

WATERBIRD IMPORTANT BIRD AREAS

Introduction

As Audubon has focused more and more attention on the conservation of specific sites, Important Bird Areas, an appreciation for the significant role the agricultural community plays in managing a large portion of the U.S. landscape has grown. With the knowledge that engaging the agricultural community is essential to ensuring the conservation of many waterbird species and Important Bird Areas, Audubon formed a partnership with the Monsanto Fund in 2003 (National Audubon Society 2003). Focused on identifying conservation strategies that can be employed by agricultural producers for the conservation of waterbirds and their habitats, Audubon launched the Waterbirds on Working Lands Project (Butcher 2007).

There are several aspects to the Waterbirds on Working Lands Project, including a review of the existing knowledge regarding the use of agricultural lands by waterbirds, the development of state based waterbird conservation plans, and a national review of waterbirds and Important Bird Areas. The following pages describe the state of waterbird Important Bird Areas with inferences drawn toward how waterbirds can be conserved in the agricultural landscape. A central goal of the Waterbirds on Working Lands Project was to gain a better understanding of how habitats and landscapes can be appropriately managed with both agriculture and waterbirds in mind. Along the way toward this goal the expectation was that lasting partnerships would be developed to support future endeavors in waterbird conservation in the agricultural landscape. As will ultimately be revealed in the state-based waterbird conservation plans, there exist several incentive programs for waterbird conservation to occur within agricultural lands. Overall, this national review of waterbird IBAs, the state-based conservation plans, and the review of existing knowledge of waterbirds and agriculture have brought us closer to understanding the status of waterbirds on and near agricultural lands. Future efforts to advance this work should be focused on further identifying actual management practices that need to be developed or implemented at specific sites to the benefit of waterbirds.

Waterbird Important Bird Areas in the United States

Waterbirds represent a significant conservation focus for Audubon (Butcher 2007). The reasons for this are many but include the dependence of these species on wetland and coastal habitats, both of which have been impacted heavily by conversion to agriculture or development over the last 100 years. It is for these reasons, among many others that Audubon has a significant interest in understanding how to better conserve sites for waterbirds.

While Important Bird Areas are identified for many, if not most, species of birds, waterbirds make up a significant group of birds for which Important Bird Areas are identified. In fact, of the criteria established by BirdLife International for the determination of global Important Bird Areas all can be applied to at least one waterbird species. The same can be said for criteria at the continental and state levels.

At the time this review of waterbird IBAs was conducted, May 2006, roughly 1,600 identified and recognized IBAs (for IBA status terms see Appendix A) were entered into the Audubon IBA database with more than a third or 587 of those IBAs having been identified for waterbirds (Appendix C). It is anticipated that once the identification of IBAs is completed, and the associated data have been entered into Audubon's IBA database, almost half of all IBAs in the U.S. will be significant for waterbirds.

To determine the IBAs that have been identified for waterbirds throughout the U.S., a comprehensive query of the IBA database was conducted. The database was searched for all Important Bird Areas that had criteria for one or more of the waterbird species on the Waterbirds on Working Lands project national list of waterbird species (see Appendix C). This resulted in 587 IBAs important to waterbirds.

Waterbird Important Bird Areas have been identified throughout the U.S. as shown in Figure 31. The map is informative in a few ways, showing that many waterbird IBAs occur along the coasts, major river systems, and lakes in the U.S. While the map details where waterbird IBAs can be found, it also reflects where the IBA program has been implemented and the availability of IBA data from Audubon's IBA database. While there are numerous waterbird IBAs in the east, west, and Mississippi river portions of the U.S. there are also some obvious gaps (see also discussion of data gaps above). There are several states (*i.e.*, Maine, New Jersey, and Texas) that have identified IBAs for waterbirds, and yet those IBAs are not included in either the national review of waterbird IBAs or the review of waterbirds within the focal BCRs. These data are not included because they

either have not been entered into the Audubon IBA database, or if they have been entered, they lack sufficient species data for analysis.

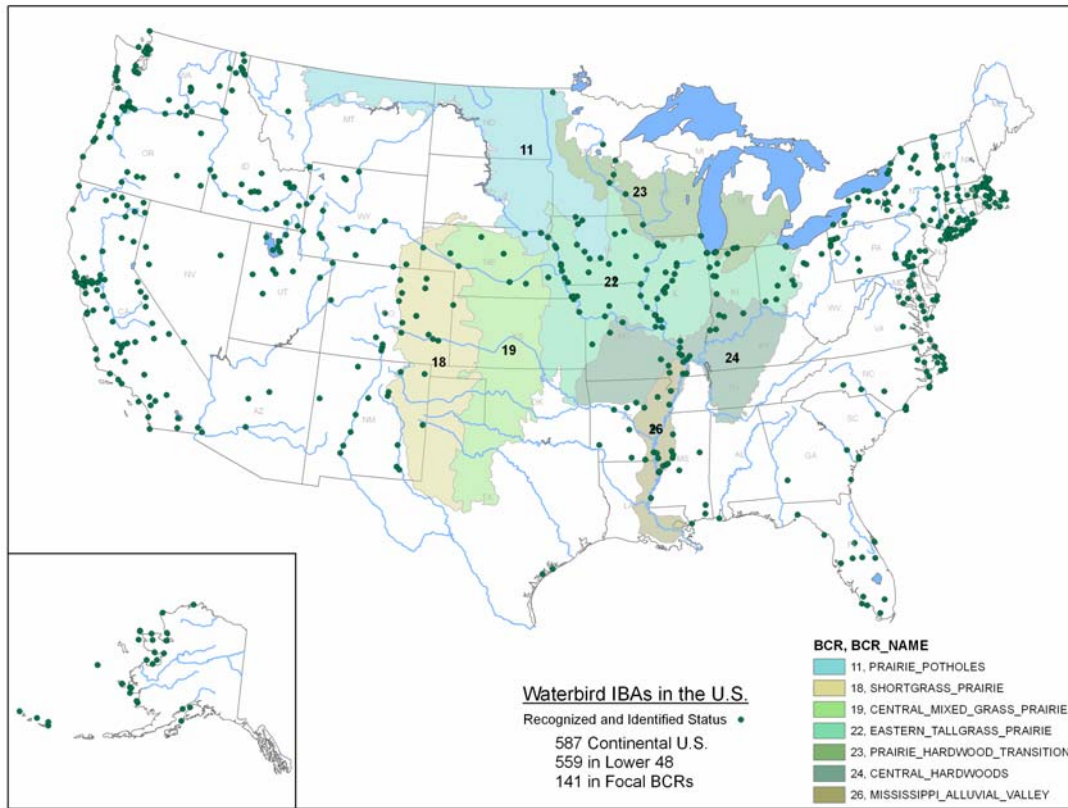


Figure 31 Important Bird Areas for Waterbirds in the U.S.

The focal area for the Waterbirds on Working Lands project contains some or all of 23 states. Table 7 details the status of Important Bird Areas Programs in each of the focal area states, covering site identification (*i.e.*, IBAs cataloged), bird monitoring and conservation activities. Specifically, 16 of the 24 states have identified 608 IBAs at the time this review was undertaken, May 2006.

Table 7. Status of State IBA Programs within the Waterbirds on Working Lands Focus Area

State	IBAs Cataloged	Sites ^a Identified	Have Technical Committee	Kick Off Meeting	No Program	Number of Identified and Recognized IBAs ^a	Bird Monitoring ^a	IBA Conservation Activities
AL				Yes		0		
AR	Yes		Yes			24		Yes
CO	Yes		Yes			53	Yes	Yes
IA	Yes		Yes			70	Yes	
IL	Yes		Yes			49	Yes	Yes
IN		Yes	Yes			13		
KS					Yes	0		
KY			Yes			0		
LA			Yes			0		
MI			Yes			0		
MN		Yes	Yes			15		
MO	Yes		Yes			47		Yes
MS	Yes		Yes			35	Yes	Yes

MT	Yes	Yes	25	Yes	Yes
ND		Yes	0		

^a As of May 2006

Table 7 (continued). Status of State IBA Programs within the Waterbirds on Working Lands Focus Area

State	IBAs Cataloged	Sites ^a Identified	Have Technical Committee	Kick Off Meeting	No Program	Number of Identified and Recognized IBAs ^a	IBA Monitoring ^a	IBA Conservation Activities
NE		Yes	Yes			24		Yes
NM	Yes		Yes			61		Yes
OH	Yes		Yes			63	Yes	Yes
OK				Yes		0		
SD				Yes		0		
TN	Yes		Yes			29		
TX		Yes	Yes			7	Yes	
WI		Yes	Yes			49		Yes
WY	Yes		Yes			44	Yes	Yes
24	11	5	19	4	1	608	8	11

^a As of May 2006.

