

Historical and global scale catalogue of diplurologists (1842-2019) and proturologists (1907-2020)

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Abstract. – The diversity of scientists and their numbers of publications for Diplura and Protura are tabulated from 1842 to 2019 for Diplura, and from 1907 to 2020 for Protura. For Diplura, 450 scientists from 39 different countries published about 1170 works. For Protura, 423 scientists from 38 different countries published about 1300 works. For each author, nationality, number of publications and date of the first and last publications are given.

Résumé. – Catalogue historique et mondial des diplurologistes (1842-2019) et des proturologistes (1907-2020).

De 1842 à 2019 pour les Diplura, et de 1907 à 2020 pour les Protura, nous avons compté et pris en considérations les publications scientifiques dans notre énumération “quantitative” des contributions traitant de ces Hexapoda. Pour les Diploures, 450 scientifiques de 39 pays différents ont publié environ 1170 travaux ; pour les Protoures, 423 scientifiques de 38 pays différents ont publié environ 1300 travaux. Pour chaque auteur, le nombre et la date de la première et de la dernière publication, ainsi que la nationalité, sont données.

Keywords. – Diplura, Protura, authors, publications, nationality.

Similar to the recently published summary of collembolists by THIBAUD (2020), this essay aims to provide an overview of those scientists who have had one or more publications on the classes Diplura and Protura. These two groups are similar to Collembola in that they represent ancient lines of hexapod evolution independent of true insects. Most of the research on Diplura and Protura has been taxonomic, but more recently there has been increased emphasis on their places in the detrital food web. This work is especially designed to give younger researchers a historical overview of their forebears and to facilitate their access to history of the literature published on these hexapods.

Knowledge of the earliest authors are beneficial to understanding the development of the science. Works on Diplura by A. S. Packard (USA), C. Parona (Italy) and A. Viré (France) in the 19th century formed the initial basis for study of this group. Students must also be aware of the numerous contributions made by French authors B. Condé, J. Pagès and C. Bareth. It might come as a surprise that during the 19th century 34 authors published about 64 works on diplurans. Approximately 1160 papers have been published on Diplura, including a total of 1009 species.

With regard to Protura, the Italian F. Silvestri described the first members only a little over a hundred years ago and his countryman A. Berlese soon after published an extensive monograph on proturan anatomy. Proturan studies have benefitted from a worldwide range of experts, the most productive of whom have been the G. Imadaté (Japan), W. Yin (China) and J. Nosek (Czechoslovakia). About 1300 studies have been published on Protura, of which today about 830 species are known.

METHOD

To develop these author lists, we closely perused works published in scientific journals books, especially faunal lists and catalogs. We did not consider unpublished theses, scientific reports, notices, obituaries or internet web sites; nor did we include authors of general ecology or biology works that just incidentally mentioned *Protura* or *Diplura*.

Each line in the lists is organized as follows: date of the author's first publication (in bold: first publication of the decade) – name and initial(s) of the author; total number of publications by this author; dates of the first and last publications. – Nationality of the author by land code ISO. Authors' names are sorted by year of the first publication. Author names are sorted by year of the first publication and alphabetized within year.

Land code ISO. – ARG, Argentina; AUS, Australia; AUT, Austria; BEL, Belgium; BOL, Bolivia; BGR, Bulgaria; BRA, Brazil; CAN, Canada; CHE, Switzerland; CHL, Chile; CHN, China; CZE, Czech Republic; DEU, Germany; DNK, Denmark; ESP, Spain; FIN, Finland; FRA, France; GBR, United Kingdom; HUN, Hungary; IND, India; IRA, Iran; IRL, Ireland; ISL, Island; ISR, Israel; ITA, Italy; JPN, Japan; KOR, South Korea; LUX, Luxembourg; MEX, Mexico ; NIC, Nicaragua; NLD, The Netherlands; NOR, Norway; NZL, New Zealand; POL, Poland; PRT, Portugal; ROU, Romania; RUS, Russia; SVK, Slovakia; SVN, Slovenia; SWE, Sweden; THA, Thailand; TUR, Turkey; UKR, Ukraine; URY, Uruguay; USA, United States of America; YOU, the former Yugoslavia.

RESULTS

CHRONOLOGICAL LIST OF SCIENTISTS WHO PUBLISHED ON DIPLURA

For the period 1842 to 2019, we have counted 1170 citations for *Diplura*, by 450 scientists from 39 different countries. Of these 1170 works, about 214 (15.6%) were published by two or more authors in collaboration.

- | | |
|---|---|
| 1842 – Gervais P. 2 : 1842-1844. – FRA. | 1896 – Cook O. F. 4 : 1896-1901. – USA. |
| 1842 – Westwood J. O. – GBR. | 1896 – Hamann O. – DEU. |
| 1847 – Nicolet H. – CHE. | 1896 – Schött H. 3 : 1896-1901. – USA. |
| 1864 – Haliday A. H. 2 : 1864-1904. – GBR. | 1896 – Viré A. 7 : 1896-1902. – FRA. |
| 1865 – Meinert F. – DNK. | 1897 – Schäffer C. – DEU. |
| 1868 – Humbert A. – ? | 1897 – Uzel H. 3 : 1897-1901. – CZE. |
| 1869 – Brauer F. – DEU. | 1898 – Calandruccio S. – ITA. |
| 1870 – Packard A. S. 5 : 1870-1888. – USA. | 1898 – Silvestri F. 94 : 1898-1950. – ITA. |
| 1873 – Lubbock J. – GBR. | 1899 – Carpenter G. H. 5 : 1899-1938. – GBR. |
| 1876 – Wood-Mason J. – GBR. | 1899 – Evans W. – GBR. |
| 1882 – Joseph G. 2 : –DEU. | 1900 – Skorikow A. – RUS. |
| 1882 – Parona C. 8 : 1882-1895. – ITA. | 1900 – Willem V. – BEL. |
| 1882 – Tömösváry Ö. 2 : 1882-1884. – HUN. | 1901 – Absolon K. 2 : 1901-1942. – CZE. |
| 1884 – Grassi B. 3 : 1884-1888. – ITA. (<i>Entotrophi</i>) | 1901 – Börner C. 3 : 1901-1908. – DEU. |
| 1884 – Kinsley J. S. – USA. | 1901 – Lecaillon A. – FRA. |
| 1886 – Nassonov N. 2 : 1886-1887. – RUS. | 1901 – Péringuey L. – FRA. |
| 1887 – Bormans A. de – ? | 1903 – Ågren H. – SWE |
| 1887 – Karsch F. – DEU. | 1903 – Swenk M. H. – USA. |
| 1887 – Oudemans J. Th. 4 : 1887-1890. – NLD. | 1903 – Verhoeff K. W. 5 : 1903-1923. – DEU. |
| 1889 – Rovelli G. – ITA. | 1904 – Kuznecov S. – ? |
| 1891 – MacGillivray A. D. 3 : 1891-1893. – USA. | 1905 – Bouvier E. L. – FRA. |
| 1891 – Stummer-Traunfels R. von. – AUT. | 1905 – Philiptschenko J. 2 : 1905-1908. – RUS. |
| 1894 – Moniez R. – FRA. | 1906 – Lie-Pettersen O. – NOR. |
| 1895 – Reuter O. M. – FIN. | 1906 – Navas L. – ESP. |

