

Longinos Navás, His Neuropterological Work and Collection

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ABSTRACT

One of the main reasons for the confused taxonomic state of the Neuroptera originates from the works of L. NAVAS (1858 - 1938). Approximately 375 genera, 2173 species and 301 varieties were described by this author, mostly in an imprecise manner, creating an enormous problem that still complicates the determination and study of material from this order. Many types and syntypes of Navás' species are housed in different museums, awaiting possible revision. Unfortunately, the majority remained in his own collection which has suffered serious damage since his death. Only 404 types could be saved, and are now curated in the Zoological Museum of Barcelona. The lamentable deterioration of this collection is discussed.

1. INTRODUCTION

The main problem encountered by those studying systematics is undoubtedly the high number of taxa described by previous researchers. These descriptions frequently lack the information required to permit the determination of specimens. Sometimes, specimens upon which descriptions were based, belonged to official institutions or were later deposited there, facilitating subsequent revision of this material. So, the systematics of many insect groups could now be considered as sufficiently revised and updated so as to provide greater scope and a basis for further studies of the taxa in question.

However, the taxonomy of most families in the order Neuroptera is confused and difficult to study, due to the large number of inadequately described taxa. This problem has been emphasized by nearly all the researchers who have studied the group, and this is probably the main reason for the paucity of taxonomists in the Neuroptera.

There is no doubt that the person mainly responsible for this was L. NAVAS (1858 - 1938), who described nearly 3000 species during his scientific life, mostly belonging to the order we are discussing.

2. L. NAVAS, HIS LIFE

Longinos Navás was born on 7.iii.1858 in Cabacés (Tarragona), the son of farming stock. He was ordained as a Jesuit at the age of 17 and studied law in Barcelona. For 39

years, from 1892, he was biology teacher at the Salvador school in Zaragoza, and during 1900-1901 he studied biology in Madrid.

On two occasions he left Spain for political reasons, living in Chateau-Dussede, France, for 3 years (1875 - 1878) and later in Piamonte, Italy (1932 - 1933). He died on the last day of 1938 in an asylum in Gerona.

Navás belonged to 24 scientific societies and founded the Sociedad Entomológica Española and the Academia de Ciencias de Zaragoza. He participated in several congresses of Entomology and Zoology (London, Bern, Vienna, Graz, Brussels, Oxford, Monaco, Zurich, Rome, Grenoble and Budapest).

His scientific activities spanned 37 years, during which time he published more than 600 revisions, articles and notes, scientific and otherwise, some of them submitted under different pseudonyms such as SAVAN, LINO, GONS, PLINIO, GREGORIO, SEVERINO and NIEREMBERG.

Longinos Navás' activities included subjects such as Geology, Botany and Zoology. On the latter subject, he published papers on Chiroptera, reptiles, birds, fishes and scorpions, but most are on entomology, including Diptera, Odonata, Psocoptera, Embioptera, Plecoptera, Trichoptera, Ephemeroptera, Orthoptera, Mecoptera and Neuroptera.

More data on his life and publications can be found in SALA (1928), SAZ (1940) and DUSMET (1941).

3. HIS WORK

I do not wish to judge Navás' work here, but some facts must be mentioned. Most of his studies lack the precise information required for an accurate diagnosis, because he seldom provided information on genital structures which is essential for the identification of most species. For this reason, careful and continuous revision of material studied by him is required to verify his results, and redescriptions of his types, including characters of the genital structures, are essential for a final analysis.

Some researchers have studied parts of Navás' material, providing important revisions, and in many cases the species he described now appear as synonyms or *nomina dubia*.

In those groups in which there are great numbers of described taxa, the partial revision of species is very difficult and undertaking such a revision would be a life-long study for a group of specialists. Some families were not extensively studied by this author and a revision of his species has been, or is feasible. Consequently, **Coniopterygidae**, **Raphidiidae**, **Polystoechotidae**, **Rapismatidae** and **Nymphidae** do not present many problems. Other families require intensive study and revision, especially **Mantispidae**, **Hemerobiidae**, **Chrysopidae** and **Myrmeleontidae**, the latter, with many monospecific genera, could be most complicated. There are already numerous papers synonymizing many of his taxa, but a difficult task still lies ahead.

The lack of precise information on the geographical localities of many species, inadequate scientific rigour in the designation of holotypes and type-series, the indication of their depositories and the heterogeneous nature of the short reviews in which he published his descriptions, complicate the interpretations of his work.