For the focus of the Birds and Agriculture Program and specifically the Waterbirds on Working Lands (WWL) project we reviewed the IBA database for the occurrence of Important Bird Areas significant for waterbirds (Appendix C) in the seven bird conservation regions that are the focus of the Waterbirds on Working Lands project (Table 8 and Figure 31). These bird conservation regions (BCRs) were chosen as the focus since they have 10% or greater of their total land area in row crop production (Butcher 2007).

Table 8. Focal Bird Conservation Regions of the Waterbirds on Working Lands project.

Bird Conservation Region Name	BCR Number
Prairie Potholes	11
Shortgrass Prairie	18
Central Mixed Grass Prairie	19
Eastern Tallgrass Prairie	22
Prairie Hardwood Transition	23
Central Hardwoods	24
Mississippi Alluvial Valley	26

To determine the IBAs within the focal area the list of waterbird IBAs in the U.S. was searched for IBAs significant to focal waterbird species for the Waterbirds on Working Lands project (Appendix D) and that also occurred within the focal BCRs. The result of this query revealed 141 Important Bird Areas that have been identified within the Waterbirds on Working Lands focal BCRs as important for one or more focal waterbird species (see Table 9).

Table 9 Waterbird IBAs within and outside focal Bird Conservation Regions

Region	Number of IBAs
Number Within the Focal BCRs	141
Number Outside the Focal BCRs	446
Total	587

The remainder of this report focuses on a more detailed review of the characteristics of 133 Important Bird Areas significant to focal waterbird species within the focal BCRs. The list of 141 waterbird IBAs within the focal BCRs was reduced to 133 IBAs since those sites had sufficient data to allow for comparison.

Important Bird Areas can be prioritized in many different ways. Possible prioritization approaches include considering the biological significance of the site, the threats to the site, how the site is currently being utilized, and the willingness of the landowner to take actions to improve the habitats for birds. The Important Bird Areas Program takes a first cut at IBA prioritization by considering the biological significance of the site. One way to do this is through the application of the global and continental IBA criteria.

Within the Waterbird on Working Lands project area we have determined, based on available data that 33 of the 133 Important Bird Areas or almost 25 percent, appear to satisfy global or continental criteria (Table 10). This is an important measure of how Important Bird Areas compare to other sites in the United States, Canada, Mexico and the rest of the world. If we look a little closer at how the criteria break down across these 33 IBAs, we can get an understanding of why these sites are significant. Of the 33 IBAs, three trigger global A1 criteria for species of conservation concern. Two of these sites are important for Piping Plover and one for Long-billed Curlew. While much attention has been paid to Piping Plover across that species range, this is not necessarily the case for Long-billed Curlew. A future action resulting from this work might be to get a better understanding of the presence of and use by Long-billed Curlews at Crescent Lake National Wildlife Refuge and how that compares to curlew use of agricultural lands surrounding the refuge.

At the B1 level, species of continental concern are relatively numerous. Of the 33 Important Bird Areas, 23 appear to satisfy criteria for ten species of continental conservation concern. The A4i and B4i criteria, for species that occur together in groups totaling one percent or more of their overall global or flyway populations (see criteria descriptions above for more details), are applied to 17 of the 33 sites. The A4i criteria overwhelmingly makes up the majority with 12 species appearing to meet the criteria at 16 sites. The B4i criteria appears only once for the Black-crowned Night Heron at an IBA in Illinois.

Table 10. IBAs and Species appearing to satisfy Global and Continental Criteria thresholds.

State	IBA	Species	Criteria			
			A1	A4	B1	B4i
Arkansas	Bald Knob National Wildlife Refuge	Wood Stork			1	
	Cache-Lower White Rivers	Mallard		1		
		Prothonotary Warbler			1	
		Wood Duck		1		
Lake Chicot	Wood Stork			1		
Iowa	Red Rock Reservoir	Bald Eagle			1	
Illinois	Chautauqua National Wildlife Refuge	Bald Eagle			1	
	Horseshoe Lake State Fish and Wildlife Area	Snow Goose		1		
	Lake Calumet Area	Black-crowned Night-Heron				1
	Upper Mississippi National Wildlife Refuge	Bald Eagle			1	
		Canvasback		1		
Tundra Swan		1				
Indiana	American Golden-Plover Staging Grounds	American Golden-Plover			1	
	Beverly Shores - Indiana Dunes National Lakeshore	Common Tern			1	
	Jasper-Pulaski Fish and Wildlife Area and surrounding areas	Sandhill Crane		1		
	Pine Creek/Robert Feldt Marsh	American Golden-Plover			1	
Michigan	Pointe Mouillee State Game Area	Canvasback		1		
		Common Tern			1	
		Forster's Tern		1		
		Herring Gull		1		
		Short-billed Dowitcher			1	
Whimbrel		1				
Minnesota	Mississippi River Twin Cities Important Bird Area	Ring-billed Gull		1		
	Upper Mississippi NWR IBA	Canvasback		1		
Missouri	Iatan / Weston River Corridor	Snow Goose		1		
	Lower Grand River Wetlands	Snow Goose		1		
	Mississippi River Sandbars and Islands	Least Tern			1	
	Osage River Bottoms	Snow Goose		1		

Otter Slough Conservation Area	Snow Goose	1
Squaw Creek National Wildlife Refuge	Snow Goose	1
West-central Missouri River Bends	Snow Goose	1

(Continued on next page.)

Table 10 (continued). IBAs and Species appearing to satisfy Global and Continental Criteria thresholds.

State	IBA	Species	Criteria			
			A1	A4	B1	B4i
Mississippi	Morgan Brake National Wildlife Refuge	Little Blue Heron			1	
	Panther Swamp National Wildlife Refuge	Prothonotary Warbler			1	
	St. Catherine Creek National Wildlife Refuge	Wood Stork			1	
	Tara Wildlife, Inc.	Wood Stork			1	
	White's Lane	Little Blue Heron			1	
		White Ibis		1		
	Yazoo National Wildlife Refuge	Little Blue Heron			1	
		Prothonotary Warbler			1	
Nebraska	Crescent Lake National Wildlife Refuge	Long-billed Curlew	1			
		Upland Sandpiper			1	
	Missouri National Recreational River	Least Tern			1	
		Piping Plover	1			
	North Platte River Valley	Piping Plover	1			
		Rainwater Basin	Greater White-fronted Goose		1	
		Stilt Sandpiper			1	
		Wilson's Phalarope			1	
Rowe Sanctuary	Sandhill Crane		1			
			3	21	23	1

An additional prioritization approach focused on biological significance, includes prioritizing conservation actions based on the number of focal species occurring at an IBA. While an Important Bird Area needs a regularly occurring species triggering one criterion to be identified, often IBAs provide significant habitat for more than one species. As detailed in Figure 32, more than 80% (118 IBAs) of the 133 waterbird IBAs within the focal BCRs provide habitat for more than one focal waterbird species. One implication of this is that management recommendations may need to consider impacts on more than one species. This will certainly vary from site to site since Important Bird Areas can vary significantly in size and could contain from one to many habitat types. However, many of these overlaps in focal species occurrence are likely due to the fact that many of these species share similar resources. For this reason sites having an overlap of focal species make good targets for conservation activities. Those activities could improve habitat characteristics or abate threats that may ultimately improve the overall conditions for a suite of birds.

