Freshwater Planarians from Uruguay and Rio Grande do Sul, Brazil: *Dugesia ururiograndeana* sp. nov. and *Dugesia tigrina* (Girard, 1850) (Turbellaria: Tricladida: Paludicola)

Masaharu Kawakatsu, Josef Hauser and Rodrigo Ponce de León

Abstract. A new species of the genus *Dugesia* (Turbellaria, Tricladida, Paludicola) from the vicinity of Quebrada de los Cuervos, Departamento de Treinta y Tres, Uruguay, and the vicinity of Arroyo de Meio, approximately 70 km W of Salvador do Sul, Estado de Rio Grande do Sul, Brazil, is described: *Dugesia ururiograndeana* Kawakatsu, Hauser et Ponce de León, sp. nov. The present new species has large dorsal testes and symmetrical penis papilla; it is also characterized by an extraordinarily thick muscle coat surrounding the bursal stalk, *Dugesia tigrina* (Girard, 1850) is also recorded from Uruguay and southern Brazil.

Introduction

In the early summer of 1989, Kawakatsu received 4 vials of preserved specimens of freshwater planarians collected by Ponce de León in 2 stations of Uruguay: the Arroyo Yerbal Chico, Quebrada de los Cuervos, Departamento de Treinta y Tres (one vial) and a temporary pond near Laguna Negra, Parque Nacional de Santa Teresa, Departamento de Rocha (3 vials). In the spring of 1991, Kawakatsu also received 4 sets of slides (serial sagittal sections) of freshwater planarians from Hauser S.J. for identification. The Brazilian animals were collected from 2 localities in the vicinity of Salvador do Sul, Estado de Rio Grande do Sul.

After a close examination of serial sections of the Uruguayan samples prepared in Kawakatsu’s laboratory as well as Hauser’s serial sections of Brazilian samples, Kawakatsu has come to the conclusion that these materials consist of 2 species. One is a new species to which we give the name of *Dugesia ururiograndeana* after its habitats (Uruguay and Rio Grande do Sul, Brazil), and the other is *Dugesia tigrina* (Girard, 1850). The latter is from Uruguay (a different locality from that where the new species was obtained) and Brazil (a different locality from which the new species was obtained).

The purpose of the present paper is to give an original description of a new species from Uruguayan and Brazilian localities, together with some suggestions about its related species. A short taxonomic redescription of *Dugesia tigrina* from the Uruguayan and Brazilian localities is also given.

Materials and Methods

The animals from Uruguay used for the present study consisted of 4 stocks. The specimen Lot Numbers given for them are those registered in Kawakatsu’s fixing note book according to his permanent recording system. Hauser’s slides of animals from Brazil consisting of 4 sets of serial sagittal sections are listed here according to his slide numbers.

1) Specimen Lot No. 1559. *Dugesia tigrina*. Seven sexual specimens (10–12 mm long and 2–2.5 mm wide; one of them was broken when received) collected from a temporary pond near Laguna Negra, Parque Nacional de Santa Teresa, Departamento de Rocha, Uruguay (lat. 34°01’S, long. 53°40’W); fixed with FAA fluid. Coll. R. Ponce de León; January 12, 1989.

2) Specimen Lot No. 1960. *Dugesia* sp. (probably *D. tigrina*). About 5 sexual (non-fully matured) and 15 non-sexual specimens (10–14 mm long and 1 mm wide) collected from the same locality as St. 1; fixed with 3% formalin solution. Coll. R. Ponce de León; January 12, 1989.

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About 7 or more sexual and many non-sexual specimens (12-13 mm long and 2-2.5 mm wide) from the same locality as St. 1; fixed with Bouin’s fluid. Coll. R. Ponce de León; January 12, 1989.

