

sity increased with habitat age. Examination of the data analyzed by Beaver (1972) makes it apparent that only by 1975 was our burned study plot beginning to resemble his earliest or "brush" stage of succession, and to support a similar breeding avifauna. It would appear that there exists an earlier "pre-brush" period of higher bird species diversity, followed by a decline when dead trees fall, when brush species become dominant, and when as a result there is much structural simplification of the post-fire community.

Vernon Hawthorne, Starker Leopold, and Marshall White generously made available the facilities of the Sagehen Creek Field Station. This study was supported in part by a grant from the University of Colorado Council on Research and Creative Work.—CARL E. BOCK, MARTIN RAPHAEL, and JANE H. BOCK, *Dept. of Environmental, Population, and Organismic Biology, Univ. of Colorado, Boulder 80309* (CEB, JHB), and *Dept. of Forestry and Conservation, College of Natural Resources, Univ. of California, Berkeley 94720* (MR). Accepted 7 Dec. 1976.

**Notes on the distribution of birds in Sonora, Mexico.**—Over the past several years we have made observations of birds in northwestern Mexico that supplement published distributional accounts. Many other individuals have contributed significant observations in Sonora to us, so that we are able to elaborate on the status of 65 species of birds, including 20 species new for the state. Van Rossem (*Occas. Papers Mus. Zool. Louisiana State Univ.* 21:1-379, 1945) prepared the only major work on the birds of Sonora. Friedmann, et al. (*Pac. Coast Avif.* 29, 1950) and Miller, et al. (*Pac. Coast Avif.* 33, 1957) are authors of the most recent check-lists covering the area and provide the basis for deciding what distributional data should be included in this paper. At least 2 recent works on Mexican birds (Alden, *Finding the Birds in Western Mexico*, Univ. Ariz. Press, Tucson, 1969; Peterson and Chalif, *A Field Guide to Mexican Birds*, Houghton Mifflin Co., Boston, 1973) cited Sonora in ranges of certain species for the first time but without locality or details; we document some of the reports on which these accounts are based.

Sonoran localities mentioned in the species accounts may be found on the map (Fig. 1). Where specimens have been taken, we have indicated their present location as follows: Amadeo M. Rea Collection, Tucson, Az. (AMR), Delaware Museum of Natural History, Greenville (DMNH), Museum of Vertebrate Zoology, Berkeley (MVZ), University of Arizona, Tucson (UA), University of California at Los Angeles (UCLA). Important sight records are identified by the initials of the observer(s) as listed in the acknowledgments. Our own observations are identifiable by our initials or by the use of the word "we."

**Common Loon** (*Gavia immer*).—Zimmerman and Boettcher (*Condor* 69:527, 1967) summarized Mexican records of this species and reported the first specimen from Mexico (excluding Baja California). This loon is a common winter visitor along the coast of Sonora with observations from 23 September to 28 April. Most March and April birds are in breeding plumage. Two birds found dead on the beach 4 December 1965 near Puerto Peñasco were preserved (UA); this date is 1 week later than the specimen reported by Zimmerman and Boettcher.

**Red-throated Loon** (*Gavia stellata*).—Van Rossem (op. cit.) gave only 2 records from the Gulf of California. Additional sightings are from 26 km SSE of La Libertad 27 November 1970 (SR), and Puerto Peñasco 15-18 March 1962 (SD), and 22 February 1975 (DS).

**Horned Grebe** (*Podiceps auritus*).—Earlier writers did not report this species from Mexico at all, but Peterson and Chalif (op. cit.) referred to it as "casual" in Sonora.