- 1906 – Wahlgren E. – SWE.
 1907 – Enderlein G. **2** : 1907-1922. – DEU.
 1907 – Linnaniemi (Axelson) W. M. **3** : 1907-1934.
 – FIN.
1910 – Collinge W. E. – GBR.
 1910 – Galimard J. – FRA.
 1910 – Shoebottom J. W. – GBR.
 1911 – Prell H. **3** : 1911-1913. – DEU.
 1912 – Bagnall R. S. **10** : 1912-1936. – GBR.
 1914 – Falcoz L. – FRA.
 1914 – Gardner R. E. – USA.
 1919 – Stach J. **11** : 1919-1964. – POL.
1920 – Handschin E. **2** : 1920-1929. – CHE.
 1921 – Latzel R. – AUT.
 1922 – Kuwayama S. **2** : 1922-1928. – PN.
 1923 – Brown J. M. – GBR.
 1923 – Denis J.-R. **8** : 1923-1949. – FRA.
 1924 – Chopard L. – FRA.
 1924 – Tillard R. J. – ?
 1924 – Womersley H. **12** : 1924-1945. – AUS.
 1926 – Jeannel R. **4** : 1926-1947. – FRA.
 1927 – Folsom J. W. – USA.
 1927 – Pliginski V. G. – ?
 1927 – Werner F. – AUT.
 1929 – Griepenburg W. – DEU.
 1929 – Hilton W. A. **7** : 1929-1943. – USA.
1930 – Tuxen S. L. **2** : 1930-1956. – DNK.
 1932 – Holzapfel M. – CHE.
 1932 – Strelbel O. **5** : 1932-1965. – DEU.
 1934 – Kseneman M. **5** : 1934-1938. – CZE.
 1934 – van Zwaluwenburg R. H. – USA.
 1935 – Kasaroff G. **2** : 1935-1936. – ?
 1935 – Maschke K. – DEU.
 1935 – Pax F. – DEU.
 1936 – Lameere A. – FRA.
 1936 – Strouhal H. **2** : 1936-1975. – AUT.
 1937 – Frenzel G. – DEU.
 1938 – Szent-Ivany J. – HUN.
1940 – Marten W. – DEU.
 1940 – Wygodzinsky P. W. **13** : 1940-1997. – DEU.
 1941 – Ewing H. E. **3** : 1941-1942. – USA.
 1941 – Fox I. **2** : 1941-1942. – USA.
 1942 – Drenovski A. K. – ?
 1943 – Tiegs O. W. – AUS.
 1943 – Vornatscher J. **3** : 1943-1975. – AUT.
 1944 – Agrell I. – SWE.
 1944 – Condé B. **132** : 1944-2012. – FRA.
 1944 – Roubal – CZE. ?
 1946 – Bonet F. – MEX.
 1946 – Delamare Deboutteville Cl. **6** : 1946-1960.
 – FRA.
 1946 – Husson R. – FRA.
 1946 – Kratochvil J. **2** : 1946-1959. – CZE.
 1946 – Rapp W. F. – USA.
 1946 – Saunders L. G. – CAN.
 1946 – Wharton G. W. – USA.
 1947 – Marcus H. **7** : 1947-1956. – BOL.
 1948 – Bonnet A. **2** : 1948-1950. – FRA.
 1948 – Cailar J. du. **2** : 1948-1950. – FRA.
 1948 – Chou I. **6** : 1948-1986. – CHN.
 1948 – Leleup N. **2**. – BEL.
 1948 – Tuzet O. **2** : 1948-1950. – FRA.
 1948 – Uchida H. **3** : 1948-1955. – JPN.
 1948 – Zimmerman E. C. – USA.
 1949 – Schaller F. **3** : 1949-1954. – AUT.
1950 – Bournier A. – FRA.
 1950 – Pagès J. **86** : 1950-2002. – FRA.
 1950 – Sedlag U. – DEU.
 1951 – Barlet J. **6** : 1951-1978. – BEL.
 1951 – Carpenter F. **3** : 1951-1964. – BEL.
 1951 – Conci C. – ITA.
 1951 – Ginet R. **7** : 1951-1961. – FRA.
 1951 – Ionescu M. A. **3** : 1951-1959. – ROU.
 1951 – Lagarrigue J. – FRA.
 1951 – Paclt J. **25** : 1951-1992. – CZE.
 1951 – Pierce W. D. – USA.
 1952 – Bitsch J. **5** : 1952-2004. – FRA.
 1952 – Janetschek H. – AUT.
 1952 – Young F. M. – ?
 1953 – Drummond F. H. – AUS.
 1953 – Strinati P. **5** : 1953-1966. – CHE.
 1954 – Gyger H. **2** : 1954-1960. – CHE.
 1954 – Travé J. – FRA.
 1955 – Baijal H. N. – IND.
 1955 – Gupta V. K. – IND.
 1955 – Mani M. S. – IND.
 1955 – Morikawa K. **3** : 1955-1957. – JPN.
 1955 – Palissa A. **4** : 1955-1964. – DEU.
 1955 – Sing S. – IND.
 1956 – Bockemühl J. – DEU.
 1956 – Cotronei G. – ?
 1956 – Orelli M. von. – CHE.
 1957 – Arevgad K. – DNK.
 1957 – Bornemissza G. F. – AUS.
 1957 – Chandler L. – USA.
 1957 – Mathieu J. – FRA.
 1957 – Nef L. – FRA.
 1957 – Thomas J. – FRA.
 1958 – Bareth C. **63** : 1958-2007. – FRA.
 1958 – Schowling J. – ?
 1959 – Aellen V. **3** : 1959-1964. – CHE.
 1959 – Gouin F. J. – FRA.
 1959 – Smith L. M. **5** : 1959-1964. – USA.
1960 – Henry J.-P. – FRA.
 1960 – Herriot F. **2** : 1960-1966. – FRA.
 1960 – Loksa I. **5** : 1960-1966. – HUN.

- 1960 – Mane-Garzon F. – URY.
 1960 – Rusek J. **9** : 1960-2005. – CZE.
 1960 – San Martin P. R. **11** : 1960-1969. – URY.
 1961 – Altner H. – DEU.
 1961 – Baggini A. – ITA.
 1961 – Marcuzzi G. **3** : 1961-2003. – ITA.
 1962 – Beron P. **4** : 1962-1994. – BGR.
 1962 – Geeraert P. – FRA.
 1962 – Guéorguiev V. **4** : 1962-1994. – BGR.
 1962 – Picard J.Y. – FRA.
 1962 – Weidner H. – DEU.
 1963 – George M. – GBR.
 1963 – Joosse-Van Damme. **2** : 1963-1972. – NLD.
 1963 – Sandulski R. – URY.
 1963 – Simon H. R. **2** : 1963-1978. – DEU.
 1964 – Barbier G. – FRA.
 1964 – Bolton C. L. – USA.
 1964 – Charov A. R. – RUS. ?
 1964 – Gigon R. – CHE.
 1964 – Gonzalez R. **3**. – CHL.
 1964 – Jéquier J.-P. – FRA.
 1965 – Hüther W. **2** : 1965-1969. – DEU.
 1967 – Barr T. B. – USA.
 1967 – Nosek J. **6** : 1967-1984. – CZE.
 1967 – Reddell J. R. **3** : 1967-1985. – USA.
 1968 – François J. **6** : 1968-1997. – FRA.
 1968 – Jacquemin-Nguyen M. **2** : 1968-1981. – FRA.
 1969 – Sachsse H. – DEU.
1970 – Baccetti B. **3** : 1970-1973. – ITA.
 1970 – Castri F. di. **3** : 1970-1981. – CHL.
 1970 – Lorenzoni A. M. – ITA.
 1970 – Mackerras I. M. – AUS.
 1970 – Townsend J. I. – NZL.
 1970 – Wallace M. M. H. – AUS.
 1970 – Wise K. A. J. **2** : 1970-1977. – NZL.
 1971 – Athias F. **5** : 1971-1976. – FRA.
 1971 – Hauser B. – CHE.
 1972 – Gunst J. H. de – NLD.
 1972 – Littel A. – NLD.
 1973 – Bode E. – DEU.
 1973 – Dallai R. **7** : 1973-2011. – ITA.
 1973 – Kaestner A. – DEU.
 1973 – Viggiani G. – ITA.
 1973 – Vysotskaya S. O. – RUS.
 1974 – Chevrizov B. P. **5** : 1974-1986. – RUS.
 1974 – Levushkin S. I. – RUS.
 1974 – Paulus H. F. – AUT.
 1974 – Sixl W. – AUT.
 1974 – Waltinger H. – AUT.
 1975 – Dobat K. – DEU.
 1975 – Josens G. – FRA.
 1975 – Juberthie-Jujeau L. **8** : 1975-1994. – FRA.
 1975 – Kristensen N. P. **3** : 1975-1991. – DNK.
- 1975 – Lavelle P. **2**. – FRA.
 1976 – Eisenbeis G. **3** : 1976-1987. – DEU.
 1976 – Kubikova J. – CZE.
 1976 – Szeptycki A. **2** : 1976-1997. – POL.
 1976 – Weyda F. **2** : 1976-1980. – CZE.
 1977 – Bach de Roca C. **3** : 1977-1986. – ESP.
 1977 – Stomp N. – LUX.
 1978 – Ando H. – JPN.
 1978 – Aoki J.-I. – JPN.
 1978 – Asaba H. – JPN.
 1978 – Glorioso M. J. – USA.
 1978 – Kuriki G. – JPN.
 1978 – Valentine B. D. – USA.
 1979 – Biliński S. M. **8** : 1979-1993. – POL.
 1979 – Nagy B. – CAN.
 1979 – Tomlin A. D. **2** : –CAN.
1980 – Chen T. **2** : 1980-1981. – CHN.
 1981 – Blesic B. F. **27** : 1981-2006. – YOU.
 1981 – Castri V. V. di. – CHL.
 1981 – Ghaisas P. S. – IND.
 1981 – Ranaide D. P. – IND.
 1982 – Burroni D. – ITA.
 1982 – Ferguson L. **15** : 1982-2002. – USA.
 1982 – Poivre Cl. – FRA.
 1983 – Bilinsky S. – POL.
 1983 – Cassagnau P. **3** : 1983-1996. – FRA.
 1983 – Greenslade P. J. M. – AUS.
 1983 – Greenslade P. – AUS.
 1983 – Juberthie C. – FRA.
 1983 – Thibaud J.-M. **3** : 1983-2003. – FRA.
 1984 – Bouvet Y. – FRA.
 1984 – Karaman M. – YOU.
 1984 – Neuherz H. – AUT.
 1984 – Turquin M. – FRA.
 1985 – Andrén O. **2** : 1985-1991. – SWE.
 1985 – Gaju M. **2** : 1985-1986. – ESP.
 1985 – Lagerlöf J. **2** : 1985-1991. – SWE.
 1985 – Morales-Malacara J. B. – MEX.
 1985 – Palacios-Vargas J. G. **11** : 1985-2016. – MEX
 1985 – Rathman R. J. **2** : 1985-1988. – USA
 1985 – Sendra A. **51** : 1985-2019. – ESP.
 1985 – Vasquez L. M. – MEX.
 1986 – Besson J.-P. – FRA.
 1986 – Deharveng L. **3** : 1986-2000. – FRA.
 1986 – Gibert J. – FRA.
 1986 – Huang F. **4** : 1986-2001. – CHN.
 1986 – Kukalová-Peck J. **3** : 1986-1991. – CAN.
 1986 – Lebreton B. – FRA.
 1986 – Leclerc P. **2** : 1986-1989. – FRA.
 1987 – Acuna J. D. – ESP.
 1987 – Bellés X. – ESP.
 1987 – Planelles D. – ESP.
 1987 – Szlarzewicz T. – POL.