4) Specimen Lot No. 1962. *Dugesia ururiograndeana*, a new species which will be described in the present paper. About 15, both sexual and non-sexual, specimens (8-10 mm long and 1-1.5 mm wide) collected from the Arroyo Yeryal Chico, Quebrada de los Cuervos, Departamento de Treinta y Tres, Uruguay (lat. 32°50'S, long. 54°20'W); fixed with Bouin’s fluid. Coll. R. Ponce de León; May 25, 1989 (water temp., ca. 12°C).

5) Hauser’s Slide Nos. 4151-4156 and 4157-4164. *Dugesia ururiograndeana*, a new species which will be described in the present paper. The 2 specimens collected at Cascata (or Cascade), the Arroio Grande, near the Hydroelectric Power Station of the Colégio, a town of Arroio do Meio, approximately 70 km W of Salvador do Sul (approximately 73 km NW of Porto Alegre), Estado de Rio Grande do Sul, Brazil (lat. 29°25'S, long. 51°35'W); fixed with Susa fluid. Coll. J. Hauser and his staff members of the Instituto de Pesquisa Planárias, UNISINOS; June, 1991.

6) Hauser’s Slide Nos. 4165-4173 (plus another set of sections also examined by Kawakatsu). *Dugesia tigrina*. The 2 specimens collected at Wallaure, near Salvador do Sul; fixed with Susa fluid. Coll. J. Hauser and his staff members of the Instituto de Pesquisa Planárias, UNISINOS; June, 1991.

Note: According to Hauser (in litt.), specimens of another planarian, *Dugesia schubarti* (Marcus, 1946), also occurred at the Arroio do Meio locality.

For the collecting sites of animals listed here, see Fig. 8.

Serial sections (7-3 micrometers) of the Uruguayan samples were stained with Delafield’s hematoxalin and erythrosin. Two whole mounts (including the isolated pharynx; Specimen Lot No. 1962) were prepared for the microscopic examination. Hauser’s serial sections were stained with Delafield’s hematoxalin and eosin.

**Species Description**

Order TRICLADIDA
Suborder PALUDICOLA or PROBURSALIA
Family DUGESIIDAE Ball, 1974
Genus *Dugesia* Girard, 1850

*Dugesia ururiograndeana* Kawakatsu, Hauser et Ponce de León, sp. nov.

(Figs. 1-4)

The specific name of this new species is derived from the names of Uruguay and the state of Rio Grande do Sul, Brazil, where the species was collected.

**External features.** The following description is based upon the animals from the Uruguayan locality. This is a rather small species compared to other members of the genus *Dugesia* from epigean localities in South America. The largest, fully sexually matured specimen in the preserved condition measured 10 mm in length and 1.5 mm in width; the small, sexual specimen was 8 mm in length and 1 mm in width. Photographs of 3 preserved specimens including enlarged photographs of the head are shown in Fig. 1 (A–E).

In the preserved animals, the head has a regular triangular form (or an isosceles triangular form in some specimens) with moderate-sized, bluntly pointed and prominent auricles. The non-pigmented auricular sense organ is conspicuous on each side of the head (Fig. 1 A–E). Behind the auricles, the body reaches its greatest width at the level of the pharynx and the copulatory apparatus; the posterior end of the body is bluntly pointed (Fig. 1 A–C).

According to Ponce de León’s observation, the living animal is apparently black in coloration.

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**Fig. 1.** *Dugesia ururiograndeana* sp. nov. from Uruguay. A and B: Photographs of a preserved specimen (Specimen Lot No. 1962; A, dorsal view; B, ventral view). C and D: Photomicrographs of the body and head (enlarged) of a whole-mounted specimen (No. 1962-e). E and F: Photomicrographs of the enlarged head and pharynx of a whole-mounted specimen (No. 1962-f). G: Photomicrograph of the sagittal pharyngeal section (No. 1962-d). Small arrow indicates the mouth; large arrow, genital pore. ph, pharynx lumen. 1, Longitudinal fibers of outer muscle zone; 2, circular fibers of outer muscle zone; 4, longitudinal fibers of inner muscle zone; 5, circular fibers of inner muscle zone.
Specimen Lot e microscopic sections were stained with hematoxylin and eosin.