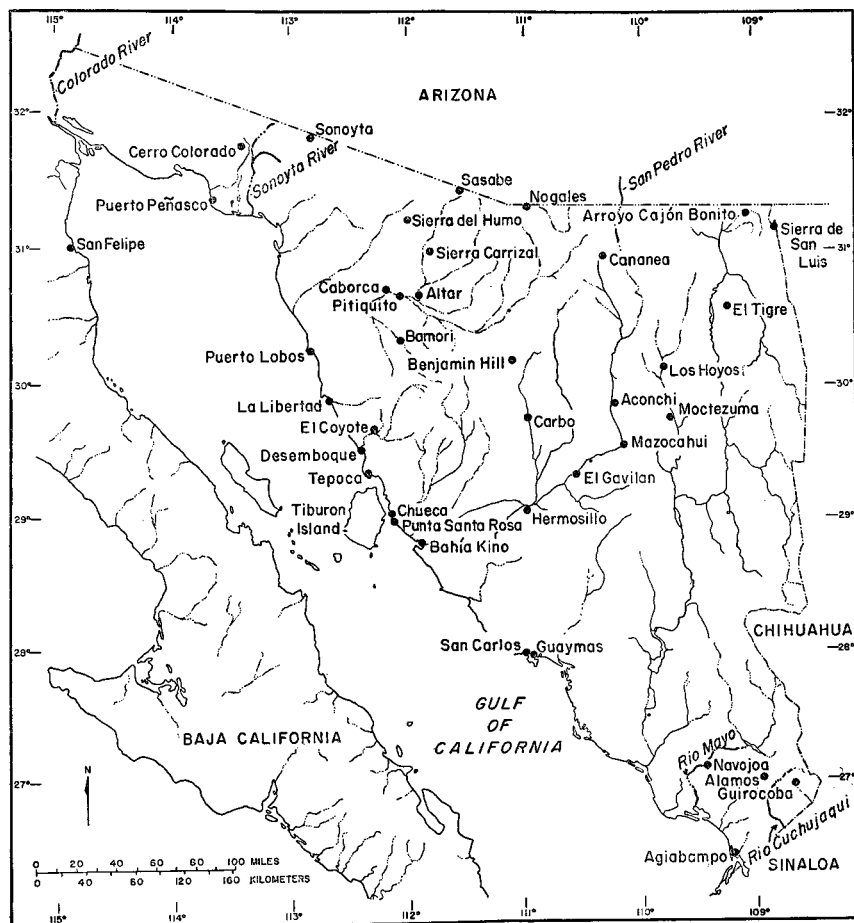


FIG. 1. Map of Sonora showing localities cited in the text.

It appears to be rare, though possibly overlooked and specimens are lacking. Sightings are from Puerto Peñasco (23 October 1964, 3 birds WB, SR; 31 October 1970, 2 birds RW), Punta Santa Rosa (29–30 November 1974, 2 birds SM), and Bahía Kino (21–23 February 1969, EC).

**Northern Fulmar** (*Fulmarus glacialis*).—Two dark phase birds, carefully noted 24 March 1968 at Puerto Peñasco (William Bolte and RLC), constitute the only observation in Sonora.

**Green Heron** (*Butorides striatus*).—Van Rossem (op. cit.) had many summer records but only 1 in winter. We found it in the mangroves at Punta Santa Rosa from September through February. It has also been reported on the Sonoyta River in December (RLC).

**Little Blue Heron** (*Florida caerulea*).—The species was listed by Van Rossem (op. cit.) as a summer visitor north to Guaymas with 1 winter record from Tiburón Island. There are winter observations in mangroves at Punta Santa Rosa (16 December 1973, DL, SR) and Bahía Kino (21–23 February 1970, WH, GB).

**Reddish Egret** (*Dichromanassa rufescens*).—Recorded by van Rossem (op. cit.) south of Tepoca. This egret is a regular fall and winter visitor in small numbers along the Gulf coast as far north as Puerto Peñasco (extreme dates, 7 September and 14 April).

**Louisiana Heron** (*Hydranassa tricolor*).—Van Rossem (op. cit.) listed it as an uncommon resident from Guaymas southward. Currently it is a common visitor along the coast throughout the year. Observations of up to 6 birds together extend north to Puerto Peñasco and are mostly between 7 September and 25 April.

**Least Bittern** (*Ixobrychus exilis*).—We took 2 specimens (UA), a male (wt. 64 g) with whitish irides on 8 September 1973 and the other a female (81 g) with yellowish-white irides on 17 September 1974, at Punta Santa Rosa. R. W. Dickerman had identified them as *I. e. pullus*, the first from Sonora since the type series (van Rossem, Trans. San Diego Soc. Nat. Hist. 6(15):227–228, 1930). Both of our birds were captured in mist nets set in mangroves (*Avicennia germinans*, *Laguncularia racemosa*).

The birds did not have active gonads and we have no evidence that the species nests at Punta Santa Rosa. We banded and released an additional adult at the same locality 18 August 1975.

**White Ibis** (*Eudocimus albus*).—Van Rossem (op. cit.) cited 1 record north of Guaymas. Recent sightings are from Bahía Kino (21–23 February 1969, EC), Punta Santa Rosa (18 January 1974, DL, SR), and north of Puerto Peñasco (7 May 1975, SL).

