

# ANOPHELES WALKERI THEOBALD IN SASKATCHEWAN AND NOTES ON *CULISETA SILVESTRIS MINNESOTAE* BARR<sup>1, 2</sup>

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**ABSTRACT.** *Anopheles walkeri* Theobald was found in Saskatchewan for the first time in 1967, and at relatively high latitudes (53°38'N and 53°55'N). *Culiseta silvestris minnesotae* Barr,

which was first recorded from Saskatchewan in 1962, is widely distributed in the southern half of the Province where the adults occur from late May to late September.

**INTRODUCTION.** During the past 13 years extensive mosquito collections have been made in Saskatchewan in connection with studies of the ecology and epidemiology of arboviruses and their vectors (Spalatin et al. 1963; McLintock et al. 1970; Hall et al. 1969; Burton et al. 1973; Iversen et al. 1973; Wagner et al. 1975). The great majority of the mosquitoes collected were adult females which have totalled over one million specimens since the project began in 1962. Out of such large numbers of specimens it was not unexpected that new mosquito records for the Province would turn up. The first of these was *Culiseta minnesotae* Barr (McLintock and Rempel 1963) followed by *Aedes melanimon* Dyar (Holmberg and Trofimenkoff 1968). Here I report the first finding of *Anopheles walkeri* Theobald in Saskatchewan and give some notes on the occurrence of *Cs. silvestris minnesotae*.

**RESULTS AND DISCUSSION.** *An. walkeri* adult females have been taken on 2 occasions in Saskatchewan, both in 1967. The first was collected by B. W. Gibbs from a chicken coop at St. Walburg (lat. 53° 38'N on August 30 and the other by R. Holmberg from reeds at the edge of a lake, 6 miles northwest of Waskesiu (lat. 53°

55'N) in Prince Albert National Park on September 2. As far as I can determine, Waskesiu is the most northerly location recorded for this species.

*An. walkeri* is widely distributed in North America having been recorded throughout the eastern United States from the Gulf of Mexico north to Maine and eastern Canada (Quebec, Nova Scotia and New Brunswick) and west to North Dakota, Manitoba, British Columbia and Mexico (Carpenter and LaCasse 1955). The type locality is Lake Simcoe, Ontario (Stone, et al. 1959). Until 1967, the only records of *An. walkeri* for the Prairie Provinces of Western Canada were by Criddle and Robertson from Westbourne, Manitoba in 1922; from Aweme, Manitoba in 1923 and by Cripta from The Pas, Manitoba in 1954 (specimens in the National Collection, Ottawa). It did not appear in thousands of light trap collections made in southern Manitoba from 1942 to 1948 (McLintock and Rempel 1963) nor in the thousands of light trap collections made in southern Saskatchewan since 1962, although it is said to be strongly attracted to light (Peters 1943). It has not yet been reported from Alberta, consequently it is reasonable to assume that the species is not abundant in the Prairie Provinces.

*An. walkeri* lays winter eggs that can withstand temperatures at least as low as -21°C for 72 hours (Peters 1943). Its presence at northern latitudes where average daily minimum air temperatures for January range from -22.5°C to -27.5°C can perhaps be explained by the

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fact that the locations where the species has been found are either in the aspen parkland (Westbourne), at the edge of a forest reserve (Aweme) or in mixed wood forest (The Pas, St. Walburg and Waskesiu) where the median depth of snow in January and February is 12 to 16 in. (30.5 to 40.6 cm) (Department of Energy, Mines and Resources, 1974) and sufficient to protect the eggs from very low temperatures (Storey 1955; Uvarov 1931).

*Culiseta minnesotae* was described by Barr (1957) from specimens collected in Minnesota in 1953 and believed at first to be *Culiseta morsitans* (Theobald). *Cs. minnesotae* was reported by McLintock and Rempel (1963) as one of 19 species of mosquitoes taken in Saskatchewan in the summer of 1962. Later, Maslov (1964) designated *Cs. minnesotae* Barr a subspecies of *Cs. silvestris* (Shingarev).

