Odonatology in Spain, a brief history

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Ischnura graellsii (A. Miralles)

Different accounts on the history of odonatology (Kiauta, 1978; Corbet, 1991) show that its development was delayed in Spain in comparison with other European countries.

Ignacio Jordán de Asso (1742 – 1814), native from Zaragoza, was a polygraph with a wide range of interests and precursor of modern Natural Sciences in the Iberian Peninsula. His 1784's *Introductio in oryctographiam, et zoologiam Aragoniae* consisted in the first catalogue following the Linnaean system published in Spain (Bach & Compte, 1997) and includes 9 species of Libellula (Odonata).

The Canary Islands exerted a strong attraction on Europeans because of their position in the travel to the Americas and their singular biodiversity. Entomologists were no exception with the first dragonflies records published in 1803 by **Bory de Saint Vincent** (1778 – 1846).

Sympetrum nigrifemur (A. Miralles)

The later *Histoire naturelle des Iles Canaries*, edited by **Philip Barker Webb** (1793 – 1854) and **Sabin Berthelot** (1794 – 1880), mentioned the presence of five species (Weihrauch, 2011), including *Libellula vulgata*, a taxon later elevated to the rank of species *Sympetrum nigrifemur* (Selys, 1884), and endemic of Macaronesia. Finally and notably, the type locality of the widespread *Orthetrum chrysostigma* (Burmeister, 1839) is Tenerife.

The progress of entomology in Spain truly started in the 19th century, with French and Swiss naturalists who travelled in very different circumstances. As a way of example, the coleopterist General **Auguste Dejean** (1780 – 1845) famously crossed the country during Napoleonic wars. Very little time after Spanish independence, **Jules Pierre Rambur** (1801 – 1870) took advantage of the fashion of the Romantics for Spain in order to explore Andalusia, but only started studying the odonates after his travels. **Edmond de Selys Longchamps** (1813 – 1900) did not travel to Spain but gathered information on the Spanish fauna and reported numerous first records for the country in his seminal European works.

In 1865, **A. Edouard Pictet** (1835 – 1879) published the first account dedicated to Spanish dragonflies, part of its *Synopsis des Névroptères d'Espagne*, which was further translated by **Hermann August Hagen** (1817 – 1893).

The British naturalists generally explored the surroundings of their colony in Gibraltar, founded in the 18th century, and the Cádiz province after the subsequent establishment of wine traders in Jerez de la Frontera. The English Neuroptera and Trichoptera specialist **Robert McLachlan** (1837 – 1904) reported lists of species collected by correspondents from Gibraltar, Granada and Central Spain.

In the same century, Natural History was also impulsed within Spain. The creation of the Museo Nacional de Ciencias Naturales (MNCN) in Madrid and the activities of its director **Mariano de la Paz Graells** (1809 – 1898) promoted an era of collecting insects throughout the whole country and the rise of Spanish entomology (Bach & Compte, 1997) with an intense activity toward the end of the century and the creation of the Sociedad Española de Historia Natural. The first collected specimens of dragonflies kept in the MNCN collections belong to *Ischnura graellsii*, the Iberian bluetail, and were collected at an unknown locality in May 1888 and at La Garriga (Barcelona) in June 1889 (París *et al*., 2014). The catalan **Miquel Cuní i Martorell** (1827 – 1902) is the first Spanish author to report on dragonflies with his list of Neuroptera from the Barcelona region published in 1878.

A central figure of neuropterology worldwide and very active in the first decades of the 20th century, **Longinos Navás Ferrer** (1858 – 1938) was a precursor of odonatology in the Balearic islands (Rebassa & Canyelles, 2022). He published the first monograph dedicated to Spanish dragonflies in his *Sinopsis de los Paraneurópteros (Odonatos) de la península ibérica* (1924), which was based on many of its previous works on the group and presented the first identification key in Spanish of adult odonata in this territory.

Zygonyx torridus (A. Miralles)

Subsequently and during most of the century, scientific activity was greatly reduced in Spain as a whole, as a consequence of the Civil War. Nevertheless, isolated odonatological works were undertaken by **José María Andreu Rubio** (1881 – 1967) and by the enigmatic **Antonio Benítez Morera**, author of the *Odonates of Spain* edited by the Spanish Institute of Entomology (1950). **Arturo Compte Sart** (1933 – 2023) joined the Spanish Council of Research Consejo Superior de Investigaciones Científicas (CSIC) in the 60's and became the leading figure on Odonata in Spain, publishing, among other works, the first identification key in Spanish of the nymphs of the Balearic Islands.

