

Mountain Plover Population Inventory and Habitat Management Comanche National Grassland, 2005

Introduction

In March of 2005, the Comanche National Grassland (CNG) conducted prescribed burns to provide breeding habitat for the mountain plover, and inventoried both prescribed burns and prairie dog colonies for breeding plovers. Prescribed burns were conducted in 3 different allotments containing shortgrass/midgrass vegetation. These burns were conducted for a combination of wildlife habitat improvement, range improvement, and hazardous fuels reduction, but all three provided potential migration and nesting habitat for plovers. The prescribed burns were surveyed for plovers during migration (March – early April, 2005) and were then re-surveyed during the nesting season (mid-April – mid-May, 2005).

Mountain plovers may also utilize prairie dog colonies during the breeding season. For this reason, a subset of 29 prairie dog colonies distributed across both the Carrizo and Timpas Units of the CNG were surveyed for mountain plovers during May and early June of 2005, following the same methods as in 2003 and 2004.

In addition to the surveys conducted by Comanche staff, intensive searches for plover nests on prairie dog colonies within the eastern portion of the Carrizo Unit were conducted by two field assistants working for a USGS-sponsored project on mountain plovers breeding in Colorado (field assistants were employed by Mike Wunder, a PhD student working for Fritz Knopf).

Habitat Management

Three prescribed burns were conducted in March of 2005 in shortgrass/midgrass allotments with potential habitat for mountain plovers:

Allotment	Acres Burned	Grazing Association	Comments
Dry Creek	640	Campo	Short grass prior to burn
Sunset	320	Campo	Mid-height grass prior to burn
Gramma Grass	480	Pritchett	Short grass prior to burn
Total	1440		

Mountain plover population surveys

(1) During the migration period (late March and early April), we surveyed a systematic grid of points in each prescribed burn or former burn area with points spaced at 0.2 mi intervals (Svingen and Giesen 2000). At each point, the observer exited the vehicle to scan with binoculars for at least 3 minutes. During the nesting period (late April and May), allotments were surveyed in systematic grid with 0.2 mi spacing between points. In these surveys, the driver would exit the vehicle for several seconds to show a human silhouette (to cause any nearby plovers to move off of the nest) and then re-enter the vehicle and scan with binoculars for 1-2 minutes. In areas with suspected nesting plovers or significant amounts of bare ground, the survey interval was shortened to 0.1 mi in order to more intensively survey the area.

(2) During May and early June, we surveyed prairie dog towns at fixed points in conjunction with burrowing owl surveys (hereafter referred to as systematic plover surveys). These surveys were conducted at previously established points that covered the entire prairie dog town (based on its extent in 2003) and were typically spaced at ~400 m intervals. At each of these points, an observer scanned with binoculars and a spotting scope for 5 min, then waited 5 min, then scanned again for 5 min. A total of 50 survey points located at 20 different prairie dog towns (ranging from 1 – 5 survey points per town) were surveyed on the Carrizo Unit of the Comanche NG, and 16 survey points located at 11 prairie dog towns (ranging from 1 - 3 survey points per town) were surveyed on the Timpas Unit of the Comanche NG. During 1999 – 2005, prairie dog colonies expanded dramatically on the Carrizo Unit of the Comanche NG. Although the colonies expanded in size dramatically during 2003 - 2005, the same survey points were used for mountain plover surveys during this time period. As a result of colony expansion, by 2005 the survey points were often located toward the center of the prairie dog colonies.

(3) During May, intensive nest searches on prairie dog colonies were conducted by the USGS field assistants (hereafter referred to as nest searches). All nesting adults were trapped and fitted with leg bands, the GPS location of the nest was recorded, and the number of eggs or recently-hatched chicks in the nest was recorded. Feathers were collected from both adult birds and chicks for use in a stable-isotope study that will examine where plovers from the Comanche NG may be wintering. All nests were revisited by Comanche staff during late May and early June to estimate nest success.

Results & Conclusions

Prescribed burns

During the migration season, at least 1 plover was observed on each of the 3 prescribed burns conducted in 2005 (Table 1). Breeding plovers (at total of 12 breeding adults observed and 9 nests documented) were only observed on the Dry Creek burns. In 2005, breeding plovers were also observed on 3 prescribed burns conducted in 2004 (Vienna, Carrizo Swing,

Table 1. Numbers of plovers observed on prescribed burns in 2005 on the Comanche NG.

Allotment	Acres Surveyed	Habitat	Migration Surveys (3/30/05 - 4/12/05)	Nesting Surveys (4/20 - 4/21/04)
			# of Plovers Observed	# of Plovers Observed
Dry Creek	640	Prescribed Burn	42	12
Sunset	320	Prescribed Burn	18	0
Gramma Grass	480	Prescribed Burn	1	0
Total	1440		61	12

The Dry Creek allotment was also burned in 1999 for mountain plover habitat improvement. Comparison of plover numbers on the burn in 1999 (numbers reported by Giesen 1999) versus 2005 indicates local plover numbers have declined, both in terms of the number of plovers attracted during migration and the number of breeding birds (Table 2).

Table 2. Comparison of plover densities during migration on prescribed burns in the Dry Creek allotment in 1999 and 2005 on the Comanche NG Carrizo Unit.