The characteristics of habitats, landuse, ownership and threats associated with Important Bird Areas are important for understanding the proper conservation context of the sites and can prove useful for prioritizing actions in addition to prioritizing based on biological significance. For the 133 IBAs included in this review, there were sufficient data to provide summary statistics for landuse, ownership, and threats. Figure 33 details dominant landuse types at the 133 IBAs. For this figure, consumptive landuse types included agriculture, water management, forestry, fisheries/aquaculture, hunting, and urban/industrial/transport. Non-consumptive landuse types included nature conservation and research and tourism and recreation. It is important to realize that both of these categories, labeled as non-consumptive, can have a consumptive component. Overall, non-consumptive landuses dominate IBAs in this region making up 51% of the landuse types. Consumptive landuses made up 41% of the landuse types. The remaining eight percent had no data associated with the IBA (unset) or were labeled as other.

Multiple landuse types are certainly possible and do occur at many IBAs (Figure 34). For the IBAs reviewed here, landuse categories were recorded 291 times at 133 IBAs. One notable aspect of the landuse at IBAs is that more than 71% or 95 IBAs have at least some portion of the site dedicated to nature conservation and recreation. Overall, possible scenarios for multiple landuses occurring at an IBA include lands that are used for agricultural purposes during the growing season and those same lands may be leased for hunting in the fall and winter months. The same

could be said in terms of an overlap between nature conservation and hunting. For the purposes of conservation action and management a possible future focus could be to investigate IBAs that have activities such as agriculture occurring adjacent to an area of nature conservation to determine how those activities improve or degrade the habitats the birds depend on. Further, efforts should be taken to ensure that consumptive activities are conducted in a way to minimize impacts or improve the condition of species the IBA was identified for.

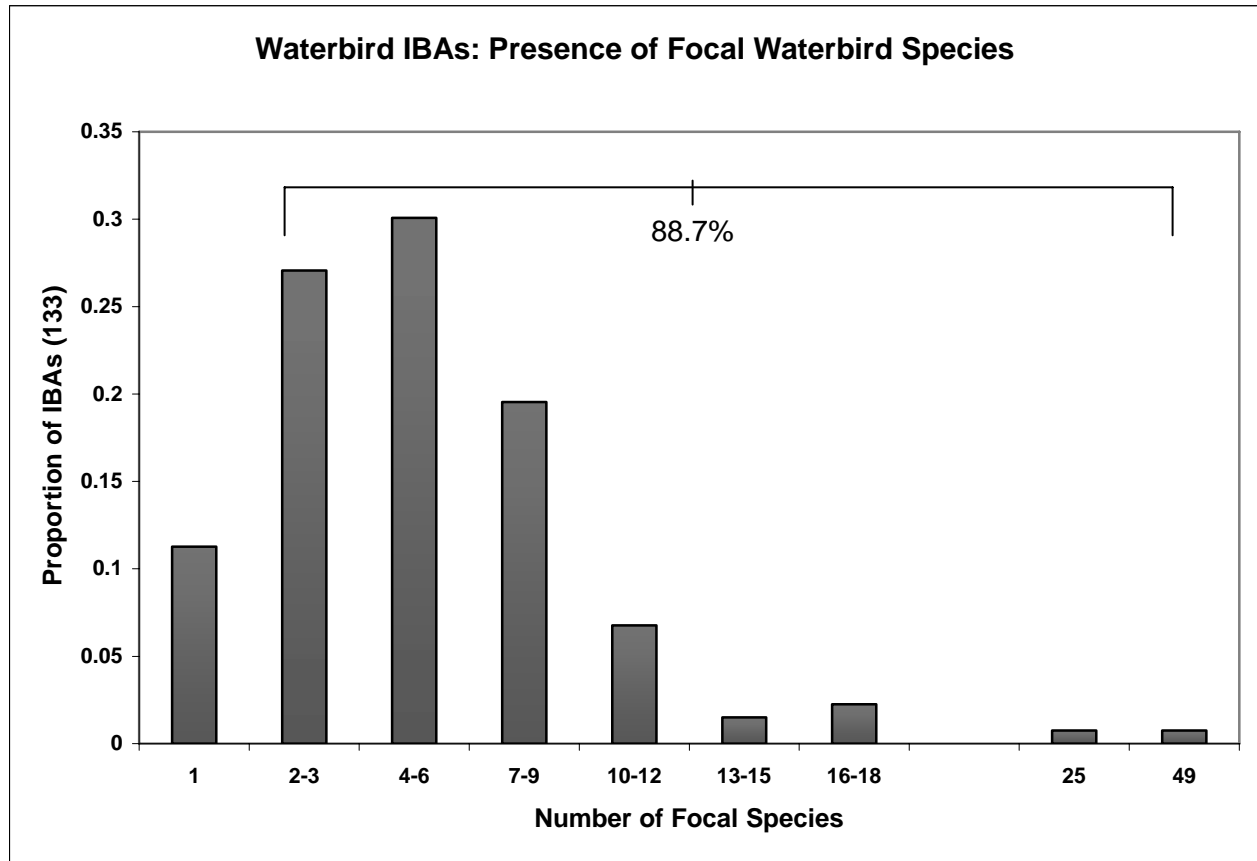


Figure 32. Presence of Focal Waterbird Species at Waterbird IBAs with in Focal BCRs.

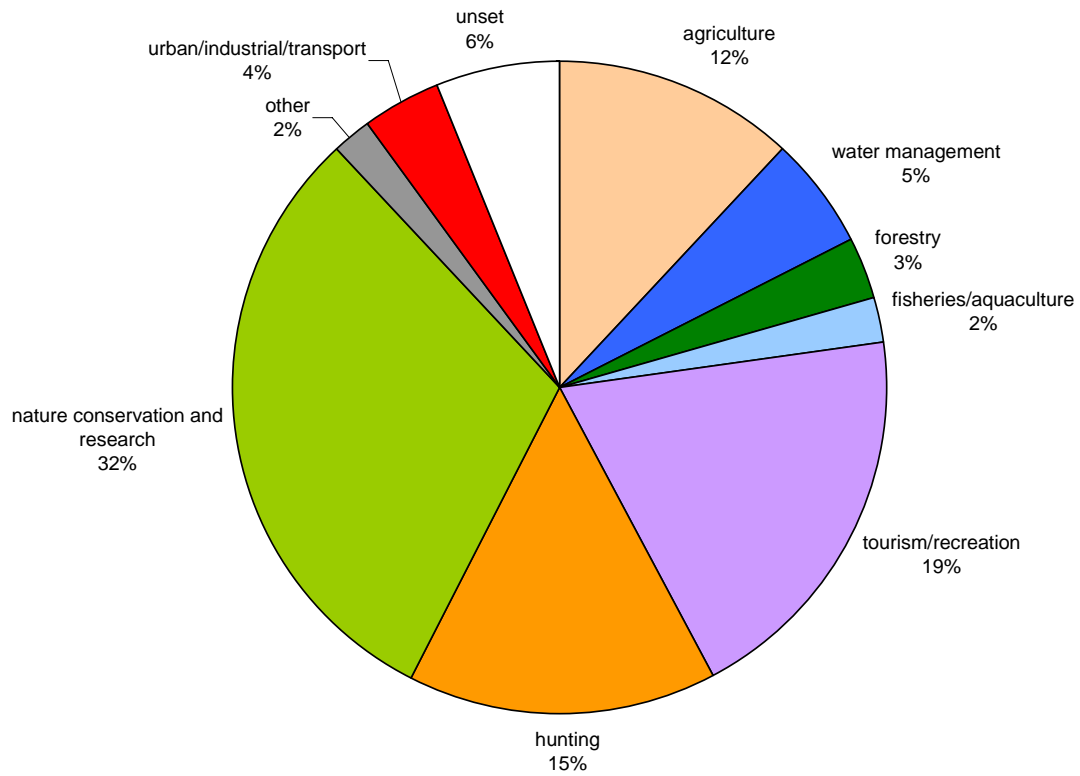


Figure 33. Relative frequency of land use types applied at 133 focal BCR IBAs (N = 310 land use records). Unset refers to sites where a category has not been assigned.

