



Credit: Jim Williams

# Upland Sandpiper Minnesota Conservation Plan

*Audubon Minnesota  
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The *Blueprint for Minnesota Bird Conservation* is a project of Audubon Minnesota written by Lee A. Pfannmuller ([leefann@msn.com](mailto:leefann@msn.com)) and funded by the Environment and Natural Resources Trust Fund. For further information please contact Mark Martell at [mmartell@audubon.org](mailto:mmartell@audubon.org) (651-739-9332).

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# Upland Sandpiper Conservation Blueprint

*Bartramia longicauda*

## Priority for Minnesota's *Implementation Blueprint for Bird Conservation*

- Prairie Parkland Region (Prairie Parkland Ecological Province): Highest Level Priority
- Tallgrass Aspen Parklands Region (Tallgrass Aspen Parklands Ecological Province): Highest Level Priority
- Prairie Hardwood Transition Region (Eastern Broadleaf Forest Ecological Province): High Level Priority
- Boreal Hardwood Transition Region (Laurentian Mixed Forest Ecological Province): High Level Priority

## Executive Summary

Audubon Minnesota selected the Upland Sandpiper as one of 26 Target Conservation Species in the state. It is one of four species to represent Minnesota's Prairie Parkland Region (also known as the Prairie Parkland Ecological Province by Minnesota's Ecological Classification System and part of Bird Conservation Region 11 (i.e. the Prairie Potholes) by Partners in Flight). The other regional Target Conservation Species are the Blue-winged Teal, Black Tern and Grasshopper Sparrow. All four species are classified as Highest Level Priorities by *Audubon's Implementation Blueprint for Minnesota Bird Conservation*. Conservation plans were only prepared for three of the four species. Because it is managed as a harvested waterfowl species by the Minnesota Department of Natural Resources and the U.S. Fish and Wildlife Service, a plan was not prepared for the Blue-winged Teal.

The Upland Sandpiper was also selected as one of three Target Conservation Species to represent the Tallgrass Aspen Parklands Region (also known as the Tallgrass Aspen Parklands Ecological Province by Minnesota's Ecological Classification System and part of Bird Conservation Region 11 by Partners in Flight). The other Target Conservation Species are the Franklin's Gull and Sharp-tailed Grouse. Plans only were prepared for Target Species classified as Highest Level Priorities in the region; because it was classified a High Level Priority, a plan was not prepared for the Sharp-tailed Grouse.

The Upland Sandpiper is a sentinel species of Minnesota's native prairies and grasslands. It is found throughout western Minnesota and, where there is appropriate grassland habitat, even extends as far north and east as St. Louis County. Although originally dependent on native prairie, Upland Sandpipers have adapted well to grazed pastures, hayfields and restored grasslands. The addition of over 1.8 million acres of Conservation Reserve Program (CRP) grasslands, in particular, provided significant new acreage for the species as well as for a suite of other grassland birds. However, the recent loss of over 400,000 CRP acres since 2007 is a major concern for the species status. Overall, Upland Sandpipers have increased slowly nationwide since the federal Breeding Bird Survey began in 1966, but they have declined significantly in Minnesota. From 1966-2012 they declined an average of 2.23% per year in the state for a cumulative decline of nearly 64%.

The Conservation Plan that follows is divided into two parts. The first provides background on the Upland Sandpiper, including its status, distribution, habitat requirements and management needs. The second is a detailed conservation plan that outlines species management recommendations. The highest priorities are to collect additional data on nineteen Important Bird Areas that are known or suspected to support breeding birds and to actively collaborate on the implementation of Minnesota's Prairie Landscape Conservation Plan.

## Introduction

The Upland Sandpiper was selected as a **Target Conservation Species** for Minnesota's *Implementation Blueprint for Bird Conservation* (<http://mn.audubon.org/>). It is one of four Target Conservation Species selected for the Prairie Parkland Region (also known as the Prairie Parkland Ecological Province by Minnesota's Ecological Classification System and as part of Bird Conservation Region 11 (i.e. the Prairie Potholes) by Partners in Flight) and one of three Target Conservation Species selected for the Tallgrass Aspen Parklands Region (also known as the Tallgrass Aspen Parklands Ecological Province by Minnesota's Ecological Classification System and part of Bird Conservation Region 11 by Partners in Flight). The process for selecting target conservation species is described in the *Blueprint's* conservation recommendations for the Prairie Parklands Region and Tallgrass Aspen Parklands Region which are available on the Audubon Minnesota website. Briefly, target species are defined as birds 'whose status and trends are likely to be responsive to changes in ecological conditions, permit inference to the integrity of the overall ecosystem and provide meaningful information regarding the effectiveness of the plan.' This has been broadly adapted from the U.S. Forest Service's definition of Focal Species in the 2012 revisions to the National Forest System Land and Management Planning Rule (*U.S. Forest Service 2012*).

In the Prairie Parklands Region target species were selected to represent the following habitats as delineated and described by the Minnesota Department of Natural Resources in *Tomorrow's Habitat for the Wild and Rare* (Minnesota Department of Natural Resources 2006):

1. Wetlands
2. Prairies/Grasslands

The Upland Sandpiper was selected to represent prairies/grasslands as was the Grasshopper Sparrow. The Black Tern and Blue-winged Teal were selected to represent wetlands. All four species are classified as Highest Level Priorities in the Prairie Parkland Region by Audubon's *Implementation Blueprint for Minnesota Bird Conservation*. A complete list of all the other priority birds and conservation targets in the region can be found in the *Implementation Blueprint*. Conservation plans only were prepared for three of the region's Target Conservation Species. Because the Blue-winged Teal is a harvested waterfowl species that receives considerable management attention by state and federal resource agencies, a comprehensive conservation plan was not prepared.

In the Tallgrass Aspen Parklands Region target species were selected to represent three habitats described by *Tomorrow's Habitat for the Wild and Rare*:

1. Wetlands
2. Prairie/Grasslands
3. Brush Prairie

Again, the Upland Sandpiper was selected to represent prairies/grasslands. The Franklin's Gull was selected to represent wetlands and the Sharp-tailed Grouse was selected to represent brush prairies. Because the *Blueprint's* primary emphasis is to focus attention and resources on a small, select number of conservation targets, comprehensive conservation plans were prepared for only two of the region's three target conservation species, i.e. those that were designated the Highest Level Priority (Upland Sandpiper and Franklin's Gull). A plan was not prepared for the Sharp-tailed Grouse; the Sharp-tailed Grouse was classified as a High Priority Species for the region. A complete list of the other priority birds and conservation targets in the Tallgrass Aspen Parklands Region can be found in the *Implementation Blueprint*.

## Background

### Status

Legal Status: None

#### Other Status Classifications:

##### 1. National

- United States Shorebird Conservation Plan: High Concern with a declining population (Population Trend = 5 which denotes an endangered or significant population decline) (*Brown et al. 2001*).

##### 2. Regional

- U.S. Fish and Wildlife Service Bird of Management Concern in Region 3 (Midwest Region) (*U.S. Fish and Wildlife Service 1995*).
- U.S. Fish and Wildlife Service Bird of Conservation Concern in Bird Conservation Region 11 (Prairie Potholes), 12 (Boreal Hardwood Transition), 22 (Eastern Tallgrass Prairie), 23 (Prairie Hardwood Transition), Region 3 (Midwest) and Nationally (*U.S. Fish and Wildlife Service 2008*).
- Focal Species in the Upper Mississippi Valley/Great Lakes Joint Venture Region (*Potter et al. 2007*).
- Focal Species in the Prairie Pothole Joint Venture Region (*Granfors and Niemuth 2005*).
- Northern Prairie and Parkland Waterbird Region: High Concern (*Skagen and Thompson 2013*).
- Upper Mississippi River and Great Lakes Waterbird Region: High Concern in Bird Conservation Regions BCR12 (Boreal Hardwood Transition), 22 (Eastern Tallgrass Prairie) and 23 (Prairie Hardwood Transition) (*Wires et al. 2010*).

##### 3. Minnesota

- Species in Greatest Conservation Need in Minnesota (*Minnesota DNR 2006*); continued listing in 2013 (*new list not published as of Spring 2014*).
- Audubon Minnesota's Action List (*Audubon 2008*).

### Range

Historical Breeding Range: A species of the central Great Plains and Midwest prairies, the Upland Sandpiper's breeding range in Canada extended from British Columbia, across the southern half of the Canadian Prairie Provinces east to the southern tier of Ontario and Quebec. In the United States they bred across the Great Plains states from western Montana, south to northern Texas and east through the Great Lakes states and former grasslands of the Ohio Valley. Upland Sandpipers expanded east as the eastern forests were cleared for agriculture, becoming locally common in such areas as southern New Hampshire in the late 1880s (*Foss 1994*). The population began a significant decline shortly afterward due to intensive market hunting and the loss of habitat both on the breeding grounds and on its wintering grounds east of the Andes Mountains in Argentina, Paraguay, Uruguay, Brazil and Bolivia. When hunting pressures eased, the populations rebounded some. Easily adaptable to grazed and hayed grasslands, they fared well in the agricultural landscape until small family farms gave way to intensive row crop agriculture and grasslands were hayed frequently throughout the breeding season (*Houston et al. 2011*).

