

ARKANSAS WILDLIFE ACTION PLAN

2006 STATE WILDLIFE GRANT:

PRAIRIE AND GRASSLAND BIRD HABITAT RESTORATION AT THE STUTTGART AIRPORT IN ARKANSAS' GRAND PRAIRIE REGION OF THE MISSISSIPPI ALLUVIAL VALLEY



Photo by Joe Krystofik USFWS

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Acknowledgements:

The Arkansas Game and Fish Commission would like to acknowledge and thank our partners in the Stuttgart Airport Prairie Restoration Project: the City of Stuttgart and the Stuttgart Airport, The U.S. Fish and Wildlife Service's Conway Field Office, the Arkansas Natural Heritage Commission, The Arkansas Forestry Commission, and Audubon Arkansas.

Prairie and Grassland Bird Habitat Restoration at the Stuttgart Airport in Arkansas' Grand Prairie Region of the Mississippi Alluvial Valley

Grant Duration: Start Date: 1/01/06 End Date: 12/31/09 (grant extension)

Project Costs: (Estimated)

Total: \$106,446 State: \$53,223 SWG: \$53,223

Executive Summary

In reference to the 2007 Administrative Guidelines for State Wildlife Grants, this project is categorized as an implementation action. The Arkansas Wildlife Action Plan Ecoregion habitat highlighted in this project is the Mississippi Alluvial Plain and the habitat type highlighted is the Grand Prairie. The Grand Prairie is located entirely within Arkansas' Mississippi Alluvial Plain.

The two year project, which was extended to three years, addressed the Arkansas Wildlife Action Plan's "Habitat Restoration and Improvement" Conservation Action. Specifically, the habitat restoration involved native prairie grassland restoration.

The Project Goal Is As Follows:

To restore 75 acres of native prairie grassland within the Grand Prairie portion of the Mississippi Alluvial Plain ecosystem in Arkansas.

Project Area:

The Grand Prairie region in the Mississippi Alluvial Plain is located in east central Arkansas and encompasses approximately 900,000 acres. Seven distinct vegetation associations have been described for presettlement (before mid 1800's) and current conditions: 1) prairie grasslands, 2) seasonal herbaceous wetlands, 3) slash shrubland, 4) savanna, 5) bottomland hardwood forest including meandering stream environment, 6) terrace hardwood forest, and 7) upland forest. Approximately 36 percent, or about 324,000 acres of the complex was prairie grasslands (including interspersed seasonal wetlands) which existed in several patches ranging in size from ca. 500 to 150,000 acres. They were confined to high terraces with small isolated depressions containing seasonal herbaceous wetlands dispersed throughout.

There are currently less than 27 percent of native habitats remaining in the Grand Prairie region. Prairie grasslands, seasonal herbaceous wetlands, slash, and savanna habitats have been the most severely impacted declining by 95 percent or more, and the cumulative loss of native vegetation in the Grand Prairie is among the highest loss for any ecosystem region in North America. About 430 acres of prairie grasslands remain on the Grand Prairie with the Arkansas Natural Heritage Commission having interest in approximately half of that amount.

Project Description:

The Arkansas Game and Fish Commission and its partners, the City of Stuttgart, the Arkansas Natural Heritage Commission, the Arkansas Forestry Commission, the U.S. Fish and Wildlife Service and Audubon Arkansas are working to, over time, restore a native prairie ecosystem to Arkansas' Grand Prairie. The short-term goal of the partnership is to restore prairie grasslands on the unfarmed acreage on the Stuttgart Airport property in Prairie County Arkansas. In an effort to meet this short-term goal, the Arkansas Wildlife Action Plan project, "Prairie and Grassland Bird Habitat Restoration at the Stuttgart Airport in Arkansas' Grand Prairie Region of the Mississippi Alluvial Valley" will plant 75 acres to native genotype prairie grass on the Stuttgart Airport and monitor bird populations on the acreage targeted for restoration.

Project Site:

The 2680 acre Stuttgart Airport has 254 acres of unfarmed old fields and 1250 acres in cultivation, primarily rice and soybeans. The City of Stuttgart uses the revenue generated from the farming activities to fund the airport operations. The Stuttgart Airport is very popular with birdwatchers who flock to the airport to look for Smith's longspurs and Sprague's pipits in the three-awn grass near the airport runways. The City and its Airport welcome the birdwatchers and promote birding at the Airport. As of April 2008 Stuttgart Airport's birder registry has documented birdwatchers from 23 states, two Canadian provinces and Great Britain. The Stuttgart Airport is listed as an Arkansas Audubon Society Important Bird Area.