**Roseate Spoonbill** (*Ajaia ajaja*).—Van Rossem's (op. cit.) most northerly point of record was Bahía Kino (September). One was seen 26–27 June 1973 at Punta Santa Rosa (JCL, DL). Inland, we saw 3 adults with Snowy Egrets (*Egretta thula*) on flooded fields at Bamori on 9 September 1973.

**Brant** (*Branta bernicla nigricans*).—Grinnell (Univ. Calif. Publ. Zool. 32, 1928) recorded the Black Brant as a common winter visitor along the Pacific coast of Baja California, but mentioned only a single "not quite conclusive" record for Gulf waters. There are no published records from elsewhere in western Mexico. In recent years there has evidently been a substantial shift in the wintering grounds of this subspecies. Since 1970, flocks of brant have been seen regularly in winter (November–February) at Bahía Kino and Punta Santa Rosa. Usually these groups number 150–450 birds, but about 2000 were observed in November (GM). Single birds have also been seen elsewhere; one 8 June 1973 at La Libertad (JLL) and 1 or 2 on 23–31 March 1974 at Puerto Peñasco (JW, RW).

**Common Goldeneye** (*Bucephala clangula*).—Booth (Condor 55:160, 1953) reported on a pair seen at Guaymas in February 1951. The only additional records are sightings by different observers from 9 November to 30 March from Puerto Peñasco, Bahía Kino, and Guaymas. No more than 4 birds were seen on any occasion.

**Oldsquaw** (*Clangula hyemalis*).—Huey (Trans. San Diego Soc. Nat. Hist. 5:11–40, 1927) observed 1 bird in the Gulf near San Felipe, B.C. on 1 April 1926, but Friedmann et al. (op. cit.) did not list it in Mexico. Peterson and Chalif (op. cit.) listed it as accidental in the Gulf of California. A male was seen on 28 November 1970 at Tepoca (WC, DL, SR).

**White-winged Scoter** (*Melanitta deglandi*).—One was seen at Puerto Peñasco 1 April 1973 (SD et al.) and reported by Monson (Am. Birds 27:803–806, 1973). Another was seen at the same locality 22–23 February 1975 (DS). Grinnell (op. cit.) listed it from

the Gulf side of Baja California and Friedmann et al. (op. cit.) reported it only from Baja California.

**Rough-legged Hawk** (*Buteo lagopus*).—Only Peterson and Chalif (op. cit.) and Davis (A Field Guide to the Birds of Mexico and Central America, Univ. of Texas Press, Austin, 1972) list it, as a rare or occasional straggler to northern Mexico. Two adult light-phase birds were noted 6 January 1973, 21 km south of Nogales at an elevation of about 1100 m (PA). Another, also close to the border, was seen 16 February 1973 (WR), less than 2 km north of Cananea (Monson, Am. Birds 27:646-650, 1973).

**Ferruginous Hawk** (*Buteo regalis*).—This hawk has been seen frequently at Puerto Peñasco with observations from 23 October to 2 March in all months except February (PA, WB, RLC, SM, DS, JW, RW), but is unreported in the literature for northwestern Mexico.

**Sandhill Crane** (*Grus canadensis*).—Van Rossem (op. cit.) reported it as formerly abundant in the Colorado River delta and Rio Mayo valley but indicated that numbers were greatly reduced at the time of his writing. The only recent observations were about 200 seen 19 January 1974, in an agricultural area 60 km WSW of Hermosillo by R. Craig and 2 on 13 October 1971 at a dam on the San Pedro River near Cananea (SS, ES).

**Virginia Rail** (*Rallus limicola*).—A specimen (wt. 55 g; UA) taken in the mangroves at Punta Santa Rosa 17 September 1974 was in fresh plumage. Cunningham saw 1 bird 23 December 1968 on the Sonoyta River close to the Arizona border. Van Rossem (op. cit.) cited only 1 Sonoran specimen but considered it possibly resident in extreme northern Sonora, as did Friedmann (op. cit.).

**Black Oystercatcher** (*Haematopus bachmani*).—Three were found in March and 1 in May 1970 at Puerto Peñasco (SD). Friedmann (op. cit.) reported it only from the Pacific side of Baja California.

