

A LIST OF TRICLAD TURBELLARIANS FROM AUSTRALIA (INCLUDING  
TASMANIA) AND NEW ZEALAND IN KAWAKATSU'S COLLECTION<sup>1)</sup>  
PART I: A LIST WITH MAPS SHOWING LOCALITIES

by

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INTRODUCTION

During the past 30 years, KAWAKATSU obtained a considerable number of preserved specimens of freshwater planarians collected from various areas of Australia and New Zealand for taxonomic study. Their main sources are as follows.

1) The 1966 collection by Miss Judis FLETCHER (a single station in the vicinity of Canberra, New South Wales, Australia); 2) the 1974-1975 collection by Dr. Taiji IMAMURA and Dr. Shun-Ichi UENO (the former members of the Ibaraki University Zoological Expedition in 1974-1975 to Oceania and Southeast Asia directed by Professor IMARURA; 15 stations in Australia, including Tasmania, and New Zealand); 3) the 1975-1978 collection by Mr. Leigh WINSOR (15 stations in the vicinity of Townsville, Queensland, Australia); 4) the 1978 collection by KAWAKATSU, MURAYAMA, ÔGAWARA, and the late Dr. Minoru HIRANO (28 stations in Australia, including Tasmania, and New Zealand; this collection includes samples of a land planarian species from the vicinities of Townsville and Green Island, off Cairns, Queensland); 5) the 1979-1980 collection by Dr. Angela ARTHINGTON (5 stations in the vicinity of Brisbane, Queensland, Australia). KAWAKATSU also received in 1974 from Dr. Laurence R. RICHARDSON 2 preserved specimens of *Bdellasimilis barwicki* RICHARDSON, 1968.

Among these samples, the 1966 collection (1) was identified as *Cura pinguis* (WEISS, 1910) (cf. KAWAKATSU, 1969). In the 1974-1975 collection (2), the sexually mature specimens of each station were already sectioned and stained (not yet studied). The 1975-1978 collection (3) consists of 15 vials of samples and 3 sets of serial sections of animals prepared by Mr. WINSOR (Ge Nos. 731, 732 and 733). The serial sections examined briefly by KAWAKATSU proved to be from 2 species of the family DugesIIDae BALL, 1974, in the northeastern area of Queensland (KAWAKATSU prepared pencil sketches and photomicrographs of the copulatory apparatus based upon Mr. WINSOR's slides). In the spring of

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1) This paper is affectionately dedicated to the late Dr. Minoru HIRANO, Professor Emeritus of Kyoto University, who passed away on September 1, 1994, at Nagaokakyô, Japan. He was 84 years old. The deceased was recognized as the authority on freshwater algae (especially on desmids and diatoms) and was a respected friend of the authors. He was a member of our 1978 summer trip to East Malaysia, New Guinea, Australia, and New Zealand. We will long remember the scientific life and work of the late Dr. Minoru HIRANO (June 2, 1910 - September 1, 1994).

1982, KAWAKATSU learned that Dr. Ian R. BALL (Amsterdam) that he has a research plan for an extensive comparative taxonomic study of freshwater planarians from Australia and New Zealand. Thus, KAWAKATSU sent most of Mr. WINSOR's samples (preserved specimens and slides) and copies of the pencil sketches of the copulatory apparatus mentioned above to Dr. BALL. Unfortunately, the report on freshwater planarians from Queensland based upon this material is not yet published (the location of the material is uncertain now according to Dr. SLUYS, recent information : December 8, 1995, *in litt.*). For the 1978 collection (4), the preserved specimens are not yet sectioned. For the 1979-1980 collection (5), no sexually mature specimens were found in the material examined (91 vials). After taking photographs of several specimens, the samples of this collection were sent back to the collector except for several reference specimens now retained in KAWAKATSU's Collection of Turbellarians.

KAWAKATSU's retirement from Fuji Women's College is scheduled for the spring of 1999 (at the age of 70). The loss of laboratory facilities 3 years from now means a reconsideration of research schedules involving studies of KAWAKATSU's collection is necessary. At first, the samples of freshwater planarians from Australia and New Zealand in his collection, will be studied with Dr. Ronald SLUYS of Universiteit Amsterdam, the Netherlands.

