Interpretation of Achille Costa’s data on Neuropterida

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Abstract

Achille Costa was one of the very few Italian entomologists to study Neuropterida in the XIX century. His data were of fundamental importance for knowledge of this group of insects in southern Italy and the Italian islands. Unfortunately, his publications are not well known and his collection remained inaccessible for a long time. I was lucky enough to have the opportunity to study the collection, which allowed me to interpret, as far as was possible, all the data Achille Costa published on Neuropterida. I was able to use three sources: his works, his collection and the publications of Navás (who had been given the Neuropterida from Achille Costa’s collection to examine at the beginning of the last century). The present work presents a main list showing all the European species in the collection seen either by myself or Navás. Two minor lists contain the “dubious” reports of Achille Costa and a list of non-European species reported by Costa or Navás and the very few still in the collection. Finally, some details are given about the present state of the Achille Costa Collection and the toponymy Costa used, as well as an updated list of his publications on Neuropterida.

Key words: Raphidioptera, Megaloptera, Planipennia, Italian entomologists, entomological collections.

Introduction

Achille Costa (Alessano [Lecce] 10 August 1823 - Rome 17 November 1898) was the zoologist who made the greatest contribution to entomological exploration of southern Italy and the Italian islands in the second half of the XIX century. Unfortunately, he died without leaving disciples to honour his work and preserve the valuable collection he had built up. His work did not get the recognition it deserved and his Collection was abandoned to the neglect of time. Up to now, many of his data have been interpreted with difficulty and only recently has his entomological material been recovered and become temporarily accessible.

Achille Costa was one of the few Italian entomologists to study Neuropterida. He devoted a volume of the Fauna del Regno di Napoli (A. Costa, 1860-70) to this taxonomic group and wrote some important papers on these insects which he had collected in Calabria, particularly Aspromonte (A. Costa, 1863) and Sila (A. Costa, 1881), and Sardinia (A. Costa, 1882a, 1883, 1884b, c, 1885a, 1886b).

Despite a study of Achille Costa’s collection by the Jesuit priest Father Longinos Navás (1910, 1913), however, his neuropterological work remains largely misunderstood. Personally, it is only recently that I have had the good fortune to be able to study his Neuropterida and fix the types of species he described (Pantaleoni, 1999).

The data on Neuropterida published by Achille Costa can now be reinterpreted with reasonable certainty on the basis of an examination of the Collection, the original bibliographical references and the above mentioned work by Navás.

Materials and methods

I used three sources to interpret Achille Costa’s published data on Neuropterida: his papers, his Collection, and Navás’s publications (1910, 1913). These three series of data were examined together in order to compare the information they contained: locality, dates, inventory numbers.

The genitalia of specimens in the Collection were cleared, and preserved in glycerine, only when it was absolutely necessary.

I found that Achille Costa was extremely accurate in identifying the species. In other words, when he recognised a taxon he no longer mistook it for others. Consequently, I decided it was possible to group together all his reports of a certain species even if they had not been confirmed by data from the Collection and Navás’s publications.

An analysis of Navás’s data allowed me to identify specimens seen by him that were not present in the Collection and, at the same time, to correct his determinations.

This work produced a main list showing all the European species in the Collection seen either by myself or Navás. Two minor lists contain the “dubious” reports of A. Costa and respectively a list of non-European species reported by Costa or Navás and the very few still in the Collection.

The species in the first list are arranged and interpreted according to Aspöck et al. (2001) apart from a very small number of cases for which more recent data are available or about which I have a different opinion.

For each species, all the reports published by A. Costa are given, indicating (when available):
These data were recorded as faithfully as possible, taking them from Achille Costa’s lists and descriptions. However, I have made much use of square brackets [ ] to add other information from other parts of the same works. For each species, after the bibliographical information, data on the material in the Collection are given. The labels of each specimen have been faithfully transcribed (not using italics for scientific names) from the highest to the lowest separating them from each other by a “/”. All specimens in the Collection were pinned singly. Only those specimens that were labelled exactly the same were grouped together in the list. Whenever possible, I have indicated sex, otherwise (for instance due to lack of the apex of the abdomen) I have used the notations “ex” “exx” (exemplar/s). Indications of sex or “ex” do not give any information about the state of preservation. When it is really bad, particularly because of carpet beetle attacks, I have used the notation “remains”. When only the pin and label are left, I have used “pin”. Within the list of specimens in the Collection I have tried to provide material for a comparison with Navás’s work (1913). When the information on the labels corresponds with his published data, I have added [N] in my list. If differences exist in the data I have put the different or additional information found in Navás (1913) after the “N”. Finally, for specimens reported by Navás but not found in the Collection I have given Navás’s complete data in square brackets.

Results and discussion

Bibliography

A study of Achille Costa’s bibliographical references required a great effort and some years of research. A complete list of his works does not exist so this part of my research was extremely difficult and complex. However, I believe there is now little chance that anything has been overlooked.

Achille Costa Collection

The Achille Costa entomological Collection, kept in the Museo Zoologico dell’Università di Napoli Federico II, is made up of about 20,000 specimens from all over the world, but mainly from southern Italy and Sardinia. It is in three parts: the non-European collection, the European collection, the southern Italy and Italian islands collection (earlier of the Kingdom of Naples, to which Sardinia was later added) (Maio et al., 1995).

After the death of its creator, the Achille Costa entomological Collection was not given the due it deserved. Despite its importance, it has not been easily accessible to researchers (and this is true for part of it today) and it was neglected and not catalogued. Only recently have some restorative measures been undertaken. This situation was certainly influenced by the total absence of entomologists on the research staff at the beginning of the twentieth century and the disastrous circumstances of the Institute and Museum immediately after the war (the entomological Collection miraculously survived the bombing) (Maio et al., 1995).

The Neuropterida suffered perhaps a worse fate than the other groups. The Catalan Jesuit priest Longinos Navás (1858-1938) obtained the entire collection from the helminthologist Francesco Saverio Monticelli, then curator of the Museum, to study. Evidently the Neuropterida were taken out of their original boxes and crammed into a few boxes for shipment. Thus Costa’s original arrangement was irremediably lost besides the subdivision into collections of different geographical origin. Navás (1910, 1913) produced two works: the first was a monograph on Dilar parthenopaeus and the second was a study of the Collection. We leave others to judge the quality, accuracy and usefulness of the latter.

The Collection was then inaccessible for a long time, particularly the Neuropterida that could only be seen on a few occasions by Maria Matilde Principi, who studied some types (Pantaleoni, 1999).

The Neuropterida of Achille Costa’s Collection had been stored in ten small-sized (about 20x30 cm) entomological boxes bearing the following inscriptions:

1. 317 [The number on the first five boxes is probably a code]
2. 318 – Neuroteri Planipenni di tutte le collezioni, studiati da Navás, e di cui sono state fatte le schede. Sono coperti di muffa per la lunga dimora nella stanza di Costa
3. 331 – Nevrteri – Museo Zoologico – Collezione Entomologica Italia meridionale – Ascalaphus Theleproctophylla
4. 598 – Neuroteri Planipenni di tutte le collezioni, studiati da Navás, e di cui sono state fatte le schede. Sono coperti di muffa per la lunga dimora nella stanza di Costa
5. 607 – Neuroteri Planipenni di tutte le collezioni, studiati da Navás, e di cui sono state fatte le schede. Sono coperti di muffa per la lunga dimora nella stanza di Costa
7. [number illegible] Raphidia Inocellia
8. [red label without inscriptions]
9. [no label; red box unlike the others which are dark]
10. [no label; containing most of Navás’s material]

The labels on boxes 2, 4 and 5 are interesting. The translation is: Neuroptera Planipennia of all the collections, studied by Navás, and of which the index cards have been made. They are covered in mould because of the long time they had been in Costa’s room.

Among the specimens of Achille Costa there were also some specimens donated by Navás to the Zoological Museum of Naples. Due to the bad conditions of the original boxes, the Collection, subdivided into families, was recently organised into seven large (about 40x30 cm) entomological boxes with a glass cover: 1) Megaloptera, Raphidioptera; 2) Coniopterygidae, Osmyliidae, Nevrthriidae, Syririidae, Berothidae, Mantispidae, Dilaridae; 3) Hem-
erobiidae; 4) Chrysopidae; 5) Myrmeleontidae I; 6) Myrmeleontidae II; 7) Ascalaphidae.

The specimens donated by Navás were placed in an eighth box. The specimens were positioned in rows parallel to the largest side of the box. By following the indexing system used at the Zoological Museum of Naples, each specimen was identified in each box by row number and by a number that increased progressively from the left to the right along the row and from the top to the bottom of the box.

When I made my second visit in 1994 the remains of a collection of exotic insects that had been badly damaged by carpet beetles were shown in a small display cabinet with glass drawers. Among them were some Neuropterida (I remember one of the Ascalaphidae in particular) which had neither been studied nor restored.

Unfortunately, it was not possible to examine any documentation about the collection of Achille Costa (index cards, records, etc).

Achille Costa used both handwritten and printed labels. The latter were certainly used more frequently as time went on. The only printed label found on the older specimens (collected before the publication of the Fauna del Regno di Napoli) was: "Fauna Napoletana". Later collections bear printed labels giving the locality (for example: Capo Figari, Scandale, Vallombrosa) often followed by a number indicating the month (for instance: 4. [for April], 7. [for July]). Some of the specimens collected in Sardinia bore the label "Geofauna Sarda A. Costa 1882-1886". Labels (often present) with the inventory number (for example: M° Zool° n° 36293) were also printed.

Determination labels on specimens directly collected by Costa in southern Italy and the Italian islands were handwritten by him – examples of Costa’s handwriting have been published by Pantaleoni (1999). Determination labels of material from other parts of Europe or Northern Italy are often handwritten but not by Costa.

The determination labels written by Navás are all the same except for those on Dilarg parthenopaeus (which he had previously studied). The Jesuit’s label is not always the lower one on the pin. The original labels were evidently removed to be copied and then put back in any order. This may have brought about some confusion. In the Collection there is at least one specimen with labels of two different places (see Italochrysa italica).

Toponymy

The mention of places in Costa, in his publications and particularly on the labels, is extremely brief, sometimes non-specific. Some further information is required in order to interpret the data.

We must remember that the Kingdom of Naples lasted until 1860 so all placenames of an administrative nature prior to that date refer to the boundaries and subdivisions of the regions of that kingdom (figure 1A).

Some placenames that are otherwise difficult to understand become clear by looking at the old borders. For example, the reason why the present regions of Abruzzo and Calabria were once known under a plural name: Abruzzi, Calabrie. They were divided into citeriore (hither) regions and ulteriore (farther) regions, in turn divided into ultra II and ultra I. Even Puglia (Apulia), although less frequently, became the Puglie because it was divided into three provinces. It must also be remembered that the Terra d’Otranto, in Apulia, included more or less the present provinces of Taranto, Brindisi and Lecce.

