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The Chenopodiaceae-feeding gall midges (Diptera: Cecidomyiidae) of the Na'aman salt marsh, Israel

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Abstract

The Na'aman marsh is the last existing coastal salt marsh in Israel, supporting a vulnerable community of rare plant and animal species. While the vertebrate and some invertebrate communities in the salt marsh have been relatively well documented, almost nothing is known about its insects. In an effort to illustrate the importance of conserving this unique habitat and as part of a study of the gall midges of Chenopodiaceae in Israel, we reared five cecidomyiid species from the halophytes *Arthrocnemum macrostachyum*, *Atriplex portulacoides*, *Sarcocornia perennis*, and *Suaeda splendens* that grow in the marsh, the latter two are rare plants in Israel. Three of the gall-midge species are described here as new to science and the other two, *Baldratia salicorniae* and *Stefaniella brevipalpis*, are redescribed and a lectotype and a neotype are designated for them, respectively. The gall midges develop in stems and/or leaves of their respective hosts and all appear to complete at least two generations a year. For all but one of the species, the Na'aman salt marsh is the only locality in Israel where they have been found.

Key words: conservation, lectotype, neotype, new species

Introduction

In the last century, almost all of the salt marshes that existed along the Mediterranean coast of Israel ceased to exist due to various human activities (e.g., urbanization, agriculture, and industry) (Wolzak 2006). The largest of these salt marshes and the only one that has thus far survived destruction is the Na'aman salt marsh, on the outskirts of the city of Akko (Acre) (Figs. 1–4). This salt marsh is situated at the meeting point of the Na'aman river and the Mediterranean sea, where large areas around the river are seasonally flooded, creating shallow pools that are mostly surrounded by low vegetation, thus constituting the unique habitat of this marshland (Wolzak 2006).

Being the last, relatively intact coastal salt marsh in Israel, the Na'aman marsh is of utmost significance for the biodiversity of Israel and the Mediterranean basin as a whole; hence efforts are currently made to save parts of the marsh by declaring it as a nature reserve. In a recent survey conducted as part of these efforts (Sinai 2007), the marsh was found to support 328 plant species, 18 of which are rare to extremely rare, as well as several highly endangered reptiles, rare land snails, and vulnerable small mammals, whose existence depends upon the conservation of this unique and sensitive habitat. Although the insect fauna of the salt marsh is virtually unstudied and has not been discussed in the literature to date, we do know that the marsh is home to several rare or locally restricted species, particularly of Diptera. These include the anthomyzid *Cercagnota collini* (Cerny), previously known only from its holotype from England (Roháček and Freidberg 1993), and four of the eight Israeli species of *Nemotelus* (Stratiomyidae), of which *N. cypriacus* Lindner is practically

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