In Minnesota, T.S. Roberts (*1932*) described the Upland Sandpiper (then Upland Plover) as an abundant "summer resident throughout the western prairies and the more sparsely wooded regions of the state." It also bred in the southeast region of the state, as far north as "southern border of the heavy forests."

However, he writes “to recite the history of the Upland Plover in Minnesota is to tell a sad tale of the wanton destruction of a valuable and once abundant bird that resulted in its almost complete extermination.” He tells of hearing stories of hunters killing ‘plovers’ in large numbers for markets in the east and overseas. By 1900 the bird was gone from the southern prairie counties of Jackson and Pipestone. Slowly, however, the population began to rebound in the 1920s and 1930s.

Current Breeding Range: Except for scattered remnants, the Upland Sandpiper is largely gone from the states of Ohio, Indiana and Illinois and western New York and New England (Figure 1). In some of these areas the mowed grass found along airport runways provides the only remaining habitat. The Upper Great Plains now supports nearly 70% of the species breeding range (*Vickery et al. 2010*).

In Minnesota, although the species has rebounded considerably from the time that T.S. Roberts wrote his account, Upland Sandpipers are not nearly as abundant as they once were. They can still be found throughout most of the state, except the northeast and north central regions, but their primary distribution is restricted to the extreme western region of the state, from Rock County north to Kittson County (Figure 1). As one moves east, they are increasing uncommon.

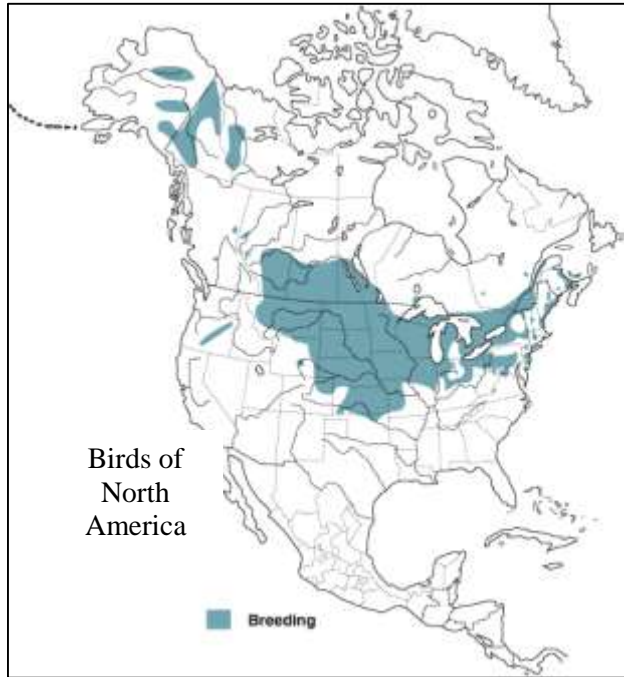
Summary of Presence on Minnesota Important Bird Areas: Upland Sandpipers have been documented as either a summer resident or migrant on 37 of the currently designated 57 Important Bird Areas in Minnesota. Among the 37, they have been confirmed breeding at 11 IBAs listed in Table 1.

**Table 1. Minnesota’s Important Bird Areas with Nesting Upland Sandpipers**

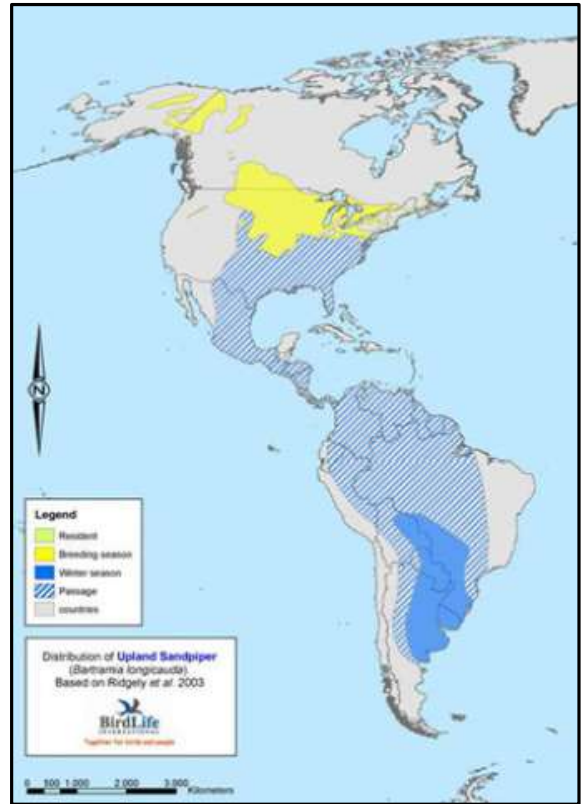
Agassiz NWR	Heron Lake	Sherburne NWR
Bluestem Prairie-Buffalo River State Park	Kettle River-Banning State Park	Thief Lake
Des Moines River	Kittson-Roseau-Aspen Parklands	Upper Mississippi River NWR
Goose Lake Swamp	Lac Qui Parle-Big Stone	

Given the wide distribution of these 11 IBAs across Minnesota, it is likely that the birds are breeding at many other IBAs as well.

**Figure 1. Upland Sandpiper Distribution Maps**



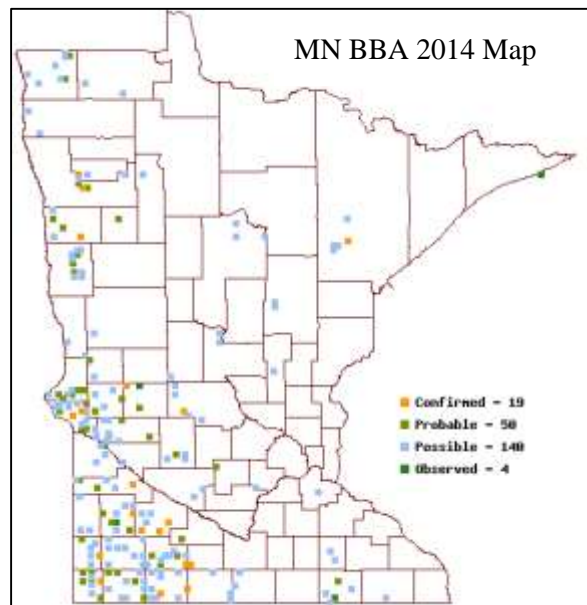
Birds of North America <http://bna.birds.cornell.edu/bna/>



From the Upland Sandpiper Conservation Plan (Vickery et al. 2010)



MN DNR [http://www.dnr.state.mn.us/eco/mcbs/bird\\_map\\_list.html](http://www.dnr.state.mn.us/eco/mcbs/bird_map_list.html)



MN Breeding Bird Atlas <http://www.mnbba.org/>

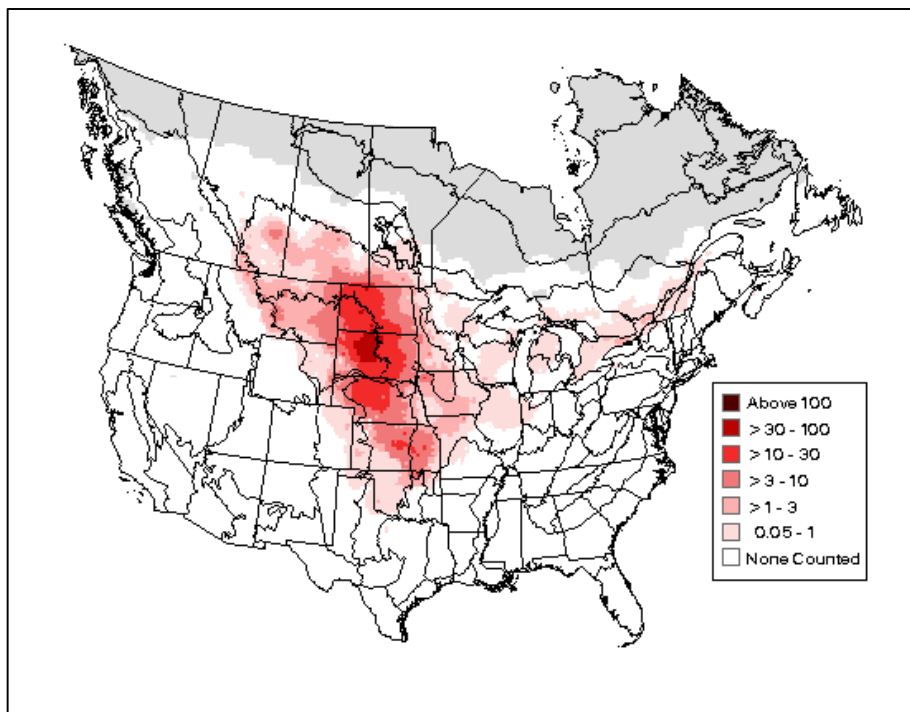


## Population Numbers

### National

- North America population estimate: 350,000 breeding pairs (*Potter et al. 2007*).
- Tentative population target is 470,000 (*Brown et al. 2001*); proposed action: halt declines and restore to calculated 1980 levels.
- The relative abundance of breeding birds from 2006-2012, as assessed by the Federal Breeding Bird Survey (*Sauer et al. 2014*), is illustrated below.

