

Introduction

The Neuropterida is a small superorder of holometabolous insects that contains ca. 6,500 extant species and is distributed worldwide. In Italy, neuropterid insects are relatively well investigated. The Italian name for the Neuropterida – lacewings (in a broad sense) is neurotteri (for the Italian names of neuropterid orders and families see Letardi 2005).

Neuropterida of Italy

The Italian fauna contains a substantial fraction of the total Neuropterida biodiversity of Europe and the western Palaearctic. The number of species found in Italy is similar to that of the Iberian and Balkan peninsulas, the two other major peninsular areas of southern Europe. Italy, however, contains a lower percentage of endemic species than the Iberian and Balkan peninsulas, which contain, respectively, distinct endemic faunas of Dilaridae and Raphidiidae (among other endemics). The high biodiversity of Italy (195 extant species) relative to many other European countries is attributable to its southern location on the continent, together with its varied climate, topography, and vegetation, all of which promote elevated species richness.



Figure 1. Regions of Italy.

Letardi (1998) contains a general discussion of the zoogeography of Italian Neuropterida. The fauna of Italy can be subdivided into four groups of species based upon their generalized distributions: Afrotropical (few species), Mediterranean, European (or South European), and 'widely distributed' (e.g., Holarctic, Palaearctic, Sibero-European, or Euro-Mediterranean). The overall European Neuropterida fauna (with the exception of the Sialidae) shows a clear increase in biodiversity from north to south. However, the fauna of Italy exhibits only a slight biodiversity increase over the north-south gradient, which is probably due to the overall southerly location of the Italian peninsula on the continent. The biodiversity of neuropterid species is quite similar across most of the administrative regions of Italy, although the island faunas of Sicily and Sardinia are notably more depauperate.

This work provides interactive access to lists of the Neuropterida species that are presently known to occur in Italy, and in each of its 20 administrative regions (Figure 1; Table 1). Also included are related data on the nativity and extra-Italian distributions of these species.

History of the Study of Italian Neuropterida

The following review draws heavily on the work of Letardi (1998) and Nicoli Aldini (2005). The oldest evidence of neuropterous insects in the scientific literature published in Italian dates back to at least the 15th or 16th century and regards antlions.

Table 1. Regions of Italy.

Italian Name	English Name	Abbreviation
Abruzzo	Abruzzo	ABR
Basilicata	Basilicata	BAS
Calabria	Calabria	CAL
Campania	Campania	CAM
Emilia-Romagna	Emilia-Romagna	EMI
Friuli-Venezia Giulia	Friuli-Venezia Giulia	FRI

and green lacewings are present in the substantial corpus of watercolour images of insects built up during the 16th century by the great naturalist from Bologna, Ulisse Aldrovandi (1522-1605), which were later reproduced in his work *De animalibus insectis* (1602). His illustrations of adult antlions, and a green lacewing, are among the earliest to be

Liguria	Liguria	LIG
Lombardia	Lombardy	LOM
Marche	Marche	MAR
Molise	Molise	MOL
Piemonte	Piedmont	PIE
Puglia	Apulia	PUG
Sardegna	Sardinia	SAR
Sicilia	Sicily	SIC
Toscana	Tuscany	TOS
Trentino-Alto Adige	Trentino-South Tyrol	TRE
Umbria	Umbria	UMB
Valle d'Aosta	Aosta Valley	VAL
Veneto	Veneto	VEN

found in printed works. Between the 16th and the early 18th centuries, other Italian authors mentioned or dealt with lacewings, particularly the outstanding scientist from Reggio, Antonio Vallisneri (1661-1730), who published bionomical and behavioural observations on antlions and green lacewings; he was the first to publish the life cycle of an antlion and to describe and illustrate the stalked eggs of green lacewings. The first published, well-located, records of Italian Neuropterida are found in Allioni's (1766) work *Manipolus Insectorum Tauriniensis*, in which two lacewings (most likely *Chrysoperla* sp. and *Chrysopa perla* (Linnaeus)) are cited as having been collected in the vicinity of Turin in northern Italy. Allioni also collected the ascalaphids from which Fabricius later described *Libelloides latinus* (as *Ascalaphus italicus*). In 1774, Ginanni recorded *Euroleon nostras* (Fourcroy) in pine woods around Ravenna, on the northern Adriatic coast. Finally, in the last decade of the century, the studies of Domenico Cirillo and Vincenzo Petagna in southern Italy and of Pietro Rossi in central and northern Italy, increased the size of the known neuropterid fauna to a couple of dozen species. Pietro Rossi, who became the first University Professor of Entomology in the world, described in his works (1790, 1792) two new species, *Hemerobius italicus* and *Myrmeleon flavicornis* (now *Italochrysa italica* and *Megistopus flavicornis*), with their type localities ("locus typicus") in two Italian cities (Florence and Pisa, respectively). Rossi was also the first worker to record from Italy species now placed in the orders Megaloptera and Raphidioptera.

