

## **First Report of Chrysopodes (Chrysopodes) Lineafrons (Neuroptera: Chrysopidae) in Tucumán Province, Northwestern Argentina**

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# FIRST REPORT OF *CHRYSOPODES (CHRYSOPODES) LINEAFRONS* (NEUROPTERA: CHRYSOPIDAE) IN TUCUMÁN PROVINCE, NORTHWESTERN ARGENTINA

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The Chrysopidae family (Insecta: Neuroptera) comprises species commonly known as "lace-wings" or "chrysopids" and includes at least 1,200 species distributed worldwide, with 75 genera and 11 subgenera (Brooks & Barnard 1990). The importance of this family is determined by its wide geographical distribution, the large number of specimens described, the massive breeding facilities, its ecological plasticity, and mainly because chrysopids are considered important natural enemies of aphids, whiteflies, thrips, lepidopterans and mites (Canard et al. 1984; Núñez 1989; Brooks & Barnard 1990; Freitas & Fernández 1996; McEwen et al. 2001).

The *Chrysopodes* genus (Neuroptera: Chrysopidae) was first described by Navás (1913) on the basis of external adult features. Subsequent researchers described 30 additional species, recognizing differences in the genitalia, and dividing the genus into the *Chrysopodes* subgenus with sickle-shaped mandibles and the *Neosuaris* subgenus with broadly-tipped mandibles (Banks 1945; Adams & Penny 1985; Brooks & Barnard 1990). Later, other species of the *Chrysopodes* subgenus were described (Penny 1998, 2001, 2002; Freitas & Penny 2001; Tauber et al. 2012), and the *Neosuaris* subgenus was revised (Tauber 2010).

The genus *Chrysopodes* Navás comprises at least 47 Neotropical species commonly found in disturbed habitats, most often in orchards and plantations. One species was reported from the USA (Tauber 2003; Tauber & Flint 2010), and an increase in the number of species were recorded to Mexico, Central America and South America (Adams & Penny 1987; Tauber et al. 2012). In Argentina, *Chrysopodes (Chrysopodes) lineafrons* Adams & Penny, *Chrysopodes (Chrysopodes) polygonicus* Adams & Penny, *Chrysopodes (Neosuaris) divisus* Walker, *Chrysopodes (Neosuaris) porterinus* Navás (Adams & Penny 1987; González Olazo et al. 1999; Monserrat & Freitas 2005; González Olazo & Reguilón 2008) have been reported, being the latter species cited to Jujuy

(Parque Nacional Calilegua) and Corrientes (Bel-la vista) Provinces.

In the present study, we compared the specimens collected in Tucumán Province with the specimens deposited in the entomological collection at Instituto-Fundación Miguel Lillo (IMLA). The specimens were confirmed as *C. (C.) lineafrons* Adams & Penny. The new record extends the known geographical distribution of the species to the southwest by approximately 500 km, and this is the first report of this species in Tucumán Province. Also novel is the association of *C. (C.) lineafrons* with tomato crops in Argentina.

We collected *Chrysopodes* specimens during a survey focused on the whitefly *Bemisia tabaci* Gennadius (Hemiptera: Aleyrodidae) in tomato (*Solanum lycopersicum* L.; Solanales: Solanaceae) crops under greenhouse from Jan to Feb 2010 in Lules Department, Tucumán Province (Fig. 1). Adult specimens were collected with manual aspirators and the immature stages were collected manually with a brush, both within the canopies of tomato plants and within surrounding vegetation. Subsequently, adult specimens were taken to the laboratory and placed in 500 cc plastic containers covered with voile, while the immature stages were placed in petri dishes with paper accordions and eggs of *Sitotroga cerealella* Olivier (Lepidoptera: Gelechiidae) for feeding. The identification of immature and adult specimens (Fig. 2) was carried out by Dr. Carmen Reguilón and Mr. Federico Heredia (Fundación Miguel Lillo, Tucumán), and deposited in the entomological collection at Instituto-Fundación Miguel Lillo (IMLA).

Thus the material collected and the locality are recorded as follows: *Chrysopodes (Chrysopodes) lineafrons* Adams & Penny: ARGENTINA: Tucumán: Lules Department (S 26° 55' 60" W 65° 20' 60", 382 m asl), I-2010; 1female, immature stages 3L<sub>2</sub> and 3L<sub>3</sub>, northwestern Argentina.

It is noteworthy that *Chrysopodes (C.) lineafrons* was reared continuously for approximately 12 months; and they were fed the eggs of *B. tabaci*