**Figure 2. Relative Abundance of the Upland Sandpiper in North America (2006-2012).**



### Regional

- More than 27% of the species population is estimated to occur in the Prairie Pothole Region (*Granfors and Niemuth 2005*).
- In the Upper Mississippi Valley/Great Lakes Joint Venture region the current population estimate is 33,000 birds; the goal is 45,000 birds (*Potter et al. 2007*).

### Minnesota

- Population numbers are not available for Minnesota.
- Minnesota does not include one of the species centers of highest abundance; the center of highest abundance occurs to the west in South Dakota.
- 6.1% of the Upland Sandpiper's North American breeding range occurs in Minnesota.

**Population Trends**

National Breeding Bird Survey (BBS) Data (*U.S. and Canada, Sauer et al. 2014*)

- Blue level of credibility (i.e. the U.S. Geological survey has classified the BBS data for the Upland Sandpiper at the national level as data with moderate precision; <http://www.mbr-pwrc.usgs.gov/bbs/credhm09.html>).
- From 1966 to 2012 the Upland Sandpiper had an increasing population trend of 0.68% per year (statistically significant); from 2002-2012 it also increased at a rate of 1.61% per year.

Regional BBS Data (*Sauer et al. 2014*)

- Regionally, the Upland Sandpiper demonstrates annual population trends shown in Table 2.

**Table 2. Upland Sandpiper Regional Population Trends**

Region	Credibility Level	1966-2012	Statistically Significant	2002-2012	Statistically Significant
Prairie Potholes	Moderate	+0.37% per year	No	+0.72% per year	No
Prairie Hardwood Transition	Deficiency <sup>1</sup>	-4.02% per year	Yes	-3.57% per year	Yes
Boreal Hardwood Transition	Deficiency	-1.83% per year	Yes	-1.74% per year	Yes

<sup>1</sup> A Yellow level of credibility means the data have a deficiency because of the species low abundance (<1.0 birds/route), a small sample size (< 14 routes), or the results cannot detect a 3% per year population change over time; <http://www.mbr-pwrc.usgs.gov/bbs/credhm09.html>.

Minnesota BBS Data (*Sauer et al. 2014*)

- The Breeding Bird Survey data for Minnesota has a Yellow level of credibility. The data document a statistically significant decline of -2.23% per year from 1966-2012, as well as a decline of -2.12% per year from 2002-2012.
- Average # birds/route is 0.9; found on 49 of Minnesota’s 82 routes.

**Life History Characteristics Relevant to Recovery**

Migration: Neotropical

Climate Change Vulnerability: Medium (2) (*Butcher 2010*).

Home Range and Territoriality: Houston et al. (2011) noted that it is uncommon for Upland Sandpipers to nest alone and cited several studies that report Upland Sandpipers often nest together in small groups or loose colonies. In particular a study by Casey et al. (2011) “found that patterns of nest aggregation are caused by females preferentially settling near relatives, creating a semi-colonial nesting arrangement”. Nesting densities can vary widely, ranging anywhere from less than one nesting pair per 100 ha to over 100 nesting pairs per 100 ha. The birds generally have large home ranges, varying from 8 ha to 60 ha (*Houston et al. 2011*). More recent studies using radio transmitters have documented much larger home ranges (from 200-247 ha); males tend to have smaller home ranges except during the brood rearing period when males provide most of the care to the young. The sandpipers’ large home ranges may be responsible for the area sensitivity they demonstrate in some regions.

Age at First Reproduction: Not known but assumed to be one year (*Houston et al. 2011*).

Nesting Dates: May through late June; nest building begins 14-15 days after they arrive on the breeding grounds (*Houston et al. 2011*); in Minnesota spring migration occurs from mid-April through late May with a peak in early May (*Janssen 1987*).

Clutch Size: Clutch size usually 4 eggs; in rare cases there are more than 4 eggs suggesting egg dumping by more than one female (*Houston et al. 2011*).

Longevity of Adults: Not known; two reports: one of a 5 year old individual; another of a bird 8 years and 11 months (*Houston et al. 2011*).

Food: Small invertebrates comprise 95-97% of the diet; seeds comprise the remaining 3-5% (*Houston et al. 2011*).

## **Habitat Requirements and Limiting Factors Related to Habitat**

Habitat Categorization: Grassland

### Limiting Factors during the Breeding Season

*From the Upper Mississippi Valley/Great Lakes Shorebird Conservation Plan (Potter et al. 2007):*

- Lack of large grassland areas having short, medium and tall grasses in close proximity for nesting, brooding, and foraging is assumed to limit populations.
- Habitat loss due to fragmentation by urbanization and cultivation, along with natural forest succession, appear to be the most serious habitat threats.
- Invasive species such as spotted knapweed may be an important threat to nesting because of plant density and excessive height.

Area Sensitivity: The density and occurrence of Upland Sandpipers is impacted by the size of the grassland (*Ribic et al. 2009*).

### General Habitat Descriptions

*From Birds of North America (Houston et al. 2011):*

In general, uses dry grasslands “with low to moderate forb cover, low woody cover, moderate grass cover, moderate to high litter cover, and little bare ground”; habitat includes seeded grassland, stubble & fallow, grazed pastures, ungrazed grasslands, hayfields and crop fields, and open peatlands.

*From Upper Mississippi Valley/Great Lakes Shorebird Conservation Plan (Potter et al. 2007):*

- Primarily uses open grassland including native prairie, dry meadows, pastures, hayfields, short-grass savanna and minimally in cultivated fields.
- Sandpipers prefer sites that contain low to moderate forb cover, minimal woody cover, moderate grass cover, moderate to high cover with plant litter, and little to no bare ground. Vegetation 8-40 cm in height is preferred for nesting.
- Landscapes surrounding nesting sites are typically level with little tall vegetation. Invasive species such as spotted knapweed may be an important threat to nesting because of plant density and excessive height.
- The species is loosely colonial while breeding with densities up to 10 pairs/km<sup>2</sup>.
- Prefers grasslands > 100 ha in size, infrequently found in grassland < 50 ha.

*From Effects of Management Practices on Grassland Birds: Upland Sandpiper (Dechant et al 1999):*

- In general, Upland Sandpipers use areas with low to moderate forb cover, low woody cover, moderate grass cover, moderate to high litter cover, and little bare ground.
- Fence posts or other display perches may be important components of suitable habitat. Upland Sandpipers use native and tame grasslands, wet meadows, hay land, pastures, planted cover (e.g. Conservation Reserve Program lands and dense nesting cover), cropland, highway and railroad rights-of-way, and grassy areas of airports.
- In general, Upland Sandpipers forage within short vegetation and nest and rear broods within taller vegetation.
- Upland Sandpipers nest in a variety of habitats and vegetation heights and densities from idle prairie with dense, homogeneous vegetation to wet meadows, old fields, pastures, hay land, cropland, tame vegetation, burned areas, and sandy areas with sparse vegetation.
- Vegetation height around the majority of nests ranges from 10.2 to 63.5 cm.
- No clear pattern of preference for native versus tame vegetation over the breeding range of the Upland Sandpiper is discernible.
- Moderate amounts of forbs may be an important component in suitable nesting habitat.

*From A Conservation Plan for the Upland Sandpiper (Bartramia longicauda) (Vickery et al. 2010):*

- Nesting Upland Sandpipers are restricted primarily to extensive, open tracts of short grassland habitat. They occur, for example, in native prairies, dry meadows, pastures, domestic hayfields, short-grass savannas, plowed fields, along highway rights-of-way, and on airfields.
- The size of the grassland habitat appears to be critical, at least in the central part of its range.
- Heterogeneity appears to be an important component of Upland Sandpiper breeding habitat. They appear to avoid uniform vegetation, such as tall grasses, and generally prefer areas that provide patchy micro-sites with a variety of vegetation heights.
- They use grassy areas of low vegetation height for feeding and brood rearing.
- Further north, in Quebec, they use large peatlands (greater than 160 hectares).

*Note:* The U.S. Geological Survey's SHRIMP (Species Habitat Relations Information Management Program) database field test model includes the Upland Sandpiper. This is a database comprised of information related to habitat measures that have been collected and recorded in scientific publications and documents.