The preserved specimen of the body was 8 mm long and 1.5 mm wide. The non-tapered anterior end is conspicuous (Fig. 1A-E). Behind the greatest width the copulatory pores of the body is bluntly rounded. In observation, the non-tapered body is dark in coloration.
Under low power microscopic examination, the coloration of the dorsal surface is a uniform brownish and reddish black with many blackish pigments. The body margin and the areas above the pharynx and copulatory apparatus are of a lighter hue. The ventral side is dark grayish brown with numerous dark pigments (Fig. 1 B).

The two eyes, each surrounded by a reniform, pigment-free ocular area, are situated on the dorsal side of the head; the distance between them is about one-fourth the width of the head at the level of eyes (Fig. 1 A, C–E). The pharynx is inserted at about midbody and is about one-sixth as long as the body. The genital pore opens somewhat anterior to the middle of the post-pharyngeal region (Fig. 1 B).

Because no photographs of living animals of the present new species were taken by either Hauser and Ponce de León, the above-described external morphology is based upon preserved specimens from the Uruguayan locality. Kawakatsu's experience in observation of both living and preserved specimens of several South American dugesiid species, suggests that the present new species may not be a member of the so-called "long-aureled" group of species, such as Dugesia schubarti.

Internal features. The surface of the pharynx is covered with grayish pigments. Coarsely spotted patterns can be seen. Microscopic examination of a whole-mounted pharynx proved that a dark pigment layer also occurs under the outer epithelium of the pharynx (Fig. 1 F). The inner pharyngeal musculature is typical of the family Dugesidae; it consists of two distinct layers, a thick layer of circular fibers adjacent to the epithelium of the pharynx lumen and a thinner layer of longitudinal ones. The outer pharyngeal musculature consists of two layers, i.e., a thin, outer layer of longitudinal fibers and a rather thick layer of circular ones (Fig. 1 G). The anterior intestinal trunk bears about 10 lateral branches; each posterior trunk, about 15 short, lateral branches. The erogenous adhesive glands can be seen along the anterior and posterior margins of the body.

The dorsal testes are large in size, numerous, and are arranged on either side of the midline in 2 to 3 longitudinal rows extending from the posterior level of ovaries almost to the posterior end of the body (Figs. 2 A, 3 A and B). In the prepharyngeal and pharyngeal regions, the testes occupy about half of the dorso-ventral space in sagittal sections. Sometimes testes located in the ventral side are also found. In the post-pharyngeal region (especially, behind the level of the copulatory apparatus), they occupy almost all the dorso-ventral space; large testes can also be seen in the space between the two posterior intestinal trunks (sometimes two testes arranged on both dorsal and ventral sides can be seen; Fig. 2 A). The total number of testes in a large specimen is estimated to be 140 or more. Spermiducal vesicles are well developed in the present new species (Fig. 3 A).

The ovaries found in the usual ventral position of the posterior level of the head are large in size and occupy about two-thirds of the dorso-ventral space (Fig. 3 B). Numerous yolk glands are distributed throughout the body in the surrounding mesenchyme (Fig. 3 B).

Pertinent photomicrographs of the copulatory apparatus of 4 specimens from the Uruguayan locality (holotype: Specimen No. 1962-c; paratypes: No. 1962-a, -b and -d) and 2 specimens from the Brazilian locality (Hauser's Slide Nos. 4155 and 4161) are shown in Figs. 2 (B–C) and 3 (C–H). The sagittal views of the copulatory apparatus of 3 Uruguayan specimens (No. 1962-b, -c and -d) and of 2 Brazilian specimens (Hauser's Slide Nos. 4154–4156 and 4160–4162) are shown in Fig. 4 (A–E).