Project Objectives:

- The Arkansas Game and Fish Commission will collect grassland seed from native genotype sources and plant 75 acres of uncultivated ground on the City of Stuttgart's Stuttgart Airport located in Prairie County in the Grand Prairie portion of the Mississippi Alluvial Valley.
- Summer and winter bird surveys will be conducted each year of the grant period on the acreage slated for native prairie habitat restoration and bird use of the planted and unplanted restoration plots evaluated.

Deliverables:

1. Collect, clean and dry enough native genotype prairie grass seed to plant 75 acres of native prairie grassland.
2. Disk, plant and roll 75 acres on the Stuttgart Airport property.
3. Mow planted acreage as necessary
4. Conduct summer and winter bird surveys on project acreage.
5. Update Arkansas Wildlife Action Plan (AWAP) database
6. Update Arkansas Game and Fish Commission on the outcome of the conservation action.
7. Update scientific community on outcome of conservation action at an AWAP symposium.
8. Inform public on outcome of conservations actions through an article in Arkansas Outdoors.
9. Inform partners on outcome of conservation actions through person communications and continuing participation in the continuing Stuttgart Airport prairie restoration activities.

Completion of Project Objectives:

Prairie Grassland Restoration:

During the grant period, 792 pounds of native genotype prairie grass seed was collected by the Arkansas Game and Fish Commission's Region 3 Wildlife Management Division personnel. Seed was harvested from the restored prairie on the Steve N. Wilson /Raft Creek Bottoms Wildlife Management Area located in White County, Arkansas. The restored prairie grassland on this Wildlife Management Area was established from seed collected from Arkansas Natural Heritage Commission owned or managed native prairies in east Arkansas.

Commission personnel collected seed from late summer through early fall. The native genotype seed collected was primarily big bluestem, little bluestem, Indiangrass and switchgrass. Seed maturity and availability was dependent on temperature, rainfall, and other weather related conditions. Seed was collected utilizing a seed stripper which consists of a motorized rotating brush that strips the seed from the plant and collects it in a hopper. The stripper is pulled with an all terrain vehicle. Collected seed was dried prior to cleaning by spreading the seed on the floors of the Raft Creek WMA and Wattensaw WMA maintenance shops for 2-3 weeks. Seed was turned daily, and fans were utilized to aid in drying. AGFC personnel cleaned the dried seed by running it through a Vicon Broadcast seeder. Cleaning was necessary to remove leaves, stems, and trash from the seeds. The Vicon is a 3pt broadcaster seeder used for planting native warm season grass seed. It has an agitator in the hopper and therefore can also be used to clean collected seed. The agitator allows the seed to sift down through the trash, and it comes out clean through the broadcast tube. AGFC personnel bagged weighed and stored the cleaned dried seed in a cooler until planting.

During the grant period, Commission personnel conducted site preparation activities in order to create a quality seed bed for planting the native grass seed. A total of 6 acres was sprayed twice with herbicide prior to disking and planting to control Bermuda grass, an invasive non-native warm season grass. Controlled burns were conducted on 235 acres to control woody vegetation, promote the growth and germination of fire dependent native grasses and perennial plants, and prepare the sites for planting. A total of 102 acres were disked at least twice (some acreage was disked 3 times) prior to planting to prepare a good seed bed. The 102 acres were rolled after disking in order to create a firm seed bed for planting.

Once the seed bed was prepared and soil moisture was low enough to allow planting, AGFC personnel planted 102 acres of native prairie grass seed during the project period. AGFC exceeded the project goal of 75 acres of restored habitat by planting an additional 27 acres. Specifically, 10 acres were planted in 2007, 34 acres were planted in 2008 and 58 acres were planted in 2009. Seed was broadcast onto the prepared ground at a rate of 6 pounds per acre using a Vicon seeder. After broadcasting, the seed was rolled into the soil using a cultipacker. Native warm season grass seed does not need to be covered by soil, but it must be pressed into a firm seed bed in order to get good seed to soil contact. The ten acres planted in 2007 was

mowed in mid-summer 2007 to reduced competition from other non-prairie vegetation in the acreage.