## **Threats**

- The loss of grasslands currently protected under the Conservation Reserve Program may be the single biggest threat to the Upland Sandpiper in the Great Plains. In Minnesota alone, over 400,000 acres were lost from a high of 1.8 million acres enrolled in 2007 down to 1.4 million acres enrolled in 2012 (McDonald 2013). The annual payments that farmers receive for enrolling their land in CRP can no longer compete with rising agricultural commodity prices.

*From the Upland Sandpiper Conservation Plan (Vickery et al. 2010):*

- The greatest threats the Upland Sandpiper faces are loss of habitat and the use of agrochemicals on both the breeding and nonbreeding grounds.

## **Best Management Practices**

*From Upper Mississippi Valley/Great Lakes Shorebird Conservation Plan (Potter et al. 2007):*

- Maintain current grassland/open land area and improve vegetation structure on grasslands potentially suitable for Upland Sandpipers.

*From Effects of Management Practices on Grassland Birds: Upland Sandpiper (Dechant et al. 1999):*

- Key to management is to provide grasslands of various heights with few shrubs. Upland Sandpipers require short vegetation for foraging, taller vegetation for nesting and short to medium vegetation for brood covers. In general they forage in vegetation < 30 cm high, nest in vegetation 10-64 cm high, and rear broods in vegetation usually <15 cm high.
- Maintain large (>100 ha) contiguous tracts of prairie to reduce edge, provide habitat heterogeneity, and to decrease nest predation.
- Blocks of habitat should be within 1.6 km of each other and be contiguous with grassy habitats (e.g. pasture, hayfields). Shape as well as area of management units must be taken into consideration.
- Maintain native prairie by implementing burning, grazing, or haying treatments or leaving tracts idle every 2-3 years.
- Allow some blocks of grassland to be undisturbed to serve as nesting cover.
- Avoid burning, mowing or plowing during the nesting season.
- Mowing and spraying of pesticides in CRP should be delayed until after July to avoid disturbances during peak nesting.
- Mowing of nesting and brooding habitat should be delayed until 1 July or later.
- Provide display perches, such as fence posts, rock piles or tree stumps.
- Prevent encroachment of woody vegetation.
- Provide a mosaic of habitat types, such as grassland of various heights and densities as well as cropland to provide for the needs of Upland Sandpipers throughout the breeding season.
- Small fragments should have <50% of their area burned at a time.
- Avoid season-long grazing.

*From Upland Sandpiper Conservation Plan (Vickery et al. 2010):*

- Maintain a mosaic of vegetation heights through appropriate grazing, prescribed burning or mowing.
- Prescribed burning of fields, rotating every 2 to 4 years, is recommended depending on precipitation patterns. Fall burns may enhance nesting success more than spring burns. Only part of large parcels (>75 ha) should be burned in any year.
- Moderate grazing can provide optimal nesting habitat. Ultimate goal is a mosaic of grass heights.
- Hay Field: Grasses in nesting fields should be short (10-20 cm) at the time of spring arrival. All haying operations should be curtailed until after chicks have hatched in mid-July.

*From Partners in Flight Bird Conservation Plan for the Northern Tallgrass Prairie (originally Physiographic Area 40 and later referred to as Bird Conservation Region 11) (Fitzgerald et al. 1998):*

- A model for landscape level grassland bird conservation was developed by research biologists at the Wisconsin Department of Natural Resources (Henderson and Sample 1995, Sample and Mossman 1997) and serves as the basic design for Partners in Flight grassland Bird Conservation Areas (BCAs) in the Midwest. The Wisconsin model seeks to mimic a landscape in which Greater Prairie-Chicken populations are stable, and in which other species of grassland birds are consistently present in high densities.
- The PIF model for grassland BCA's recommends a minimum 800 hectare (2,000 acre) block as a core area, within a 1.6 kilometer (one-mile) wide matrix (approximately 4000 ha or 10,000 acre) surrounding the core. The matrix should provide another 1,000 hectares (2,500 acres) of grassland habitat of some sort, with suggested minimum field sizes of 40 hectares (100 acres).
- Trees should occupy less than 5% of the BCA, and the preference for agricultural use within the matrix is pasture and small grains over row crops.
- A minimum of two BCAs per approximately 40,000 hectares (100,000 acres) is recommended.
- More details can be found in Fitzgerald et al. (1998).

From a summary of Habitat Recommendations provided by D. Johnson to M. Martell via email:

**Table 3. Habitat Management Needs for Upland Sandpipers**

Vegetation Height (cm)	<82 cm
Visual obstruction reading (Robel pole)	5-20
Grass cover (%)	>33%
Forb cover (%)	<50%
Shrub cover (%)	<13%
Bare ground cover (%)	3-12%
Litter cover (%)	11-30%
Litter depth (cm)	≤ 9 cm
Frequency of grassland disturbance	Every 2-4 years

### Gaps in Knowledge

From *Birds of North America* (Houston et al. 2011):

- Recent evidence of the decline of the species on its wintering grounds in South America needs in-depth investigation.
- More migration studies are needed to assess the control and physiology of migration, aerodynamic factors, flight adaptations, and timing of molt that allow a 10,000-kilometer, one-way migration; routes of migration and “refueling” requirements (Carter 1992), spacing, ecology, speed, and timing of migration all need further study.
- Little is known about annual reproductive success and nothing of lifetime reproductive success, particularly survival of fledglings and annual survival of adults.

### Associated Grassland Species

There is considerable variability among grassland habitats, including unplowed native prairie and grasslands restored from former agricultural practices; grasslands that are mowed or grazed; and grasslands that represent gradients that vary from wet to dry. Birds respond to this variability, some preferring wet versus dry prairie, and others preferring short vegetation maintained by mowing and grazing to tall, dense, undisturbed grasslands. The Upland Sandpiper is a grassland species that prefers large tracts (approximately 100 ha) of dry grasslands of varying heights, with few shrubs and forbs. Because of its large habitat requirements, other priority species delineated by Audubon Minnesota’s *Implementation Blueprint for Minnesota Bird Conservation* may benefit from management actions designed to benefit Upland Sandpipers, depending on the exact site conditions. Those species are listed in Table 4.

**Table 4. Priority Grassland Birds often Associated with Upland Sandpipers**

Associated Species	Bird Conservation Region			
	Tallgrass Aspen Parkland	Prairie Parkland	Prairie Forest Transition	Boreal Hardwood Transition
<b>Very Rare</b>	Chestnut-collared Longspur	Burrowing Owl		
	Dickcissel	Loggerhead Shrike		
	Baird's Sparrow	Sprague's Pipit		
		Baird's Sparrow		
<b>Highest Priority</b>	Northern Harrier	Northern Harrier	Henslow's Sparrow	
	Short-eared Owl	Short-eared Owl	Bobolink	
	Grasshopper Sparrow	Chestnut-collared Longspur	Eastern Meadowlark	
		Grasshopper Sparrow	Western Meadowlark	
<b>High Priority</b>	Greater Prairie-Chicken	Greater Prairie-Chicken	Field Sparrow*	Short-eared Owl
	Western Meadowlark	Clay-colored Sparrow*	Vesper Sparrow*	Bobolink
		Dickcissel	Lark Sparrow*	
		Western Meadowlark	Grasshopper Sparrow	
			Dickcissel	
<b>Moderate Priority</b>	Vesper Sparrow*	Marbled Godwit	Western Kingbird*	Field Sparrow*
	Bobolink	Vesper Sparrow*	Eastern Kingbird*	
		Henslow's Sparrow	Savannah Sparrow	
		LeConte's Sparrow		

\* Species that usually require some scattered shrubs or small trees in the grassland

# MINNESOTA CONSERVATION PLAN

## Conservation Goal

Halt the decline of Minnesota's Upland Sandpiper population and increase the population by approximately 35%.

Background: At the national level (U.S. and Canada) the Upland Sandpiper population, as measured by the Federal Breeding Bird Survey (BBS), has a statistically significant population trend that has been increasing approximately 0.68% per year from 1966 – 2012; in the past ten years it has increased at the rate of approximately 1.61% per year (2002-2012) (*Sauer et al. 2014*). The Conservation Reserve Program (CRP) that began with the 1985 Farm Bill may be one of the principal reasons that the sandpiper's population has increased at a slightly higher pace in the past decade. The federal government's largest private land retirement program, CRP provides payments to farmers to retire highly erodible or environmentally sensitive agricultural lands out of production for 10 or more years. Nationwide, the total number of acres enrolled has ranged from 30-40 million acres.

Although the national trend is positive, the Upland Sandpiper is decreasing in Minnesota, demonstrating a statistically significant decline of 2.23% per year from 1966-2012. Again, likely in response to the number of acres enrolled in CRP, the rate of decline has been slightly lower in the past ten years (-2.12% per year from 2002-2012) (*Sauer et al. 2014*).

