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OLIGOCHAETA, NAIDIDAE OF THE WEST INDIES AND ADJACENT REGIONS

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ABSTRACT

A very large collection of Naididae of the West Indies (153 localities), Suriname (15), Venezuela (2) and Florida (1) is studied. Five new species Nais barua, Dero scalariformis, D. tuna, Aulophorus kalina, A. barbatus *are described.* Dero magna, D. trifida, Aulophorus tridentatus, Allonais japonica, Pristina sima *are redescribed. The 46 Naididae species of the West Indies are discussed by their taxonomy, distribution and habitat.*

KEYWORDS: Oligochaeta, Naididae, West Indies, Suriname, Venezuela, Florida, Taxonomy, Habitat, Distribution.

INTRODUCTION

In 1930 and from 1936 to 1973 Dr P. Wagenaar Hummelinck (Utrecht) made a number of trips to study and to collect in different marine, limnetic and terrestrial biotopos of Surinam, Venezuela, the West Indies and Florida. The Oligochaeta collected in 1930 in the islands of Bonaire, Curaçao and Aruba were studied by Michaelsen (1933). One of us (G. Righi) was kindly allowed to study the material collected afterwards. The study of this collection resulted in

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four papers on the Oligochaeta families Tubificidae, Enchytraeidae, Glossoscolecidae, Ocnerodrilidae, Megascolecidae, Acanthodrilidae, Octochaetidae and Eudrilidae (Righi & Kanner, 1979; Medeiros & Neves, 1982; Righi & Hamoui, 1989; Righi, 1993). The much more numerous Naididae species are now presented. The region sampled by Hummelinck includes a little more than the Antillean (=Caribbean) Biogeographical Province belonging to the Caribbean Biogeographical Dominion which is the most septentrional region of the Neotropical Biogeographical Region (Cabrera & Willinck, 1973). The Neotropical Naididae are moderately known in Argentina (Di Persia, 1980a), Uruguay (Cordero, 1931a), Paraguay (Stephenson, 1931a), Lake Titicaca (Harman et al. 1988), Brazil (Righi, 1984) and Surinam (Harman, 1974). From the other regions there are only some short papers registered by Gavrilov (1981) and Harman (1982b). The first notice of Naididae in the Antillean Dominion is due to Stieren (1892) describing *Dero multibranchiata* from Trinidad. After this paper came those of Michaelsen (I.c.), Botea (1983) in Cuba and Dumnicka (1986) in some other West Indian Islands. These four papers reported a whole of 16 Naididae species, which is much below to the expected number in the so complex inner aquatic environment of the West Indies. So, our purposes are to supply the paucity of faunistic information, give an account of the variations of the species in the different biotopes and to understand their distribution in the West Indies.

We would like to express our deepest thanks to Dr. P. Wagenaar Hummelinck for his kindness giving us his Oligochaeta collection which made this study possible, and to Dr. John Milton (Universidade São Paulo) for English language corrections.

Material and Methods

Hummelinck's collection contains 4,975 Naididae specimens from 171 localities: 153 in 35 islands of the West Indies, 15 in Surinam, 2 in Venezuela and 1 in Florida (see below). To study the setae, every specimen was mounted in microscopical slides with glycerin-water (1:1). To study the inner anatomy, some worms of every species were dyed *in toto* with Mayer's paracarmin (Graupner, 1934) and studied in xylol and in the interface xylol-balsam. The specimens are preserved in permanent slides with balsam of Canada, 1-10 specimens per slide and they are deposited in the Department of Zoology, University of São Paulo (ZU), Brazil.

Localities

Florida 001: Everglades National Park, 6.IX.1963; freshwater ditch. Key Biscaine 694: pond near Harbor Drive, 9.IX.1963; 60 mg Cl'/l. New Providence 548: Archbold's Pond, Nassau, 23.VIII.1949; 17 mg Cl'/l. Cayman Brac 007: Deep Well of Lonely Hill, Spot Bay E, 29.V.1973; 100 mg Cl'/l. Jamaica 025: Wagwater Rivulet at Langley, N of Kingston, 13.V.1973; 90 mg Cl'/l. 026: Mona Reservoir, E of Kingston, 6.V.1973; 10 mg Cl'/l. 028: Pool of U.W.I. Campus at Mona, adjacent to Chapel, 6.V.1973; 30 mg Cl'/l. Puerto Rico 705: Ditch near Laguna Rincón, 3 km S of Las Arenas, 18.IX.1963; 1400 mg Cl'/l. 706: Laguna Cartagena, Valle de Lajas, 18.IX.1963; 30 mg Cl'/l. St. Martin 097: Slob of Welgelegen, W of Philipsburg, 22.VII.1973; 210 mg Cl'/l. 529: Old Battery Cistern, SE of Philipsburg, 18.V.1949; 105 mg Cl'/l. 529b: Idem, 3.VI.1955; 170 mg Cl'/l. 529c: Idem, 25.VII.1955; 200 mg Cl'/l. 538: Doctor's Well, Rockland, Cul-de-Sac, 24.V.1949; 355 mg Cl'/l. 538a: Idem, 29.VI.1955; 430 mg Cl'/l. 538b: Idem, 16.X.1963; 320 mg Cl'/l. St. Barthélemy 523: Puddle at Lorient, 3.VI.1949; 3500 mg Cl'/l. St. Eustatius 508: New Well near Gin House, Downtown, 7.VIII.1949; 17 mg Cl'/l. 515a: Spouts Well of Zeelandia, near Concordia Bay, 8910 mg Cl'/l. St. Christopher 503: Wingfield River, 30.VI.1949; 35 mg Cl'/l. Nevis 413: Fort Charles, VI.1949; 500 mg Cl'/l. Barbuda 675: Village Pool near Warden's House, 5.VII.1955; 170 mg Cl'/l. Montserrat 838: Elberton Estate Pond, NW of Plymouth, 20.VII.1967; freshwater. 839: Belhamn River at bridge, N of Plymouth, 20.VII.1967; freshwater. 841 Agricultural Experiment Gardens basin, 20.VII.1967; tapwater. Guadeloupe 729: Pond de Boisvin, S of Moule, 29.1.1964; 20 mg Cl'/l. La Désirade 741: Grande Source, Baie Mahault, 24.1.1964; 495 mg Cl'/l. Marie Galante 749: Mare Lagon, Les Galeries, Capesterre, 2.II.1964; 200 mg Cl'/l. 750: Mare Noire, near Étang Noir, 1.II.1964; 12 mg Cl'/l. 752: Rivière du Vieux Fort, Vangout, road crossing, 31.I.1964; 1165 mg Cl'/l. 753: Mare Médicinie, Meynard, near Grosse Point, 31.I.1964; 90 mg Cl'/l. 754: Mare du Moulin de Gran-Pièrre, 1.II.1964; 17 mg Cl'/l. 756 Rivière de Saint Louis, Les Sources, 1.II.1964; 57 mg Cl'/l. 756a: Idem, 1.II.1964; 50 mg Cl'/l. Îles des Saintes 760 Terre-de-Haut, Mare Haut, 6.II.1964; 70 mg Cl'/l. Dominique 846: Botanical Gardens Pool, Roussseau, 14.VII.1967; 90 mg Cl'/l. 847: Portsmoth River at bridge, 15.VII.1967; 80 mg Cl'/l. Martinique 767: Fossé du Baie de Tartane, Caravelle Peninsula. 9.II.1964; 1000 mg Cl'/l. 851: Rivière Oman, 2 km N of Anse des Trois Rivières, 12.VII.1967; 2130 mg Cl'/l. 852: Rivière Salée, southem Ditch, 12.VII.1967; 1500 mg Cl'/l. St. Lucia 854: D'Orange River, S of Gros Islet, 11.VII.1967; 70 mg Cl'/l. St. Vincent 858: Greathed River, S of Kingston, 10.VII.1967; 30 mg Cl'/l. Barbados 782: Sedge Pond, W of Belleplaine,

17.II.1964; 65 mg Cl'/l. 866: Washy Pond of Venice, SE Merricks, St. Philip, 6.VII.1967; 310, mg Cl'/l. 867: Cole's Pasture Pond at mill, St. Philip, 6.VII.1967; 140 mg Cl'/l. 868: Cole's Pasture Pond, 150 mg Cl'/l. Grenada 659A: Well of Callist, Point Salinas, 8.VII.1967; 350 mg Cl'/l. 860: Irwins River, SE Sauters, 9.VII.1967; 180 mg Cl'/l. 860A: Idem, pool, 9.VII.1967; 200 mg Cl'/l. 861: Levera Pond near beach, at bridge, 9.VII.1967; 13,100 mg Cl'/l. Trinidad 116: River near Four Roads, NW Trinidad, 7.V.1936; 30 mg Cl'/l. 366: St. Augustine, 1948; 649 mg Cl'/l. 648: Tamana Bat Cave, water track, 9.1.1955; 100 mg Cl'/l. 795: Point Fortin, Mainroad Swamp, 16.1.1964; 13 mg Cl'/l. Los Testigos 30: Morro La Iguana, Pozo del Morro, 14.VI.1936; 460 mg Cl'/l. Margarita 10: Poza de La Laguna Dulce, Macanao, 20.V.1936; 550 mg Cl'/l. 12: Poza Baranca, Manglilo, Macanao, 20.V.1936; 120 mg Cl'/l. 13: Estanque Lato, Boca del Rio, Macanao, 20.V.1936; 70 mg Cl'/l. 15: Manantial de Güiri, San Antonio, 13.VII.1936; 80 mg Cl'/l. 18: Laguna Honda, SE Juan Griego, 16.V.1936; 150 mg Cl'/l. 20: Aljibe del Rio de La Fuente, N of La Asunción, 11.V.1936; 110 mg Cl'/l. 21: Toma de Agua de La Asunción, 6.VII.1936; 50 mg Cl'/l. 22: Rio Asunción, W of La Asunción, 3.VII.1936; 120 mg Cl'/l. Blanquilla 38: Poza de Aguada, N of El Jaque, 22.VII.1936; 970 mg Cl'/l. Bonaire 44b: Pos Bronswinkel, Nat. Park Washington, 23.VIII.1955; 560 mg Cl'/l. 44c: Idem, 20.IX.1967; 550 mg Cl'/l. 44e: Idem, 18.III.1970; 530 mg Cl'/l. 44A: Idem, Bron, 27.III.1937; 500 mg Cl'/l. 44Ae: Idem, 16.VIII.1973; 420 mg Cl'/l. 44B: Idem, gotter of overflow, 23.VII.1955; 560 mg Cl'/l. 44Ba: Idem, gotter of overflow, 20.IX.1967; 550 mg Cl'/l. 44C: Idem, sheet ofwater from overflow, 19.III.1970; 600 mg Cl'/l. 45A: Dos Pos, trough, 26.X.1968 590 mg Cl'/l. 46 Tanki Onima, 13.XI.1936; 40 mg Cl'/l. 46a: Idem, 23.V.1930; 400 mg Cl'/l. 48b: Bron Fontein, near spring, 8.IX.1967; 600 mg Cl'/l. 52: Pos Ichi, S of Kralendijk, 14.XI.1936; 160 mg Cl'/l. 52a: Idem, 31.III.1937; 1400 mg Cl'/l. 52c: Idem, 2.IX.1948; 140 mg Cl'/l. 52d: Idem, 27.XII.1948; 90 mg Cl'/l. 52e: Idem, 21.II.1949; 90 mg Cl'/l. 53: Pos Baca, S of Kralendijk, 14.XI.1936; 230 mg Cl'/l. 53e: Idem, 26.III.1955; 710 mg Cl'/l. 53f: Idem, 19.VIII.1955; 2,380 mg Cl'/l. 53g: Idem, 4.XII.1963; 500 mg Cl'/l. 54: Pos Baca Chikitoe, 14/XI/1936; 500 mg Cl'/l. 54a: Idem, 16.IX.1948, 195 mg Cl'/l. 54b: Idem, 27.XII.1948, 230 mg Cl'/l. 54c: Idem, 21.II.1949; 105 mg Cl'/l. 55: Pos Calmas, Lima, 1.IV.1937; 880 mg Cl'/l. 374: Puddle at Rincón, 26.II.1949; 85 mg Cl'/l. 376a: Pos Kralendijk, 24.II.1949; 90 mg Cl'/l. 379: Pos Baca Grandi, 2.IX.1948, 655 mg Cl'/l. 379a: ludem, 16.IX.1948; 1,260 mg Cl'/l. 379b: Idem, 27.XII.1948; 180 mg Cl'/l. 379c: Idem, 21.II.1949; 1,280 mg Cl'/l. 379d: Idem, 2.IX.1949; 2,180 mg Cl'/l. 379f: Idem, 5.X.1949;2,200 mg Cl'/l. 379h: Idem, 27.VIII.1967; 2,000 mg Cl'/l. 379i: Idem, 26.X.1968; 1,210 mg Cl'/l. 379j: Idem, 17.III.1970; 300 mg Cl'/l. 384: Pos Flambaai, near