- 1987 – Tylek W. – POL.
 1987 – Wichard W. – DEU.
 1988 – Akre R. D. – USA.
1988 – Allen R. T. 15 : 1988-2016. – USA.
 1988 – Brunner J. E. – USA.
 1988 – Crawford R. L. – USA.
 1988 – Maes J. M. – NIC.
 1988 – Senger C. M. – USA.
 1988 – Xie R. 12 : 1988-2007. – CHN.
 1988 – Yang Y. 7 : 1988-1993. – CHN.
 1988 – Yin W. 2 : 1988-2005. – CHN.
 1989 – Asis J. – ?
 1989 – Blackith R. E. – IRL.
 1989 – Gold J. A. – ?
 1989 – Groth I. – ?
 1989 – Higgins D. G. – IRL.
 1989 – Messner B. – ?
 1989 – Wheeler W. C. 10 : 1889-2004. – USA.
 1989 – Wolters V. – DEU.
1990 – Bernard E. C. – USA.
 1990 – Christian E. 6 : 1990-2009. – AUT.
 1990 – Muegge M. A. 3 : 1990-2004. – USA.
 1990 – Ramellini P. 2 : 1990-1995. – ITA.
 1990 – Spelda J. – GBR.
 1990 – Xue L. – CHN.
 1992 – Gunn A. – GBR.
 1992 – Schuster R. – DEU.
 1992 – Szklarzewicz T. 2 : 1992-1996. – POL.
 1994 – Gnasmini P. – BRA.
 1994 – Houston W. W. K. – AUS.
 1994 – Kikova 2 : 1994-2005. – SVK.
 1994 – Kraus M. 2 : 1994-1996. – DEU
 1994 – Kraus O. 3 : 1994-1997. – DEU.
 1994 – Nakamura O. 2. – JPN.
 1994 – Trajano E. – BRA.
 1996 – Betsch J.-M. – FRA.
 1996 – Graf W. – AUT.
 1996 – Jablonska A. – POL.
 1996 – Moog O. – AUT.
 1996 – Olsen K. M. – NOR.
 1997 – Chaudonneret J. – FRA.
1997 – Koch M. 6 : 1997-2014. – DEU.
 1997 – Whiting M. 3 : 1997-2001. – USA.
 1998 – Bitsch C. 4 : 1998-2004. – FRA.
 1998 – Carlton C. E. – USA.
 1998 – Hudec I. – SVK.
 1998 – Ikeda Y. 2 : 1998-2001. – JPN.
 1998 – Kováč L. 3 : 1998-2015. – SVK.
 1998 – Machida R. 8 : 1998-2011. – JPN.
 1999 – Delhez F. – BEL.
 1999 – Dethier M. – BEL.
 1999 – Gereben-Krenn B. A. – AUT.
 1999 – Hubart J.-M. – BEL.
- 1999 – L'uptacik P. – CZE.
 1999 – Pass G. 3 : 1999-2009. – AUT.
 1999 – Shao H. – CHN.
2000 – Barrocas H. 2. – PRT.
 2000 – Bedos A. – FRA.
 2000 – Carapelli A. 4 : 2000-2011. – ITA.
 2000 – Ferreira C. 2. – PRT.
 2000 – Frati F. 4 : 2000-2011. – ITA.
 2000 – Gama M. M. da. 2. – PRT.
 2000 – Giribet G. 3 : 2000-2004. – USA.
 2000 – Hurka K. – CZE.
 2000 – Nardi F. 3 : 2000-2011. – ITA.
 2000 – Rezac M. – CZE.
 2000 – Ribera C. 2 : 2000-2012. – ESP.
 2000 – Simon C. – ITA.
 2000 – Sousa J.-P. 2. – PRT.
 2001 – Carpenter J. M. 2 : 2001-2004. – USA
 2001 – Edgecombe G. D. 2 : 2001-2004. – AUS.
 2001 – Kniss V. – RUS.
 2001 – Luan Y.-x. 12 : 2001-2018. – CHN.
 2001 – Martill D. M. – GBR.
 2001 – Wilson H. M. – USA.
 2003 – Garcia Gomez A. 4 : 2003-2014. – MEX.
 2003 – Pang J. – CHN.
 2003 – Yue Q.-y. 2 : 2003-2005. – CHN.
 2003 – Zhang Y. – CHN.
 2004 – D’Haese C. A. 2 : 2004-2014. – FRA.
 2004 – Escolà O. – ESP.
 2004 – Lara M. D. – ESP.
 2004 – Montagud S. 3 : 2004-2006. – ESP.
 2004 – Moreno A. 4 : 2004-2006. – ESP.
 2004 – Ruiz-Aviles F. – ESP.
 2004 – Tinaud A. 2 : 2004-2017. – ESP.
 2005 – Bernini F. – ITA.
 2005 – Leonzio C. – ITA.
 2005 – Migliorini M. – ITA.
 2005 – Paccagnini E. – ITA.
 2005 – Pigino G. – ITA.
 2005 – Rosenberg G. – USA.
 2006 – Andrés P. – ESP.
 2006 – Boore J. L. – USA.
 2006 – Mateos E. – ESP.
 2006 – Ortuno V. M. 2 : 2006-2017. – ESP.
 2006 – Podsiadlowski L. – DEU.
 2006 – Satar A. 2 : 2006-2010. – TUR.
 2006 – Teruel S. 4 : 2006-2012. – ESP.
 2006 – Zaragoza J. A. – ESP.
 2007 – Castano-Meneses G. 2. – MEX.
 2007 – Gomez-Anaya J. A. – MEX.
 2007 – Martinez-Sanchez J. – MEX.
 2007 – Martinez-Yrizar A. – MEX.
 2007 – Mejia-Recamier B. E. – MEX.
 2007 – Mitrovski-Bogdanovic A. M. – YOU.

- 2008 – Bu W. – CHN.
 2008 – Fleenor S. B. – USA.
 2008 – Henriques A. L. – BRA.
 2008 – Magalhães C. – BRA.
 2008 – Privette J. L. – USA.
 2008 – Qin Y. – CHN.
 2008 – Rafael J. A. – BRA.
 2008 – Ribeiro J. M. F. – BRA.
 2008 – Taber S. W. – USA.
 2008 – Tian X. – CHN.
 2008 – Xie Q. – CHN.
 2009 – Burmester T. – DEU.
 2009 – Dell'Ampio E. – ITA.
 2009 – Pick C. – DEU.
 2009 – Rosenthal A. – ?
 2009 – Sekiya K. **3** : 2009-2012. – JPN.
 2009 – Steinacher A. – AUT.
 2009 – Steiner G. – AUT.
 2009 – Szucsich N. U. **2** : 2009-2012. – AUT.
2010 – Adriaens T. – BEL.
 2010 – Degma P. – SVK.
 2010 – Doricovà M. – SVK.
 2010 – Dubovsky M. **2**. – SVK.
 2010 – Fedor P. **2**. – SVK.
 2010 – Gonçalves F. **2** : 2010-2012. – PRT.
 2010 – Lock K. – BEL.
 2010 – Majzland O. – SVK.
 2010 – Oromi P. **2** : 2010-2012. – PRT.
 2010 – Özbay C. – TUR.
 2010 – Reboleira A. S. P. S. **3** : 2010-2017. – PRT.
 2010 – Stevens M. – BEL.
 2010 – Tusun S. – TUR.
 2011 – Mercati D. – ITA.
 2012 – Arnedo M. A. – ESP.
 2012 – Bidegaray-Batista L. – ESP.
 2012 – Böhm A. – AUT.
 2012 – Bu Y. **2**. – CHN.
 2012 – Gao Y. – CHN.
 2012 – Nitzu E. – ROU.
 2012 – Potapov M. B. – RUS.
 2012 – Sanjuan A. – ESP.
 2013 – Arbea J. I. – ESP.
 2013 – Garcia Y. – ESP.
- 2013 – Weber D. **2** : 2013-2018. – DEU.
 2014 – Arghandiwal M. – USA.
 2014 – Chen W.-J. – CHN.
 2014 – Graening G. O. – USA.
 2014 – Shcherbanyuk Y. – USA.
 2014 – Xie W. – CHN.
 2015 – Beltran M. D. – ESP.
 2015 – Sanchez J. M. – ESP.
 2016 – Azadbakhsh S. – IRA.
 2016 – Garcia A. – MEX.
 2016 – Montejo M. – ESP.
 2016 – Nozari J. – IRA.
 2016 – Sikes D. S. **2** : 2016-2019. – USA.
 2017 – Arnett R. H. Jr. – USA.
 2017 – Baquero E. – ESP.
 2017 – Barranco P. – ESP.
 2017 – Boyer J. – FRA.
 2017 – Cazanove G. – FRA.
 2017 – Cuesta E. – ESP.
 2017 – Gasnier S. – ESP.
 2017 – Gilgado J. D. – ESP.
 2017 – Herrero-Borgonon J. J. – ESP.
 2017 – Jiménez-Valverde A. **2** – ESP.
 2017 – Jordana R. – ESP.
 2017 – Ledesma E. – ESP.
 2017 – Legros V. – FRA.
 2017 – Pérez-Suarez G. – ESP.
 2017 – Rochat J. – FRA.
 2017 – Sajjaphan K. – THA.
 2017 – Séguy L. – FRA.
 2017 – Sket B. – SVN.
 2017 – Stoev P. – BGR.
 2017 – Tantachasatid P. – THA.
 2017 – Thanisawannyankura S. – THA.
 2017 – Tinaut A. – ESP.
 2018 – Enghoff H. – DNK.
 2018 – Eusébio R. – PRT.
 2018 – Yoshizawa K. – JPN.
 2019 – Amore E. – ITA.
 2019 – Lopes-Ferreira R. – BRA.
 2019 – Nicolosi G. – ITA.
2019 – Wagnell C. – CAN.

History of Diplura. – Fig. 17. From 1842 to 1899, 34 authors from 13 countries (Europe and USA) published 64 works. All were single-authored, focusing mainly on systematics. The pioneers during this period were A. S. Packard (USA, 5 works), C. Parona (Italy, 8) and A. Viré (France, 5). Five of the authors publishing in the 19th century continued into 20th century with 98 works.