In 2001, the U.S. Shorebird Conservation Plan (*Brown et al. 2001*) estimated a global population of 350,000; using this as a baseline, the Conservation Plan for the Upland Sandpiper (*Vickery et al. 2010*) established a population target of 470,000 individuals, an increase of approximately 35%. The target of 470,000 represented a return to the estimated population in the 1970s. However, the Upland Sandpiper Conservation Plan noted that at least one prominent shorebird ecologist, Brad Andres, suggested that a "no net loss" goal of maintaining the current population size might be more realistic. Given the anticipated loss of CRP acres, in light of high commodity prices, Andres' target may indeed be more reasonable. In Minnesota, which had over 1.8 million acres enrolled in CRP in 2007, nearly 425,000 CRP acres were no longer enrolled by 2013 for a total loss of 23% (*McDonald 2013*).

Both Joint Ventures that cover Minnesota have identified the Upland Sandpiper as a focal conservation species and have established a similar conservation goal of increasing populations in their respective regions by nearly 35%. The Prairie Potholes Joint Venture Conservation Plan for Shorebirds estimates that the population of Upland Sandpipers in the Prairie Potholes region is approximately 94,500 individuals; the target population is 126,900 individuals. The Upper Mississippi River/Great Lakes Joint Venture Conservation Plan for Shorebirds estimates that the population of Upland Sandpipers in that Joint Venture region is approximately 33,000 individuals; the target population is 45,000.

Unfortunately an estimate of the number of individuals or breeding pairs in Minnesota is not available. As a result, the Conservation Goal for the Upland Sandpiper can only be stated in terms of a percentage increase. Although maintaining Minnesota's current population may be more realistic in the short-term, given the potential loss of significant CRP acres, this Minnesota Conservation Blueprint adopts the national and regional goals to significantly increase the current population, thereby establishing an increase target of 35%.



## Conservation Objective

Initiate conservation actions designed to stop the decline of Minnesota's Upland Sandpiper population and work to increase it approximately 2.3% per year as monitored by the Federal Breeding Bird Survey in Minnesota in the next 15 years.

Background: The Minnesota Conservation Blueprint for the Upland Sandpiper adopts the specific objective established by the Upper Mississippi Valley/Great Lakes Joint Venture Shorebird Plan of increasing the population by 2.3% per year over a 15 year time frame (*Potter et al. 2007*).

## Actions Needed for Conservation

### Inventory and Assessment Needs:

- Given the continuing decline in Minnesota's Upland Sandpiper population, it is important to assess whether the species continues to nest in areas where it has been confirmed breeding in the recent past.

**Action:** Confirm the breeding status of Upland Sandpipers on the nine Important Bird Areas where they have been documented nesting in the past (see Table 1). Assess the approximate number of breeding pairs on each IBA with road counts and/or point counts.

**Action:** Confirm the status of Upland Sandpipers on ten Minnesota IBAs where they have been reported during the summer months or have been documented nesting in former years (Table 5). Assess the approximate number of breeding pairs on each IBA with road counts and/or point counts.

Background: In addition to the nine IBAs where Upland Sandpipers have been confirmed nesting, they have been reported at 34 other IBAs. This action places a priority on assessing their status on ten IBAs located in the Prairie Parkland and Tallgrass Aspen Parkland regions. Among the IBAs listed in Table 5, are several (such as Felton Prairie and Rothsay Prairie) where Upland Sandpipers have been known to nest but current records maintained for these IBAs by Audubon Minnesota do not include any breeding documentation. Although sandpipers do nest further east in both the Prairie Hardwood Transition Region and the Boreal Hardwood Transition Region, they are less abundant.

**Table 5. Minnesota IBAs in the Prairie Parkland and Tallgrass Aspen Parklands Regions where Upland Sandpiper breeding is likely and needs further assessment**

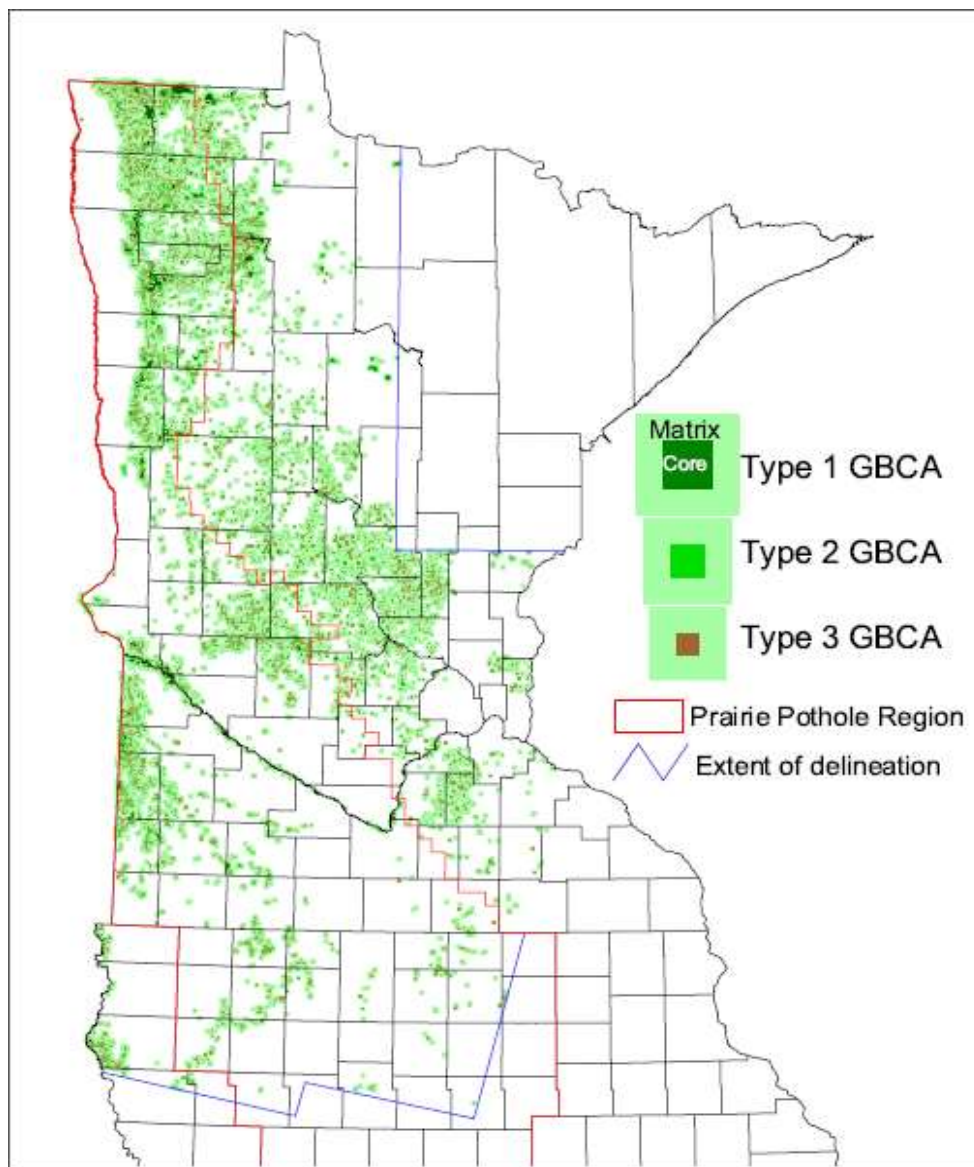
Chippewa Plains	Prairie Coteau	Upper Minnesota River Valley
Felton Prairie	Rothsay Prairie	Waubun Marsh
Glacial Ridge	Salt Lake	
Hamden Slough	Twin Valley-Neal Prairie	

**Action:** Assess whether the Grassland Bird Conservation Areas (GBCAs) delineated by the U.S. Fish and Wildlife Service's Habitat and Populations Evaluation Team (HAPET) office in Fergus Falls overlap with any additional Important Bird Areas that should also be evaluated.

Background: In order to begin to achieve the conservation goal established in this conservation blueprint for Upland Sandpipers, there needs to be an assessment of whether the areas that are predicted to support high numbers of breeding birds do indeed do so. One way to approach this task is to assess the birds' presence and abundance on those IBAs that include at least Type 1 Grassland Bird Conservation Areas (GBCAs) and potentially Type 2 GBCAs.

The HAPET office has taken the GBCA concept originally developed by Sample and Mossman (1997) and later adopted by Partners in Flight (Fitzgerald et al. 1998) and further refined it for application in the Prairie Pothole region. The office delineated three tiers of Grassland Bird Conservation Areas (GBCAs). The largest GBCA was designed to address the needs of the most area-sensitive species. All three GBCAs include a grassland core surrounding a one-mile wide matrix of wetland and grassland habitats. In Tier One, the core is a minimum of 640 acres of grassland at least one mile wide. Grasslands should comprise at least 40% of the surrounding matrix and core. Further details can be found at: <http://www.fws.gov/midwest/hapet/Documents/FactSheetGBCAs1.pdf>. A map of the GBCAs delineated by the HAPET office is shown in Figure 3.

**Figure 3. Predicted Grassland Bird Conservation Areas in Minnesota and northern Iowa**



**Action:** Assess whether any of Minnesota’s Breeding Bird Atlas blocks that supported Probable or Confirmed breeding Upland Sandpipers overlap with any of the Grassland Bird Conservation Areas delineated by HAPET and further evaluate their importance to Minnesota’s Upland Sandpiper population.

