thrush	Dunlin	Wood Duck
Blue-winged Warbler	Short-billed Dowitcher	American Black Duck
Golden-winged Warbler	American Woodcock	Mallard
Prothonotary Warbler	Wilson's Phalarope	Blue-winged Teal
Louisiana Waterthrush		Canvasback
Kentucky Warbler		Lesser Scaup
Yellow-breasted Chat		
Eastern Meadowlark		



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 by 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., IL-22). 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 existing quality 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 IL-22 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 to identify 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 IL-22 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. Furthermore, knowledge of whether we are gaining or losing priority bird habitats and where on the landscape this change is occurring provides managers 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 Illinois BCR 22 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.**

Cover Type	Year		% change	Acres gained/lost
	2001	2006		
Open Water	447,345	451,710	1.0	4,365
Urban	3,708,881	3,818,524	3.0	109,644
Barren	13,686	22,535	64.7	8,849
Upland Forest	3,876,990	3,855,504	-0.6	-21,485
Shrub/Scrub	11,146	12,963	16.3	1,818
Grassland/Hay/Pasture	2,402,531	2,378,564	-1.0	-23,967
Grassland	196,694	187,766	-4.5	-8,928
Row Crops	19,686,834	19,602,715	-0.4	-84,119
Wetlands	453,580	458,476	1.1	4,896
Emergent Wetlands	64,818	73,294	13.1	8,476
Woody Wetlands	388,763	385,182	-0.9	-3,581
Total	30,600,992	30,600,992		

IL-22 is dominated by row crop agriculture, with large amounts of upland forest, urban, and hay/pasture (Table 1).¹ Row crop area declined between 2001 and 2006, accounting for an 84,000 acre loss, with an additional 24,000 acre loss of grassland and hay/pasture. Upland forest also declined by 21,500 acres. Conversely, urban cover increased by 109,600 acres, the most significant land use change in the region. Gains in urban cover came primarily from land previously in agriculture, grassland/hay, and upland forest (Figure 1, Table 2), representing permanent habitat loss for several bird species. Urban expansion occurred largely in the metro-Chicago area, where substantial areas of grassland/hay/pasture were lost (Figure 2). Gain in barren cover likely represented a transitional stage between agriculture and urban development. On a positive note for birds, emergent wetland area increased 13% in the region, for an 8,500 acre gain, and areas of open water and woody wetland were largely stable.

¹ To evaluate landscape change, we compared satellite imagery (NLCD) of IL-22 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.