During the 20th and the 21st centuries (until 2019) 421 authors published 1310 works. BÖRNER (1904) created the name Diplura. Previously, the group had been included in Thysanura along with silverfish and jumping bristletails. A competing name, Entotrophi, was used spora-

dically (24 papers) through the most of the 20th century. The most productive authors were Silvestri (fig. 4) (Italy) with 94 works (1899-1950), the British Bagnall with 10 (1912-1936), J. Stach (Poland), 11 (1919-1964); H. Womersley (Australia), 12 (1924-1945), P. Wygodzinsky 13 (1940-1944), the French scientists B. Condé (fig. 6) with 132 (1944-2012), J. Pagés (fig. 7)

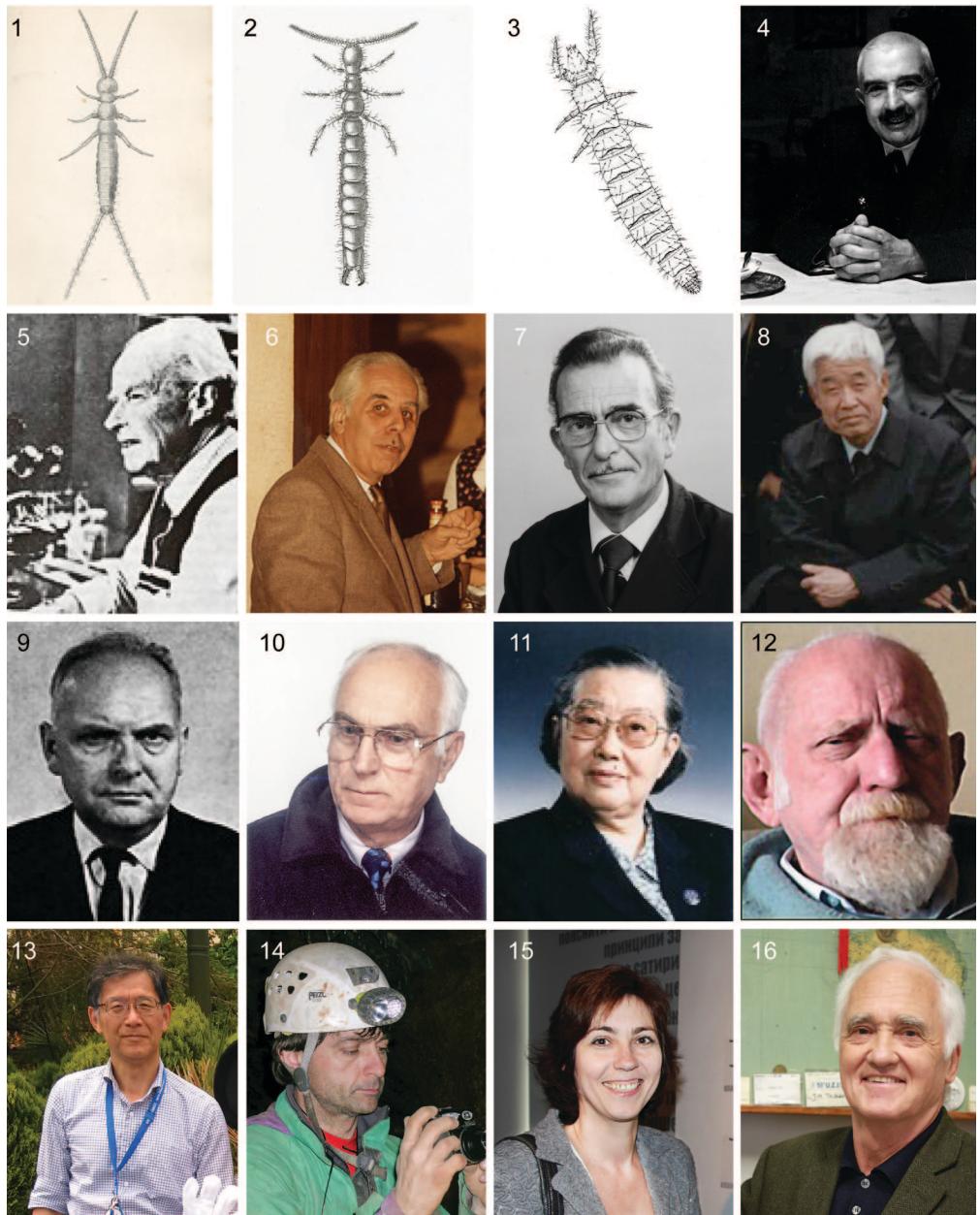


Fig. 1-16. – 1-3, Habitus of Diplura and Protura. – 1, *Campodea silvestrii* Bagnall (Diplura) ; 2, *Japyx solifugus* Haliday (Diplura) ; 3, *Acerentomon doderoi* Silvestri (Protura). – 4-15, Main scientists who published on these two class : 4, F. Silvestri ; 5, S. L. Tuxen ; 6, B. Condé ; 7, J. Pagès ; 8, G. Imadaté ; 9, J. Nosek ; 10, C. Bareth ; 11, W.-G. Yin ; 12, A. Szeptycki ; 13, O. Nakamura ; 14, A. Sendra ; 15, J. Shrubovych. – 16, First of the three coauthors, J.-M. Thibaud.

with 86 (1950-2002) and C. Bareth (fig. 10) with 63 (1958-2007); J. Paclt (Czechoslovakia) 25 (1951-1992), B. Blesic (Yugoslavia) 27 (1981-2006) and A. Sendra (fig. 14) (Spain) with 51 (1985-2019). It should be emphasized that several of these authors published some of their works on specimens collected in countries or regions other than their own.

Number of publications per author (greater 50). – As with many other smaller arthropod taxa, a few individuals have dominated the Diplura literature due to their extraordinary output at different time periods. Chief among these are five scientists: Silvestri (94) beginning in 1898; Condé (132), 1944; Pagès (86), 1950; Bareth (63), 1958 and Sendra (51), 1985. However, the average number of dipluran papers per author is approximately three, a reflection of their lower diversity, cryptic behavior and lack of economic importance. By contrast, for Collembola the average number of papers per author is about 10 (THIBAUD, 2020).

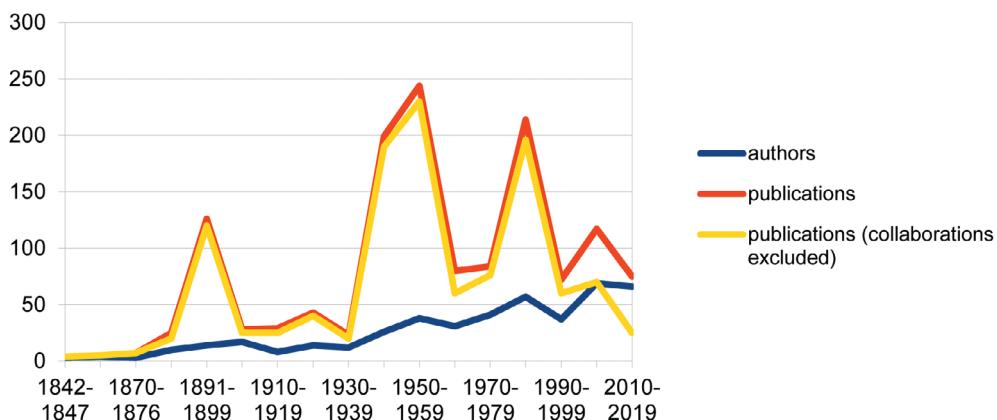


Fig. 17. – Distribution of dipluran publications by decade, categorized by number of authors, number of publications and number of collaborative publications (more than one author).

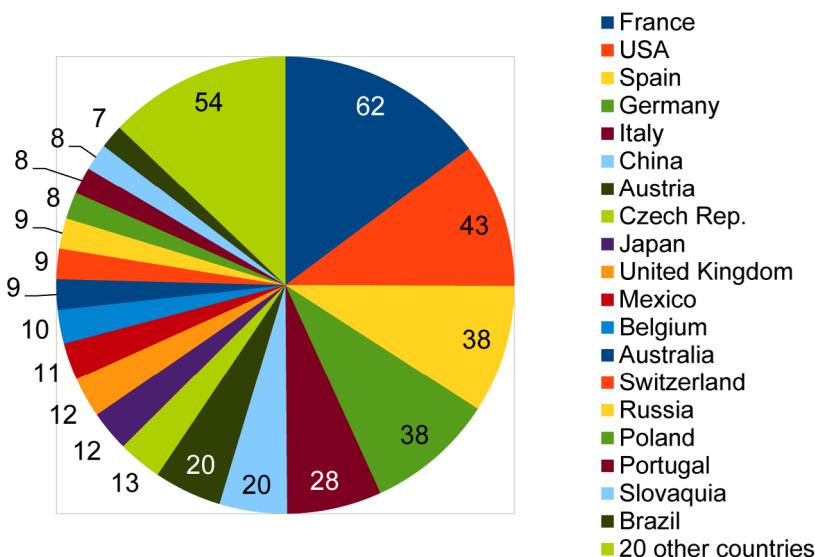


Fig. 18. – Number of authors of dipluran papers by country (1842-2019).

Number of *Diplura* publications by country. – Fig. 18-19. French authors have been the most prolific in publication of *Diplura* papers (404), followed by scientists from Italy (149), USA (116), Spain, (103), Germany (80), China (60) and Czechoslovakia/Czech Republic (59). Together, these seven account for 971 of the 1160 total works (84%). These countries must be considered like “founders” of Diplurology.

France: the first French paper (and the first on *Diplura*) was published by Gervais in 1842. The most prolific French author was Conde with 132 papers, followed by Pagès with 86. French authors have 404 works signed by 62 authors, including Viré with 7 works, Denis 8, Condé 132, Pagès 86, Bareth 63, Delamare Deboutteville and François 6 each, and Juberthie-Jupeau 8.

Italy: 149 works signed by 28 authors, including Parona with 7 works, Silvestri 94 and R. Dallai 7. The first work dated from 1882 is by Parona.

United States of America: 119 works signed by 45 authors, including Packard with 5 works, Hilton 7, L. Ferguson and R.T. Allen 15 each and Wheeler 10. The first work dated from 1870 is by Packard.

Spain: 103 works signed by 38 authors, including Sendra with 51 works. The first work dated from 1906 is by Navas.

Germany: 80 works signed by 39 authors, including K.W. Verhoeff with 5 works, Wygodzinsky 13 and Koch 6. The first work dated from 1882 is by Joseph.

