MOUNTAIN PLOVER

POPULATION TRENDS FOR

THREE MONTANA SITES

prepared by:

FaunaWest Wildlife Consultants
POB 113
Boulder, MT 59632

prepared for:

Montana Fish Wildlife and Parks

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ABSTRACT: Mountain plover (*Charadrius montanus*) numbers were monitored during 9 different years from 1992 through 2004 at 3 separate geographic locations in Montana. These areas were located in northeastern, central, and southwestern Montana. At the northeastern and central study areas, point counts were made by driving to 68 and 90 specific sites and counting all plovers observed during a minimum 10 minute period. In the southwestern study area, 6 specific sites with known mountain plover use were searched for mountain plovers. Mountain plover numbers in the northeastern study area peaked in 1996 and declined gradually thereafter. The highest count was 35 adult plovers in 1996 and the lowest count was 12 adult plovers in 2004. Mountain plover numbers in the central study area appeared to decrease and increase at least twice during the 13 year period. Peaks were noted in 1992, 1996, and 2000. In 1992, 103 adult plovers were counted along the census route while in 1999 only 38 adult plovers were counted. Overall, there appeared to be a gradual decline in mountain plovers along the census route due to habitat changes from conversion of grasslands to croplands, and to a changing distribution and numbers of cattle and sheep. Two black-tailed prairie dog colonies (*Cynomys ludovicianus)* at the eastern portion of the this study area increased in size throughout the survey period, and mountain plovers counted in these colonies increased proportionately. By 2004, 68% of the adult plovers observed during the survey were found in these 2 colonies. In 1992, mountain plovers were documented to use 6 sites in southwestern Montana. In that year, 33 adult plovers were documented at these sites. Since 1992, mountain plover numbers declined throughout the survey period, and by 2004 mountain plovers were not found in this survey area. The apparent decline and loss of mountain plovers from this area was attributed to loss of habitat due to land subdivision, poisoning of prairie dogs, and incidental construction projects at mountain plover sites. Casual observations of mountain plovers north and south of Ingomar from 1994 to 2004 suggest an increasing number of plovers in this area as prairie dog colonies increase in number and size.

INTRODUCTION

The population status and trend of mountain plovers (*Charadrius montanus*) has been debated for over a decade. Until recently, the US Fish and Wildlife Service (FWS) classified the mountain plover as a candidate threatened species for protection under the Endangered Species Act. In February 2004, the FWS removed the mountain plover from this candidate species list claiming that new data showed that there were more plovers than previously thought and that trend data showed increasing numbers. However, removal of the mountain plover from the candidate species list may have been based more on political pressures than biological reality.

Population trend can be established through long-term monitoring of mountain plover numbers in areas with known populations. In 1991, we conducted a systematic survey of Montana for mountain plovers and identified 3 distinct areas with mountain plover populations outside of the Phillips and Blaine Counties population (FaunaWest 1991). These populations were located in northeastern, central, and southwestern Montana. In 1992, we established census routes through these 3 areas with known mountain plover use (Knowles and Knowles 1993). The census effort consisted of visiting a series of specific sites that appeared to be potential mountain plover habitat. All mountain plovers observed during a minimum 10-minute period were counted and classified. This census of identical sites with a similar survey effort over a series of years should provide data on mountain plover population trend within the survey area. From 1992 to 2000, the southwestern study area was surveyed during each year and surveys were conducted each year except 1993 at the other 2 study areas (Knowles and Knowles 1993, Knowles and Knowles 1994, FaunaWest 1995, Knowles and Knowles, 1996, Knowles and Knowles, 1997, Knowles and Knowles, 1998, Knowles and Knowles 1999, Knowles and Knowles, 2000, Knowles and Knowles, 2001). This census effort was repeated in 2004, thus providing trend data for 3 important Montana mountain plover populations over a 13 year period. This report summarizes the results of the 2004 mountain plover census of these 3 populations and compares the census results with previous census data.