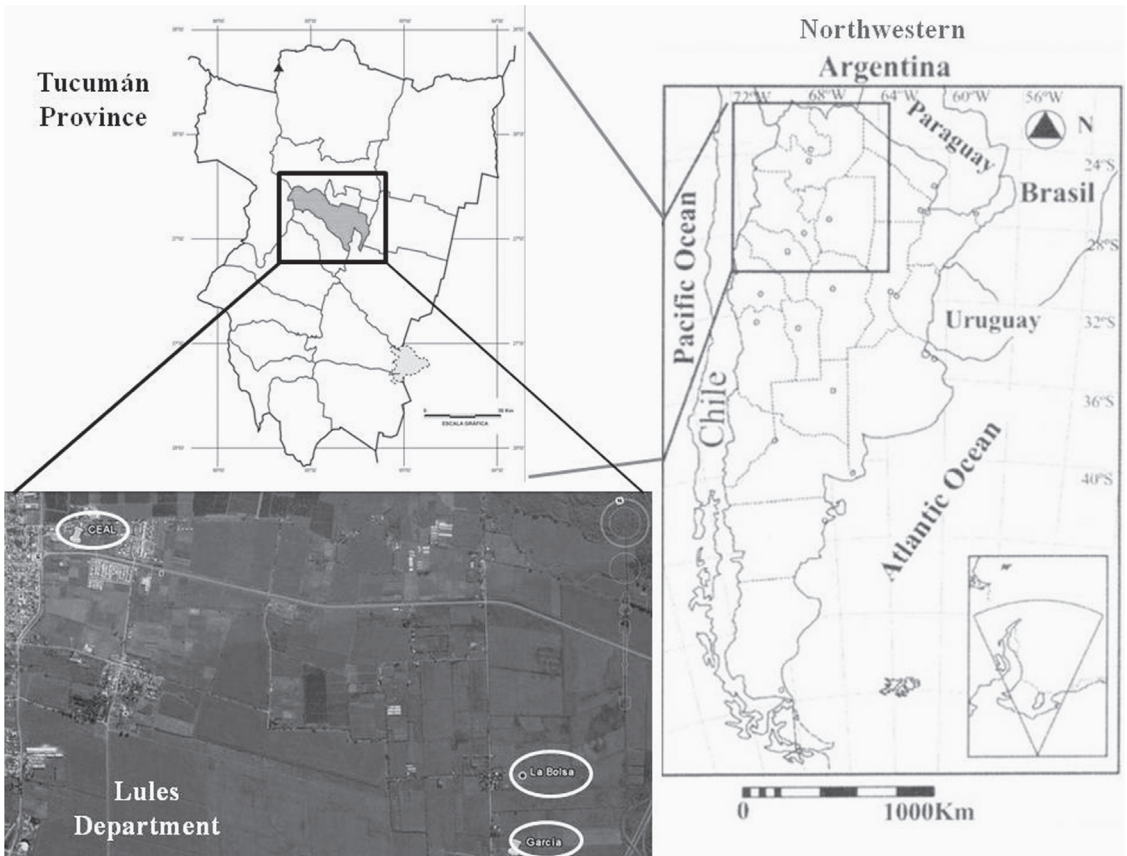


Fig. 1. Geographical location of the tomato crops and the sites where *Chrysopodes (C.) lineafrons* were collected in Tucumán Province, northwestern Argentina.

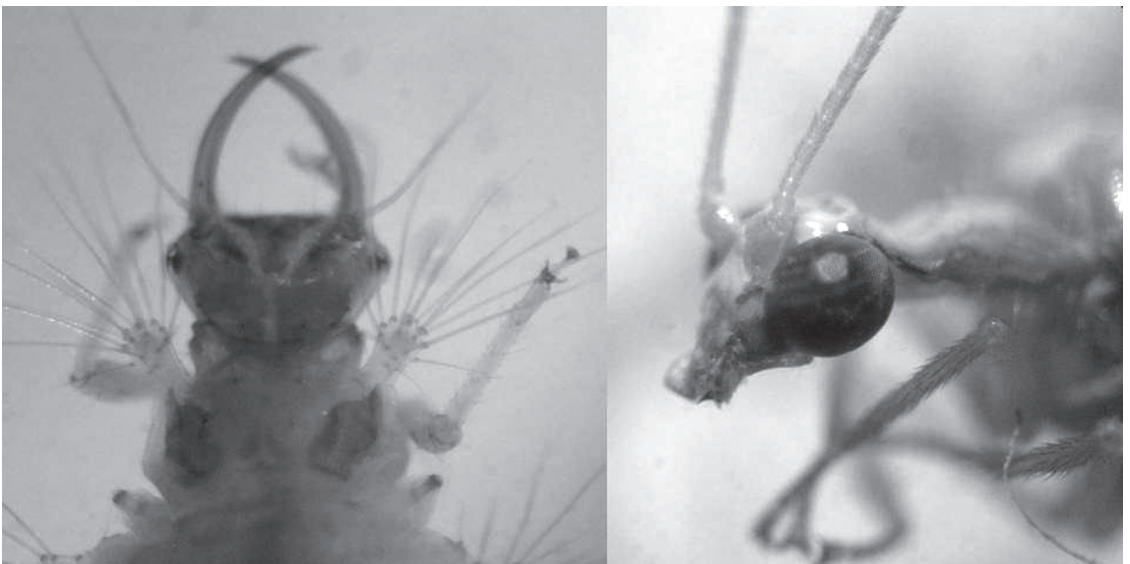


Fig. 2. Specimens of *Chrysopodes (C.) lineafrons* collected in Tucumán Province: A, third instar larva; b, adult female.

(blank test) and of *S. cerealella* (control test) to evaluate the efficiency of predation. We concluded that *Chrysopodes (Chrysopodes) lineafrons* an effective natural control of *B. tabaci* whiteflies in the tomato crops (Ortega et al. 2012).

#### SUMMARY

*Chrysopodes (Chrysopodes) lineafrons* Adams & Penny is reported the first time from the Tucumán Province, extending its known geographical distribution range to northwestern Argentina.

Key Words: *Chrysopodes (Chrysopodes) lineafrons*, *Bemisia tabaci*, biocontrol agent, *Sitotroga cerealella*

#### RESUMEN

*Chrysopodes (Chrysopodes) lineafrons* Adams & Penny es reportado por primera vez para la Provincia de Tucumán, extendiendo su rango de distribución geográfico para el noroeste de la Argentina.

Palabras Clave: *Chrysopodes (Chrysopodes) lineafrons*, *Bemisia tabaci*, agente de biocontrol, *Sitotroga cerealella*

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