

- 2—The proboscis is formidable, the stylets stout, and both mandibles and maxillae are denticulate. In the normal male, the proboscis with its stylets is more delicate, and in this species no true teeth are recognizable.
- 3—The shape of the segments of both palpi, which in the male, is more slender. In the normal male of this species, the third segment is not enlarged.
- 4—Both antennae are not plumose. Furthermore, the shape of the segments is like that of the female; the pedicel is not as large as that of the male, and each one of the last five segments is distinctly elongated. In the (normal) male of this species, the pedicel is very large, the third through the twelfth segments bear verticils; the thirteenth through the fifteenth segments are the only segments which are excessively elongated and narrow.

These two gynandromorphs are deposited in the U. S. National Museum.

Literature Cited

- CURTIS, L. C. 1962. A gynandromorph in *Culicoides*. Mosquito News 22(1):53.
 HAWKINS, J. L. 1962. Sexual aberration in two species of *Culicoides*. Mosquito News 22(4):361-362.
 KHALAF, KAMEL T. 1962. A *Culex* gynandromorph. Bull. Iraq. Nat. Hist. Inst. 2(5):1-3.

ADDITIONAL NEW RECORDS OF TREEHOLE *Culicoides* (DIPTERA: CERATOPOGONIDAE) IN NORTHERN FLORIDA

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Three additional species of *Culicoides* not previously reported from Florida have been recovered from treeholes in Alachua County, Florida since *C. paraensis* (Goeldi) (1965) was reported. These species are *C. debilipalpis* Lutz, *C. hinmani* Khalaf, and *C. snowi* Wirth and Jones.

The four females of *C. debilipalpis* reported were recovered from debris samples taken from a laurel (*Quercus laurifolia* Michx.) oak stump hole, laurel oak treehole, a live oak (*Q. virginiana* Mill.) treehole, and a cavity in a magnolia (*M. grandiflora* L.) tree in the San Felasco Hammock about five miles northwest of Gainesville, Florida. They emerged as adults during February, March and April, 1965 from the samples taken in October and December, 1964. Many additional specimens apparently of this species have been taken in light traps and in treehole samples from several other locations in Alachua County during each month of this year to date (September, 1965). It is believed that adults are present most of the year in this region.

One male and three females of *C. hinmani* were recovered from debris taken from the base of a 4-foot vertical slit in a magnolia tree in San Felasco Hammock. The sample was collected on December 2, 1964 and adults were obtained during March, 1965.

Three males and six females of *C. snowi* were obtained from treehole debris samples collected during October, 1964 and February and March, 1965. The males emerged in early March while the females were recovered in late March and early April, 1965. The males came only from the later samples while the females were from the samples collected in October, 1964. As no specimens have been obtained since April in light traps or treehole samples, it appears that this species may be present only during the spring.

Treehole samples were held in the laboratory in pint glass jars with organdy-screened tops at 72° ± 2° F. They were inspected at weekly intervals for the presence of adults and tap water was added to cover the debris shallowly at the time of inspection.

Identifications were made by Dr. Willis W. Wirth, U. S. National Museum, and Dr. F. S. Blanton, University of Florida.

These findings resulted from studies of the bionomics of inland species of *Culicoides* supported in part by NIH Grant GM 12322-01.

Reference Cited

- SMITH, W. W. 1965. Occurrence of *Culicoides paraensis* (Goeldi) (Diptera: Ceratopogonidae) in northern Florida. Mosq. News 25(1):65.

A SIMPLE APPARATUS FOR OBTAINING EMERGENCE OF LARGE NUMBERS OF *Simulium* ADULTS FROM NON-IMMERSED PUPAE

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Rearing of adult *Simulium* from pupae on vegetation collected in the field has been carried out in several ways by different investigators, without using an aquarium. To match an emerged adult with its pupa, the latter is usually placed individually in a small vial or tube with one or two moistened absorbent cotton plugs, and with or without moist blotting paper (Dalmat, 1955; Hartley, 1955). For mass rearing, Meeser (1942) removed pupae in their cocoons with a scalpel, and placed them on damp blotting paper wrapped around the inside of a wide-mouthed or rectangular museum jar, which was then covered with mosquito netting of fine mesh. Lewis (1953, 1957) placed the vegetation to which the pupae were attached in a tube or jar covered with muslin.

In an airconditioned room or in a dry atmosphere, it was found that the pupae dried out