From the decade of the 70's, an era began with the development of higher education and the establishment of new universities in modern Spain and the rise of a generation of odonatologists, organised mostly around the figures of University professors. We can cite the late **Carlos Bonet Betoret** (1955 – 2004), **Francisco Ocharan** (1946 – 2019) altogether with various dedicated odonatologists who started their research in this period and still active: **Manuel Ferreras Romero**, **Miguel Conesa** and **Adolfo Cordero Rivera**.

Back in the 80's, the Spanish road network was really poor in comparison with today's standards. The exploration of its countryside and odonatofauna required an effort difficult to imagine nowadays and the access to scientific information was very limited. Ocharan's PhD was a major turning point with its mapping of Spanish Odonata. He subsequently described two endemic subspecies *Calopteryx haemorrhoidalis asturica* Ocharan, 1983 and *Sympetrum vulgatum ibericum* Ocharan, 1985.

Simpetrum vulgatum ibericum (A. Miralles)

Spain's democracy renewed and sparked the interest of European odonatologists for the country in the 1980's and 1990's, culminating with the choral *Studies on Iberian dragonflies* edited in 1996 by **Reinhard Jödicke**, that presented faunistic information from many areas of the country so far unexplored.

Roughly coinciding with the turn of the century, the combination of illustrated field guides, the rise of digital photography and internet communication allowed for the spread of odonatology beyond academic circles and the advances of amateurs and so called citizen/participative science. Without being exhaustive, and only to illustrate the advancement of dragonflies studies in Spain, it is worthy to note the pioneering citizen science webpage **Biodiversidad Virtual / Insectarium Virtual** (1998) and the first published regional atlas *Les libèl·lules de la Comunitat Valenciana* (2006).

The main public collections of Odonata are found in the Museo Nacional de Ciencias Naturales (MNCN) in Madrid, recently revised (París *et al.*, 2014), followed by the Museu de Ciències Naturals de Barcelona (MCNB), with an updated list of their material, the BOS Arthropod Collection at University of Oviedo (Torralba & Ocharán, 2013) and to a lesser extent the entomological collection of the University of Valencia.

The Grupo Ibérico de Odonatología (GIO) was established in the year 2018 and three editions of the Iberian Symposium of Odonatology have been celebrated up to present times, in Córdoba (2015), Lugo (2018) and Irún (2021). GIO's web page provides online the whole Iberian bibliography with nearly 900 references: http://gio.sea-socios.com/biblio-articulos.html.

To the greatest surprise of the whole odonatological community, a new Iberian endemic *Onychogomphus cazuma* Barona, Cardo & Díaz, 2020 was described and only proves there is still much research to carry on in Spain and Europe.

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Jules Pierre Rambur

Jules-Pierre Rambur

Jules Pierre Rambur (Chinon, FR 1801 – Geneva, CH 1870) was a French doctor and an entomologist, co-founder of the Société entomologique de France (1832). He specialised in Lepidoptera but had a broad range of interests within Natural History. Rambur travelled 16 months to Corsica where he studied Lepidoptera (published in 1832) and became the first entomologist to visit Andalusia (1834-1835).

The published volumes of his remarkable *Faune d'Andalousie* did not cover the Odonata. Ironically, although he described *Libellula baetica* Rambur 1842 on specimens he collected in Andalusia, the taxon had already a synonym *Libellula nitidinervis* Selys, 1841.

His main publication on dragonfly was a command for the encyclopaedia on the *Histoire naturelle des insectes*, printed by Roret (Paris), specifically the volume on "*Névroptères*" (1842), where he described seven still valid European species: *Coenagrion scitulum*, *Ischnura graellsii*, *Ischnura senegalensis*, *Ischnura genei*, *Platycnemis latipes*, *Gomphus graslinii* and *Diplacodes lefebvrii*.

Platycnemis latipes (A. Miralles)

Graells corresponded with Rambur and provided specimens of *Ischnura graellsii*, among others, for his study. His 1842 work was contemporary with Charpentier (1840) and Selys (1840) but only published after them, hence many of Rambur's species fall in synonymy and oversight. Unfortunately, in the case of common species, Rambur did not bother indicating his own captures in Spain.

Nevertheless he established well known higher taxa such as the families *Libellulidae* and *Aeshnidae* and the genus *Macromia*. After this publication, Rambur stopped his interest in the group. Rambur, Audinet-Serville and Guérin-Méneville's collections were later acquired by Selys Longchamp.

