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D.E.Z. – A history in numbers

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Abstract

The *Deutsche Entomologische Zeitschrift* (*D.E.Z.*) celebrated its 150th birthday in 2007. Its 176 volumes comprises 5,522 articles and 73,711 pages written by 1,390 authors. This article attempts to analyse and summarise its history in numbers including taxonomic as well as historical trends and developments of the *D.E.Z.* from the past to the present.

Introduction

In 2007 the 150th birthday of one of the oldest still-existing entomological journals in the world – the *Deutsche Entomologische Zeitschrift* (*D.E.Z.*) – was celebrated (for a historical background of the *D.E.Z.* see Wessel 2007; Wessel et al. 2007). This journal has survived 150 years history of political and scientific paradigm changes, transformations, divisions and reunifications. A history in numbers of the *D.E.Z.* will be presented here in a descriptive-statistical way.

Volumes, issues, pages

A total of 176 volumes was released within the journal's history beginning with the first volume of the *Berliner Entomologische Zeitschrift* (*B.E.Z.*) in 1857 until the second issue of the *D.E.Z.* in 2007. The years between 1857–1874 consist of altogether 18 volumes, mostly subdivided into four issues (occasionally into two issues), also combined with additional supplements (*Beihefte*). After the transformation of the *B.E.Z.* into the *D.E.Z.* in 1875 (see Wessel 2007) the volume numeration was continued with volume 19 (1875) until volume 24 (1880), mostly composed of 3 issues. In 1881, the *D.E.Z.* divided into two separate journals, the *B.E.Z.* (different editors) and the *D.E.Z.* (still edited by Gustav Kraatz) resulting in altogether 68 volumes within 33 years. The continuity of volume numeration was maintained after this division by the *B.E.Z.* (volume 25 (1881) until volume 58 (1913)), whereas the *D.E.Z.* had to stop this counting with the last volume 32 in 1888 due to a lost law suit (see Wessel 2007). From the reunification of both journals in 1914 until 1943 (the volume of the year 1944 was not published; see Wessel 2004) the volumes were unnumbered, before the *D.E.Z., Neue Folge* (*D.E.Z., N.F.*) restarted in 1954 with volume 1 (1944/54), 5 issues per volume until 1992, followed by only 2 issues per year since 1993 until today (Table 1). Starting with 208 pages in the first volume in 1857 a maximum of 942 pages was published by the *D.E.Z.* (1909) leading to a total number of 73,711 pages (only paginated pages counted; Plate 1, Figure 1).

D.E.Z. authors: productivity, gender proportion, geographic origin

1,390 authors (a complete list is given in Wessel et al. 2007) contributed to the *D.E.Z.* series with 5,522 scientific articles. The most productive authors were: Gustav Kraatz (825 articles, i.e. 19.2 % of German articles; 14.7 articles per volume on average; 1,027 original spe-

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Table 1. Volumes and ISSNs of the *D.E.Z.* (* volumes unnumbered; see text).

B.E.Z.	D.E.Z.	D.E.Z., Neue Folge	D.E.Z. – An International Journal of Systematic Entomology
1 (1857)–18 (1874) ISSN: 0323-6145			
	19 (1875)–24 (1880) ISSN: 0323-6145		
25 (1881)–32 (1888) ISSN: 0012-0073	25 (1881)–32 (1888) ISSN: 0323-6145		
33 (1889)–58 (1913) ISSN: 0012-0073	(1889)–(1913)* ISSN: 0323-6145		
	(1914)–(1943)* ISSN: 0323-6145		
		1 (1944/54)–44 (1997) ISSN: 1435-1951	
			45 (1998)–54 (2007) ISSN: 1435-1951

cies descriptions until his last *D.E.Z.* article in 1902; 3,454 pages), Julius Weise (236 articles; 748 original species descriptions; 1,125 pages), Edmund Reitter (206 articles; 1,602 original species descriptions; 1,981 pages), Lucas Friedrich Julius Dominikus von Heyden (121 articles; 345 original species descriptions; 752 pages), Walther Horn (112 articles; 261 original species descriptions; 882 pages), and Friedrich Hermann Loew (991 original species descriptions in 10 volumes over 555 pages).

