CONTINENTAL BIRDLIFE
VOLUME 2, NUMBER 3, JUNE 1981

Mountain Plovers on the New Mexico — Arizona Border

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THE MOUNTAIN PLOVER *Charadrius montanus* is a North American endemic that nests in shortgrass prairie from Montana southward to New Mexico and northwestern Texas. Its local distribution and natural history are not well known over much of its presumed breeding range, especially in the southwestern parts. Herein we report observations that document Mountain Plovers nesting in western New Mexico, and describe aspects of their behavior previously undescribed in the literature.

The birds of central-western New Mexico and adjacent Arizona have not been well studied by ornithologists. Thus, new records for breeding birds are not unexpected. The region here treated, from Red Hill (Catron County, New Mexico) west to Springerville (Apache County, Arizona) and northward along the New Mexico-Arizona border, is mainly shortgrass prairie. We believe that much of the habitat in this area is suitable for nesting by Mountain Plovers, though to date few birds and only one nest have been found.

The breeding status of Mountain Plovers in the Red Hill-Springerville area is based on a few recently published records. The only documented breeding locality near the area is in New Mexico, east of Fence Lake, Valencia County (Hubbard 1978a,b and pers. comm.). Plovers bred 40 mi. east of Fence Lake in 1968. They were recorded in the summers of 1972 and 1975, ca. 30 miles east of Fence Lake. On the Arizona side, the only record is from Ligon, who, in August 1914, observed "several flocks northeast of Springerville," suggesting the possibility of breeding in the area (Phillips *et al.* 1964). It has been speculated elsewhere that those birds might have been early migrants (Tolle 1976). There are no confirmed records of Mountain Plovers breeding anywhere in Arizona.

On 12 June 1978 we located a pair of Mountain Plovers and their nest, containing

3 eggs, at 10km WSW of Red Hill and 11km east of the Arizona Stateline. We had previously seen one to three adult plovers (but no nests) at the same locality in May and June 1977. The nearest known nesting locality is east of Fence Lake (see above), which is 60km NNE of Red Hill. Other known localities in the general area are: 255km north, near Burnham Trading Post, San Juan County (Tolle 1976); and 80km SE in the San Augustin Plains, Catron County (Hubbard 1978a,b).

The nest site was a level spot (slope less than 1^0) in a gently rolling, heavily grazed field that was adjacent to ungrazed grasslands (Figure 1). The vegetation of the area was dominated by blue grama *Bouteloua gracilis* and snakeweed *Gutierrezia sarothrae*. Rabbitbrush *Chrysothamnus nauseosus* was also common, especially around shallow natural depressions (0.5ha and larger) in the valley floor. Junipers *(Juniperus* spp.) dominated the rocky outcrops and hillsides in the vicinity.

Few descriptions of Mountain Plover nests have been published (Bent 1929, Graul 1975, Ligon 1961). The nest that we observed was in gravelly, sun-baked dirt between hummocks of blue grama. The nest scrape was lined with pebbles, bits of blue grama and rabbitbrush rootlets. The nest and eggs blended in well with their surroundings, and the incubating adult increased conspicuousness of the nest only slightly (Figure 2). The adult was still adding and rearranging debris in and about the scrape on 13 June 1978.

The 3 eggs in the nest were ovate, with the blunt end of each placed up in the nest (Figure 3). They were all Olive-Gray (see Smithe 1975) and had small, blackish spots concentrated at the blunt end. Their colors were similar to those described in Bent (1929) but differed from Tolle's (1976) description of "3 extremely light-buffy-brown eggs that were flecked with dark brown."