The penis has a rather large, hemispherical shaped (or shaped hemispherical with slightly distorted outline) bulb embedded in the parenchyma and a large, rather pointed papilla of a conical shape projecting into the male genital antrum (Figs. 3 D–E, 4 B). The bulb is moderately muscular in nature and contains a moderately wide, elongated obovoid-shaped, single bulbary cavity (Figs. 3 D, 4 B). Posteriorly, the bulbary cavity continues to a rather wide, tubular ejaculatory duct that opens at the tip of the penis papilla. In the holotype specimen, the shape of the ejaculatory duct is somewhat complicated. As shown in Fig. 3 (D; see also Fig. 4 B), several projections of the wall of the ejaculatory duct were observed. The paired sperm ducts approaching from the anterior, form well-developed spermiducal vesicles on the ventro-lateral sides of the...
In the two regions, the testes located in the dorso-ventral space are large in size. The testes located behind the level of the pharynx occupy almost the entire region. The testes can also be seen; in the present specimen, in the present region.

In the posterior ventral position near the intestine, the testes are large in size and have a large dorso-ventral space. The seminal glands are present on the surrounding structures.

Fig. 2. AnTERIOR

A: Photomicrograph of near midsagittal section of the copulatory apparatus (No. 1962-b). B and C: Near midsagittal sections of the copulatory apparatus (No. 1962-b; anterior is to the left). bc, bulbar cavity; bs, bursal stalk; ca, common genital antrum; ch, copulatory bursa; ed, ejaculatory duct; gp, genital pore; ma, male genital antrum; od, ovovitelline duct; pb, penis bulb; ph, pharynx; pp, penis papilla; v, vagina.

Fig. 2. Dugesia ururiograndeana sp. nov. from Uruguay. A: Photomicrograph of near midsagittal section of the body (No. 1962-b). B and C: Near midsagittal sections of the copulatory apparatus (No. 1962-b; anterior is to the left). bc, bulbar cavity; bs, bursal stalk; ca, common genital antrum; ch, copulatory bursa; ed, ejaculatory duct; gp, genital pore; ma, male genital antrum; od, ovovitelline duct; pb, penis bulb; ph, pharynx; pp, penis papilla; v, vagina.

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Fig. 3. *Dugesia uruguayograndeana* sp. nov. from Uruguay (A-F) and Brazil (G and H). A: Photomicrograph of near midsagittal section (No. 1962-b). B: Photomicrograph of near midsagittal section of the anterior part of the prepharyngeal region (No. 1962-d; anterior is to the left). C-H: Photomicrographs of near midsagittal sections of the anterior (C-E) and posterior (F-H) parts of the prepharyngeal region of specimens of *D. uruguayograndeana* sp. nov. from Uruguay (C-D, F, G) and Brazil (E, H).
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Photomicrographs of near midsagittal sections of the copulatory apparatus. C, No. 1962-a (anterior is to the left); D and E, No. 1962-c (holotype; anterior is to the right); F, No. 1962-d (anterior is to the right); G, Hauser’s Slide No. 4155 (anterior is to the right); H, Hauser’s Slide No. 4161 (anterior is to the right). bc, bulbar cavity; bs, bursal stalk; cb, copulatory bursa; ed, ejaculatory duct; gp, genital pore; o, ovary; pb, penis bulb; ph, pharynx; phc, pharyngeal chamber; pp, penis papilla; sv, spermiducal vesicle; yg, yolk gland.
cupulatory bulb, penis bulb. The penis begins outwardly and inwardly walled ducts; and finally opens beginning of cavity and ejection glandular epithelium. This epithelium muscle fibers.

Fig. 4. Dugd "sagittate" type; a simple sagittal 4156 (p. 16) slides, D, a type of bulbary ed, ejac, ph, ph.
cupulatory buras and the anterior level of the penis bulb. Then, they pass postero-vertically and inwardly to form rather long, slightly thick-walled ducts; they form a loop about each other and finally open separately into the roof of the beginning of the bulb cavity (Fig. 4 B; see also Fig. 3 D). The penis lumen (i. e., the bulb cavity and ejaculatory duct) is lined with a thin, glandular epithelium of a nucleate type. Below this epithelium there is a single layer of circular muscle fibers (Fig. 4 B). The penis bulb is pierced by numerous erythrophilic ducts of the penis glands.