STUDY AREAS AND METHODS

Three mountain plover populations were censused from 1992 through 2004. These populations were located in northeastern, central and southwestern Montana (Figure 1). The northeastern Montana study area was located in southern Valley County about 15 miles southwest of Glasgow. This study area was characterized by broad low gradient coulees with silty overflow sites dominated by Nuttall's saltbrush (*Atriplex gardneri*) and yellow eriogonum (*Eriogonum flavum*). The central Montana study area was located on mountain benches on the south side of the Little Belt, Big Snowy and Little Snowy Mountain Ranges. These grassland mountain benches were dominated by needle-and-thread grass (*Stipa comata*) and blue grama (*Bouteloua gracilis*). The southwestern Montana study area was located in Broadwater, Jefferson, and Madison Counties on alluvial fans and mountain benches associated with the Tobacco Root, Highland and Elkhorn Mountain Ranges. These were grassland sites dominated by needle-and-thread grass and blue grama. In 1992, census stations were established at 68 sites in the northeastern study area, 90 sites in the central study area, and 6 specific areas in the southwestern study area. During previous survey work (1994 and 1998), mountain plovers were found north and south of Ingomar (Figure 1), and a portion of this area was surveyed for plovers in 2004 as

well. The habitat and topography in the Ingomar area was very similar to the northeastern study area.

For the northeastern and central study areas, the census consisted of driving to a specific point to look and listen for mountain plovers during a minimum 10 minute period. The central study area contained 2 black-tailed prairie dog (*Cynomys ludovicianus*) colonies that were searched on foot for mountain plovers. In the southwestern study area, the 6 specific sites were walked or driven through while looking and listening for mountain plovers. Sites searched on foot or by driving were not timed events. All mountain plovers observed at each census station were classified as adult, downy juvenile, feathered juvenile, or fledged young. Information was also recorded on habitat use, vegetation height, topographic setting, slope, and associated features such as prairie dog colonies, stock water developments, homesteads, etc. Generally, the survey effort was conducted during the last half of June and first half of July, but in 2004, the survey was conducted from 15-25 July.

RESULTS AND DISCUSSION

In the northeastern study area, there were 13 observations of 17 mountain plovers (this total includes mountain plovers observed between census stations). Only 1 brood with 2 downy chicks was observed. Behavior of 3 other adults indicated young broods in the area (distraction displays), but the chicks were not found. Erratic reproduction has been previously documented at this site, and flash flooding is the likely cause of many failed nests. The late broods observed in 2004 were probably a result of renesting. During the 2004 survey, there was a total of 12 adult plovers observed at 9 different census stations (Figure 2). Number of adult mountain plovers observed along this survey route has previously ranged from a high of 35 plovers at 21 stations in 1996 to 17 plovers at 12 stations in 1992 (Figure 2, Table 1 Appendix A). In 2002, the BLM constructed pit reservoirs at 2 census station sites that had documented consistent use by mountain plovers since 1992. A plover was found at one of these stations, but no plovers were observed at the other disturbed site during the 2004 survey.

At the central study area there were 23 observations of 94 mountain plovers (this total includes mountain plovers observed between census stations). Fifty-one of these birds were adults and 43 were juveniles. Of the juvenile birds, 11 distinct broods were identified with young ranging in age from a few days old to fledged birds. Some of the fledged immature birds had already flocked together making it impossible to identify broods for these older birds. During the 2004 survey, a total of 47 adult mountain plovers were observed at 9 census stations (Figure 3). The highest count of mountain plovers at the central Montana study area was 103 adults at 35 stations in 1992, and in 1999 only 38 adult plovers were recorded at 12 census stations (Figure 3, Table 2 Appendix A). Mountain plover numbers along this census route have been typically up and down with peaks occurring in 1992, 1996, and 2000. However, overall there appears to be a declining trend. Decline of mountain plovers in the central Montana study area can be attributed to cultivation of grasslands (most of these sod-busting efforts occurred in the mid-1990s and are now in the Conservation Reserve Program), and changing livestock grazing patterns. There are fewer flocks of sheep and 2 major cattle wintering areas are no longer used for that purpose due to the death of one rancher and a change in land ownership in another case.