Biography (with remarks on its Andalusian Orthoptera) | *Boletín de la SEA*, **54**: 317-328 | 2014. (Spanish)

A tribute to Jules Pierre Rambur, highlighting its pioneering works on Lepidoptera | *Entomologische berichten*, **76 (3)**: 94-98 | 2016.

Miquel Cuní i Martorell

Miquel Cuní i Martorell

Miquel Cuní i Martorell (Calella, 1827 – Barcelona, 1902) was born into a wealthy family of merchants, soon dedicated to the family business and to the care of his mother and sisters. Initially interested in botany, he later dedicated himself almost exclusively to the entomology after meeting the German entomologist Jakob Himminghoffen.

The second half of the 19th century was a period of very high intellectual activity and development of natural history in Spain. Cuní was a founding member of the still active Catalan Institution of Natural History in 1899, and of the Aragonese Society of Natural Sciences in 1902. He gathered a very complete collection of butterflies and beetles from Catalonia, which is nowadays deposited in the Museum of Zoology of Barcelona.

Cuní was the author of thirty-five scientific works, among which the "*Lista de neurópteros de las cercanías de Barcelona*" (1878). He was the first Spaniard to publish on dragonflies, recording species such as *Chalcolestes viridis, Coenagrion pulchellum, Ischnura elegans, Libellula quadrimaculata, Selysiothemis nigra* and *Sympetrum pedemontanum*, new for the country. Although one of them, *C. pulchellum*, is currently considered extinct in Spain after many decades without observations.

Biography | *Real Academia de la Historia online* | 2024. (Spanish)

A. Edouard Pictet

Albert-Edouard Pictet (Geneva, 1835 – 1879) was a member of a prestigious family of Swiss naturalists and zoologists, also committed to the politics of the "country of the cantons". He is the son of Jules Pictet de la Rive (1809-1872), a specialist in the Neuroptera (including Odonata back in this epoch) and discoverer of *Macromia splendens*, but later dedicated mostly to palaeontology.

Albert-Edouard Pictet

A. Edouard inherited his father's passion for insects and first became interested in butterflies, amassing a large private collection. After completing his studies, he began to seriously study neuropterans and undertook a trip to Spain in 1859, accompanied by the entomologist Rudolf Ludwig Meyer-Dür (1812 – 1885), from where he brought home a rich material of all kinds.

In 1865, he published his *Synopsis des Névroptères d'Espagne*, the first monograph published on the group in Spain, dedicating a chapter to the dragonflies. The book collects bibliographical citations, mainly from Selys and Rambur, and provides new observations after its visit to Malaga and the Granja de San Ildefonso, and raised the inventory of odonates known from peninsular Spain to 38 species.

He later dedicated most of his time to military service as an officer of the Federal Engineering Staff, engaged in politics and carried out a detailed topography of the Lac Lémant. Albert-Edouard Pictet died at the age of 43 years as a result of a painful illness.

In memoriam | *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, **5 (10)**: 555-556 | 1877-1880.

Longinos Navás Ferré

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Father Longinos Navás Ferré (Cabacés, Tarragona 1858 – Gerona, 1938) was an entomologist and a jesuit. He was ordained in 1890 as a priest and assigned in 1892 to the Colegio del Salvador in Zaragoza, the city where he carried out practically all of his scientific work, until the dissolution of the Company of Jesus, decreed on January 1932 by the Government of the Second Republic.

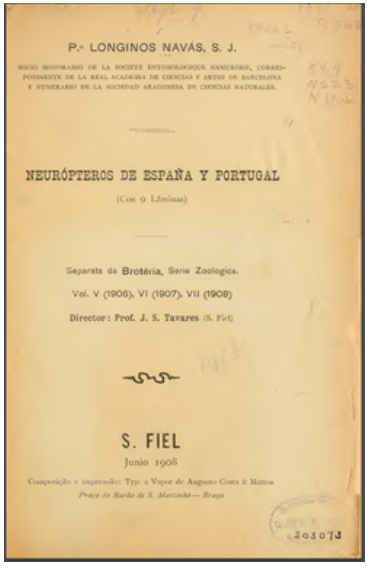
He then had to travel to seek shelter and even live in clandestinity for two years after the outbreak of the Civil War which left him isolated in the republican area.

At the turn of the 20th century, he discovered a passion for scientific studies and graduated in Natural Sciences from the University of Madrid in 1904. His scientific activity as an entomologist was enormous although he also cultivated botany —with special dedication to lichens—, ornithology, palaeontology and even archaeology.