Many types or syntypes of species described by Navás are housed in different museums (Paris, London, Oxford etc.), awaiting possible revision. Unfortunately, most of this author's material remained in his own collection, containing more than 50,000 specimens, which has been lost or seriously damaged since his death. We frequently see that types belonging to the Navás collection are associated with *nomina dubia* species, as the collection was considered to have disappeared. Nevertheless, part of the collection has been saved, and is now kept in the Zoological Museum of Barcelona.

4. L. NAVAS, HIS COLLECTION

All that now remains of Navás' collection is 404 types and syntypes, in various states

NUMBER OF GENERA, SPECIES AND VARIETIES OF NEUROPTERA DESCRIBED BY L. NAVAS.

	GENERA	SPECIES	VARIETIES
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<u>PLANIPENNIA</u>			
<i>Nemopteridae</i>	18	38	1
<i>Ascalaphidae</i>	12	89	11
<i>Myrmeleonidae</i>	201	812	42
<i>Nymphidae</i>	1	3	-
<i>Psychopsidae</i>	6	8	3
<i>Chrysopidae</i>	50	680	225
<i>Hemerobiidae</i>	28	159	3
<i>Polystoechotidae</i>	1	2	-
<i>Rhaphismidae</i>	-	2	-
<i>Bruchyseridae</i>	1	1	-
<i>Mantispidae</i>	15	177	5
<i>Dilaridae</i>	6	23	1
<i>Berothidae</i>	10	20	-
<i>Osmylidae</i>	7	40	2
<i>Sisyridae</i>	1	11	-
<i>Coniopterygidae</i>	2	17	1
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TOTAL:	359	2.082	294
<u>RAPHIDIOPTERA</u>			
	13	41	1
<u>MEGALOPTERA</u>			
	3	50	6
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TOTAL:	375 gen.	2.173 spp.	301 var.

of preservation. A list of these types has been compiled by MONSERRAT (1985), in an attempt to record the location of numerous types whose existence has been uncertain, and also to consider as lost, those which belonged to his collection but which do not appear on the list.

The drastic reduction in the number of types supposedly housed in this collection is due to the unfortunate mishaps suffered by the collection. I shall detail these incidents to enable everyone to understand why this loss is lamentable and irreparable.

Longinos Navás conducted most of his scientific research at El Salvador College in Zaragoza. During his life, he deposited part of his collection in the Zoological Museum in Barcelona, but the largest part remained at the aforementioned college.

During the Spanish Civil War, as the Barcelona Museum was near the harbour which was frequently bombed, the Director moved this collection, and others, to the university which was far from the harbour. However, shortly after the move a bomb fell on Balmes Street and damaged part of the university building, exactly where these collections were kept. The cabinets fell forward and the ceiling collapsed onto them and, obviously, a considerable part of the material could not be saved and was destroyed.

The rest of the collection remained in Zaragoza and was exhibited in show cases, exposed to light, at the abovementioned college, and it also probably suffered lamentable damage during our Civil War.

In 1958, Dr. Balcells and Dr. Español of the Barcelona Museum commenced work on the recovery of the collection that remained in Zaragoza. In spite of their hard work, they were only able to replace the boxes in the cabinets, preventing them from being left unsheltered, but they were unable to transfer the collection to the Barcelona Museum.

The situation persisted for many years and during the move to the new building of El Salvador College, the abovementioned boxes were flattened (as Dr. Español told me personally), and most of the collection was really lost during that move. The remaining material was almost completely destroyed whilst in storage in the garage of the new building. After several requests by Dr. Balcells and Dr. Español, the material was at last deposited in the Zoological Museum of Barcelona in June, 1976. Now safe, the types were listed with annotations by MONSERRAT (1985).

After this short summary of the misfortunes of Navás' collection, it is not strange that some specimens have lost or changed their labels or that their state of preservation is poor, despite the actual care now being taken. So, some groups such as *Ascalaphidae*, *Dilaridae*, *Osmylidae* and *Mantispidae* may be missing from the list. Nevertheless, 404 types await our revision, and I propose to all of you that similar lists could be published, indicating the location of other Navás types. I request your collaboration on collections in your countries; they would be welcome, revisions more feasible and the systematics of Neuroptera would become clearer.

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