It is more difficult to interpret correctly the place-names Napoli (Naples) and Napoletano (Neapolitan). Napoli could indicate either the city only or the entire province (slightly smaller during the reign of the Bourbons but not much different from the present one). Napoletano could also mean the province but could indicate the area which is now the region of Campania, and which included in the Kingdom: Napoli, Terra di Lavoro and the hither and father Principato.

Another consideration to be taken into account is that in Costa’s day practically only dialects were spoken in the southern regions of Italy. Some small places are indicated by Costa as simple (and perhaps not always correct) transcriptions of local names that were not yet codified and established by the impressive cartographic enterprise of the Kingdom of Italy after unification. For example, the “Madonna di Popsis” on Aspromonte near San Luca is now the Poli Shrine, and Galagone, near Oliena in Sardinia, is now the Su Gologone spring.

The Italian Neuropterida in Achille Costa’s Collection are mostly from areas of the present day regions of Campania, Calabria and Sardinia. A few were collected in other regions that were part of the Kingdom of Naples (but not in Molise) and in regions of northern Italy.

Northern Italy

The material can be subdivided into three lots: i) some specimens obtained from Rondani (Camillo Rondani, Parma 1808-1879, a high school teacher and dipterologist) collected in Parma (Emilia); ii) a larger group of Neuropterida from Piedmont (NW Italy) [labelled Alpi marittime (Maritime Alps), Piemonte (Piedmont), Torino (Turin), but very likely also Alpi (Alps) and Italia settentrionale (northern Italy)], probably obtained from Vittore Ghiliani (Pinerolo (Turin) 1812 – Turin 1878, Assistant at the Zoological Museum, Turin) whose name appears on some labels, and from Antonio Garbiglotti (Biella 1807 – Turin 1887, a physician and hemipterologist); iii) a small but interesting lot of Neuropterida from Vallombrosa (near Florence) on the Tuscan-Emilia Apennines, home from 1869 to 1914 of the Royal Institute of Forestry (now a detached section of the Faculty of Agricultural and Forestry Sciences of the University of Florence) which Achille Costa probably visited between 1886 and 1893.

Abruzzo, Apulia, Basilicata and Sicily

Achille Costa visited Abruzzo several times, particularly Maiella (or Majella) and the Gran Sasso of Italy (see for example A. Costa, 1846: 91; 1881: 2). However, he published only a few reports on this region (among them some types) labelled generically Abruzzo and Gran Sasso.
The number of specimens from the other three regions is very small. For Basilicata, which he probably visited in his old age, we find two classic entomological places in the province of Potenza: Monticchio [Bagni] near Monte Vulture and [Castel] Lagopesole near Avigliano. For Apulia, where Achille Costa came from and which he must have visited regularly (see for example A. Costa 1885a: 2 footnote), we have a specimen from Cerignola (Foggia) and very few from “Terra d’Otranto” (Lecce, Leuca). Probably this is due to the presence of his brother Giuseppe at Lecce. He was the author of “Fauna Salentina” (G. Costa, 1874) and Achille would not have wanted to interfere in his brother’s activity. For Sicily we have only two specimens, from Palermo and Girgenti (now Agrigento). In this case also, Achille Costa would have preferred not to engage in studies already undertaken by others (Minà Palumbo, 1858, 1871; Hagen, 1860) – and who knows what he might have done if he had known Schneider’s work (1845)! – although Costa had visited Sicily in both his youth (the first time in 1839 at 16 years old) and old age (in 1887, 48 years later) (A. Costa, 1884f: 1).

C a m p a n i a  (figure 1B)

In “Fauna del Regno di Napoli” (1860-1870) Achille Costa used the name Napoli (Naples) in its strict sense (city), explaining any references to the surrounding area (neighbourhoods, nearby areas, neighbouring hills). In contrast, only the word Napoli is found on the labels. On the other hand, the term Napoletano was used only in one of the lists of material of the Museum (A. Costa, 1871b) in an absolutely non-specific way with very little significance.

As regards the area immediately north of Naples, Achille Costa mentions only the Camaldoli hill in his “Fauna”. This is one of the highest hills in the Campi Flegrei (now in Pozzuoli commune) and a Camaldoli shrine is situated on it. On the labels (and in A. Costa, 1862b) two other places in the Campi Flegrei are also named, la Solfatara and Monte Nuovo (not Montenuovo near Orgosolo in Sardinia) a mountain of volcanic origin, which appeared in 1538 (Rodolico, 1963:29).

South of the capital, the “Fauna” mentions the area around Vesuvius (called “outskirts of Vesuvius”). Of this area, Achille Costa specifically mentions Torre del Greco, but on the labels we find also “Camaldoli d. Torre”, indicating another Camaldoli shrine, not to be confused with the previous one. For the province of Naples, Achille Costa provides some data on the island of Ischia.

The interpretation of many placenames in provinces near Naples is not a problem, thanks also to information supplied directly by A. Costa (1864b, c). These include Cancelllo (San Felice a Cancelllo commune) in the present day province of Caserta; Monte Vergine (Mergogliano) in Monte Partenio in the province of Avellino; Persano (Serre) and Puglietta (Campagna) both in the Valle del Sele in the province of Salerno; Baseline and, in Monte Taburno, Vitulano, in the province of Benevento; finally, the Matese mountain range (on the border between Campania and Molise).

Less precise is the name “M. di Cava”, by which Achille Costa certainly meant a mountain near Cava dei Tirreni (Salerno), probably the Forcella di Cava north of the town (now inside the Diecimare Regional Park). Otherwise, but this is unlikely, it could be Monte Finestra to the southwest. Finally, it can only be hypothesised that the label “Avezzano” on three specimens (in any case banal species) refers to a town in the commune of Sessa Aurunca (Caserta) rather than Avezzano of Abruzzo (L’Aquila).

Data published by Navás (1913) contain the name Albarno which must refer to the “moni dell’Alburno” (Monti Alburni) in the province of Salerno that were visited by Achille Costa (1874).

C a l a b r i a  (figure 1C)

For Calabria we have a detailed description of Achille Costa’s trips (1863, 1877a, 1881) so the interpretation of the placenames in the region is easy. We will go from south to north.

Aspromonte was explored for almost two months during his 1859 trip. He left Reggio [Calabria], crossed the mountains in a NE direction reaching first the Polisi shrine (called Popsis) in the San Luca commune and then the village itself. From here, he went down to the south, going into the territory of the coastal hills of Capo Spartivento where he explored the area around Brancalone, Bruzzano [Zefirio], Palizzi and Statti. Finally, along the coast to the west, he returned to Reggio [Calabria], having remained the whole time in the province.

He visited the Serre mountains during the last stage of his 1876 trip. Findings of Neuropterida came only from the Serra [S. Bruno] woods in the direction of Mongiana (Vibo Valentia).

He also went to the Sile in 1876 (he had previously made a brief stop there in June 1859 and April 1876). Achille Costa reports Neuropterida in only one place in Sila Grande: Camigliati near Camigliatello Silano (Spezzano della Sila, Costenza) and one place in Sila Piccola: Taverna (Catanzaro). He did not visit Sila Greca. He spent a lot of time also in the hills and plain to the east of the Sile (an area corresponding roughly to the present day province of Crotone) where he captured Neuropterida in Carfizzi, Cirò, Santa Severina and Scandale. Finally, he explored the Amato hills to the south of Sila Piccola and mentions collections of Mi- glierina and Tiriolo.

On the basis of an unpublished manuscript in Naples, Salfi (1963) says Achille Costa visited Pollino in 1892. The Collection still contains some Neuropterida captured in the two most important places on the Calabrian side of the massif: Castrovillari and Mormanno (Costenza).

S a r d i n i a  (figure 1D)

All places in Sardinia are easily identifiable and have been identified. In any case, besides the original reports (A. Costa, 1882a, b, 1883c, d, 1996 a, b) we have Crovetti’s work on these trips (1970) with a map of Sar- dinia showing all the places Achille Costa went to.

In NW Sardinia (Sassari) we find the well-known
places of Alghero, Sassari, Ploaghe, Porto Torres and the island of Asinara with the neighbouring Isola Piana. Scala di Giocca is an escarpment linking the city of Sassari to the valley of the Rio Mascari.

In NE Sardinia (still in the province of Sassari) Achille Costa mentions Neuroptera in Capo Figari (Golfo Aranci) and Terranova, which is now Olbia.

Continuing along the east coast of Sardinia, he mentions Posada, Siniscola and a spring on the nearby Monte Albo in the province of Nuoro, then Muravera, near the mouth of the Flumendosa, further south in the province of Cagliari.

Most of the reports, however, refer to the Gennargentu massif and surrounding area (province of Nuoro). North of the massif, in the Nuoro hills, we have Orani and Galagone, now called Su Gologone (Oliena); to the south, in the Sarcidano hills, Laconi. [Arcu] Correboi is the mountain pass dividing the communes of Fonni and Villagrande Strisaili and therefore western and eastern Gennargentu. Fonni, Desulo and Aritzo are found on the western and the Supramonte of Orgosolo with Montenuovo (today Monte Novo San Giovanni) on the eastern Gennargentu.

For the province of Oristano only Milis, on the lower course of the Tirso, is mentioned. The town of Carloforte on the island of San Pietro (SW Sardinia) is in the province of Cagliari. Besides the city of Cagliari, Achille Costa reports Neuroptera from Molentargius, a brackish pool [now in the city] between Cagliari and Quartu S. Elena.

Figure 1. A) Ancient provinces of the Kingdom of Naples excluding Sicily. B) Campania, C) Calabria, D) Sardinia: present day provinces (names of the capitals of the “new” provinces: light emphasis) and places (bold) mentioned in this paper.
List of European species

**Raphidiidae**

*Phaeostigma notata* (Fabricius, 1781)

1♀ – M° Zool. n° 43317 \ Raphidia affinis, Schd. Wallis

*Subilla confinis* (Stephens, 1836)

[Rh]aphidia colubroides: Calabrie (1855e: 5 and 8, tav. XII, fig. 4); [Rhipidia] colubroides, A. Cost.: Calabrie 1 ex (1871b: 15, n. 194)


See Pantaleoni (1999).

*Ornatoraphidia flaviglabris* (A. Costa, 1855)

[Rhaphidia ophiopsis] var. flaviglabris: Monte Vergine (luglio) (1855e: 4 and 8, tav. XII, fig. 2B); Raphidia ophiopsis, Schum. var. flaviglabris: [Monti Partenii luglio 1854] (1858: 10 and 17); [Raphidia ophiopsis] var. pallipes, A. Cost.: M.[onte] Vergine 1 ex (1871b: 15, n. 192)


See Pantaleoni (1999).

