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The Parasitoid Complex of the Citrus Leafminer, *Phyllocnistis citrella* Stainton (Lepidoptera: Gracillariidae) in the East Mediterranean region of Turkey and Their Role in Biological Control

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Abstract: A survey of parasitoids of the citrus leafminer, *Phyllocnistis citrella* Stainton (Lepidoptera: Gracillariidae), was carried out in the citrus orchards in the east Mediterranean region of Turkey during 1995-2001. Their relative abundance and rate of parasitism were also determined. Ten species of parasitoids were identified: *Cirrospilus* sp. nr. *lyncus* (Walker), *C. pictus* (Nees), *C. variegatus* (Masi), *C. vittatus* Walker, *C. ingenuus* Gahan, *Ratzeburgiola incompleta* (Boucek), *Diglyphus isaea* (Walker), *Semielacher petiolatus* (Girault), *Citrostichus phyllocnistoides* (Narayanan), *Neochrysocharis formosa* (Westwood) (Hymenoptera: Eulophidae). *Neochrysocharis* sp., *Chrysocharis* sp., *Barycapus* sp., *Pnigalio* sp. (Hymenoptera: Eulophidae) and the *Pteromalus* sp. (Hym.: Pteromalidae) were also identified. Among these species, *R. incompleta* in 1995-1996 and *C. sp. nr. lyncus* in 1997 were the most dominant of all encountered species. In 1998, a new parasitoid species, *C. phyllocnistoides*, expanded to all citrus growing orchards in the region, becoming the most abundant parasitoid species between 1998 and 2001. The parasitization rate was very low during the main peak of the pest in early summer, but increased considerably later in the season. It is determined that these parasitoids play a significant role in reducing the *P. citrella* population during the late summer and autumn flushes.

Key Words: *Phyllocnistis citrella*, citrus leafminer, biological control, parasitoid, relative abundance

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