China: 60 works signed by 20 authors, including Chou I. with 6 works, Xie R. 12, Yang Y. 7 and Luan Y-x 12. The first work dated from 1948 is by Chou I.

Czech Republic (Czechoslovakia): 59 works signed by 13 authors, including Paclt with 25 works, Rusek 9, Nosek 6. The first work dated from 1897 is by Uzel.

And 32 other countries...

Number of publications by major subjects. – Nearly three-quarters of the works published worldwide on *Diplura* is on Taxonomy and Faunistic, and one quarter on Ecology, Biology, Anatomy and Phylogeny.

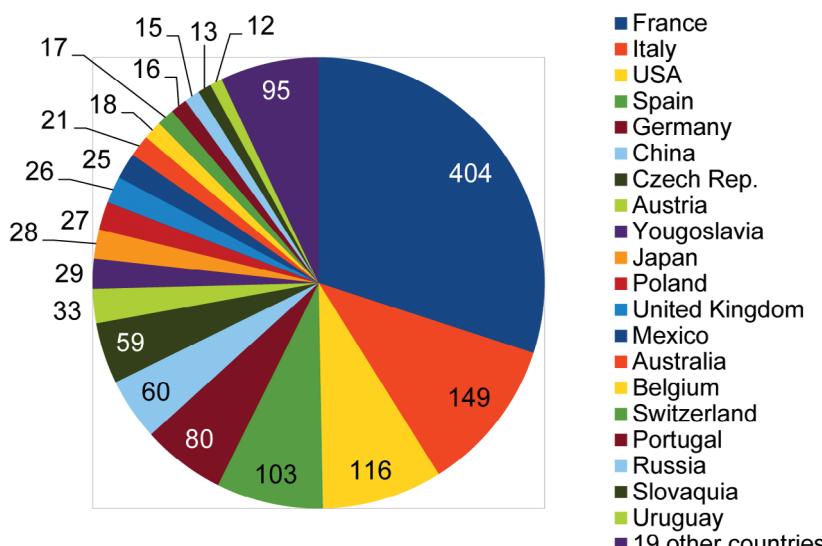


Fig. 19. – Number of dipluran publications by country (1842-2019).

CHRONOLOGIC LIST OF SCIENTISTS WHO PUBLISHED ON PROTURA

From 1907 to 2020, we have considered in this “quantitative” numeration about 1670 scientific works on Protura, collaborations including however authors number and this published by 422 scientists from 38 different lands. On this 1670 works, about 370 (22.2%) are in collaboration, we have finally a total of about 1300 papers published on this class of Hexapoda.

- | | |
|---|--|
| 1907 – Silvestri F. 5 : 1907-1948. – ITA. | 1939 – Aubertot M. 2 : 1939-1943. – FRA. |
| 1908 – Berlese A. 5 : 1908-1912. – ITA. | 1940 – Hanström B. – SWE. |
| 1909 – Börner C. 4 : 1909-1914. – DEU. | 1942 – Bonet F. 6 : 1942-1960. – MEX. |
| 1909 – Schepotieff A. 2 : 1909-1910. – DEU. | 1942 – Strenzke K. – DEU. |
| 1910 – Becker E. – RUS. | 1944 – Condé B. 51 : 1944-1997. – FRA. |
| 1911 – Prell H. 4 : 1911-1913. – DEU. | 1945 – Gisin H. 2 : 1945-1947. – CHE. |
| 1911 – Rimsky-Korsakow N. 4 : 1911-1933. – RUS. | 1945 – Hincks W. D. – GBR. |
| 1911 – Trägårdh I. – SWE. | 1945 – Kloet G. S. – GBR. |
| 1912 – Agren H. – SWE. | 1947 – Chopard L 2 : 1947-1955. – FRA. |
| 1912 – Bagnall R. S. 8 : 1912-1936. – GBR. | 1948 – Chou I. 3 : 1948-1964. – CHN. |
| 1912 – Rühl M. – DEU. | 1948 – Cunha A. X. da 4 : 1948-1952. – PRT. |
| 1913 – Collin J. E. – GBR. | 1948 – Zimmerman E. C. – USA. |
| 1913 – Sladen W. L. – GBR. | 1949 – Giljarov M. S. – RUS. |
| 1913 – Williams C. B. 2 . – GBR. | 1949 – Schaller F. – AUT. |
| 1915 – Krausse A. 2 : 1915-1919. – DEU. | 1950 – Franz H. 3 : 1950-1969. – AUT. |
| 1916 – Crampton G. C. 5 : 1916-1928. – USA. | 1950 – Rosas Costa – ARG. |
| 1917 – Brown J. M. 3 : 1917-1919. – GBR. | 1950 – Uchida H. 5 : 1950-1965. – JPN. |
| 1919 – Dudich E. 3 : 1919-1923. – HUN. | 1950 – Weber N. A. – USA. |
| 1920 – Handlirsch A. 3 : 1920-1930. – AUT. | 1951 – Delamare Deboutteville Cl. 3 : 1951-1960. – FRA. |
| 1920 – Handschin E. 4 : 1920-1952. – CHE. | 1951 – Franciscolo M E. 2 : 1951-1955. – ITA. |
| 1921 – Ewing H. E. 10 : 1921-1949. – USA. | 1951 – Paclt J. 12 : 1951-1994. – CZE. |
| 1921 – Henriksen K. L. – DNK. | 1952 – Bitsch J. 6 : 1952-2004. – FRA. |
| 1921 – Latzel R. – AUT. | 1952 – Glance G. – USA. |
| 1924 – Tillyard R. J. 4 : 1924-1935. – NZL. | 1952 – Massera M. G. – ITA. |
| 1924 – Womersley H. 12 : 1924-1939. – AUS. | 1952 – Satchell G. H. – NZL. |
| 1925 – Denis J.-R. 5 : 1925-1973. – FRA. | 1953 – Hennig W. – DEU. |
| 1926 – Hilton W. A. 5 : 1926-1943. – USA. | 1953 – Lawrence P. N. 2 : 1953-1986. – GBR. |
| 1926 – Stach J. 6 : 1926-1964. – POL. | 1953 – Sedlag U. – DEU. |
| 1928 – Kishida K. – JPN. | 1954 – Eglitis V. K. – RUS. |
| 1928 – Sellnik 2 : 1928-1930. – DEU. | 1954 – Gadea E. – FRA. |
| 1930 – Ionescu M. A. 17 : 1930-1955. – ROU. | 1954 – Imadaté G. 108 : 1954-1995. – JPN. |
| 1931 – Heberdey R. F. – DEU. ? | 1954 – Nosek J. 82 : 1954-1985. – CZE. |
| 1931 – Tuxen S. L. 54 : 1931-1986. – DNK. | 1954 – Sertl-Butschek E. – AUT. |
| 1932 – Esaki T. – JPN. | 1954 – Travé J. – FRA. |
| 1932 – Lameere A. 2 : 1932-1935. – FRA. | 1955 – Palissa A. : 4 : 1955-1966. – DEU. |
| 1932 – Mills H. B. 2 : 1932-1960. – USA. | 1956 – Bockemühl J. – DEU. |
| 1932 – Okland F. 2 : 1932-1933. – NOR. | 1956 – Raw F. – GBR. |
| 1934 – Linnaniemi W. M. 2 : 1934-1935. – FIN. | 1956 – Winkler J. R. – CZE. |
| 1935 – Kseneman M. 3 : 1935-1938. – CZE. | 1957 – Bödvarson H. 2 : 1957-1973. – SWE. |
| 1936 – Geijskes D. C. – DEU. | 1957 – Chandler L. – USA. |
| 1936 – Imms A. D. – USA. | 1957 – Haarlov N. 2 : 1957-1960. – DNK. |
| 1937 – Frenzel G. – DEU. | 1957 – Nef L. – FRA. |
| 1938 – Brimley C. S. – USA. | 1957 – Selga D. – ESP. |
| 1938 – Leruth R. 2 : 1938-1939. – BEL. | 1957 – Skrássek F. – CZE. |
| 1938 – Yosii R. 3 : 1938-1959. – JPN. | |