The basal part of the penis papilla of the holotype specimen has a moderately developed constriction or valve (Fig. 4 B). The dorsal lip of the papilla is much larger than the ventral lip. The covering, nucleate-typed, glandular epithelium of the papilla is thicker at its basal part than in the posterior and middle parts. Below this epithelium there are two layers of muscle fibers, one circular and the other longitudinal. The

Fig. 4. Dugesia ururiograndeana sp. nov. from Uruguay (A-C) and Brazil (D and E), semidiagrammatic sagittal views of the copulatory apparatus. A: No. 1962 b (anterior is the left); B: No. 1962-c (holotype; anterior is to the right); C: No. 1962-d (anterior is to the right); D: Hauser’s Slide Nos. 4154-4156 (anterior is to the right); E: Hauser’s Slide Nos. 4160-4162 (anterior is to the right). In Hauser’s slides, some parts of sections were lost (see broken-line area in sketch D). In sketches A, C and D, a thick muscle coat surrounding the bursal stalk and vagina is simplified (see dotted areas). bc, bulb cavity; bs, bursal stalk; ca, common genital antrum; cb, copulatory bursa; cg, cement gland; cd, ejaculatory duct; gp, genital pore; ma, male genital antrum; od, ovovitelline duct; ph, penis bulb; ph, pharynx; pp, penis papilla; sd, sperm duct; sv, spermiducal vesicle; v, vagina.
subepithelial musculature of the papilla is more developed in the basal part of the dorsal lip than in the ventral lip (Fig. 4 B).

The male genital antrum is a wide, cup-shaped cavity which widens anteriorly and narrows posteriorly. It opens to the common genital antrum posteriorly. In the holotype specimen, the tip of the penis papilla is protruded into the common antrum; the opening of the ejaculatory duct is located close to the genital pore (Figs. 3 D–E, 4 B). Both the male and common antra are lined with a tall, glandular, nucleate epithelium. Their subepithelial musculature consists of an inner, rather thick, layer of circular fibers and outer layer of longitudinal ones (Fig. 4 B).

The penial anatomy is slightly different according to the degree of muscular constriction when animals were fixed with chemicals. In one paratype specimen (Fig. 4 A), both the penis papilla and bulb are strongly contracted; a recurvature of sperm ducts can be seen (see also Figs. 2 B and C). In the other paratype specimen (Fig. 4 C), the penis is moderately contracted; the penis papilla shows a symmetrical, hemispherical shaped papilla and contains a wide, round-shaped ejaculatory duct (see also Fig. 3 F). In one of the Brazilian specimens examined by Kawakatsu (Figs. 3 G, 4 D), the penis (especially the papilla) is rather contracted. In the other Brazilian specimen (Figs. 3 H, 4 E), the dorsal lip of the penis papilla is contracted and wrinkled; the bulbular cavity is also oppressed by tissue protruding from the posterior part of the penis bulb. It was, however, clear that conspicuous local variation in the penial anatomy (and histology) of the animals from Uruguay and Brazilian localities could not be seen.

The copulatory bursa of the present new species is a large to moderate-sized organ and is irregularly lobed. The bursal stalk, a rather wide and long duct almost uniform in diameter, runs posteriorly, and then widens at its posterior terminal portion as a moderately developed vagina; it opens into the roof of the common genital antrum (Figs. 3 D and E, 4 B). The bursal canal including the anterior half of the vagina is lined with a tall, glandular epithelium of an insunk nuclei type; this epithelium is thicker in the ventral side than that of the dorsal side. The glandular epithelium of the posterior half of the vagina has nuclei. Both the bursal stalk and vagina are surrounded by an extraordinarily thick muscle coat consisting of an inner, thick layer of circular fibers; a middle, thick layer of intermingled longitudinal and circular fibers; and an outer, rather thick layer of longitudinal ones. The muscle coat is thicker on the ventral side of the bursal stalk than on its dorsal side (Figs. 3 E, 4 B). Two ovovitelline ducts, which open separately into the middle portion of the vagina, are accompanied by many ephyroidal glands. The opening of two ovovitelline ducts is located at the middle, or nearly the ventral side, of the dorso-ventral space of the body in this region. No anatomical nor histological differences of the female copulatory apparatus were found in the Brazilian specimens examined.

