

NOTES ON THE DISTRIBUTION OF MOSQUITOES IN MARYLAND AND VIRGINIA¹

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Marshall (1938) stated that every "locality record" is the result of a fortuitous meeting between a collector and his quarry. A few fortuitous meetings are reported here. Some of them were preceded by a rather diligent search.

Psorophora (Janthinosoma) ferox (Humboldt) under the name of *Janthinosoma*

musica Say was reported as being "not rare in Maryland" by Symons, Coffin, and Gahan (1906). This reference was apparently overlooked by Carpenter and LaCasse (1955). *P. ferox* probably occurs throughout Maryland, but no collections have been recorded for the western counties. Rajapaksa (1956) found that females were attracted to skunks, raccoons, opossums, rabbits, squirrels, and woodchucks at the Patuxent Research Refuge near Laurel. Larvae have been found on rare

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occasions in the College Park area in August.

Psorophora (J.) horrida (Dyar and Knab) was reported from Woodstock, Virginia, by Dorer *et al.* (1944) and by Roth (1945); a single specimen (Dyar's determination) is in the U. S. National Museum. Roth (1945) also reported that among Dyar and Knab's material is a specimen of *P. horrida* from Plummer's Island, Maryland. These two specimens along with 4 females from the District of Columbia (Good, 1945) were collected from 1904 to 1909, and it appears that no additional specimens have been taken during the intervening years. Consequently, it is of some interest to report the occurrence of *P. horrida* at the Patuxent Research Refuge near Laurel, Maryland. Three females were taken while attempting to bite on August 27, 1955, by J. T. Whitlaw, Jr., and several specimens were collected by B. R. Evans in August 1956 in the same area.

Psorophora (J.) varipes (Coquillett). Three females labeled Pocomoke Swamp, October 13 or 16, 1936, were found in the University of Maryland Collection and identified by the author. Subsequently Dr. Walter A. Connell pointed out that these specimens had been collected by him near Libertytown, Worcester County, and also called attention to his paper (Connell, 1941) in which *P. varipes* was recorded from Maryland. This paper has been overlooked by several authors. Two other specimens taken by Connell in 1936 are in the University of Delaware Collection; one of these bears the determination label of G. H. Bradley. Changes in the swamp channels during the last twenty years make it doubtful if *P. varipes* still breeds in the area.

Psorophora (Grabhamia) discolor (Coquillett) was recorded from Grassymead, Virginia, by Dyar (1922), but this record was overlooked by Dorer *et al.* (1944). This species is rare in Maryland. The only record is apparently that of Cory *et al.* (1934) from LaPlata.

Aedes (Ochlerotatus) aurifer (Coquil-

lett) was collected at Cambridge, Maryland, in 1933 (Cory *et al.*, 1934). Four females from Cambridge, collected May 22, 1945 are in the U. S. National Museum. Eight females were collected in June 1937 in the Pocomoke Swamp and deposited in the University of Maryland Collection. George B. Vogt also collected this species at Indian Head, Charles County, in June 1945.

Aedes (O.) fitchii (Felt and Young) was collected by J. T. Whitlaw, Jr., on July 6, 1955, at the Patuxent Research Refuge near Laurel, Maryland, a new record for the state. The single female was determined by Dr. Alan Stone. It is hoped that additional material can be obtained.

Aedes (O.) grossbecki (Dyar and Knab) was recorded from Baltimore, Maryland, and Grassymead, Virginia, by Dyar (1922), but the latter record was overlooked by Dorer *et al.* (1944).

In the University of Maryland Collection are 4 females collected by T. H. Coffin near Easton, Talbot County, Maryland, in June 1906. George B. Vogt made the determination subsequently. Dr. Dale W. Jenkins (personal communication) found that this species was fairly abundant at Edgewood, Maryland, in 1945. A specimen collected on April 1, 1945, is in the U. S. National Museum. Major changes in local habitats have apparently prevented breeding in this area in more recent years.

Aedes (O.) infirmatus (Dyar and Knab) was recorded by Connell (1941) from the Pocomoke Swamp near Libertytown, Worcester County, Maryland. Identification was confirmed by Dr. Stone, and two specimens are presently in the University of Delaware Collection. These were taken on September 23 and October 7, 1939. As mentioned above the paper by Connell (1941) has been overlooked by various authors.

Aedes (O.) punctator (Kirby) was reported by Bishopp *et al.* (1933) from Cambridge and Berlin, Maryland, and by Cory *et al.* (1934) from Chestertown

and Salisbury. Dr. Alan Stone discussed these records with the writer and is now of the opinion that all records of this species from Maryland are questionable. No specimens of *A. punctor* on which the published records could have been based can be found in the Museum. At least one specimen from the original material has been subsequently determined as *A. canadensis* (Theobald) by examination of the male terminalia. Darsie *et al.* (1951) reported that *A. punctor* has not been found in New Jersey, southern Pennsylvania, Delaware or Maryland.