**Background:** Minnesota’s Breeding Bird Atlas, conducted from 2009-2013, is a wealth of recent information on the distribution and abundance of Upland Sandpipers. Blocks where either Confirmed or Probable evidence codes were recorded are either known or suspected to support breeding populations. These sites should be further evaluated to determine their proximity to existing Important Bird Areas or to Grassland Bird Conservation Areas that might require further field evaluation.

#### Monitoring Needs

*Note: The Conservation Plan for the Upland Sandpiper (Vickery 2010) outlines monitoring actions for the species. Monitoring nonbreeding populations in South America is considered the highest priority. The Federal Breeding Bird Survey is deemed adequate for monitoring breeding populations.*

- Continue monitoring the statewide population of Upland Sandpipers.

**Action:** Support and encourage volunteer participation in the Federal Breeding Bird Survey in Minnesota so that all of the designated routes are completed, providing the best possible annual assessment of the distribution and abundance of Upland Sandpipers.

**Action:** Following the initial assessment of Upland Sandpiper populations on the targeted Important Bird Areas, investigate whether a long-term monitoring program should be established on those IBAs supporting the largest populations. A particular emphasis might be placed on those IBAs that contain significant CRP acreages.

#### Research Needs

- Estimate the number of Upland Sandpipers breeding in Minnesota.

**Action:** Audubon Minnesota should investigate opportunities to work with researchers to establish a baseline population estimate that can be corrected over time with monitoring data. One option is to investigate whether the U.S. Geological Survey staff responsible for the Breeding Bird Survey (BBS) can apply their landbird population models to BBS data available for the Upland Sandpiper.

**Background:** The U.S. Geological Survey BBS staff at Patuxent has established models that allow them to utilize the BBS data to estimate the population size of landbirds monitored by the BBS roadside surveys. Estimates are available nationally, regionally and by state or province. Because Upland Sandpipers are also monitored by the BBS, it would be helpful to investigate whether the models could also be applied to Upland Sandpipers. Another option would be to investigate establishing a long-term monitoring program on IBAs that support large populations of sandpipers that could also generate a population index.

*Note: The national Conservation Plan for the Upland Sandpiper ((Vickery et al. 2010) contains a more detailed list of research priorities that should be referenced and are more appropriately oriented to research institutions, such as “Determine whether the breeding populations are genetically distinct.”*

#### Habitat Protection Needs

- Emphasize and support grassland habitat protection efforts across western and central Minnesota.

**Action:** Support the Minnesota Prairie Landscape Conservation Plan’s (*Minnesota Prairie Plan Working Group 2010*) grassland habitat protection goals (Table 6) and work with conservation partners to permanently protect approximately 105,000 acres of native prairie and 115,000 acres of other grasslands in Minnesota’s prairie region.

**Background:** A broad coalition of government and conservation organizations outlined a targeted conservation strategy to protect Minnesota’s native prairies and grasslands. Their work delineated two areas for native prairie, grassland and wetland protection and restoration:

- **Core areas** that are “large landscapes (5,000 to 300,000 acres) that retain some features of a functioning prairie landscape and include 71% of Minnesota’s remaining native prairie”; and
- **Corridors** that are “linear stretches of habitat six miles wide that connect the core areas to each other.”

Large habitat complexes (nine square miles) are identified within each corridor and all the land outside of the core areas and corridors is referred to as the agricultural matrix. Figure 4 illustrates the core areas, corridors and larger agricultural matrix.

Minnesota’s Prairie Landscape Conservation Plan also establishes protection goals for the core areas, corridors and agricultural matrix and specifies what portion of each goal should be permanently protected versus voluntarily protected (Table 6). Ideally, Minnesota’s conservation community will achieve all the goals for each area, thereby benefitting Upland Sandpipers and many other declining grassland and wetland species. For the purposes of this Conservation Plan, however, we have focused only on the protection and restoration goals established for permanently protected (i.e. protected through fee acquisition or permanent conservation easements) native prairies in the core areas, corridors and agricultural matrix and for permanently protected grasslands in the core areas and corridors shown in Table 6 (highlighted in green). The acres that are to be voluntarily protected were not reported separately for grasslands and wetlands but only as a combined total and are, therefore, not included.

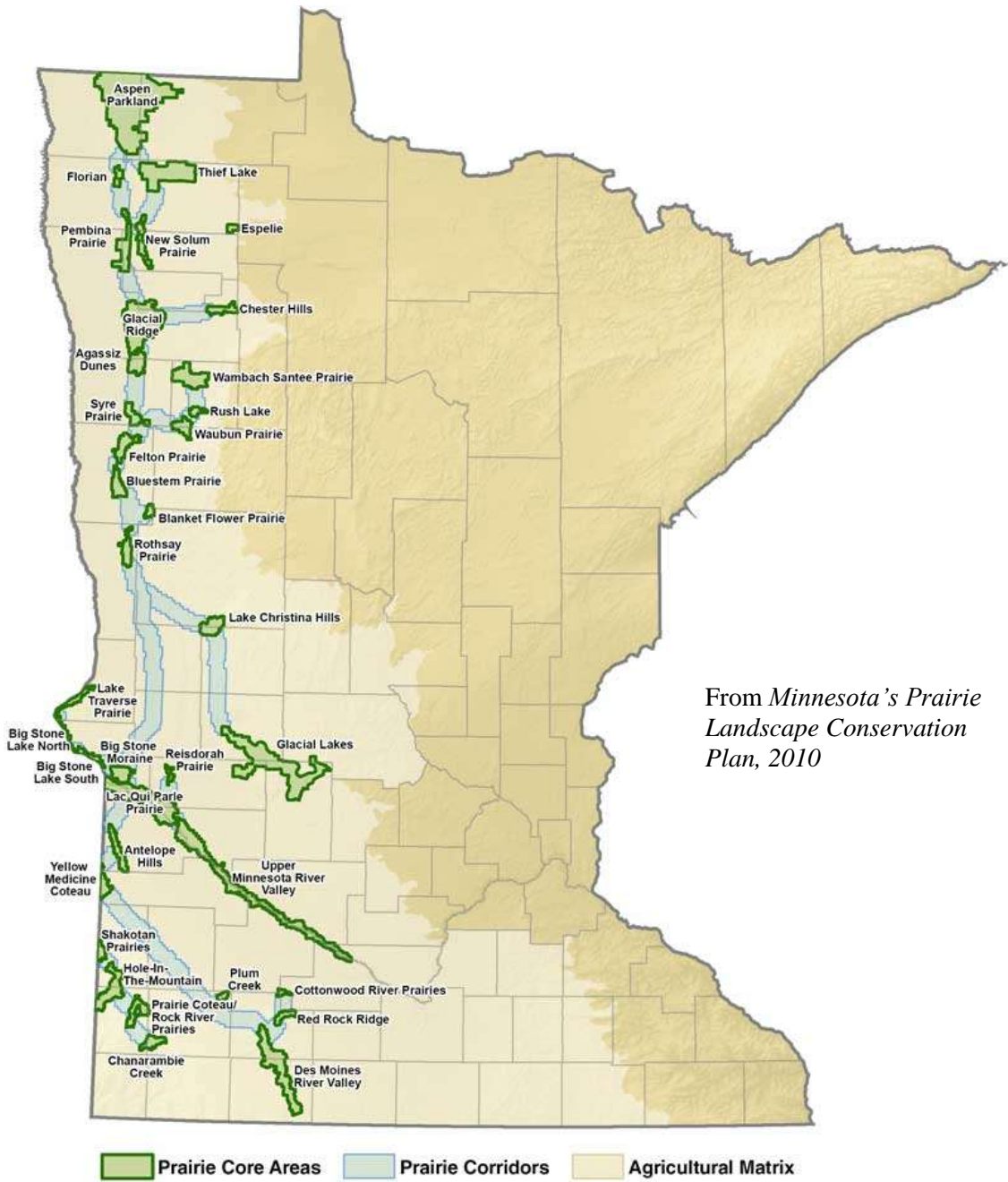
Implementing Minnesota’s Prairie Plan would contribute to the overall habitat protection goal of protecting nearly 4.5 million acres that the Upland Sandpiper’s National Conservation Plan estimated was necessary to support a population target of 216,000 birds in the Upper Mississippi Valley/Great Lakes Joint Venture Region and the Prairie Pothole Joint Venture Region (*Vickery et al. 2010*).

