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# AVIFAUNA OF THE MT. DELLENBAUGH REGION, SHIVWITS PLATEAU, ARIZONA<sup>1</sup>

John G. Blake<sup>2</sup>

**ABSTRACT.**— An investigation of the avifauna of Mt. Dellenbaugh, Arizona, and nearby areas on the Shivwits Plateau was conducted during fall 1974 and during spring and summer 1975. A total of 92 species of birds was recorded, of which 56 were considered resident. Species composition is discussed in relation to habitat.

From an ornithological standpoint, the Shivwits Plateau in northwestern Arizona has been neglected. In fact, bird studies in the entire region (northwestern Arizona, southwestern Utah, and adjoining parts of southeastern Nevada) have been limited. The need for work in this part of Arizona is evident from an examination of distribution maps in *Birds of Arizona* (Phillips et al. 1964) and is further emphasized by Monson and Phillips (1964:178). Despite this lack of information, virtually no work has been conducted on the Shivwits Plateau and nearby areas.

Mt. Trumbull, located approximately 50 km NE of Mt. Dellenbaugh on the Uinkaret Plateau, was visited by Huey (1939) for approximately two weeks in late July; Mt. Trumbull is the closest reported study area to that part of the Shivwits Plateau covered by the present report. Farther east, Rasmussen (1941) and Jenks (1931) have reported on bird communities of the Kaibab Plateau. Investigations on avifauna of south central and southwestern Utah have been somewhat more extensive (Presnell 1935, Hardy and Wiggins 1940, Behle 1943, Behle et al. 1958, Wauer and Carter 1965) but have not included the Shivwits Plateau region. Farther west, several authors have examined the desert avifauna of the Virgin River Valley in Nevada, Arizona, and Utah (Tanner 1927, Wauer and Russell 1967, Wauer 1969, Behle 1976, Whitmore 1977).

In 1975, a study was initiated by the U.S. National Park Service Cooperative Resources Studies Unit located at the University of Nevada, Las Vegas, to document distribution of plants and animals within the Lake Mead

National Recreation Area. The northern boundary of the recreation area crosses the southern edge of the Shivwits Plateau, close to Mt. Dellenbaugh. As a consequence, several trips were made to the Shivwits Plateau by members of the NPS study team, with observations taken on occurrence and distribution of flora and fauna. The present paper presents an account of bird species observed. Distribution of birds within different habitats is discussed.

Place names and topographical information used in the present report are taken from U.S.G.S. 1:250,000 topographical maps.

## STUDY AREA

The Shivwits Plateau is primarily flat tableland, with occasional lava-capped buttes and isolated mountains. Over much of the southern part of the plateau elevation is approximately 1830 m. Northward, the plateau stretches toward Utah, gradually decreasing in elevation. The southern boundary is marked by an abrupt descent to the Sanup Plateau, at 1370 m. Numerous steep-walled canyons dissect the plateau, leading eventually to the Colorado River. Mt. Dellenbaugh, the highest peak in the southern part of the plateau, reaches an elevation of 2130 m. Approximately 8 km NE is Yellow John Mountain, which reaches an elevation of 2060 m (Fig. 1).

Observations are primarily from the vicinity of Mt. Dellenbaugh and Green Springs Canyon; additional observations were made on a trip along Twin Point (Fig. 1). Various distinct habitats occur at different locations