A continuing trend in the central study area has been a shifting distribution of mountain plovers as land use and grazing practices change. For example, the expansion of 2 prairie dog colonies on BLM and FWS land in Mussellshell County has been followed by an increasing number of mountain plovers associated with these colonies. In 2004, 32 (68%) of the adult plovers observed at census stations were recorded on these 2 colonies. In 1992, these colonies were much smaller and accounted for only a few mountain plover observations, or less than 10% of the total number of plovers observed. The Lewis Ranch, in 1992, was an area of concentrated mountain plover use related to wintering cattle on topographically suitable sites. Cattle no longer winter on this ranch and mountain plovers have not been observed here for several years. Janet Lewis, life long resident of this ranch, reported during the 2004 survey that she now rarely observes mountain plovers in this area where they once were common (pers. commun.). The ranch immediately west of the Lewis ranch was purchased by an out-state buyer in the mid-1990s, and up to 400 cattle were wintered at this site. Mountain plovers shifted their distribution from the Lewis Ranch to this adjacent ranch as the 2 ranches showed opposite trends in vegetation cover (increasing vs. declining). Since 2000, the adjacent ranch has changed ownership again and is now owned by a retired couple reported to be in their 80s (J. Lewis, pers. commun.). The new owners have only 30 cattle and only 2 mountain plovers were found at this site in 2004. When previously surveyed in 2000, 13 mountain plovers were counted in this area.

In the southwestern Montana study area, no mountain plovers were observed in 2004 (Figure 4). The highest count of 33 adult plovers was obtained in 1992 and the number of mountain plovers observed in this study area has declined more or less progressively each year (Figure 4, Table 3 Appendix A). The loss of mountain plovers in this area can be attributed directly to loss of habitat. Virtually all sites used by mountain plovers have received some impact detrimental to plovers. The 3 prairie dog colonies used by plovers have been poisoned repeatedly, and the lower Whitetail Valley colony on the Tomahawk Ranch was extinct by 2000. The eradication of prairie dogs from this site was in direct response to efforts to list the black-tailed prairie dog as a threatened species. Plovers have not been seen at this site since the prairie dogs have been eradicated. The upper Whitetail Valley colony has been subdivided and there are now 16 homes in or adjacent to the colony. Individual landowners have asynchronously poisoned prairie dogs on their 20-acre parcels creating a pattern of variously reduced or eliminated prairie dogs. In addition, the colony has been fragmented by homes, barns, junk vehicles, fences, shelter belts, and planting of tame pasture grasses. The colony probably no longer represents mountain plover habitat. This colony was searched in May 2003 with negative results as well. The Willow Springs prairie dog colony came under unified land ownership in 2002, and the colony was poisoned in 2003. Only 18 prairie dogs were counted during the 2004 survey. The Fish Creek Bench now has a large log house and a log house manufacturing site situated right where 9 plovers were counted in 1992. In addition, there have been other housing developments on adjacent lands in this area. The Goodrich Gulch alluvial fan has received repeated habitat impacts since 1992. These include a water storage facility for Twin Bridges, a fiber optic cable and most recently a cell phone tower located at a well site with previously recorded mountain plover use. The Twin Bridges landfill is located nearby and has been recently expanded. This facility is an attractant to ravens (*Corvus corax*) which are consistently observed at the sites mountain plovers previously used. The concern with ravens is that they are an egg and chick predator. Half of the Elkhorn bench mountain plover site has not been grazed in several years.

The owner of this parcel of land discontinued livestock grazing as a conservation measure to promote climax grass species. In a previous report (Knowles and Knowles 2001), we predicted the extirpation of the southwestern Montana mountain plover population if there were no immediate efforts to change the habitat situation.