The cocon of the present new species is spherical in shape (ca. 1 mm in diameter) with a thin stalk (Ponce de León, in litt.).

**Type series.** Holotype: One set of serial sagittal sections (Specimen No. 1962-e; 5 slides) will be deposited in the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, Japan. Paratypes: 3 sets of serial sagittal sections (No. 1962-a, -b, -d) and 2 whole mounts (No. 1962-e, -f); and several specimens preserved in 70% ethanol. One paratype preserved in 70% ethanol will be sent to the same museum. The remaining sections, whole mounts and preserved specimens are retained in Kawakatsu's laboratory, Fuji Women's College, Sapporo, Japan.

**Additional material.** Hauser's slides (Nos. 4151–4156 and 4157–4164; several sections are lost) used in the present study are retained in his laboratory, Instituto de Pesquisa Planárias, UNISINOS, São Leopoldo, Brazil.

**Locality.** Type locality: The arroyo Yerbal Chico, Quebrada de los Cuervos, Departamento de Treinta y Tres, Uruguay. The present new species also occurs in the Arroio Grande, Arroio do Meio, in the vicinity of Salvador do Sul, Estado de Rio Grande do Sul, Brazil.

For more detailed notes and collection data, see the section of "Materials and Methods" (see also Fig. 8).

**Taxonomic remarks and differential diagnosis.** Up to the present, less than 30 digesid species are reported from North, Central and South Americas including the Caribbean countries (synonyms of *Dugesia vulgata* and *Dugesia inquingirenda*) and some of these species will be found in the works of Hauser, Friedmann, Kawakatsu, Froehlich, Rovasio, and Braz.)

Although the species were particularly the shapes of the *Dugesia ururit* and *Dugesia chilila* undescribed. It is uncertain, the "middle part of the same species of this group is found in the Middle America (cf. Kawakatsu & Roy, 1983; Kawakatsu & Roy, 1983; Kawakatsu & Roy, 1983).

*D. chilila* is a small species, without a penis without a spermar duct. The body is reduced to a narrow opening of the wide, rather wide, the bursal cavity of the sperm cavity is well separated from the bursal cavity by a different anal opening. The asymmetrical shape of the ejaculatory ducts with the muscle coat surrounding the vagina in the posterior part of the South America.

*Dugesia ururit* is a species members of the *D. ururit* group that preserved animals are observed (in length) and examined. This species is a medium blackish brown color, with many blackish brown spots on its head regular tongue-shaped and form in some...
Dugesia tigrina (Girard, 1850) (Figs. 5-7)

External features. The Uruguayan animals from the Parque Nacional de Santa Teresa consists of 3 stocks of samples fixed with different fixatives (see "Materials and Methods"). They have the typical appearance of this well-known species. In the preserved condition, the head is a regular triangular form with bluntly pointed auricles; a pair of short and narrow lanceolate-shaped auricular sense organs is conspicuous. Each of two eyes is surrounded by a clear, non-pigmented ocular arbor. Coloration of the dorsal surface of the body is dark brown with numerous blackish spots; a middorsal, longitudinal stripe is whitish or yellowish brown in color. The ventral side is grayish brown with numerous dark pigments (Fig. 5 A-K).