Zuidpunt, 31.IX.1948; 1,200 mg Cl'/l. 641: Blauwe Pan Putten, 9.IV.1955; 190 mg CI'/l. 882: Pos di Salinja di Caí, 9.VIII.1967; 1,000 mg Cl'/l. 882a: Idem, 30.X.1968; 1,200 mg Cl'/l. 882A: Idem, II.1967, sal.? 890: Tanki di Oliver Coffie, Playa Grandi, 2.IX.1967; 80 mg C1'/l. 901a: Pos di Salinja di Cai, 3 m NE of 882, 9.VIII.1967; 1,950 mg C1'/l. 902: Pos di Salinja di Cai, 3 m E of 901, 30.X.1968; 4,030 mg C1'/l. 930 Bak di Ceru Petru, Washington, 18.III.1970, 140 mg C1'/l. Klein Bonaire 61a: Pos di Cas, 15.XI.1936, 410 mg C1'/l. 61b: Idem, 7.IX.1948; 620 mg C1'/l. 61c: Idem, 20.VIII.1955; 710 mg C1'/l. 61d: Idem, 3.XII.1963; 395 mg C1'/l. Klein Curaçao 64A: Pos N of Lighthouse, 29.VIII.1936; 530 and 5050 mg C1' /l. Curaçao 67: Bak di Horje Groot, St. Joris, 20.X.1936; 790 mg C1' /l. 67a: Idem, 9.IX.1949; 745 mg C1'/l. 70: Tanki Koenoekoe Hatoen, E of Hato, 15.X.1936; 690 mg C1'/l. 74: Bron Vajoeda, Hato, IX.1936; 320 mg C1'/l. 74a: Idem, 5.IX.1949; 1,130 mg C1'/l. 74c: Idem, 27.VIII/1955; 490 mg C1'/l. 75: Tanki Mamaja, Hato, 6.X./1936; 450 mg C1'/l. 75a: Idem, 11.X.1936; 380 mg C1'/1. 76A: Bron Wandondo, Hato, 6.X.1936; 230 mg C1'/l. 76Aa: Idem, 11.X.1936; 240 mg C1'/l. 77a: Bak Rincón, W of Hato, 31.XII.1963; 175 mg C1'/l. 77b: Idem, 15.X.1967; 160 mg C1'/l. 77c: Idem, 27.II.1970; 160 mg C1'/l. 77A: Idem, 11.X.1936; 200 mg C1'/l. 82: Pos Europa, Dokerstuin, 27.X.1936; 470 mg C1'/l. 86: Pos Sorsaka, 10.XI.1936; 600 mg C1'/l. 339: Gr. Piscadera, 1948; sal. ? 339A: Idem, 1949; sal. ? 389: Pool at Agricultural Experiment Station, 11.XII.1948; 690 mg C1'/1. 389B: Idem, 3,XII.1963; 535 mg C1'/1. 395A: Bron San Pedro, S. Hofje 5/III/1955; 500 mg C1'/l. 399: Pos Cajoeda, Knip, 17.VIII.1948; 390 mg C1'/l. 891: Hofje San Pedro S, 15.X.1967; 800 mg C1'/l. 892: Tanki di Malpays, downstream of dam, 26.X.1967; 470 mg C1'/l. 893: Tanki di Malpays, upstream of dam, 26.X.1967; 590 mg C1' /l. 894: Tanki di Malpays, upstream of Dam, 26.X.1967; 510 mg C1'/1. 895: Tanki di Malpays, near dam 2 km upstream, 26.X.1967; 310 mg C1'/l. 914: Pos di Costa, cistern, NE coast Kl. St. Joris, 21.X.1968; 920 mg C1'/l. Aruba 93c: Fontein, pond, 12.VIII.1955; 510 mg C1'/l. 98: Tanki di Hofje Westpunt, 9.XII.1936; 80 mg C1'/l. 100: Tanki Leendert, 16.XII.1936; 35 mg C1'/l. 103: Rooi Bringamosa, brooklet, 6.1.1937; 3,150 mg C1'/l. 401: Tanki di Cas Ariba, Santa Cruz, 30.XII.1948; 18 mg C1'/l. 634: Trough of La Salle, Oranjestad, V.1955; 120 mg C1'/l. 635: Trough of La Salle, Oranjestad, 4.V.1955; 220 mg C1'/l. 636: Pool of La Salle, Oranjestad, 4.V.1955; 110 mg C1'/l. La Goajira 113: Pozo del Arroyo de Aparà, El Cardón, 27.1.1937; 85 mg C1'/1. Paraguaná 105: Poza de la Compañia, Carirubana, 15.II.1937; 140 mg C1'/l. 109: Estanque de Santa Fé, NE of Moruy, 18.II.1937; 120 mg C1'/l. Venezuela 920: Jardin Botánico, Laguna del Leste, Caracas, 10.XI.1968; 60 mg C1'/l. 921: Jardin Botánico, Laguna del Oeste, Caracas, 10.XI.1968; 70 mg C1'/l. Surinam 119: Trench in Cultuurtuin, Paramaribo, 2.V.1936; 30 mg

C1'/l.120: Pond of Belwaarde, near Paramaribo, 3.V.1936; 20 mg C1'/l. 370: Zanderij, about 42 km S of Paramaribo, 3. VIII.1948; between some leaf decay of *Maximiliana maripa* on pure sand, land habitat. 406: Swampi at Krepi, N of Paramaribo, 2.VIII.1948; 18 mg C1'/l. 566: Kabel, 2.IX.1955; decaying palm trees in pool, land habitat. 642: Couropina, swamp Berseba, near Republiek, 3.IX.1955; 120 mg C1'/l. 642A: Idem, river near Republiek, 3.IX.1955; 110 mg C1'/l. 644: Suriname River, N of Kabel, 1.IX.1955; 105 mg C1'/l. 646: Ditch at Kabel, 2.IX.1955; 110 mg C1'/1. 923; 925; 927; 928; 929: Zoetwaterput 1948-1950.

Circumstantial descriptions and maps of the localities may be found in Hummelinck (1940a; 1940b; 1953; 1981).

Results and discussion

Nais barua *n. sp.*

(Fig. 1.A-C)

Material examined: Aruba 636, 2 specimens (Holotype ZU-1314). Habitat: Limnetic; salinity 0.2‰.

Description: Length 2 mm. Diameter 280 µm. Number of segments 25. Eyes and division-zone absent. Short and rounded prostomium. Septal glands in IV- VI, more voluminous in V. Well differentiated stomach in VIII, intestine begining at X; terminal anus. Commissural vessels in V-VII. Body cavity rich in more or less discoidal coelomocites 23-48 µm wide and with thinly punctuated plasma; the larger coelomocites are more numerous. Dorsal setae from VI on, one hair and one needle seta per bundle. The hairs are thin, right and smooth, 71-98 µm long. The neeedles (Fig. 1.A) are 39-43 µm long with curve distal 1/3-1/4 and straight proximal part. Apex with 2 short teeth of equal length diverging 80°-100° proximal tooth is slightly thicker; there is a thin intermediate tooth. Ventral setae of II-V (Fig. 1.B), 4 per bundle, 72-80 µm long, slightly proximal nodulus, long teeth of similiar thickness, the distal tooth is 1.5 longer than the proximal one, they diverge 6°-8°. From VI on the ventral setae are similar (Fig. 1.C), 3-4 per bundle, 46-50 µm long, distal nodulus, teeth of equal length, the proximal one is 2 times thicker, they diverge from 47°-53°.

Remarks: *Nais barua* and *N. africana* Brinkhurst (1966) have pectinate needles in common. The main characteristics of *N. africana* to distinguish it from the new species are presence of eyes and anterior ventral setae with teeth of equal

length. The name of the new species is the inversion of the syllables of Aruba.

Bratislavia dadayi (Michaelsen, 1905)

Naidium (Nais?) dadayi Michaelsen, 1905a: 355.
Pristina unidentata Harman, 1973: 161, fig. 2A-C; 1974: 17.
Bratislavia unidentata Harman & Loden, 1978: 541, fig. 1A-D; Varela, 1984: 241, fig. 1a-g; Pujals, 1985: 209, figs. 14-19.

Material: Florida 001, 3 specimens. New Providence 548, 1 specimen. Montserrat 839: 3 specimens. Habitat: Limnetic; salinity 0.03 %.

Distribution: North America (Harman, 1973). Neotropical Region: Paraguay (Michaelsen, 1905a). Argentina: Prov. Buenos Aires and Corrientes (Varela, 1984; Pujals, 1985). Surinam (Harman, 1974). Montserrat and New Providence (Righi & Hamoui).

Remarks: On confronting the descriptions of *Naidium dadayi* and *Pristina unidentata* we did not find any characteristic to separate them. On comparing our specimens with *dadayi* (= *unidentata*) we see they are differentiated by the teeth of the mid-body ventral setae; our specimens have a distal tooth which is considerably longer than the proximal one and *dadayi* has sub-equal teeth. We understand our animals are only a variation of *dadayi* because: 1) According to Michaelsen (1905a) in one specimen of *dadayi* the ventral setae of the last segments have their distal tooth distinctively shorter than the proximal one. 2) In every ventral bundle of VI and VII of our animals, the most ventral setae have similar teeth and the most dorsal ones have distal tooth considerably shorter than the proximal one.

The position of *dadayi* in the genus *Pristina* (= *Naidium*) or in *Nais* is discussed by Michaelsen (1905a) and Stephenson (1923). Sperber (1948) refused its inclusion in *Pristina* and Brinkhurst (1971b) placed it as *nomina dubia.* Harman & Loden (1978), studying sexual specimens, remove *Pristina unidentata* to *Bratislavia,* enlarging the diagnosis of this genus erected by Kosel (1976). The enlarged *Bratislavia* is undoubtedly artificial because it congregates species with all similar ventral setae and species with the ventral setae suddenly changing the shape in VI, moreover species with dorsal setae starting in II and other with the setae starting in III. However, *Bratislavia Kosel,* 1976 (emend. Harman & Loden, 1978) is now the best genus to receive *Naidium daday.*

Haemonais waldvogeli Bretscher, 1900

Haemonais waldvogeli Bretscher, 1900: 16, pl.1, figs. 11-14; Sperber, 1948: 154, figs. 18C, 27B; Harman, 1974: 9, fig. 3A-D; Hrabe, 1981: 53, pl. 8, figs 17-19; Varela, 1990: 225, fig.1.1a-e.
Haemonais laurentii Stephenson, 1915a: 769,785,793; Marcus, 1944: 63, figs. 51-52; du Bois-Reymond Marcus, 1947:5; 1949:2, figs.1-2.

Material: Guadeloupe 729,1 specimen. Marie Galante 750,2 specimens. Martinique 852,8 specimens. Suriname 120,2 specimens; 923,1 specimen. Habitat: Limnetic to oligohaline; salinity 0.02-2.7%.

Distribution: Asia (Stephenson, 1923), Africa (Brinkhurst, 1966), Europa (Hrabe, 1981), North America (Harman, 1975). Neotropical Region: Argentina: Prov. Chaco and Corrientes (Varela, 1990). Brazil: States Alagoas and Para (Marcus, 1944: du Bois- Reymond Marcus, 1947; 1949). Surinam (Harman, 1974). Martinique, Marie Galante, Guadeloupe (Righi & Hamoui).

Dero digitata (Müller, 1773)

Nais digitata Müller, 1773: 22.
Dero (D.) digitata; Sperber,1948:165, figs.19A-E, 27A, pl.XIV, figs.2-5, pls. XV-XVII, XVIII, figs.1-3, 6; Naidu, 1962a: 531A-H; Howmiller, 1974:6; Harman, 1974:20; 1982a: 292; Di Persia, 1977a: 11, figs.1-4; 1980a: 90; Botea, 1983: 28,fig. 10A-D; Dumnicka,1986:268.
Dero limosa Leidy, 1852:226; 1880: 422, figs.1-2; Stieren, 1892: 122; Michaelsen, 1905a: 354; Cordero, 1931a: 334; 1931b: 350; 1951: 235.

Material: Montserrat 839: 43 specimens. Marie Galante 749, 4 specimens; 754, 6 specimens. Martinique 767, 1 specimen. Grenada 860: 379 specimens; 861: 5 specimens. Trinidad 648: 1 specimen. Margarita 12: 18 specimens. Bonaire 54: 4 specimens: 54a: 10 specimens; 54b: 4 specimens; 54c: 4 specimens; 376a: 1 specimen; 379: 9 specimens; 379b: 5 specimens; 379c: 1 specimen; 379f: 3 specimens; 379h: 4 specimens; 379I: 9 specimens; 384: 1 specimen; 641: 4 specimens; 890: 55 specimens. Klein Bonaire 61a: 14 specimens; 61b: 25 specimens; 61c: 16 specimens; 61d: 490 specimens. Klein Curaçao 64A: 75 specimens. Curaçao 339: 8 specimens; 893: 5 specimens; 894: 5 specimens. Venezuela 920: 7 specimens. Suriname 927: 3 specimens. Habitat: Limnetic to polyhaline; salinity 0.03 -23.6 %.

Distribution: Cosmopolite. Neotropical occurrences: Argentina: Prov. Missiones and Corrientes (Di Persia, 1977a; 1980a). Uruguay (Cordero, 1931b). Paraguay (Michaelsen, 1905a). Peru: Dept. Loreto (Harman et al. 1988). Brazil: States Pará and Amazonas (du Bois-Reymond Marcus, 1947; 1949). Surinam (Harman, 1974). Costa Rica (Harman, 1982a). Guatemala (Howmiller, 1974). Bonaire (Michaelsen, 1933). Haiti (Dumnicka, 1986). Cuba (Botea, 1983). Curaçao, Margarita, Grenada, Montserrat (Righi & Hamoui).

Remarks: On comparing the setal length registered in the literature to this cosmopolite species it is seen that the Gondwanian specimens have shorter setal length. The teeth of the needles are 2 times shorter than in European or North-American specimens. This, associated with the variability of the branchial fossa in preserved specimens, makes the identification of the species difficult. According to Botea (1983), the Cuban specimens have "finament serrées" hairs, but this is not showed in his fig. 10 and needs confirmation. *Dero cooperi* Stephenson (1932), *D. bonairensis* Michaelsen (1933) and ; *D. quadribranchiata* Cernosvitov (1937) are distinguished from *D. digitata* only by their needles with teeth of equal length.

Dero obtusa d'Udekem, 1855

Dero obtusa d'Udekem, 1855: 549, fig.1; Marcus, 1943: 56, figs. 41-42; 1944: 67, fig. 57; Cordero, 1951: 231.

Dero (D.) obtusa; Sperber, 1948: 180, figs. 19F, 20A, pl. 8, fig. 5; Harman, 1974: 21; 1982a: 292; Di Persia, 1976: 2, figs. 1-4; 1980a: 91; Botea, 1983: 28, fig.9F-J; Dumnicka, 1986: 268, fig. 2a-d; Marchese, 1986: 237; Martinez-Ansemil & Giani, 1986: 113.

Material: New Providence 548: 3 specimens. Cayman Brac 007: 7 specimens. Jamaica 026: 1 specimen. Puerto Rico 705: 14 specimens. St Martin 529: 24 specimens. Marie Galante 752: 1 specimen; 756A: 1 specimen; 767: 1 specimen. Dominique 847: 2 specimens. Martinique 851: 1 specimen; 852: 178 specimens. Barbados 782: 169 specimens; 867: 2 specimens; 868: 7 specimens. Trinidad 795: 4 specimens. Bonaire 44c: 3 specimens. Curaçao 339: 21 specimens. Venezuela 920: 6 specimens. Suriname 119: 3 specimens; 642: 12 specimens; 642A: 30 specimens; 646: 5 specimens; 923: 3 specimens; 928: 1 specimen. Habitat: Limnetic to oligohaline; salinity 0.02- 3.8 %.

Distribution: Asia (Chen, 1940; Chekanovskaya, 1962). Europa (Sperber, 1948; Hrabe, 1981). Africa (Brinkhurst, 1966). North America (Brinkhurst, 1964). Neotropical Region: Argentina: Prov. Cordoba, Corrientes, Santa Fe (Di Persia, 1980a; Marchese, 1986). Bolivia: Prov. La Paz and El Beni (Martinez-Ansemil & Giani, 1986). Brazil: São Paulo State (Marcus, 1943; 1944). Surinam (Harman, 1974). Venezuela: Dept. Central and Falcon. Haiti. Anegada (Dumnicka, 1986). Cuba (Botea, 1983). Costa Rica (Harman, 1982a). Curaçao, Bonaire, Trinidad, Barbados, Martinique, Dominique, Marie Galante, St. Martin, Puerto Rico, Jamaica, Cayman Brac, New Providence (Righi & Hamoui).