A portion of the Ingomar mountain plover population was surveyed in 2004. Mountain plovers in this area are known to occur both north and south of Ingomar (Knowles and Knowles 1999) both on prairie dog colonies and off of colonies at silty overflow sites. Prairie dog colonies in this area have expanded considerably in recent years and there are several new colonies. Seventeen census stations were establish along the county road in 2004 and 18 mountain plovers (9 adults and 9 juveniles) were counted at 5 census stations. An aerial survey of this area in March and April 2004 showed an extensive complex of prairie dog colonies in this area and many silty overflow sites that appear to be suitable mountain plover habitat. Much of this region is in private ownership and a systematic survey for mountain plovers in this area has not been attempted. While mapping prairie dog colonies north of Ingomar in 1998, 64 mountain plovers were counted in this area. There is reason to believe that mountain plovers are widely distributed in this region and that their numbers greatly exceed those found in the other 3 study areas, and may rival the number of mountain plovers in the Phillips and Blaine Counties area.

During the 1990s, we had records of mountain plovers in Carter, Carbon, Toole and Teton Counties. These areas were not surveyed in 2004, but breeding plovers were noted in Carbon County in 2003 (personal observation) and 2004 (Bill Roney, pers. commun.).

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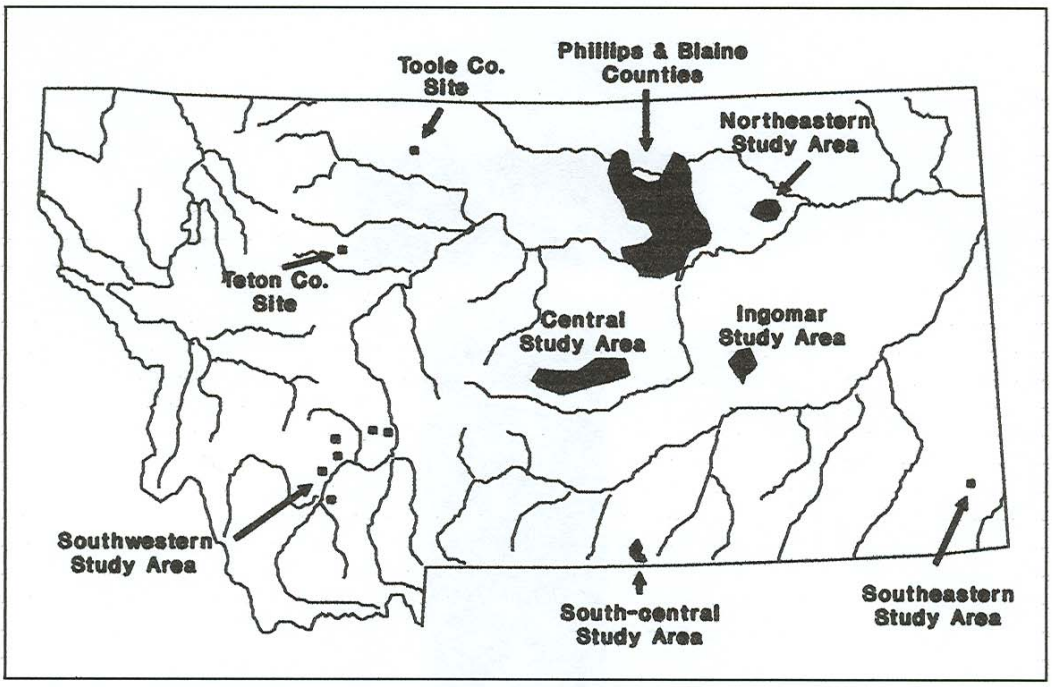

Figure 1. Map of Montana showing the known current distribution of mountain plovers.