Incidentally, the first woman author of the *D.E.Z.*, who published in the male-dominated field of taxonomy was Prinzessin Therese Charlotte Marianne Auguste von Bayern. Between 1900 and 1902 she described – in cooperation with diverse entomologists – 28 new insect species from her South American journeys. Except for the article by Hildegard Schultz in 1914, it was not until 1955 that the series of female authors was continued by Ingeborg Crome followed by others in the next years.

55.04% (N = 765) of the 1,390 authors of the *D.E.Z.* were German[1]. Together with Austria, India, USA, Italy, France, and Great Britain this top 10 of most represented nations share 74.24% (N = 1,032) of all *D.E.Z.* authors (Table 1). The rest of 25.76% (N = 358) is distributed among the remaining 60 countries.

The *D.E.Z.* considered itself from the beginning an international entomological journal. Already in the first volume in 1857 the Italian coleopterologist F. Baudi di Selve published his first article containing 14 newly described beetle species from Europe. In the following years also other European (mostly Austrian and Italian) as well as non-European authors contributed their articles to the *D.E.Z.* (Plate 1, Figures 2–3).

With respect to German history it would be interesting to see whether or not political conflicts, in which Germany was involved in or rather responsible for, like the Austro-Prussian War in 1866, Franco-Prussian War in 1870/71, World War I 1914–1918, and World War II 1939–1945 had effects on the journal's article output and/or the nationality of authors. While the first mentioned historical events seem to have had no significant influences on either parameter, the years around or during WW I and WW II (the most important impact on the journal's publishing accounting for its discontinuation) reveal significant decreases in number of articles on one hand as well as alterations in number of non-German European authors on the other hand (Plate 1, Figure 2). In regard to the authors' nationality this is most obvious in British authors (the first article by a British author after WW I was published in 1926, after WW II in 1961), and in French entomologists, who after WW II did not publish in the *D.E.Z.* until 1961.

After this period of political conflicts the subsequent Cold War resulted in the so-called Iron Curtain running directly through Germany and dividing the capital into

Plate 1. ▶
Figure 1. Number of original species descriptions per page (*B.E.Z.* + *D.E.Z.*) over time.
Figure 2. Productivity among authors from the top 5 European countries contributing (articles per nation; *B.E.Z.* + *D.E.Z.*).
Figure 3. Geographic origin of contributing authors (articles by continents, excl. German authors; *B.E.Z.* + *D.E.Z.*).

[1] German used as a collective term for: German Confederation 1857–1871, German Empire 1871–1918, Weimar Republic 1919–1933, Third Reich 1933–1943, GDR (German Democratic Republic 1954–1990), FRG (Federal Republic of Germany 1954–1990), and Federal Republic of Germany since 1991. The given years are adapted to the journal's publishing dates.