- 1959 – François J. **26** : 1959-2017. – FRA.
 1959 – Kratochvil J. – CZE.
 1959 – Sturm H. **2** : 1959-1989. – DEU.
1960 – Hirai H. – JPN.
 1960 – Hiran H. – JPN.
 1960 – Prabhoo N. R. **9** : 1960-1986. – IND.
 1960 – Price D. W. **4** : 1960-1977. – USA.
 1961 – Baggini A. – ITA.
 1961 – Marcuzzi G. **4** : 1961-1973. – ITA.
 1961 – Nishihira M. **2** : 1961-1962. – JPN.
 1961 – Rusek J. **32** : 1961-2015. – CZE.
 1962 – Lichard M. – CZE.
 1962 – Picard J.Y. – FRA.
 1962 – Weidner H. – DEU.
 1963 – Copeland T. P. **8** : 1963-1990. – USA.
 1963 – Durey R. A. **3** : 1963-1977. – USA.
 1963 – Joosse-Van Damme. **2** : 1963-1972. – NLD.
 1963 – Yin W.-y. **97** : 1963-2018. – CHN.
 1964 – Ambroz Z. **2** : 1964-1967. – CZE.
 1964 – Baba K. **2** : 1964-1967. – JPN.
 1964 – Dunger W. **2** : 1964-1984. – DEU.
 1964 – Kira T. – JPN.
 1964 – Sharov A. G. – RUS.
 1964 – Szeptycki A. **65** : 1964-2012. – POL.
 1964 – Yang C. – CHN.
 1965 – Brigadier W. – USA.
 1965 – Hüther W. **3** : 1965-1974. – DEU.
 1965 – Petersen H. – DNK.
 1965 – Strelbel O. – DEU.
 1965 – Ward G. L. – USA.
 1966 – Loksa I. – HUN.
 1967 – Cvijovic M. J. **11** : 1967-1982. – YOU.
 1967 – Dizdarevic M. – YOU.
 1967 – Kamata S. **2** : 1967-1968. – JPN.
 1967 – Zivadinovic J. **2**. – YOU.
 1968 – Dematteis (Ravizza) E. **4** : 1968-1975 – ITA.
 1968 – Sunagawa M. – JPN.
 1969 – Cassagnau P. **2** : 1969-1996. – FRA.
 1969 – Haybach G. **2** : 1969-1983. – AUT.
 1969 – Sachsse H. – DEU.
1970 – Castri F. di. **2** : 1970-1981. – CHL.
 1970 – Hasuo Y. – JPN.
 1970 – Janetschek H. – AUT.
 1970 – Mackerras I. M. – AUS.
 1970 – Martynova E. F. **4** : 1970-1986. – RUS.
 1970 – Matsuda R. – CAN.
 1970 – Najt J. **8** : 1970-1972. – ARG.
 1970 – Vidal Sarmiento J. **5** : 1970-1972. – ARG.
 1970 – Wallace M. M. H. – AUS.
 1970 – Wise K. A. J. **2** : 1970-1977. – NZL.
 1971 – Aoki J.-i. **2** : 1971-1978. – JPN.
 1971 – Athias F. **4** : 1971-1976. – FRA.
 1971 – Bedini C. – ITA.
 1971 – Bizzarri C. – ITA.
 1971 – Fratello B. **9** : 1971-1989. – ITA.
 1971 – Tongiorgi P. – ITA.
 1972 – Azuma S. – JPN.
 1972 – Gunst J. H. de. – NLD.
 1972 – Haupt J. **3** : 1972-1977. – DEU.
 1972 – Littel A. – NLD.
 1972 – Takara T. – JPN.
 1972 – Viggiani G. – ITA.
 1973 – Anderson D. T. – GBR ?
 1973 – Baccetti B. **3** : 1973-1978. – ITA.
 1973 – Bode E. – DEU.
 1973 – Dallai R. **37** : 1973-2019. – ITA.
 1973 – Gough H. J. – GBR.
 1973 – Kaestner A. – DEU.
 1973 – Lindroth C. H. – SWE.
 1973 – Richter S. H. – SWE.
 1973 – Sixl W. – AUT.
 1973 – Vysotskaya S. O. **2** : 1973-1976. – RUS.
 1973 – Waghorne D. M. – GBR.
 1973 – Waltinger H. – AUT.
 1974 – Neuherz H. **5** : 1974-1975. – AUT.
 1974 – Paulus H. F. – AUT.
 1975 – Bernard E. C. **16** : 1975-2020. – USA.
 1975 – Chiba S. – JPN.
 1975 – Giola V. **2** : 1975-1976. – ITA.
 1975 – Josens G. **3**. – FRA.
 1975 – Jura C. – POL.
 1975 – Kristensen N. P. **4** : 1975-1997. – DNK.
 1975 – Lavelle P. **3** : – FRA.
 1975 – Mizuta K. **2** – JPN.
 1975 – Rust R. W. – USA.
 1975 – Strouhal H. – AUT.
 1975 – Vornatscherzoni. – AUT.
 1975 – Walker G. L. – USA.
 1976 – Müller H. – AUT.
 1976 – Sabatini M. A. **4** : 1976-1989. – ITA.
 1976 – Tagliazucchi G. – ITA.
 1977 – Benham G. S. – USA.
 1977 – Biliński S. M. **9** : 1976-1993. – POL.
 1977 – Klag J. **7** : 1977-1985. – POL.
 1978 – Betsch J.-M. **2** : 1978-1996. – FRA.
 1978 – Daniel M. – CZE.
 1978 – Kuriki G. – JPN.
 1978 – Lee B.-H. **13** : 1978-1998. – KOR.
 1978 – Leinaas H. P. – NOR.
 1978 – Mari Mutt J. A. **2** : 1978-1980. – USA.
 1978 – Mrčiak M. – CZE.
 1978 – Ohba N. – JPN.
 1978 – Ramsay G. W. – NZL.
 1978 – White C. – USA.

- 1979 – Ohnishi J. **4** : 1979-1993. – JPN.
 1979 – Paik W. H. **3** : 1979-1982. – KOR.
 1979 – Saku T. – JPN.
 1979 – Tomlin A. D. **2** : 1979-1981. – CAN.
1980 – Gunnarsson B. – SWE.
 1980 – Kurosa K. – JPN.
 1980 – Leclerc P. – FRA.
 1980 – Palevody C. – FRA.
 1981 – Ben B. – CHN.
 1981 – Burroni D. – ITA.
 1981 – Castri V. V. di – CHL.
 1981 – Guo P. – CHN.
 1981 – Jin G. – CHN.
 1981 – Lucchini A. – ITA.
 1981 – Miller J. J. – CAN.
 1981 – Tanaka S. **3** : 1981-1991. – JPN.
 1981 – Torti C. **10** : 1981-2020. – ITA.
 1981 – Zhang Z.-y. **6** : 1981-1987. – CHN.
 1982 – Kinjo N. **3** : 1982-1985. – JPN.
 1983 – Aldaba J. : 12: 1983-1986. – ESP.
 1983 – Harada H. **2** : 1983-1987. – JPN.
 1983 – Juberthie C. – FRA.
 1983 – Loub W. – AUT.
 1983 – Nakamura O. **50** : 1983-2016. – JPN.
 1983 – Wang S. – CHN.
 1984 – Hagvar S. **3** : 1984-1997. – NOR.
 1984 – McE. Kevan K. **2**. – CAN.
 1984 – Wu D.-s. **8** : 1984-2013. – CHN.
 1984 – Yang Y.-m. **14** : 1984-2005. – CHN.
 1985 – Andrén O. **2** : 1985-1991. – SWE.
 1985 – Lagerlöf J. **2** : 1985-1991. – SWE.
 1985 – Xué L.-z. **10** : 1985-1993. – CHN.
 1986 – Fanciulli P. **2** : 1986-1987. – ITA.
 1986 – Ishii K. **2** : 1986-1994. – JPN.
 1986 – Tang B-w. **7** : 1986-1991. – CHN.
 1988 – Rim M.-G. **3** : 1988-1989. – KOR.
 1988 – Stumpp J. **5** : 1988-1990. – DEU.
 1988 – Tichy H. – AUT.
 1988 – Zhao L. J. – CHN.
 1989 – Allen R. T. **5** : 1989-2007. – USA.
 1989 – Arbea J. I. **3** : 1989-1993. – ESP.
 1989 – Larink O. – DEU.
 1989 – Outten W. A. – USA.
 1989 – Wheeler W. C. **9** : 1889-2004. – USA.
 1989 – Wolters V. – DEU.
 1989 – Xue L. Z. **6** : 1989-1994. – CHN.
1990 – Chen C. S. **5** : 1990-1999. – CHN.
 1990 – Kim J. T. – KOR.
 1990 – Weiner W. M. **4** : 1990-2003. – POL.
 1991 – Blackith E. – IRL.
 1991 – Good J. A. – IRL.
 1991 – Ishi K. – JPN.
- 1991 – Kukalova-Peck J. – CAN.
 1991 – Olafsson E. – ISL.
 1992 – André H. M. **2** : 1992-1995. – BEL.
 1992 – Ishigaki T. – JPN.
 1992 – Itakura J. – JPN.
 1992 – Lebrun P. **2** : 1992-1994. – BEL.
 1992 – Matsuzaki I. – JPN.
 1992 – Noti M.-I. **2** : 1992-1994. – BEL.
 1992 – Sato H. – JPN.
 1992 – Shikenbaru K. – JPN.
 1992 – So P. – JPN.
 1992 – Sunagawa I. **2** : 1992-1993. – JPN.
 1992 – Tamaki K. – JPN.
 1993 – Miyara Z. – JPN.
 1993 – Xie R.-d. **19** : 1993-2007. – JPN.
 1993 – Zhang Y. **3** : 1993-2003. – CHN.
 1994 – Balkenhol B. **3** : 1994-2003. – DEU.
 1994 – Houston W. W. K. – AUS.
 1994 – Kraus O. **3** : 1994-1997. – DEU.
 1994 – Kraus M. **2** : 1994-1996. – DEU
 1994 – Tamura H. **3** : 1994-2003. – JPN.
 1994 – Tipping C. **3** : 1994-2004. – USA.
 1994 – Zhang J. **4** : 1994-1996. – CHN.
 1995 – Funke W. **2** : 1995-1999. – DEU.
 1995 – Krauss J. **4** : 1995-1999. – DEU.
 1995 – Rozkosny R. – CZE.
 1996 – Broza M. **4** : 1996-2004. – ISR.
 1996 – Chao R. F. **6** : 1996-1999. – CHN.
 1996 – Poliakov D. – ISR.
 1997 – Barrocas H. **2** : 1997-2000. – PRT.
 1997 – Chaudonneret J. – FRA.
 1997 – Ehrnsberger R. – DEU.
 1997 – Pagés J. – FRA.
 1997 – Sterzynska M. **9** : 1997-2020. – POL.
 1997 – Thibaud J.-M. – FRA.
 1997 – Whiting M. **3** : 1997-2001. – USA.
 1998 – Andrés P. **3** : 1998-2006. – ESP.
 1998 – Bitsch C. **4** : 1998-2004. – FRA.
 1998 – Lee H. R. – CHN.
 1999 – Luptacík P. – SVK.
 1999 – Shao H.-g. – CHN.
2000 – Carapelli A. **5** : 2000-2019. – ITA.
 2000 – Celary W. – POL.
 2000 – Christian E. **5** : 2000-2011. – AUT.
 2000 – Ferreira C. **2**. – PRT.
 2000 – Frati F. **3** : 2000-2019. – ITA.
 2000 – Gama M. M. da **2**. – PRT.
 2000 – Giribet G. **4** : 2000-2006. – USA.
 2000 – Guzowski M. E. C. – CAN.
 2000 – Nardi F. **2** : 2000-2019. – ITA.
 2000 – Palacios-Vargas J. G. **4** : 2000-2014. – MEX.
 2000 – Ribera C. – ESP.