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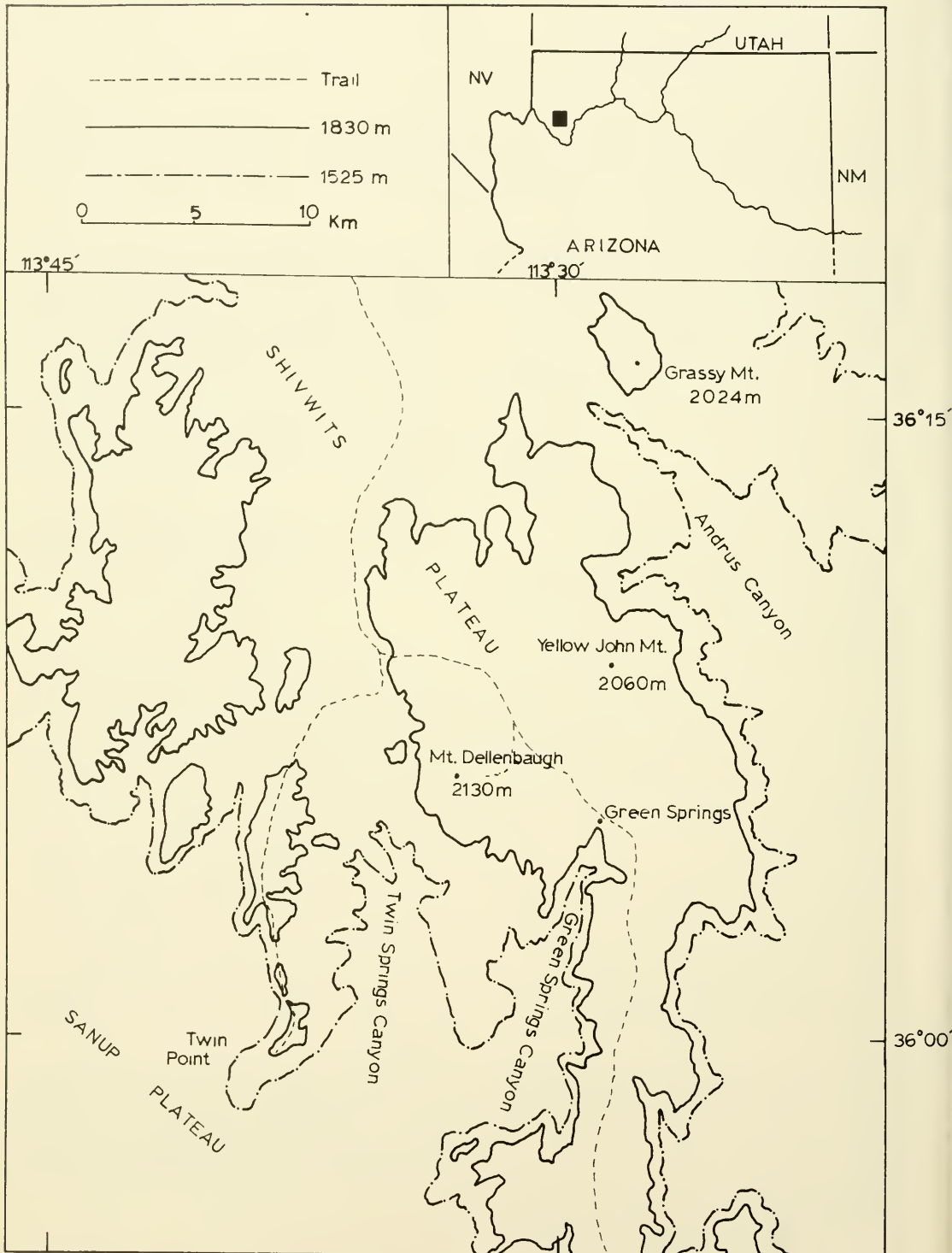


Fig. 1. The southern part of the Shivwits Plateau is shown, with sites mentioned in the report indicated. Location of the plateau within Arizona is shown in the upper right.

and are briefly described below. Plant identification was by members of the NPS study team.

Predominant vegetation over most of the Shivwits Plateau is pinyon pine (*Pinus monophylla*) - juniper (*Juniperus osteosperma*) woodland. Understory is sparse within this open, relatively xeric woodland, consisting primarily of sagebrush (*Artemisia*) and scrub oak (*Quercus*). Locally concentrated patches of oaks and sagebrush produce a more brushy appearance in certain areas (e.g., southern end of Twin Point).

Ponderosa pine (*Pinus ponderosa*) occurs in limited amounts, principally along drainages where soils are deeper and moisture conditions higher. Scattered individuals occur throughout the area. Due to drainage patterns, ponderosas occur primarily as belts interspersed in pinyon-juniper woodland and bordering open sagebrush fields. Understory and ground cover are sparse, with a mixed shrub assemblage that includes species of oak, sagebrush, mountain mahogany (*Cercocarpus montanus*), and others.

Upper slopes of Mt. Dellenbaugh and edges and slopes of various canyons are covered with a mixed assemblage of relatively brushy shrubs and trees, which produces a chaparral type habitat. Although oaks, including scrub oak (*Quercus turbinella*), Gambel oak (*Q. gambelii*), and wavyleaf oak (*Q. undulata*), are particularly abundant, numerous other shrubs also occur, including mountain mahogany and manzanita (*Arctostaphylos pungens*). Particularly on the slopes of Mt. Dellenbaugh, New Mexican locust (*Robinia neomexicana*) occurs in locally dense stands.