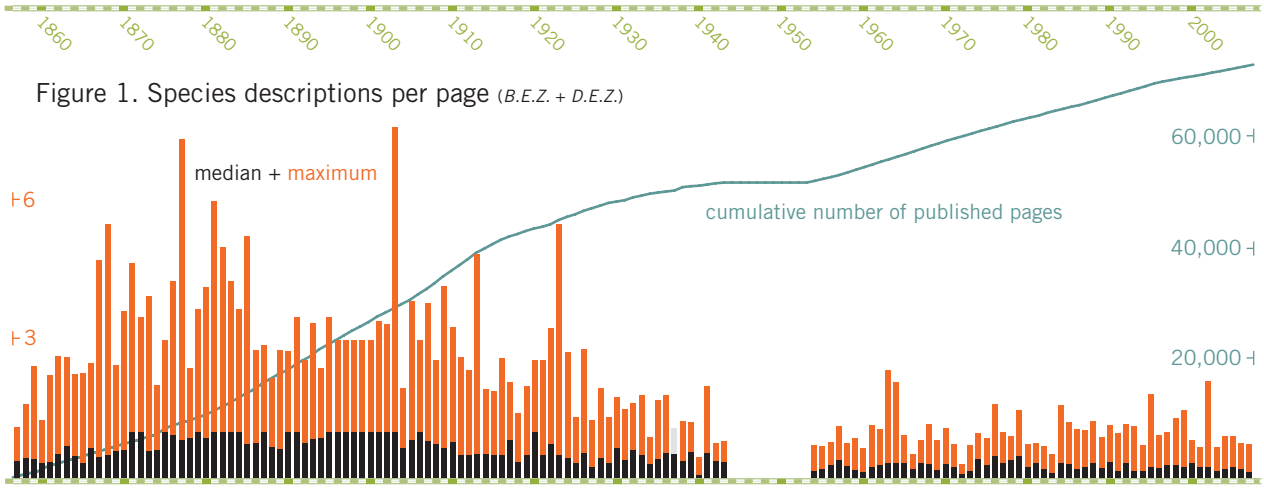

Figure 1. Species descriptions per page (*B.E.Z.* + *D.E.Z.*)

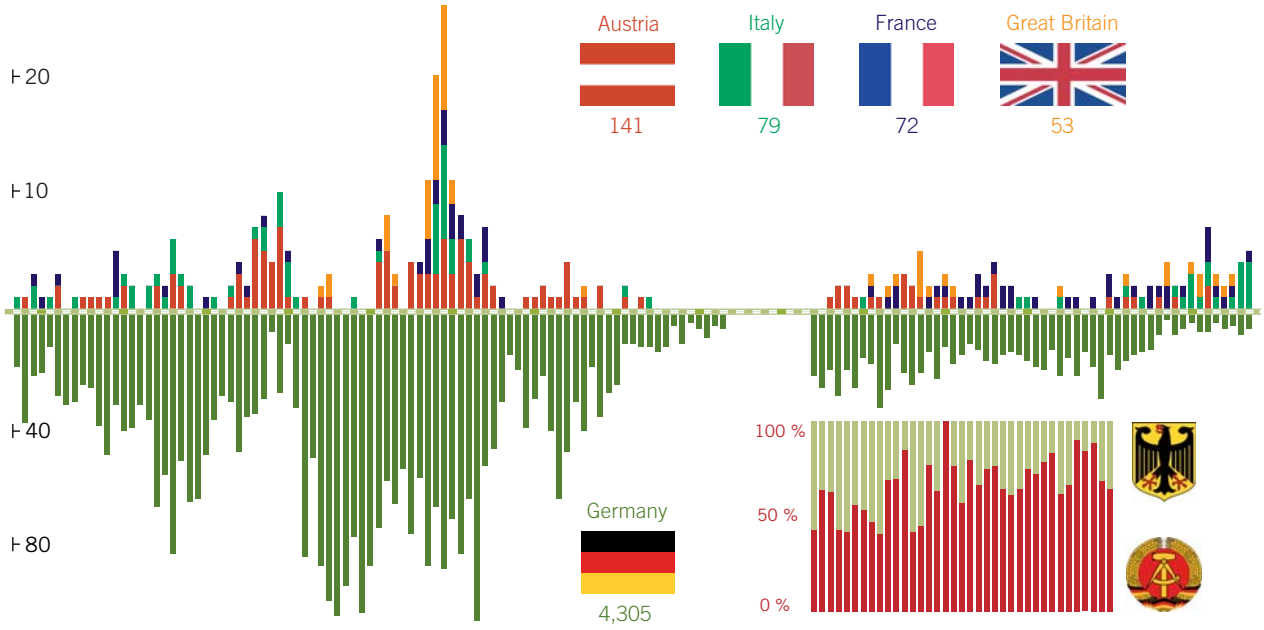

Figure 2. Most productive European countries (articles per nation; *B.E.Z.* + *D.E.Z.*)