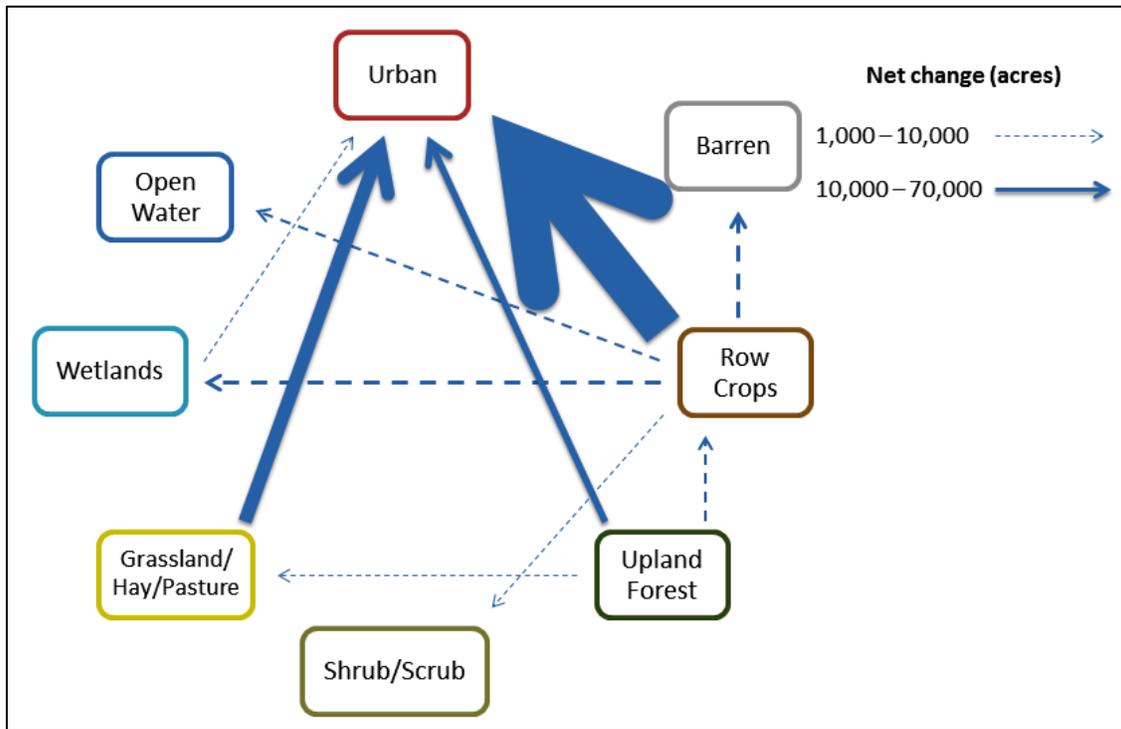


Figure 1. Net change of general land cover types (>1,000 acres converted) in Illinois BCR 22 between 2001 and 2006 (NLCD). Arrows point in the direction of change between two cover types and line thickness increases in proportion to amount of net change. “Wetlands” include woody and emergent herbaceous wetland, whereas “upland forest” represents upland (non-wetland) forest cover.

Table 2. Conversion (acres) of primary land cover types in Illinois BCR 22 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) converted to other cover types by 2006 (horizontal axis). For example, between 2001 and 2006, 1,599 acres of open water converted to wetland and 895 acres of wetland converted to open water, for a net change among these two cover types of +704 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 wetland 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	441,407	864	869	175	20	346	1,333	1,599
Urban	7	3,702,802	6	1	0	0	0	2
Barren	517	519	12,326	49	18	189	45	1
Upland Forest	1,118	11,405	928	3,848,320	286	2,220	5,794	581
Shrub/Scrub	0	256	56	7	10,726	26	53	4
Grassland/Hay/Pasture	891	23,160	1,053	252	558	2,370,663	1,505	522
Row Crops	6,137	69,880	7,127	344	1,306	928	19,561,328	7,601
Wetlands	895	3,397	133	54	28	303	612	447,416