*Xanthostigma xanthostigma* (Schummel, 1832)

1♀ – M° Zool. n° 45167 \ Raphidia xanthostigma Schum. Navás S.J. det \ Raphidia xanthostigma, Schum. Germania [N]

*Xanthostigma aloysiana* (A. Costa, 1855)

*Raphidia Aloysiana*: Abruzzi (1855e: 4 and 8, tav. XII, fig. 3, 3A and 3B); [Raphidia] Aloysiana, A. Cost.: Abruzzi 1 ex (1871b: 15, n. 193)

1♀ – aloysiana \ Raphidia aloysiana Costa Navás S.J. det \ Agulla Aloysiana Costa (Principi det.) \ Lectotypus Raphidia aloysiana A. Costa, 1855 Pantaleoni des. 1994 [N]

See Pantaleoni (1999).

*Raphidia mediterranea* H. Aspöck, U. Aspöck and Rausch, 1977

*Raphidia ophiopsis*: adiacenze di Napoli (1855e: 3 and 8, tav. XII, fig. 2 and 2A); Raphidia ophiopsis, Deg.: Napoletano 2 exx (1871b: 15, n. 191)

1♀ – Fauna Napoletana \ Raphidia ophiopsis L. Navás S.J. det \ Raphidia ophiopsis, s.l. [???] Camaldoli [N Lancaldoli]

remains – Raphidia ophiopsis L. Navás S.J. det

This species was known in Italy in some localities in Apulia (Aspöck H. et al., 1991; Güsten, 1998) and one locality in Lazio (Letardi and Pantaleoni, 1996). I have also seen a ♀ labelled “Roma - Nazzano V-1986 Leg. Perego G.” The specimen in Costa’s Collection is therefore the first for Campania.

The hypothesis that the distribution of *R. mediterranea* in Italy is confined to the Apulian coasts and is probably of allochthonous origin (Aspöck H. et al., 1991) is therefore much weakened.

**Inocelliidae**

*Fibla maclachlani* (Albarda, 1891)


remains – Cagliari. 4. \ M° Zool. n° 30530 \ ln. crassicornis

remains – Carlo Forte

Strangely, Achille Costa did not recognise this species which is remarkably distinct from *Parainocellia bicolor*.

The date given for Carloforte is when Dr Gaetano Costa-Ramo gave him the specimen. The date of the Cagliari specimen (July 1883) provided by Costa is also evidently inaccurate. This specimen, according to the labels (date and code) was captured in April 1882. This date matches the flying period of *F. maclachlani* in nature, which, in my experience, does not extend beyond the month of May, particularly at sea level.
Parainocella bicolor (A. Costa, 1855)

Inocella crassicornis: adiacenze di Napoli [prima vera inoltrato fino a tutta la estate] (1855c: 7 and 8, tav. XII, fig. 5); [Inocella crassicornis] var. bicolor [adiacenze di Napoli] (1855c: 7 and 8); Inocella crassicornis: (1857: 19; 1877b: 29); Inocella crassicornis, Hart.: Napoletano 4 exx (1871b: 15, n. 195).

1♂ – Inocella crassicornis Schm. Navás S.J. det \ Fauna Napoletana \ Raphidia (Inocella) crassicornis, Schm. Napoli [N]
1♂ – Cancelli \ Inocella crassicornis Schm. Navás S.J. det
1♀ – \ Inocella crassicornis Schm. Navás S.J. det
See Pantaleoni (1999).

Sialidae

Sialis lutaria (Linnaeus, 1758)

Sembris lutaria, Lin.: Parma 2 exx [ex Rondani] (1864a: 97, n. 20)

1♀ – M.° Zool.° n.° 7813 \ Sialis lutaria Parma \ [preparation]

A species extraneous to the fauna of the Kingdom of Naples, not collected directly by Achille Costa.

Sialis sp.

1ex – M.° Zool.° n.° 42055 \ Sialis lutarius, Linn. Francia
1♂ – M.° Zool.° n.° 42045 \ Sialis fuliginosa, Francia

remains – [no label]

I did not believe it worthwhile to make a preparation of the ♂ and it thus remains unspecified. The remains without labels may belong to the second specimen from Parma from the Rondani collection (see above).

Nevrorthidae

Nevrorthus iridipennis A. Costa, 1863

Nevrorthus iridipennis, A. Cost.: valli di Aspromonte (1863: 33, 65 and 80, n. 651, tav. III \ IV in the text at pag. 80), fig. 7);
Nevrorthus iridipennis: valli dell’Aspromonte (1871a: 4, tav. XIII, fig. 4 [in the text]); Nevrorthus iridipennis, A. Cost.:
Calabria 1 ex (1871b: 14, n. 182)


See Pantaleoni (1999).

Osmylidae

Osmylus fulvicephalus (Scopoli, 1763)

Osmylus maculatus: Abruzzi, Calabrie, Sile (1855c: 3 and 21, tav. X, fig. 1); Osmylus maculatus, F.: valli dell’Aspromonte (1863: 64, n. 644); Osmylus maculatus, Fab.: monti calabri 2 exx (1871b: 14, n. 171)
[Osmylus maculatus] var. vittatus: [Abruzzi, Calabrie, Sile] (1855c: 3 and 21); [Osmylus maculatus] var. rarimacula: [Abruzzi, Calabrie, Sile] (1855c: 3 and 21, tav. X, fig. 1A); [Osmylus maculatus] var.: monti abruzzesi 2 exx (1871b: 14, n. 172)

1♀ – Osmylus maculatus Popais \ Osmylus fulvicephalus Scop. Navás S.J. det [N Poggio]
1♂ – Osmylus fulvicephalus Sc. Navás S.J. det
1♂ – Osmylus maculatus, var. Abr. \ Osmylus fulvicephalus Sc. Navás S.J. det \ Lectotypus Osmylus maculatus var. rarimacula A. Costa, 1855 Pantaleoni des. 1993 [N]
pin – Vallombrosa \ M.° Zool.° n.° 37365 \ Osmylus maculatus F. \ Osmylus fulvicephalus Scop. Navás S.J. det [N]

I agree with the hypothesis, which has not been demonstrated but is extremely likely, that the vittatus variety described by Achille Costa is a synonym of O. fulvicephalus, see Pantaleoni (1999).

Chrysopidae

Italochrysa italica (Rossi, 1790)

Hemerobius italicus: dipendenze del Vesuvio [state] (1855c: 18 and 21, Tav. XI, fig. 5); [Hemerobius italicus], Ross.: Napoletano 2 exx (1871b: 14, n. 188)

1♂ – Reggio \ Notochrysa italica Rossi Navás S.J. det [N]
1♂ – Castrovillari \ M.° Zool.° n.° 44703 \ Notochrysa italica Rossi Navás S.J. det \ Hemerobius italicus, Ros. Camald. di Torre [N]

The ♂ has labels of two localities, Castrovillari near Monte Pollino and Camaldoli di Torre, corresponding to Achille Costa’s reports (1855c) for Vesuvius and handwritten. This is evidently a mix-up, probably on the part of Navás (1913).

On the other hand, it is very strange that Achille Costa never mentioned the Reggio [Calabria] specimen (label written in his hand), probably collected during his exploration of Aspromonte in 1959.
Nineta pallida (Schneider, 1846)

Hemerobius erythrocephalus. Rmb.: boschi di Serra [in direzione di Mongiana 7 settembre 1876] (1881: 30 and 52)

1ex – Boschi di Serra \ Chrysopa pallida Schn. Navás S.J. det [N Hemerobius erythrocephalus]

Navás (1913) transcribes also the determination label, probably handwritten by Achille Costa, which, however, has been lost.

Chrysopa perla (Linnaeus, 1758)

Hemerobius chrysops: Monte Vergine [luglio] (1855c: 17 and 21, tav. XI, fig. 4); Hemerobius chrysoptus, Lin. (Chrysopa reticulata, Burm.): nelle vallate [Monti Partenii luglio 1854] (1858: 10 and 17); [Hemerobius] chrysops, Lin.: M.[onte] Vergine 4 exx (1871b: 14, n. 187)


remains – Chrysopa perla L. Navás S.J. det

remains – Chrysopa perla L. Navás S.J. det

1♂ – Vallombrosa \ M." Zool." n.° 37366 \ Chrysopa perla L. Navás S.J. det \ Chrysopa reticulata Evans [N]

1♀ – 15 junii 92 Alnus \ M." Zool." n.° 43583 \ Chrysopa perla L. Navás S.J. det \ Chrysopa ventralis, Ct. Germania [N]

A specimen with the label “Monte Vergine” reported by Navás (1913) has been lost. The three specimens with no labels could belong to the same series of four collected in the same locality (A. Costa, 1871b).

Chrysopa abbreviata Curtis, 1834

1♀ – M." Zool." n.° 43582 \ Chrysopa abbreviata Curt. Navás S.J. det \ Chrysopa dorsalis, Burm. Wallis [N]

1♂ – M." Zool." n.° 45185 \ Chrysopa abbreviata Curt. Navás S.J. det \ Chrysopa phyllochroma, Wsm. Germania [N]

Chrysopa formosa Brauer, 1850

Hemerobius Beckii: adiacenze di Napoli (1855c: 16 and 21, tav. XI, fig. 3, 3A); [Hemerobius] Beckii, A. Cost.: Napoletano 2 exx (1871b: 14, n. 186)

Chrysopa Beckii, A. Cost.: presso Scala di Giocca [23 agosto 1883] (1884d: 31)

1♀ – Fauna Napoletana \ Chrysopa formosa Brau. Navás S.J. det \ Hemerobius Beckii, A. Cos. Napoli \ Lectotypus

1♀ – Baseline \ Chrysopa formosa Brau. Navás S.J. det

1♀ – Scala di Giocca. B. \ M." Zool." n.° 32787 \ Geofauna Sarda A. Costa 1882-1886 \ Chrysopa formosa Brau. Navás S.J. det [N]

1♀ – Chrysopa formosa Brau. Navás S.J. det \ Chrysopa burmeisteri Sch. Castrovillari [N]

It is interesting to note that Achille Costa, who knew this species well, and had described it in 1855(c) as H. Beckii, named the Castrovillari specimen (probably collected in 1892) Chrysopa burmeisteri Schneider, 1851, tacitly accepting the synonymy Chr. burmeisteri = H. Beckii. See also Pantaleoni (1999).