Remarks: The shape and measures of the setae in our worms agree with the South-American (Marcus, 1943; Harman, 1974; Di Persia, 1976) and European ones (Sperber, 1948; Hrabe, 1981). Perhaps due to contraction and preservation it was not possible to distinguish the dorsal lip and the marginal expansions of the branchial fossa, which are so characteristic of living animals. In the majority of our animals the stomach is restricted to segment VIII but occasionally it is in X; in Brazilian specimens (Marcus, 1943) it is in VIII-IX and in the European ones in IX, IX- X or X (Sperber, 1948). The division-zone of the Caribbean specimens is in XII -XIX, usually in XV or XVI; in Brazilian specimens it is in XVIII -XX and in European ones in XVIII -XIX. The great variability of these characteristics and discrepancies in the reproductive organs (Beddard, 1889; Chen, 1940; Marcus, 1944) makes us see *Dero obtusa* as an highly polymorphic species or, more probably, a complex of species indistinguishable by setal characteristics.

Dero magna Harman, 1974

(Fig. 1.D-F)

Dero (D.) magna Harman, 1974: 23, fig. 4A-C.

Material: Surinam 642,2 specimens (ZU-1315). Habitat: Limnetic; salinity 0.2 %.

Description: Length 6.9 -16.5 mm. Diameter 385-424 µm. Number of segments 130. Division-zone lacking. Prostomium like an obtuse cone. Very contracted branchial fossa with dorsal opening and 2 or 3 pairs of short gills. Bundles of dorsal setae begining at V in one specimen and VI in the other; one hair and one needle setae per bundle. The hairs are straight, smooth, thin and 256-328 µm long. The needles (Fig. 1.D) are 88-108 µm long; the nodulus

separates the straight proximal 2/3 from the bowed distal 1/3. The apex presents the proximal and distal teeth of equal length, 4 µm, and the thickness or the proximal tooth is somewhat longer; there are 2 -5 intermediate teeth. The ventral bundles have 4, occasionally 3, setae in segments II -V, in the following segments there are 3 setae per bundle and 2 in the last segments. The length of the setae in II -V is 107-111 µm, the nodulus is medial and the teeth are alike in length, 10 µm, or the distal tooth is a little longer; the proximal tooth is the thickest (Fig. 1.E). From VI onwards the length of the setae is 100-141 µm, the nodulus is proximal and the teeth have similar length or the proximal is a little longer. The proximal tooth is always the thickest (Fig. 1.F).

Remarks: *Dero magna* is known only be the type specimen and the two worms described here, the three of them from Surinam. *Dero magna* and *D. asiatica* Cernosvitov (1930) are distinguished from the other species of the genus by the size of the setae and by the posterior setae of similar length or longer than the anterior ones. There is a great possibility that *D. magna* is just an aberrant form of *Aulophorus pectinatus* Stephenson, 1931a (= *A. intermedia* Loden & Harman, 1982).

Dero sawayai Marcus, 1943

Dero sawayai Marcus, 1943: 35, figs. 19-20; 1944: 50; Sperber, 1948: 186; Naidu, 1962a: 541, fig. 18a-g.

Dero (D.) sawayai, Brinkhurst, 1971b: 371, fig.7.14N-Q; Harman, 1974: 21; Dumnicka, 1986: 268, fig. 3a-e.

Material: St. Martin 529: 5 specimens; 538b: 1 specimen. Montserrat 838: 5 specimens. Martinique 852, 12 specimens. Grenada 659A, 5 specimens. Margarita 13, 4 specimens. Bonaire 44e, 1 specimen; 52a, 4 specimens; 52e, 8 specimens; 55: 5 specimens; 379a: 3 specimens; 379i: 5 specimens; Curaçao 891, 1 specimen; Aruba 100, 3 specimens; 635: 4 specimens; 636: 108 specimens. La Goajira 113: 9 specimens. Surinam 120: 1 specimen; 566: 1 specimen; 642: 18 specimens; 923, 1 specimen; 925: 2 specimens. Habitat: Limnetic to oligohaline; salinity 0.03 - 2.7%.

Distribution: Asia (Naidu, 1962a; Costa, 1967). Neotropical Region: Argentina: Entre Rios Prov. (Di Persia, 1980b). Brazil: São Paulo, Alagoas, Pernambuco and Ceará States (Marcus, 1943; 1944). Ecuador (Coates & Stacey, 1994). Suriname (Harman, 1974). Venezuela: Falcon Dept. Virgin Gorda; Anegada; St. Thomas; Haiti (Dumnicka, 1986). La Goajira; Aruba; Curaçao;

Bonaire; Margarita; Grenada; Martinique; Montserrat (Righi & Hamoui).

Remarks: *Dero heterobranchiata* Michaelsem (1933) was described from a posterior fragment collected in Bonaire. Its probable synonymy with *D. sawayai,* as proposed by Sperber (1948), is due to a mis-translation of Marcus' (1943) text, the Portuguese word "duma" (= of one) was taken as "duas" (= two). So the two species are distinguished by the number of hair setae per bundle, 2 in *heterobranchiata* and one in *sawayai.*

Dero trifida Loden, 1979
(Fig. 1. G-J)

Dero (D.) trifida Loden, 1979: 584, fig. 1A-F

Material: Aruba 98, 1 specimen. Surinam 120: 4 specimens (ZU-1317). Habitat Limnetic; salinity 0.03 -0.1 %.

Distribution: North America (Loden, 1979). Neotropical Region: Aruba; Surinam (Righi & Hamoui).

Description: Length: 3.7-3.8 mm. Diameter 225-282 μm. Number of segments 35-37. Division-zone in XXI-XXII. Short semicircular prostomium. Branchial fossa (Fig. 1. G) with a pair of slits in the posterior-lateral third and an hindmost wide gutter; a cross fold with the sphincter muscles lies between the fossa and gutter floors. Four pairs of gills are in the fossa; the first pair is dorsal, wide and flat, the other 3 pairs are ventral and fingerlike. All of the gills are contracted, in the side view they did not extend beyond the border of the fossa. A wide stomach with differentiated walls lies in IX followed by the intestine of similar diameter. There are a few chloragogenous cells from VII - VIII backwards. Thick commissural vessel are in VII-IX. Dorsal setae start from VI, 1 hair and 1 needle per bundle. The hairs are thin, bowed, smooth and 160-183 μm long. The needles (Fig. 1.H) are 47-66 μm long, with a nodulus at the beginning of their bowed distal third. The apex has short teeth, 1-2 μm long, the distal tooth is a little longer than the proximal one; the shortest intermediate denticle departs from between the two main teeth. There are 4-5 ventral setae per bundle, generally 5. In II-V they are 113-120 μm long, the nodulus is medial or slightly distal, the teeth are alike in thickness but the distal tooth is 1.5 longer than the proximal one (Fig. 1.I). The setae of VI backwards are 73-104 μm long, the nodulus is somewhat proximal and the distal tooth is a little longer

than the proximal one (Fig. 1.J).

Remarks: The species was only known in small populations in USA: Louisiana and North Carolina (Loden, 1979). Unlike our worms the North American specimens have the posterior ventral setae with distal tooth a little shorter than the proximal one. This difference is seen as an intra-specific variation without taxonomical value due to similarity of the other characteristics.

Dero multibranchiata Stieren, 1892

Dero multibranchiata Stieren, 1892: 107, figs. 1-4; Marcus, 1944: 65, figs. 55 -56; du Bois-Reymond Marcus, 1947: 6; 1949: 2; Di Persia, 1977a: 13, figs. 9-12; Martinez-Ansemil & Giani, 1986: 113.
Dero (D.) multibranchiata, Di Persia, 1980a: 91; Harman et al. 1988: 2237, fig. 1.

Material: Îles des Saintes 760: 12 specimens. Grenada 861: 1 specimen. Trinidad 795: 1 specimen. Surinam 646: 56 specimens; 923: 3 specimens; 927: 1 specimen; 929: 3 specimens. Habitat: Limnetic to polyhaline; salinity 0.12-23.6 %.

Distribution: Argentina: Prov. Corrientes, Santa Fe, Chaco (Di Persia 1977a; 1980a). Bolivia: Prov. Santa Cruz (Martinez-Ansemil & Giani, 1986). Peru: Dept. Loreto (Harman et al. 1988). Brazil: Stat. Pernambuco, Pará, Amazonas, Roraima (Marcus, 1944; du Bois-Reymond Marcus, 1947; 1949). Trinidad (Stieren, 1892). Surinam; Grenada; Îles des Saintes (Righi & Hamoui).

Dero evelinae Marcus, 1943

Dero evelinae Marcus, 1943: 39, figs. 23-40; 1944: 64, figs. 53-54; du Bois-Reymond Marcus, 1949: 2; Cordero, 1951: 231; Di Persia, 1974: 38; 1980a: 92.

Material: Îles des Saintes 760: 14 specimens. Venezuela 920: 14 specimens. Suriname 646: 21 specimens. Habitat: Limnetic to polyhaline; salinity 0.12-23.66 %.

Distribution: Argentina: Prov. Tucuman, Santa Fe, Entre Rios (Cordero, 1951; Di Persia, 1974). Uruguai (Cordero,1951). Brazil: States Rio Grande do Sul, Paraná, São Paulo, Pernambuco, Alagoas, Piaui, Pará (Marcus, 1943; 1944;

du Bois-Reymond Marcus, 1949). Îles des Saintes; Venezuela; Surinam (Righi & Hamoui).

Remarks: The hair setae of ours specimens are shorter than those of Brazilian (Marcus, 1943) and Argentinian (Di Persia, 1974) specimens. So, the only reliable characteristic to distinguish *Dero evelinae* from *D. multibranchiata* is the shape of the needle setae.

Dero plumosa Naidu, 1962

Dero (D.) plumosa Naidu, 1962a: 543, figs. 19A-H; Di Persia, 1976: 6, figs. 9-13; Harman, 1982a: 293, fig. 4a-c.

Material: Grenada 861: 1 specimen. Habitat: Poilyhaline; salinity 23.66 %.

Distribution: India (Naidu, 1962a). Neotropical Region: Argentina: Prov. Corrientes (Di Persia, 1976). Costa Rica (Harman 1982a). Grenada (Righi & Hamoui).

Remarks: The inner organization of our worms agree with the Indian ones (Naidu, 1962a). The shape and measures of the setae are similar too, but they ditfer in the posterior ventral setae, which in the Indian animals present the distal tooth slightly shorter than the proximal one.

Dero scalariformis *n. sp.*
(Fig. 1.K-O)

Material: Curaçao 75: 5 specimens; 75a : 12 specimens (Holotype ZU-1318); 76A, 1 specimen; 77a: 1 specimen; 86: 5 specimens; 399: 7 specimens; Bonaire 44b: 1 specimen; 44 Ba: 5 specimens; 44e: 2 specimens; 52d: 2 specimens; 52e: 7 specimens; 54: 3 specimens; 54c: 1 specimen. Habitat: Limnetic to oligohaline; salinity 0.16- 1.08 %.

Description: Length 1.5-2.5 mm. Diameter 165-172 µm. Number of segments 22-30. Division-zone in XV-XX. Prostomium short, semicircular. Eyes absent. Short branchial fossa with two pairs of somewhat flattened fingerlike gills (Fig. 1.K). Bulky septal glands in V and VI. Wide thick walled stomach in VIII. Intestine begining at IX or X. Chloragogenous cells from VI backwards.

Dorsal setae starting from VI, 1 hair and 1 needle per bundle. The hair setae present a thin aliform membrane at one side and smooth surfaces on the other sides; the width of the ala narrows making up two high stairs in the free border towards the apex. The view of the scalariform portion of the hairs depends upon the position of the setae (Fig. 1.O). The needles are straight with a curve distal fourth; their apex is tricuspid (Fig. 1.N), the proximal and distal teeth are alike in length and thickness and the medial tooth is thinner and a little shorter. The ventral setae are 3-5 per bundle in segments II-V, 3-4 from VI backwards, and 1-2 in the last segments. The setae of II-V have proximal nodulus and teeth of similar thickness but the distal tooth is almost 1.5 times longer than the proximal one (Fig. 1.L). The setae from VI onwards have distal nodulus and much shorter teeth than in anterior segments; the distal tooth is a little shorter and distinctively thinner than the proximal one (Fig. 1.M). The length of the setae are in the Table 1.

Table 1. *Dero scalariformis*. Length of the setae.

Origin	Hairs	Needles	Ventral II-V	Ventral VI
Curaçao 399	98-102	37-38	78-86	46-52
Bonaire 52a	78-81	33-39	71-78	39-42
Bonaire 52d	91-104	39-46	87-91	42 -50

Remarks: *Dero scalariformis* has affinities with *D. pectinata* Aiyer (1929) in number of gills, number of setae per bundle and shape of the needle and ventral setae. They are distinguished by the hairs, which have one finely pilose side in *pectinata* or a thin smooth scalariform membrane in *scalariformis*. This introduces the questions of whether the hairs of the setae in *pectinata* are just cross thickenings of a thin alar membrane which is flat in *scalariformis* and whether the two of them are only varieties of a same species.

Dero tuna *n. sp.*

(Fig. 2.A-D)

Material: Surinam 923: 4 specimens (Holotype ZU-1319). Habitat: Limnetic.

Description: Length 2.0-2.6 mm. Diameter 154-180 µm. Number of segments 20-26. Division zone in XV (2 specimens) or XVII (1 specimen). Eyes absent. Prostomium obtuse, wider than they are long. The very contracted

branchial fossa leaves a small dorsal aperture making it difficult to see the gills, 2 or 3 pairs, contracted inside the fossa (Fig. 2.A). Septal glands to V. Stomach in VII. Chloragogenous cells from VI backwards. Dorsal vessel displaced to the left; comissural vessels in V, VI-VIII. Dorsal setae from VI onwards, one hair and one needle setae per bundle. Hair setae straight, thin and smooth, length 122-130 µm. Needles 42-53 µm long, with straight proximal 2/3 and bowed distall/3, bicuspidate apex, distal tooth longer than the proximal, both of them are united by a thin membrane with convex margin and 10-12 longitudinal riblets (thicknings) in its distal half (Fig. 2.B). Ventral bundles of II-V with 3-4 setae on each lessen to 1-2 in the last segments. The ventral setae of II -V are 72-79 µm long with proximal nodulus, thin teeth of similar thickness or the distal tooth is slightly thinner and always 1.5-2 times longer than the proximal (Fig. 2.C). The relation between the lengths of the proximal: distal teeth varies from 7.8: 5.2-10.4: 6.5 µm. The ventral setae of VI backwards are 50-64 µm long with medial nodulus and teeth of alike length, 2.6-3.9 µm, the proximal tooth is thicker (Fig. 2.D).

