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OCCURRENCE OF *TOXORHYNCHITES RUTILUS SEPTENTRIONALIS* IN TIRES IN OHIO

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The mosquito genus *Toxorhynchites* is represented in the eastern United States by a single species *Toxorhynchites rutilus*, which consists of 2 subspecies *rutilus* (Coquillett) and *septentrionalis* (Dyar and Knab). The subspecies are differentiated on the basis of morphological characters of the adult male and by geographic distribution (Jenkins 1949). *Tx. r. rutilus* is reported as being restricted to Florida, southern

and coastal Georgia, and South Carolina (Jenkins and Carpenter 1946). Recent efforts to establish *Tx. r. rutilus* in Louisiana (Carmichael 1978) as a biological control agent, may serve to extend the range of this subspecies. *Tx. r. septentrionalis* is more widely distributed throughout the eastern U.S., ranging northward to New England (Main et al. 1976) and Ontario, Canada (Parker 1977), and westward to Kansas, Oklahoma, and Texas (Focks et al. 1977). Intergrades of the two subspecies are known to occur in northern Florida (Jenkins 1949).

The first reported occurrence of *Tx. r. septentrionalis* in Ohio was by Burgess (1906) from Hamilton and Scioto Counties. Other published records include Franklin and Hamilton Counties (Jenkins and Carpenter 1946) and Cuyahoga County (Masters 1949). In an unpublished thesis, Mead (1949) listed collection records from Hocking, Licking, and Ross Counties. The most recent report of the subspecies in Ohio is that of Williams et al. (1961) from a study area in Hocking County. Despite frequent container sampling, *Tx. r. septentrionalis* has not been collected by field staff of the Vector-borne Disease Unit (VBDU), Ohio Department of Health, in the years 1965 to 1978 (M. A. Parsons, VBDU, personal communication). An additional county distribution record from Darke County is presented in this report, bringing the currently known distribution of *Tx. r. septentrionalis* in Ohio to 8 of the 88 counties (Figure 1). Although this subspecies probably occurs throughout Ohio, no additional records were encountered.

During September and October of 1979, immature stages of *Tx. r. septentrionalis* were collected from discarded tires in 2 Ohio counties. All specimens collected at the 2 sites were returned to the VBDU Laboratory where they were successfully reared to the adult stage. Identification to subspecies was based on tarsal scale patterns of the adult males. A laboratory colony was established according to the method of Slaff et al. (1975).

None of the previously mentioned records indicate the use of tires by *Tx. r. septentrionalis* as a breeding habitat. This phenomenon, however, has been reported in New Jersey by Lake (1953), Hemmerlein and Crans (1968), and Slaff et al. (1975). In Florida, Basham et al. (1947) collected *Tx. r. rutilus* from a number of artificial containers, including tires. On September 18, 1979, two 4th instar *Tx. r. septentrionalis* larvae were collected in Greenville, Darke County, at a tire sales and repair company specializing in "giant" tires for heavy con-

rural setting of this collection site strongly suggests that this population was native to the area.

The use of discarded tires as breeding sites by vector mosquitoes (primarily *Aedes triseriatus* (Say) and *Culex pipiens* Linnaeus) is a serious and increasing problem in Ohio. During 1979, 12 of 20 California encephalitis cases investigated by the VBDU were found to be associated with *Ae. triseriatus* breeding in tires discarded in woodlots. Physical removal or chemical treatment of tires could alleviate mosquito breeding in some instances. However, these methods are simply not feasible in many areas due to the tremendous quantity of tires that have accumulated. In light of recent studies by Gerberg and Visser (1978) and Focks et al. (1979), the periodic release of laboratory mass reared *Toxorhynchites* mosquitoes may be a practical alternative to conventional control methods and certainly deserves further investigation.

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A GYNANDROMORPH OF *Aedes vexans* IN 1979

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Minson (1969) and Oemick (1976) reported bipolar gynandromorphs of *Aedes vexans* (Meigen). In 1979 we identified another bipolar form of *Ae. vexans* (Fig. 1). It has the same anatomical description and was collected at the