During the 19th century, the number of studies on Italian Neuropterida greatly increased. In addition to contributions from several renowned German-speaking neuropterologists (such as W. G. Schneider, H. A. Hagen, and J. H. Albarda), there were a good number of keen local entomologists, some highly skilled, engaged in collecting and studying these insects. Among them, Achille Costa stands out. Together with his father, Oronzio Gabriele, and his brother, Giuseppe, Achille studied large areas of central and southern Italy, describing several new species, some of them still valid at the specific and generic levels. With the works of A. Costa (1855, 1858, 1863), C. Tacchetti (1861), and a variety of foreign entomologists, the second half of the century saw the number of known Italian Neuropterida rise to 60 species.

During the first half of the 20th century, L. Navás, the most prolific author on the Neuropterida to date, made significant contributions to the knowledge of the Italian fauna—although he also contributed to significant faunal and taxonomic disorder by describing many new species that are today considered synonyms or *nomina dubia*. In the middle of the century, Italian neuropterology was dominated by the works of Maria Matilde Principi (1952, 1956, 1958, 1960, 1961, 1966), an early-adopter and promoter of the practical use of lacewings as biological pest control agents (she was one of the first Italian researchers to promote this practice among local agronomists). Principe and R. A. Pantaleoni, one of her students, are co-authors of the most recent printed checklist of the neuropterid fauna of Italy (Bernardi Iori et al. 1995), which is still one of the basic reference resources for taxonomic and faunistic studies in Italy, together with the broader European faunal work of Aspöck et al. (1980) and the contemporaneous work of Monserrat (1980). The review by Aspöck and Hölzel (1996) of the Neuropterida of the Mediterranean area also remains very useful, particularly for understanding of the relationships of the Italian fauna to the broader fauna of the western Palearctic region.

Faunistic work on the Neuropterida of Italy increased significantly in the last two decades of the 20th century, with several Italian authors being responsible for the publication of a large number of papers since 1979. These works include: Badano 2006, 2008, 2010; Badano et al. 2010, 2014; Insom et al. 1979, 1985, 1986a [BotN ref#3081], 1986b [BotN ref#3082], 2012; Letardi 1991, 1994, 1998, 2000, 2001, 2002, 2003, 2004, 2005, 2007, 2009, 2014, 2015; Letardi et al. 1996, 2000, 2001, 2002, 2005, 2006, 2007, 2008, 2010, 2015; Nicoli Aldini 1979, 1983, 1993, 1994, 1998, 2005, 2007; Nicoli Aldini et al. 2001, 2012, 2014; Pantaleoni 1982, 1984, 1986, 1988, 1990, 1994; Pantaleoni et al. 1985, 1990, 1993, 1994, 1995, 1997, 1998, 2004, 2010,

2012, 2013.

Methods

The data for this module of the World Neuropterida Faunas suite has been derived primarily from the Italian web resource *Neuropterida presenti sul territorio italiano* (Letardi 2016), which provides baseline faunal data for the country and regions of Italy, and access to a wide variety of related fauna-related information. In the current Neuropterida of Italy presentation, all faunal lists are interactively generated based upon user-selected options for five fauna-definition parameters. The parameter options selected are used to generate lists of consistent and parallel format from an underlying set of distribution data. Each faunal list presents the following information for each listed taxon: (1) higher classification [order and family], (2) current name [species or subspecies], (3) presumed nativity to list area, (4) broader geographic distribution, (5) temporal occurrence, (6) lithostratigraphy [for fossils, where available], and (7) taxonomic status. List taxonomy and nomenclature follow the Neuropterida Species of the World catalogue (Oswald 2015).

Adult lacewings were collected using an insect net, malaise trap, sticky trap, or were collected by hand near a light source. Antlion larvae were excavated from their pits using a spoon or a sieve. Insects were preserved either in ethanol or dry (pinned or pointed) and most are deposited in the author's collection in Rome.