Remarks: *Dero abranchiata* Harman, 1977 (from south USA), *D. righii* Varela, 1990 (from north Argentina) and *D. tuna* constitute a very homogeneous group characterized by their ribbed palmate *needles. D. tuna* is separated from the other two species by the shape of the ventral setae of VI and following segments and by the number of gills. The name of the new species means "water" in the Iêconã indians' dialect.

Dero raviensis (Stephenson, 1914)

Nais raviensis Stephenson, 1914: 324, figs. 1-2; 1915b: 785; 1923: 65, fig. 21A-C; Michaelsen & Boldt, 1932: 595; Sperber, 1948: 130; Brinkhurst, 1966: 135; 1971b: 341, fig.7.8A-C; Harman, 1974: 12; Di Persia, 1980b: 78.
Nais communis; Stephenson,. 1931b: 39.
Dero raviensis; Grimm, 1985: 110, figs. 1,2,4; Harman et al. 1988: 2236.

Material: Îles des Saintes 760: 1 specimen. Aruba 636: 5 specimens. Surinam 644: 3 specimens; 925: 1 specimen. Habitat: Limnetic; salinity 0.2 %.

Distribution: Asia (Stephenson, 1914; Michaelsen & Boldt, 1932). Africa (Grimm, 1985). Neotropical Region: Argentina: Prov. Entre Rios, Paraná (Di Persia, 1980b). Peru (Harman et al. 1988). Surinam Harman, 1974). Aruba; Îles des Saintes (Righi & Hamoui).

Remarks: The length of the hair setae in our specimens agree with the measures registered by Harman (1974) and are smaller than those seen by other authors. The measures of the other setae have no significant differences. *Nais tenuidentis* Walton 1906, from Cedar Point, Ohio, USA, is very probably the same species as was previously pointed by Stephenson (1914).

Aulophorus furcatus (O. F. Müller, 1773)

Nais furcata O. F. Müller, 1773: 23.
Dero furcata, Stieren, 1892: 122.
Dero furcatus, Coates & Stacey, 1994: 82.
Dero (Aulophorus) furcatus, Sperber, 1948: 191, fig. 20B-D; Di Persia, 1974: 37, figs. 1 - 5; Harman, 1974: 31; 1982a: 290; Martinez-Ansemil & Giani, 1986: 113.
Dero (Aulophorus) furcata, Dumnicka, 1986: 272.
Aulophorus furcatus, Michaelsen, 1933: 338; Cordero, 1931a: 334; 1931b: 350; 1951: 231; Cernosvitov, 1937: 145; 1942: 201; Marcus, 1943: 87, figs. 61, 66 -71; 1944: 50; du Bois-Reymond Marcus, 1947: 6; 1949: 2.
Aulophorus africanus Michaelsen, 1914: 152, pl. IV, figs. 1-3; Hrabe, 1966: 382, figs. 33-37; Grimm, 1985: 114, fig. 6.

Material: Key Biscaine 694: 1 specimen. Cayman Brac 007: 1 specimen. Puerto Rico 706: 1 specimen. St. Martin 097: 10 specimens; 529: 8 specimens; 529b: 10 specimens; 529c: 67 specimens; 538: 1 specimen; 538b: 1 specimen. St. Barthélemy 523: 725 specimens. St. Eustatius 508: 15 specimens; 515a: 4 specimens. St. Christopher 503: 42 specimens. Barbuda 675: 3 specimens. Montserrat 838: 14 specimens; 841: 2 specimens. Marie Galante 756: 1 specimen. Îles des Saintes 760: 17 specimens. Dominique 846: 10 specimens; 847: 1 specimen. Martinique 767: 2 specimens; 852: 37 specimens. Barbados 867: 13 specimens. Grenada 860: 2 specimens. 860A: 2 specimens. Trinidad 116: 4 specimens; 648: 20 specimens. Los Testigos 30: 2 specimens. Margarita 20: 4 specimens. Blanquilla 38: 1 specimen. Bonaire 44b: 6 specimens; 44c: 401 specimens; 44e: 12 specimens; 44A: 10 specimens; 44Ae: 4 specimens; 44B: 8 specimens; 44Ba: 10 specimens; 44C: 8 specimens; 45A: 16 specimens; 52: 17 specimens; 52a: 1 specimen; 52c: 14 specimens: 52d: 3 specimens; 52e: 1 specimem; 53: 5 specimens; 53e: 8 specimens; 53f: 1 specimen; 53g: 6 specimens; 54: 6 specimens; 54b: 6 specimens; 374: 2 specimens; 379a: 14 specimens; 379c: 5 specimens; 379d: 1 specimen; 379h: 2 specimens; 3791: 8 specimens; 882: 13 specimens; 882a: 8 specimens; 882A: 280 specimens: 901a:

15 specimens; 902: 14 specimens; 930: 10 specimens. Klein Bonaire 61a: 2 specimens; 64: 3 specimens. Curaçao 67: 1 specimen; 67a: 15 specimens; 70: 1 specimen; 74: 3 specimens; 74a: 2 specimens; 75a: 3 specimens; 76A: 3 specimens; 77A: 1 specimen; 77b: 5 specimen; 77c: 3 specimens; 82: 1 specimen; 339A: 1 specimen; 389B: 5 specimens; 395A: 2 specimens; 891: 1 specimen; 892: 5 specimens; 895: 3 specimens. Aruba 401: 16 specimens; 634: 3 specimens; 636: 11 specimens. Paraguaná 105: 41 specimens. Surinam 119: 8 specimens; 120: 2 specimens; 642A: 1 specimen; 646: 1 specimen; 923: 14 specimens; 929: 4 specimens. Habitat: Limnetic to mesohalines; salinity 0.03- 7.3 %.

Distribution: Cosmopolite. Neotropical occurrences: Argentina: Prov. Missiones, Entre Rios, Santa Fe (Cernosvitov, 1937; 1942; Di Persia, 1974). Uruguay (Cordero, 1931a). Bolivia: Dept. Santa Cruz (Martinez-Ansemil & Giani, 1986). Brazil: States São Paulo, Pernambuco, Pará, Amazonas (Marcus, 1943; 1944; du Bois-Reymond Marcus, 1947; 1949). Venezuela: Dept. Falcon (Dumnicka, 1986). Guyana (Coates & Stacey, 1994), Surinam (Harman, 1974). Costa Rica (Harman, 1982a). Paraguaná; Aruba; Curaçao; Klein Bonaire; Bonaire; Blanquilla; Margarita; Los Testigos; Trinidad; Grenada; Barbados; Martinique; Dominique; Îles des Saintes; Marie Galante; Montserrat; Barbuda; St. Christoffer; St. Eustatius; St. Barthélemy; St. Martin; Anguilla; Virgin Gorda; Tortola; Anegada; Culebra; Puerto Rico; Haiti; Cayman Brac; Florida Keys (Styieren, 1892; Michaelsen, 1933; Dumnicka 1986; Righi & Hamoui)

Remarks: The relations of length and of thickeness of the needle teeth present a large inter- and intrapopulational gradation therefore we did not set a taxonomical distiction for worms with similar teeth and we accepted the synonymy of *Aulophorus africanus* proposed by Sperber (1948).

Aulophorus hymanae Naidu, 1962

Dero (Auluophorus) hymanae Naidu, 1962b: 905, fig. 22A-F; Naidu et al. 1981: 108; Costa, 1967: 46, pl.III, fig. 4; Ali & Issaque, 1975: 58; Di Persia, 1975: 2, fig. 1-5.

Material: Bonaire 53e: 1 specimen. Habitat: Limnetic; salinity 0.16 %.

Distribution: Asia (Naidu et al. 1981). Neotropical Region: Argentina: Prov. Entre Rios (Di Persia, 1975). Bonaire (Righi & Hamoui).

Aulophorus kalina *n. sp.*
(Fig. 2E-J)

Material: Îles des Saintes 760: 2 specimens (Holotype ZU-1320). Habitat: Limnetic; salinity 0.13 %.

Description: The two worms measure 1.6 and 3.0 mm in length, 90 and 132 µm in diameter and they have 24 and 53 segments respectively. Division-zone and eyes are missing. The prostomium is short, rounded in the smaller specimen and conic in the longer one. The branchial fossa opens dorsally presenting one pair of long thin palps and two pairs ofwide gills (Fig. 2.E). The pharynx extends to IV. Septal glands are in V and VI. Chloragocytes are presents from VI backwards. There is no differenced stomach. The dorsal vessel is dislodged to the left and commissural vessels are in VII and VIII. The dorsal setae begin at V, one hair and one needle per bundle. The hairs are smooth, straight and 113-148 µm long. The needles are 52-58 µm long; their proximal 2/3 are straight and the distal 1/3 slightly curved; the apex has two small teeth of similar length or the proximal is somewhat longer. A feeble intermediary denticle (Fig. 2.F) is well seen in waterish or glycerinic preparations. The ventral setae are 4 per bundle to the mid-body region, 3 towards the back and 2 in the last segments. The length of the setae is 68-72 µm in II-V and 58-70 µm from VI onwards. The nodulus is medial. The distal tooth is nearly 1/3 longer than the proximal one in II (Fig. 2.G); at the back the distal tooth shortens and the proximal lengthens gradually (Fig. 2.H-J). The relations between the length of the distal: proximal teeth are in II =10: 7, in VI =10: 10 and in XII = 9: 11.

Remarks: *Aulophorus kalina* has affinities with *A. indicus* Naidu (1962) through the shape of the needles. The characteristics of *A. indicus* to distinguish from the new species are: 3 pairs of gills; ventral setae of II-V with distal tooth more than 2 times longer than the proximal one. The name of the new species is that of an old indian group from Venezuela and Caribbean Islands.

Aulophorus tridentatus Hrabe, 1966
(Fig. 2.K-S)

Aulophorus tridentatus Hrabe, 1966: 380, figs. 24-28.

Material: Margarita 10: 3 specimens (ZU-1321); 12: 4 specimens; 18: 9 specimens. Habitat: Linetic to weakly oligohaline; salinity 0.21 -0.99 %.

Description: Length 4-5 mm. Diameter 174-257 μm. Number of segments 32-48. Eyes and division-zone missing. Prostomium conic, as long as wide. Wide branchial fossa (Fig. 2. S) with 4 pairs of foliaceous gills and one pair of short parallel palps. The pharynx goes to IV. Septal glands are in IV-V. The thick walled stomach is dilated in IX-X. The intestine begin at XI. Chloragocytes are in VI backwards. The dorsal vessel is on the left and commissural vessels in VII-IX. The dorsal setae begin at V, one hair and one needle per bundle. The hairs are smooth and straight or a little curved. The needles present straight proximal 2/3 and a little curved distal 1/3; the short and divergent teeth have similar length or the proximal tooth is somewhat longer; there are 1-2 thin intermediate denticles difficult to see (Fig. 2.K-L). The ventral setae are 3-4 per bundle to XI, 3 backwards and 2 in the last segments. The nodulus is sub-medial and the apex bicuspidate of thinner distal tooth; the distal tooth of II -IV, V is 1.3 -1.5 longer than the proximal one (Fig. 2.M-P); towards the back the teeth present similar length or the proximal one is slightly longer (Fig. 2.Q-R). The length of the setae of one specimen of each locality are in Table 2.

Table 2. *Aulophorus tridentatus*, length of the setae in μm.

Origin	Hairs	Needles	Ventral II-IV	Ventral V-XV
Margarita 10	161-170	55-64	82-86	71-78
Margarita 12	177-193	57-65	86-90	60-76
Margarita 18	138-176	61-70	76-78	65-77

Remarks: *Aulophorus tridentatus* Hrabe (1966) was known only by one specimen from Ghana, Volta Lake at Kpandu (7.0° N-0.18° E). The African specimen differs from the Caribbean ones by its greater number of ventral setae. According to Hrabe the ventral setae of II-IV are 5-6 per bundle, 5 backwards and 4-1 in the last segments. We consider this difference without taxonomical value because there is concordance of other characteristics.

Aulophorus barbatus *n. sp.*
(Fig. 3.A-D)

Material: Surinam 120: 2 specimens (Holotype ZU-1322). Habitat: Limnetic; salinity 0.03 %.

Description: One specimen does not have the posterior end and the other one is regenerating the anterior end, the setae of II-V are missing; length 5.0 and 6.5 mm, diameter 360 and 437 µm, number of segments 37 and 38 respetively. The prostomium is triangular as long as it is wide. The dorsally opened oblonge branchial fossa has 3 or 4 pairs of retracted gills and one pair of diverging thin palps. The pharynx extends to IV, the three pairs of septal glands are in IV-VI. The esophagus passes gradually into the intestine, a stomach is missing. Chloragocytes begin at VII. The dorsal vessel is on the left and voluminous commissural vessels are in VIII-XII. The dorsal setae start from V, the regenerating specimens has one hair and one needle per bundle, the other has 1-3 hairs and 1-2 needles per bundle; when there are more than one hair per bundle one of them is longer and thicker. The hair setae are straight, 302-409 µm long, their apical 2/3-3/4 present a thick series of short threads on one side (Fig. 3.A). The needles are 120-142 µm long, the nodulus is distal, the two main teeth are of similar length or the proximal one is somewhat longer, it is always thicker; there are 2-4 short and thin intermediate teeth (Fig. 3.A). The ventral setae are 2-4 per bundle in II-V and 1-3 backwards. The setae of II-V are 124-130 µm long, 4 µm thick, their distal tooth is thinner and a little longer than the proximal one (Fig. 3.B). From VI backwards the setae are 140-157 µm long, 5-6 µm thick, the distal tooth is thinner and of similar length or slightly shorter than the proximal (Fig. 3.C-D). The nodulus is always distal.

Remarks: *Aulophorus barbatus* belongs to the species group characterized by dorsal setae begining at V and pectinate needle setae formed by *A. pectinatus* Stephenson, 1931 a (=*Dero intermedia* Loden & Harman, 1982 = *Dero lodeni* Brinkhurst, 1986), *A. indicus* Naidu, 1962 and *A. tridentatus* Hrabe, 1966. *A. barbatus* is distinguished from the other three species by their longer and feathered hair setae. The name of the new species refers to its hair setae.

Aulophorus huaronensis Piguet, 1928

Aulophorus schmardai var. *huaronensis* Piguet, 1928: 82, fig. 2a-e.
Dero (Aulophorus) huaronensis; Sperber, 1948: 197; Harman, 1982a: 288, fig. 2A-C.
Dero (Aulophorus) schmardai f. huaronensis; Brinkhurst, 1971b: 383.

Material: Marie Galante 753: 3 specimens. Habitat: Limnetic; salinity 0.03 %.

Remarks: It is not easy to separate the preserved assexual specimens of *Aulophorus huaronensis* Piguet (1928) *A. tonquinensis* Vejdovsky (1894) and *A. costatus* du Bois- Reymond Marcus (1944) from one another. We identify our specimens as *huaronensis due* to size of the setae and shape of the needle setae. This species is knwon only from the Neotropical Region in Peru (piguet, 1928) and Guatemala (Harman, 1982a). Probably the Costa Rican specimens identified by Harman (l.c.) as *Dero (Aulophorus) tonquinensis* belong to *huaronensis.*

Allonais japonica (Kondô, 1936)
(Fig. 3.E-G)

Nais japonica Kondô, 1936: 385, pl. 23, fig. 12.