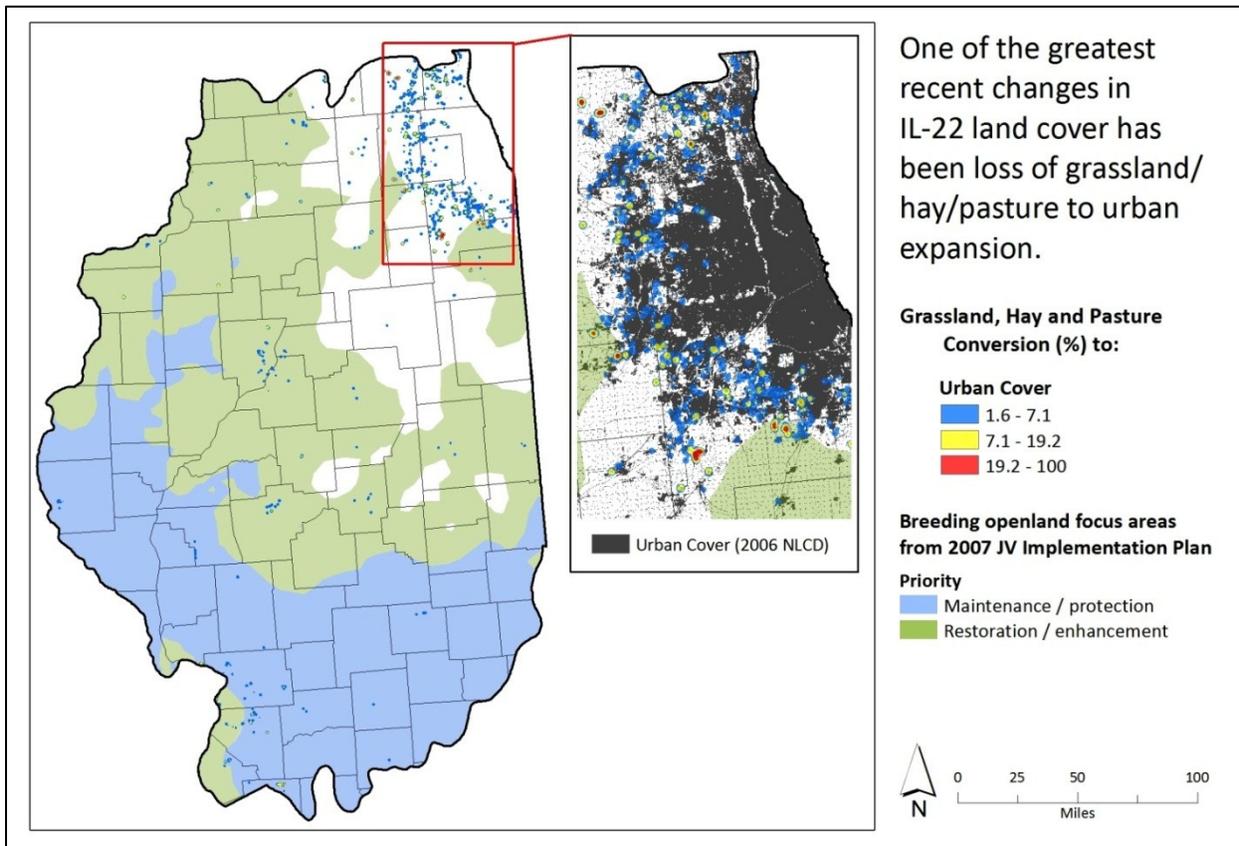


Figure 2. Conversion (percent total area converted within 1 km circular radius) from grassland/hay/pasture to urban cover in Illinois BCR 22, 2001 to 2006 (NLCD). Blue and green areas reflect greater habitat maintenance/protection and restoration/enhancement emphasis for openland breeding birds (Figure 7a, 2007 JV Implementation Plan).

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 habitat needs of current bird populations, whereas restoration objectives were generated based on population deficits (deficit = population goal - current population). 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 most updated version of 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 IL-22 protected land configuration and ownership composition (Figure 3). In [December 2013](#), 926,000 acres were enrolled in the Conservation Reserve Program (CRP) in Illinois with roughly 396,000 acres scheduled to expire by 2018. We were unable to partition total Illinois CRP acreage to the IL-22

portion of the state or assess the land cover composition of CRP lands due to privacy protections in the U.S. Farm Bill.

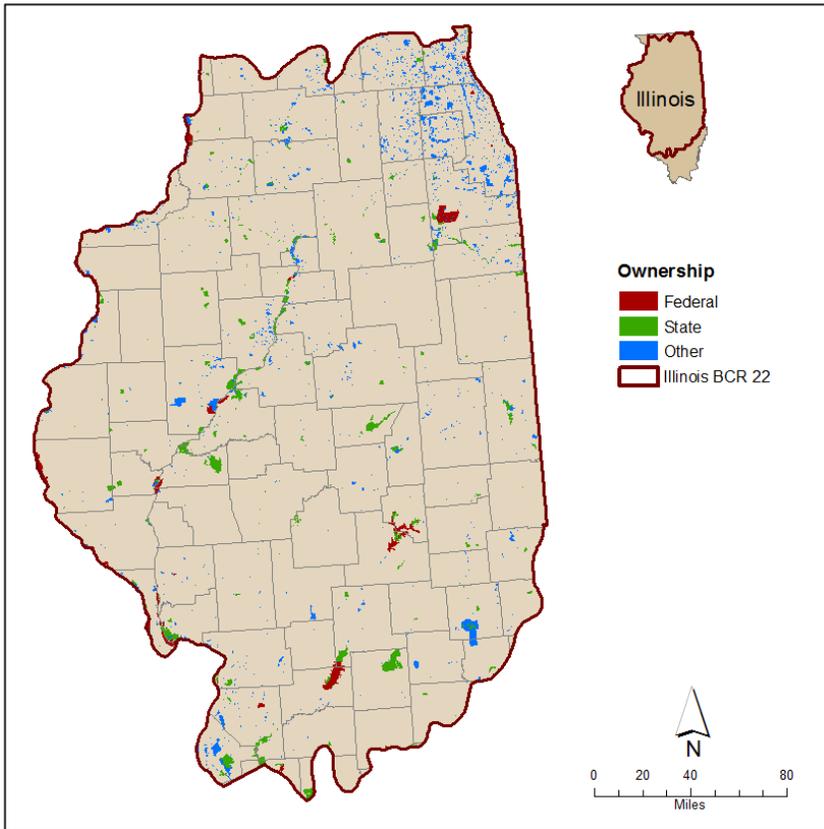


Figure 3. Location of federal, state, or other conservation lands in Illinois Bird Conservation Region 22. The “Other” ownership category includes private land with temporary and permanent easements, conservancy land, and county, township, and city owned land. Conservation land databases indicate total land area conserved is 1,043,000 acres (excluding CRP), including about 485,600 woodland/grassland acres and 432,900 acres of row crop, open water, and marsh wetland.