Males or females of *C. silvestris minnesotae* have been taken in light traps in Saskatchewan each year since 1962 and an occasional female has been taken in a ramp trap (Gillies 1969) at Saskatoon and by aspirator from resting sites in several other localities. The males are more strongly attracted to light than the females which, according to Graham (1969) are not strongly attracted to light or man. Although not numerous, *Cs. s. minnesotae* appears to be widely distributed in southern Saskatchewan having been taken in 13 localities from Estevan (lat. 49° 04'N) in southeastern Saskatchewan, northwest to Paynton (lat. 53° 01'N). It also occurs during most of the mosquito season in Saskatchewan. The earliest females were taken on May 26 (Saskatoon 1966) and the latest females on September 27 (Melfort 1963; Saskatoon 1970; Outlook 1971). The

### Number of Mosquitoes

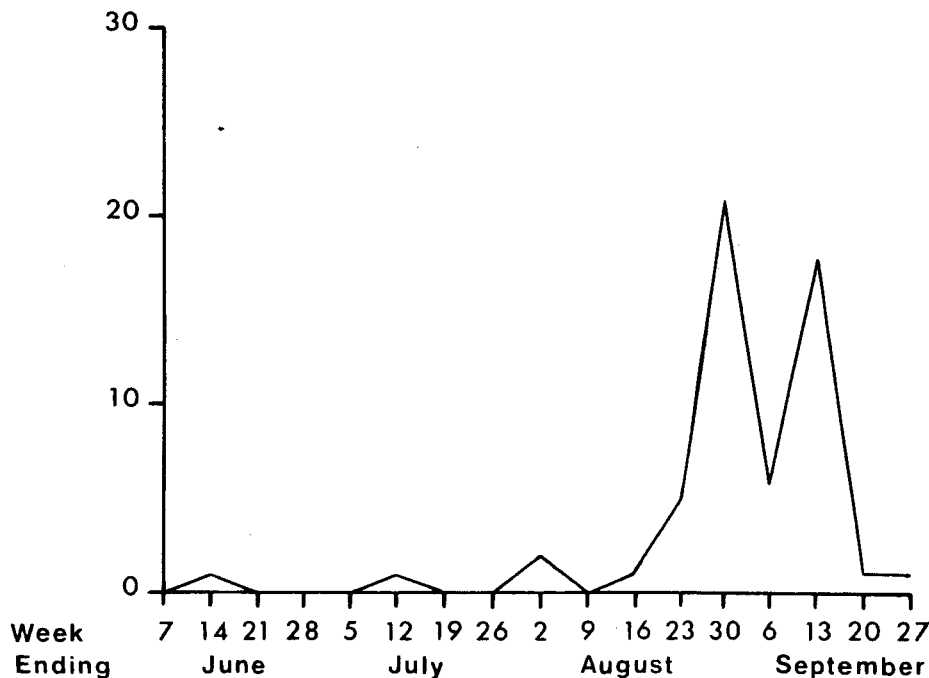


Fig. 1. *Culiseta silvestris minnesotae* taken in a light trap at Saskatoon, Saskatchewan, 1971.

earliest males were taken on June 13 (Weyburn 1972) and the latest males on October 2 (Weyburn 1966) but females made their first appearance in light traps most often in July and the males most often in August. *Cs. s. minnesotae* reaches its greatest abundance in Saskatchewan late in the season (August and September, Fig. 1). These collection dates are consistent with the occurrence of a species that overwinters as adult females and emerges from hibernation in late May or early June to produce the first generation of the current season early in July (Fig. 1). In Figure 1, females appeared in the light trap catches only in the weeks ending June 14, August 30 and September 6 and the ratio of males to females in the light trap for the whole season was 18:1. The species was unknown when Rempel (1953) made his study of Saskatchewan mosquitoes so it is likely that some of the *Culiseta morsitans* seen by him were actually *Cs. s. minnesotae*. The larvae of *Cs. s. minnesotae* have not yet been found in Saskatchewan.

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