**Piping Plover** (*Charadrius melodus*).—Five of these plovers were observed at Puerto Peñasco 17 April 1965 (SR), and another was noted (JW, RW) there 27 November 1971 (Monson, Am. Birds 26:100-104, 1972). Four individuals were watched at Puerto Peñasco on 28 February 1972 (PJ, RLT, RW) and reported by Monson (Am. Birds 26:638-642, 1972). The species is not otherwise known from western Mexico.

**Mountain Plover** (*Charadrius montanus*).—Van Rossem (op. cit.) cited 3 Sonoran records, only 1 subsequent to 1900. At Cerro Colorado, in the Sierra Pinacate, 3 groups totalling 45 birds were observed 22 November 1973 (DL, SR), in a flat shrubless area dominated by bare ground and supporting only scattered small plants of *Cryptantha* sp., *Dalea* (probably *mollis* or *neomexicana*), *Coldenia Palmeri* and *Euphorbia polycarpa*.

**Upland Sandpiper** (*Bartramia longicauda*).—One seen in grasslands about 16 km S of Benjamin Hill 31 July and 8-9 August 1969 (RET) constitutes the only observation of the species in Sonora.

**Wandering Tattler** (*Heteroscelus incanus*).—Van Rossem (op. cit.) noted only 1 individual (seen 21 April 1930) in Sonora. Friedmann (op. cit.) reported it from Sonora without comment. The species was seen 22 April 1966 (DL) and 23 April 1974 (JW, RW) at Puerto Peñasco.

**Red Knot** (*Calidris canutus*).—Although cited few times in the literature, this species is evidently a regular spring and fall migrant and winter visitor along the coast, sometimes in numbers (over 100 at Puerto Peñasco, 13 April 1973, SL). Records from Puerto Peñasco and Bahía Kino extend from 25 September to 28 April.

**Stilt Sandpiper** (*Micropalama himantopus*).—We saw 1 on flooded fields at Bamori 9 September 1973. There are no published records of this species in Sonora.

**Pomarine Jaeger** (*Stercorarius pomarinus*).—The species is unreported from Sonoran

waters. On 11 April 1976, Arnold R. McGill saw 2, 1 harassing an Elegant Tern (*Sterna elegans*), close to shore at Bahía Kino.

**Parasitic Jaeger** (*Stercorarius parasiticus*).—The only observation of this species in Sonora is that of 1 light-phase adult seen 29 December 1974 at Puerto Peñasco (DS).

**Glaucous-winged Gull** (*Larus glaucescens*).—Two records are cited from Sonora by Friedmann (op. cit.). We know of 4 additional observations: single birds on 29 November 1970 at Punta Santa Rosa (PG, DL), and at Bahía Kino 21–23 February 1969 (EC et al.), 21–23 February 1970 (WH et al.), and 28 April 1972 (GM).

**Sabine's Gull** (*Xema sabini*).—The only Sonoran reports are from Puerto Peñasco, 3 birds 5–6 October 1969 (RW) and an immature 13 October 1969 (RLC).

**Common Tern** (*Sterna hirundo*).—Although unreported in the literature from Sonora, it may be a common transient at Puerto Peñasco. Many flew south past there 14 July 1968 (DL) and 120 (including immatures) passed in 4.5 hours on 13 October 1969 (RLC). One bird was noted 24 March 1968 (RLC). There is one winter record, 3 January 1965 (RSC). A specimen (UA) was taken 25 September 1965. We know of only one observation further south, a single bird at Punta Santa Rosa 11 October 1973 (DL, SR).

**Least Tern** (*Sterna albifrons*).—Reported by van Rossem (op. cit.) as a summer visitor from Guaymas southward. There is a small nesting colony at Puerto Peñasco but no specimens have been taken and the subspecies is hence uncertain. Birds arrive at the end of March and are present in April (GG, FT, JJJ, DL), nesting in June (RW), and absent by 13 July (DL). There are a number of records of migrating birds (April and August–September) from coastal localities.

**Black Tern** (*Chlidonias niger*).—Phillips and Amadon (Condor 54:163–168, 1952) collected the only specimen of the Black Tern from Sonora near Caborca on 31 October 1948 but there are many observations between 13 July and 31 October from coastal localities. The only spring observation was one bird 28 April 1972 at Bahía Kino (GM).

**Black Skimmer** (*Rynchops nigra*).—This species has not previously been reported north of Guaymas. One was seen at Puerto Peñasco on 24 April 1974 (JW, RW).