Material: St. Vincent 858: 1 specimen (ZU-1323). Habitat: Limnetic; salinity 0.05 %.

Description: Length 2,8 mm. Diameter 167 µm. Number of segments 24 plus a long posterior growing-zone. Eyes and division-zone are missing. Obtuse prostomium as long as wide. Septal gland to VI. Dorsal vessel dislodged to the left side; commissural vessels in VII-VIII. Dorsal setae from V backwards, one hair and one needle setae per bundle. The hairs are straight, smooth, 113-155 µm long. The needles (Fig. 3.E) are 50-57 µm long, the proximal 2/3 are straight and the distal 1/3 is slightly curved; the bicuspidate apex has teeth of similar length, the proximal tooth is a little thicker. There are 4, occasionally 3 ventral setae per bundle diminishing to 2 and 1 in the last segments. These setae are alike one another throughout the body (Fig. 3.F-G). The length of the setae is 50-58 µm in II-V and 52-61 µm from Vl backwards; the nodulus is medial to slightly distal; the distal tooth is 1.5 times longer than the proximal tooth, which is a little thicker.

Remarks: The species is known only by the original description based on specimens collected at a station of water treatment in Osaka, Japan. Sperber (1948) put it in doubt under *Nais variabilis* and wrote - "*Nais japonica* Kondô (1936) is remarkable, having no eyes, and dorsal bundles from V onwards. The stomachal dilatation is gentle, the setae seem to resemble those of *N. communis* and *N. variabilis*. Possibly it may represent abnormal or prematurely separated individuals of the latter, as it was found together with it". We can not say anything about the stomach because our specimen has the digestive tube ruptured

in VII. Our worm has no signs of anterior regeneration; however, it is regenerating the posterior end, which suggests it is an old individual and the most anterior of an eventual chain of assexual reprodution. As Kondô (1936) said - "It is well characterized by the absence of eye-spots and the presence of the dorsal setae in all segments from the fifth onwards". The species was transfered to *Allonais* due to the absence of eyes, dorsal setae begining at V, and ventral setae similar throughout the body. *A. japonica* has similarites with *A. gwaliorensis* Stephenson (1920) but it is distinguished by the origin of the dorsal setae and by the teeth of the posterior ventral setae.

Allonais inaequalis (Stephenson, 1911)

Nais pectinata var. inaequalis Stephenson, 1911: 208, fig. 2.
Nais pectinata; Stephenson, 1931a: 302, pl. 17, fig. 1.
Allonais inaequalis; Sperber, 1948: 201, fig. 21a-d; Howmiller, 1974: 6; Coates & Stacey, 1994: 82.
Allonais inequalis; Gavrilov, 1977: 104; 1981: 177; Botea, 1983: 28, fig. 11A-C; Pujals, 1988: 123, figs. 1-2.

Material: Puerto Rico 706: 6 specimens. Guadeloupe 729: 1 specimen. La Désirade 741: 10 specimens. Îles des Saintes 760: 2 specimens. Marie Galante 749: 48 specimens. Martinique 767: 1 specimen. Barbados 867: 45 specimens. Surinam 925: 1 specimen. Habitat: Limnetic to oligohaline; salinity 0,03 -1.8 %.

Distribution: Africa (Brinhurst, 1966). Asia (Stephenson, 1923). Australia (Brinkhurst, 1971a). Neotropical Region: Argentina: Prov. Buenos Aires (Pujals, 1988). Paraguay (Stephenson, 1931a). Ecuador (Coates & Stacey, 1994). San Salvador (Howmiller, 1974). Cuba (Botea, 1983). Surinam, Barbados, Martinique, Marie Galante, Îles des Saintes, La Désirade, Guadeloupe, Puerto Rico (Righi & Hamoui).

Allonais paraguayensis (Michaelsen, 1905)

Nais paraguayensis Michaelsen, 1905a: 354; 1905b: 306; Michaelsen & Boldt, 1932: 592; Stephenson, 1923: 61, figs. 15-16; 1931a: 301; Hyman, 1938: 126; Cordero, 1951: 235; Marcus, 1943: 23, figs. 9-13, 122-124, 129; du Bois-Reymond Marcus, 1947: 3; 1949: 1.
Nais paraguayensis f. typica Chen, 1940: 36, fig. 7A-D; Marcus, 1944: 50.

Allonais paraguayensis paraguayensis, Sperber, 1948: 203, fig. 28B.
Allonais paraguayensis, Brinkhurst, 1966: 141, fig. 2C; 1971a: 125, fig. 4K; 1971b: 385, figs. 7.20N, 21A; Harman, 1974: 7; 1982a: 293; Harman et al. 1988: 2237; Gavrilov, 1977: 104; 1981: 177; Di Persia, 1980a: 95.
Allonais paraguayensis ghanensis Hrabe, 1966: 384, figs. 38-42; Lauzanne, 1968: 93, figs. 7-8.

Material: Jamaica 028: 1 specimen. Montserrat 841: 1 specimen. Marie Galante 749: 150 specimens; 753: 3 specimens; 756A: 2 specimens. Îles des Saintes 760: 16 specimens. Martinique 767: 54 specimens. Margarita 13: 1 specimen. Bonaire 44Ae: 4 specimens; 44C: 8 specimens; 46: 2 specimens; 48 Bb: 11 specimens. Curaçao 891: 4 specimens. Surinam 925: 4 specimens; 927: 2 specimens. Habitat: Limnetic to oligohalinbe; salinity 0.05- 1.45 %.

Distribution: The species is mainly known between the parallels of 30° N and 30° S in Australia (Brinkhurst, 1971a), Asia (Stephenson, 1923; Chen, 1940), Africa (Michaelsen, 1905b; Brinkhurst, 1966). Neotropical Region: Argentina: Prov. Santa Fe (Di Persia, 1980a). Uruguay (Cordero, 1951). Paraguay (Michaelsen, 1905a; Stephenson, 1931a). Peru: Dept. Loreto (Harman et al., 1988). Brazil: States São Paulo, Alagoas, Pernambuco, Ceará, Pará, Amazonas (Marcus, 1943; 1944; du Bois-Reymond Marcus, 1947; 1949). Surinam (Harman, 1974). Nicaragua (Harman, 1982a). Curaçao, Bonaire, Margarita, Martinique, Îles des Saintes, Marie Galante, Montserrat, Jamaica (Righi & Hamoui).

Remarks: Four varieties (subspecies) of *Nais paraguayensis* were described: *aequalis* Stephenson (1920), *barkudensis* Stephenson (1921), *ghanensis* Hrabe (1966) and *Dero (Aulophorus) paraguayensis aequatorialis* Cernosvitov (1938b). The impropriety to put *paraguayensis* under *Dero* was demonstrated by Sperber (1948). The taxonomical value of *aequalis, barkudensis* and *aequatorialis* is seem sometimes at subspecific level (Stephenson, 1923; Marcus, 1943; Grimm, 1974), sometimes as single synonyms of *paraguayensis* (Sperber, 1948; Brinkhurst, 1971b; Harman et al. 1988). We consider *aequalis*, *barkudensis* and *aequatorialis* as independent species due to differences in the origin of the dorsal setae, shape of the needles and of the anterior ventral setae and because the circumtropical distribution of the typic form of *paraguayensis* makes difficult the subspecific isolation. According to Hrabe (1966) the distinction between *Allonais paraguayensis ghanensis* Hrabe (1966) and *A. p. paraguayensis* Michaelsen (1905) is based only on the degree of thickness of the atrophic distal tooth of the nedles. The great variability of this tooth, a

characteristic of every atrophic structure, does not allow the specific distiction of *ghanensis*.

Allonais pectinata (Stephenson, 1910)

Nais pectinata Stephenson, 1910: 236, pl. XI, fig. 1a-f; 1920: 198; 1923: 63, fig. 19a-f; 1932: 229, fig.1a-b; Aiyer, 1929: 19, fig.2a-d.
Nais denticulata Chen, 1940: 39, fig. 87 A-E.
Allonais pectinata, Sperber, 1948: 206; Brinkhurst, 1971a: 125, fig. 4J; 1971b: 387, fig. 7.20M; 1986: 85.

Material: Aruba 93c: 17 specimens; 636: 13 specimens. Venezuela 921: 5 specimens. Habitat: Limnetic to slightly oligohaline; salinity 0.12- 0.92%.

Distribution: Australia (Brinkhurst, 1971a). Asia (Aiyer, 1929). Africa (Grimm, 1987). North America (Brinkhurst, 1986). It is recognized for the first time in the Neotropical Region.

Stephensoniana trivandrana (Aiyer, 1926)

Naidium (?) *trivandranum* Aiyer, 1926: 139, pls. 5-6.
Stephensonia trivandrana, Aiyer, 1929: 27, pl. 1, figs. 2-4.
Stephensoniana trivandrana, Cernosvitov, 1938a: 539, figs. 1-4; Sperber, 1948: 208, fig. 28c; Naidu, 1963: 201, fig. 28A-D; Brinkhurst, 1966: 142; Harman, 1974: 11; Di Persia, 1977b: 2, figs. 1-3; 1980a: 95; Dumnicka, 1986: 274, fig. 6a-c.

Material: St. Lucia 854: 2 specimens. St. Vincent 858: 6 specimens. Grenada 860: 7 specimens. Surinam 922: 7 specimens. Habitat: Limnetic; salinity 0.5 -0.12 %.

Distribution: Asia (Aiyer, 1926; Naidu, 1963; Cernosvitov, 1938a). Africa (Brinkhurst, 1966). North America (Brinkhurst, 1986). Neotropical Region: Argentina: Prov. Chaco (Di Persia, 1977b). Suriunam (Harman, 1974). Mexico (Brinkhurst & Marchese, 1989). Haiti (Dumnicka, 1986). St. Lucia, St. Vincent, Grenada (Righi & Hamoui).

Remarks: The figures of two ventral setae of *S. trivandrana* in Naidu

(1963, fig. 28B-C), probably copied by Brinkhurst (1971b, fig7. 21B-C), are changed by mistake.

Pristina osborni (Walton, 1906)

Naidium osborni Walton, 1906: 703, fig. 12A-D.
Naidium minutum Stephenson, 1914: 327, figs. 3 -5; 1915b: 786; 1923: 68, fig. 22; Marcus, 1943: 129, figs. 103-104A -C.
Pristina minuta Sperber, 1948: 222; Naidu, 1963: 206, fig. 29A-C; Brinckhurst, 1964: 217; 1966: 142; Righi, 1973: 295, figs. 1-4; 1978: 485; Harman, 1973: 159; Gavrilov, 1981: 179.
Pristina osborni, Harman & Platt, 1961: 93; Brinkhurst, 1971b: 395, fig. 7.22N-P; Di Persia, 1973: 283, figs. 10- 12; 1980a: 96; Gavrilov, 1977: 106; Harman, 1982a: 296.
Pristinella osborni, Brinkhurst, 1985: 472; Harman et al. 1988: 2239; Coates & Stacey, 1994: 82.

Material: St. Christopher 503: 22 specimens. Dominique 847: 1 specimen. Margarita 15: 1 specimen. Paraguaná 109: 1 specimen. Surinam 566: 4 specimens. Habitat: Limnetic; salinity 0.02- 0.21 %.

Distribution: Asia (Stephenson, 1914; Naidu, 1963). Africa (Brinkhurst, 1966). North America (Walton, 1906; Harman, 1973). Neotropical Region: Argentina: Prov. Mendonza, Cordoba, Santa Fe, Entre Rios, Corrientes, Tucuman (Di Persia, 1980a; Marchese, 1986; Harman et al. 1988). Peru: Dept. Lima, Loreto (Harman et al. 1988; Coates & Stacey, 1994). Brazil: States São Paulo, Minas Gerais, Amazonas (Marcus, 1943; Righi, 1973; 1978). Costa Rica (Harman, 1982a). Surinam; Paraguaná; Margarita; St. Christopher (Righi & Hamoui). This limnetic species is also known from soil in Brazil (Righi, 1973; 1978) and moss in Costa Rica (Harman, 1982a).

Remarks: *Pristina osborni* and *P. minuta* has been distinguished by the length of the hair setae: it is longer or similar to the body diameter in *osborni* and shorter in *minuta*. The relation between body diameter and length of the hairs is aleatory in our specimens thence the synonymy.

According to Brinkhurst (1985) the genera *Pristina* Ehrenberg (1828) and *Pristinella* Brinkhurst (1985) are separated by proboscis, prostate glands and spermathecae present in the first and absent in the second ones. Presence or absence of proboscis can not be considered a valid generic characteristic due to its great intra-specific variability (Marcus, 1943; Righi & Hamoui, 1989). Absence of

prostate glands and or spermathecae is related to parthenogenetic reproduction in Megadrili Oligochaeta (Gates, 1972) and among the Naididae parthenogenesis has been indicated to *Pristina amphibiotica* Lastockin (Sperber, 1948), *P. longidentata* Harman (Righi & Hamoui, 1989) and some other *Pristina* species.

Pristina rosea (Piguet, 1906)

Naidium roseum Piguet, 1906: 223, pl. IX, fig. 22-23; Marcus, 1943: 130, pl. XXV, fig. 105 A-D, pl. XXVI, fig. 106 A-C.
Naidium roseum f. jenkinae, Marcus, 1943: 127.
Pristina rosea Michaelsen, 1909: 28, fig. 47; Sperber, 1948: 209, fig. 22A; Brinkhurst, 1971b: 382, fig. 7.22L-M; Rodriguez, 1986: 78, fig. 2C.
Pristina jenkinae Stephenson, 1931b: 39, fig. 1; 1932: 327; Sperber. 1948: 224; Brinkhurst, 1971b: 396, fig. 7.23A-B; Botea, 1983: 26, fig. 7E-G; Rodriguez, 1986: 77, fig. 2A.
Pristina idrensis Sperber, 1948: 220, fig. 23d-e, pls. XX, XXIU, fig. 1; Brinkhurst, 1971b: 394, fig. 7.22I-K; Rodriguez, 1986: 77, fig. 2B; Dumnicka, 1986: 274, fig. 7a-c; Botea, 1987: 70, fig. 7A-C.
Pristina taita Stout, 1956: 99, figs. 2-5.
Pristina notonhagi Stout, 1957: 289, figs. 1-6.
Pristina sabanillica Botea, 1983: 22, fig. 3D-G.
Pristinella jenkinae, Kathman, 1985: 1022, fig. 1a-j; Harman et al. 1988: 2233; Coates & Stacey, 1994: 82.

