



Zootaxa 20th Anniversary Celebration: Odonata section

DENNIS R. PAULSON¹ & MILEN MARINOV²

¹Slater Museum of Natural History, University of Puget Sound, Tacoma, WA 98416 USA.

✉ dennispaulson@comcast.net; <https://orcid.org/0000-0002-6036-3618>

²Biosecurity Surveillance & Incursion Investigation Plant Health Team, Ministry for Primary Industries, 14 Sir William Pickering Drive, Christchurch 8053, New Zealand.

✉ milen.marinov@mpi.govt.nz; <https://orcid.org/0000-0003-3284-2555>

Abstract

During the two decades (2001–2020) of the journal's existence, 346 papers on Odonata were published in *Zootaxa*. These papers contributed 317 new extant taxa, 26 new fossil taxa, and 106 new larval descriptions. By the end of the period, papers in *Zootaxa* were contributing slightly more than half of all descriptions of new extant taxa. Research was published from all over the world but predominantly from the American and Asian tropics, and authors from 42 countries contributed papers.

The insect order Odonata is a small but important one, as its members are large, active, and colorful, and it is popular with growing numbers of amateur naturalists. Thus, it can be considered somewhat of an icon for the world of insects. In its two decades of existence, *Zootaxa* has been a very important platform for the publication of taxonomic studies of Odonata, and herein we summarize those publications.

During the two-decade period 2001–2020, there were 346 papers published on Odonata in *Zootaxa* (Table 1), averaging 17.3/year. Many more papers are being published presently than at the beginning of the two decades, with averages of 5.7/year in the first decade and 28.9/year in the second decade. We did not count errata as published papers, and the three papers of the Angelo Machado Festschrift were considered as one.

Of course, additional manuscripts were rejected because of not adhering to *Zootaxa* requirements or not being appropriate for the journal. During the editorship tenure of DRP and MM, 317 manuscripts were submitted, of which 259 (81.7%) were published; the others were either rejected or withdrawn.

Papers published during the two decades were of varied types, but the great majority consisted of descriptions of new taxa, both extant and fossil, and formal descriptions of larvae (also termed nymphs according to the preference of the submitters) for the first time (Table 1). Some of the latter were redescriptions of larvae that had not been adequately described in earlier literature. Note that often more than one new taxon is described in a single paper; thus these numbers are larger than the total number of papers.

In addition, there were just a few papers involving faunal lists, clarifications of taxonomic status of species, locations of type specimens, a replacement name, history of Odonata classification, discussions of conservation and phylogeny, and a single Festschrift.

Odonata are well represented in the fossil record, but deciding where a fossil belongs phylogenetically and whether it has been described before is quite a greater effort than doing the same for an extant species.

It is also somewhat more difficult to assign an odonate larva to a known species unless it is reared to adulthood or a freshly emerged individual is found in the field. Nevertheless, continued progress is being made in that area, with considerable effort put toward a long-term goal of having the larva of at least one species in each genus described.

TABLE 1. Publications on Odonata by year in *Zootaxa*.

Year	Papers	New extant taxa	New fossil taxa	New larval descriptions
2001	0	0	0	0
2002	1	1	0	0
2003	0	0	0	0
2004	1	0	0	0
2005	0	0	0	0
2006	4	3	3	2
2007	7	6	2	0
2008	11	15	1	7
2009	14	18	0	5
2010	19	25	3	7
2011	22	11	0	10
2012	19	5	2	9
2013	25	38	2	17
2014	23	22	2	6
2015	27	36	3	6
2016	37	35	1	9
2017	37	40	5	5
2018	27	25	1	4
2019	38	20	1	11
2020	34	17	0	8
TOTAL	346	317	26	106