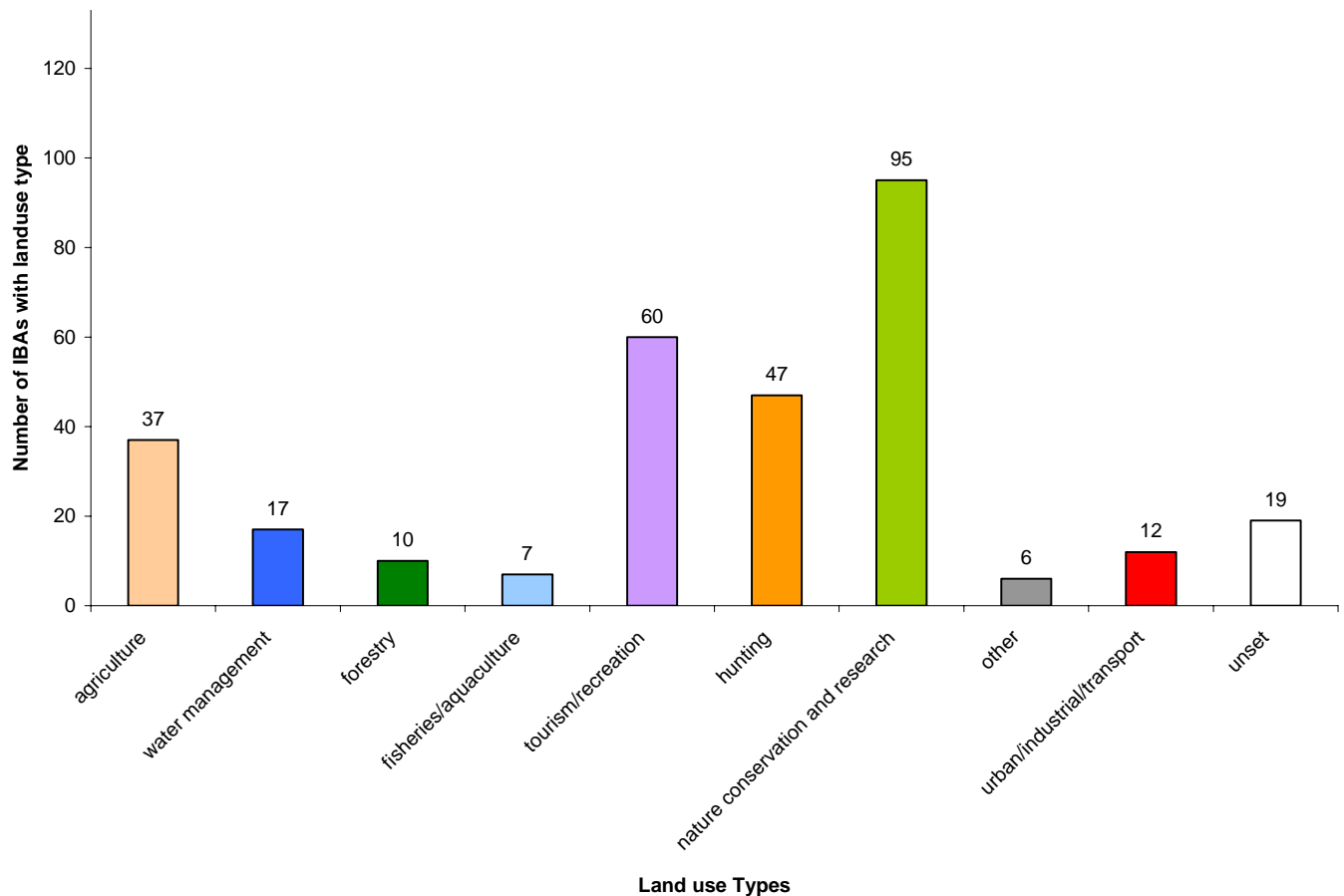


Figure 34. Landuse types for 133 IBAs in Waterbirds on Working Lands focal area. Unset refers to sites where a category has not been assigned.

A review of land ownership of 133 waterbird IBAs reveals that the majority, 84%, contain land in public ownership (Figure 35). Categories aggregated for public ownership include state, federal, township/municipality, county, and non-profit. Non-profit lands, typically considered privately held, are likely to represent conservation or recreation land. The same is probably true for most of the other categories under public lands (Table 11). In the private lands category are individual and for-profit ownership types which total only 16% of the land within IBAs in the Waterbird on Working Lands focal area. The region overall is dominated by row crop agriculture so it is not surprising that the majority of the IBAs are publicly owned. These pockets of public lands, many of which are in a conservation status, provide critical habitat to many species in the Waterbirds on Working Land focal area. This is somewhat unique relative to the rest of the U.S. where a ratio of 60% public and 30% private is expected.

A two-tiered approach is used to categorize ownership within the IBA database. The first tier is broad (*i.e.*, Federal, State, Non-profit) and the second details more specifically the first tier (*i.e.*, Fish and Wildlife Service, State Park, Audubon Sanctuary). The breakdown of the number of IBAs falling into these IBA categories for ownership is detailed in Figure 36. For the 133 Important Bird Areas, 208 ownership categories were recorded. Of the 133 IBAs in this review approximately 60% had multiple owners and roughly 40% fell into a single ownership.

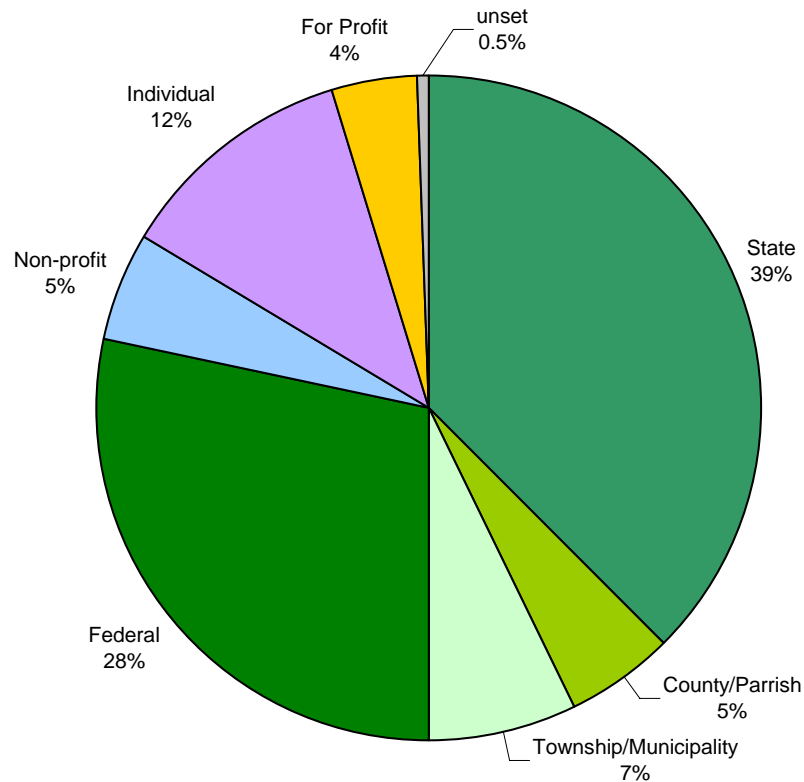


Figure 35. Tier one ownership types for waterbird IBAs. Unset refers to sites where a category has not been assigned.

Table 11. Breakdown of the number of IBAs having specific (tier two) ownership types.