Chrysopa pallens (Ramurb, 1838)

[Chrysopa] ...?: Presso Scala di Giocca [23 agosto 1883] (1884d: 31); Chrysopa septempunctata, Wsm. = Chrysopa ...? mem.a 3*: (1885a: 5)

1♀ – Scala di Giocca. B. \ M." Zool." n.° 32786 \ Geofauna Sarda A. Costa 1882-1886 \ Chrysopa 7-punctata Wesm Navás S.J. det [N]

1♀ – Napoli Praus \ Fauna Napoletana \ Chrysopa 7-punctata Wesm. Navás S.J. det [N]

1♀ – M. di Cava \ Chrysopa 7-punctata Wesm. Navás S.J. det [N]

Achille Costa did not recognise this species until the publication of the IV Memoria della Geo-fauna Sarda (1885a). The two Neapolitan specimens were certainly collected before the Sardinian ones.

The name Praus on the labels of the Naples female must refer to the malacologist Carlo Praus Franceschini (Maio et al., 1995).

Dichochrysa prasina (Burmeister, 1839)

Hemerobius Ramburii: Abruzzi (1855c: 14 and 21)

[Hemerobius] Ramburii, A. Cost.: Calabria 3 exx (1871b: 14, n. 184); [Hemerobius] Ramburi, A. Cost.: adiacenze di Santa Severina [24-26 e 29-31 luglio 1876] (1881: 52)

[Chrysopa] prasina, Ramb.: boschetto attiguo a Ploaghe [24 agosto 1883] (1884d: 19 and 31)

1♀ – Ch. prasina Burm. v. striata Nav. Navás S.J. det \ Hemerobius Ramburi, n. prasinus, Ramb. Abruzzi \ Lectotypus

1♀ – Chrysopa 7-punctata Wesm. Navás S.J. det

1♀ – Ch. prasina Burm. v. punctigera Sel. Navás S.J. det [N]

1♀ – Ch. prasina Burm. v. striata Nav. Navás S.J. det

1♀ – Ploaghe. B. \ M." Zool." n.° 32789 \ prasinus Rmb. \ Geofauna Sarda A. Costa 1882-1886 \ Ch. prasina Burm. v. adpersa Wesm. Navás S.J. det [N]

1♀ – Ploaghe. B. \ Ch. Geofauna Sarda A. Costa 1882-1886 \ Ch. prasina Burm. v. ad persa Wesm. Navás S.J. det [N]

1♀ – Castrovillari \ Ch. prasina Burm. v. adpersa Wesm. Navás S.J. det

1♀ – Lagopesole \ M." Zool." n.° 44705 \ adpersa Wsm. \ Ch. prasina Burm. v. striata Nav. Navás S.J. det [N]

1♀ – Lagopesole \ Ch. prasina Burm. v. adpersa Wesm. Navás S.J. det [N]

1♀ – Avezzano \ M." Zool." n.° 44926 \ Ch. prasina Burm. v. adpersa Wesm. Navás S.J. det [N]

1♀ – M." Zool." n.° 43311 \ Ch. prasina Burm. v. adpersa Wesm. Navás S.J. det \ Chrysopa prasina, Brm. Wallis
Achille Costa well knew the problems relating to the taxonomy of the “prasina” group (Pantaleoni, 1999). The fact that he called the Ploaghe (Sardinia) specimens *Ch. prasina*, Rambur (and not Burmeister) confirms that he believed the populations of southern Italy and the Italian islands to be different from those of central Europe. It can be seen from Navás’s non-uniform determinations that this problem remains tricky one, even today. See also *D. ventralis*.

**Dichochoyza zelleri** (Schneider, 1851)


| 2♂♀ | Scandale \ Ch. prasina Burm. v. zelleri Schn. Navás S.J. det [N] |
| 1♂  | Taverna \ Ch. prasina Burm. v. adspersa Wesm. Navás S.J. det [N] |
| 1♀  | Camaldoli 76[?]\(?\) \ Fauna Napoletana \ Ch. prasina Burm. v. adspersa Wesm. Navás S.J. det [N] |
| 1ex  | Majella \ Chrysopa Genei Ramb. Navás S.J. det [N] |
| 1♀  | Mormanno \ Ch. prasina Burm. v. zelleri Schn. Navás S.J. det [N] |

Achille Costa recognised, but did not name, this species thanks to a small series collected in Calabria in 1876. A single Neapolitan specimen, certainly collected earlier, is in the Collection. In this case too, Navás’s determinations are fairly non-homogeneous.

**Dichochoyza ventralis** (Curtis, 1834)

[Hemerobius] *neglectus*, A. Cost. [partim]: Calabria 4 exx (1871b: 14, n. 185)

| 1♂♀ | Calabria \ Chrysopa Genei Ramb. Navás S.J. det [N] |
| remains | Fauna Napoletana \ Chrysopa Genei Ramb. Navás S.J. det \ Solfatara [N] |

Achille Costa did not recognise this species which is difficult to distinguish from *D. clathrata* when coloured individuals are examined. My own identifications are based almost exclusively on the shape of the claw.

**Dichochoyza clathrata** (Schneider, 1845)

Hemerobius neglectus; Calabrie (1855c: 15 and 21, tav. XI, fig. 2); [Hemerobius] relictus, A. Cost.: Aspromonte (1863: 65, n. 650); [Hemerobius] neglectus, A. Cost. [partim]: Calabria 4 exx (1871b: 14, n. 185)


| 1♀ | Calabria \ Chrysopa Genei Ramb. Navás S.J. det [N] |
| remains | Ploaghe. 8.  \ Geoafauna Sarda A. Costa 1882-1886 \ Chrysopa Genei Ramb. Navás S.J. det [N] |
| 1♂ | Siniscola 7. \ M.° Zool.° n.° 36293 \ Geoafauna Sarda A. Costa 1882-1886 \ Chrysopa Genei Ramb. Navás S.J. det [N] |
| 1♀ | Siniscola 7. \ Geoafauna Sarda A. Costa 1882-1886 \ Ch. prasina Burm. v. zelleri Schn. Navás S.J. det [N] |

See what is stated about the previous species and in Pantaleoni (1999). Navás (1913) identified ♂ from Siniscola as *D. zelleri* and this is the basis for the only citation in Sardinia of this species, which seems, on the contrary, to be absent from the island.

**Chrysoperla carnea s.l. [(?)] lucasina** (Lacroix, 1912]

Hemerobius perla; contorni di Napoli [aprile 1842] (1843: 47); [Hemerobius] perla; Regno (1855c: 13 and 21, tav. XI, fig. 1);

Hemerobius perla, Lin.: [Monti Partenii luglio] (1858: 17); [Hemerobius] perla, Lin.: Napoletano 3 exx (1871b: 14, n. 183)


| 1♀ | Chrysopa vulgaris Schn. Navás S.J. det \ Fauna Napoletana \ Hemerobius perla, Lin. Napoli [N] |
| Navás | [1913: p. 9, 50. *Chrysopha vulgaris* Leach – Solfatara.] |
| 1♂ | Santa Severina \ Chrysopa vulgaris Schn. Navás S.J. det [N] |
| 3♂♀ | Chrysopa vulgaris Schn. Navás S.J. det |
| 1♂♀ | Capo Figari 7. \ M.° Zool.° n.° 36294 \ Geoafauna Sarda A. Costa 1882-1886 \ Chrysopa vulgaris Schn. Navás S.J. det [N] |
| 1♀ | Castrovillari \ M.° Zool.° n.° 44704 \ Chrysopa vulgaris Schn. Navás S.J. det [N vittata Wsm. n. 704] |
| remains | Castrovillari \ Chrysopa vulgaris Schn. Navás S.J. det |
| 1♂ | Mormanno \ Chrysopa vulgaris Schn. Navás S.J. det [N] |
| 1♂ | Monticchio \ Chrysopa vulgaris Schn. Navás S.J. det [N] |
Given the material is not in an optimal state of preservation, it was impossible for me to go beyond a generic indication of *Chr. carnea s.l.* although I believe that most of the material from Italy belongs to *Chr. lucasina*. The Sardinian specimen from Capo Figari must have been collected on 3-4 July 1885 when Achille Costa made his last trip to the island (testa place and month of capture).

**Hemerobiidae**

(?) *Hemerobius stigma* Stephens, 1836

| 1♂ | Avezzano | M.° Zool.° n.° 44925 | *Chrysopa vulgaris* Schn. Navás S.J. det | [N] |
| 1♂ | Avezzano | *Chrysopa vulgaris* Schn. Navás S.J. det |
| 1♂ | M.° Zool.° n.° 43313 | *Chrysopa vulgaris* Schn. Navás S.J. det | *Chrysopa flavifrons*, Br. Wallis | [N] |

*pin* | Spagna | *Chrysopa vulgaris* Schn. Navás S.J. det | [N] |


A species reported several times in fir woods in the Tuscan-Emilia Apennine area not far from Vallombrosa (Pantaleoni et al., 1994).

(?) *Hemerobius nittidulus* Fabricius, 1777

| 1♀ | Montenuovo | M.° Zool.° n.° 7805 | Boriomyia subnebulosa St. Navás S.J. det | [preparation] |
| 1♀ | [square of green paper] | *Hemerobius micans* Oliv. Navás S.J. det | [N as *Hemerobius lutescens*] |
| 1♀ | [square of green paper] | *Hemerobius micans* Oliv. Navás S.J. det | [N as *Hemerobius lutescens*] |

See Pantaleoni (1999) for the synonymy with *M. nittidulus* A. Costa, 1855.

(?) *Hemerobius lutescens* Fabricius, 1793

| 1♀ | Fauna Napoletana | M.° Zool.° n.° 43594 | *Hemerobius lutescens* F. Navás S.J. det | *Hemerobius humulinus*, Lin. Wallis | [N] |

It was not easy to match this specimen with the bibliographical indication published by Achille Costa (1869) in one of the lists of material in the Naples Museum. I believe that a coordinated “reading” of the code numbers, localities of capture and the appearance of the labels has, however, allowed me to reach a reliable result, identifying a small series of Hemerobiidae from the Alps, probably the western Alps near Turin, supplied by V. Ghiliani.
Wesmaelius malladai (Navás, 1925)

[Micronus] ?- Alpi 1 ex (1869: 12, n. 129 aut 131 aut 132 aut 133)

1♂ - [square of green paper] \ M.° Zool.° n.° 7808 \ Boriomyia subnebulosa St. Navás S.J. det \ Micronus [?] \ Ghil. [lani], 6[?]5 \ [preparation; N Alpi]

1♀ - M.° Zool.° n.° 43590 \ Boriomyia subnebulosa St. Navás S.J. det \ Hemerobius nervous, Fab. Germania \ [preparation; N]

See the previous species. Navás gives an “Alpi” for the specimen with inventory number 7808, probably the label was lost.