Openland and Woodland

The estimated amount of openland/grassland and woodland needed in a high quality habitat condition to maintain current landbird populations is 4.4 million acres (Table 3). Savanna (mixed wooded openland) accounts for a majority (65%) of upland bird habitat objectives in the 2007 JV Plan. Objectives for breeding savanna birds were based on crude calculations and limited information. Initial estimates suggested the amount of savanna needed to maintain current landbird populations was about 14% of the total area of IL-22. Moreover, the estimated habitat area needed to achieve goal populations of openland bird species is about twice that amount (Table 3). Obviously this level of habitat conservation is unachievable and far greater than the area currently under protection (Table 3) even when including CRP lands.

Openland.—The grassland-bird guild used for JV planning requires an estimated 1.8 million acres of habitat in IL-22 to meet population goals, and the region contains only an estimated 187,800 acres of grassland with 2,191,000 acres of pasture/hay based on the 2006 NLCD (Table 3). The amount of grassland appears inadequate

Landbird cover types and focal species	
Deciduous forest	Whip-poor-will, Wood Thrush, Louisiana Waterthrush, Kentucky Warbler
Forest generalist	Chimney Swift
Forested wetland	Prothonotary Warbler
Shrubland	American Woodcock, Willow Flycatcher, Blue-winged Warbler, Golden-winged Warbler, Yellow-breasted Chat
Grassland	Upland Sandpiper, Greater Prairie-Chicken, Eastern Meadowlark
Savanna	Red-headed Woodpecker

to meet objectives as hay and pasture rarely provide high quality grassland bird habitat. Moreover, changes in agricultural practices (e.g., early hay mowing) and fragmentation of large grasslands have generally been detrimental to breeding grassland birds. Savanna objectives (5.7 million acres; Table 3) are based on the breeding habitat requirements of birds occupying savanna (e.g., Red-headed Woodpecker). This cover type is not mapped by NLCD and assessing the landscape’s capacity for supporting current and future populations of savanna birds is not possible with these spatial data. In addition, the savanna area objective will be reduced substantially in future JV planning based on new information.

Woodland.—Objectives developed for species dependent on deciduous forest (23,000 ac) and forested wetland (54,800 ac) were driven by the needs of breeding landbirds. IL-22 encompasses over 4.3 million acres of woodland and nearly 402,000 acres are protected (Table 3). Forest cover is well above objective levels and especially abundant along river floodplains, but forest fragmentation is a concern because it can limit habitat quality for breeding forest birds. Much of IL-22 forest area is fragmented, having size and configuration that may limit daily survival and productivity of edge-sensitive bird species.

Habitat objectives for shrubland birds (607,600 acres) were substantially higher than the estimated area of shrubland available (13,000 acres; Table 3). However, shrubland cover types are poorly mapped and estimates based on remote sensing (i.e., NLCD) are not sufficient for assessment. Local managers should consult the [USDA Forest Service Forest Inventory and Analysis \(FIA\)](#) program for county-level measures of this somewhat dynamic cover type.

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 Illinois BCR 22. 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		Cover type area on landscape	Land cover			
	Maintenance	Restoration		Conservation status (protected)			
				Federal	State	Other	Total
Openland							
Grassland	895,375	895,375	187,766	5,928	8,794	15,461	30,183
Pasture/hay ^b	--	--	2,190,798	6,069	23,097	24,446	53,612
Savanna	2,881,749	2,881,749	na ^c	na	na	na	na
Woodland							
Deciduous forest	15,314	7,657	3,820,416	15,313	127,489	133,847	276,649
Evergreen forest	0	0	6,363	7	2,068	699	2,774
Forested wetland	36,556	18,278	495,016	36,972	37,034	35,254	109,260
Shrub/scrub	607,620	741	12,963	27	274	6,879	7,180
Other forest	0	0	22,417	410	232	5,525	6,167
Total	4,436,614	3,803,800	6,735,739	64,726	198,988	222,111	485,825

^aUpland 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).