Large expanses of sagebrush (*Artemisia tridentata*) occur at a number of locations on the plateau. In a number of instances, juniper trees have been cleared, and large piles of dead trees add a significant component to the habitat. Additional plant species occurring with sagebrush include rabbit brush (*Chrysothamnus* spp.), snake weed (*Gutierrezia microcephala*), and others.

Several ranchers graze cattle on the plateau, and a number of ponds have been constructed to supply water. Vegetation is virtually absent around some ponds, but

others are bordered by relatively dense stands of shrubs, particularly rabbit brush.

All habitat types described above occur at or near Mt. Dellenbaugh. A large sagebrush field occurs just north of the mountain and has been maintained in part for use as a landing strip. Cattle also graze over parts of the field; several ponds occur in or around the perimeter of the field. Pinyon-juniper woodland surrounds much of the mountain and extends south to the plateau edge. Pinyon-juniper extends part way up the slopes of the mountain, particularly on the northern face. Ponderosa pine occurs in belts near the base of the mountain, bordering the sagebrush at numerous points. Mixed oak scrub predominates over much of the mountain slope.

Green Springs Canyon is located approximately 6 km ESE of Mt. Dellenbaugh (Fig. 1). Pinyon-juniper woodland predominates over much of the surrounding plateau. An open ponderosa pine stand occurs at the head of the canyon. The stand was logged at some time in the past, and presently is composed of large, widely spaced trees, forming a more parklike appearance than is found elsewhere. Patches of sagebrush occur at scattered locations, but large expanses are absent from the area. Canyon slopes and edges are covered by oak scrub, with Gambel oak particularly prevalent in patches on midslopes. The canyon bottom is quite moist and supports a limited amount of riparian vegetation.

Twin Point is predominantly pinyon-juniper woodland with oak scrub along the plateau rim and at the southern end of the point. Large sagebrush fields occur at several locations along the plateau.

#### METHODS

Mt. Dellenbaugh was visited in fall 1974 (28 September, 4-5, 12-14 October), and spring (17-18 May) and summer (7,9,27-29 June) 1975. Green Springs Canyon was visited 28-29 September 1974 and 16 May and 6,8 June 1975. A trip was made to the southern end of Twin Point 6-7 October 1974; the northern end was briefly visited again on 7 June 1975. Thus, a total of 19 days was spent in field observations.

No regular censuses were conducted during the study, but all habitats were surveyed



on a regular basis. Observations were conducted on foot and were concentrated in the morning, from approximately one-half hour prior to sunrise until approximately 4–5 hours after sunrise. Additional observations were made throughout the day with a second concentrated effort in the evening. During observation periods, a count was kept of the number of individuals of each species seen. The trip out from Twin Point involved periodic stops for observation as well as observations from the vehicle.

Several additional trips were made to the Mt. Dellenbaugh area in spring and summer 1976 by other members of the study team. Observed species new to the area are listed at the end of the Appendix.

Species were classified as resident (including those thought to be permanently resident on the plateau and those that breed in the area but depart for winter), migrant (those passing through the area in fall and/or spring as part of a regular migration), and visitors (including those that breed elsewhere, frequently at lower elevations, which appear on the Shivwits Plateau irregularly but not during normal migration periods). Most visitors were observed only once.

Relative abundance designations were determined from the number of days on which the species was observed, together with the number of individuals observed. Abundant species were designated as those seen on approximately 80 percent or more of trips, common species were observed 60–80 percent of the time, uncommon species were observed 40–60 percent of the time, and rare species were observed less than 40 percent of the time. The number of individuals observed was used to modify these categories. Thus, a species seen on all trips, but with only 1–2 individuals recorded each time was designated common. Alternatively, species seen on few

trips, but seen in large numbers on each trips, were designated as common. This method is subjective, but with criteria consistently applied does provide an index of abundance.

## RESULTS

A total of 92 species was recorded during visits to the Shivwits Plateau (Appendix). Of these, 13 were observed only in 1976, including one summer resident (Poor-will), 3 migrants, and 9 visitors. The failure to record additional summer residents suggests that coverage in 1975 was relatively complete. The following discussions that involve habitat preference will not include these species, due to a lack of personal observations.