Internal features. Photomicrographs of the copulatory apparatus of 2 specimens are shown in Fig. 6 (A and B; Nos. 1959-c, 1961-c); sagittal views of the copulatory apparatus of 4 specimens
from the Uruguayan locality (2 of them are not fully matured) are shown in Fig. 7 (A-D). Photomicrographs and sagittal views of the copulatory apparatus of the Brazilian specimen (Hauser’s slides, Nos. 4168-4170) are also shown in Figs. 6 (C and D) and 7 (E). Comparative genital anatomy of the Uruguayan and Brazilian animals only is given here.

The Uruguayan specimens have a symmetrical, conical shaped penis papilla. Each of the separated bulbary cavities has a tubular form (Figs. 6 A and B, 7 A). This anatomical character is very similar to that of the specimens from the Arroyo Sauce, Departamento de Canelones, near Montevideo (cf. Kawakatsu & Ponce de León, 1990). The copulatory apparatus of the Specimen Nos. 1960-b and -e (Fig. 7 B and C) is not fully matured.

The copulatory apparatus of one of the Brazilian specimens examined (reconstructed from Hauser’s slides) is also well developed (Figs. 6 D, H, I, J, K). Specimens shown in Figs. 7 B, C, D, and E were collected by Kawakatsu et al. (1990, 1991). Sagittal views of Dugesia tigrina (Hauser, 1850) will be found in Kawakatsu et al. (1990, 1991) and Oki, Tamura, and Kawakatsu (1991, 1992).
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Fig. 6. *Dugesia tigrina* from Uruguay (A and B) and Brazil (C and D). Photomicrographs of near midd-sagittal sections of the copulatory apparatus. A: No. 1959-c (anterior is to the right); B, No. 1961-c (anterior is to the left); C and D: Hauser's Slide No. 4169 (anterior is to the left). bc, bulbar cavity; bs, bursal stalk; ca, common genital antrum; cb, copulatory bursa; ed, ejaculatory duct; gp, genital pore; m, mouth; ma, male genital antrum; od, ovovitelline duct; pb, penis bulb; ph, pharynx; pp, penis papilla; sd, sperm duct; v, vagina.

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slides) is also very similar to that of the Uruguayan specimens mentioned above (Figs. 6 C and D, 7 E). Sagittal views of the copulatory apparatus of *Dugesia tigrina* from other localities of Brazil will be found in the following papers: Kawakatsu, Oki, Tamura, Yamayoshi, Hauser & Friedrich (1981, pp. 119-120, fig. 6 A: Rio Grande do Sul, B: São Paulo); Kawakatsu, Hauser, Friedrich & Souza-Lima, 1982, p. 76, fig. 2: Estado de São Paulo); Kawakatsu, Hauser & Friedrich (1983, pp. 152-153, fig. 4 A–C: Estado de São Paulo); Kawakatsu, Hauser & Friedrich (1986, p. 44.
Fig. 2: Rio Grande do Sul).

Material. Uruguay: 18 sets of serial sagittal sections (Specimen Lot Nos. 1959, 1960 and 1961) and several preserved specimens in 70% ethanol are retained in Kawakatsu's laboratory (Sapporo, Japan). One set of sections separated from this collection will be sent to the Department of Zoology, National Science Museum (Nat. Hist.), Tôkyô, Japan. Brazil: Hauser's slides (Nos. 4165-4173 and 4183-4184 are retained in his laboratory (São Leopoldo, Brazil).

Localities. A temporary pond near Laguna Negra, Parque, partamento de mens were collected.
to the Department of Natural History, Smithsonian Institution. Hauser’s slides 4168-4170 are retained in the Museum (Nat. Mus. Brit. Hist. Sci.).

Brazilian specimens were collected from the same locality where *Dugesia tigrina* was collected. See the section of “Materials and Methods” (see also Fig. 8).