**Table 6. Grassland Protection Goals from Minnesota’s Prairie Landscape Conservation Plan**

Conservation Action	Prairie Landscape Conservation Areas	Specific Conservation Action	Acreage Goals by Habitat <sup>1</sup>		
			Native Prairie	Non-native Grasslands	Grasslands & Wetlands
Protection	Core Areas	Acquisition/Easements	73,108 acres	88,185 acres	
		Voluntary management or conservation contracts			149,022 acres
	Corridor Areas (complexes & general corridors)	Acquisition/Easements	8,089 acres	25,967 acres	73,900 acres
		Voluntary management or conservation contracts			80,583 acres
	Matrix Landscape	Acquisition/Easements	23,756 acres		523,564 acres
		Voluntary management or conservation contracts			1,221,650 acres
<b>Protection Total</b>			<b>104,953 acres</b>	<b>114,149 acres</b>	<b>2,048,719 acres</b>

<sup>1</sup>Some subtotals for conservation actions in the Prairie Plan do not reflect the totals reported in the plan; this table uses the totals; also the 104,953 acres for native prairie protection is incorrectly reported as 104, 594 acres.

**Figure 4. Prairie Core Areas, Corridors and Agricultural Matrix from Minnesota's Prairie Landscape Conservation Plan**



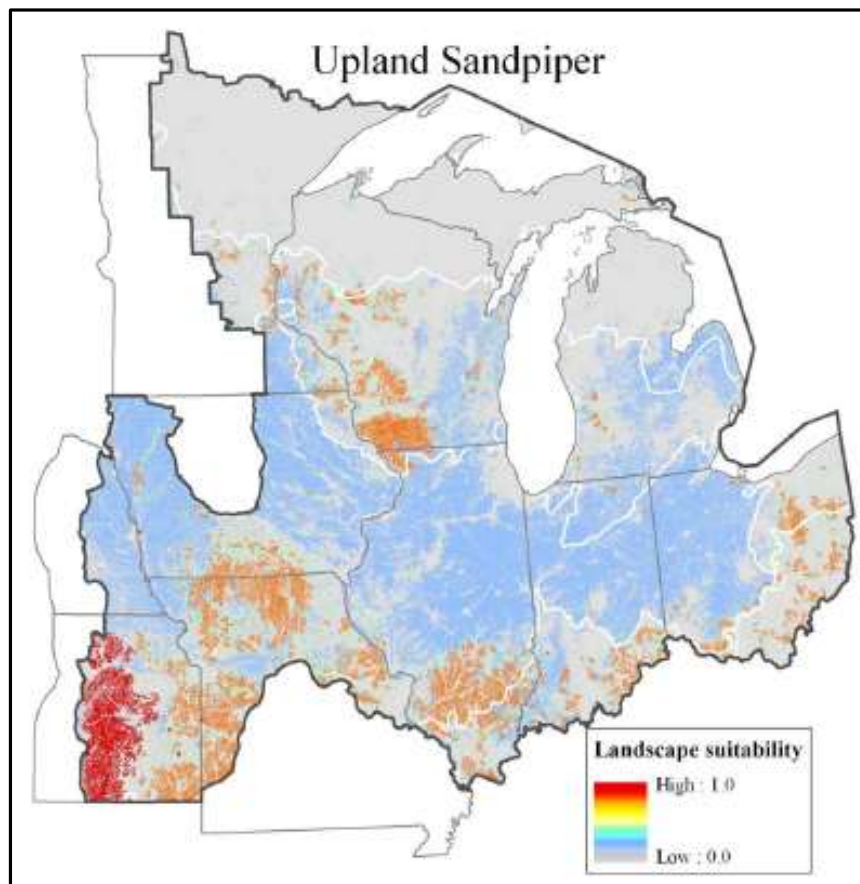
*From Minnesota's Prairie Landscape Conservation Plan, 2010*



**Action:** Encourage conservation partners to explore opportunities for grassland protection in southeastern Minnesota where appropriate.

**Background:** As illustrated in Figure 1, Upland Sandpipers are found in grasslands in southeastern Minnesota, west of the dissected river valleys that are tributaries of the Mississippi River. Although the opportunities for protecting and/or restoring large tracts of grassland habitat in this region are few, suitable habitat does exist and opportunities for further protection should be encouraged. This region is part of the Upper Mississippi Valley/Great Lakes Joint Venture region. As part of its Shorebird Conservation Plan for the region the Joint Venture developed a Landscape Suitability Index and Model for the Upland Sandpiper (*Potter et al. 2007*). The model's output is displayed in Figure 5 and illustrates that the southeastern region of the state is generally considered as providing less suitable habitat for the species. Overall the Joint Venture stated that 165,000 ha (407,723 acres) of suitable grassland habitat was needed within the region to accommodate current populations and an additional 60,000 ha (148,263 acres) needed to be restored, enhanced or created to support increased populations (*Potter et al. 2007*). Specific acreage goals were not established for each state.

**Figure 5. Landscape cover-type model for the Upland Sandpiper in the Upper Mississippi Valley/Great Lakes Joint Venture Region.**



**Action:** Target grasslands that are at least 100 ha or larger in size, for protection.

**Background:** The Conservation Plan for the Upland Sandpiper (*Vickery et al. 2010*) states that the size of the grassland habitat “appears to be critical”, particularly in the core of its range. In Kansas, Mong (*2005*) found that some individual sandpipers had home ranges of more than 200 hectares. In Maine, Vickery et al. (*1994*) found that Upland Sandpipers preferred larger sites (greater than 200 hectares) and rarely occupied patches less than 50 hectares.

Habitat Restoration and Management Needs

- Emphasize and support grassland habitat restoration and management efforts across western and central Minnesota.

**Action:** Support the Minnesota Prairie Landscape Conservation Plan’s (2010) grassland habitat restoration goals and work with conservation partners to restore a minimum of 135,000 acres.

**Background:** The Minnesota Prairie Landscape Conservation Plan also delineated restoration goals for grasslands in the prairie region (Table 7). The goal of restoring nearly 277,000 acres of grassland and wetland habitat in the corridors and matrix did not identify separate goals for grasslands and wetlands; as a result the action goal is stated as a minimum of 135,000 acres.

**Table 7. Grassland Restoration Goals from the Minnesota Prairie Landscape Conservation Plan**

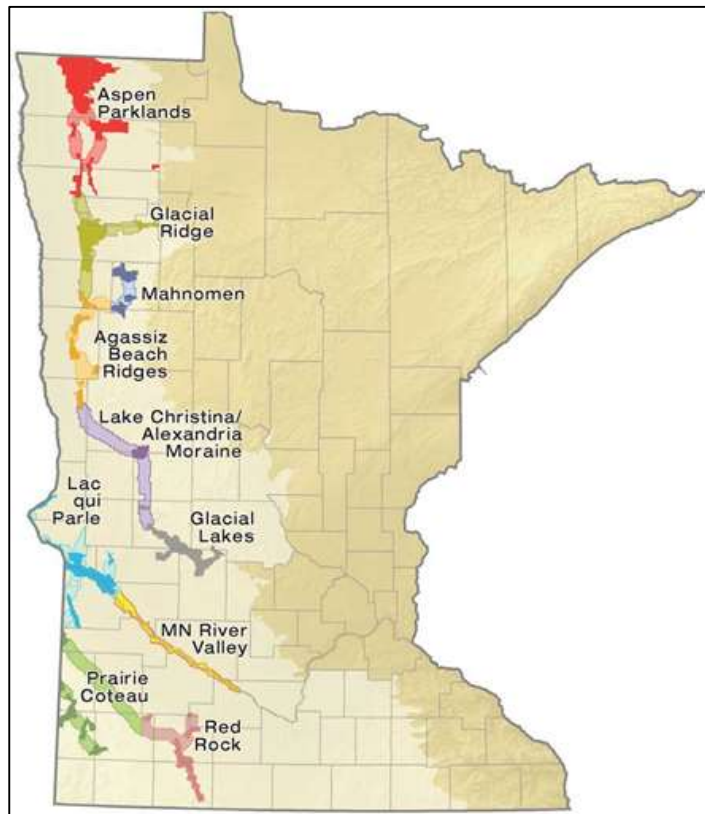
Conservation Action	Prairie Landscape Conservation Areas	Acreage Goals by Habitat	
		Grasslands	Other
Restoration	Core Areas	97,778 acres	
	Corridor Areas (complexes & general corridors)	37,413 acres	26,271 acres of grassland and wetlands
	Matrix Landscape		250,952 acres of grasslands, wetlands or other appropriate native vegetation
<b>Restoration Total</b>		<b>135,191 acres</b>	<b>277,223 acres</b>

**Action:** Audubon Minnesota staff shall lead the technical field team responsible for one of the core areas delineated in the Minnesota Prairie Landscape Conservation Plan, the Tallgrass Aspen Parklands, to ensure that conservation actions in the region are guided by the plan

**Background:** Implementation of Minnesota’s Prairie Landscape Conservation Plan focuses on the establishment of technical field teams in the primary core areas. The teams are composed of state, federal and local resource professionals as well as professionals with conservation organizations. Together they are responsible for insuring that the goals of the plan are achieved. Because of its long-standing interest and engagement in northwest Minnesota, Audubon staff has assumed a leadership role for the Aspen Parklands Technical Team shown in Figure 6.