Public Ownership		Number of IBAs	Private Ownership		Number of IBAs
Federal	FWS - National Wildlife Refuge	20	Individual	Other	3
	USDA Forest Service - National Forest	2	For-profit	Agriculture/Farming	1
	DoD - Navy	1			
	NPS - National Lakeshore	1			
	NPS - National Memorial	1			
State	Wildlife Management Area	10			
	State Park	7			
	Conservation Area	1			
	State Recreation Area	1			
Non-profit	State Wilderness/ Natural Area	1			
	Audubon - Sanctuary Environmental/Conservation Organization	1			
County/Parrish Township/Municipality	Other	1			
	Nature Preserve	1			
		49			4

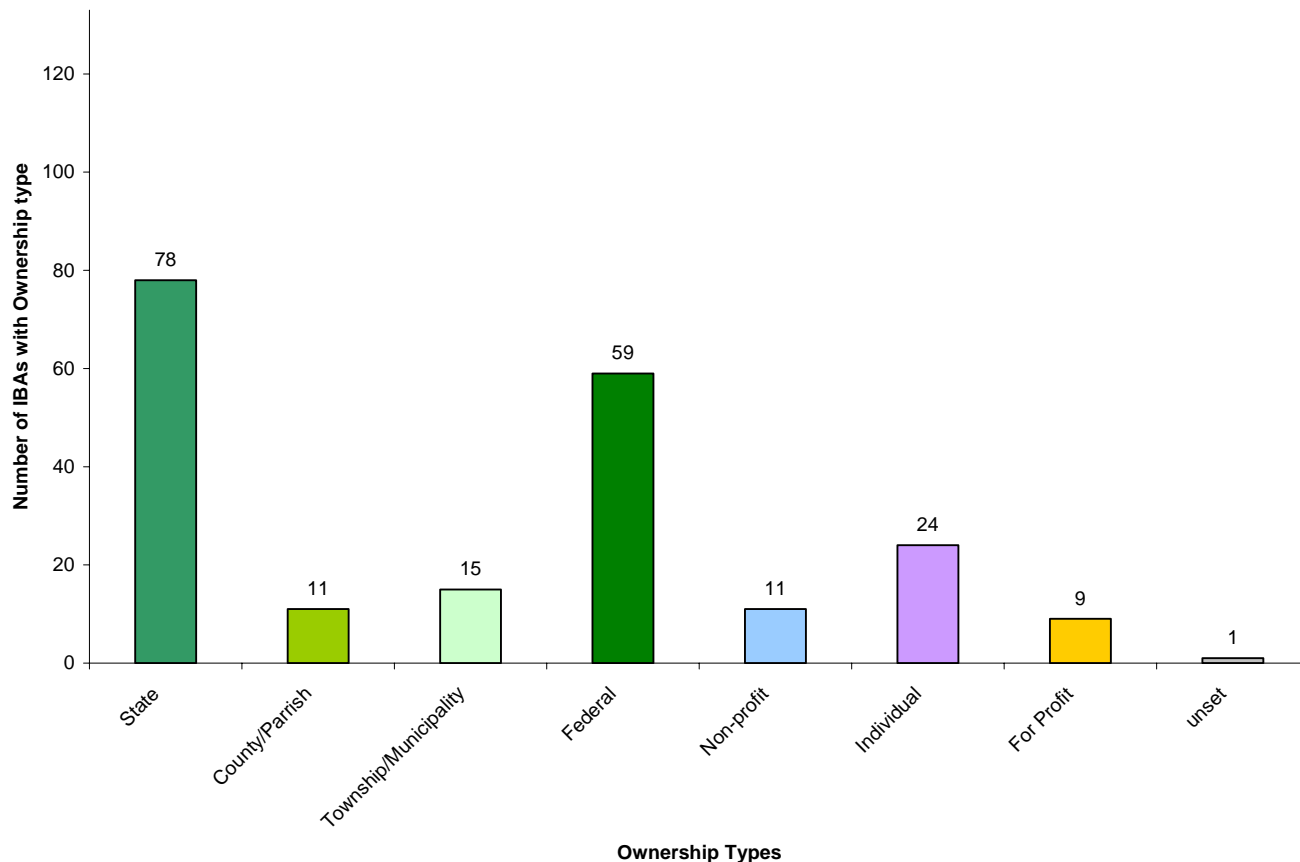


Figure 36. Number of IBAs reporting tier one ownership types. One hundred thirty-three IBAs recorded 208 ownership types.

One of the most significant bits of information that can be tracked about IBAs are the threats associated with the sites. Beyond biological significance this is likely the next most important prioritization parameter when considering where to focus conservation actions. The three most dominant threats associated with the waterbird IBAs in the focal area are invasive species, natural events, and water diversions. Figure 37 shows all 20 threat categories that are associated with the focal area waterbird IBAs. One category, labeled unset, indicates where a threat has not been recorded in association with an IBA.

As with landuse and ownership, more than one threat type can be recorded in association with an IBA (Figure 38). One of the interesting aspects of looking at the frequency of occurrence of threat types is that it gives us a general indication that disturbance-related threats appear to be the most significant issue to waterbird IBAs in the Waterbirds on Working Lands focal area. Disturbance-related threats were associated with IBAs 158 times. The next most prevalent group of threats would be those associated with direct habitat loss, as habitat loss threats are associated with the IBAs 88 times. Finally, threats resulting from particular landuse activities are associated with the IBAs 50 times.

Since most of the IBAs in this review are publicly owned and likely in conservation or recreation ownership it is not be surprising that disturbance rises to the top of the aggregated threats. With most of the habitat in this region already converted to agriculture, actual habitat loss related threats would not be expected to dominate. However drainage of wetlands appears to still be an issue at a number of IBAs. Finally since it appears that many of these IBAs are either being managed for conservation purposes or have relatively restrictive control on

their use, direct impact from industry is a minor threat. Going back to the review of ownership, the IBA data suggest that these sites are relatively protected islands in a sea of agriculture.

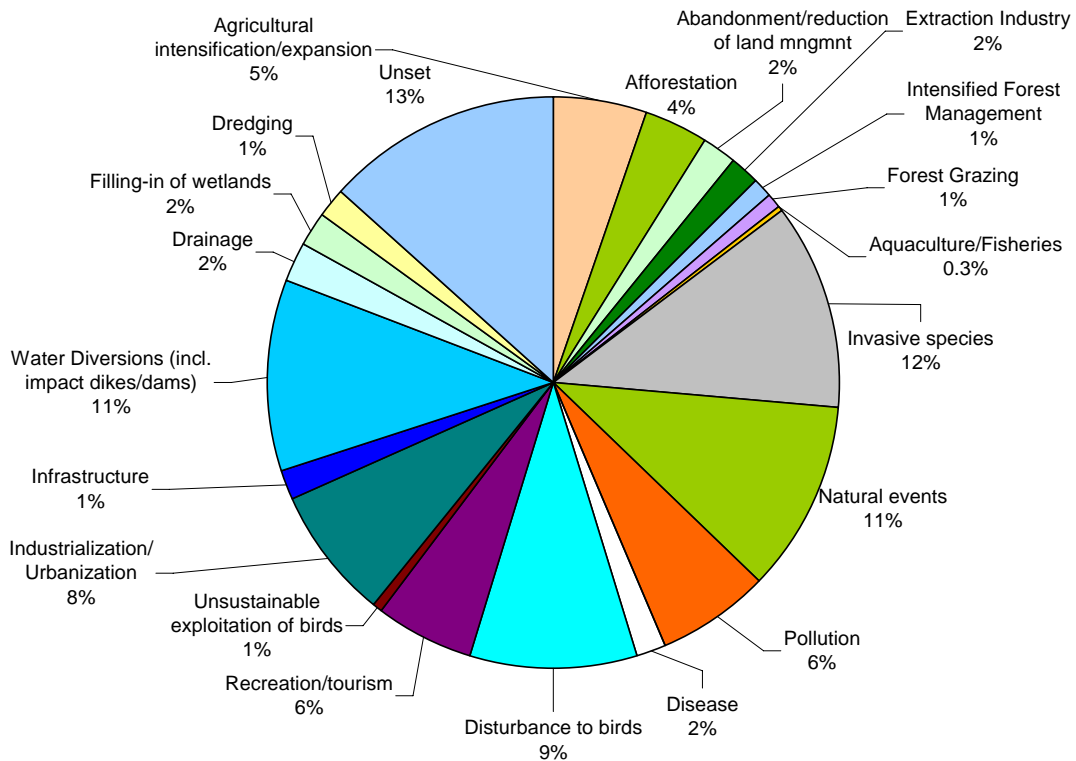


Figure 37. Threat types associated with 133 waterbird IBAs. Unset refers to sites where a category has not been assigned.