Material: Jamaica 025: 3 specimens. St. Martin 538a: 1 specimen. St. Vincent 858: 2 specimens. Trinidad 366: 3 specimens. Surinam 370: 4 specimens. Habitat: Limnetic to oligohaline; salinity 0.05-1.1 %; on decayed palm leaf in the soil in Surinam 370.

Distribution: Cosmopolite. Neotropical occurrences: Argentina: Prov. San Juan, Chaco, Santa Fe, Entre Rios, Corrientes (Di Persia, 1980a; Marchese, 1986; Harman et al. 1988). Brazil: States São Paulo, Pernambuco (Marcus, 1943; 1944). Peru: Dept. Cuzco, Loreto (Harman et al. 1988; Coates & Stacey, 1994). Venezuela: State Aragua (Botea, 1987). Costa Rica (Harman, 1982a). Guatemala (Howmiller, 1974). Surinam; Trinidad; St. Vincent; St. Martin; Jamaica; Cuba (Botea, 1983; Dumnicka, 1986; Righi & Hamoui).

Remarks: The confusion between *Pristina rosea* and *P. jenkinae* began a little after *jenkinae's* description leading Marcus (1943) to consider *jenkinae*

just as a form of *rosea*. The confusion was increased by re-interpreting *jenkinae* as a valid species (Sperber, 1948; Brinkhurst, 1971b) and descriptions of four "new species": *idrensis, taita, nothofagi* and *sabanillica*. The distinction among these "species" has been based on the relation between the lengths of the needle teeth. Kathman (1985) demonstrated that this relation presents a big inter- and intra-populational variability and also in the same specimen. In this way she put *idrensis, taita* and *notophagi* in the synonymy of *jenkinae;* but *rosea* was maintained as a valid species without any justification. Rodriguez (1986), studying Iberian specimens of *rosea jenkinae* and *idrensis*, considers valid species all of the three. However reorienting Rodriguez's figures we can see they exibit recoverings and gradual passage from one species to another, making the distinction impossible. We can confirm the variability in the length of the teeth in the needles and ventral setae of the same individual so that our material can be named *rosea* or *jenkinae*. Kathman (1985) and Dumnicka (1986) suggest the possibly synonymy of *Pristina amphibiotica* Lastockin (1927). However, the much greater angle between the needle teeth does not authorize this interpretation. *P. sabanillica* has no differences from *P. rosea* as it is now understand.

Naidium luteum Schmidt (1847) has received several interpretations: a) valid species (Vejdovsky, 1884; Michaelsen, 1909a; 1927; Ude, 1929); b) synonymous to *P. rosea* (Piguet, 1906); c) Polychaeta species (Sperber, 1948); d) Tubificidae species (Brinkhurst, 1971b). According to Schmidt's description (in Sperber, 1948) we are favourable to Piguet's interpretation so the species must be named *P. lutea* but the type- material is lost and it will be better to wait for a study of topotypes.

Pristina sima (Marcus, 1944)
(Fig. 3.H-K)

Naidium simum Marcus, 1944: 68, figs. 58- 59.
Pristina sima, Sperber, 1948: 223.
Pristinella sima, Brinkhurst, 1985: 472.
(non) Pristina sima Ercolini, 1969: 26, fig. 33; Martinez-Ansemil & Giani, 1980: 48, fig. 2; Rodriguez & Armas, 1983: 96; Varela, 1990: 224.

Material: Curaçao 74c: 4 specimens (ZU-1324). Habitat: Weakly oligohaline; salinity 0.88 %.

Distribution: Restricted to Neotropical Region: Brazil: São Paulo State (Marcus, 1944) and Curaçao (Righi & Hamoui).

Description: Length 2.9-3.0 mm. Diameter 125-130 μm. Number of segments 30-32. Short conic prostomium. Eyes and division-zone missing. There are no septal glands. Pharynx goes to III; thin esophagus; small stomach in VIII; intestine begining at X. Dorsal vessel running along the left side from IX backwards; commissural vessels unrecognizable. All the setae begin at II. dorsal bundles with 1-2 hairs and 1-2 needle setae on each. The hairs are smooth, straight, their length increases regularly from 80-202 μm in II-VI; towards the back the length varies from 129-196 μm, the shorter ones are in the last segments. The needles are 40-59 μm long, the longer ones are posterior; a small nodulus sets apart a little curved distal part shorter than the straight proximal part. The apex has two teeth of similar length, the same worm presents 0-2 intermediate denticles (Fig. 3.H-I), usually there are only one intermediate denticle as long as the two main teeth. The ventral setae are 2-3 per bundle in II-VII and 1-2 backwards. The length of the ventral setae increases gradually from 33-57 μm in II-VII and it varies from 52-57 μm in the following segments. The setae nodulus is medial in II and distal from III onwards. The distal tooth is longer than the proximal one in II -VII (Fig. 3.J); towards the back the two teeth have similar length (Fig. 3.K); the proximal tooth is always thicker.

Remarks: This is the first finding of the species after the original description. The measures of the setae in our material enlarge the variability recorded to the type-material. Harman et al (1988) interpret *Pristina sima* as a synonymous of *Pristinella osborni,* which cannot be accepted due to differences in needles and septal glands. The specimens from NE Argentina studied by Varela (1990) belong probably to *Pristina notopora* Cernosvitov (1937) not to *P. sima* as she identified on account of their serrate hairs and greater number of ventral setae. The specimens from Somalia studied by Ercolini (1969) and those of Spain studied by Martinez-Ansemil & Giani (1980) and Rodriguez & Armas (1983) differ from *P. sima* by the needle setae, probably they belog to *P. rosea.*

Pristina synclites Stephenson, 1925

Pristina synclites Stephenson, 1925: 45, pl. III, fig. 1; Sperber, 1948: 225; Naidu, 1963: 208, fig. 30A-D; Brinkhurst, 1966: 143; 1971b: 397, fig. 7.23C-E; Pujals, 1985: 208, figs. 4,11 -13; Marchese, 1986: 243.

Material: Jamaica 026: 2 specimens. St. Christopher 503: 37 specimens. Marie Galante 756A: 3 specimens. Îles des Saintes: 760: 2 specimens. Dominique 846: 11 specimens. Surinam 642A: 1 specimen; 646: 1 specimen; 929: 3 specimens. Habitat: Limnetic; salinity 0.02-0.20 ‰

Distribution: Asia (Stephenson, 1925; Naidu, 1963). Africa (Brinkhurst, 1966; Lauzanne, 1968). North America (Harman et al. 1979). Neotropical Region: Argentina: Prov. Buenos Aires, Corrientes, Chaco, Santa Fe (Pujals, 1985; Marchese, 1986). Ecuador (Coates & Stacey, 1994). Surinam; Dominique; Îles des Saintes; Marie Galante; St. Christopher; Jamaica (Righi & Hamoui).

Pristina americana Cernosvitov, 1937

Pristina americana f. typica Cernosvitov, 1937: 136, figs. 1-5, 10; du Bois-Reymond Marcus, 1947: 8, fig. 7.

Pristina americana var. loretana Cernosvitov, 1937: 139, figs. 6-9, 11-12.

Pristina americana, Marcus, 1943: 106, figs. 80, 82, 83, 98; 1944: 50; du Bois-Reymond Marcus, 1949: 2; Sperber, 1948: 226; Brinkhurst, 1971b: 398, fig. 7.21I, 7.231-M; Harman, 1974: 14; Harman et al. 1988: 2238, fig. 1. *Pristina* cf *americana*, Grimm, 1974, fig. 2A-C.

Pristina peruviana Cernosvitov, 1939: 83, figs. 1-7; du Bois-Reymond Marcus, 1947: 9; Brinkhurst, 1971b: 399, fig.7.23N-P; Dumnicka, 1986: 276, fig. 9; Harman et al. 1988: 2238, fig. 1.

Pristina longidentata Harman, 1965: 28, figs. 1-2; 1973: 159; 1974: 16; Dumnicka, 1986: 276, fig. 8; Botea, 1987: 70, fig. 6A-C. Righi & Hamoui, 1989: 409, figs. 1-13; Varela, 1990: 224, fig. 2.7a-d; Coates & Stacey, 1994: 82.

Pristina orghidani Botea, 1983: 23, fig. 5A-C, 1987: 71.

Material: St. Christopher 503: 13 specimens. Nevis 413: 1 specimen. Montserrat 838: 177 specimens. Guadeloupe 729: 2 specimens. Martinique 852: 5 specimens. St. Lucia 854: 3 specimens. Barbados 866: 2 specimens. Grenada 860 3 specimens; 860A: 1 specimen. Surinam 646: 2 specimens; 925: 39 specimens. Habitat: Limnetic to oligohaline; salinity 0.03 -2.7%.

Distribution: Africa (Grimm, 1974). North America (Harman et al. 1979). Neotropical Region: Argentina: Prov. Missiones, San Juan, Corrientes (Cernosvitov, 1937; Harman et al. 1988; Varela, 1990). Brazil: States São Paulo, Alagoas, Pará (Marcus, 1943; 1944; du Bois-Reymond Marcus, 1947; 1949). Peru: Dept. Puno (Cernosvitov, 1939; Harman et al. 1988). Venezuela: State

Aragua (Botea, 1987). Surinam (Harman, 1974). Cuba (Botea, 1983). Montserrat (Righi & Hamoui, 1989). Grenada; Barbados; St. Lucia; Martinique; Guadeloupe; Montserrat; Nevis; Sr. Christopher (Righi & Hamoui).

Remarks: Studying Naididae of the Brazilian Amazonia du Bois-Reymond Marcus (1947) described the same worm of *P. americana* having needles with equal and unequal teeth and smooth hairs, and specimens of *P. neruviana* Cernosvitov with hairs presenting two series of threads like in *americana* of our material and of Africa (Grimm, 1974). On comparing the original descriptions of *P. americana* Cernosvitov (1937), *P. neruviana* Cernosvitov (1939) and the variations observed in our material, a single distinctive characteristic remains to distinguish *neruviana*. It is the needle teeth of similar length and thickness and almost parallel to one another (an angle of 7° - 8° is measured in Cernosvitov's 1939 figure) which is not sufficient to separate from our specimens from Nevis). The distinction between *P. americana* and *P. synclites* is based on the hairs (plumose in the first and smooth in the second) and in the posterior vascular loops (well seen in *synclites* and unrecognizable in *americana).* Righi & Hamoui (1989), studying specimens from Montserrat Island, have shown there are no differences between the asexual forms of *P. longidentata* and *P. americana*. The shape of the male sexual atrium is the only one difference between the sexual forms, and it was interpreted as a parthenogenetic consequence. However, these authors have maintained the two names to distinguish the two forms. *P. orghidani* Botea (1983) is seen as a junior synonymy of *P. americana* because they were set apart solely by the prostomial proboscis, which is well known to be a very variable characteristic to species of short proboscis (Marcus, 1943; Righi & Hamoui, 1989).

Pristina aequiseta Boume, 1891

Pristina equiseta Boume, 1891: 352
Pristina aequiseta var .? Michaelsen, 1913: 204.
Pristina aequiseta, Michaelsen, 1933: 341; Marcus, 1943: 104, fig. 81A-D; Sperber, 1948: 230, fig. 24, pl. XXI, fig. 5; Brinkhurst, 1971a: 124, fig. 4H; Harman, 1974: 17; 1982a: 296; Pujals, 1985: 204, figs. 1-3, 7-10; Dumnicka, 1986: 278, fig. 11; Botea, 1987: 67, fig. 2A-D.

Material: Key Biscaine 694, 1 specimen. Montserrat 839, 2 specimens. Guadeloupe 729, 1 specimen. Margarita 22, 1 specimen. Curaçao 74, 16 specimens; 76A, 3 specimens; 77a, 2 specimens; 389, 2 specimens; 914: 9

specimens. Aruba 103, 1 specimen. Surinam 566, 4 specimens. Habitat: Limnic to mesohaline; salinity 0.03 -5.7%.

Distribution: Cosmopolite. Neotropical occurrences: Argentina: Prov. Buenos Ayres (Pujals, 1985). Brazil: State São Paulo (Marcus, 1943). Bolivia (Martinez-Ansemil & Giani, 1986). Peru: States Puno, Cusco, Madre de Dios, Loreto (Harman et al. 1988). Colombia: Dept. Antioquia (Michaelsen, 1913). Venezuela: States Monaguas, Sucre (Botea, 1987). Surinam (Harman, 1974). Costa Rica; Nicaragua (Harman, 1982a). Bonaire; Klein Bonaire; Curaçao (Michaelsen, 1933). Puerto Rico; Haiti (Dumnicka, 1986). Aruba; Margarita; Guadeloupe; Montserrat (Righi & Hamoui).

Remarks: The taxonomic value of *Pristina foreli* (Piguet, 1906) and *P. evelinae* Marcus (1943) is controversial. Some authors such as Harman (1974), Loden & Harman (1980), Harman et al. (1988) consider both species as synonymous of *P. aequiseta.* Other authors as Dumnicka (1986), Martinez-Ansemil & Giani (1986), Botea (1987) consider the three species as valid ones. The literature instructs us that *foreli* is set apart from *aequiseta* by the prostomium's shape, number of dorsal setae and absence of giant setae (Piguet, 1906; Sperber, 1948) and *evelinae* is distinguished from *aequiseta* by shape and ontogenesis of the giant setae and the holding of genital setae (Hempelmanm, 1923; Marcus, 1943). Studies on the sexual structures of *foreli* and *aequiseta* in laboratory culture are needed to make comparisons with *evelinae.* The characteristics of the prostomium, shape, size and number of the setae and the well-known existence of *aequiseta* population with and or without giant setae leave no doubt about the identification of our material.

Pristina longiseta Ehrenberg, 1828

Pristina longiseta Ehrenberg, 1828: 112. Michaelsen, 1903: 186; Piguet, 1906: 290, pl. X, figs. 22-23, pl. XII, figs. 21-25; 1928: 91; Cordero, 1931a: 334; du Bois-Reymond Marcus, 1947: 9; Sperber, 1958: 52, figs. 18-19; Howmiller, 1974: 7; Rodriguez, 1987: 39, figs. 2-3.

Pristina leidyi Smith, 1896: 396, pl. XXXV, figs. 1-6; Michaelsen, 1905a: 357; Di Persia, 1980a: 98; Harman & McMahan, 1975: 171, figs. 1-4; Harman, 1982a: 295; Pujals, 1985: 282; Marchese, 1986: 242; Dumnicka, 1986: 279; Harman et al. 1988: 2239.

Pristina longiseta f. typica, Michaelsen, 1913: 208; 1921: 2; Cordero, 1931b: 350; 1951: 237; Marcus, 1943: 107, figs. 80,84,92 -97, 100; 1944: 50.