Extremely wet conditions in late spring, early summer, and fall and early winter in 2006, 2007, and 2008 made it impossible to adhere to the original grassland planting schedule of 15 acres in 2006, 30 acres in 2007 and 30 acres in 2008. The above average rainfall (and 150 year flood conditions) in the White River Drainage in 2008 and 2009 also prevented mid-summer mowing to control competing vegetation.

Inspection of the tracts planted in 2008 and 2009 at six months to one year after planting showed areas with grasses and perennial prairie plants that were not planted by AGFC. It was determined that the soil seedbed contained seeds of prairie perennial plants and grasses which were released by the project's burning and disking activities.

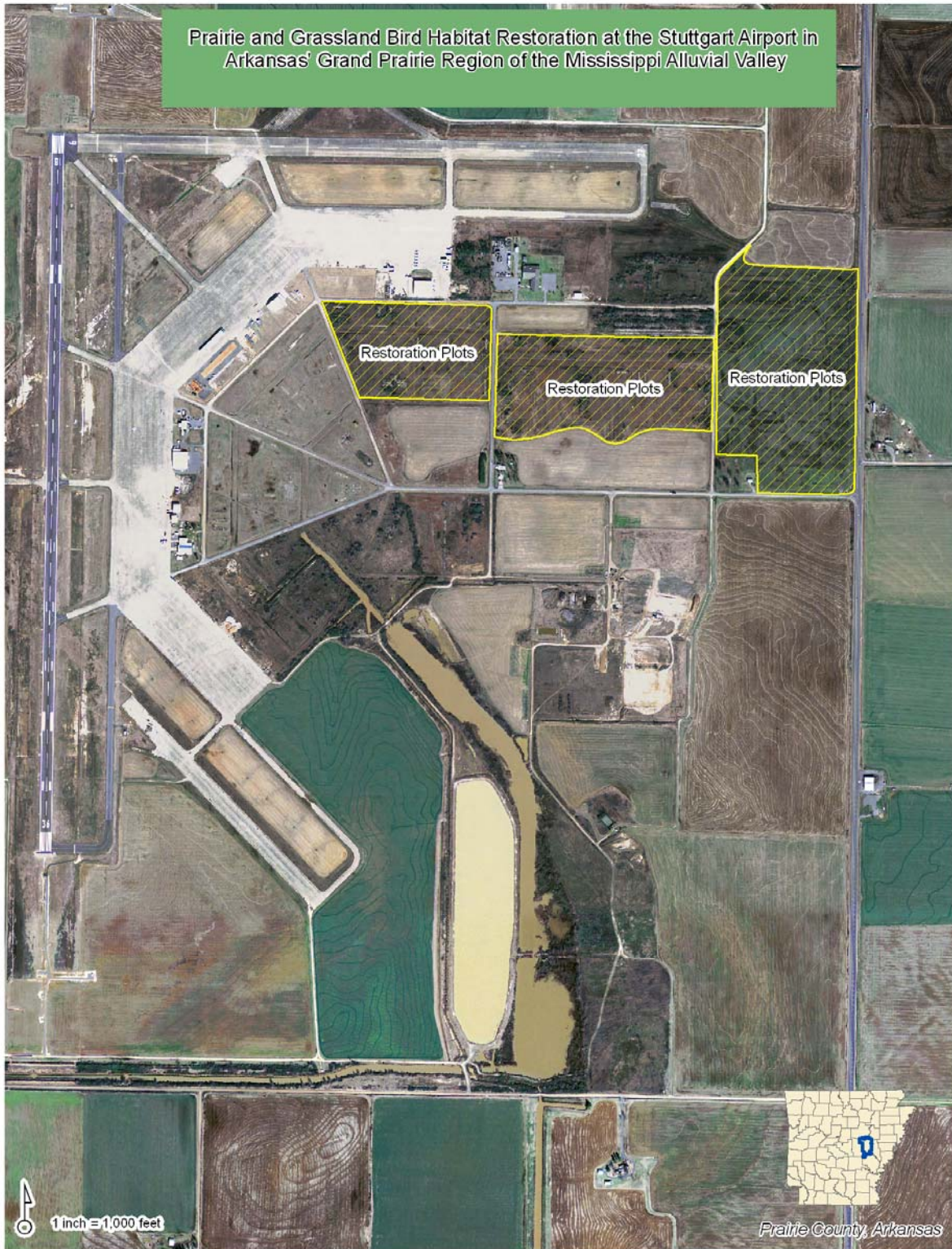
Bird Monitoring:

Audubon Arkansas, AGFC, and Arkansas Natural Heritage Commission personnel, as well as volunteers from the Arkansas Audubon Society, have conducted winter and summer bird counts on established transects on the Stuttgart Airport property from 2003 to date. These transect counts are conducted three times in the winter and twice in the summer, weather permitting. Three of these established transects occur on the prairie grassland restoration tracts. These three transects, in addition to summer area searches on the 10 acres planted in 2007 were used to monitor bird species presence and absence on the restoration project acreage. The surveys will continue after the close of this project and will document species use of the restored habitat as the quality of the prairie grassland habitat improves over time, and as the core area of restored acreage increases. This monitoring will be done as a part of the larger multi-partner Stuttgart Airport prairie habitat restoration effort.

In addition to the transect counts, an AGFC biologist conducted area searches for birds on the 10 acre plot that was planted in 2007. These 10 acres were the first acreage planted to native prairie in the restoration project and therefore the oldest and more established prairie plot. Area searches were conducted in both early and mid summer in 2008 and 2009 and have provided baseline bird presence/absence data for the restored acreage.

Analysis of data collected by the transect counts and area searches showed no discernable differences or changes in bird numbers or species compositions with respect to restored and unrestored acreage. Results are inconclusive due to the short period of time (3 years) that surveys were conducted and the fact that the majority of the acreage has been planted to prairie grasses for only one or two years. Generally, it takes between four to six years to establish a good stand of native prairie grass (Tom Foti pers. comm.).

Prairie Grassland Restoration Plot Locations on the Stuttgart Airport



BIRD SURVEY TRANSECTS ON THE STUTTGART AIRPORT.

Transects 1, 2 and 7 occur on restoration tracts and were used to monitor bird species and abundance in this AWAP project.



Alpha Codes For Bird Species Observed During Summer Surveys On Transects 1, 2 And 7 On The Stuttgart Airport, Prairie County, Arkansas In 2006, 2007, 2009.

GREHE	Green Heron
MALL	Mallard
NOBO	Northern Bobwhite
KILL	Killdeer
MODO	Mourning Dove
YBCU	Yellow-billed Cuckoo
GHOW	Great-horned Owl
CONI	Common Nighthawk
RTHU	Ruby-throated Hummingbird
LOSH	Loggerhead Shrike
BEVI	Bell's Vireo
BLJA	Blue Jay
BARS	Barn Swallow
CACH	Caroline Chickadee
CARW	Caroline Wren
NOMO	Northern Mockingbird
EUST	European Starling
COYE	Common Yellowthroat
NOCA	Northern Cardinal
DICK	Dickcissel
BLGR	Blue Grosbeak
INBU	Indigo Bunting
PABU	Painted Bunting
EAME	Eastern Meadowlark
OROR	Orchard Oriole
RWBL	Red-winged Blackbird
BHCO	Brown-headed Cowbird

Bird Species And Numbers Observed On Summer Surveys On Transect 1, 2 And 7
On The Stuttgart Airport, Prairie County, Arkansas

Year	Date	GRHE	MALL	NOBO	KILL	MODO	YBCU	GHOW	CONI
2006	6/28			5	3	7	1		1
2006	8/31			1		13			
2007	6/27		2	2		2			
2007	8/11			2		1	1		
2009	6/26	3		5		5		1	
2009	8/24			4		1			

Year	Date	RTHU	LOSH	BEVI	BLJA	BARS	CACH	CAWR	NOMO
2006	6/28			2	1				7
2006	8/31		3	2	1		1	2	4
2007	6/27			2	1			1	3
2007	8/11	1		1	1	2		4	3
2009	6/26								2
2009	8/24				1	2		1	2

Year	Date	EUST	COYE	NOCA	DICK	BLGR	INBU	PABU	EAME
2006	6/28		1	6	44	1			2
2006	8/31	111		5	9	1		1	
2007	6/27		1	2	36	1	1		4
2007	8/11			5	12	2			6
2009	6/26			3	33	1			2
2009	8/24			4	25	6			1

Year	Date	OROR	RWBL	BHCO
2006	6/28		137	
2006	8/31		1	
2007	6/27		106	
2007	8/11	2	24	
2009	6/26		132	
2009	8/24		11	

Alpha Codes For Bird Species Observed During Summer Surveys On Transects 1, 2 And 7 On The Stuttgart Airport, Prairie County, Arkansas In 2007, 2008, 2009.