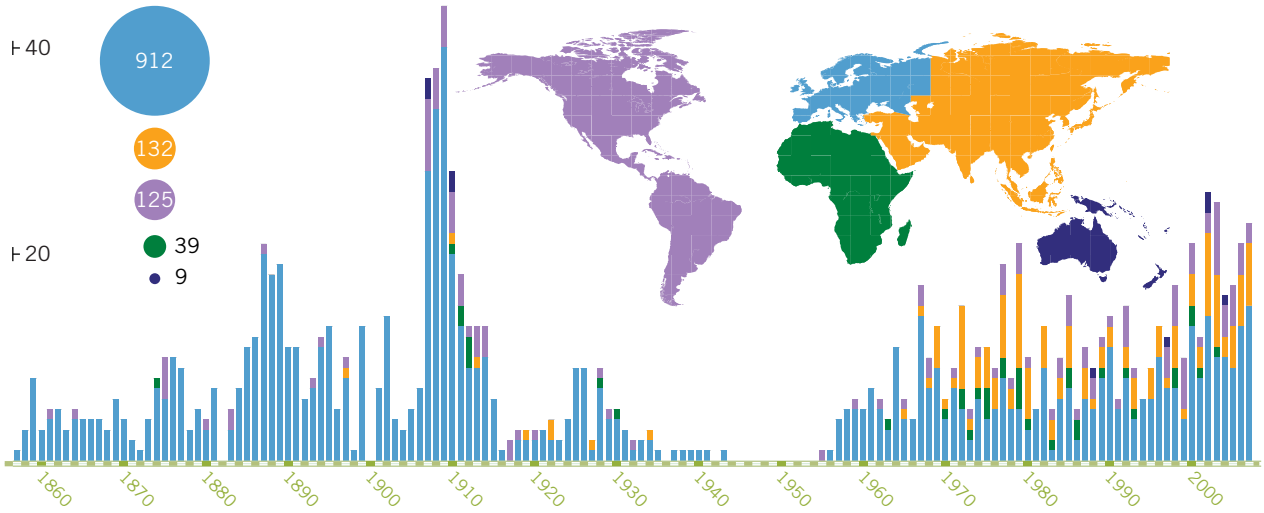

Figure 3. Global distribution of authors (articles by continents excl. German authors; *B.E.Z.* + *D.E.Z.*)

East and West Berlin, the country into GDR and FRG. However, the *D.E.Z.* managed to stay an all-German entomological journal. The chart in Plate 1, Figure 2 shows the distribution of both sovereign German countries between 1954 and 1990 (German Democratic Republic, GDR = red bars; Federal Republic of Germany, FRG = green bars). As a consequence of mainly East German articles within that period the ratio is 64.48 % to 35.52 % to the benefit of the GDR. In fact, the number of authors of both countries is almost similar (Table 1).

Articles and supplements

From the start, the *D.E.Z.* played and still plays an important role for taxonomists as well as for systematists, faunistic workers, and ecologists especially due to its impressive number of original species descriptions published to date. The 5,522 scientific articles, however, do not comprise exclusively original descriptions, but also regional species lists, remarks on synonyms, physiological and ecological notes, correspondences, book reviews, and obituaries. Additionally, 31 scientific publications with a monographic character were released as supplements (*Beihefte*). The range of these supplementary articles varied between 32 and 344 pages, the latter written by the Swiss entomologist W. G. Stierlin (*B.E.Z.* 1861). The articles of the regular volumes comprised about 9 pages on average, of these the longest was written by E. André in (*D.E.Z.*, 1908, 203 pages), whereas the shortest article is a brief remark of 1.5 lines by the German A. von Kraatz-Koschlau (*D.E.Z.* 1886, p. 422).

It may not be surprising that the majority of 4,305 papers (= 77.96 %) was published by Germans, whereas the minor part of 1,217 articles (= 22.04 %) was written by non-German authors (Europe, excl. Germany: 912 = 16.52 %; Asia: 132 = 2.39 %; North, Central and South America: 125 = 2.26 %; Africa: 39 = 0.71 %; Oceania[2]: 9 = 0.16 %) (Plate 1, Figures 2–3).

Original species descriptions and taxa distribution

As already mentioned, the number of 22,185 original species descriptions is tremendous. Aside from the fact that these not only concern hexapods, but also 192 arachnids, 35 myriapods, 18 crustaceans and even 2 tardigrades, it means that (calculating a total of 950,000 described species) about 2.31 % of all insects were described in the *D.E.Z.*. The taxonomic distribution of original species descriptions in the *B.E.Z.*/*D.E.Z.* between 1857 and approximately 1920 does not reflect the real existing taxa ratio (Plate 2, Figure 2). 12,765 new described beetle species within the first 60 years (which covers already 88.83 % of all original beetle descriptions in the *D.E.Z.*) gave rise to a proportionate share of 64.77 % (N = 14,370 vs. Diptera: 2,902 = 13.08 %; Hymenoptera: 1,968 = 8.87 %; Lepidoptera: 1,248 = 5.63 %; other taxa[3]: 1,697 = 7.65 %) until 2007. Together with the remaining taxa the remarkable part of 82.76 % (N = 18,362) of all *D.E.Z.* descriptions (both journals between 1881–1913) were published within the first six decades, and the minor percentage of 17.2 % (N = 3,823) between 1917–2007 (in consideration of the publication interval between 1943–1953).