**Long-eared Owl** (*Asio otus*).—The species has been found in Sonora only on Tiburón Island in late December 1931 (van Rossem, op. cit.) and at Puerto Peñasco 23 October 1964 (WB) in a grove of widely spaced, small (3 m) mesquite (*Prosopis*) trees.

**Buff-collared Nightjar** (*Caprimulgus ridgwayi*).—Even though this nightjar has been recorded in both Arizona and New Mexico, there are no published records for northern or central Sonora. We are aware of only 2 reports. Phillips and van Rossem found several individuals calling and feeding on hillsides at El Gavilan on 4–5 May 1947 and collected 2 (DMNH, UCLA). They heard others on 5 May 8 km E of Mazocahui. On 9 July 1974, several were heard (SA, TJ, SS) calling between Mazocahui and Moctezuma (Alden and Mills, Am. Birds 28:933–935, 1974).

**Lucifer Hummingbird** (*Calothorax lucifer*).—We found female Lucifer Hummingbirds common in Arroyo Cajón Bonito (1280 m) on 16 May 1976 where they foraged from the stream up the slopes. Four nests were all in the flood plain; 2 on small drooping sycamore branches (3 and 4 m above the ground) each contained 2 eggs as did another 4 m in a hackberry (*Celtis*). The fourth was under construction 2.5 m above the ground in an ash. We saw no males, although 30 females were counted in a 3 km transect of the canyon. The only other hummingbirds present were many Broad-billed (*Cyananthus latirostris*), at least 2 Broad-tailed (*Selasphorus platycercus*), and 1 Black-chinned (*Archilochus alexandri*) and nesting Blue-throated (*Lampornis clemenciae*). On 13 July, no Lucifer Hummingbirds were found in the canyon but 2 males and a female were noted

(GM, SR) on the dry upper slopes (1550 m) where most *Agave* had completed flowering. The canyon floor, where Lucifer Hummingbirds dominated in May, now had many nesting Broad-billed, Black-chinned, and Violet-crowned hummingbirds (*Amazilia verticalis*). The species has not been reported previously from Sonora but has recently been found nesting in Arizona (Monson, *Am. Birds* 27:803-806, 1973).

**Allen's Hummingbird** (*Selasphorus sasin*).—We collected a female (UA; rectrix 5 is 2.2 mm wide and tip of rectrix 2 is not emarginate) in the mangroves at Punta Santa Rosa 28 February 1971. Phillips (Condor 77:196-205, 1975) cited only 1 Sonoran specimen, a male taken near Sonoyta, also in late February.

**Calliope Hummingbird** (*Stellula calliope*).—The only known observation in a coastal locality was of a male at Bahía Kino 28 April 1972 (GM); the species is not an uncommon migrant in the eastern part of the state (van Rossem, *op. cit.*).

**Green Kingfisher** (*Chloroceryle americana*).—This kingfisher is widely distributed in the interior of Sonora but there are only 3 observations from coastal localities north of Agiabampo. A male was collected at Tepoca 2 January 1932 (van Rossem, *op. cit.*). One was seen (SD) at Puerto Peñasco on 1 April 1973 (Monson, *Am. Birds* 27:803-806, 1973). We banded a male in the mangroves north of Chueca on 18 September 1974.

**Williamson's Sapsucker** (*Sphyrapicus thyroideus*).—A male was found (ES, SS) in the mountains (1800 m) near Cananea 13 October 1971 (Monson, *Am. Birds* 26:100-104, 1972). Van Rossem (*op. cit.*) cited only 1 Sonoran record.

**Tropical Kingbird** (*Tyrannus melancholicus*).—Both van Rossem (*op. cit.*) and Miller et al. (*op. cit.*) considered the northern coastal limit at Guaymas. The species is a regular summer resident in mangroves north to Tepoca, with extreme dates of 28 April and 19 August.

**Scissor-tailed Flycatcher** (*Muscivora forficata*).—We watched 1 individual on a powerline with migrating kingbirds 10 October 1973 about 26 km south of Nogales, the only observation in Sonora.

**Hammond's Flycatcher** (*Empidonax hammondi*).—The species is a regular transient through the mountains of eastern Sonora (van Rossem, *op. cit.*); a male collected (UA) in mangroves at Punta Santa Rosa on 7 September 1973 constitutes the only coastal record (DL, SR).