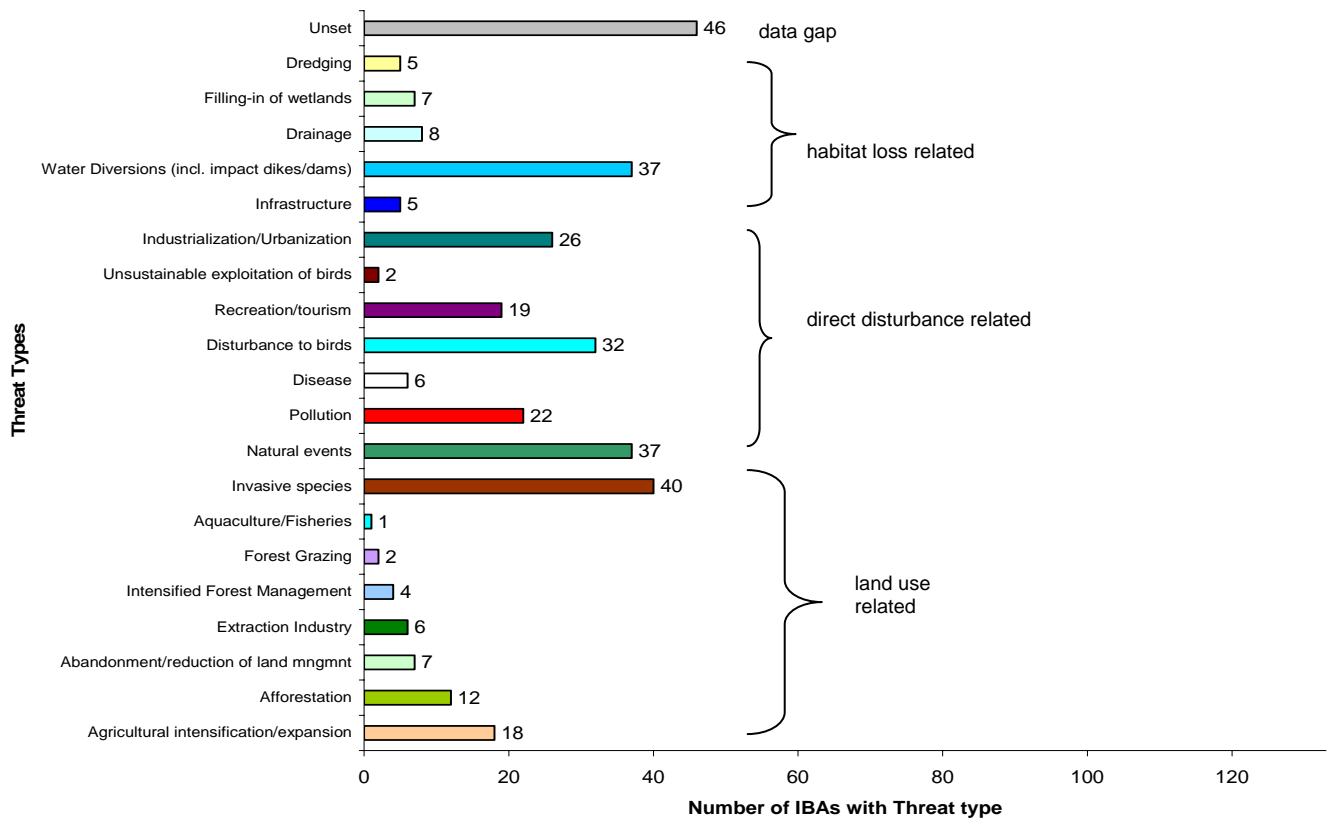


Figure 38. Threat types recorded at 133 Focal BCR IBAs. Unset refers to sites where a category has not been assigned.

While a review of habitats within these 133 Important Bird Areas has been excluded from this report due to a paucity of data available on habitat, we have included three IBA maps (Figures 39, 40, and 41) detailing the landuse and landcover within those site boundaries (National Land Cover Data 1992).

Figure 39 details the landuse and landcover of four Important Bird Areas in Illinois and Missouri near the confluence of the Missouri and Mississippi Rivers. A quick review of this map reveals a landscape dominated by row crops, pasture lands and forest, with a heavy coverage of high and low intensity residential areas in and around Saint Louis. The proximity of these Important Bird Areas to this large metropolitan area, along with their mix of natural and agricultural landscapes, creates a prime opportunity for directed conservation actions as well as educational and outreach activities. The Great Rivers Confluence Important Bird Area is considered in more detail in the Missouri Waterbirds on Working Lands Technical Report and in Box 1.

Contrasted with Figure 39, Figures 40 and 41 present a different set of challenges and opportunities for IBA conservation. Figure 40 details two IBAs, the American Golden Plover staging grounds Important Bird Area, a site of likely continental significance that is used by Golden Plovers during their spring migration. The second IBA shown on this map, Pine Creek/Robert Feldt Marsh is also important for American Golden Plover as well as Pectoral Sandpiper. Both of these IBAs are heavily used for row crop use and pasture land with the Pine Creek IBA also having some wetland habitat. The Pine Creek IBA also has the luxury of being owned by the state and utilized for hunting and also is undergoing restoration. These IBAs together provide a unique opportunity to contrast and compare agricultural and habitat management practices to better understand the impacts on both migrating and resident birds.

Figure 41 details the landuse, landcover, and partial ownership of the Jasper-Pulaski Fish and Wildlife area and surrounding areas Important Bird Area. This IBA has a mix of wetlands, forestlands, row crops and pasture land. The majority of the wetlands and woodlands are owned by the Indiana Department of Natural Resources, Division of Fish and Wildlife. The site is significant for Sandhill Cranes during migration and appears to satisfy global criteria for the number of cranes the IBA supports. Habitat management issues for migrant birds are likely going to be different from the issues and needs associated with resident and breeding birds. Given the mix of ownerships, habitats, and the use of those habitats by the migrant cranes, this Important Bird Area presents a different set of issues than those identified with the sites above.

To drill down further on the IBAs within the focal areas three states developed waterbird conservation technical reports. The states, Arkansas, Missouri, and Mississippi, were selected because of their location within the landscape of high intensity row crop agriculture, the prevalence of waterbirds in the state, and based on the status of their Important Bird Areas Programs. These states were asked to develop technical reports with the following objectives:

- Assess population status and trends of waterbirds in state: current and historical
- Assess waterbird use of habitats and landscapes generally, and specifically use of agricultural lands, and how those uses have changed historically
- Define waterbird IBAs in state
- Identify threats to waterbird populations and waterbird IBAs throughout state, and specifically any posed by agricultural activities
- Identify strategies for reducing threats to waterbird populations and waterbird IBAs, and specifically strategies for reducing any threats posed by agricultural activities
- Identify opportunities for working with the agricultural community to implement strategies for reducing threats to waterbird populations and IBAs
- Define and initiate implementation of possible outreach and on-the-ground conservation activities to engage agricultural community in reducing threats to waterbird populations and IBAs

These technical reports will provide in greater detail an understanding of the waterbirds and Important Bird Areas they depend on as well as the conservation opportunities that exist for these species and sites.