^bBird habitat objectives were not established for this primary NLCD cover type providing openland value.

^cna indicates cover type area could not be estimated due to resolution limitations of spatial data.

Marsh, Mudflat, and Open Water

The estimated area of high quality bird habitat needed in marsh wetland, mudflat, and open water to maintain current bird populations is about 325,800 acres (Table 4)². This area, plus an additional 85,700 acres of restored, high quality wetland cover types 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 IL-22.

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
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
Shallow water (<5 cm)	Short-billed Dowitcher
Moderate water (5-20 cm)	Wilson's Phalarope
Dry mudflat	American Golden-Plover, Killdeer
Open water	Canvasback, Lesser Scaup
Beach	Piping Plover, Sanderling

Marsh.—Habitat objectives were developed for breeding wetland bird groups dependent on four general marsh categories: wet meadow, shallow semi-permanent marsh / hemi-marsh, deep-water marsh, and marsh with associated shrub or forest. There were a total of 212,900 acres of marsh and marsh/shrub wetlands available; about 26% are protected (Table 4). Conservation objectives for marsh cover types were driven largely by the needs of waterfowl, especially during the non-breeding period.

The JV Plan calls for high quality wetland-bird habitat totaling 185,750 acres of shallow semi-permanent marsh / hemi marsh and 6,600 acres of deep-water marsh (Table 4) during the non-breeding period. Objectives for marsh with associated shrub/forest were higher during the breeding period and totaled almost 28,000 acres. The area of marsh with associated shrub/forest appears adequate to meet objectives, but shallow semi-permanent and deep-water marsh area are below goal. Moreover, we were unable to determine the quality of available areas for wetland birds based on the spatial data. Often the quality of mapped emergent marsh wetlands is low due to invasive plants (e.g., Phragmites), poor water quality, or proximity to developed lands and high human activity.

Mudflat and Shallows.—Objectives for wet mudflat, shallow water depth (<2 in), and moderate water depth (2-8 in) open wetland communities were based primarily on the energetic needs of migrating shorebirds. These objectives total about 7,300 acres of wet mudflat and shallow-water providing high quality shorebird habitat (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 very dynamic and conditions can change daily and seasonally making one-time static assessments (i.e., NWI) poor estimators of cover type availability. The area of dry mudflat, which is represented by row crop fields in NLCD (i.e., row crop fields in spring provide value to some shorebirds), is far greater than objectives in the JV Plan. The estimated area of protected dry mudflat totals 194,200 acres, including 89,900 acres of state and federal lands in row crop.

Open Water and Beach.—Open-water bird habitat objectives are based on the needs of migrating and wintering diving ducks. This group requires an estimated 60,300 acres of quality foraging and resting habitat. Whereas the region has abundant open water areas (Table 3), low food availability and human disturbance may negatively influence waterfowl use of many locations, especially large rivers. Some species of shorebirds and

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 quality habitat needed in IL-22 to maintain current populations of birds dependent on shallow semi-permanent marsh is 185,754 acres, as the non-breeding objective (185,754 ac) is greater than the breeding objective (127,958 ac) (See Table 4).

terns depend on beach. Beach objectives total about 180 acres. Beach appears to be generally abundant in IL-22, especially along the Illinois River and far exceeds the habitat objective.

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 Illinois BCR 22. 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 Land Cover 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				Cover type area on landscape	Land cover			
	Maintenance		Restoration			Conservation status (protected)			
	B	N	B	N		Federal	State	Other	Total
Marsh									
Deep-water marsh	30	6,629	15	0	3,400	133	171	437	741
Shallow semi-permanent marsh ^a	127,647	185,754	16,935	2,124	176,253 ^b	4,119	13,272	25,452	42,843
Marsh with shrub/forest	27,958	0	5,592	0	33,292	3,526	4,196	3,151	10,873
Mudflat and shallows									
Wet mudflat/shallows ^c	0	5,730	0	1,593	na ^d	na	na	na	na
Dry mudflat ^e	42,825	321	61,570	190	19,602,715	23,532	66,407	104,263	194,202
Open water and beach									
Extensive open water	0	56,862	0	3,456	490,881 ^f	68,893	60,190	54,126	183,209
Beach	17	49	0	128	22,499 ^f	257	220	526	1,003
Total	198,477	255,345	84,112	7,491	20,329,040	100,460	144,456	187,955	432,871

^aBird habitat objectives for "shallow semi-permanent marsh" also include objectives for "wet meadow with areas of open water" in the 2007 JV Plan.