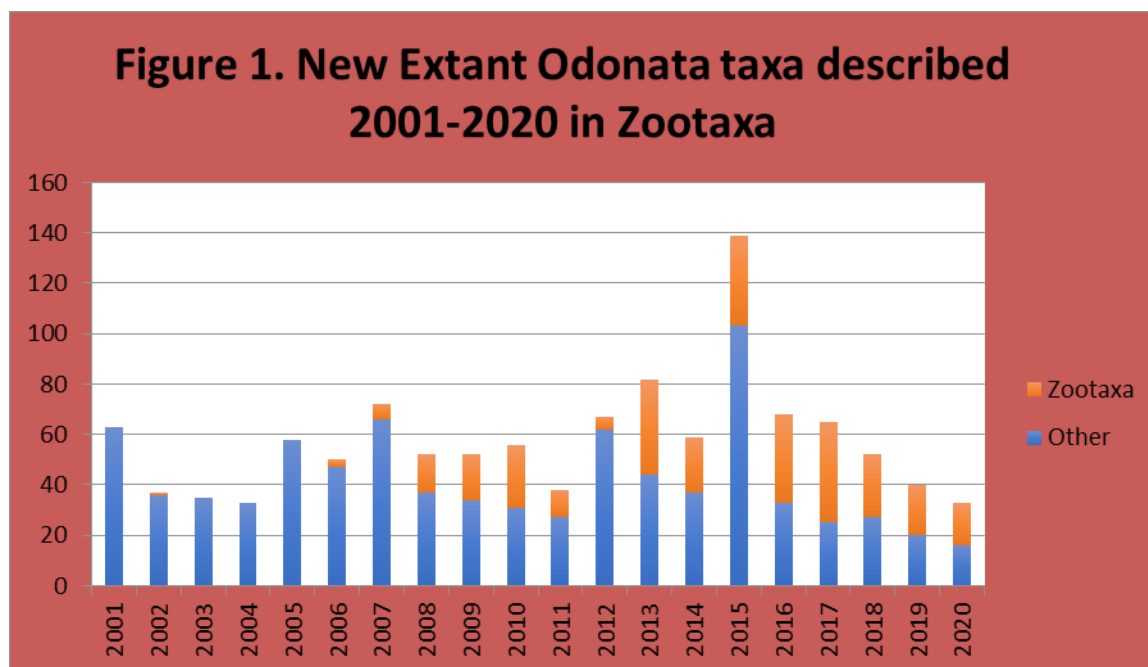


FIGURE 1. New Recent Odonata taxa described 2001-2020 in *Zootaxa*.

The number of odonate taxa described in *Zootaxa* are compared with the total numbers described in all journals year by year from 2001–2020 (Fig. 1). *Zootaxa* has served as a very important platform for the publication of new taxa in the Odonata, accounting for 317 of the 1,152 new extant taxa published from 2001–2020 (27.5%). There is much year-to-year variation in this percentage, but *Zootaxa* totalled 13.4% of the new taxa in the first decade and 45.9% in the second. In four of these years, *Zootaxa* accounted for half or more of new taxon descriptions. The unusual peak in 2015 is from a single paper in *Odonatologica* in which 60 new species were described from Africa (Dijkstra *et al.* 2015).

Odonata are more diverse in the tropics, and there are still many more undescribed species to be collected in nature and discovered in museum collections (Kalkman *et al.* 2008). In that paper, 5,680 species of Odonata were known, and it was estimated that the actual number might be close to 7,000. In fact, as of the end of 2020, there were 6,315 known species (Paulson & Schorr 2021), already halfway there!

We were also interested in the geography of publications, so we assigned each publication to a biogeographic region (Fig. 2). We considered Australia and New Guinea separate from the rest of Oceania. It is quite evident that almost all of current taxonomic studies are in tropical America and tropical Asia, as 91.3% of the papers deal with those two regions, the two almost equally. These regions are of course where the possibility of undescribed species is still great, and many tropical odonate groups have not yet been the subject of a thorough taxonomic revision. Collections still have many unidentified specimens, some of which are surely undescribed species.

Finally, where are these papers coming from? We also looked at the countries of origin of the authors. For this analysis, a paper was considered coming from a country no matter how many authors, so one author and multiple authors from the same country were considered equivalent. But if authors were from multiple countries, each country was counted once (Table 2). No latitudinal analysis was attempted, but it is evident that taxonomic researchers are scattered all over the globe, equally from temperate and tropical countries.

TABLE 2. Countries of origin of authors of Odonata papers in *Zootaxa*.