The extent of this predominance of the Coleoptera once again increased after the separation into a coleopterologist-edited journal (*D.E.Z.*) and a lepidopterologist-edited journal (*B.E.Z.*), respectively, in 1881 (Plate 2, Figure 2): 6,930 new described beetles in comparison with 7,753 original species descriptions in total resulted in a proportion of 89.38% in the *D.E.Z.* until 1913. Considering only the time of Kraatz's editorship (1881–1906), 5,920 new beetles in comparison to 6,074 original species descriptions in total (= 97.46%) were described within this 26 year-period. The represented diversity of original species descriptions in the *D.E.Z.* approached to the real existing taxa ratio since 1906, after G. Kraatz finished his editorship.

Table 2. Top 10 of most represented nations.

Country	Number of authors
Germany (1857–1943)	410
German Democratic Republic (1954–1990)	133
Federal Republic of Germany (1954–1990)	125
Germany (since 1991)	97
Austria	57
India	54
USA	48
Italia	38
France	36
Great Britain	34

Plate 2.
Figure 1. Number of original species descriptions over time, impact factor.
Figure 2. Original species descriptions by taxonomic distribution.
Figure 3. Origin of described species by geographic distribution (continents; *B.E.Z.* + *D.E.Z.*).

[2] Oceania: Australia, New Zealand, New Guinea, Papua New Guinea, and islands of the Malay Archipelago.
[3] Other taxa (Top 5): Heteroptera: 342 = 1.54 %; Orthoptera: 326 = 1.47 %; "Homoptera": 229 = 1.03 %; Trichoptera: 211 = 0.95 %; Odonata: 69 = 0.31 %.