Conclusions

The above review of waterbird Important Bird Areas within the Waterbirds on Working Lands project focal area begins to give us a better understanding of some of the dominant characteristics of the 133 focal waterbird IBAs overall. Almost a quarter of these IBAs are globally or continentally significant indicating the importance of natural habitat in this region of the country to birds. Many of these IBAs are important for more than one species, stressing the importance of protecting and managing these sites and highlighting that we can realize some conservation efficiency by focusing on IBAs. We now know that 71% of these IBAs have some portion of

their habitat in dedicated conservation or recreation related activities and that 84 % of the IBAs overall have some portion of the site in public ownership. While both of those figures are positives, we must recognize that 60% of these IBAs have multiple owners highlighting the importance of conservation partnerships and the need to work with a multitude of landowners in order to address the threats these IBAs face. Understanding what threats these sites are incurring is of utmost importance, and the data indicate that invasive species, natural events and water diversion are the most significant threats to the birds at these IBAs. Stepping back from that scale, we know that disturbance related threats are the most numerous with habitat loss related threats following.

With this information we now have a mental picture of these IBAs, areas of natural habitat in a landscape dominated by agriculture, primarily owned by government agencies that utilize them for conservation, recreation and some extractive purposes. These IBAs face a multitude of uses where the birds primarily face threats due to disturbance, habitat loss and/or incompatible uses of the land.

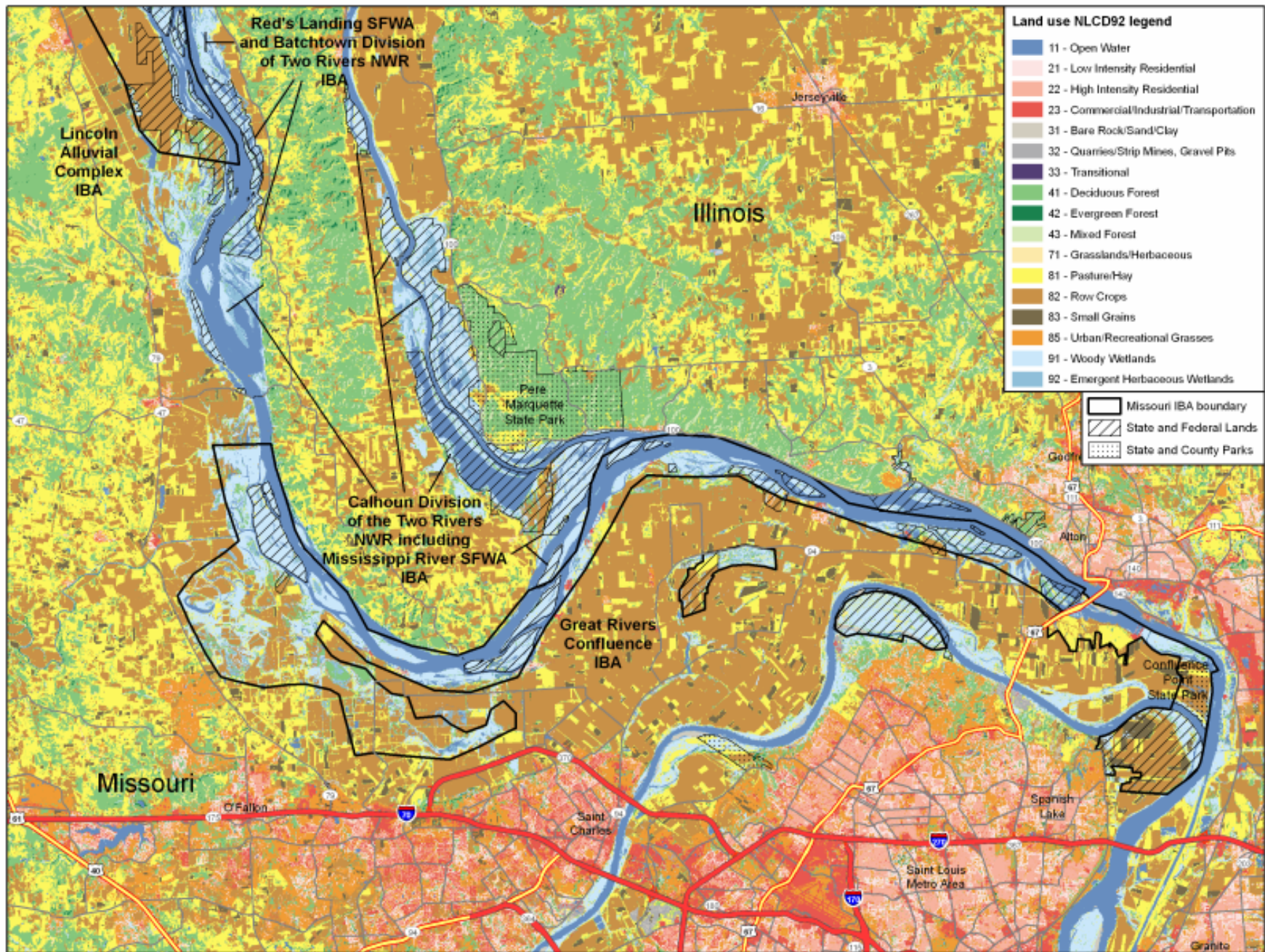


Figure 39. Landuse and landcover characteristics of four waterbird Important Bird Areas in Illinois and Missouri.

BOX 1. THE CONFLUENCE IMPORTANT BIRD AREA (provided by Roger Still)

Summary

This IBA is a 53,452 acre landscape within the floodplains of the Missouri and Mississippi Rivers at their confluence north of the city of St. Louis. The habitat consists of wetlands and bottomland forest and some of the best examples of wet prairie remaining in the state. Already significant public land holdings have been substantially augmented in recent years with the creation of Jones Confluence State Park and Columbia Bottom Conservation Area. Over 20,000 acres of the IBA are owned by a string of privately held duck clubs.

Agricultural Context

Agricultural production, largely row cropping, remains an important component of the landscape due to the rich fertility of the soils. Private floodplain landowners, many of whom have farmed their properties for multiple generations, continue to produce corn and soybeans and other crops. Duck club owners hire salaried land managers who plant crops for revenue alongside wetland management practices focused on waterfowl. Federal and state agencies also lease part of their lands to local private landowners as part of agreements that placed the lands in public ownership.

Conservation Threats

Large river systems, and floodplains such as that found at the Confluence, serve many human interests including agriculture, water supply, commerce, urban expansion, recreation, and housing. The Missouri and Mississippi Rivers have been altered by levees, dikes, locks, and dams. As a result, the health and diversity of native water birds and other terrestrial and aquatic plants and animals have been negatively affected.

Within the Confluence IBA, the most urgent threats include:

- Habitat fragmentation caused by rapid St. Louis area suburban development.
- Run-off and sedimentation problems created by inappropriate land management practices.
- Invasive exotic terrestrial and aquatic plants and animals enabled by a variety of adverse uses.
- Limited understanding of the importance of and how to implement best restoration practices for threatened native species on private lands.

Conservation Opportunities within an Agricultural Context

This project is part of a multi-partner initiative in the Confluence to restore recently acquired public lands, work with local duck clubs and other private landowners to encourage conservation friendly management of their lands, and to educate citizens in the region about the importance of the ecological and cultural resources in the confluence region.

Opportunities to work with agricultural producers to abate threats within the Confluence include:

- Making this a focal area for the recently formed Missouri Agricultural Wetland Initiative, a partnership formed by federal and state agencies and non-profit conservation organizations, including Audubon, to engage the agricultural community in actions to benefit wetland species alongside agricultural practices.
- Explaining the benefits of and securing agreements with private landowners to place conservation easements on their lands to limit habitat fragmentation, a step already taken by several duck clubs.
- Demonstrating best management practices for threatened native wildlife and run-off and sedimentation issues on public and private lands and finding more willing private landowners to implement such restoration actions.
- Through targeted outreach and education efforts, making agricultural producers more aware of the diversity and importance and birds and other wildlife that utilize the area as habitat.