Of the total observed, 56 species were considered probable breeding residents, 24 were migrants, and 12 were visitors. More species were observed in pinyon-juniper woodland than in other habitats (Table 1), although the numbers in oak scrub and ponderosa pine were comparable. Among residents, a greater number were recorded from oak scrub habitat (35) than from pinyon-juniper (34) or ponderosa pine (31). Migrants were considerably more common in pinyon-juniper and ponderosa pine stands than in oak scrub. The number of resident species observed on fields or at ponds were similar (Table 1). Heavy use of ponds by migrants (29 percent of the total observed at ponds) resulted in a higher species total from ponds than from fields.

Thirty-two species were observed in only one habitat (Table 2). Of these, 15 were resident, 14 were migrant, and 3 were visitors. Only a single resident species (Black-throated Gray Warbler) was restricted to pinyon-juniper woodland, although this habitat is predominant over the plateau. More species, 5, were restricted to oak scrub habitat than to any other habitat. More than twice as

TABLE 1. Distribution within habitats is shown for species recorded at or near Mt. Dellenbaugh, Arizona, 1974–1975.

	Pinyon-juniper	Ponderosa pine	Oak scrub	Sagebrush fields	Ponds
Residents	34	31	35	18	18
Migrants	11	7	7	3	8
Visitors	0	1	0	0	2
Total	45	39	42	21	28

many migrants were observed only at ponds (7) than in any other habitat (3 in pinyon-juniper). In contrast to residents, only one migrant was restricted to oak scrub areas. Visitors also were slightly more frequent at ponds than in other habitats.

#### DISCUSSION

Close proximity of several distinct habitat types may influence the species composition of an area. Habitat variability is greater at Mt. Dellenbaugh than at Green Springs Canyon, and a greater number of species were resident at Mt. Dellenbaugh (51) than at the latter area (33). Four species, including 3 owls, were recorded only from Green Springs Canyon. In addition, Canyon Wrens were present along the canyon slopes at Green Springs. Presence of large sagebrush fields and several cattle ponds accounted for 4 of 15 species recorded only from Mt. Dellenbaugh (Killdeer, Common Nighthawk, Horned Lark, Mountain Bluebird); Turkey Vultures and Red-tailed Hawks also were seen more frequently over fields or at ponds.

Species composition at Mt. Dellenbaugh and surrounding areas was similar to that reported by Huey (1939) for Mt. Trumbull. Of 51 species included by Huey in his report, 43 were from the Mt. Trumbull region, with 8 from areas farther north. Of the 43, 38 were considered resident at Mt. Trumbull, with 3 more possibly resident in the area. Of the 43 birds seen at Mt. Trumbull, 32 were considered resident at Mt. Dellenbaugh, 5 were not considered resident, and 6 were not observed at Mt. Dellenbaugh. Seven of the 8 species recorded by Huey (1939) from areas north of Mt. Trumbull were seen at Mt. Dellenbaugh; 4 were considered resident. The present report covers a greater area than did Huey (1939), which accounts in part for the higher

resident species total from Mt. Dellenbaugh (56 species). In addition, Mt. Trumbull reaches a higher elevation (2447 m) than Mt. Dellenbaugh, accounting in part for some of the species differences between the two areas.

The present report presents a preliminary species list, but considerable additional work in the area is needed. Bird communities on the more isolated Sanup Plateau have, for example, not been investigated at all. Additionally, although pinyon-juniper woodland forms a fairly continuous cover over the plateau, additional habitat types are present as more or less isolated patches of varying size. An examination of bird use of these habitat patches, with respect to area and degree of isolation, would prove interesting.

#### ACKNOWLEDGMENTS

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TABLE 2. Distribution of species restricted to one habitat. Species were observed at or near Mt. Dellenbaugh, Arizona, 1974-1975.

	Pinyon-juniper	Ponderosa pine	Oak scrub	Sagebrush fields	Ponds
Residents	1	4	5	2	3
Migrants	3	2	1	1	7
Visitors	0	1	0	0	2
Total	4	7	6	3	12

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## APPENDIX

Species observed on Shivwits Plateau, Arizona. Observations were made at Mt. Delenbaugh (MD), Green Springs Canyon (GS), and Twin Point (TP). Residential status (R) is noted (M = migrant, V = visitor, PR and SR = permanent and summer residents, respectively). Relative abundances are indicated by season (F = fall, SP = spring, SU = summer). Five habitats are distinguished (PJ = pinyon-juniper woodland, PP = ponderosa pine, OS / oak scrub, F = sagebrush fields, P = ponds). Nomenclature follows AOU Check-list of North American Birds, 1957 ed., with 32nd and 33rd supplements.