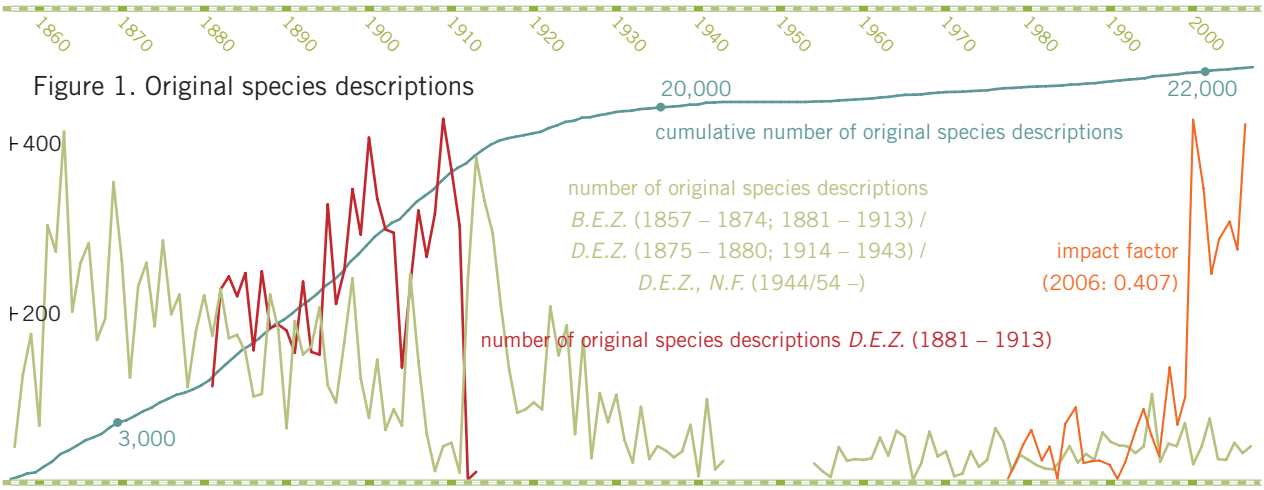

Figure 1. Original species descriptions

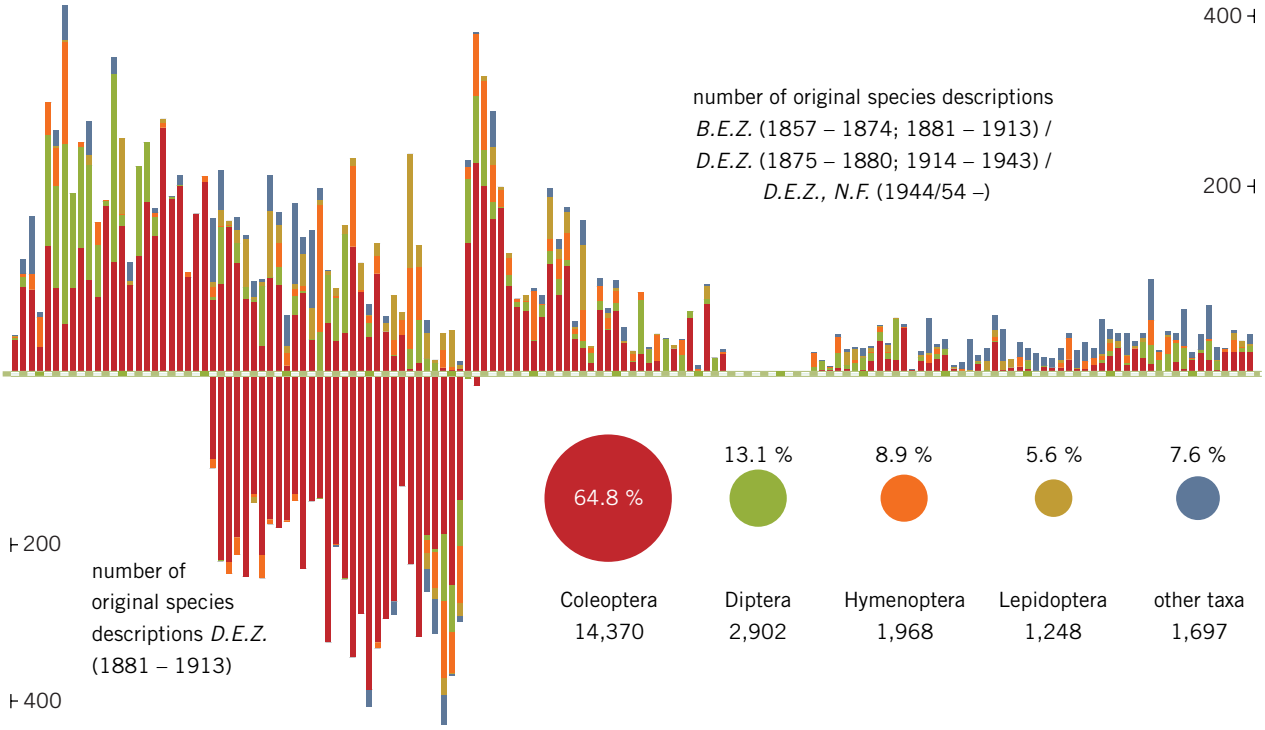

Figure 2. Original species descriptions by taxa

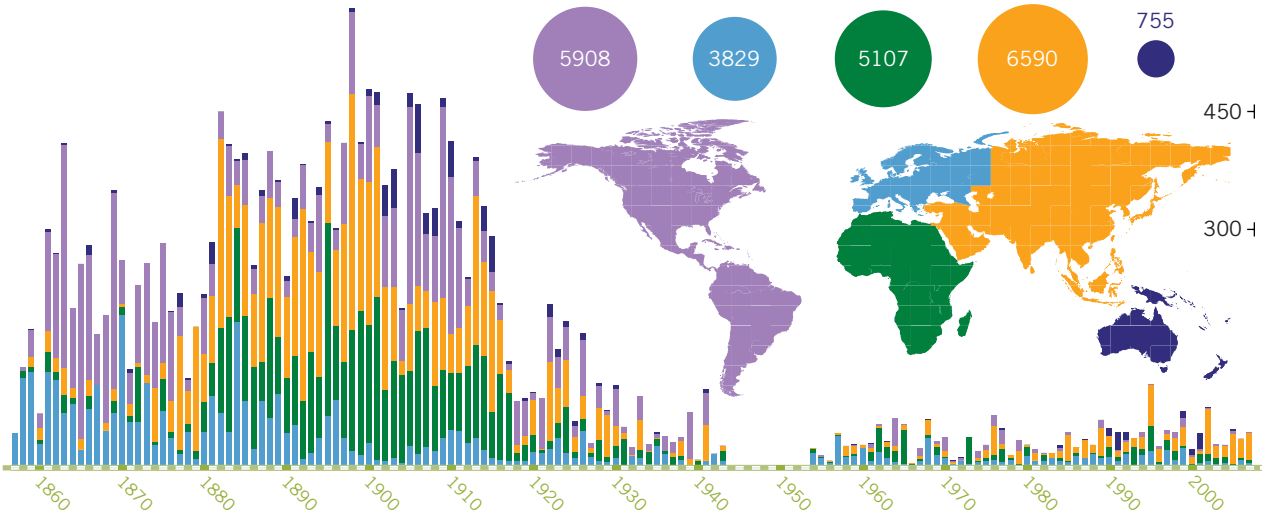

Figure 3. Origin of described species by continents (*B.E.Z.* + *D.E.Z.*)

The second largest group following the Coleoptera are the Diptera, where fluctuations can also be observed (Plate 2, Figure 2). These chronological changes are mainly due to the work of by F. H. Loew, who submitted his monograph *Diptera Americae septentrionalis indigena* with 991 species new to science in ten parts between 1861–1872 (= 34.15 % of all Diptera original species descriptions in the *D.E.Z.*).

Generally, the number of species descriptions per year declined within the years around WW I, possibly indirectly or directly linked to this historical event, but more probably due to the increase of the articles' quality. As already described in Wessel (2007) a "typical" original species description within the first 50 years of the journal was rather short, mostly unillustrated, localities were imprecise or lacking. One possible quality indication may be the number of species descriptions per page, whose development is illustrated in Plate 1, Figure 1. The maximum frequency is observed in 1903 with 33 new species published on 5 pages (A. Schultze; ca. 6.6 new species per page), whereas nowadays an original description on average occupies about 3 printed pages including illustrations as well as biological, distributional and other information.

Figure 3 in Plate 2 shows the geographic origin of described species per continent. Not only by exchanged and donated specimens, but also because of intensive collecting expeditions in Asia, (South) America and African colonies between the 1870s and 1920s, the majority of all original descriptions