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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 *Neosuarius* 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 *Neosuarius* 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 (Neosuarius) divisus* Walker, *Chrysopodes (Neosuarius) 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 3L₂ and 3L₃, 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*

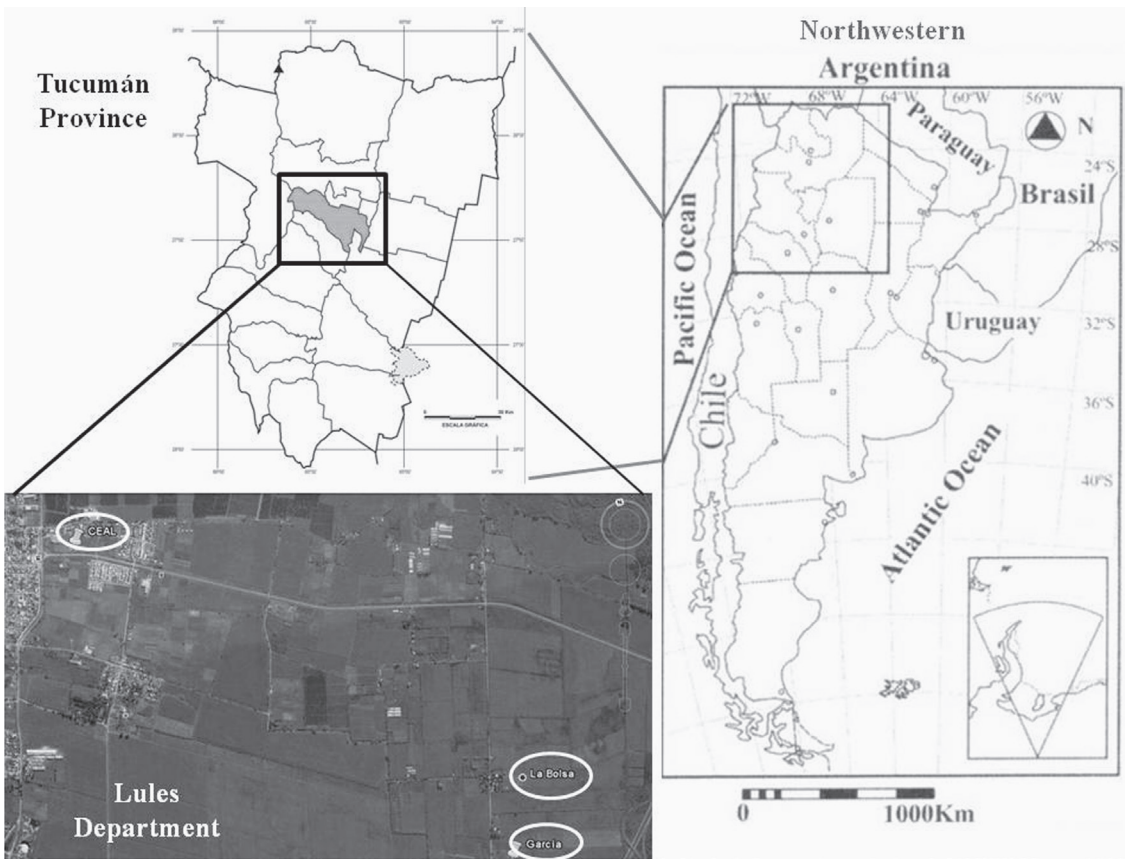


Fig. 1. Geographical location of the tomato crops and the sites where *Chrysopodes (C.) lineafrons* were collected in Tucumán Province, northwestern Argentina.

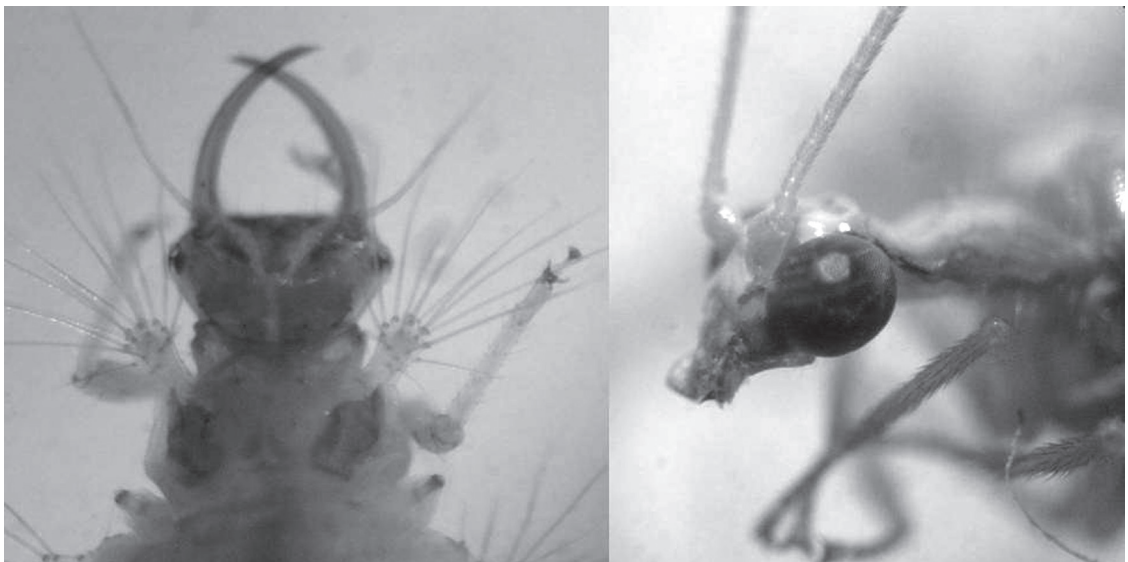


Fig. 2. Specimens of *Chrysopodes (C.) lineafrons* collected in Tucumán Province: A, third instar larva; b, adult female.