GBHE	Great Blue Heron
NOHA	Northern Harrier
COHA	Cooper's Hawk
RLHA	Rough-legged Hawk
RTHA	Red-tailed Hawk
KILL	Killdeer
WISN	Wilson's Snipe
MODO	Mourning Dove
NOFL	Northern Flicker
LOSH	Loggerhead Shrike
BLJA	Blue Jay
RCKI	Ruby-crowned Kinglet
BGGN	Blue-gray Gnatcatcher
CARW	Carolina Wren
HOWR	House Wren
SEWR	Sedge Wren
AMRO	American Robin
NOMO	Northern Mockingbird
EUST	European Starling
FISP	Field Sparrow
LCSP	Le Conte's Sparrow
FOSP	Fox Sparrow
SAVS	Savannah Sparrow
SOSP	Song Sparrow
SWSP	Swamp Sparrow
WTSP	White-throated Sparrow
WCSP	White-crowned Sparrow
DEJU	Dark-eyed Junco
NOCA	Northern Cardinal
EAME	Eastern Meadowlark
RWBL	Red-winged Blackbird
RUBL	Rusty Blackbird
BHCO	Brown-headed Cowbird
AMGO	American Goldfinch

Bird Species And Numbers Observed On Winter Surveys On Transect 1, 2 And 7
On The Stuttgart Airport, Prairie County, Arkansas

Year	Date	GBHE	NOHA	COHA	RTHA	RLHA	KILL	WISN	MODO
2006	12/9		3	1	2	1	1		
2007	1/25		2		3		5		
2007	2/16	1	3	1			10		
2007	12/6		1		2		7	38	
2008	1/14		2		3		6	11	
2008	2/8		1				9		1
2008*	12/6			1	1		2		
2009	1/30	1			1		6	1	
2009	2/23		1				2		5

Year	Date	NOFL	LOSH	BLJA	RCKI	BGGN	CARW	HOWR	SEWR
2006	12/9			4		2	2		
2007	1/25		1	3	2			1	
2007	2/16		1	3			2		
2007	12/6			3	1				1
2008	1/14						1		3
2008	2/8	1	1	7					1
2008*	12/6		1						
2009	1/30		1	4					
2009	2/23	5		3					1

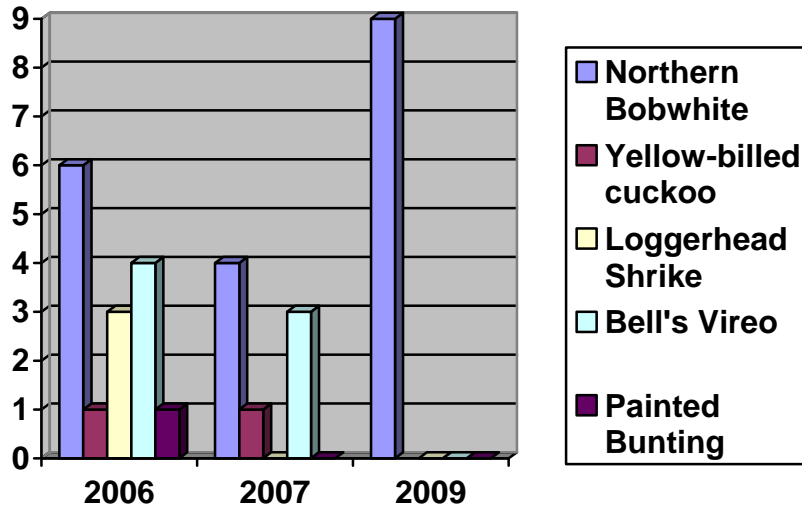
Year	Date	AMRO	NOMO	EUST	FISP	LCSP	FOSP	SAVS	SOSP
2006	12/9	1	4		4	4	1	8	26
2007	1/25	12	3			3	1	9	20
2007	2/16	27	1	20	4	4	2	3	22
2007	12/6		6		1			2	14
2008	1/14		4		1	1		10	10
2008	2/8	3	7			3		7	8
2008*	12/6		1					20	2
2009	1/30	1	1			1		24	12
2009	2/23	2	2			3		13	15

