

A new record for *Uranotaenia sapphirina* (Diptera: Culicidae) in Manitoba, Canada

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ABSTRACT

Uranotaenia sapphirina (Osten Sacken) was identified for the first time in Manitoba in September, 2005. This observation increases the known northern geographic range of *Ur. sapphirina* to Winnipeg, Manitoba, Canada (97°15' N; 49°86' W). The specimen, one adult female, was captured in a New Jersey Light Trap (NJLT) during routine adult mosquito collections performed as part of the City of Winnipeg mosquito control programme. This observation increases the total number of mosquito species in Manitoba and the City of Winnipeg to 47 from 46 and from 38 to 39, respectively.

Uranotaenia sapphirina (Osten Sacken) is found from southeastern Canada to Florida along the eastern seaboard of the United States. Its current known range extends into the central states, west to North Dakota and south into Mexico (Darsie and Ward 2005; Wood *et al.* 1979). *Uranotaenia sapphirina* larvae are generally found in primarily sunlit semi-permanent and permanent water bodies with floating and emergent vegetation such as *Spirogyra* or *Lemna* spp. They are sometimes confused with *Anopheles* species larvae, as they rest parallel to the water surface (Carpenter and LaCasse 1955; Dyar 1928). Like many of the *Culex* species, adult females of *Ur. sapphirina* enter hibernation after they have been inseminated in the fall, pass the winter in diapause and emerge in late spring to produce several egg batches over the course of the summer (Wood *et al.* 1979).

The City of Winnipeg maintains a network of 25 NJLT's and 16 CDC traps to monitor adult mosquito populations throughout the urbanized and non-urbanized areas in and around Winnipeg. On 12 September, 2005, the first presumptive specimen of *Ur.*

sapphirina was captured in one of the NJLT's. The female specimen was captured in a subdivision of St. Vital in Winnipeg, Manitoba. The NJLT was located near several permanent and semi-permanent water bodies. Confirmation of the presumptive identification was completed by comparing the field collected sample to voucher specimens from the Department of Entomology - North Dakota State University of Agriculture and Applied Science.

Additional adults or larvae of *Ur. sapphirina* were not detected at the original site of collection nor at others in the St. Vital area during 2006 and 2007; this collection may represent only a temporary establishment or incursion of this species into Manitoba. However, monitoring for this species, including examination of preferred overwintering habitats and active sampling for adults and larvae will continue to determine whether populations of *Ur. sapphirina* have become established in Winnipeg. This report increases the total number of mosquito species in Manitoba and the City of Winnipeg to 47 and 39, respectively (Wood *et al.* 1979).

West Nile virus (WNV) has been detected in field collected adults of *Ur. sapphirina* and this species was implicated as a potential vector of WNV in 2001 (CDC 2005). The vector competence of this species to acquire and transmit WNV under laboratory conditions has also been demonstrated (Shapiro *et al.* 2004). Because the preferred hosts of *Ur. sapphirina* are amphibians and reptiles, this species is considered an enzootic amplifier of WNV. Breeland *et al.* (1961) and Carpenter and LaCasse (1955) reported that *Ur. sapphirina* will land on humans but generally will not bite. As a result, spillover of WNV into the human population would have to be facilitated by polyphagous mosquitoes such as *Culex tarsalis* (Coquillett).

Though established populations of *Ur. sapphirina* have not been confirmed in Manitoba, the detection of *Ur. sapphirina* in Winnipeg may serve as an indicator that other mosquito species may be present but unreported in Manitoba. For example, *Culex pipiens* (Linnaeus) is established in parts of central Minnesota (Darsie and Ward 2005; Wood *et al.* 1979) and this important vector species may also incur and establish in Manitoba. It is important to continue mosquito surveillance activities in Manitoba and elsewhere in Canada to monitor the possible range expansion of mosquito species capable of transmitting arboviruses and other mosquito-borne pathogens.

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