(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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REFERENCES CITED

- ADAMS, P. A., AND PENNY, N. 1987. Neuroptera of Amazon Basin, Part 11a. INTRODUCTION AND CHRYSOPINI. Acta Amazonia 15: 413-479.
- BANKS, N. 1945. A review of the Chrysopidae (Nothochrysidae) of Central America. Psyche 52: 139-174.
- BROOKS, S. J., AND BARNARD, P. C. 1990. The green lacewings of the world: a generic review (Neuroptera: Chrysopidae). Bull. British Mus. Nat. Hist. Entomol. 59: 117-286.
- CANARD, M., SEMERIA, Y., AND NEW, T. R. 1984. Biology of Chrysopidae. Dr. W Junk Publishers, Series Entomol. 27. The Hague. 294 pp.
- FREITAS, S. DE, AND FERNÁNDEZ, O. A. 1996. Crisopídeos em agroecossistemas. In SYMPOSIUM, ON BIOLOGICAL CONTROL, 5, 1996. Foz do Iguaçu. Ann. Foz do Iguaçu: Embrapa-CNPSo, pp.283-293.
- FREITAS, S. DE, AND PENNY, N. 2005. The Green Lacewing (Neuroptera: Chrysopidae) of Brazilian Agroecosystems. Proc. California Acad. Sci. 52: 245-395.
- GONZÁLEZ OLAZO, E. V., TOLEDO, S., AND ZAIA, G. 1999. Nuevas citas de Chrysopidae (Neuroptera: Planipennia) para la Argentina. Acta Zool. Lilloana 45: 151-152.
- GONZÁLEZ OLAZO, E., AND REGUILÓN, C. 2008. Neuroptera. In L. E. Claps, G. Debandi, S. Roig-Juñent [eds.], Biodiversidad de Artrópodos Argentinos. Sociedad Entomológica Argentina 2: 235-251.
- MCEWEN, P., NEW, T. R., AND WHITTINGTON, A. E. 2001. Lacewings in the Crop Environment. Cambridge University Press. Cambridge. 564 pp.
- MONSERRAT, V., AND FREITAS, S. 2005. Contribución al conocimiento de los crisopídeos de Coquimbo, Patagonia y Tierra del Fuego (Argentina y Chile) (Insecta, Neuroptera, Chrysopidae). Graellsia 61: 163-169.
- NÚÑEZ, Z. E. 1989. Chrysopidae (Neuroptera) del Perú y sus especies más comunes. Rev. Peruana Entomol. 31: 69-75.
- NAVÁS, L. 1913. Les chrysopides (Ins. Névr.) du Musée de Londres. Ann. Soc. Sci. Bruxelles 37: 292-330.
- ORTEGA, E. S., AVILA, A. L., AND VEGGIANI AYBAR, C. A. 2012. Rasgos biológicos de *Chrysopodes* (Neuroptera: Chrysopidae) alimentados con huevos de *Bemisia tabaci* (Hemiptera: Aleyrodidae). Actas de XXIX Jornadas Científicas. Asociación de Biología de Tucumán. pp. 43-43
- PENNY, N. D. 1998. New Chrysopinae from Costa Rica (Neuroptera: Chrysopidae). J. Neuropt. 1: 55-78.
- PENNY, N. D. 2001. New species of Chrysopinae (Neuroptera: Chrysopidae) from Costa Rica, with selected taxonomic notes and a neotype designation. Entomol. News. 112: 1-14.
- PENNY, N. D. 2002. Family Chrysopidae. In N. D. Penny [ed.], A guide to the lacewings (Neuroptera) of Costa Rica. Proc. Calif. Acad. Sci. 53: 161-457.
- TAUBER, C. A. 2003. Generic characteristics of *Chrysopodes* (Neuroptera: Chrysopidae), with new larval descriptions and a review of species from the United States and Canada. Ann. Entomol. Soc. Am. 96: 472-490 doi:10.1603/0013-8746(2003)096[0472:GCOCNC]2.0.CO;2
- TAUBER, C. A. 2010. Revision of *Neosuarius*, a subgenus of *Chrysopodes* (Neuroptera, Chrysopidae). ZooKeys 44: 1-104 doi:10.3897/zookeys.44.387
- TAUBER, C. A., AND FLINT, O. S. JR. 2010. Resolution of some taxonomic and nomenclatural issues in a recent revision of *Ceraeochrysa* (Neuroptera: Chrysopidae). Zootaxa 2565: 55-67 [Errata: 2572: 68] http://www.Mapress.com/zootaxa/2010/zt02565p067.pdf
- TAUBER, C. A., MANTOANELLI, E., ALBUQUERQUE, G. S., REGUILÓN, C., GONZÁLEZ OLAZO, E., AND TAUBER, M. J. 2011. A taxonomically significant polymorphism in *Leucochrysa* (Neuroptera: Chrysopidae): nomenclature, larval and adult descriptions, and biological notes. Zootaxa 3130: 1-29 http://www.mapress.com/zootaxa/2011/zt03130p029.pdf
- TAUBER, V. A., ALBUQUERQUE, G. S., AND TAUBER, M. J. 2012. Three new Brazilian species of *Chrysopodes* (Neuroptera: Chrysopidae). Ann. Entomol. Soc. Am. 105: 638-663.