**Horned Lark** (*Eremophila alpestris*).—We observed adults with recently fledged young in the *Salicornia* dominated flats near the beach at Tepoca on 14 April 1973. We saw a bird in the same locality on 16 July 1975 and 7 on 18 August 1975. No specimens were taken and the subspecific affinities of these birds are unknown; the locality is the southernmost known one for the species in Sonora. Previously the species had been found only as far south as Altar, where non-breeding birds were collected (Phillips and Amadon, *op. cit.*).

**Mangrove Swallow** (*Tachycineta albilinea*).—The species is common along the coast and a few kilometers inland as far north as Desemboque; northernmost records are from 8 km SSE of La Libertad. It arrives in mid-March and nests in cardons (*Pachycereus pringlei*) in April and May. Most birds leave in mid-summer though there was an observation of 1 at San Carlos on 21 October 1975 (GM). Several seen on 19 January 1974, milling with Violet-green Swallows (*Tachycineta thalassina*) over irrigated fields at El Coyote (DL, SR), may have been early spring arrivals.

**Clark's Nutcracker** (*Nucifraga columbiana*).—A clean skull and mandible found near Puerto Peñasco 16 December 1972 constitutes the second specimen (AMR) from Sonora. In autumn of 1972, nutcrackers wandered far from their usual range (even to

latitude 29° in central Baja California, 12 November 1972, RC and 25 November, DL, SR). Miller et al. (op. cit.) cited a specimen from El Tigre, 14 June 1956.

**Piñon Jay** (*Gymnorhinus cyanocephalus*).—Monson found 1 just across the Sonora border in Chihuahua near the top of Sierra de San Luis on 1 May 1974. Eighty foraged on the ground in mesquite grassland 6 km south of Sasabe on 11 November 1975 (GM, SR), an extension of a flight that brought many to southern New Mexico and Arizona (Witzeman, Hubbard and Kaufman, *Am. Birds* 30:105–110, 1976). There are no other Sonoran records.

**Brown Thrasher** (*Toxostoma rufum*).—Not listed by Miller et al. (op. cit.), but Peterson and Chalif (op. cit.) stated “casually wintering in northeast Mexico; also Sonora.” It was seen at Guaymas in early December 1968 (PA). One individual at Mazatlán, Sinaloa, observed by Lamm on 12 April 1968, constitutes the only other western Mexico observation to our knowledge.

**Le Conte's Thrasher** (*Toxostoma lecontei*).—The most southerly published locality (Stephens, *Auk* 2:225–231, 1885) is Puerto Lobos but we have found it in small numbers south to Tepoca where it occurs in the *Frankenia-Opuntia* association.

**Swainson's Thrush** (*Catharus ustulatus*).—We netted 7 during the night of 17–18 September 1974 in mangroves at Punta Santa Rosa. Weights ranged from 27.0 to 34.5 g and the heavier birds had considerable subcutaneous fat. Two kept as specimens (UA) were identified as *C. u. oedicus* by A. R. Phillips. An intense thunderstorm a few kilometers inland produced strong winds over the coast for a short time during the night. Phillips and Amadon (op. cit.) speculated that Pacific Coast populations may migrate south just inland from the Gulf of California. These birds, presumably forced down by winds, support their hypothesis. *C. m. oedicus* normally “does not stop in fall north of southern Sonora” (Phillips, Marshall, Monson, *The Birds of Arizona*, Univ. Ariz. Press, Tucson, 1964) and the species normally migrates through the eastern foothills (van Rossem, op. cit.).

**Starling** (*Sturnus vulgaris*).—Listed by Miller et al. (op. cit.) only from Tamaulipas. In recent years it has become widespread in Sonora. Localities include Puerto Peñasco (regularly at least since 1968, RLC, GM, RW); 20 km S Nogales (first observation August 1968 ARP), El Coyote, 21 March 1974 (DL, SR); Los Hoyas, 1 March 1974 (DL, SS); and near Navojoa investigating nesting sites, 5 April 1974 (SS, DL).

**Hutton's Vireo** (*Vireo huttoni*).—The only records west of the 110th Meridian in Sonora are from Sierra Carrizal (late October 1948; Phillips and Amadon, op. cit.), Sierra del Humo (11 November, 1975, SR), and on the Sonoyta River (23 December 1968, RLC).

**Prothonotary Warbler** (*Protonotaria citrea*).—A male was seen 26 April 1972 on Rio Cuchujaqui, 11 km S of Alamos (GM); the species is not previously reported from northwestern Mexico.

