A NOTE ON IRRIGATION DROP STRUCTURES AS BREEDING SITES OF BLACKFLIES IN WESTERN NEBRASKA (DIPTERA: SIMULIIDAE)

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During the summer of 1953, several armers living a few miles south of Mitchell, Nebr., on highway 86, complained o a veterinarian in Mitchell that their ittle were being greatly annoyed by atacks of biting flies. The veterinarian equested assistance from entomologists at he Mitchell Field Station of the Communicable Disease Center, U. S. Public Health Service, in the identification of hese flies.

Several net collections of adult flies were nade by the writer during August 1953, nd two species of Similiidae were found o be attacking the cattle. The blackflies ere identified as *Simulium vittatum* Zett., and *Simulium griseum* Coq. It was observed that these flies were most numerous around the cattle in the evening at sunset and usually attacked the ears.

It is generally known that Simuliidae are associated with swift flowing water. To find the breeding sites, a survey of water areas was made within a radius of 1 mile of the farms where the blackflies were biting. All of the water found in this area was connected either directly or indirectly with irrigation and involved canals, concrete drop structures, farm laterals, drainage ditches, and seepage areas.

Blackfly larvae and pupae were found in

IG. 1. The rapid flow of irrigation water over concrete drop structures, used to lower water surfaces and prevent erosion where ditch flows are carried down relatively steep slopes, provides ideal breeding sites for blackflies.

small numbers along the edges of the main canals, and in large numbers in the concrete drop structures (fig. 1). A total of 206 drop structures was located and examined in the survey area, of which 193, or 93 per cent, contained Simuliidae. Collections of *S. vittatum* and *S. griseum* larvae and pupae were made from several of the drops on July 22 and August 14, 1953.

In this particular area, irrigation water is delivered to the user under the rotation method whereby he receives water for definite periods of time and is without water during the intermediate periods. Consequently water was sometimes shut out of laterals for a period of several days. When this happened sufficient water usually remained in the concrete apron of each drop structure to permit the blackfly larvae and pupae to survive until the water was turned into the lateral again.

When water was not flowing in th lateral it was possible to estimate the de sity of the Simuliidae population in th concrete aprons. This was done b measuring a 1-foot square area on the sic of an apron and counting the number larvae and pupae attached to the concret In late August two 1-foot square are were sampled in 10 different aprons.

The larvae and pupae in these sampl ranged in number from 2 to 37 wi an average of 18 per square foot. Eac apron was found to measure approx mately 28.5 square feet so that the bree ing potential of a single drop structu was 513 Simuliidae. On this basis it estimated that the 206 drops contained excess of 105,000 blackflies.

The blackflies were identified by D Alan Stone of the Division of Insect D tection and Identification, Bureau Entomology and Plant Quarantine, Was ington 25, D. C.

A TECHNIQUE TO FACILITATE IDENTIFICATION OF MOSQUITOES IN LIGHT TRAP COLLECTIONS

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Light traps are used extensively for sampling adult mosquito populations; however, the large catches which are frequently taken make the routine task of identifying and counting the specimens a time-consuming and tedious process. The technique described below has greatly facilitated the processing of light trap collections of mosquitoes which have been made in connection with studies undertaken in irrigated areas of several western states.

The technique involves the use of (1) a wide-field stereoscopic microscope, (2) a manually operated stage consisting of a base plate and sliding horizontal troug and (3) a nine-unit laboratory counter The base plate of the manual stage is co structed so that it replaces the removab glass stage on the microscope. Mosquito from the light trap collections are thin scattered over the bottom of the troug which operates in the center of the fiel By slowly moving the trough beneath th objective the mosquitoes may be identifie and recorded on the laboratory count

[1] #A-2030 Clay-Adams Co., Inc. The tra name is used as a means of identifying th product. Its use does not constitute endorseme by the U. S. Public Health Service.