Pristina longiseta var. bidentata Cernosvitov, 1942: 198, figs. 1-15.
Pristina longiseta longiseta, Sperber, 1948: 236, pl. XXI, figs. 2, 6. Brinkhurst, 1971b: 402, figs. 7.21J, 7.25E-I; Botea, 1983: 26, fig. 7H-J.
Pristina longiseta sinensis Sperber, 1948: 237.
Pristina longiseta leidyi, Sperber, 1948: 237; Brinkhurst, 1971b: 403.
Pristina longiseta bidentata Sperber, 1948: 238; Brinkhurst, 1971b: 404, fig. 7.25J-M; Harman, 1974: 19.
Pristina longiseta f. leidyi, Cordero, 1951: 237.

Material: Montserrat 839: 1 specimen. Venezuela, 920: 4 specimens. Surinam 406: 1 specimen. Habitat: Limnetic; salinity 0.03 -0.11 %.

Distribution: Cosmopolite. Neotropical occurrences: Chile: Dept. Valdivia (Michaelsen, 1903). Argentina: Dept. Buenos Ayres, Entre Rios, Santa Fe, Cordoba, Corrientes, Chaco, Missiones, Santiago del Estero, San Juan, Tucuman (Michaelsen, 1921; Cernosvitov, 1942; Cordero, 1951; Di Persia, 1980a; Pujals, 1985; Marchese, 1986; Harman et al. 1988). Uruguay (Cordero, 1931a; b). Paraguay (Michaelsen, 1905a). Bolivia: Prov. La Paz, Santa Cruz (Martinez-Ansemil & Giani, 1986). Peru: Dept. Puno, Cusco, Madre de Dios, Junin, Piura, Loreto (Piguet, 1928; Harman et al. 1988). Brazil: Stat. São Paulo, Pernambuco, Alagoas, Amazonas (Marcus, 1943; 1944; du Bois- Reymond Marcus, 1947). Surinam (Harman, 1974). Costa Rica; Honduras; El Salvador (Harman, 1982a). Guatemala (Howmiller, 1974). Cuba (Botea, 1983). Haiti (Dumnicka, 1986). Venezuela: Distrito Federal. Montserrat (Righi & Hamoui).

Remarks: Harman & McMaham (1975) studying animals of North America and Surinam, nullified the differences between the subspecies *P. longiseta leidyi* and *P. l. bidentata* uniting them under *P. leidyi*, which they consider to be different from *P. longiseta.* Rodriguez (1987) detected a mixture of characteristics of *leidyi* and *longiseta* in specimens from Spain and France, concluding that they are just forms of a same species. The interpretation of *P. longiseta* as a polytypical species (Rassenkreis) was previously made by Marcus (1943) and accepted by Sperber (1948) who, nothwithstanding, diagnosed 4 subspecies which she then ignored (Sperber, 1958). It is neccessary to mention that the Brazilian animals (Marcus, 1943) and ours have an "anterior dorsal organ" which was not seen in specimens from other regions.

Pristina macrochaeta Stephenson, 1931

Pristina macrochaeta Stephenson, 1931a: 299; Marcus, 1943: 109, figs. 85-86; 1944: 50; Cordero, 1951: 231; Harman, 1974: 15; Di Persia, 1980a: 98; Marchese, 1986: 242; Harman et al. 1988: 2239.

Material: Puerto Rico 705: 1 specimen; 706: 2 specimens. Dominique 847, 62 specimens. Habitat: Limnetic to oligohaline; salinity 0.05-2.53 %.

Distribution: Argentina: Prov. Entre Rios, Corrientes, Santa Fe (Di Persia, 1980a; Marchese, 1986). Uruguay (Cordero, 1951). Paraguay (Stephenson, 1931a). Brazil: Stat. São Paulo, Pernambuco, Ceará (Marcus, 1943; 1944). Peru: Dept. Madre de Dios (Harman et al. 1988). Surinam (Harman, 1974). Dominique; Puerto Rico (Righi & Hamoui).

Remarks: *Pristina macrochaeta* is in an isolated position inside the genus due to its aberrant cephalization, 2 -3 segments, while there is only one segment to the other species. Harman (1974) suggestion there is a fall of anterior dorsal setae was not confirmed in our material.

Table 3. Naididae in the West Indian islands.

Species and localities
Nais barua Righi & Hamoui -Aruba.
Slavina evelinae (Marcus, 1942) -Antigua.
Bratislavia dadayi (Michaelsen, 1905a) -New Providence, Montserrat.
Haemonais waldvogeli Bretscher, 1900- Guadeloupe, Marie Galante, Martinique.
Dero digitata (Müller, 1773) -Cuba, Hispaniola, Marie Galante, Martinique, Grenada, Trinidad, Margarita, Bonaire, Klein Bonaire, Curaçao.
Dero bonairensis Michaelsen, 1933- Bonaire, Klein Bonaire,
Dero delayi Botea, 1983 -Cuba.
Dero obtusa d'Udekem, 1855 -New Providence, Cayman Brac, Cuba, Jamaica, Hispaniola, Puerto Rico, St. Thomaz, Anegada, Tortola, Virgem Gorda, St. Martin, Marie Galante, Dominique, Martinique, Barbados, Trinidad, Bonaire, Curaçao.
Dero nivea Aiyer, 1929 -Cuba.
Dero sawayai Marcus, 1943 - St. Martin, Montserrat, Martinique, Grenada, Margarita, Bonaire, Curaçao, Aruba, La Goajira.
Dero heterobranchiata Michaelsen, 1933- Bonaire.
Dero pectinata Aiyer, 1929- Bonaire.
Dero trifida Loden, 1979 -Aruba.

Continued

Dero multibranchiata Stieren, 1892 - Îles des Saintes, Grenada, Trinidad.
Dero evelinae Marcus, 1943 - Îles des Saintes.
Dero Rlumosa Naidu, 1962a - Grenada.
Dero haitiensis Dumnicka, 1986 -Hispaniola.
Dero scalariformis Righi & Hamoui -Bonaire, Curaçao.
Dero raviensis (Stephenson, 1914) - Îles des Saintes, Aruba.
Allodero delamarei Botea, 1983 - Cuba.
Aulophorus superterrenus Michaelsen, 1912- Saba.
Aulophorus furcatus (Müller, 1773) -Key Biscaine, Cayman Brac, Hispaniola, Puerto Rico, Culebra, Anegada, Tortola, Virgem Gorda, Anguila, St. Martin, St. Barthélemy, St. Eustatius, St. Christopher, Barbuda, Montserrat, Marie Galante, Îles des Saintes, Dominique, Martinique, Barbados, Grenada, Los Testigos, Margarita, Blanquilla, Bonaire, Klein Bonaire, Curaçao, Aruba, Paraguaná.
Aulophorus hymanae Naidu, 1962b - Bonaire.
Aulophorus borellii Michaelsen, 1900 - Cuba.
Aulophorus caraibicus Michaelsen, 1933- Bonaire.
Aulophorus kalina Righi & Hamoui - Îles des Saintes.
Aulophorus tridentatus Hrabe, 1966 - Margarita.
Aulophorus huaronensis Piguet, 1928 - Marie Galante.
Allonais japonica (Kondô, 1936) - St. Vincent.
Allonais inaequalis (Stephenson, 1911) - Cuba, Puerto Rico, Guadeloupe, La Désirade, Marie Galante, Îles des Saintes, Martinique, Barbados.
Allonais paraguayensis (Michaelsen, 1905a) - Jamaica, Montserrat, Marie Galante, Îles des Saintes, Martinique, Margarita, Bonaire, Curaçao.
Allonais pectinata (Stephenson, 1910) - Aruba.
Stephensoniana trivandrana (Aiyer, 1926) -Hispaniola, St. Lucia, St. Vincent,Grenada.
Pristina osborni (Walton, 1906) -St. Christopher, Dominique, Margarita, Paraguaná.
Pristina rosea (Piguet, 1906) -Cuba, Jamaica, St. Martin, St. Vincent, Trinidad.
Pristina sima (Marcus, 1944) -Curaçao .
Pristina synclites Stephenson, 1925 - Jamaica, St. Christopher, Marie Galante, Îles des Saintes, Dominique.
Pristina vinai Botea, 1983 - Cuba.
Pristina americana Cernosvitov, 1937 - Cuba, Hispaniola, Vieques, Anegada, St. Christopher, Nevis, Montserrat, Guadeloupe, Martinique, St. Lucia, Barbados, Grenada.
Pristina foreli (Piguet, 1906) - Tortola, Virgem Gorda, St. Martin, St. Barthelémy, Antigua.
Pristina nunezi Botea, 1983 - Cuba.
Pristina cabacuensis Botea, 1983 - Cuba.
Pristina aequiseta Boume, 1891 - Key Biscaine, Hispaniola, Puerto Rico, Montserrat, Guadeloupe, Margarita, Bonaire, Klein Bonaire, Curaçao, Aruba.
Pristina longiseta Ehrenberg, 1828 - Cuba, Hispaniola, Montserrat.
Pristina macrochaeta Stephenson, 1931 a Puerto Rico, Dominique.
Pristina racovitzai Botea, 1983 - Isla de Pinos (Cuba).

Ecological and zoogeographical considerations

Hummelinck's collections is composed of Naididae from 171 localities, 153 in the West Indies, 15 in Suriname, 2 in Venezuela and 1 in Florida making a total of 4,975 individuals belonging to 33 species of 10 genera. The number of West Indian species was raised from 16 (Stieren, 1892; Michaelsen, 1933, Botea, 1983; Dumnicka, 1986) to 46 and the number of sampled islands are 43 now (Table 3). The more representative genera by species number in the West Indies are *Dero* (15 species), *Pristina* (13), *Aulophorus* (8) and *Allonais* (4); the remaining 6 genera are represented by one species each. *Dero*, *Pristina* and *Aulophorus* are predominantely tropical genera and *Dero* is the one of greatest specific diversity in the Neotropical Region. *Dero obtusa* accounts for nearly half of the genus occurrences in the West Indies and *D. digitata* and *D. sawayai* for the other half; the other species are confined to a small number of localities. *Pristina* is the more widely distributed genus in Africa (Grimm, 1987). In the West Indies it presents a slightly lower number of species than *Dero* does, but it is more widely distributed occupying 74.4 % ofthe 43 sampled islands (Table 4). The *Pristina* species that covers a large number of islands is the *P. americana* followed by *P. aequiseta*. The occurrence percentages of the other species is much less but it varies more homogeneously than the *Dero* and *Aulophorus* species. The distribution of *Aulophorus* is a little smaller than that *of Pristina;* it has be found in 69.7 % of the islands. *A. furcatus* accounts for almost all the *Aulophorus*' distribution; it is a complex polytypical species occurring in 67.4 % of the islands.

Thirteen species (28.3%) -*Nais barua, Dero bonairensis, D. delayi, D. heterobranchiata, D. haitiensis, D. scalariformis, Allodero delamarei, Aulophorus caraibicus, A. kalina, Pristina vinai, P. nunezi, P. cabacuensis* and *P. racovitzai* are known only in the West Indies. *D. bonairensis* and *D. scalariformis* were found in two of the islands and the remaining species only in their type localities. *Dero nectinata, Aulophorus hymanae* and *Allonais japonica* are Asian imports and *Aulophorus tridentatus* came from Africa. *Allonais nectinata* and *Pristina foreli* are also imports but of dubious origin, probably Africa. The interpretation of *Dero trifida,* known in the center and the south of U.S.A., Surinam and Aruba, is discussible. As the greater number of *Dero* species live in warm regions and as the Microdrili are only little known in the tropical American areas it is more probable that *D. trifida* is neotropical. The other species are well known in the Neotropical Region. *Slavina evelinae, Bratislavia dadayi, Dero sawayai, D. multibranchiata, D. evelinae, Aulophorus superterrenus, A. borellii, A. huaronensis, Pristina sima, P. americana* and *P.*

macrochaeta are typically South American species, some of them have a small penetration in other continents. *Dero digitata, D. nivea, Aulophorus furcatus, Pristina rosea, P. aequiseta* and *P. longiseta* are cosmopolite species. *Haemonais waldvolgeli* and *Dero obtusa* are probably cosmopolite too, but they are unknown in Australia. The other species have a wide distribution through the intertropical zone of the world.

Table 4 shows us that 4 species (8.7 % of the 46 West Indian Naididae) live among saturated sand grains. Three of these species, *Dero nivea, Aulophorus borellii* and *Pristina americana* are hyporheic and *Pristina racovitzai* is interstitial in the seashore (Botea, 1983). *P. americana* was found in aquatic environment too and the same is waited to *D. nivea* and *A. borellii* due to their habits in other regions. The other 42 (91.3%) species are aquatic; 19 (41,3 %) of them are exclusevely limnetic, which is the usual to the Naididae of other regions. Six species (13 %) were found just in holygohaline waters; three of them, *Dero pectinata, Pristina sima and P. foreli,* are known from limnetic environment in other regions. One species. *Dero plumosa,* was found only in polyhaline waters (salinity 23.66‰) in Grenada. The other species present different degrees of adaptation to salinity: 11 species (23.9%) are limnetic to holigohaline, 3 species (6.5%) are limnetic to mesohaline and 2 species, *Dero digitata* and *D. multibranchiata*, have the greatest variations in salinity, they were found in limnetic to polyhaline environments.

As was demonstrated, the West Indian Naididae fauna is essentially Neotropical and of very wide distribution. The wide and discontinuous geoghraphical distribution of many Oligochaeta species can only be understood as a result of very ancient speciations, which would have resulted in animal groups spread over old continuous areas which were then fragmented (Bretscher, 1903; Michaelsen, 1911, du Bois-Reymond Marcus, 1947) and they would have had their distribution potentialized by the human agency. As the West Indian islands appeared after the division of the continents, only the human agency is able to explain their colonisation. Transport by animals (Benham, 1903) or by the wind (Timm, 1980) were never demonstrated, and they are not viable because the Naididae, like every other Oligochaeta, does not present any stage of resistance to loss of water neccessary to these kinds of transport. The endemism of 13 species (28.3 %) may be explained by insufficent knowledge of the Neotropical Naididae. Nowadays knowledge of it is based on major studies in SE Brazil, Argentina, Uruguay, Paraguay, Lake Titicaca, Surinam and some smaller ones. A number of biotopes in Central America, the Guyana Plateau, Andean Cordilleras, W Amazonia and N Chaco still have unknown Naididae fauna. Moreover, the dominance of assexual archaeo or paratomical reproduction of the majority of Naididae species and the parthenogenesis of some (see *under*

Table 4. Habitat and dominance of the West Indian Naididae.