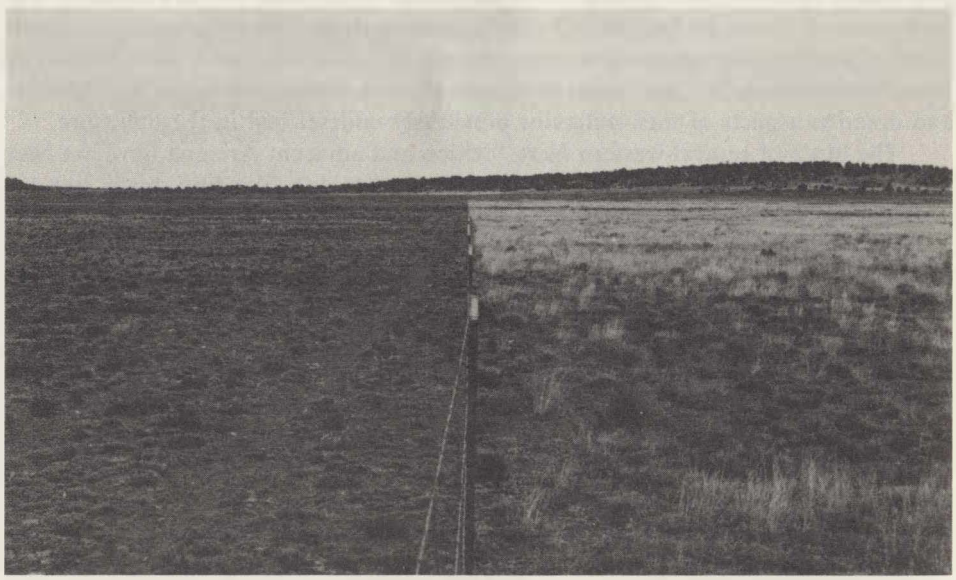

Figure 1. Mountain Plover nesting area, Catron County, New Mexico, 12 June 1978. Looking easterly, ca. 2388m elevation. Nest in heavily grazed area to left. Pasture to right ungrazed since spring 1977.

Figure 2. Mountain Plover on nest, Catron County, New Mexico, 12 June 1978. Note position of nest between grass hummocks.

The behavior of the adult plover at the nest was similar to that described for Mountain Plovers in Colorado by Graul (1973, 1975). Two adult plovers were seen near the nest on 12 June 1978 but we could not determine whether or not only one individual attended the nest. Only one (sex undetermined) was seen at the nest at any one time during 359 minutes of continuous observation (0656 to 1255 MST) on 13 June 1978. An adult was at the nest for 63% of the observation period. The 9 attentive periods observed ranged from 7 to 46 minutes ($\bar{x}$ = 25). The 7 inattentive periods ranged from 5 to 33 minutes ($\bar{x}$ = 18).

The behavior of the attentive bird varied with change in surface temperature (T_S, measured at 2cm above soil surface, 15m from the nest) and indicated thermal stress at higher temperatures. The incubating adult began panting and gaping when T_S rose above 42°C. Above T_S = 44°C, the bird continued panting and gaping and stood over the scrape, shading the eggs and exposing them to a slight breeze. Purdue (1976) found that Snowy Plover *Charadrius alexandrinus* egg temperatures were significantly lower at high ambient temperatures when shaded by a standing adult in a similar manner. At T_S = 46°C, we observed the standing bird, which was facing *into* the wind, erect its back feathers while continuing to gape and pant. The feathers were held erect for 9 minutes, ending at 1210. Panting, gaping and shading were observed for a total of 30 minutes, from 0936 to 1210. At 1210 cloud cover became continuous and ambient temperatures began falling: T_S = 38°C at 1211 and T_S = 29°C at 1240. During this period the adult resumed sitting on the nest, with no gaping, panting or shading behavior. At 1253 the adult left the nest (see below) and did not return before the observation period was ended abruptly at 1255, at the onset of a rainstorm. However, incubation was still in progress on 24 June, when the nest was checked for the last time.

Figure 3. Mountain Plover nest and eggs, Catron County, New Mexico, 12 June 1978. Note lining of pebbles, blue grama *Bouteloua gracilis* and rabbitbrush *Chrysothamnus nauseosus*.

Graul (1975) stated that incubating Mountain Plovers crouch low on the nest in response to aerial predators, but we observed different responses. At 1052 a Ferruginous Hawk *Buteo regalis* flew over the nest. The incubating plover skulked slowly away from the nest, squatting for a few seconds every 3 meters or so, and then finally flew away. The hawk showed no response and continued on its way. The plover returned to the nest and resumed incubating 18 minutes after having left the nest. At 1253 a male American Kestrel *Falco sparverius* flew over the nest. The incubating plover explosively flew from the nest in a zig-zag pattern. It began calling after flying some 75 meters. The kestrel hovered above the nest briefly and then flew away. The plover had not returned to the nest when the observation period was ended at 1255 (see above).

The historic and present breeding status of Mountain Plovers in the Red Hill-Springerville shortgrass prairie is unclear. For several reasons it seems likely that the recent evidence for "new" breeding localities in western New Mexico (see Hubbard 1978a, Tolle 1976 and this paper) represent only an apparent increase in the breeding range occupied. These grasslands are and have been historically dominated by blue grama, which is characteristic of Mountain Plover breeding habitat throughout the Great Plains (Graul and Webster 1976). The area is also heavily grazed, which might increase blue grama frequency (Mitchell 1971) and thus favor use by plovers (Graul and Webster 1976). Plover habitat in the area has not been reduced significantly (nor is it likely to be) by agricultural practices, as has been the case elsewhere in the historic breeding range (Graul and Webster 1976). The area has never been thoroughly studied by ornithologists. Thus we believe presence of breeding Mountain Plovers in the area has probably been overlooked in the past. Mountain Plovers may be scattered but

locally common breeders in the shortgrass prairie from Red Hill to Springerville and north and west to the area of Holbrook, Arizona.

ACKNOWLEDGMENTS

We thank John Hubbard, Scott Mills and Steve Alden for commenting on earlier drafts of this manuscript. This work was conducted with C.H. Lowe in an ecological monitoring program for Tucson Gas and Electric Company.

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