- 2000 – Simon C. – ITA.
 2000 – Slawska M. **2** : 2000-2004. – POL.
 2000 – Sousa J.-P. **2**. – PRT.
 2000 – Zhang Z. Q. – CHN.
 2001 – Carpenter J. M. **2** : 2001-2004. – USA.
 2001 – Edgecombe G. D. **2** : 2001-2004. – AUS.
 2002 – Yue Q.-y. **2** : 2002-2003. – CHN.
 2003 – Bedano J. C. **2** : 2002-2005. – ARG.
 2003 – Hagihami. – JPN.
 2003 – Hagiwara Y. **2** : 2003-2006. – JPN.
 2003 – Luan Y-x. **13** : 2003-2020. – CHN.
 2003 – Machida R. **4** : 2003- 2010. – JPN.
 2003 – Pang J. – CHN.
 2003 – Stomp N. **2** : 2003-2013. – LUX.
 2003 – Takahashi I. **2** : 2003-2004. – JPN.
 2004 – D’Haese C. A. **6** : 2004-2017. – FRA.
 2004 – Mizushima H. – JPN.
 2004 – Yoshida A. – JPN.
 2005 – Akam M. – GBR.
 2005 – Cook C. E. – GBR.
 2005 – Mallatt J. M. **5** : 2005-2014. – USA.
 2005 – Narimatsu M. – JPN.
 2005 – Sawahata T. – JPN.
 2005 – Xiong Y. **3** : 2005-2018. – CHN.
 2006 – Bu Y. **25** : 2006-2020. – CHN.
 2006 – Fukui M. **4** : 2006-2010. – JPN.
 2006 – Hansen J. **2** : 2006-2010. – USA.
 2006 – Harayama S. **2** : 2006-2009. – JPN.
 2006 – Kaprus I. J. **3** : 2006-2014. – UKR.
 2006 – Kurihara Y. **2** : 2006-2009. – JPN.
 2006 – Lupetti P. – ITA.
 2006 – Mateos E. **7** : 2006-2010. – ESP.
 2006 – Mencarelli C. – ITA.
 2006 – Okuda T. – JPN.
 2006 – Saito M. **2** : 2006-2012. – JPN.
 2006 – Shrubovych J. **45** : 2006-2020. – UKR.
 2006 – Tarashchuk M. V. – UKR.
 2008 – Biechele L. T. – USA.
 2008 – Fleenor S. B. – USA.
 2008 – Gao G. – CHN.
 2008 – Henriques A. L. – BRA.
 2008 – Magalhães C. – BRA.
 2008 – Malmström A. **4** : 2008-2011. – SWE.
 2008 – Minor M. A. – NZL.
 2008 – Pass G. **9** : 2008-2016. – AUT.
 2008 – Privette J. L. – USA.
 2008 – Qin Y. – CHN.
 2008 – Rafael J. A. – BRA.
 2008 – Ribeiro J. M. F. – BRA.
 2008 – Szucsich N. U. **7** : 2008-2016. – AUT.
 2008 – Taber S. W. – USA.
 2008 – Tian X. – CHN.
- 2008 – Xie Q. – CHN.
 2009 – Ahlström K. – SWE.
 2009 – Bengtsson J. – SWE.
 2009 – Capurro M. **5** : 2009-2020. – ITA.
 2009 – Dell’Ampio E. **2** : 2009-2011. – ITA.
 2009 – Galli L. **10** : 2009-2020. – ITA.
 2009 – Gongalsky K. – RUS.
 2009 – Likhitrakarn N. **2** : 2009-2016. – THA.
 2009 – Maraum M. – DEU.
 2009 – Persson T. **2** : 2009-2011. – SWE.
 2009 – Schneider K. – DEU.
 2009 – Shirouzu T. – JPN.
 2009 – Steinacher A. – AUT.
 2009 – Steiner G. – AUT.
 2009 – Tokumasu S. – JPN.
2010 – Callaini G. – ITA.
 2010 – Craig C. W. – USA.
 2010 – Mercati D. **3** : 2010-2010. – ITA.
 2010 – Moulton J. K. – USA.
 2010 – Riparbelli M. G. – ITA.
 2010 – Rost-Roszkowska M. M. **2**. – POL.
 2011 – Bartel D **4** : 2011-2016. – AUT.
 2011 – Böhm A. **2**. – AUT.
 2011 – Chen W.-J. **2** : 2011-2019. – CHN.
 2011 – Bogdanovic A. M. – YOU.
 2011 – Li S. – CHN.
 2012 – Hashimoto M. – JPN
 2012 – Kaneko N. – JPN.
 2012 – Minamiya Y. – JPN.
 2012 – Orlov O. – UKR.
 2012 – Schneider C. **5** : 2012-2014. – FRA.
 2012 – Smykla J. **6** : 2012-2020 – POL.
 2013 – Bai Y. – CHN.
 2014 – Potapov M. B. – RUS.
 2014 – Resch M. C. **2** : 2014-2016. – AUT.
 2014 – Timelthaler G. – AUT.
 2014 – Walzl M. – AUT
 2015 – Blank S. M. **2**. – DEU.
 2015 – Chi M. – USA.
 2015 – Christie A. E. – USA.
 2015 – Hädicke C. **2**. – DEU.
 2015 – Melic A. – ESP.
 2015 – Müller C. H. G. – DEU.
 2015 – Pohl H. – DEU.
 2015 – Sombke A. **2**. – DEU.
 2016 – Costa F. O. – ITA.
 2016 – Fiera C. **2** : 2016-2019. – ROU.
 2016 – Ma Y. – CHN.
 2016 – Sarà G. D. – ITA.
 2016 – Stadio G. D. – ITA.
 2016 – Suttiprapan P. – THA.
 2016 – Wiroonrat W. – THA.

- 2016 – Zinni M. **5** : 2016-2020. – ITA.
 2017 – Arnett R. H. Jr. – USA.
 2017 – Lionetti G. – ITA.
 2017 – Qian C. **2** : 2017-2018. – CHN.
 2017 – Stary J. **2** : 2017-2020. – CZE.
 2018 – Sikes D. S. – USA. ?
 2019 – Ammerschubert S. – DEU. ?
 2019 – Bluhm S. L. – DEU.
 2019 – Georgiev D. G. **2** : 2019-2020. – BUL.
 2019 – Leo C. – ITA.
 2019 – Molyneux T. **2** : 2019. – AUS.
 2019 – Polle A. – DEU.
 2019 – Potapov A. M. – RUS.
 2019 – Scheu S. – DEU.
2020 – Colasanto E. – ITA.
 2020 – Čuchta P. – CZE.
 2020 – Gao Y. – CHN.
 2020 – Kaňa J. – CZE.
 2020 – Murray A. – UKR.
 2020 – Rellini I. – ITA.
2020 – Tajovský K. – CZE.

History of Protura. – Fig. 20. Protura were not recognized until 1907, when SILVESTRI described the first species and created the name *Protura*. Antonio Berlese (1908-1912) follows closely, with first work published in 1908. Interestingly, BERLESE (1909) created a competing name for this arthropod class, *Myrientomata*, but this name was used only in two catalog publications (LEONARD, 1928; BRIMLEY, 1938) from the USA.

Despite their rather uniform appearance, Protura seem to hold a fascination for soil biologists, as the number of proturan papers is higher for Protura than for Diplura, even though the number of described species is lower... The most prolific authors have been, in chronological order: H. E. Ewing (USA) with 10 publications (1921-1949); H. Womersley (Australia) with 12 (1924-1939); Ionescu (Romania), 17 (1930-1955); S. L. Tuxen (fig. 5) (Denmark), 54 (1931-1986); B. Condé (France), 51 (1944-1997); Paclt, 12 (1951-1994) and Nosek (fig. 9), 82 (1954-1985), (both Czechoslovakia/Czech Rep.); G. Imadaté (fig. 8) (Japan), 108 (1954-1995); J. François (France), 26 (1959-2017); J. Rusek (Czechoslovakia/Czech Rep.), 32 (1961-2015); W. Yin (fig. 11) (China), 97 (1963-2018); A. Szeptycki (fig. 12) (Poland), 65 (1964-2012); M. Cvijovic (Yugoslavia), 11 (1967-1982); R. Dallai (Italy), 37 (1973-2019); E. C. Bernard (USA), 16 (1975-2020); B.-H. Lee (South Korea), 13 (1978-1998); Torti (Italy), 10 (1981-2020); Aldaba (Spain), 12 (1983-1986); O. Nakamura (fig. 13) (Japan), 50

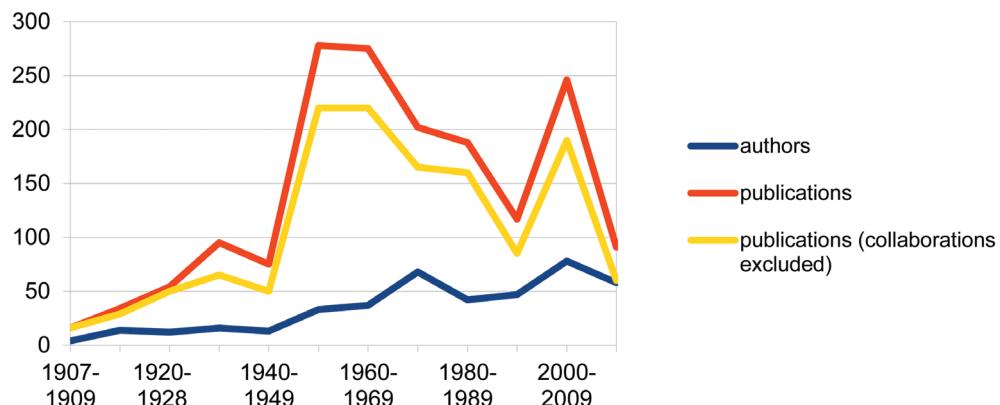


Fig. 20. – Distribution of proturan publications by decade, categorized by number of authors, number of publications and number of collaborative publications (more than one author).