The present paper is primarily a list of localities of planarian species from Australia and New Zealand now retained in KAWAKATSU's laboratory, together with several sketch-maps showing their localities. Photographs of some of live and preserved specimens from several localities and photographs showing several localities are also given. Additionally, KAWAKATSU's semidiagrammatic figures of the copulatory apparatus and photomicrographs of genital organs of 2 non-identified DugesIIDae species from the vicinities of Townsville, Australia, are also printed.

In the following lists, KAWAKATSU's Specimen Lot Number for each sample is given. Since all of the species in the following lists are not yet identified, each species has been listed as "DugesIIDae sp."

# **I. AUSTRALIA : The Northeastern Area of Queensland** The Vicinity of Townsville

## 1) Mr. WINSOR's Samples

No. 1. Specimen Lot No. 1301. DugesIIDae sp. of Townsville. Nine asexual specimens and 1 fragment; pale brown above, with numerous pigment patterns; 5 mm long and 0.8 mm wide. The animals were fixed with Bouin's fluid. Locality: Creek between ring road and Vet. Science area, Campus of James Cook University, Townsville, Queensland. May, 1975 (water temp., 28°C). Coll. Mr. L. WINSOR. Fig. 1; Pl. III, Fig. A-E.

Whole mounts and serial sections prepared by KAWAKATSU were sent to the National Museum of Victoria; 1 whole mount is retained in KAWAKATSU's laboratory.

No. 2. Specimen Lot No. 1330. DugesIIDae sp. of Kirrama. Two asexual specimens; pale brown above; 5 mm long and 1 mm wide. The animals were fixed with Bouin's fluid. Locality: Unnamed creek (no. 2), Kirrama

State forest, 1.5 km E of "Kirrama Depot", Kirrama Range, Kennedy, Queensland (alt. 915 m). July 6, 1975. Coll. Mr. L. WINSOR. Fig. 1.

Samples embedded in Paraplast Plus were sent to Dr. BALL (May, 1982).

No. 3. Specimen Lot No. 1331. DugesIIDae sp. of Blencoe Creek. Five asexual specimens; pale brown above; 8 mm long and 1 mm wide. The animals were fixed with Bouin's fluid. Locality: 1 km upstream of Blencoe falls in Blencoe Creek, near Cardwell, Queensland (alt. 534-610 m). July 8, 1975 (water temp., 18°C). Coll. Mr. L. WINSOR. Fig. 1; Pl. III, Fig. F.

Two sets of serial sections are retained in KAWAKATSU's laboratory.

No. 4. Specimen Lot No. 1332. DugesIIDae sp. of Alice River. Ten asexual specimens; pale brown above; 8-10 mm long and 1.5-2 mm wide. The animals were fixed with Bouin's fluid. Locality: Alice River, on Harvey Range Road, 32 km NW of Townsville, Queensland. July 17, 1975. Coll. Messrs. L. WINSOR and R. PEARSON. Fig. 1; Pl. III, Figs. G-I.

Samples embedded in Paraplast Plus were sent to Dr. BALL (May, 1982).

No. 5. Specimen Lot No. 1333. Dugesidae sp. of Reid River. Six asexual specimens; pale brown above, with numerous pigment patterns; 8–10 mm long and 1.5 mm wide. The animals were fixed with Bouin's fluid. Locality: Reid River, 75.5 km E of Charters Towers, Queensland. July 27, 1975. Coll. Mr. L. WINSOR. Fig. 1; Pl. III, Figs. J and K.

Samples embedded in Paraplast Plus were sent to Dr. BALL (May, 1982).

No. 6. Specimen Lot No. 1376. Dugesidae sp. of Anderson Park. Three asexual (?) specimens; pale brown above; 8 mm long and 2 mm wide. The animals were fixed with Bouin's fluid. Locality: Anderson Park, Townsville, Queensland. January 16, 1976. Coll. Mr. L. WINSOR. Fig. 1.

Samples embedded in Paraplast Plus were sent to Dr. BALL (May, 1982).

No. 7. Specimen Lot No. 1377. Dugesidae sp. of Anderson Park. Eight asexual specimens; pale brown above; 5–8 mm long and 1.5 mm wide. The animals were fixed with Bouin's fluid. Locality: The same with No. 6. January 16, 1976. Coll. Mr. L. WINSOR. Fig. 1; Pl. III, Fig. L.

Samples in 70% ethanol and embedded in Paraplast Plus were sent to Dr. BALL (May, 1982).

