

ADDITIONAL RECORDS OF CULICINE AND CHAOBORINE MOSQUITOES FROM THE MOUNTAINS OF ARIZONA AND NEW MEXICO

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Nielsen, Wolff and Linam (1973) reported new distributional records of snowpool *Aedes* mosquitoes from Arizona and New Mexico and cited pertinent literature. Continued investigations during 1973 have revealed three additional new state records of culicine mosquitoes, *Aedes increpitus* Dyar in Arizona, and *A. cinereus* Meigen and *Culiseta impatiens* (Walker) in New Mexico, as well as additional distributional data on other species. In addition the chaoborines, *Chaoborus americanus* (Johannsen), *Eucorethra underwoodi* Underwood and *Mochlonyx sp.* Loew are reported for the first time in New Mexico.

Aedes increpitus was collected in Apache County, Arizona, VI-6-73, 8,500 ft., 1 mile north of Greer along a tributary of the Little Colorado River in a partially shaded overflow pool surrounded by willows. The larvae were associated with *A. implicatus* and *A. pullatus*.

Previously we reported *A. cinereus* from Conejos County, Colorado, just north of the New Mexico border and stated that *A. cinereus* undoubtedly occurred in New Mexico (Nielsen et al. 1973). The present report of this species from Rio Arriba County, Chama, New Mexico, VI-11-1973, 7,860 ft., confirms the presence of *A. cinereus* in New Mexico. Mature larvae and pupae were collected in a partially shaded pool containing heavy growths of sulphur bacteria. Associated with *A. cinereus* were larvae of *Culiseta incidens*, *C. inornata*, *A. implicatus*, and *A. pullatus*.

Culiseta impatiens females were collected in Rio Arriba County, New Mexico, VI-9-1973, 9,250 ft., biting in the forest in the vicinity of Trout Lakes. Associated biting adults were *C. incidens*, *C. inornata*, and *A. cataphylla*.

Aedes fitchii which had been previously known in Arizona only from the North Rim of the Grand Canyon (Richards, Nielsen and Rees 1956) was found to have a much wider distribution in that state. Additional larval collections of *A. fitchii* were found in several pools in southeastern Arizona in Apache County, 10-15 miles East of McNary on Highway 260, VI-6-1973, 8,800-9,050 ft. All were semi-permanent pools in mountain meadows.

An extensive survey of the White Mountain area in Apache County revealed numerous sites containing larvae of snowpool *Aedes*. In Apache County, at Highway 473 and the North Fork of the White River, V-7-1973, 7,850 ft., in pools fed by melting snow and stream overflow we found *A. cataphylla*, *A. implicatus* and *A. pullatus*. Along Highway 273 which runs southeast through the White Mountains to Alpine, we found numerous snowpools containing *A. cataphylla* and *A. pullatus*, V-7-1973, 8,500 - 9,500 ft. On the same date we also found several containing *A. implicatus* and *A. pullatus* in the Hannagan Recreational area in Greenlee County, 9,000-9,500 ft.

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In May of 1973, we investigated the following mountainous areas at elevations above 7,500 ft.: southwest of Flagstaff through Coconino and Navajo Counties; the Pinalino Mountains in Graham County; the Santa Catalina Mountains near Tucson in Pima County; the Chiricahua Mountains in Cochise County. Suitable habitat for snowpool *Aedes* in these regions was rare and all areas were negative.

The San Francisco Mountains near Flagstaff contain the highest elevation in Arizona, 12,670 ft. This area is of volcanic origin, the surface is extremely porous and there are no permanent streams. We made a survey of this area in May, 1970, and found no suitable habitat for snowpool *Aedes* production.

During June 3-5, 1973, we collected the Kaibab Plateau from Jacob Lake to the North Rim of the Grand Canyon. The area contains numerous snowpools above 8,000 ft. Large larval populations of *A. cataphylla* and *A. fitchii* were found throughout the area. *C. inornata* larvae also were collected.

We have now surveyed virtually all of the mountainous regions of Arizona with elevations likely to support snowpool *Aedes*. It appears that the distribution of these species is restricted to *A. cataphylla* and *A. fitchii* on the North Rim of the Grand Canyon portions of the Kaibab Plateau, and *A. cataphylla*, *A. fitchii*, *A. implicatus*, *A. increpitus*, and *A. pullatus* from the White Mountains and Mogollon Rim in the southwestern part of the state in Apache and Greenlee Counties.

Nielsen et al. (1973) listed 10 species of snowpool *Aedes* from the mountains of northern New Mexico. During May and June, 1973, we made additional collections in other mountainous areas throughout the state and found larvae which extend the ranges of several of the species we had previously reported. In Santa Fe County in the Pecos Wilderness at Steward Lake, VI-22-1973, 11,000 ft., we found *A. cataphylla*, *A. hexodontus* and *A. pullatus*. In the Mogollon Mountains of southwestern New Mexico in Catron County in the Gila Wilderness area at Ben Lilly Forest Camp, V-11-1973, 8,100 ft., we found snowpools along Willow Creek containing large numbers of *A. implicatus* associated with smaller numbers of *A. cataphylla*. Both the Pecos and Gila Wilderness areas are extensive regions with large areas containing snow mosquito habitat. It is likely that other *Aedes* species will be found there.

We also surveyed the Sierra Blanca and Sacramento Mountains in southcentral New Mexico in Lincoln and Otero Counties, with negative results. Both areas have elevations above 8,000 ft., but the regions are restricted in size, drainage is rapid and suitable snowpools do not appear to be present.

Larvae of chaoborine mosquitoes also were collected in the mountains of northern New Mexico during the course of our surveys. *Eucorethra underwoodi* Underwood was taken

in Rio Arriba County, Trout Lakes area, VI-9-1973, 9,250 ft., in shaded forest pools in association with *Aedes*, including *A. cataphylla*, *A. communis*, *A. implicatus* and *A. pullatus*.

Larvae belonging to the genus *Mochlonyx* Loew were found in the same pools with *E. underwoodi*. None were reared to adults. The immature stages of *Mochlonyx* are not separable to species at the present time. However, of the three known Nearctic species of *Mochlonyx*, the wide distribution of *Mochlonyx velutinus* (Ruthe) in North America with Colorado and Utah records (Cook 1956), suggests that this is likely the identity of the species collected in New Mexico.

Larvae and pupae of *Chaoborus americanus* (Johannsen), from which adults were reared, were collected at Trout Lakes VI-9-1973, 9,300 ft., from a semi-permanent pool which contained *A. excrucians*. Larvae of *C. americanus* also were taken in the Trout Lakes area on VIII-28-1973, 8,100 and 9,200 ft. At the lower elevation the larvae were

associated with those of *Culex tarsalis* and *Culiseta inornata*, and at the higher elevation with those of *C. inornata*. Cook (1956) in his revision of the Nearctic Chaoborinae reported *C. americanus* as ranging across North America from the Atlantic Coast to the Uinta Mountains of Utah, with New Jersey and Southern Illinois as the southern limits. The New Mexico record represents a considerable southern extension of the known range of this species.

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