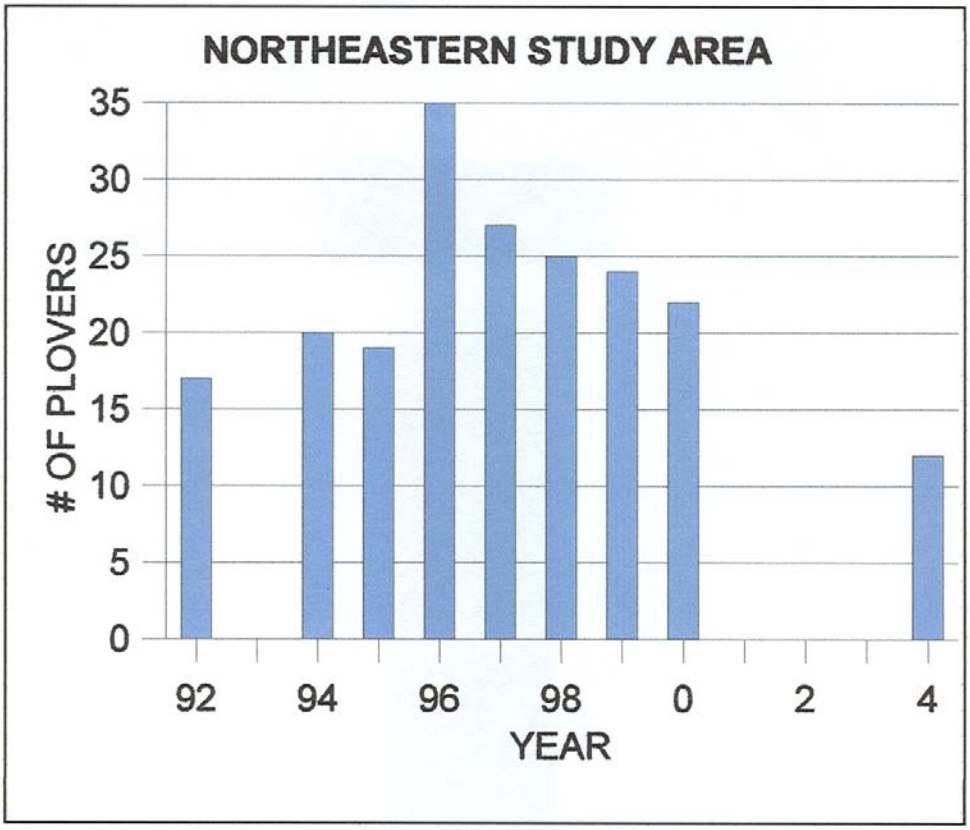

Figure 2. Mountain plover census trend data for the Northeastern Montana Study Area.

