

Breeding of the American Pipit (*Anthus rubescens*) in Nevada

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There has long been a difference of opinion among plant ecologists about the nature of alpine tundra found on the tops of Nevada's highest mountains. Clokey (1951), in his pioneering work on the flora of the Charleston (Spring) Mountain Range in southern Nevada, considered the "... small treeless areas on the peaks ..." to be "... entirely lacking in ... alpine flora...", suggesting that they are not true tundra. In contrast, Billings (1978) listed 39 alpine and 9 arctic-alpine species on the tops of these mountains. It may be helpful to those working on the status of the tundra in the Great Basin to know that the American Pipit (*Anthus rubescens*) has been found nesting on four of the seven highest Nevada peaks and at several other high elevation sites in the state. It is well established that the pipit nests only on arctic and alpine tundra, and occasionally, alpine meadows. Hence, it would seem that the treeless areas atop Nevada's highest mountains are indeed true tundra.

In *Birds of the Great Basin*, Ryser (1985) lists American Pipits as breeders at four sites in Nevada but provides little detail about the records. I was the observer in all four instances, and I provide additional information here. On 6 July 1977, I saw a pipit in full courtship flight and song several hundred yards below the summit of Mt. Charleston (11,918 ft) in the Spring Mountain Range. A week later I found a nest with four eggs in a crevice in the same area, partially protected by an overhanging rock. In the summer of 1978 I observed more courtship activity and several pipits feeding young near the Charleston summit (16 and 23 July). The following summer I observed similar breeding activity of pipits above timberline on the slopes of Wheeler Peak (13,063 ft) in the Snake Range of east-central Nevada, of Arc Dome (11,775 ft) in the Toiyabe Range in central Nevada, and of Mt. Rose (10,778 ft) in the Carson Range of western Nevada. More recently, I saw similar pipit activity in the same location on Mt. Rose in July 1981, and on 16 July 1993 I observed pipits feeding young near the summit of North Schell Peak (11,883 ft) in eastern Nevada. In all

cases, the breeding-nesting activity was taking place in a tundra-like environment.

A detailed analysis of an alpine tundra habitat on Bald Mountain (11,562 ft) in the Snake Range of eastern Nevada by Medin (1987) revealed several pairs of nesting pipits, about one mile north of the Wheeler Peak observation noted above. The half dozen species of tundra plants that Medin found on his 50 acre plot also appear on Billings' list, again on a list of plants on an intensively studied portion of tundra in the Colorado Rockies where pipits nest (Marr 1961), and among the tundra vegetation reported from the top of Pike's Peak (14,110 ft) where I also found the pipits nesting (Knorr 1959); these occurrences provide additional evidence for the true tundra nature of the tops of Nevada's mountains.

The highest peaks in Nevada occur in narrow parallel mountain ranges separated by arid or desert areas rather than as parts of a massive connected chain of some depth such as the Sierra Nevada or the Rockies. Indeed, Billings calls them "... alpine islands in the Great Basin ...". Oriented in a north-south direction, these mountains receive the full brunt of the east-to-west storm tracks and jet stream excursions to lower altitudes. As pointed out by both Ryser (1985) and Medin (1987), the alpine zone is the most poorly studied life zone in the mountainous west. However, the extreme rigors of the environment there can be understood by examining the findings of the only research project to collect data on the physical factors of the above-timberline environment in the western United States – the unique Mountain Ecology Project of the University of Colorado. Daily environmental data were collected for five uninterrupted years at a tundra station (12,200 ft) in the Rockies (Marr *et al.* 1968) and the results were dramatic. For example, the total wind recorded on a totalizing anemometer at this station for one of those years was 160,144 miles, and in the month of December that year, a total of 22,978 miles of wind was recorded for an average of 31 mi/hr for every hour of the month. As one of the persons who collected the data, I know that many days were calm. During this month, the mean daily minimum temperature was 4° Fahrenheit.

Some years ago I queried the Director of the Mountain Ecology Project as to whether the environmental conditions on the tops of Nevada's highest mountains might be similar to those measured in his project in the Rockies. He stated that in his opinion the weather conditions would be essentially the same for comparable elevations, although the lack of breadth in Nevada's ranges might result in higher winds and more turbulence; this is because the true tundra is found at

lower elevations in the Rockies and the Sierra Nevada mountains (J.W. Marr *personal communication*). If so, under these extremes of dessication, abrasion, and freezing, it is not surprising that there is no high-profile arborescent vegetation on the tops of Nevada's highest peaks. With more than 20 peaks exceeding 10,000 feet, more field work is needed to determine if additional breeding populations of the pipit have found suitable nesting habitat on Nevada's alpine tundra.

The nesting populations of pipits described above for the state of Nevada were visited again in the breeding seasons of 1998 and 1999 and found to be active in the same locations as originally discovered.

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