**Virginia's Warbler** (*Vermivora virginiae*).—The only observation of the species from a coastal area in Sonora was of 1 seen 15 April 1973, 16 km NE of El Coyote (SR).

**Ovenbird** (*Seiurus aurocapillus*).—Although the species winters regularly in Sinaloa, there has been only 1 Sonoran record, a singing male collected 21 June 1954 at Aconchi (Marshall, *Pac. Coast Avif.* 32, 1957). We banded single individuals in mangroves north of Chueca 21 June 1974 (wt. 16 g) and 28 May 1975 (wt. 14.6 g). The birds were not fat and had completely ossified skulls.

**Hooded Warbler** (*Wilsonia citrina*).—A male (UA) taken 30 January 1966 near Alamos in a dense thicket adjacent to the Rio Cuchujaqui weighed 9.8 g. The species was not cited from western Mexico by Miller et al. (op. cit.).

**Rufous-capped Warbler** (*Basileuterus rufifrons*).—On 13 September 1975, Danforth et al. found a singing individual in Arroyo Cajón Bonito (Witzeman et al., op. cit.). Four singing birds were present in the same area 14 May 1976 but no mates were observed (DL, SR). The birds foraged on the north facing slope of the canyon (1280 m) in rock crevices, in oaks and junipers on the slope, and in willows and sycamores of the flood plain. Two males patrolled contiguous territories of about 2 ha, although they did not sing or approach in response to playbacks of their own songs. None was found in mid-July. The birds were about 180 km N of other localities of record (Moctezuma and mountains to SE) and only 6 km S of the United States.

**Great-tailed Grackle** (*Quiscalus mexicanus*).—In recent years this species has extended its range virtually throughout western Sonora. It occurs along the Gulf coast at many localities as far north as Puerto Peñasco, where it has occurred regularly at least since 1965 (DL). Inland records include Sonoyta, Altar, Caborca, and Pitiquito.

**Rose-breasted Grosbeak** (*Pheucticus ludovicianus*).—There are no published reports for northwestern Mexico. One full-plumaged male was observed 26 May 1975 8 km SSE of La Libertad (SR) and S. C. Brown collected (MVZ) an immature male 24 September 1975 near Carbo, Sonora.

**Indigo Bunting** (*Passerina cyanea*).—In a riparian Arizona Upland community in Sonoran Desert scrub 65 km south of Sasabe, we noted a male singing constantly on 25 May 1975, while Varied Buntings held adjacent territories. He responded strongly to a playback of his own song but did not react to recordings of Varied Bunting songs played in what seemed to be his territory. The location was characterized by large flowering mesquite (*Prosopis juliflora*), cat claw (*Acacia Greggii*), and huisache (*Acacia Farnesiana*). Sahuaros (*Cereus giganteus*) were beginning to bloom and although no grasses or annuals were present, the vegetation present was green. On 15 July 1976 Doug Stotz found a male singing in a riparian community dominated by mesquite and a few sycamores (elev. 1250 m) near Arroyo Cajón Bonito in northeastern Sonora. Varied Buntings sang nearby.

**Varied Bunting** (*Passerina versicolor*).—Although reported only from eastern Sonora by Miller et al. (op. cit.), the Varied Bunting is a summer nesting species in dense riparian communities in the Arizona Upland Subdivision of the Sonoran Desert scrub at least as far west as Caborca. Its occurrence in a given locality in any year seems to be dependent upon adequate precipitation. We collected (UA) a female in the mangroves near Chueca on 22 June 1974. The bird, moderately fat and weighing 12.2 g, possessed a partially ossified skull and an ovary less than a mm in diameter. Its worn plumage is comparable to that of females at least 1 year old of *P. v. dickcyeae*. We know of no nesting localities in the area.

**Golden-crowned Sparrow** (*Zonotrichia atricapilla*).—Once recorded at Caborca (Miller et al., op. cit.) and 3 seen at Puerto Peñasco 3 January 1965 (SR).

**White-throated Sparrow** (*Zonotrichia albicollis*).—On 2 November 1975 D. Danforth found a single White-throated Sparrow in a dense thicket adjacent to the stream in Arroyo Cajón Bonito at an elevation of about 1250 m. The species occurs regularly in southern Arizona, and this first observation in Sonora emphasizes the paucity of observers in northern Sonora.