Wesmaelius subnebulosus (Stephens, 1836)

Mucropalpus distinctus: collina de’ Camalaldi [primavera inoltrata] (1855c: 9 and 21, tav. X, fig. 5 [6 in the text]);

[Mucropalpus] distinctus, Ramb.: Napoletano 3 exx (1871b: 14, n. 177)

Mucropalpus distinctus, Ramb.: montagne di Desulo [23-31 luglio 1883] (1884d: 31)

1♀ - Fauna Napoletana \ Boriomyia subnebulosa St. Navás S.J. det \ Mucropalpus distinctus, Rb. Napoli \ [preparation; N]

1♂ - Cerignola \ M.° Zool.° n.° 28498 \ Boriomyia subnebulosa St. Navás S.J. det \ [preparation; N]

1♀ Desulo. 7. \ M.° Zool.° n.° 32780 \ Boriomyia subnebulosa St. Navás S.J. det \ [N]

The inventory number transcribed by Navás for the Naples specimen is not correct and there is no corresponding label.

The Desulo specimen is actually indeterminable, but the only species of the genus collected in Sardinia is W. subnebulosus (Bernardi Iori et al., 1995; unpublished data).

Wesmaelius sp.

[Micronus] ?- Alpi 1 ex (1869: 12, n. 129 aut 131 aut 132 aut 133)

pin - [square of green paper] \ M.° Zool.° n.° 7806 \ Micronus \ [preparation; N]

See what has been stated for W. quadrifasciatus and W. malladai.

Sympherobius pygmaeus (Rambur, 1842)

[Mucropalpus parvulus] var. pallidus: colline vicine alla capitale [Napoli primavera inoltrata, state] (1855c: 12 and 21);

[Mucropalpus] parvulus, Ramb.: Napoletano 2 exx (1871b: 14, n. 180)

Mucropalpus parvulus, Rb.: valle di Bruzzano (1863: 65, n. 647)


1♂ - var. \ Sympherobius conspersus Nav. Navás S.J. det \ Lectotypus Mucropalpus parvulus var. pallidus A. Costa, 1855

1♀ - Vitulano \ Sympherobius conspersus Nav. Navás S.J. det \ [N Vitrilano]

1♂ - Puglietta 9 \ Sympherobius conspersus Nav. Navás S.J. det \ [N]

1♀ - Valle di Bruzzano \ Sympherobius conspersus Nav. Navás S.J. det \ [preparation; N Valle di Brugiano]

1♀ M. di Desulo. 7. \ parvulus var. \ Geoafauna Sarda A. Costa 1882-1886 \ Sympherobius conspersus Nav. Navás S.J. det \ [N]

1♂ - Correbol. 8. \ Geoafauna Sarda A. Costa 1882-1886 \ Sympherobius conspersus Nav. Navás S.J. det \ [N]

1♀ - Orani. 8. \ Geoafauna Sarda A. Costa 1882-1886 \ Sympherobius conspersus Nav. Navás S.J. det \ [N]

1♂ - Ploaghe. 8. \ Geoafauna Sarda A. Costa 1882-1886 \ Sympherobius conspersus Nav. Navás S.J. det \ [N]

All the specimens attributed to this species were identified by Navás as S. conspersus. Apart from the use of a different name, for once there is an identity of opinion with the Spanish author. Achille Costa considered the Desulo specimen to be slightly different (teste the indication var.) but the state of preservation did not allow any appreciable difference to be found. See also Pantaleoni (1999).

Sympherobius luqueti Leraut, 1991

Mucropalpus parvulus: colline vicine alla capitale [Napoli primavera inoltrata, state], (1855c: 11 and 21, tav. X, fig. 8)

1♀ - Fauna Napoletana \ Sympherobius elegans Steph. Navás S.J. det \ Micropalpus parvulus, Rb. Napoli \ [N]

Navás - [1913: p. 8, 42. Sympherobius elegans Steph. – Ploaghe. 8.]

Navás - [1913: p. 8, 42. Sympherobius elegans Steph. – Correbol. 8.]

I attribute to this species, not accepted by everyone, the Naples specimen, which is well preserved, identified by Navás as S. elegans. S. luqueti is actually very dark and may be, although only very superficially, confused with S. elegans. I believe that the description of M. parvulus in the “Fauna del Regno di Napoli” corresponds also to this specimen, and thus to S. luqueti. The labels – the handwritten determination of Achille Costa and the “Fauna Napoletana” printed – correspond to many specimens (see Raphidia ophiopsis, Inocellia crassicornis, Hemerobius Beckii, Hemerobius perla, Mucropalpus lutescens, Mucropalpus distinctus, Megalomus pyraloides, Myrmeleon innotatus, Myrmeleon variegatus) used as reference for the descriptions provided in the “Fauna del Regno di Napoli”. The description of Mucropalpus parvulus (A. Costa, 1855c: 11-12) refers to a particularly dark specimen (which, I repeat, I believe to be the specimen of S. luqueti that is still in the Collection) in contrast to others (more than one) that are lighter and which were established to be of the pallidus variety (which I believe to be S. pygmaeus).
Navás (1913) attributes to *S. elegans* two Sardinian specimens labelled “Correboi. 8” and “Ploaghe. 8.” These are exactly like two *S. pygmaeus* in the Collection and determined by the Catalan author as *S. conspersus*. In this case we have only two plausible explanations: i) in consideration of the absolute incompatibility between the eco-climatic conditions of the two localities and the *S. elegans* habitat (a species extraneous to the fauna of Sardinia), there were two specimens of *S. luqueti* that have now disappeared from the Collection; ii) these specimens never existed and Navás very likely made an error in transcription and mistakenly gave the place name details of two *S. conspersus* also for *S. elegans* (both the species *sensu* Navás).

((?) *Sympherobius elegans* (Stephens, 1836)

\[1\text{ex} \quad – \quad \text{G.[ran] Sasso} \quad \text{Sympherobius elegans Steph. Navás S.J. det [N]}\]

It was impossible for me to identify with certainty this specimen which has deteriorated.

((?) *Sympherobius fuscescens* (Wallengren, 1863)

\[1\text{ex} \quad – \quad \text{M.° Zool.° n.° 43588} \quad \text{Sympherobius elegans Steph. Navás S.J. det \ Hemerobius elegans, St. Wallis [N]}\]

\[1\text{ex} \quad – \quad \text{M.° Zool.° n.° 43591} \quad \text{Niremberge incunspicua M.L. Navás S.J. det \ Hemerobius inconspicuus, M.L. Wallis [N]}\]

\[\text{pin} \quad – \quad \text{M.° Zool.° n.° 43314} \quad \text{Niremberge incunspicua M.L. Navás S.J. det \ Hemerobius inconspicuus, M.L. Wallis [N]}\]

((?) *Megalomus tortricoides* Rambur, 1842

\[1\text{♀} \quad – \quad \text{Megalomus tortricoides, Rb. Napoli [N]}\]

\[1\text{♀} \quad – \quad \text{Sila} \quad \text{Megalomus tortricoides, Rb. Napoli [N]}\]

The attribution of these two specimens of *M. tortricoides* is rather doubtful. For the specimen with inventory number 7809 Navás gives also “Piemonte”, another lost label?

**Megalomus hirtus** (Linnaeus, 1761)

*Drepanopteryx tortricoides*: Monte Vergine [luglio] (1855c: 6 and 21, tav. X [V in the text at pag. 6], fig. 3); *Drepanopteryx tortricoides*, Ramb.: [Monti Partenii luglio 1854] (1858: 10 and 17); *Drepanopteryx tortricoides*, Ramb.: monti napolet.[ani] 3 exx (1871b: 14, n. 174)

\[1\text{♀} \quad – \quad \text{Megalomus hirtus L. Navás S.J. det \ Megalomus tortricoides, Rb. M. vergine [N]}\]

\[1\text{♀} \quad – \quad \text{Sila} \quad \text{Megalomus hirtus L. Navás S.J. det [N]}\]

I agree with Navás and attribute these two specimens to *M. hirtus*. Evidently Achille Costa mistook *M. hirtus* for *M. tortricoides* and viceversa.

**Megalomus pyraloides** Rambur, 1842

*Drepanopteryx pyraloides*: tutto il regno [dalla primavera al principio d’autunno] (1855c: 7 and 21, tav. X, fig. 4); *Drepanopteryx pyraloides*, Ramb.: Napoletano 3 exx (1871b: 14, n. 175)

**Megalomus pyraloides**, Rb.: [Aspromonte] (1863: 65, n. 646)

\[1\text{♀} \quad – \quad \text{Fauna Napoletana \ Megalomus pyraloides Rb. Nap. S.J. det \ Megalomus pyraloides, Rb. Napoli [N]}\]

**Megalomus pyraloides**, Rb.: [Aspromonte] (1863: 64, n. 645);

\[1\text{♀} \quad – \quad \text{Reggio \ Megalomus pyraloides Rb. Navás S.J. det [N]}\]

In this case identification is certain and the species was determined correctly by Achille Costa.

((?) *Drepanopteryx phalenoides* (Linnaeus, 1758)

\[\text{pin} \quad – \quad \text{Museo Zoologico \ M.° Zool.° n.° 43586} \quad \text{Drepanopteryx phalenoides, L. Germania}\]

**Micromus variegatus** (Fabricius, 1793)

**Micromus variegatus**: Gran Sasso d’Italia, collina de’ Camaldoli [colmo della state] (1855c: 4 and 21, tav. X, fig. 2); *Micromus variegatus*, Fab.: Napoletano 4 exx (1871b: 14, n. 173)

**Micromus variegatus**, F.: Aspromonte (1863: 64, n. 645); *Micromus variegatus*, Fab.: Sila grande [7-12 agosto] e Montagna di Tiriolo [16 e 18 agosto 1876] (1881: 52)

\[1\text{♀} \quad – \quad \text{Micromus variegatus F. Navás S.J. det \ Micromus variegatus, Camaldoli [N]}\]

\[1\text{♀} \quad – \quad \text{M. di Cava} \quad \text{Micromus variegatus F. Navás S.J. det [N]}\]

\[2\text{♂\♀} \quad – \quad \text{Gr.[an] Sas.[o] \ Illegible word[s]} \quad \text{Micromus variegatus F. Navás S.J. det [N]}\]

\[1\text{♀} \quad – \quad \text{Micromus variegatus F. Navás S.J. det \ Micromus variegatus, Camaldoli [N]}\]

\[1\text{♀} \quad – \quad \text{M. di Cava \ Micromus variegatus F. Navás S.J. det [N]}\]

\[\text{remains} \quad – \quad \text{Asprom. [onete]} \quad \text{Micromus variegatus F. Navás S.J. det [N]}\]

\[1\text{♀} \quad – \quad \text{Sil a} \quad \text{Micromus variegatus F. Navás S.J. det [N]}\]

\[1\text{♀} \quad – \quad \text{Pirito} \quad \text{Micromus variegatus F. Navás S.J. det [N]}\]

\[1\text{♀} \quad – \quad \text{Majella} \quad \text{Micromus variegatus F. Navás S.J. det [N]}\]

\[1\text{♀} \quad – \quad \text{Majella} \quad \text{Micromus variegatus F. Navás S.J. det [N]}\]

\[1\text{♀} \quad – \quad \text{Vallombrosa} \quad \text{Micromus variegatus F. Navás S.J. det [N Vallambrosa]}\]

\[\text{remains} \quad – \quad \text{Micromus variegatus F. Navás S.J. det [N]}\]