pertains to species from these continents (Asia: 6,590 = 29.70 %; North, Central and South America: 5,908 = 26.63 %; Africa: 5,107 = 23.02 %), while Europe played a somewhat minor role with only 3,829 new species (= 17.26 %). With merely 755 species descriptions (= 3.40 %) Oceania on its part is not well represented within the *D.E.Z.*'s history at all. The majority of these species was described between 1885–1914 when several of these archipelago islands were acquired into the German colony *Deutsch-Neuguinea*.

Impact factor and the future of the *D.E.Z.*

The scientific importance of the *D.E.Z.* was evaluated early on by the Science Citation Index/Journal Citation Report in 1978 and the journal maintained its listing until today. Within the first 22 years this value fluctuated between 0.000 (1991) and 0.128 (1997). In the last ten years this impact factor constantly increased certainly caused by the rearrangement towards a strict peer-review in 1996, the new format of the journal in 1998, and its online representation at WileyInterscience in 2005. These factors accounted for a remarkable peak of 0.412 in 2000, followed by a slightly decrease between 2001 and 2005. The current impact factor now stands at 0.407 (Plate 2, Figure 1).

As taxonomic articles and original species descriptions are characterised by an extra-ordinarily long half-time, the information contained in even the earliest publications remains ever valid, and therefore, must be accessible at all times and preferably, at any place. With the currently undertaken digitalisation of the enormous amount of the complete back issues of the journal, which will go online in 2008, *D.E.Z.* will provide a valuable service to the international community of systematists, and eventually, to global biodiversity research.

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