**Fox Sparrow** (*Passerella iliaca*).—Cunningham observed 1 on the Sonoyta River 23 December 1968. There are no other Sonoran records.

A great number of individuals have extended their field activities to northwestern Mexico. We are pleased to acknowledge the contributions of the many persons who



shared their observations with us. The following persons made observations which we acknowledge in the text by their initials:

P. Alden (PA), S. Alden (SA), G. T. Bancroft (GB), W. Bulmer (WB), E. Chalif (EC), R. Chapin (RC), W. C. Clark (WC), R. S. Crossin (RSC), R. L. Cunningham (RLC), S. R. Demaree (SD), W. Harrison (WH), P. Gould (PG), G. Gregg (GG), P. Jeheber (PJ), T. B. Johnson (TJ), J. J. Levy (JL), Seymour H. Levy (SL), J. C. Luepke (JCL), G. S. Mills (SM), G. Monson (GM), A. R. Phillips (AP), Mrs. Winbourne Ranney (WR), E. L. Smith (ES), S. Speich (SS), D. Stejskal (DS), F. Tainter (FT), R. L. Todd (RLT), R. E. Tomlinson (RET), J. Witzeman (JW), R. A. Witzeman (RW).

We thank E. Eisenmann, G. Monson, and A. R. Phillips for reading the manuscript and offering suggestions. We also appreciate the help of R. Felger who identified some plants for us and A. R. Phillips, R. Dickerman, and A. M. Rea for identification of some bird subspecies. Permission to collect in Mexico was provided by the Direccion General de Fauna Silvestre and we are appreciative of this courtesy.—STEPHEN M. RUSSELL, *Dept. of Ecology and Evolutionary Biology, Univ. of Arizona, Tucson 85721*; and DONALD W. LAMM, *6722 East Nasumpta Dr., Tucson, AZ 85715. Accepted 7 Dec. 1976.*

**Egg carrying by Wood Duck.**—On 4 April 1976, we observed a hen Wood Duck (*Aix sponsa*) carrying an egg with her bill exit a Wood Duck nest box located in a beaver pond approximately 1.6 km west of Indian Mound, East Baton Rouge Parish, Louisiana. We could not determine whether the entire egg was being carried between the upper and lower mandibles or if the lower mandible was inserted into a hole in the egg. Earlier that same morning, we had seen a Wood Duck flying low over the beaver pond similarly carrying an egg-shaped object that it dropped into the water. Previously, on 2 April 1976, this nest contained 15 eggs in their 26th day of incubation. The average incubation period of Wood Ducks is 30 days (Bellrose, *Ill. Nat. Hist. Surv. Circ.* 45, 1953).

On the afternoon prior to the egg-carrying observation, we discovered that several eggs of this clutch had holes pecked in them. These holes may have been made by woodpeckers. Cunningham (*Proc. S. E. Assoc. Game and Fish Comm.* 22:145-155, 1968) has observed Red-bellied Woodpeckers (*Melanerpes carolinus*) pecking Wood Duck eggs without consuming them. He found that Common Flickers (*Colaptes auratus*) and Red-headed Woodpeckers (*Melanerpes erythrocephalus*) are also Wood Duck nest predators. All 3 woodpeckers were present at our study area. Shortly after we observed the duck removing the egg from the nest box that contained the damaged eggs, we discovered that only 7 eggs remained in the nest box. The nest was subsequently abandoned and the remaining eggs failed to hatch.

There have been previous reports of egg-carrying by waterfowl. Sowls (Prairie Ducks, Stackpole Co., Harrisburg, Pa. and *Wildl. Manage. Inst., Washington, D.C.*, 1955:104-108) observed hen Northern Shovelers (*Anas clypeata*) and hen Pintails (*A. acuta*) carrying egg shells away from their nests that had had some of their eggs destroyed by predators. He also was able to induce an egg-carrying response by placing egg shells on top of eggs in active nests. Hochbaum (*The Canvasback on a Prairie Marsh*, 2nd ed., Stackpole Co., Harrisburg, Pa. and *Wildl. Manage. Inst., Washington, D.C.*, 1959:92) witnessed a hen Northern Shoveler carrying an egg in the tip of her bill, and Lindsey (*Auk* 63:483-492, 1946) observed a Mexican Duck (*A. diazi*) carrying an embryo with remaining portions of a broken egg from its nest. He concluded that the egg-carrying be-