Aedes (O.) sticticus (Meigen) was recorded from Woodstock, Virginia, and Herzog's Island, Maryland, by Dyar (1922). In the U. S. National Museum there is also one of Dyar's specimens from Cabin John, Maryland. Herzog's Island is in the Potomac near Cabin John (both Montgomery County). A single female was collected at the Patuxent Research Refuge near Laurel on August 30, 1956, by B. R. Evans. Confirmation of determination was made by Dr. Stone.

Aedes (O.) stimulans (Walker) was collected by C. W. McComb, at Easton, Maryland (1 female), and at Gloucester Point, Virginia (2 females), in June 1956. The range of this species along the East Coast is thus extended southward from Delaware.

Aedes (O.) thibaulti (Dyar and Knab). A few females of this species were collected by the writer in the Seashore State Park, Cape Henry, Virginia, during May and June, 1945. This was thought to be the northernmost record in the eastern United States, but Dr. Stone found in the U. S. National Museum two females collected by Newhouse in Ellendale Swamp, Delaware. This is a previously unpublished record for Delaware.

Aedes (Finlaya) atropalpus was omitted from the list of Dorer *et al.* (1944). It had been reported from Virginia by Dyar (1922). Larvae of this species are abundant in rock holes along the James River at Richmond and on the Virginia and Maryland sides of the Potomac above Washington, D. C.

The following species have been recorded from Virginia but not from Maryland: *Orthopodomyia alba* (Baker)—also District of Columbia (Good, 1944) and New Jersey—*Psorophora (J.) cyanescens* (Coquillett), *Aedes (O.) dupreei* (Coquillett), *Aedes (O.) thibaulti* (Dyar and Knab, and *Culex (Melanoconion) peccator* (Dyar and Knab)—also from Delaware and the District of Columbia.

The following species have been recorded from Maryland but not from Virginia: *Aedes (O.) aurifer* (Coquillett), *Aedes (O.) fitchii* (Felt and Young), *Aedes (O.) infirmatus* (Dyar and Knab), and *Aedes (Aedes) cinereus* (Meigen).

In this paper the following species are reported for the first time from Maryland: *Aedes (O.) fitchii* (F. and Y.), and *Aedes (O.) stimulans* (Walker); and from Virginia: *Aedes (O.) stimulans* (Walker) and *Aedes (O.) thibaulti* (D. and K.). Previously published records of *Aedes (O.) punctor* (Kirby) are questionable.

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Literature Cited

In a few instances citations have been omitted for the sake of brevity, but the original sources may be found in the work of Carpenter and LaCasse (1955).

- BISHOPP, F. C., CORY, E. N., and STONE, ALAN. 1933. Preliminary results of a mosquito survey in the Chesapeake Bay Section. Proc. Ent. Soc. Wash. 35:1-6.
- CARPENTER, S. J. and LACASSE, W. J. 1955. Mosquitoes of North America. Berkeley and Los Angeles. University of California Press. 360 pp.
- CONNELL, W. A. 1941. Southern mosquitoes in Maryland. Mosquito News, 1(3):14-16.
- CORY, E. N., LANGFORD, G. S., CROSTHWAIT, S. L. and GRAHAM, C. 1934. Anti-mosquito work in Maryland. Univ. of Md. Ext. Serv. Bull. 73:1-31.
- DARSIE, R. F., MACCREARY, DONALD and STEARNS, L. A. 1951. An annotated list of the mosquitoes of Delaware. N. J. Mosq. Exterm. Assn. Proc., 38:137-146.
- DORER, R. E., BICKLEY, W. E. and NICHOLSON, H. P. 1944. An annotated list of the mosquitoes of Virginia. Mosquito News, 4:48-50.
- DYAR, H. G. 1922. The mosquitoes of the United States. Proc. U. S. Nat. Mus. 62:1-119.
- GOOD, N. E. 1945. A list of the mosquitoes of the District of Columbia. Proc. Ent. Soc. Wash. 47:168-179.
- MARSHALL, J. F. 1938. The British mosquitoes. London: Brit. Mus. (Nat. Hist.) 341 pp.
- RAJAPAKSA, N. K. 1956. The attractiveness of six mammals to mosquitoes at the Patuxent Research Refuge in 1955. Unpublished M.S. Thesis, Univ. of Md. 37 pp.
- ROTH, L. M. 1945. The male and larva of *Psorophora (Janthinosoma) horrida* (Dyar and Knab) and a new species of *Psorophora* from the United States (Diptera, Culicidae). Proc. Ent. Soc. Wash. 47:257-278.
- SYMONS, T. B., COFFIN, T. H. and GAHAN, A. B. 1906. Mosquitoes. Maryland Agric. Expt. Sta. Bull. 109:73-124.