Unmistakable species of which the Collection contains numerous well preserved specimens.
Micromus angulatus (Stephens, 1836)

Mucropalpus hyalinatus: Aspromonte (1863: 13); Mucropalpus meridionalis, A. Cost.: [Aspromonte] (1863: 31, 65 and 80, n. 648, tav. III [IV in the text at pag. 80], fig. 6); Mucrop. [alpus] meridionalis: valll dell’Aspromonte (1871a: 2, tav. XIII, fig. 2); Mucropalpus meridionalis, A. Cost.: Calabria 2 exx (1871b: 14, n. 179)

[Micromus] tendinosus, Ramb.: Alpi 1 ex (1869: 12, n. 128)

- 1♂ - Majella | Mucropalpus meridionalis A. Costa, 1863 Pantaleoni des. 1993 [N]

Navás is particularly confused in listing the specimens belonging to this species (sub Micromus aphidivorus SCHR.). In fact, he writes literally “… Mucropalpus meridionalis. Piemonte. COSTA. Reggio, Solfatara.” They must be three different specimens. The Piedmont one has been lost (or is the same that has the inventory number 7807) but it is also likely to be a simple error of transcription. The label with Micromus R. (Hemerobius) tendinosus? RAMB. which Navás attributes to the specimen with code 7807, has been lost. However, this determination was not Costa’s.

See also Pantaleoni (1999).

Micromus paganus (Linnaeus, 1767)

Micromus lineosus, Ramb.: Alpi marit. 2 exx (1869: 12, n. 127)

- remains - Mucropalpus lineosus, Ramb. [Alpi marit.] 2 exx (1869: 12, n. 127)
- remains - Mucropalpus lineosus, Ramb. [Alpi marit.] 2 exx (1869: 12, n. 127)

Yet another species not collected and not studied directly by Achille Costa.

Sisyridae

Sisyra nigra (Retzius, 1783)

Sisyra fuscata, Fabr.: Ital. sett. entrionale 1 ex [ex Garbiglietti] (1864a: 103, n. 46); Sisyra fuscata: Ital. sett. entrionale (1871a: 8, tav. XIII, fig. 1 [5 in the text])

Sisyra fuscata, Fab.: presso le sponde di Porto Torres [30 settembre 1881] (1882a: 22); Sisyra fuscata, Fab.: presso le sponde del fiume di Porto Torres (come nel 1881) [21 e 22 agosto 1883] (1884d: 31)


Costa’s findings are the only ones published up to now for Sardinia, apart from the incidental one of Weißmair (1999: 124). The inventory number of the second Porto Torres specimen mentioned by Navás (1913) perfectly corresponds to the numbers attributed to Neuroptera collected in the summer of 1883 and confirm this capture also.

Achille Costa reports S. fuscata also from Muravera, see the following species.

Sisyra iridipennis A. Costa, 1884

Sisyra fuscata: Muravera, sponde del Flumendosa [27 aprile 1882] (1883: 8); Sisyra iridipennis, nob.: sponde del Flumendosa vicino Muravera [27 aprile 1882] (1884b: 20; 1884d: 51); Sisyra iridipennis, nob.: presso il fiumicello che scorre vicino Milis [15 agosto 1883] (1884b: 20; 1884d: 16, 31 and 51); Sisyra (S. iridipennis): (1884c: 81); Sisyra iridipennis: (1884c: 302); Sisyra iridipennis, A. Costa: (1885b: 242)

- 1♀ - Muravera. 4. Mucropalpus meridionalis A. Costa, 1884 Pantaleoni des. 1993 [N]

See Pantaleoni (1999). The doubt remains whether Achille Costa’s report of a S. fuscata from Muravera actually refers to a S. iridipennis (not recognised at the time and described later) or to the presence of both species.
Coniopterygidae

*Semidalis* sp.

remains – M. *Zool.* n.° 43595 \ Coniopteryx aleyrodiformis St. Wallis

Dilaridae

(?) *Dilar meridionalis* Hagen, 1866

1ex – M. *Zool.* n.° 43315 \ Dilar meridionalis, Hag. Castiglia \ Dilar meridionalis Navás S.J. det [N]

*Dilar parthenopaeus* A. Costa, 1855

*Dilar parthenopaeus* adiacenze di Napoli (1855c: 19 and 21, tav. XI, fig. 6, 6A); *Dilar parthenopaeus* montagne di Cava (provincia di Salerno) 2 individui (1871a: 7); *Dilar parthenopaeus*, A. Cost.: Napoletano 1 ex (1871b: 15, n. 189)


1♂ – Dilar parthenopaeus A. Cos. M.e Cava \ Lectotypus Dilar parthenopaeus A. Costa, 1855 Pantaleoni des. 1993

1♂ – Aritzo. 7.

1♂ – Lagopesola \ M. *Zool.* n.° 44707 \ Lidar parthenopaeus A. Costa [written by Navás] [preparation; Navás 1910]

See Pantaleoni (1999). A little mystery surrounds the finding of the first specimens of *D. parthenopaeus*. Achille Costa (1855c) describes the species from a single specimen collected in the “adiacenze di Napoli”. Later (A. Costa, 1871a) he said i) he did not know exactly where the first specimen was captured inside the Kingdom, ii) he had collected another two for the “montagne di Cava (provincia di Salerno)”. Immediately afterwards, however, (A. Costa, 1871b) he listed only one specimen of the species in the Collection of the museum captured in the “Napoletano”. The Collection at present contains a single specimen labelled “M.e Cava”. Various hypotheses can be forwarded to explain these contradictions but to tell the truth it is not of much importance to know which is the right one.

Mantispidae

*Mantispa styriaca* (Poda, 1761)


pin – Museo Zoologico \ M. *Zool.* n.° 32772 \ M. pagana

1♂ – Orani. 8.

The inventory number 32772 is compatible with the capture in Laconi and probably belongs to the specimen collected there.

*Mantispa perla* Pallas, 1772 (sensa Erichson, 1839)

*Mantispa perla* Terra d’Otranto, Monte Vergine [luglio] (1855d: 2, tav. XII, fig. 1); *Mantispa perla*, Pall.: Terra d’Otranto, [Monti Partenii, luglio 1854] (1858: 10 and 17); *Mantispa perla*, Pall.: M. [onte] Vergine 1 ex (1871b: 15, n. 190)

1♂ – Mantispa perla Pall. Navás S.J. det \ Mantispa perla, Pall. M.e Vergine [N]

remains – Lecce \ Mantispa perla Pall. Navás S.J. det


The identification of the Monte Vergine ♂ is not certain since the front legs are missing and I did not carry out the preparation of genitalia. In this case, I accept Navás’s determination. The inventory number of the Leuca specimen mentioned by Navás must be mistaken, perhaps it was 8. [August] 41089.

Berothidae

*Isoscelipteron fulvum* A. Costa, 1863

*Isoscelipteron fulvum*, A. Cost.: colline di Staiti (1863: 13, 35, 65 and 80, n. 652, tav. III [IV in the text at pag. 80], fig. 5, 5A); *Isoscelipteron fulvum*: adiacenze di Staiti (1871a: 4, Tav. XIII, fig. 3, 3A [4 in the text])

remains – Berotha fulva Costa Navás S.J. det \ Isoscelipteron fulvum, A.C. \ Lectotypus Isoscelipteron fulvum A. Costa, 1863 Pantaleoni des. 1993 [N]

See Pantaleoni (1999).
Nemopteridae

(?) Nemoptera coa (Linnaeus, 1758)
Navás – [1913: p. 5, 27. Nemoptera coa L. { quoted from memory}]

(?) Nemoptera bipennis (Illiger, 1812)

Probably specimens of this species and the previous one are kept in the display cabinet whose contents have not been studied (see the chapter on the Achille Costa Collection).

Myrmeleontidae

Palpares libelluloides (Linnaeus, 1764)
Myrmeleon libelluloides: colline vicine alla capitale [Napoli state] (1855b: 5 and 20, tav. VIII, fig. 1); Myrmeleon libelluloides, Lin.: Napoli 2 exx (1871b: 14, n. 162)

Myrmeleon libelluloides, Lin.: in varii luoghi, fin nell’Aspromonte (1863: 64, n. 639); Myrmeleon libelluloides, Lin.: adiacenze di Cirò [13-22 luglio 1876]. (1881: 52)

[Myrmeleon libelluloides] var. nigrientris: Calabrie (1855b: [6] and 20)

1♂ – M° Zool.° n.° 7794 Palpares libelluloides L. Navás S.J. det \ M. libelluloides M. nuovo [N]
1♂ – Palpares libelluloides L. Navás S.J. det [N]
1♂ – Palpares libelluloides L. Navás S.J. det [N]

The M.[onte] Nuovo locality is in the Campi Flegrei near Naples. Many specimens reported by Achille Costa are missing from the Collection.

Acanthaclisis occitanica (Villers, 1789)

Acanthaclisis occitanica: Calabrie (1855b: 7 and 20, tav. VIII, fig. 2, 2A and 2B); Acanthaclisis occitanica, Vill.: Calabria 1 ex (1871b: 14, n. 163)

1♀ – Acanthaclisis occitanica Vill. Navás S.J. det \ Acanthaclisis occitanica, Vill. Calabria [N]
1♀ – Lecce \ Acanthaclisis occitanica Vill. Navás S.J. det [N]

The Lecce specimen was not published by Achille Costa but the species was reported by his brother Giuseppe Costa (1874) in “Fauna Salentina”.