Year	Date	SWSP	WTSP	SCSP	DEJU	NOCA	EAME	RWBL	RUBL
2006	12/9	5	7	10		6	2	49	
2007	1/25	9				15			
2007	2/16	3	6	28	5	3	4	137	1
2007	12/6	3	1	3		6		45	
2008	1/14	7		5		1	17	39	
2008	2/8	3		4		1	2		
2008*	12/6			11			12		
2009	1/30	4		10			27	29	
2009	2/23	7	1	7		4	2	12	

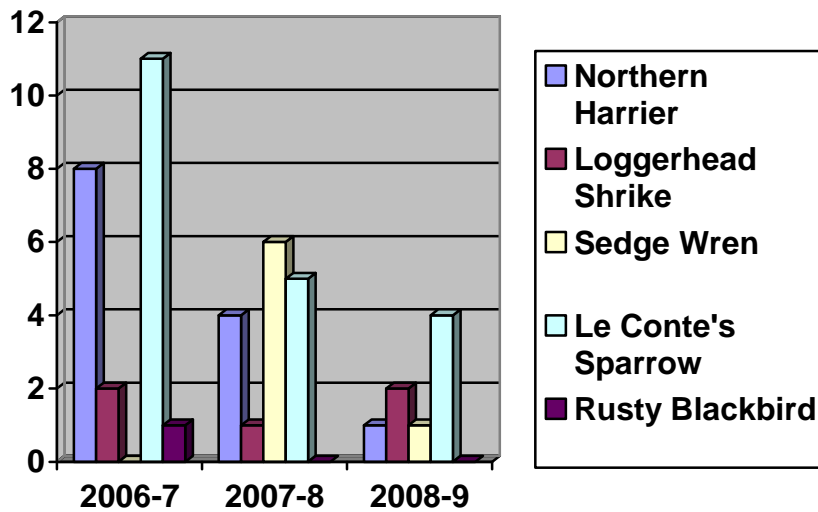
Year	Date	BHCO	AMGO
2006	12/9		
2007	1/25		
2007	2/16	23	1
2007	12/6		
2008	1/14		
2008	2/8		
2008*	12/6		
2009	1/30		
2009	2/23		

*Over half the survey area (58 acres) was burned and disked.

Arkansas Wildlife Action Plan Bird Species Of Greatest Conservation Concern Observed On Summer Surveys On Restoration Tracts On The Stuttgart Airport, Prairie County, Arkansas.



Arkansas Wildlife Action Plan Bird Species Of Greatest Conservation Concern Observed On Winter Surveys On Restoration Tracts On The Stuttgart Airport, Prairie County, Arkansas



Results Of 2008 and 2009 Summer Area Searches Conducted On The 10 Acre Restoration Tract Planted In 2007

Bird Species	2008	2009
Brown-headed cowbird	5	0
Carolina Wren	1	0
Common Grackle	1	0
Dickcissel	13	16
Eastern Meadowlark	10	6
Indigo Bunting	2	0
Killdeer	17	2
Least Sandpiper	1	0
Mallard	2	0
Mourning Dove	6	0
Red-winged blackbird	27	20
Field Sparrow	0	1
Sedge Wren	0	1

Seed Collection, Site Preparation and Planting of Native Prairie Grassland Restoration Tracts

Seed Collection by AGFC Region 3 Wildlife Management Division Personnel



Controlled Burning by AGFC and Arkansas Forestry Commission



AGFC Personnel Fill Seeder With Native Prairie Grass Seed



Native Geno-type Prairie Grass Seed Collected in Arkansas



Planting Prairie Grass Seed



Rolling Prairie Grass Seed for Good Seed/Soil Contact



Prairie Grassland Restoration Tracts after Planting Native Prairie Grass

Spring “green-up” of Acreage Planted In 2008



Prairie Blazing Star and Compass Plant in July 2009 Habitat on Acreage Planted in Spring 2009



Early Summer 2009 10 Acres Planted in 2007



Late Summer 2009 Prairie Grasses and Prairie Perennials on Acreage Planted in 2008



Late Summer 2009 Blazing Star and Big Bluestem on Acreage Planted in 2008



Mid Summer 2009 Blazing Star on Acreage Planted in 2009



Small Wetland Located In East Central Portion of Prairie Restoration Tracts



USFWS and AGFC Personnel Plan 2010-11 Prairie Restoration At Stuttgart Airport