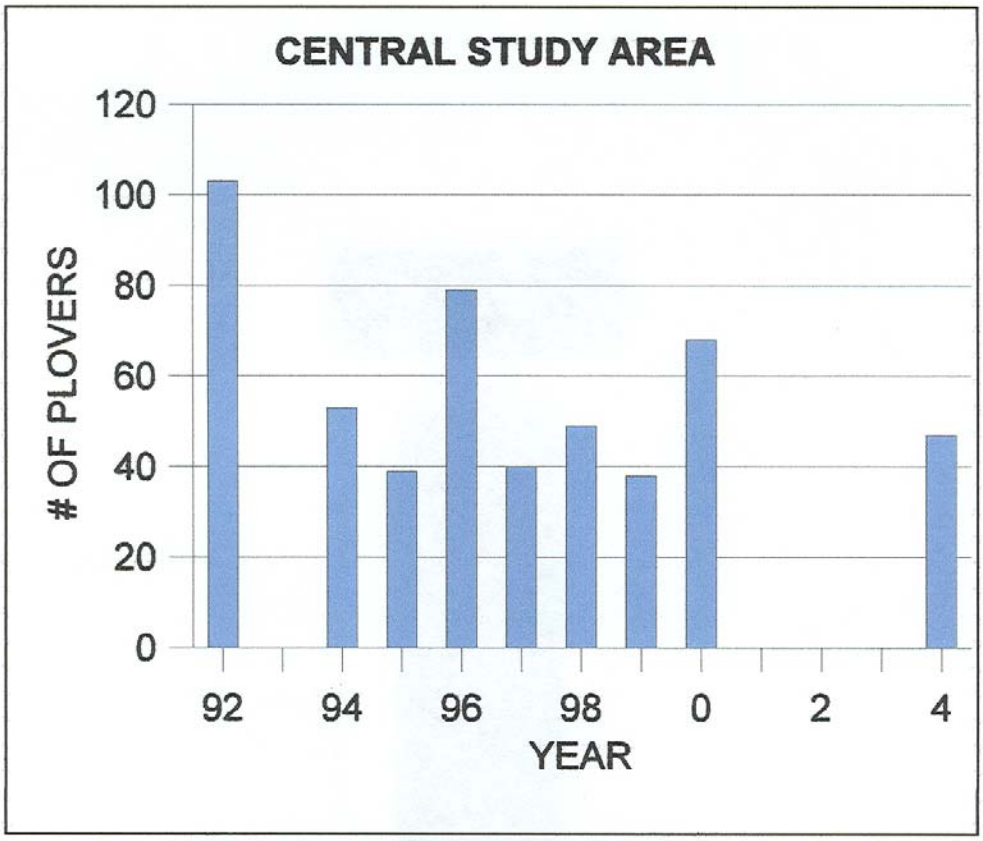

Figure 3. Mountain plover census trend data for the Central Montana Study Area.

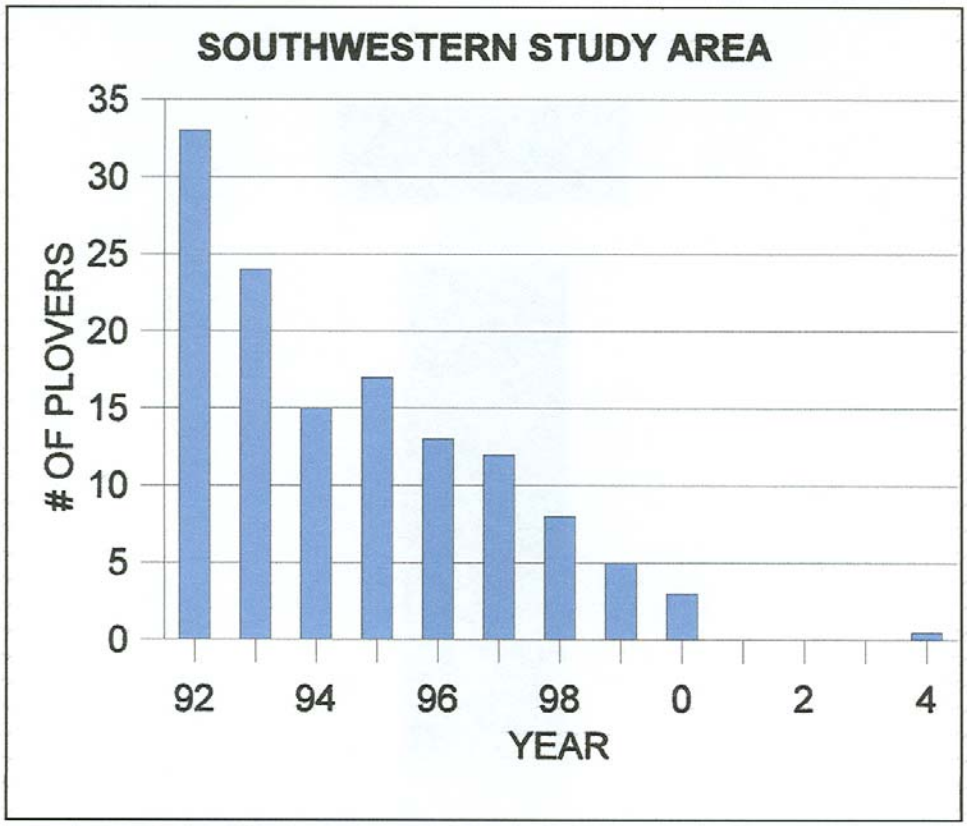

Figure 4. Mountain plover census trend data for the Southwestern Montana Study Area. Note that the bar for 2004 represents zero.