No. 8. Specimen Lot No. 1378. Dugesidae sp. of Anderson Park. Six asexual specimens, pale brown above; 5–8 mm long and 1.5 mm wide. The animals were fixed with Carnoy's fluid. Locality: The same with No. 6. January 16, 1976. Coll. Mr. L. WINSOR. Fig. 1; Pl. III, Fig. M.

Samples in 70% ethanol and embedded in Paraplast Plus were sent to Dr. BALL (May, 1982).

No. 9. Specimen Lot No. 1382. Dugesidae sp. of Lockhart River. Thirteen asexual (?) specimens, pale brown above; 8–9 mm long and 1 mm wide. The animals were fixed with Bouin's fluid. Locality: Lagoon, 5 km NE of Tonkins, Lockhart River, Iron Range, Queensland. April 30, 1976. Coll. Mr. L. WINSOR. Fig. 1; Pl. III, Fig. N.

Samples in 70% ethanol were sent to Dr. BALL (May, 1982).

No. 10. Specimen Lot No. 1383. Dugesidae sp. of Log Creek. Four sexual and asexual specimens; pale brown above; 12–15 mm long and 3–4 mm wide. The animals were fixed with Bouin's fluid. Locality: Log Creek, 100 m downstream from a bridge on Hervey Range Road, 3.5 km W of Black River Road, Hervey

Range, road junction, 30 km W of Townsville, Queensland. June 14, 1976. Coll. Mr. L. WINSOR. Fig. 1; Pls. I (Middle), III, Figs. and R.

Four sets of serial sections are retained in KAWAKATSU's laboratory.

No. 11. Specimen Lot No. 1384. Dugesidae sp. of Log Creek. Ten asexual (?) specimens; pale brown above; 8–10 mm long and 1 mm wide. The animals were fixed with Bouin's fluid. Locality: The same with No. 10.

June 14, 1976. Coll. Mr. L. WINSOR. Fig. 1; Pls. I (Middle), IV, Figs. A–E.

Samples in 70% ethanol and embedded in Paraplast Plus were sent to Dr. BALL (May, 1982).

No. 12. Specimen Lot No. 1432. Dugesidae sp. of Twelve Mile Creek. Twenty-nine sexual and asexual specimens; pale brown above, with many pigment patterns; 8–10 mm long and 1–1.5 mm wide. The animals were fixed with Bouin's fluid. Locality: Twelve Mile Creek, near Great Basalt WML, W of Carrters Towels, Queensland (20° 07' S, 145° 14' E). February 25, 1977. Coll. Mr. L. WINSOR. Fig. 1; Pl. IV, Figs. 1.

Samples in 70% ethanol were sent to Dr. BALL (May, 1982); 9 sets of serial sections are retained in KAWAKATSU's laboratory.

No. 13. Specimen Lot No. 1433. Dugesidae sp. of Eungella State Forest. Five asexual specimens; pale brown above; 8 mm long and 0.8 mm wide. The animals were fixed with Bouin's fluid. Locality: Eungella State Forest area, 80 km W of Mackay (Stream Rosser's Property), Queensland. April, 1977. Coll. Mr. L. WINSOR. Fig. 1.

Samples in 70% ethanol were sent to Dr. BALL (May, 1982).

No. 14. Specimen Lot No. 1434. Dugesidae sp. of Burdekin River. Seventeen sexual and asexual specimens; pale brown above; 10–15 mm long and 1.5–2.5 mm wide. The animals were fixed with Bouin's fluid. Locality: Burdekin River, near Burdekinweir, S of Clare, Queensland (20° 79' S, 147° 18' E). October, 7, 1977. Coll. Mr. L. WINSOR. Fig. 1; Pl., Figs. L–P.

Samples in 70% ethanol were sent to Dr. BALL; 3 sets of serial sections are retained in KAWAKATSU's laboratory.

No. 15. Specimen Lot No. 1445. Dugesidae sp. of Henrietta Creek. Five asexual specimens; pale brown above; 8–10 mm long and 1 mm wide. The animals were fixed with Bouin's fluid. Locality: Henrietta Creek, Parmerton National Park, Queensland. December 27, 1978. Coll. Mr. L. WINSOR. Fig. 1.

Samples in 70% ethanol are retained in KAWAKATSU's

laboratory.

No. 16. WINSOR's Slide No. Ge 731. Dugesiidæ sp. of Log Creek. Locality: Log Creek on the Harvey's Range Road, Townsville, Queensland. Coll. Mr. L. WINSOR. See Nos. 10 and 11.