Synclisis baetica (Rambur, 1842)

1♀ – M° Zool.° n.° 43569 Acanthaclisis baetica Ramb. Navás S.J. det \ Acanthaclisis occitanica, Willers Francia mer. [N]

Myrmecaelurus trigrammus (Pallas, 1771)

Myrmecaelurus flavus: Terra d’Otranto, Sicilia (1855b: 10 and 20, tav. IX, fig. 1); Myrmecaelurus flavus, Ramb.: Sicilia 1 ex (1871b: 14, n. 165)


Navás – [1913: p. 4, 17. Myrmecaelurus trigrammus Pall. – Myrmeleon flavus R. Sicilia. (133)]
1♂ – Cirò \ Myrmecaeluris trigrammus Pall. Navás S.J. det [N]


Only one specimen of this species remains in the Collection and at least another two were seen by Navás (1913). Evidently, as in the case of P. libelluloides, most of the material has been lost.

Like all the other species of Myrmeleontidae, this was identified by Achille Costa from information given in Rambur’s work (1842).

(?) Nohoveus punctulatus (Steven in Fischer v. Waldheim, 1822)

remains – M° Zool.° n.° 43572 Myrmecaelurus punctulatus Stev. Navás S.J. det \ Myrmecaelurus punctulatus, Stev. Ungheria [N]

Myrmecleon formicarius Linnaeus, 1767

Myrmec[aelurus] innotatus: colline vicine alla capitale [Napoli state] (1855b: 14 and 20, tav. IX, fig. 2); [Myrmecaelurus] innotatus, Ramb.: Napoli 1 ex (1871b: 14, n. 168)

1♀ – M° Zool.° n.° 7798 Napoli \ Mymreleon formicarius L. Navás S.J. det \ Fauna Napoliota [N]
1♀ – Mymreleon formicarius L. Navás S.J. det \ Fauna Napoliota \ Mymreleon innotatus, Rb. Napoli [N]
1♀ – M° Zool.° n.° 45182 Mymreleon formicarius L. Navás S.J. det \ Mymreleon europaeus, ML. Germania [N]

Navás is extremely cryptic in listing the specimens of M. formicarius. The indication of the last on the list (Myrmecleon innotatus Rb Napoli, M. Zool. N. 48150, N. 423051) appears in fact to relate to at least two or three specimens, but the second number of the inventory at least does not correspond to the numeration of the Naples Museum which has a maximum of five numbers.

Note how Achille Costa followed Rambur (1842) here also.
**Myrmeleon hyalinus distinguendus** Rambur, 1842


1ex – *Myrmeleon cinereus* Klug Navás S.J. det [N]

remains – Sassari. M° Zool. n° 29254 \ Myrmeleon cinereus Klug Navás S.J. det [N fragments]

pin – Molentargius. 6. M° Zool. n° 30527 \ Myrmeleon cinereus Klug Navás S.J. det [N Molentargius]

remains – *M° Zool.* n° 32777 \ Myrmeleon cinereus Klug Navás S.J. det [N fragments]

The inventory number of the last specimen corresponds to material collected in July-September 1883 (A. Costa, 1884). However, Achille Costa does not mention this specimen.

**Euroleon nostras** ( Geoffroy in Fourcroy, 1785)

*Euroleon nostras*: Parma 1 ex [ex Rondani] (1864a: 96, n. 16)

1ex – *M° Zool.* n° 7796 \ Formicaleo tetragrammicus F. Navás S.J. det \ *Myrmeleon formicarius*, L. Parma [N Parona]

remains – *M° Zool.* n° 45183 \ *Myrmeleon formicarius*, Lin. Germania

Rambur (1842) interpreted this species badly and as usual Costa followed him.

Navás’s error in determination in this case is really gross.

**Dendroleon pantherinus** (Fabricius, 1787)

*Myrmeleon formicarius*, Lin.: Parma 1 ex [ex Rondani] (1864a: 96, n. 18 and footnote)

*Myrmeleon formicarius*, Ramb.: Piemonte 1 ex (1869: 12, n. 124)

*Myrmeca[elurus]* distinguendus: falde del Taburno (1871a: 1, tav. XII, fig. 5 [in the text])


Navás – [1913: p. 4, 21 Dendroleon pantherinus F. – Piemonte]

remains – Dendroleon pantherinus F. Navás S.J. det \ *Myrmeleon formicarius*, Rb. Taburno [N]

Achille Costa again used Rambur’s name (1842).

The inventory number of the Parma specimen corresponds to that of a *D. tetragrammicus* from the same place. However, in this case it is difficult to believe that Navás fell into the usual error of transcription.

**Macrocnemurus appendiculatus** (Latreille, 1807)

*Macrocnemurus* appendiculatus: Abruzzi, adiacenze della capitale [Napoli] (1855b: 8 and 20, tav. IX, fig. 5); *Macrocnemurus appendiculatus*, Lin.: Napoli 1 ex (1871b: 14, n. 164); *Myrmeleon appendiculatus*: Ischia dal litorale fino presso la vetta dell’Epomeo [25 luglio/14 agosto 1856] ambedue i sessi (1856: 82)


pin – *Macrocnemurus appendiculatus* ‡ Latr. Navás S.J. det \ *Macrocnemurus appendiculatus* M. di Cava [N]

remains – M. Nuovo \ *Macrocnemurus appendiculatus* ‡ Latr. Navás S.J. det [N]


remains – Cirò \ *Macrocnemurus appendiculatus* Latr. Navás S.J. det [N]

remains – Miglierina \ *Macrocnemurus appendiculatus* Latr. Navás S.J. det [N]

remains – Navás S.J. det [N Calagone]

remains – Cagliari. 7. M° Zool. n° 32776 \ Geofauna Sarda A. Costa 1882-1886 \ *Macrocnemurus appendiculatus* [N]

1♂ – Cagliari. 7. \ Geofauna Sarda A. Costa 1882-1886 \ *Macrocnemurus appendiculatus* ‡ Latr. Navás S.J. det [N]

pin – Cagliari. 7. \ *Geofauna Sarda A. Costa 1882-1886* \ *Macrocnemurus appendiculatus* ‡ Latr. Navás S.J. det [N]

remains – *M° Zool.* n° 44702 \ *Macrocnemurus appendiculatus* ‡ Latr. Navás S.J. det [N]

In this case too, the locality M.[onte] Nuovo is in Campi Flegrei near Naples.

The Terranova [Olbia] specimen was collected during the 1885 trip, as can be seen from the inventory number and month on the label, and not reported by Achille Costa (1886b). The one collected during the second half of June 1882 (A. Costa, 1883) was lost and was not even seen by Navás (1913).

(?)* Macrocnemurus bilineatus* Brauer, 1868

Neuroleon arenarius (Navás, 1904)

Myrmele[na]elurus variegatus: collina della Torre del Greco [luglio] (1855b: 13 and 20, tav. IX, fig. 4); Myrmelea[elurus] variegatus, Klug.: Napoletano 4 exx (1871b: 14, n. 167)


1ex – Fauna Napoletana, Neuroleon arenarius Nav. Navás S.J. det \ Myrmeleon variegatus, Kl. Napoli [N]
remains – Neuroleon arenarius Nav. Navás S.J. det [probably N as N. 48148]

1♀ – Cirò; M° Zool. n.° 22803 \ Neuroleon arenarius Nav. Navás S.J. det [N]

Once again, Achille Costa identified a species basing only on Rambur (1842), making a mistake but keeping to his interpretation.

(?) Neuroleon renauisensi (Borkhausen, 1791) aut microstenus (McLachlan, 1898)

remains – Mormanno; M° Zool. n.° 44701 \ Nelees hellenicus Nav. Navás S.J. det [N]

It was impossible to determine with certainty this specimen as we have only some remains and Navás’s definition (1913).

Distoleon tetragrammicus (Fabricius, 1798)

Myrmelec[na]elurus tetragrammicus: adiacenze di Napoli [state] (1855b: 12 and 20, tav. VIII, fig. 3); [Myrmele[na]elurus] tetragrammicus, Pall.: Napoletano 2 exx (1871b: 14, n. 166)

[Myrmele]on tetragrammicus, Pall.: Parma 1 ex (ex Rondani) (1864a: 96, n. 17)

Myrmeleon tetragrammicus, Pall.: nella montagna di Laconi [17 luglio 1883] (1884d: 31)
remains – M° Zool. n.° 7797 \ Formicaleo tetragrammicus F. Navás S.J. det
1ex – M° Zool. n.° 7795 \ Formicaleo tetragrammicus F. Navás S.J. det \ Myrmeleon tetragrammicus Pall. Parma [N]
pin – Laconi; 1 M° Zool. n.° 32773 \ Geofauna Sarda A. Costa 1882-1886 \ tetragrammicus [N]

Myrmeleon tetragrammicus, Pall.: vicinanza dello stagno di Molentargius [27 giugno 1882] (1883: 55)
remains – M° Zool. n.° 45184 \ Formicaleo tetragrammicus F. Navás S.J. det \ Myrmeleon tetragrammicus, F. Wil [N]

Very little remains of this species in the Collection!

Creoleon lugdunensis (Villers, 1789) aut plumbeus (Olivier, 1811)


[Myrmele]on pallidipennis, Rmb.: vicinanza dello stagno di Molentargius [27 giugno 1882] (1883: 55)

1♀ – M° Zool. n.° 26689 \ Creagris plumbeus Oliv. Navás S.J. det [N]


1ex – Cirò; 1 M° Zool. n.° 7796 \ Creagris plumbeus Oliv. Navás S.J. det [N]

reinai – Cagliari; 1 M° Zool. n.° 30526 \ Creagris plumbeus Oliv. Navás S.J. det [N]


1♀ – Ungheria \ Creagris plumbeus Oliv. Navás S.J. det [N]

The state of preservation prevents me from determining with certainty these specimens. Considering the geographical origin the Hungarian specimen can be attributed to Cr. plumbeus and the Sardinian ones to Cr. lugdunensis.

The Cagliari specimens were certainly collected in July 1883, the only time Costa was in the city in that month (A. Costa, 1884d). Once again, Navás gives confirmed indications “M. Ciró, Palermo M. Zool N 26689”. It is not clear whether the specimens are two or three. Here I have decided on three, but “Palermo” could also be a label lost by specimen n° 26689.

Creoleon corsicus (Hagen, 1860)

Myrmeleon falcipennis, nob.: Alghero [30 maggio] e Terranova [16-17 giugno 1882] (1883: 55 and 89); Myrmeleon falcipennis: (1884a: 333-334)

remains – M° Zool. n.° 30525 \ falcipennis \ Geofauna Sarda A. Costa 1882-1886 \ Creagris plumbeus Oliv. Navás S.J. det \ Lectotypus Myrmeleon falcipennis A. Costa, 1883 Pantaleoni des. 1993 [N]

Navás (1913) reports this specimen with the expression “falcipennis ALG.” The last initials do not refer to the author, as Navás probably thought, but are an abbreviation of Alghero, a town in the province of Sassari. If we presume that this is the case of a lost label, the locus typicus of Myrmeleon falcipennis would therefore be Alghero (Pantaleoni, 1999).