He published six hundred and eighty-five scientific works, mainly on insects from the orders of Neuroptera, Mecoptera, Raphidioptera, Megaloptera, Plecoptera and Trichoptera, among others, and even ornithological, lichenological and paleontological articles. He described three thousand one hundred species and forms of neuropterans and other insects new to science, as well as three hundred and eighty-eight genera. Navás assembled an important entomological collection that numbered more than fifty thousand specimens. A true autodidact, his legacy is nowadays controversial because his descriptions were often imprecise and that most of his collection was lost leading to unsolvable questions.

Navás published a monograph on Iberian Neuroptera in 1906, followed by the first monograph on Paraneuroptera (Odonata) in 1924. He found numerous dragonflies scarce in Spain and reported 14 species new to Spain, including *Lestes macrostigma, Brachytron pratense, Macromia splendens, Lindenia tetraphylla, Cordulegaster bidentata, Onychogomphus costae, Aeshna juncea* and *Zygonyx torridus* among others.

Apart from this, he published seventeen religious works and translated three books of the same nature.


P.e LONGINOS NAVÁS, S. J.

NEURÓPTEROS DE ESPAÑA Y PORTUGAL

(Con 9 Láminas)

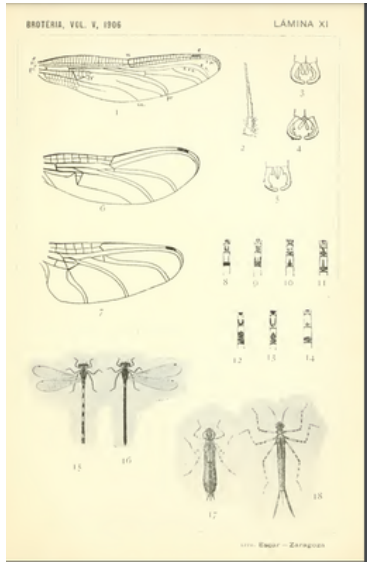
Separata da Brotéria, Serie Zoologica.

Vol. V (1906), VI (1907), VII (1908)

Director: Prof. J. S. Tavares (S. Fiel)

S. FIEL

Junio 1908


BROTERIA, VOL. V, 1906 LÁMINA XI

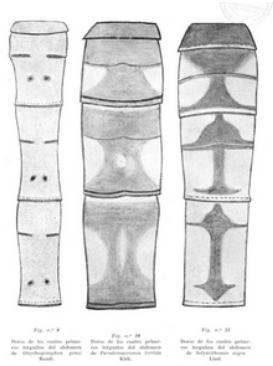
Longinos Navás Ferré. *Neurópteros de España y Portugal:* Separata de Brotéria, Serie Zoologica. 1906.

Biography | *Real Academia de la Historia online* | 2024. (Spanish)

José María Andreu Rubio

Father José María Andreu Rubio (1881 – 1967) had two passions from a very young age: the religious call and the study of nature, that he combined throughout his entire life. In 1893, at only twelve years old, he entered the seminary, was ordained a priest in 1905 and held from 1905 to 1934 the chair of Natural Sciences and Philosophy at the Seminary of San Miguel de Orihuela, being professor of Natural History since 1908. After the Civil War, he was assigned to the Faculty of Sciences of the University of Murcia and was in charge of its Entomology laboratory until his retirement in 1951.

Father Andreu, as he was known by the entomologists of the Spanish Institute of Entomology (Madrid), explored methodically the Spanish southeast. As a result of his work, twenty-six species were described new for science, *e.g.* the notable Neuroptera *Josandreva sazi* and the longhorn beetle *Plagionotus andreui*, named in his honour by Father José María de la Fuente.



***Los Insectos «Odonatos» en la provincia de Murcia*. José M. Andreu Rubio. 1953. *An. Univ. Murcia* 9: 755-776**

He put together a collection of more than twenty-five thousand specimens, of which more than half were Diptera. In the course of his expeditions, he had the leisure to collect many insects, among them the dragonflies. In 1953, he published *Los insectos Odonatos en la provincia de Murcia*, a 17 pages paper which summarised the observations on 40 species present in the territory of Murcía, including rare species such as *Onychogomphus costae*, *Zygonyx torridus* or *Selysiothemys nigra*. 65 years later, no more than 11 species were added to his catalogue, of which nearly half are recent African colonists.

Biography | *Real Academia de la Historia online* | 2024. (Spanish)

Carlos Bonet Betoret

Carlos Bonet Betoret

Carlos Bonet Betoret (Valencia, 1955 – 2004) graduated in Biological Sciences from the University of Valencia in 1977, obtained a position as professor of Natural Sciences and received his PhD in 1990 for his Doctoral Thesis "*Contribution to the study of adult odonates in the province of Valencia*" directed by Dr. Ignacio Docavo Alberti.