Species	Abundance				Location			Habitat				
	R	F	SP	SU	MD	GS	TP	PJ	PP	OS	F	P
Green-winged Teal <i>Anas crecca</i>	M	X					+					+
Ruddy Duck <i>Oxyura jamaicensis</i>	M		X		+							+
Turkey Vulture <i>Cathartes aura</i>	SR		U	C	+					+	+	+
Sharp-shinned Hawk <i>Accipiter striatus</i>	SR	U	U		+	+		+	+	+		
Cooper's Hawk <i>Accipiter cooperi</i>	M	U			+		+	+	+	+		+
Red-tailed Hawk <i>Buteo jamaicensis</i>	PR	U	R	U	+					+	+	
Golden Eagle <i>Aquila chrysaetos</i>	PR	X					+				+	
American Kestrel <i>Falco sparverius</i>	SR	U	U	C	+	+	+	+		+	+	+
Killdeer <i>Charadrius vociferus</i>	SR		C	C	+							+
Spotted Sandpiper <i>Actitis macularia</i>	M		X		+							+
Long-billed Dowitcher <i>Limnodromus scolopaceus</i>	M		X		+							+
Black-necked Stilt <i>Himantopus mexicanus</i>	M		X		+							+
Bonaparte's Gull <i>Larus philadelphia</i>	M		X		+							+
Band-tailed Pigeon <i>Columba fasciata</i>	SR	C		C	+	+		+	+	+		





## Appendix continued.

Species	R	Abundance				Location			Habitat				
		F	SP	SU	MD	GS	TP	PJ	PP	OS	F	P	
Pinyon Jay <i>Gymnorhinus cyanocephalus</i>	PR	A	U	C	+			+	+	+		+	
Mountain Chickadee <i>Parus gambeli</i>	PR	C	C	A	+	+		+	+	+			
Plain Titmouse <i>Parus inornatus</i>	PR	A	C	A	+	+	+	+	+	+			
Common Bushtit <i>Psaltriparus minimus</i>	PR	A	U		+		+	+		+			
White-breasted Nuthatch <i>Sitta carolinensis</i>	PR	C	U	C	+	+		+	+				
Pygmy Nuthatch <i>Sitta pygmaea</i>	PR	A	U	A	+	+			+				
Brown Creeper <i>Certhia familiaris</i>	PR	C		R	+	+			+				
House Wren <i>Troglodytes aedon</i>	SR			R	+						+		
Bewick's Wren <i>Thryomanes bewickii</i>	SR	C		U	+	+	+	+		+	+		
Canyon Wren <i>Catherpes mexicanus</i>	SR	U		R		+	+			+			
Rock Wren <i>Salpinctes obsoletus</i>	SR	C	R	U	+	+	+	+		+	+		
Mockingbird <i>Mimus polyglottos</i>	SR			U	+			+				+	
Sage Thrasher <i>Oreoscoptes montanus</i>	M	X						+	+				
American Robin <i>Turdus migratorius</i>	SR	R	R	C	+	+	+	+	+	+		+	
Western Bluebird <i>Sialia mexicana</i>	SR	C	C	C	+	+	+	+	+			+	
Mountain Bluebird <i>Sialia currocoides</i>	SR	A	C	C	+							+	
Townsend's Solitaire <i>Myadestes townsendi</i>	M	C			+	+	+	+		+			
Blue-gray Gnatcatcher <i>Polioptila caerulea</i>	SR			C	+	+				+			
Ruby-crowned Kinglet <i>Regulus calendula</i>	M	C			+	+	+	+	+				
Gray Vireo <i>Vireo vicinior</i>	M	R	R		+					+	+		
Solitary Vireo <i>Vireo solitarius</i>	SR			C	+	+		+	+				
Warbling Vireo <i>Vireo gilvus</i>	M		X		+			+					
Virginia's Warbler <i>Vermivora virginiae</i>	SR		U	C	+	+				+			