Country of authors	# papers	Country of authors	# papers
Netherlands	68	New Zealand	5
Brazil	61	Portugal	4
China	49	South Africa	4
USA	48	Venezuela	4
Mexico	29	Philippines	3
France	28	Poland	3
Australia	27	Slovenia	3
Germany	25	Bhutan	2
Vietnam	18	Ecuador	2
Russia	16	Nepal	2
Argentina	14	Pakistan	2
Colombia	14	Bangladesh	1
India	13	Belgium	1
Malaysia	13	Czechia	1
Finland	12	Denmark	1
Thailand	12	Fiji	1
Japan	11	Italy	1
UK	11	Lebanon	1
Spain	7	New Caledonia	1
Costa Rica	6	Switzerland	1
Cuba	5	Tunisia	1

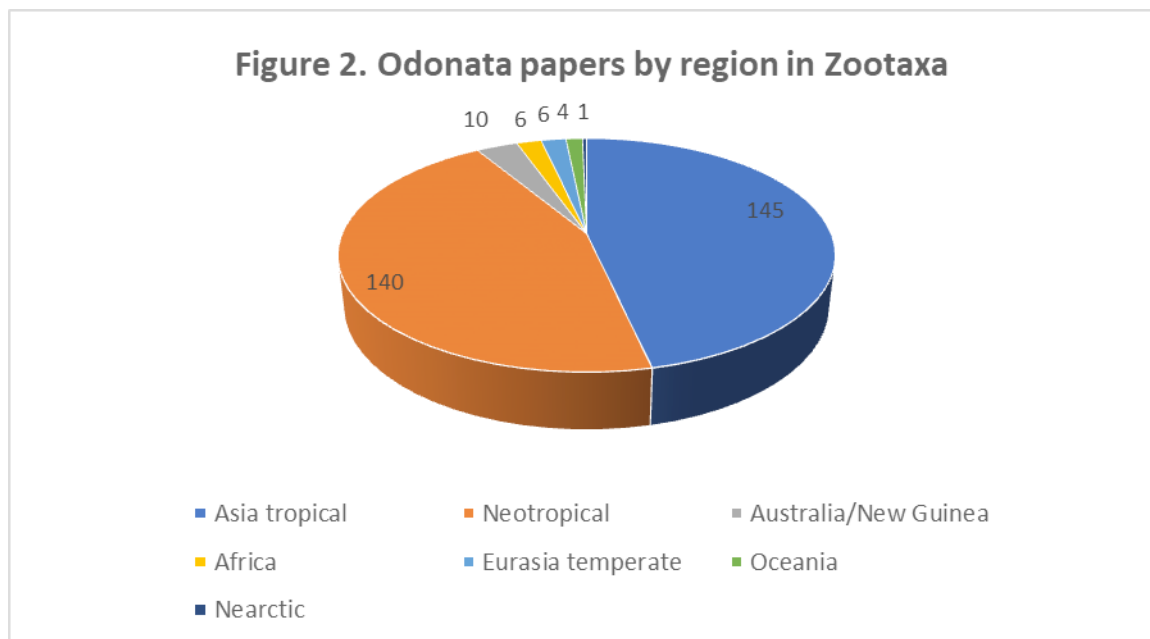


FIGURE 2. Number of Odonata papers from each biogeographic region in *Zootaxa*.

Only 11 (3.2%) of the 346 papers are Open Access, and we hope that proportion will increase in the future.

The popularity of *Zootaxa* within a community of scientists working with an insect order of a little more than 6,300 species has been steadily increasing for the last ten years, with the total number of submissions soaring to more than 40 per year since 2016. This makes close to one manuscript per week. The increased work for the Odonata section editors will more likely result in involving another taxonomist in the group to manage the load.

Acknowledgements

We thank Rosser W. Garrison, editor for the first 53 Odonata papers published in *Zootaxa*. He was too busy pursuing a major taxonomic study on the second-largest odonate genus, *Argia*, to participate in the writing of this paper but gave us his blessing. All three editors would like to thank all subscribers for their continued support with submissions from all over the world dealing with odonates from present day back through the Middle Permian. We also extend our gratitude to the *Zootaxa* Chief Editor for the great commitment to the world of zootaxonomists and for keeping us updated with all the latest discussions in our science.

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