Year	Acres burned and surveyed	Plovers Observed: Migration	Plovers Observed: Breeding	Plover Nests Documented
1999	640	107	33	33
2005	640	42	12	9

Systematic plover surveys on prairie dog colonies

The systematic plover surveys on prairie dog colonies on the Carrizo Unit documented the presence of adult plovers on 6 of 20 colonies (30%) and evidence of successful reproduction on 4 of 20 colonies (20%; Table 3 and attached map). Over the past 3 years, numbers of colonies where plovers were detected has increased considerably (Figure 1). The increased use of prairie dog colonies by plovers during 2003 – 2005 may be related to the increasing size of colonies and to increased areas of bare soil on those colonies, particularly in portions that have been occupied by prairie dogs continuously since the last plague outbreak in the mid-1990s. In addition, much greater rainfall occurred during April and May of 2003 compared to 2004 and 2005, and the production

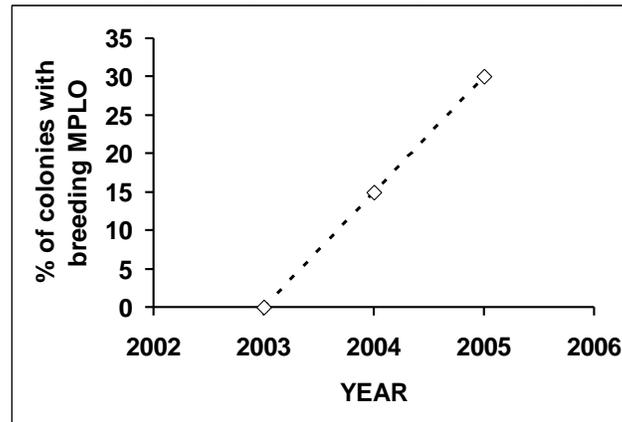
of purple threeawn (*Aristida purpurea*) was consequently much greater on prairie dog colonies in 2003 compared to 2004 and 2005. High vertical structure of vegetation on prairie dog colonies in 2003 may have prevented use by mountain plovers.

As in 2004, no mountain plovers were documented on any prairie dog colonies during systematic surveys on the Timpas Unit. One mountain plover was reportedly observed by a staff member from the Rocky Mountain Bird Observatory during June on a prairie dog colony in the Jack Canyon allotment (#7). The lack of mountain plovers on most of the Timpas Unit may be related in part to the lack of fallow agricultural fields, limited acreage of prairie dog colonies, and limited acreage of wildfires and prescribed burns in this area.

Table 3. Prairie dog colony surveys on the Carrizo Unit of the Comanche NG

Colony		Allotment #	# of Survey Points	Plover Observations	
ID	Allot Name			# Adults	# Chicks/Eggs
1	Arlington	14Ge	4	2	1
2	Lonestar	14D	1	0	0
3	Prairie Coal	8K	3	1	2
4	Liberty	14G	1	0	0
5	Antelope	8H	2	1	2
6	Joycoy	4I	3	0	0
7	Coyote	4C-South	3	0	0
8	Coyote North	4C-North	3	0	0
9	Vega	8D	2	0	0
10	Vienna	7A	4	1	0
11	North Fork	17C	4	0	0
12	Pintata	16Ae	2	0	0
13	Galleta	16Fs-S	1	0	0
14	Long Ridge	11F	3	0	0
15	Cholla/Kirkwell	3B	5	0	0
16	Reader Lake	5F	2	3	3
17	Galleta	16Fs-N	3	0	0
18	South Fork	5C	1	1	0
19	Shadel	4U	1	0	0
20	Picture Canyon	2A	2	0	0

Figure 1. Trend in the percentage of prairie dog colonies surveyed on the Carrizo Unit with mountain plovers present during the breeding season.



Mountain plover nest searches

Nest searches documented a total of 37 plover nests on the Comanche NG in 2005. Of these, 9 nests were located on the Dry Creek burn and the remainder were located on prairie dog colonies. Nests on prairie dog colonies were located in the following allotments: Antelope (8H), 3 awn and Prairie Coal (8K), Arlington (14G), Lone Star (14D), Peyton Place (14I), Peacepipe (14K), Shortgrass (14M), Athens (16Be), Reader Lake (5F), and the Carrizo Swing Allotment (see attached maps). In addition to the documented nests, adult breeding plovers were documented in the Vienna allotment (7A) and the South Fork allotment (5C) during the systematic surveys (Table 3). The largest concentration of plover nests on a prairie dog colony was in the Carrizo Swing Allotment, on a colony that expanded following a prescribed burn conducted in 2004.

Of the 37 nests, 32 were relocated to examine nesting success. Based on the presence of egg shell fragments in the nest bowl, 16 of 32 nests (52%) were estimated to have hatched successfully.

Overall, survey results from 2005 indicate:

- 1) Prescribed burns continue to provide nesting habitat for mountain plovers on CNG, but the density of nesting plovers has declined considerably from 1999.
- 2) Increased numbers of nesting plovers were documented on prairie dog colonies in 2005, indicating this can be an important breeding habitat in southeastern Colorado. Reasons for increased use of prairie dog colonies by plovers in 2005 may include the rapid expansion of colony acreage during 2003 – 2005 and that central areas of the colonies (where prairie dogs have been present for the longest period of time since the last plague outbreak) are beginning to have increasing percentage of bare ground.