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**Fig. 7.** *Dugesia tigrina* from Uruguay (A-D) and Brazil (E), semidiagrammatic sagittal views of the copulatory apparatus. A: No. 1959-e (anterior is to the right); B: No. 1960-b (non-fully matured; anterior is to the left); C: No. 1960-e (non-fully matured; anterior is to the right); D: No. 1961-c (anterior is to the left); E: Hauser’s Slide Nos. 4168-4170 (anterior is to the left), bc, bursal canal; bs, bursal stalk; ca, common genital antlum; cb, copulatory bursa; cg, cement gland; ed, ejaculatory duct; gp, genital pore; m, mouth; od, ovovitelline duct; pb, penis bulb; ph, pharynx; phc, pharyngeal chamber; pp, penis papilla; sd, sperm duct; sv, spermiducal vesicle; v, vagina.

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Fig. 8. Geographical distribution of known localities of 6 freshwater planarian species in Uruguay and Rio Grande do Sul in Brazil; eastern part of Argentina is also included in the sketch-map. The location of the area is shown in the small sketch-map of South America (see right-bottom corner). (1) Quito; (2) Bogotá; (3) Caracas; (4) Lima; (5) La Paz; (6) Asunción; (7) Brasilia; (8) Santiago; (9) Buenos Aires; (10) Montevideo. The species are as follows: Dugesia tigrina (Girard, 1850); Dugesia schubarti (Marcus, 1946); Dugesia arndti Marcus, 1946; Dugesia ururaiograndeana sp. nov.; Dugesia antclti Marcus, 1946; Dugesia anderlani Kawakatsu et Hauser, 1983; Dugesia anderlani Kawakatsu et Hauser, 1983. For more detailed explanation, see in the text.

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The known distribution is shown in the map. The localities lying outside the area represented by the sketch-map of Uruguay are included in the sketch-map of Argentina, and other localities in the map are known from the works of Buenos Aires, Pons & Rovasio, 1985. The distribution map (Fig. 8) is one of the many illustrations used in this geographical study. The authors need more space, time, and financial support and cooperation with other biologists, etc.

The Uruguayans reported the planarians composing the Brazilian fauna of the Agetlina region (cf. "Faunístico de la República Argentina""); the Brazilian fauna is a part of the "Faunístico de la República Argentina"").

This paper is dedicated to Emeritus Prof. Hisao Oki, Kyãliku Univ., for his kindness and encouragement:

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The known localities of these 5 species are shown in the map of Fig. 8. Many localities lying close together in one district are represented by a single symbol. Because a part of Argentina is included in this map, localities of Dugesia aniceps (Kenk, 1930) in the vicinity of Buenos Aires, are also shown (cf. Kawakatsu & Rovasio, 1992). It is clear from this distribution map (Fig. 8) that the population fauna of this geographical area is not yet studied well. We need more materials for taxonomic study in cooperation with entomologists, algologists, local biologists, etc.

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ウルグアイおよびブラジル産の淡水棲三岐類属の
1 新種の記載とアメリカナミウズムシの記録

川勝正治・Josef Hauser・Rodrigo Ponce de León

ウルグアイ共和国東部とブラジル連邦共和国のリオグランデ・ド・スル州東部の流域から採集された材料に基づき、淡水棲三岐類属の1新種 Dugesia uruiograndeana Kawakatsu, Hauser et Ponce de León, sp. nov. を記載した。地上水棲の小型種で、体長 8-10 mm、生時は体色は黒、固定標本の所見から、耳葉の発達は中程度である。体の形状は扁平、尾は短く、尾部は相称形を示し、鰭の幅は比較的広い、尾部の長さが厚い筋肉で覆われているのは、本種の重要な分類学的特徴である。

アメリカナミウズムシ Dugesia tigrina (Girard, 1850) はウルグアイおよびブラジルから既に報告されているが、新種である材料に基づいて、三岐類の学的観察結果を述べた。

(川勝正治: 001 札幌市北区北16条西2丁目 植物園生物研究所、ジョセフ ハウザー: ブラジル連邦共和国リオグランデ・ド・スル州サンマテオポルティス ウニシノス大学プラクラリア研究所、ロドリゴ ポンセ・デ・レオン: スペイン国アリカネルデ・エナレス大学理学部動植物学教室)