

## NEW RECORD OF THE MALARIA VECTOR *ANOPHELES SERGENTII* IN THE SOUTHERN NILE VALLEY OF EGYPT<sup>1,2</sup>

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**ABSTRACT.** Twelve adult female *Anopheles sergentii* were collected from 2 villages in the Nile River Valley in Aswan Governorate, Egypt, in August of 1993. No immature forms were found during limited sampling. This is the first record of this malaria vector in Aswan Governorate and represents the southernmost distribution in northern Africa.

*Anopheles sergentii* (Theobald) is an efficient, important vector of malaria throughout northern Africa and the Middle East, including Egypt (Farid 1940, 1956) where it is considered the principal vector of oasis-desert malaria (Beier et al. 1986). The World Health Organization (1990) states that *An. sergentii* is an important vector of malaria in the oases, Western Desert, and Faiyum Governorate in Egypt as well as in west and southwest Saudi Arabia and Yemen. However, in Israel, Jordan, and Libya, this species is now considered only as a potential vector. The recorded distribution of *An. sergentii* in Egypt includes the oases of the Western Desert, Faiyum Governorate, Red Sea Governorate, and the Sinai Peninsula (Gad et al. 1984, Harbach et al. 1988).

From August 13 to 22, 1993, mosquito surveys were conducted in Aswan Governorate, southern Egypt, during an outbreak of Rift Valley fever (RVF) in the region (Arthur et al. 1993). Aswan is the southernmost Egyptian governorate and borders on Sudan. North of Lake Nasser and Aswan City, many villages occupy the cultivated regions of the Nile Valley. The villages surveyed, including Nag' El Hagar, Sabil Abu El Magd, El Nagaghra, El Raghama, and El Ghonymia (Fig. 1), were selected as part of an investigation to determine potential RVF vectors in villages where human disease had been reported.

Mosquitoes were collected using CDC traps (without light) baited with dry ice and oviposi-

tion traps baited with hay infusion (hay, dried brewer's yeast, lactalbumin powder and tap water) incubated at room temperature for 5 days. Traps were placed in and around animal sheds, houses, and throughout the villages in late afternoon and retrieved early the next day. Specimens were sorted and identified over dry ice. Additionally, time permitting, larval surveys were done. When necessary, *Anopheles* larvae were reared to the 4th instar for identification.

Twelve female *An. sergentii* were collected from 2 villages on 4 different nights over a period of 8 days. One, 4, and 2 mosquitoes were collected from Nag' El Hagar on August 15, 17, and 21, respectively, and 5 specimens were collected from El Ghonymia on August 22. All specimens were collected in the CDC traps. No larvae or pupae of *An. sergentii* were collected. Specimens were identified using the key developed by Glick (1992). Voucher specimens have been deposited in the collections at the Naval Medical Research Unit No. 3, Cairo, Egypt, and at the Department of Entomology, Ain Shams University, Cairo, Egypt.

This report is the first evidence that *An. sergentii* has spread from an oasis-type environment and become established in the Nile Valley in southern Egypt. Kirkpatrick (1925) reported that this species was not found in the Nile Valley or Nile Delta despite a thorough search. In a limited larval survey of 35 localities in Qena and Aswan governorates, Khalil (1980) found no evidence of *An. sergentii*. Kenawy et al. (1987) studied host-feeding patterns in more than 28,000 mosquitoes collected throughout Aswan Governorate but did not report any specimens of *An. sergentii*. Finally, Harbach et al. (1988) made 67 mosquito collections throughout Aswan Governorate in 1983 and did not find *An. sergentii*.

Previous studies on *An. sergentii* in Egypt indicate that this species breeds primarily during the cooler months. In Faiyum Governorate, El Said et al. (1983) found that breeding reached a maximum in February, whereas Halawani and Shawarby (1957) stated that breeding occurs during September-May and then declines. Therefore, our findings of few adults and no immatures

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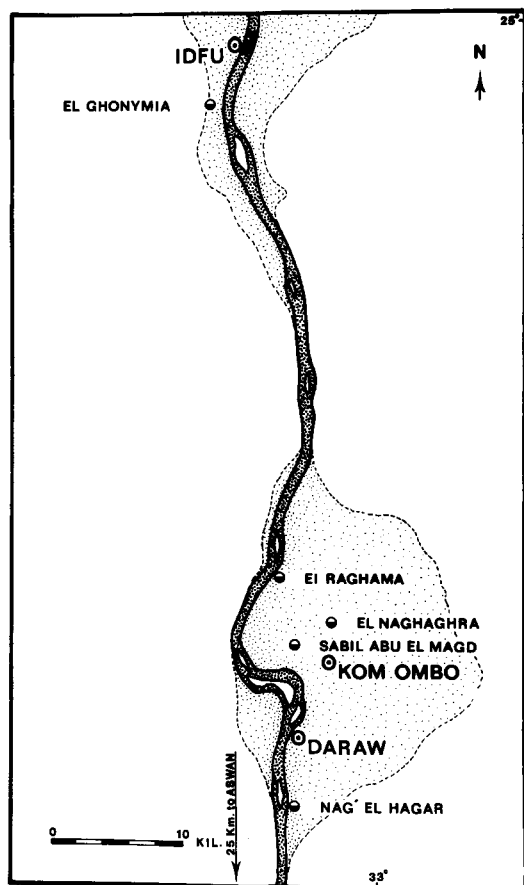


Fig. 1. Locations of villages in southern Egypt. *Anopheles sergentii* adults were collected in Nag' El Hagar and El Ghonymia.

of *An. sergentii* may reflect the natural seasonal decline of the population in southern Egypt.

The extension of *An. sergentii*, considered the principal vector of malaria in Egypt, into the southern part of the Nile Valley, is significant. Malaria is endemic in several countries south of Egypt; therefore, the presence of this species in southern Egypt may enhance the possibility of malaria transmission in this region if gametocytes are introduced via migratory populations.

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