Naididae spp.	% 43 Islands	Intersticial	Aquatic				Hyporheic
			Polyhal.	Mesohal.	Holigohal.	Limnetic	
Nais barua	2.3						
Slavina evelinae	2.3						
Bratislavia dadayi	4.6						
Haemonais waldvogeli	6.9						
Dero	60.4						
Dero digitata	23.2						
Dero bonairensis	4.6						
Dero delayi	2.3						
Dero obtusa	41.8						
Dero nivea	2.3						
Dero sawayai	20.9						
Dero heterobranchiata	2.3						
Dero pectinata	2.3						
Dero trifida	2.3						
Dero multibranchiata	6.9						
Dero evelinae	2.3						
Dero plumosa	2.3						
Dero haitiensis	2.3						
Dero scalariformis	4.6						
Dero raviensis	4.6						
Allodero delamarei	2.3						
Aulophorus	69.7						
Aulophorus superterrenus	2.3						
Aulophorus furcatus	67.4						

Continued

Naididae spp.	% 43 Islands	Interstitial	Aquatic				Hyporheic
			Polyhal.	Mesohal.	Holigohal.	Limnetic	
Aulophorus hymanae	2.3					■	
Aulophorus borellii	2.3						■
Aulophorus caraibicus	2.3				■		
Aulophorus kalina	2.3					■	
Aulophorus tridentatus	2.3				■	■	
Aulophorus huaronensis	2.3					■	
Allonais	32.5						
Allonais japonica	2.3					■	
Allonais inaequalis	18.6				■	■	
Allonais paraguayensis	18.6				■	■	
Allonais pectinata	2.3				■	■	
Stephensoniana trivandrana	9.3				■	■	
Pristina	74.4						
Pristina osborni	9.3					■	
Pristina rosea	11.6				■	■	
Pristina sima	2.3				■		
Pristina synclites	11.6					■	
Pristina vinai	2.3					■	
Pristina americana	27.9				■	■	■
Pristina foreli	11.6				■		
Pristina nunezi	2.3					■	
Pristina cabacuensis	2.3			■	■	■	
Pristina aequiseta	23.2			■	■	■	
Pristina longiseta	6.9					■	
Pristina macrochaeta	4.6				■	■	
Pristina racovitzai	2.3	■					

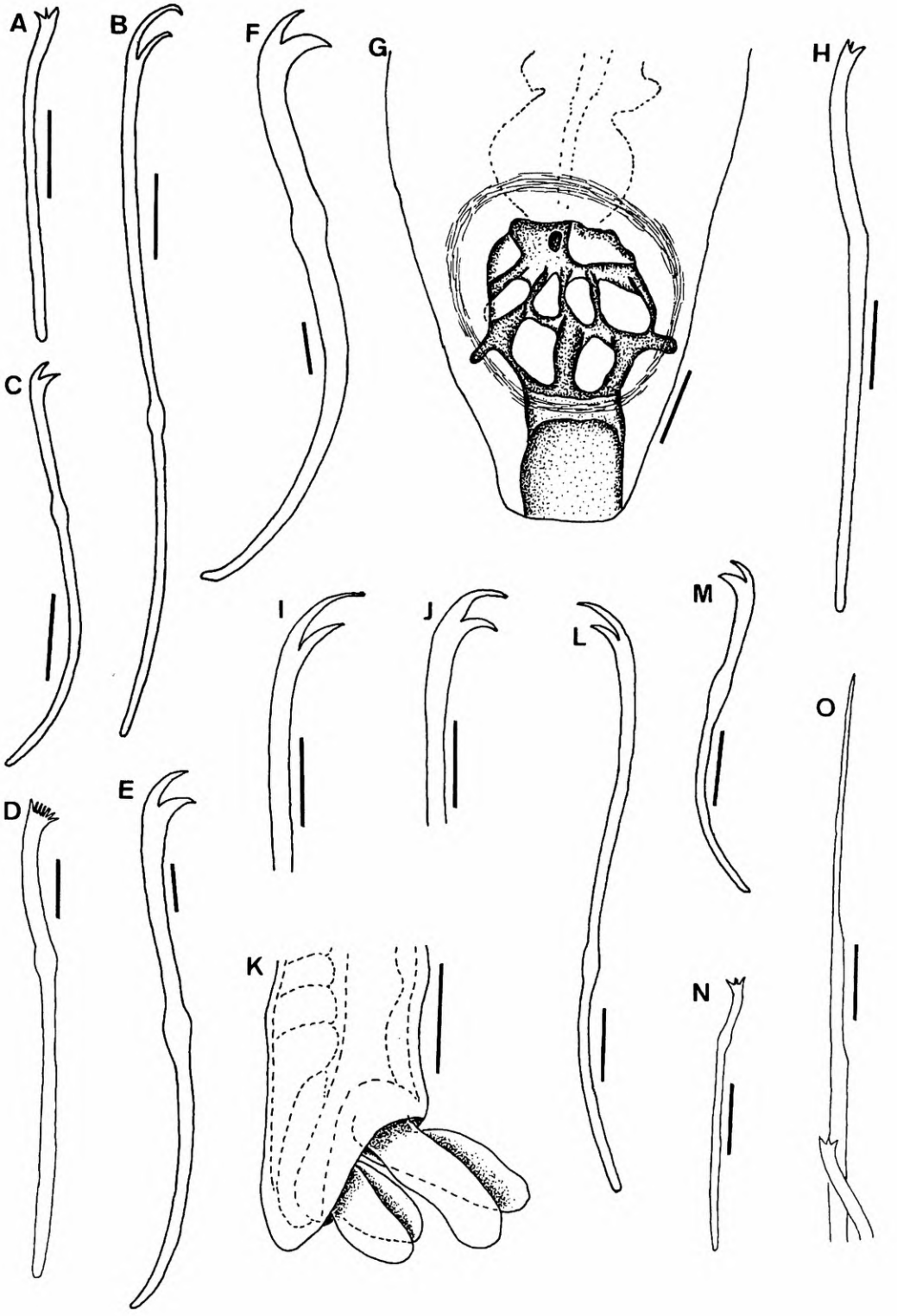

Fig. 1. *Nais barua:* A, needle. B-C, ventral setae of III and XVII. *Dero magna:* D, needle. E-F, Ventral setae ofV and XII. *Dero trifida:* G, branchial fossa. H, needle. I -J, ventral setae of II and VIII. *Dero scalariformis:* K, branchial fossa. L-M, ventral satae of II and XI. N, needle. O, hair and needle. Scales to Fig. G, K = 50 µm, to other figures 10 µm.

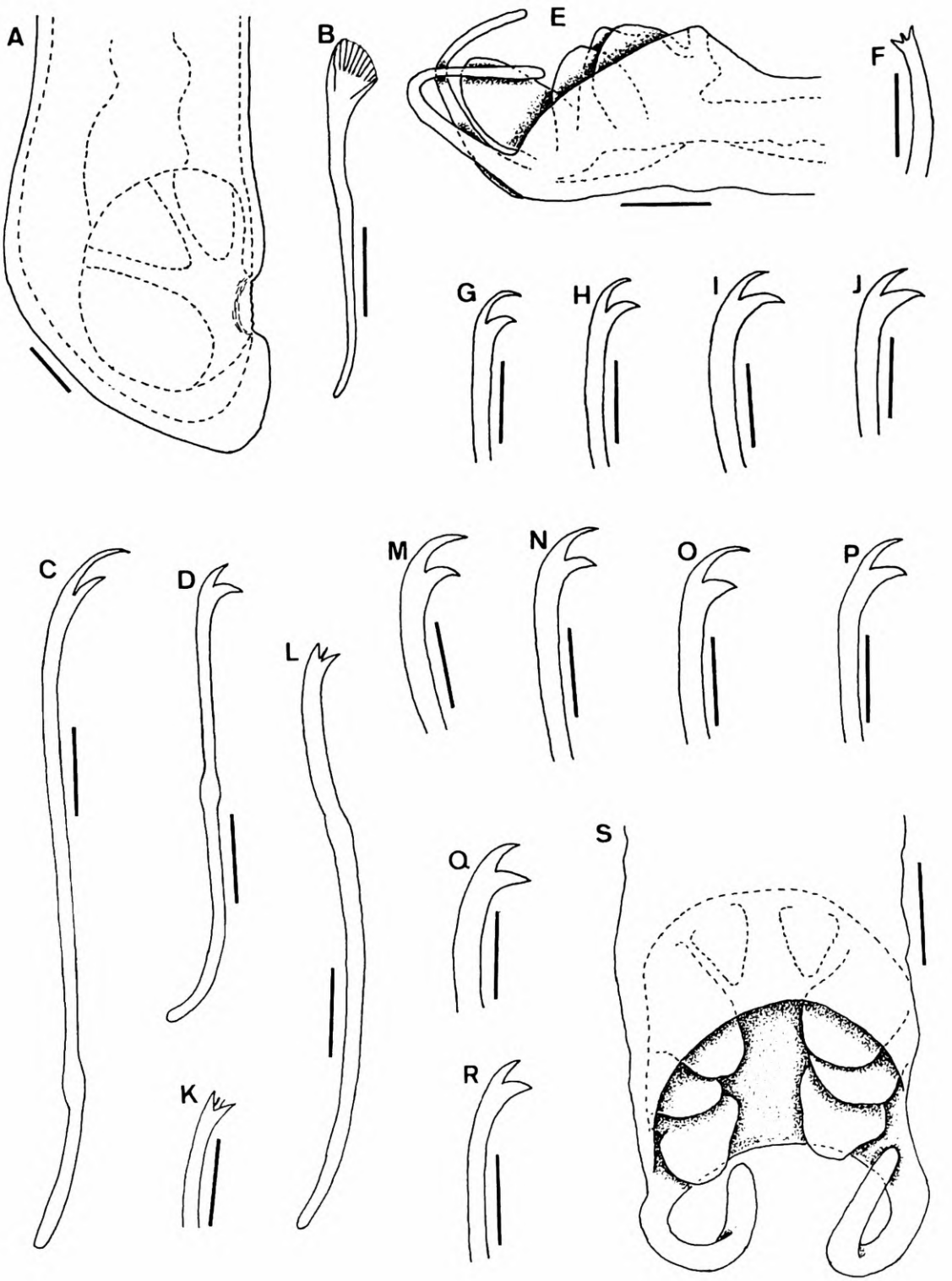

Fig. 2. *Dero tuna:* A, branchial fossa. B, needle. C-D, ventral setae of IV and IX. *Aulophorus kalina:* E, branchial fossa. F, needle. G-J, ventral setae of II, V, VI and XII. *Aulophorus tridentatus:* K-L, needles. M-R, ventral setae of II-VII. S, branchial fossa. Scales to Fig. A, E, S = 50 µm to other figures 10 µm.

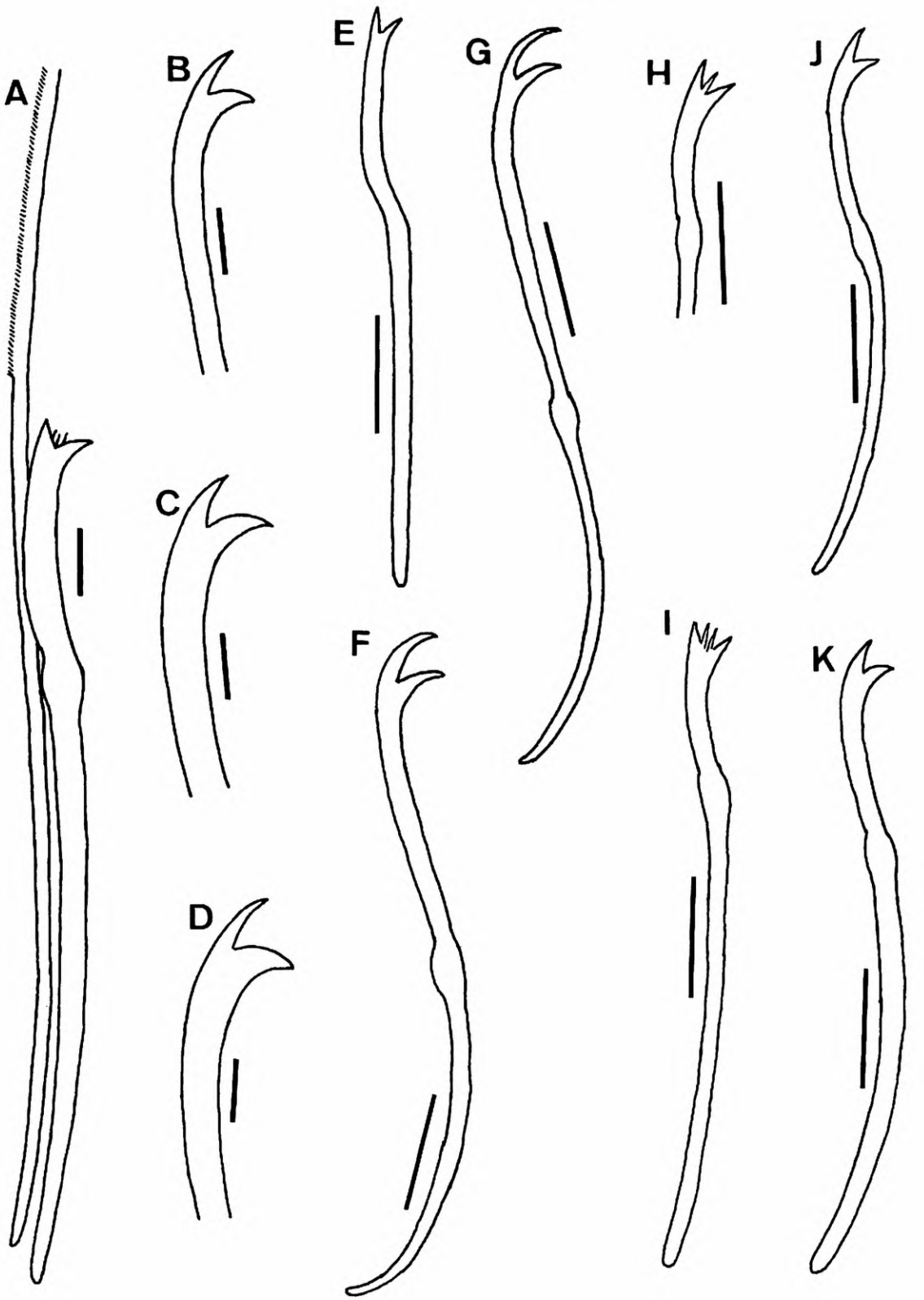

Fig.3. *Aulophorus barbatus:* A, hair and needle. B-D, ventral setae of V, VIII and XXXV. *Allonais japonica:* E, needle. F-G, ventral setae of II and XII. Scale = 10 μm. *Pristina sima:* H-I, needles. J-K, ventral setae of IV and X. Scale = 10 μm.

Pristina americana) are unfavorable for the neccessary mutations to give an origin to new species. However the West Indian internal aquatic environment is very complex. It is mainly composed of a small number of short water bodies, the majority are temporary and of variable salinity; brackish waters are predominant. This fact leads to a great adaptability as was demonstrated above and a strong mutational pressure which may explain the endemism of old-known holygohaline species such as *Dero bonairensis, D. heterobranchiata* and *Aulophorus caraibicus.*

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