Gymnocnemia variegata (Schneider, 1845)

Aplectrocnemis multipunctatus: colline prossime alla capitale [Napoli luglio], Calabria (1855b: 18 and 20, tav. IX, fig. 6, 6A and 6B); Aplectrocnemis multipunctatus, A. Cos.: adiacenze di Santa Severina [24-26 e 29-31 luglio 1876] (1881: 52)

1♀ – Gymnocnemia variegata Schn. Navás S.J. det \ Aplectrocnemis multipunctata Cos. \ Lectotypus Aplectrocnemis multipunctatus A. Costa, 1855 Pantaleoni des. 1993 [N]
2exx – Gymnocnemia variegata Schn. Navás S.J. det

1ex – S. Severina \ Gymnocnemia variegata Schn. Navás S.J. det [N]

See also Pantaleoni (1999).
Ascalaphidae

Deleproctophylla australis (Fabricius, 1787)
Theleproctophylla australis: Terra d’Otranto, adiacenze del Vesuvio (1855a: 10 and 12, tav. VII, fig. 8, 8A); Theleproctophylla australis, Fab. adia. [1871b: 14, n. 161]

Yet again Navás’s listing is not clear “Lecce. M° Zol.° N° 16162”. I have interpreted it as two separate specimens of which the Lecce one has been lost.

Libellloides coccajus (Denis and Schiffermüller, 1775)
Ascalaphus italicus: varie contrade del Regno (1855a: 4 and 12, tav. VII, fig. 1, 1A); Ascalaphus italicus, var. leucocelius: varie contrade del Regno, montagne della Cava (1855a: 5 and 12, tav. VII, fig. 2); Ascalaphus italicus, Fab.: Napoletano 1 ex (1871b: 14, n. 155)

Ascalaphus italicus, F.: colline di Brancaleone e di Bruzzano (1863: 64, n. 636); Ascalaphus italicus, Fab.: in varii luoghi [della Sila] (1881: 52)

Ascalaphus guttulatus, nob.: province più meridionali del Regno (1855a: 5 and 12, tav. VII, fig. 3, 5A [3A in the text]); Ascalaphus guttulatus, A. Cost.: Napoletano 2 ex (1871b: 14, n. 159)

On Achille Costa’s interpretation of this species see the long discussion in Pantaleoni and Letardi (2002). See also Pantaleoni (1999).

Libellloides lacteus (Brullé, 1832)
Ascalaphus lacteus: Regno (1855a: 8 and 12, tav. VII, fig. 5); Ascalaphus lacteus, Brull.: Napoletano 1 ex (1871b: 14, n. 158)

There are no specimens in the Collection from the Kingdom of Naples and given the non-specific details in the bibliography (A. Costa. 1855c, 1871b) we have no indications of the true origin of L. lacteus examined by Achille Costa.

(?) Libellloides baeticus (Rambur, 1842)

Libellloides longicornis (Linnaeus, 1764)
Ascalaphus longicornis: Monte Vergine [luglio] (1855a: 9 and 12, tav. VII, fig. 6); Ascalaphus longicornis, Lin. (C-nigrum, Lat.): [Monti Partenii luglio 1854] (1858: 10 and 17); Ascalaphus longicornis, Lin.: Napoletano 2 ex (1871b: 14, n. 160)

Ascalaphus longicornis, Linn.: Ital.[a] sett.[entriale] 1 ex (1862a: 16, n. 98); Ascalaphus macaronius, Scop. (longicornis, Linn.): Piemonte 1 ex (1869: 12, n. 123)


All specimens from Italy have been lost.

Libellloides latius (Lefèvre, 1842)
Ascalaphus Petagna, nob.: varie contrade del Regno, Calabrie (1855a: 6 and 12, tav. VII, fig. 4, 4A); Ascalaphus Petagna, A. Cost.: [Aspromonte] (1863: 64, n. 637); Ascalaphus Petagna, A. Cost.: monti calabri 1 ex (1871b: 14, n. 156)

[Ascalaphus Petagna] var. leucocelia, A. C.: monti calabri 1 ex (1871b: 14, n. 157)

See what was said about L. coccajus. The Lecce labelled A. Petagna v. decolor (a new variety never described by Achille Costa) it is simply a specimen newly emerged from the cocoon.

Libellloides icterus (Charpentier, 1825)
Ascalaphus icterus, Charp.: non nel Regno (1855a: 10, tav. VII, fig. 7)
**Libelloides siculus** (Angelini, 1827)

*Ascalaphus siculus*, Ang. Ramb.: non lo conosciamo in natura (1855a: 10)

1♂ – Girgenti M.° Zool.° n.° 38124 \ A. ictericus Ch. v. corsicus Ramb. Navās S.J. det \ Ascalaph. corsicus, Rb. [N]

The specimen in the Collection was evidently acquired after the publication of “Fauna del Regno di Napoli”.

**Libelloides corsicus** (Rambur, 1842)

*Ascalaphus corsicus*, Ramb.: Corsica 1 ex [ex Ghiliani] (1864a: 105, n. 5)


1♀ – M.° Zool.° n.° 7788 \ A. ictericus Ch. v. corsicus Ramb. Navās S.J. det \ Ascalaphus corsicus, Ramb. Corsica [N]

1♀ – M.° Zool.° n.° 30524 \ Geofauna Sarda A. Costa 1882-1886 \ A. ictericus Ch. v. corsicus Ramb. Navās S.J. det

Specimen n° 7788 is certainly Ghiliani’s (A. Costa, 1864a).

Uninterpretable reports

[Rhaphidia ophiopsis] var. fusciventris: [without information] (1855e: 4)

See Pantaleoni (1999) for a discussion of this taxon which is probably a *nomen nudum*.

**Chrysopa ypsilon**, nob.: [without information] (1884b: 20-21)

**Chrysopa bifidilinea**, nob. (*ypsilon*, ol.): valle canonica delle vicinanze di Iglesias [2 settembre 1883] (1884d: 32 and 52); **Chrysopa (bifidilinea)**: (1884c: 81; 1884e: 302); **Chrysopa bifidilinea**, nob.: (1885b: 242)

In this case too, see Pantaleoni (1999) for a discussion on this *nomen nudum* (*Chr. bifidilinea* is a name that substitutes *Chr. ypsilon*, homonymous of *Chr. yspilon* Fitch, 1855). I can only specify that “canonica” [= canonical] is not an adjective (one could be deceived by Achille Costa’s use of the lower case letter) but the river running near the town of Iglesias.

**Chrysopa**, due specie: Boscu Maria de Janu [26 luglio 1885] (1886b: 13)

As a matter of simple curiosity, seeing that this mention is so non-specific it is absolutely unusable, it can be noted that the place given by Achille Costa, or rather the “sorgiva di freddissima acqua che è nel bosco stesso poco al disotto della strada, la *fonte de Maria de gianu*” [spring of ice-cold water in the wood a little below the road, the spring of *Maria de gianu*], is today shown on the map as Fontana Mariane Iana and is situated in the Lodè commune (province of Nuoro) between Punta Su Mutucrone and the Cantoniera Guzzurra (these names can also be found in road maps).

[Mucropalpus] ?: Calabria 5 exx (1871b: 14, n. 181)

I have not the slightest idea what species these specimens can belong to.

[Coniopteryx] aphidiformis, Curt.: Napoletano 3 exx (1871b: 16, n. 233)

[Coniopteryx] tineiformis, Curt.: Napoletano 4 exx (1871b: 16, n. 232)

[Coniopteryx] tineiformis, Curt.: presso lo sbocco del Galagone [21 giugno 1882] (1883: 29 and 55)

[Coniopteryx] psociformis, Curt.: presso le sponde del Coghinas in vicinanza di Perfugas [10 giugno 1882] (1883: 55)

We have nothing to interpret Achille Costa’s mentions of Coniopterygidae. I doubt that he was really able to identify the various species, given the limited taxonomic knowledge at the time. My opinion is based on the description given of the behaviour of *C. tineiformis* in Sardinia (A. Costa, 1883: 29): “Notevole era l’abbondanza della piccola *C.t.*, che vivendo sopra il mentastro ne ricopriva talmente la superficie delle foglie e de’ fusticini, da sembrare questa coperta da uno strato di calce; e lor quando queste piante venivano urtate, elevandosi tutti gli individui in un istante a volo formavano una vera nuvola.” [There was a remarkable abundance of small *C.t.* living on the horehound, covering the surface of the leaves and branches so thickly that it seemed like a layer of limewash; and when the plants were shaken all the insects rose together in flight forming a cloud.] Reading these lines, we seem to be able to recognise a white fly in Achille Costa’s *C. tineiformis*. On the other hand, the Neapolitan author, although an agricultural entomologist, does not deal with these insects even in the second edition of his famous manual on harmful insects (A. Costa, 1877b).

[Myrmeleon] ...?: bosco presso Ploaghe [24 agosto 1883], (1884d: 31)

Keeping in mind the species of Myrmeleontidae known by Achille Costa (which must be excluded) and those found in northern Sardinia in the second half of August, I think the only plausible hypothesis is that this report refers to *Neuroleon egenus* (Navās, 1915).
Non-European material

Achille Costa mentions in a volume of the Annuali (1864a) 11 specimens of exotic Neuroptera listed below.

Bubo flavipes, Leach: Australia 1 ex (1864a: 59, n. 1703)
♀ (probably an Ascalaphidae): Brasile 1 ex (1864a: 59, n. 1704)
♂ (probably an Ascalaphidae): Por. Natale 1 ex (1864a: 59, n. 1705)
Haploglenius ?: Brasile 1 ex (1864a: 59, n. 1706)
Myrmeleon speciosus, Linn.: C. B. Sp. 1 ex (1864a: 59, n. 1707)
[Myrmeleon] \corydalis cephalotes
[Myrmeleon] \nymphes myrmeleonides
[Myrmeleon] pulchellus
[Myrmeleon] speciosus
Haploglenius ?: 1 ex (1864a: 59, n. 1711)
Osmusys strigatus, Burm.: Nuova Olanda 1 ex (1864a: 59, n. 1712)
Corydalis cephalotes, Ramb. ♀: Brasile 1 ex (1864a: 59, n. 1713)

In the material examined by Navás (1913) only 3 non-European specimens are listed. The Collection certainly contains two of the specimens mentioned by Navás.

1ex – Kalliinia yumia ♀\ Osmylus multipunctatus ML. Navás S.J. det [N Kallimarumia]
1ex – M. Zool. n. 43573 \ Palpares papilionoides, Klg. Taurus [N]

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