An encyclopaedic mind, attracted to various fields of science and the humanities and belonging to numerous scientific and cultural associations. His scientific work focused on entomology, highlighting the study he carried out on the odonates of the province of Valencia. He became interested in the more humanistic aspects and the common names of odonates.

Carlos Bonet was a peculiar, unconventional, scientist. A great lover of field work, he detested office work, for which he was considered himself unsuited. His few publications are characterised by succinct language, in which he nevertheless introduces expert opinions. An unusual form of communication for its time, but one that gives his work great personal value and freshness. As a curiosity, we must highlight his interest in cryptozoology.

His interest in the unknown led him to search for emblematic and little-known species such as *Lindenia tetraphylla*, *Macromia splendens*, or the, at that time, rare *Trithemis annulata* and *Zygonyx torridus*.

Carlos Bonet died at the age of 49 as a result of cancer shortly before the publication of *Les Libèl·lules de la Comunitat Valenciana*, the first book covering the dragonflies of any Spanish region. The opus came to light and was dedicated to his memory.

Tribute | Santiago Teruel | May 2024.

Arturo Compte Sart

Arturo Compte Sart at Ibiza. 2010. (family archive).

Arturo Compte Sart (1933 – 2023) was a Majorcan naturalist interested in zoology, palaeontology, botany and geology, and a founder of the Balearic Natural History Society. In the 60's and 70's, he was the main Spanish authority on Odonata but also studied Coleoptera and Neuroptera. He worked in several institutions of the Spanish Research Council (CSIC) throughout his career: Institute of Soil Science and Plant Physiology, Spanish Institute of Entomology and Institute of Cellular Biology. He was appointed at the National Museum of Natural Sciences around 1985 until his retirement in 2003.

Compte Sart participated in numerous research projects on the biodiversity of the dragonflies. In his early career, he studied the presence of species such as *Selysiothemis nigra* and *Brachythemis impartita* in Spain, the odonatofauna of the Balearic Islands and published his work *Distribution, ecology and biocenosis of the Iberian Odonates*. He further surveyed the National Park of Doñana and was interested in the biogeography of the Spanish species of *Ischnura*.

Despite not having obtained a degree in Biological Sciences, he contributed to the completion of several PhD and was involved in several scientific committees and journal editorial boards. Compte Sart also dedicated time to scientific dissemination, giving talks and conferences and writing articles for the general public. He was passionate about nature and science. His legacy lives on in his many contributions to science and education.

In memoriam | *Boln. A.e.E.*, **47 (1-2)**: I-IV | 2023. (Spanish)

Francisco J. Ocharan Larrondo

Francisco J. Ocharan Larrondo (Bilbao 1946 – Oviedo 2019) worked as Professor at the University of Oviedo and represented the highest standard of Iberian Odonatology during the last decades of the last century and until his disappearance.

His works gave the necessary impetus that had been missing since Longinos Navás.

Francisco Ocharan at the BOS's Entomology department

From the faunistic perspective, he compiled and critically analysed the corpus of data existing until that moment, significantly increasing the available records through sampling throughout the Peninsula, and rescuing overlooked records. His doctoral thesis (Ocharan Larrondo, 1987) represented THE reference to frame new data on Iberian odonates, and to verify which of the previous records had been discarded after his analysis.

His taxonomical contributions are notable, speaking of Odonata in Western Europe. He subsequently described two endemic subspecies: *Calopteryx haemorrhoidalis asturica* Ocharan, 1983 and *Sympetrum vulgatum ibericum* Ocharan, 1985 (also present in a few French localities), while describing the Iberian variability of some species to conclude that they were nothing more than forms of some previously described subspecies.

From the conservation focus, he participated in the works that would mark the evaluations of the Spanish fauna, directing the group that produced the chapters on odonates in the *Atlas and Red Book of Invertebrates of Spain*.

Only the emotive tribute dedicated to Pacho in *Boletín de la Sociedad Entomológica Aragonesa*, is capable of transmitting his love for the insects and his dedication as a teacher, which left an impression on his students. Pacho was a smiling and unusual person, highly appreciated by the rest of the professors and always willing to help and support.

***Calopteryx haemorrhoidalis asturica* Ocharan, 1983**
(A. Cordero)

In memoriam | *Boln. A.e.E.*, **43 (3-4)**: V-XX | 2019. (Spanish)

Tribute | *Boletín de la SEA*, **67**: 326–335 | 2020. (Spanish)