(1983-2016); Chinese scientists Yang Y.-m. 14 (1984-2005) and Xué L.-z. 10 (1985-1993); the Japanese Xie R.-d. 19 (1993-2007), Chinese scientists Luan Y.-x., 13 (2003-2020) and Yun Bu, 25 (2006-2020); J. Shrubovych (fig. 15) (Ukraine), 45 (2006-2020); and L. Galli (Italy), 10 (2009-2020).

Number of publications per authors (greater than 16). – Among the most productive scientists on Protura: the Japanese Imadaté with 108 works, the Chinese Yin W. with 97, the Czech Nosek 82, the Polish Szeptycki 65, the Danish Tuxen 54, the French Condé 51, the Japanese Nakamura 50, the Ukrainian Shrubovych 45, the Italian Dallai 37, the Czech Rusek

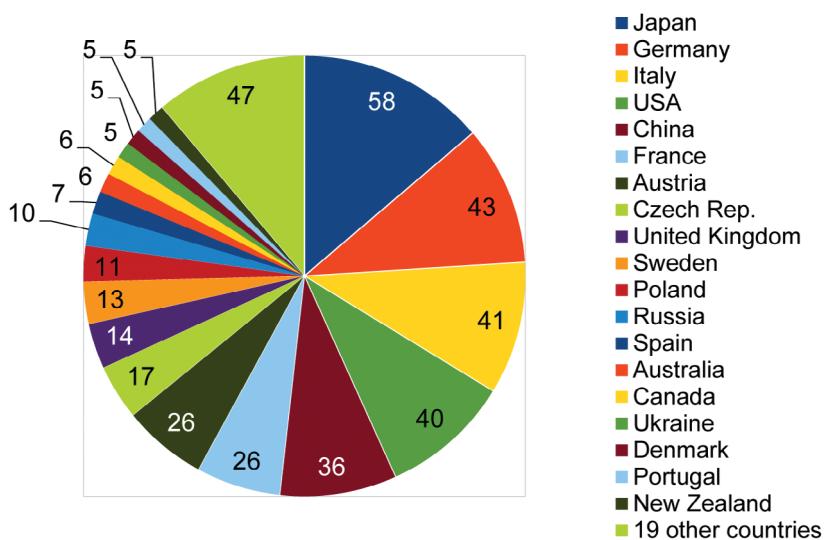


Fig. 21. – Number of authors of proturan papers by country (1907-2020).

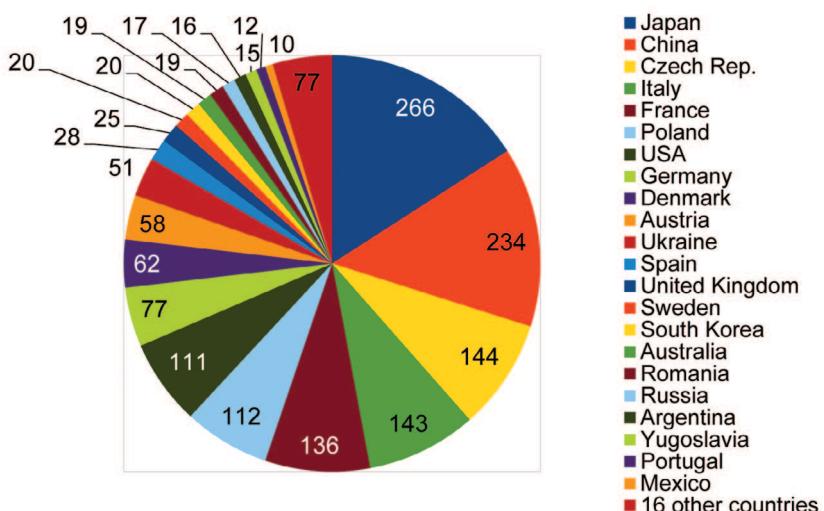


Fig. 22. – Number of proturan publications by country (1907-2020).

32, the French François 26, the Chinese Bu Y. 25, the Japanese Xie R.-d. 19, the Romanian Ionescu 17 and the United States American Bernard 16.

The number of Protura publications per decade was highest from the 1950s through the 1970s. This peak can be correlated with the publications of S. L. Tuxen, who studied all of the known species and produced his epic systematic analysis of the class (TUXEN, 1964). This standardized work provides redescriptions of all known species, concentrating especially on the location of body setae and form of the foretarsal sensilla. Notice that in the publications number the 2 peaks are explained by the dominant number of works from 7 scientists from 1944 to 1964: Condé (51), Nosek (82), Imadaté (108), François (26), Rusek (32), Yin (97) and Szeptycki (65); at least in 2006: Bu (25) and Shrubovych (45). Effectively, the average number of works by authors is low in Protura, 4 (10 in Collembola).

Number of Protura publications by country. – Fig. 21-22. Japan and China, then Czech, Italy and France, dominate by the number of their publications, then two countries stand out, Poland and USA. These seven countries are the “founders” of the “Proturology”.

Japan: 266 works signed by 58 authors, including Imadaté with 108 works, Nakamura 50 and Xie R.-d. 19. The first work is dated from 1928 by Kishida.

China: 234 works signed by 36 authors, including Yin W. with 97 works, Yang Y.-m. 14, Xué L.-z. 10, Luan Y.-x. 13 and Bu Y. 25. The first work is dated from 1948 by Chou I.

Czech Republic: 144 works signed by 17 authors, including Paclt with 12 works, Nosek and Rusek 32. The first work is dated from 1935 by Kseneman.

Italy: 143 works signed by 41 authors, including Dallai with 37 works, Torti and Galli 10 each. The first work is dated from 1907 by Silvestri.

France: 136 works signed by 26 authors, including Condé with 51 works and François 26. The first work is dated from 1925 by Denis.

Poland: 112 works signed by 11 authors, including Szeptycki with 65 works. The first work is dated from 1926 by Stach.

USA: 111 works signed by 40 authors, including Ewing with 10 works and Bernard 16. The first work is dated from 1916 by Crampton.

And 31 other countries...

Number of publications by major subjects. – Nearly three-quarters of the works published worldwide on Protura are on Taxonomy and Faunistics and the last on Ecology, Biology, Anatomy and Phylogeny.

DISCUSSION

We have counted 1382 scientific works on Diplura, collaborations included, signed by 453 scientists from 39 different countries. Among these 1382 works, about 212 are in collaboration, and we have finally a total of about 1170 separata on this Hexapoda class. The most active countries on these are France, Italy, USA and Spain.

We have identified 423 authors that have signed 1670 works on Protura, of which about 370 collaboration, with a total of about 1300 separata on this class of Hexapoda in 38 different countries. The most active countries on these are Japan, China, Italy, Czech Republic, France, Poland and USA.

The most active researchers, in terms of publications number, on Diplura and Protura, are systematists, often grouped in laboratories with rich collections. These collections were brought by numerous scientific expeditions all over the world and donations.

It should be remembered that three quarters of the publications on the Diplura and Protura deal with taxonomy and faunistics, the others with ecology, biology, anatomy and phylogeny.

We can notice that the number of authors and works have particularly increased since the forties and even more so since the sixties. That can be explained by the recruitment of scientists in all countries.

Note that among these works there are collaborations (several authors signing a same paper), more and more in fashion since the eighties and which increases as time progresses. These collaborations ensure that the papers are counted several times and this reduces the overall number of works published on Diplura and Protura.

Comparison between the three classes of Entognatha: number of publications. – The number of species known in the world are actually about: for Collembola 8130, for Diplura 1009, for Protura 830.

It is interesting to compare the number of publications in the three classes of Entognatha. The most studied formerly are the Collembola (early 1722, three centuries), then the Diplura (early 1842, one century and three-quarters) and the Protura (early 1907, a little more than one century).

Number of separata published on the three class are about 7735 for Collembola by 1351 authors from 68 countries, 1170 for Diplura by 453 authors from 39 countries and 1300 for Protura by 423 authors from 38 countries.

France is cited in the top five for the number of publications on the three classes with 2585 works (first for Collembola with 2045 works and for Diplura with 404 and fifth for Protura with 136).

USA, with 1249 works (second for Collembola with 1019 works, third for Diplura with 119 and seventh for Protura with 111).

Germany, with 1164 works (third for Collembola with 1007 works, fifth for Diplura with 80 and eighth for Protura with 77).

United Kingdom, with 1041 works (990 Collembola, 26 Diplura, 25 Protura).

China, with 865 works (571 Collembola, 60 Diplura, 234 Protura the second).

Japan, with 807 works (513 Collembola, 28 Protura, 266 Protura the first).

Italy, with 749 works (457 Collembola, 149 Diplura the second, Protura 143 the fourth).

Poland, with 727 works (588 Collembola, 27 Diplura, 112 Protura).

The Netherlands, with 685 (673 Collembola, 8 Diplura, 4 Protura).

Spain, with 675 works (560 Collembola, 87 Diplura, 28 Protura).

Russia, with 674 works (642 Collembola, 17 Diplura, 15 Protura), then:

Mexico 456, **Czech Republic** 455, **Australia** 445, **Austria** 393, **Denmark** 364...

CONCLUSION

Unfortunately, there is a recent problem of disaffection for studying basal hexapods, especially for the Collembola. However, these groups represent an important part of soil biodiversity and have important functions in biodegradation. This disaffection is observed in all groups of soil fauna, particularly in systematics and ecology. This is the consequence of the lack of renewal of positions in these two areas traditionally assigned to museums, for example at the Muséum national d'Histoire naturelle, in Paris. Few positions are created or renewed, and several collections, sometimes very important internationally for these areas of knowledge, are increasingly neglected.

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