

On the distribution in Italy of the Nearctic hopper *Acanalonia conica*, with ecological notes

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Abstract

Further findings of the Nearctic hopper *Acanalonia conica* (Say) (Fulgoromorpha Acanaloniidae) in Lombardy and Veneto (N Italy) in the years 2004-2007 are reported. These records update our knowledge on the distribution of this hopper in Italy and they possibly indicate its progression towards the West in the northern Italian regions. Bio-ecological traits of *A. conica* are also summarized and some characteristics of its habitat are outlined.

Key words: Acanaloniid hopper, accidental introduction, passive dispersion, N Italy.

The rise in international commercial trading, particularly in the last few decades, has led to an ever-increasing rate of the accidental introduction of phytophagous insect pests into new countries. Italy, as an important trading crossroads, is very concerned about this phenomenon, which shows no sign of abating (Pellizzari and Vacante, 2005). The Acanaloniid hopper *Acanalonia conica* (Say) (figure 1), previously unknown in Europe but recently recorded in our country, is one of the many phytophagous insects which can be named as examples of such "zoogeographic pollution". This hopper was recorded first in Veneto, along the River Brenta in the province of Padua (D'Urso and Uliana, 2004; 2006), then in two places in Lombardy, in the province of Pavia (Nicoli Aldini *et al.*, 2006). This limited data, together with some other previously unpublished data, enable us to define, as far as we know, the current distribution of *A. conica* in Italy; the presence of this insect seems till now limited to the central and eastern part of northern Italy (Lombardy and Veneto).

A. conica is a Nearctic species, present in North America in an area extending from Connecticut southwards to Florida and westwards to Nebraska and Texas. It lives and feeds on a wide range of the herbaceous, shrubby and arboreal plants of several families (Liliaceae, Rosaceae, Vitaceae, Ulmaceae, Juglandaceae, Labiatae, Chenopodiaceae, Oleaceae, etc.), and lays eggs singly, inserting them by ovipositor in the woody tissues of various plants, among which grape and elm. This species is known to be univoltine, with eggs overwintering. Nymphs are subspherical in shape and brown in colour (Wilson and McPherson, 1981; Wilson and Lucchi, 2000; 2001). Adults start to emerge in June and can be found until early September; they are rather showy, being bright light green in colour and measuring approx. 10 mm in length; the venation of the forewings is rich; hind wings are whitish, semitransparent. The conical vertex of the head, projecting in front of the eyes, as well as some morphological details of the male and female terminalia, are distinctive for this species in comparison with congeneric species (Freund and Wilson,



Figure 1. *A. conica* on nettle stem.

1995). Adult shape and posture on stems and twigs closely recall those of *Metcalfa pruinosa* (Say) (Flatidae), but in comparison *A. conica* is slightly larger in size, not so stumpy and with wider wings in proportion. The colouring is completely different in these two species.

The classification of this hopper is not univocally established, as in the past it was referred to the subfamily Acanaloniinae of the family Issidae; this subfamily was recently considered as a separate family (Acanaloniidae). It can easily be distinguished from Flatidae because the forewings lack parallel crossveins near the costal margin, and also by the absence of "granules" at their base (D'Urso and Uliana, 2006).

Various biological characteristics of *A. conica* (such as its marked polyphagy, the abundant production of wax by juvenile forms, as well as of honeydew by the latter and adults, its endophytic oviposition in plants of agricultural (such as, for instance, the grape) or ornamental interest, and some favourable biotic factors typical for species introduced into eco-climatically suited lands far from the region of origin (such as the presumable absence of specific parasitoids, and so on) make its presence in Italy rather worrying; it is likely that this

insect will gradually spread, following the network of canals and other waterways in the Po valley, along the margin of seminatural environments which exist widely in the plain of the Po. It may be a pest for some crops such as grapes, similar to the past and to some extent present threat from *M. pruinosa* (Wilson and Lucchi, 2000; 2001; Alma, 2005; D'Urso and Uliana, 2006), even though population densities of *A. conica* in its regions of origin are much lower than those of the Flatid; this same tendency has been observed till now in Italy.

As regards Veneto, besides the first finding in 2003 at Rosara di Codevigo, near the River Brenta in the province of Padua (D'Urso and Uliana, 2004; 2006), we know of one further station for this species, in the province of Verona: Rivoli Veronese, where 7 males and 11 females were collected between 25 July and 4 August 2005; all were found on a hedge of brambles (*Rubus* sp.) and dogwood (*Cornus sanguinea* L.) between a vineyard and a broadleaf wood.

As regards Lombardy, we can now record one locality in the province of Como: Figino Serenza, where 5 males and 9 females of *A. conica* were collected between 2 and 6 August 2004 on hop plants (*Humulus lupulus* L.) located between a corn-field and a broadleaf wood. Other already published findings from the same region were those made in the province of Pavia (Nicoli Aldini *et al.*, 2006), in the plain area of Cascina Speziana (San Zenone al Po, Pavia), at approximately 60 m above sea level, characterized by herbaceous crops such as rice- and corn-fields, and arboreal species such as poplar groves, together with uncultivated land and shrubs. There, this hopper was collected near the borders of a small isolated and recently established (4-5 year-old) vineyard, between an uncultivated area and a canal shaded by luxuriant vegetation comprising arboreal (oak, mulberry, elm, black alder), shrubby (dogwood, bramble) and herbaceous plants. All the plants form a continuous curtain bounded – beyond the canal – by dense brushwood followed by a poplar-grove. On July 24, 2006, during one hour of sampling 6 specimens (3 males, 3 females) of this species were found, both by beating and shaking the branches and leaves of elm (*Ulmus* sp.) and mulberry (*Morus* sp.) infested by *M. pruinosa* with an entomological net, and after seeing them on nettle stems (*Urtica dioica* L.) also infested by *Metcalfa*. The borders of the brushwood environment above described, warm and wet, with flourishing vegetation, represent a choice habitat for this species. Its association with *M. pruinosa* is also typical and frequent in the original north-American areas common to both species. *A. conica* was also collected in the Oltrepò Pavese: one female was found in July 2006 in a mixed family orchard on the outskirts of Voghera (Pavia) by Dr I. Pasquale, who also observed another dead specimen in September of the same year, at Voghera, in a spider web. In the same locality between 5 and 18 August 2007, he collected 3 females (one of which on a vine cutting). Research carried out in August-September 2006 and 2007 in some localities of the Lomellina area (Pavia) featuring suitable environments and abundant presence of *M. pruinosa* were instead unsuccessful. The distribution of *A. conica* in the province of Pavia seems

therefore to be discontinuous and limited up to now.

It is possible that all the findings from Veneto and Lombardy originate from more than one centre of introduction rather than by means of dispersal from the Veneto plain only, given that we have no evidence for any presence in the areas between the recorded stations, which are quite far from each other.

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