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OCHLEROTATUS JAPONICUS COLLECTED FROM NATURAL ROCKPOOLS IN NEW JERSEY

JAMESINA J. SCOTT, FRANK L. CARLE AND WAYNE J. CRANS

Rutgers, the State University of New Jersey, Department of Entomology, 180 Jones Avenue, New Brunswick, NJ 08901-8536

ABSTRACT. *Ochlerotatus japonicus* larvae were collected from natural rockpools in New Jersey within the Delaware Water Gap National Recreational Area. Previously reported collections of *Oc. japonicus* in the United States have been limited to artificial containers and an occasional treehole.

KEY WORDS *Ochlerotatus japonicus,* rockpools, larval habitat, associated species

INTRODUCTION

Since the exotic mosquito *Ochlerotatus japonicus* (Theobald) was first detected in the United States in 1998 (Peyton et al. 1999), the larvae have been collected almost exclusively from artificial containers, and only rarely from treeholes. Within their native range in Japan and the eastern coast of Asia, *Oc. japonicus* larvae have been reported from a wide variety of natural and artificial containers (Tanaka et al. 1979) and even occasionally taken from groundwater (LaCasse and Yamaguti 1948), but they are reported to prefer rockpools and earthenware containers.

On July 3, 2000, mosquito larvae were collected from a series of naturally occurring rockpools along VanCampens Brook in the Delaware Water Gap National Recreational Area (see Table 1). These rockpools contained small volumes of water (most were less than 5 liters), which resulted from a combination of rainfall and temporary high water levels in the brook. The water was clear, the bottoms of these rockpools were covered with decaying leaves and other detritus, and algae coated the sides of most of the rockpools. A representative sample of the larvae from these rockpools was preserved on site in vials of 70% ethanol, and all pupae and the remaining larvae were kept live and transported back to Rutgers for identification and emergence. The pupae and late instar *Ochlerotatus* spp. larvae were allowed to emerge, and all were positively identified as *Oc. japonicus.* The majority of the larvae were *Oc. japonicus,* but *Culex restuans* Theobald and *Cx. territans* Walker were also collected from the same rockpools.

A subsequent sampling trip was made on July 14, 2000 to determine whether the *Oc. japonicus* larvae represented a localized phenomenon or were more widespread in the Delaware Water Gap National Recreational Area. Approximately 30 rockpools along VanCampens Brook were sampled. *Ochlerotatus japonicus* larvae were present in 20 of the 22 rockpools that contained mosquito larvae. In addition to *Oc. japonicus* larvae, *Cx. restuans, Cx. territans,* and *Anopheles punctipennis* Say were also recovered from these rockpools. The two largest volume rockpools (approximately 20 and 30 liters) that were sampled contained no *Oc. japonicus,* but held *Cx. territans* and *An. punctipennis* larvae.

Along Tillman Creek in Tillman Ravine, approximately 20 rockpools were inspected, but no mosquito larva of any species was found; however, an infusion-baited gravid trap (Reiter 1983) set overnight near the rockpools collected 2 female *Oc. japonicus.*

The discovery of *Oc. japonicus* far from human dwellings suggests that this exotic mosquito may have been introduced into the United States several years before it was first recognized in 1998. Curiously, no larvae of *Oc. atropalpus* (Coq.), the na-

Table 1. Number and percentage of species composition of mosquito larvae collected from randomly selected rockpools along VanCampens Brook, Delaware Water Gap National Recreational Area.

Date	*Ochlerotatus japonicus*	*Culex restuans*	*Cx. territans*	*Anopheles punctipennis*
June 3, 2000	14 (32%)	22 (50%)	8 (18%)	0
	23 (45%)	16 (31%)	12 (23%)	0
July 14, 2000	0	0	22 (96%)	1 (4%)
	0	0	29 (83%)	6 (17%)
	6 (86%)	0	0	1 (14%)
	12 (100%)	0	0	0
	24 (57%)	1 (2%)	15 (36%)	2 (5%)
	26 (57%)	0	17 (37%)	3 (7%)
	31 (100%)	0	0	0

tive rockpool mosquito, were collected from any of the rockpools sampled, despite its broad distribution throughout the state. This finding suggests that further investigation is merited into the possibility that the exotic mosquito *Oc. japonicus* may be replacing or competitively excluding *Oc. atropalpus* in some habitats.

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REFERENCES CITED

LaCasse WJ, Yamaguti S. 1948. *Mosquito fauna of Japan and Korea*. Part II. Kyoto, Japan: Office of the Surgeon, Hq 8th Army, 207th Malaria Survey Detachment.

Peyton EL, Campbell SR, Candeletti TM, Romanowski M, Crans WJ. 1999. *Aedes (Finlaya) japonicus japonicus* (Theobald), a new introduction to the United States. *J Am Mosq Control Assoc* 15:238–241.

Reiter P. 1983. A portable, battery-powered trap for collecting gravid *Culex* mosquitoes. *Mosq News* 43:496–498.

Tanaka K, Mizusawa K, Saugstad ES. 1979. A revision of the adult and larval mosquitoes of Japan (including Ryukyu Archipelago and the Ogasawara Islands) and Korea (Diptera: Culicidae). *Contrib Am Entomol Inst (Ann Arbor)* 16:1–987.

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