^bCover type area for "shallow semi-permanent marsh" includes emergent marsh within palustrine, lacustrine, and riverine categories in NWI.

^cBird habitat objectives for "wet mudflat/shallows" category incorporates objectives for "wet mudflat," "shallow (<2 in)," and "moderate water depth (2-8 in)" open flats in the 2007 JV Plan.

^dna indicates cover type area could not be estimated due to resolution limitations of spatial data.

^eDry mudflat/agriculture was a bird habitat category used in 2007 JV Plan and "row crop" (NLCD) is the cover type measured on the landscape.

^fCover 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

IL-22 is a diverse region, with areas having some of the highest and lowest human population densities in the JV region. Historically a key location for grassland-dependent birds, only remnants of tallgrass prairie remain, and the region is now better known for its forest and wetland birds, particularly high concentrations of non-breeding waterfowl. The region is also valuable to breeding and migrating forest birds although non-breeding objectives were not developed for forest birds in the 2007 JV Implementation Plan.

In general, the current area of open water and mudflat in IL-22 appears adequate to meet habitat objectives for JV focal species. Although shallow emergent marsh is below goal, this cover type has been expanding in recent years. The area of wet mudflat and shallows providing forage to migrating wetland birds could not be determined using existing spatial data. Likewise, spatial data were also 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). Due to altered hydrology in much of the region, management is necessary to assure mudflat and shallow wetlands are available during shorebird and duck migration periods. IL-22 partners should continue restoring and expanding protection of marsh and wet meadow providing quality wetland bird habitat, while seeking and implementing effective management of invasive plants where needed.

Whereas open water seems adequate for foraging waterfowl, many locations may have limited value due to poor water quality, low food availability, and human disturbance. For example, diving duck use of the Illinois River during autumn has declined more than 80% since the 1950s as sedimentation from surrounding agricultural land, flooding, and water-level regulation for commercial shipping now prevents growth of submerged aquatic plants or persistence of aquatic invertebrates such as fingernail clams. Continued acquisition, restoration, and management of bottomland lakes and riverine wetlands can help restore value to this continentally significant waterfowl migration-staging area and increasingly important wintering area.

Breeding and migrating woodland birds dependent on mature forests currently have a substantial habitat base in IL-22. Slight declines in forest cover occurred in recent years, but primarily outside of the most important areas identified for woodland breeding birds. Shrub/scrub increased by 16% between 2001 and 2006, yet the amount of this cover type on the landscape is still substantially less than what is necessary to meet target population goals for species dependent on shrub and young-growth forest; these species have been in long-term population decline across much of the JV region. Restoring and maintaining quality forest and shrub-bird migration corridors, especially along river systems should be considered in management planning.

Grassland cover declined slightly between 2001 and 2006 and remains far below objectives developed in the 2007 JV Plan. Future abundance in IL-22 will be largely related to private land management activities (e.g., bird-friendly pasture/hay management, Conservation Reserve Program). Recent high commodity prices will likely prevent conversion of private cropland to grassland or other native plant cover types, at least in the near term. Because a significant area of state and federally owned lands are also mapped as cultivated cropland, managers should seek opportunity to convert areas back to native cover, particularly grassland, wet meadow, or shrub/scrub. Expanding “permanent” openings such as grasslands associated with highway and utility corridors, hay/pasture, and large wetland complexes can result in management efficiencies by providing larger openland areas/unit cost.

Like grassland, mixed wooded openland areas require periodic management to maintain characteristics required of savanna birds. Current JV population and habitat objectives for openland bird species, those dependent on grassland and savanna, are probably unachievable in IL-22’s agricultural and forest-dominated landscape. Furthermore, objectives for savanna species will likely be reduced in future JV planning due to new information.

Finally, conversion of row crop agriculture to grassland, savanna, marsh, and other native cover types can serve purposes beyond bird habitat restoration. For example, IL-22 is a primary contributor to hypoxia in the Gulf of Mexico due to nutrient loading of river systems in this agriculturally dominated landscape. Targeting both bird habitat conservation and reduced nutrient loading of tributaries of the Mississippi River should be a priority where possible.

Recommended citation: Pierce, R.L., B.M. Kahler and G.J. Soulliere. 2014. State x BCR Assessment: Illinois 22 – Eastern Tallgrass Prairie. Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.

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