**Figure 6. Minnesota's Prairie Landscape Conservation Plan Technical Teams**



- There is a need to ensure that sites that support breeding populations of Upland Sandpipers are actively managed; employing the best management practices summarized in the background materials of this conservation blueprint.

**Action:** Audubon Minnesota should coordinate with the land owners of the primary Important Bird Areas that support Upland Sandpiper populations to support the implementation of management practices delineated earlier in this document that enhance and/or sustain breeding populations.

**Action:** Where it is appropriate, consider delineating Grassland Bird Conservation Areas within Important Bird Areas that support significant Upland Sandpiper populations in order to further the management of grasslands to support viable sandpiper populations, as well as other priority grassland birds.

- Monitor the amount of native prairie and grassland habitat that is protected and restored and assess if it is sufficient to provide for a sustainable population of Upland Sandpipers in Minnesota.

**Action:** Document and monitor the amount of habitat that is protected and restored and assess if it is meeting the goals established for protection and restoration of grassland habitat by the Minnesota Prairie Landscape Conservation Plan.

**Action:** Work with population modelers in the Upper Mississippi Valley/Great Lakes Joint Venture science team and the U.S. Fish and Wildlife Service's HAPET office in Fergus Falls to determine whether the actions of the UMVGL Joint Venture and Minnesota Prairie Landscape Conservation Team are supporting a sustainable population of Upland Sandpipers.

Specific Actions for Audubon Minnesota:

- Work with the Minnesota Department of Natural Resources to ensure that:
  1. Upland Sandpiper management needs are considered in grassland protection and restoration efforts by the department and other conservation partners.
  2. Department staff continues their leadership and coordination of efforts among conservation partners to implement the Minnesota Prairie Landscape Conservation Plan goals for grassland protection and restoration.
  3. Participate and lead the Minnesota Prairie Landscape Plan Implementation Team for the Tallgrass Aspen Parklands.
- Work with the Minnesota Ornithologist Union to ensure that Minnesota BBA routes are adequately covered each year in Minnesota
- Work with local Audubon Chapters and former BBA citizen science volunteers to assess and monitor Upland Sandpiper populations on Important Bird Areas.

Further details are provided in Table 8.

**Table 8. Upland Sandpiper Minnesota Conservation Blueprint Action Summary**

**Conservation Goal:** Halt the decline of Minnesota’s Upland Sandpiper population and increase the population by approximately 35%.

**Conservation Objective:** Initiate conservation actions designed to stop the decline of Minnesota’s Upland Sandpiper population and work to increase it approximately 2.3% per year as monitored by the Federal Breeding Bird Survey in Minnesota in the next 15 years.

Actions Needed for Conservation	Priority	Projected Timeline	Responsible Entity	Potential Conservation Partners
<b>Inventory and Assessment</b>				
<ul style="list-style-type: none"> <li>Confirm the breeding status of Upland Sandpipers on the nine Important Bird Areas where they have been documented nesting. Assess the approximate number of breeding pairs on each IBA with road counts and/or point counts.</li> </ul>	#1	2016	Minnesota Audubon	Minnesota Department of Natural Resources (DNR), U.S. Fish and Wildlife Service (USFWS)
<ul style="list-style-type: none"> <li>Confirm the status of Upland Sandpipers on ten Minnesota IBAs where they have been reported during the summer months or have been documented nesting in former years. Assess the approximate number of breeding pairs on each IBA with road counts and/or point counts.</li> </ul>	#2	2017	Minnesota Audubon	Minnesota Department of Natural Resources, USFWS
<ul style="list-style-type: none"> <li>Assess whether the Grassland Bird Conservation Areas (GBCAs) delineated by the U.S. Fish and Wildlife Service’s Habitat and Populations Evaluation Team (HAPET) office in Fergus Falls overlap with any additional Important Bird Areas that should also be evaluated.</li> </ul>	#12	2018	Minnesota Audubon	Minnesota DNR, USFWS
<ul style="list-style-type: none"> <li>Assess whether any of Minnesota’s Breeding Bird Atlas blocks that supported Probable or Confirmed breeding Upland Sandpipers overlap with any of the Grassland Bird Conservation Areas delineated by HAPET and further evaluate their importance to Minnesota’s Upland Sandpiper population.</li> </ul>	#13	2018	Minnesota Audubon	Minnesota DNR, USFWS
<b>Monitoring</b>				
<ul style="list-style-type: none"> <li>Support and encourage volunteer participation in the Federal Breeding Bird Survey in Minnesota so that all of the designated routes are completed, providing the best possible annual assessment of the distribution and abundance of Upland Sandpipers.</li> </ul>	#16	2018	Minnesota Ornithologists Union	Minnesota Audubon, Minnesota DNR
<ul style="list-style-type: none"> <li>Following the initial assessment of Upland Sandpiper populations on the targeted IBAs, investigate whether a long-term monitoring program should be established on those IBAs supporting the largest populations. A particular emphasis might be placed on those IBAs that contain significant CRP acreages.</li> </ul>	#8	2018	Minnesota Audubon	Minnesota Department of Natural Resources, USFWS
<b>Research</b>				
<ul style="list-style-type: none"> <li>Audubon Minnesota should investigate opportunities to work with researchers to establish a baseline population estimate that can be corrected over time with monitoring data.</li> </ul>	#11	2018	Minnesota Audubon	Minnesota Department of Natural Resources, U.S. Geological Survey, USFWS, University
<i>Continued on following page</i>				

Actions Needed for Conservation	Priority	Projected Timeline	Responsible Entity	Potential Conservation Partners
<b>Habitat Protection</b>				
<ul style="list-style-type: none"> <li>Support the Minnesota Prairie Landscape Conservation Plan's (<i>Minnesota Prairie Plan Working Group 2010</i>) grassland habitat protection goals (Table 6) and work with conservation partners to permanently protect approximately 105,000 acres of native prairie and 152,000 acres of other grasslands in Minnesota's prairie region.</li> </ul>	#4	2014	Minnesota Audubon	Minnesota Department of Natural Resources, USFWS, TNC, BWSR
<ul style="list-style-type: none"> <li>Encourage conservation partners to explore opportunities for grassland protection in southeastern Minnesota where appropriate.</li> </ul>	#9	2018	Minnesota Audubon	Minnesota Department of Natural Resources, USFWS
<ul style="list-style-type: none"> <li>Target grasslands on IBAs that are at least 100 ha or larger in size for protection.</li> </ul>	#7	2016	Minnesota Audubon	Minnesota DNR, USFWS
<b>Habitat Restoration and Management</b>				
<ul style="list-style-type: none"> <li>Support the Minnesota Prairie Landscape Conservation Plan's grassland restoration goals and work with conservation partners to restore a minimum of 135,000 acres.</li> </ul>	#5	2014	Minnesota Audubon	Minnesota Department of Natural Resources, USFWS, BWSR, NRCS, Watershed Districts
<ul style="list-style-type: none"> <li>Audubon Minnesota staff shall lead the technical field team responsible for one core areas delineated in the Minnesota Prairie Landscape Conservation Plan, the Tallgrass Aspen Parklands, to ensure that conservation actions in the region are guided by the plan</li> </ul>	#3	2014	Minnesota Audubon	Minnesota Department of Natural Resources, USFWS, BWSR, NRCS, Watershed Districts, Private Landowners
<ul style="list-style-type: none"> <li>Audubon Minnesota should coordinate with the land owners of the primary Important Bird Areas that support Upland Sandpiper populations to support the implementation of management practices that enhance and/or sustain breeding populations.</li> </ul>	#6	2016	Minnesota Audubon	Private Landowners, USFWS, Minnesota DNR, TNC, Prairie Landscape Implementation Team
<ul style="list-style-type: none"> <li>Where it is appropriate, consider delineating Grassland Bird Conservation Areas within Important Bird Areas that support significant Upland Sandpiper populations in order to further the management of grasslands to support viable sandpiper populations, as well as other priority grassland birds.</li> </ul>	#10	2018	Audubon Minnesota	DNR, USFWS, TNC, Private Landowners, NRCS, Watershed Districts, Prairie Landscape Implementation Team
<ul style="list-style-type: none"> <li>Document and monitor the amount of habitat that is protected and restored and assess if it is meeting the goals established for protection and restoration of grassland habitat by the Minnesota Prairie Landscape Conservation Plan.</li> </ul>	#14	Ongoing	Prairie Landscape Implementation Team	Audubon Minnesota
<ul style="list-style-type: none"> <li>Work with population modelers in the Upper Mississippi Valley/Great Lakes Joint Venture science team and the U.S. Fish and Wildlife Service's HAPET office in Fergus Falls to determine whether the actions of the UMVGL Joint Venture and Minnesota Prairie Landscape Conservation Team are supporting a sustainable population of Upland Sandpipers.</li> </ul>	#15	Ongoing	Upper Mississippi Valley/Great Lakes Joint Venture; USFWS HAPET Office	Audubon Minnesota; Prairie Landscape Implementation Team

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