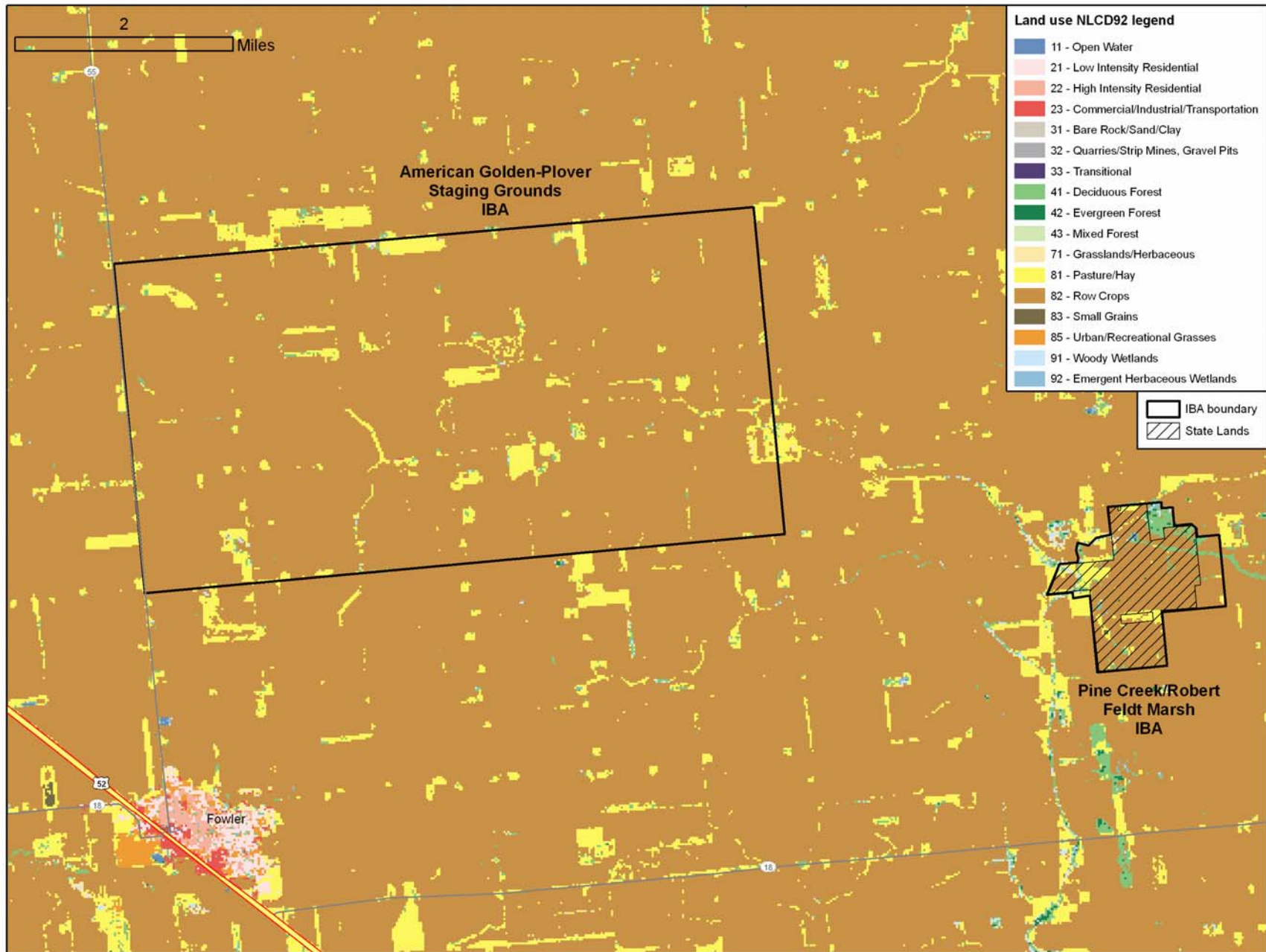


Figure 40. Landuse and landcover characteristics of two Important Bird Areas in Indiana.

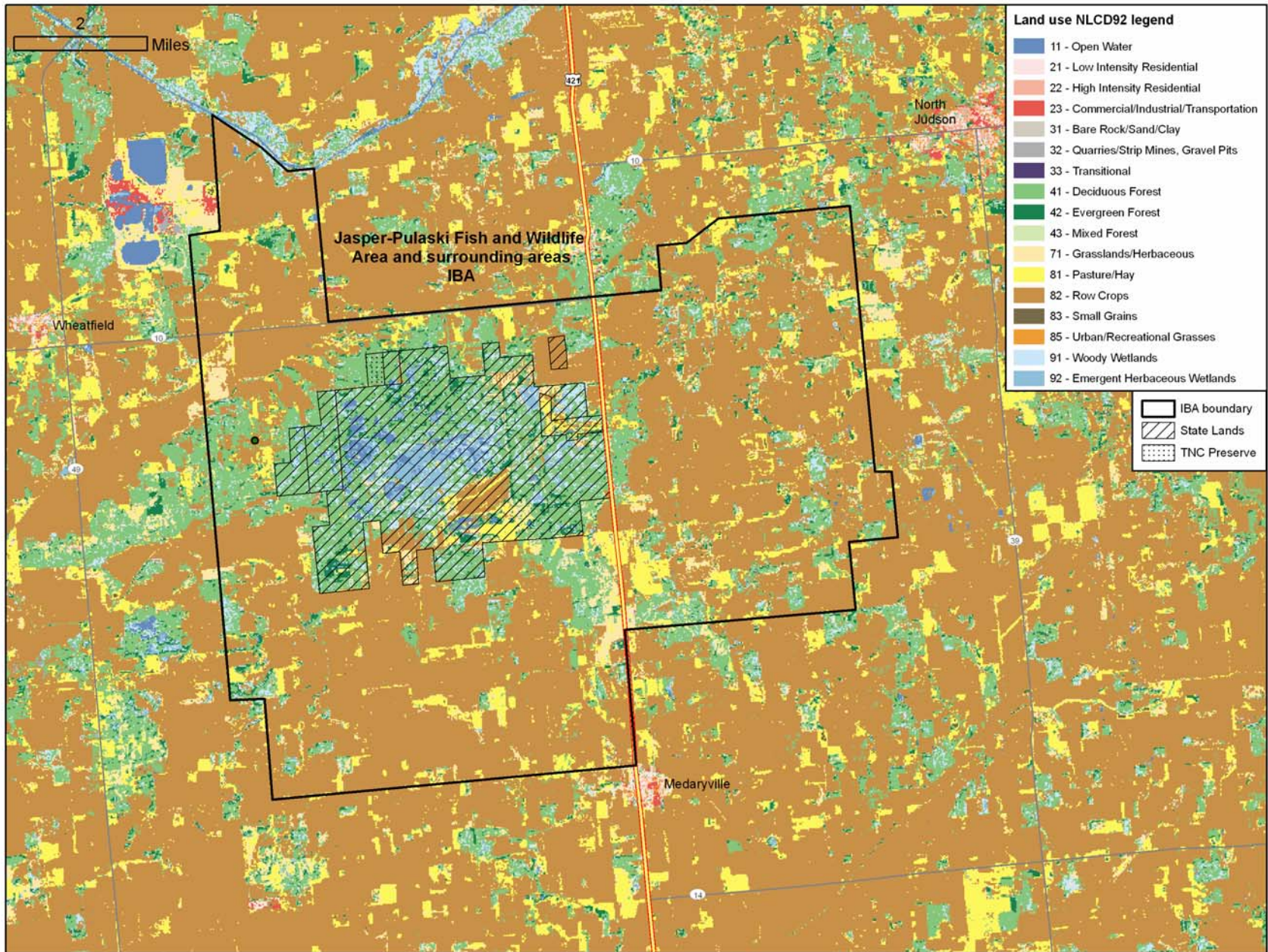


Figure 41 Landuse and Landcover characteristics of Jasper-Pulaski Fish and Wildlife Area and surrounding areas Important Bird Area.