This sample (36 slides) was sent to Dr. BALL. Fig. 1;

Pls. I (Middle), III, Figs. Q and R, IV, Figs. A-E, X, XI.

No. 17. WINSOR's Slide No. Ge 732. Dugesiidæ sp. of Ross River. Locality: River, Kelso, Townsville, Queensland. Coll. Mr. L. WINSOR.

This sample (6 slides) was sent to Dr. BALL. Fig. 1; Pls. I, VIII, IX.

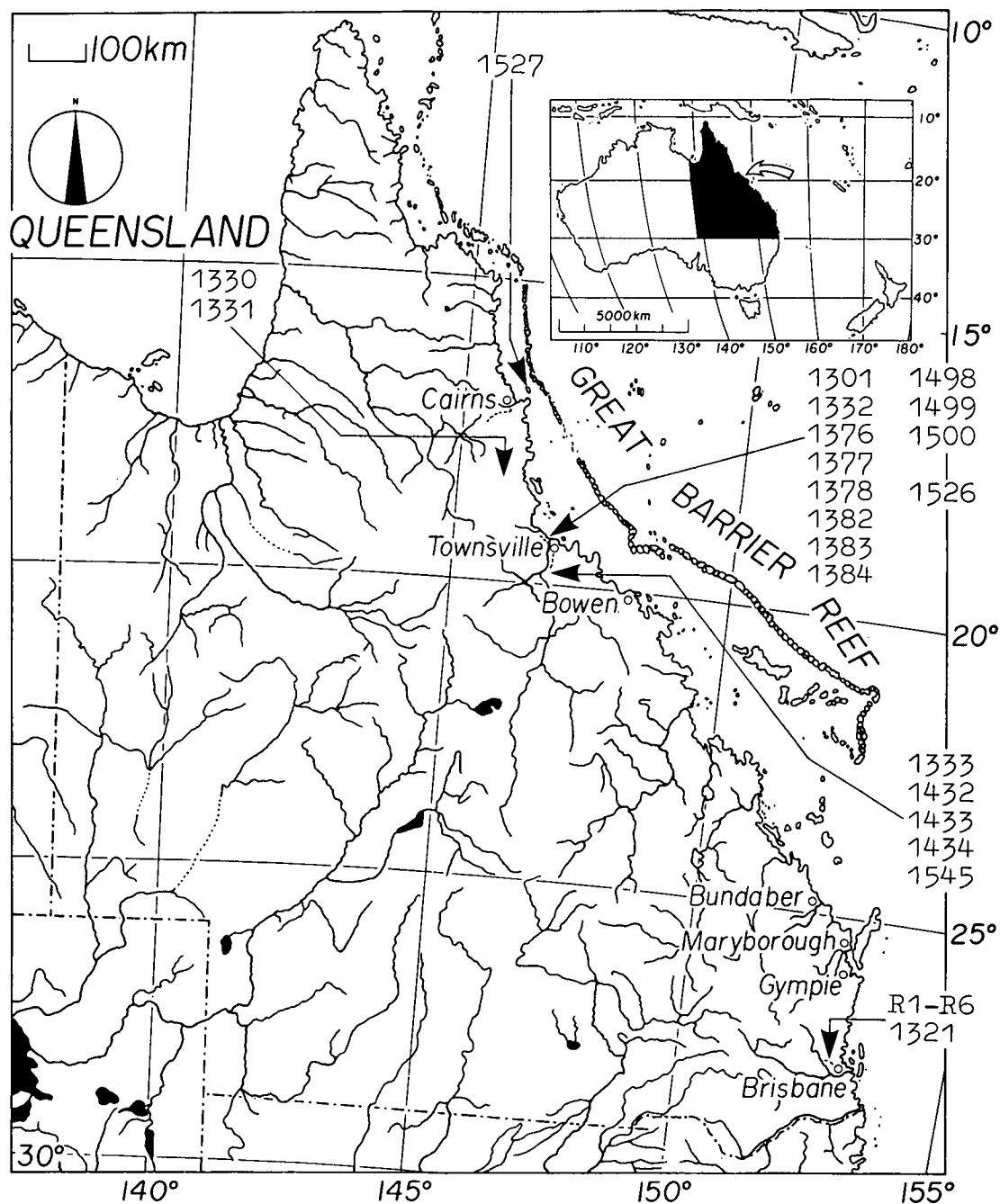


Fig. 1. Sketch map of Queensland, Australia, showing collecting sites of planarians. Broken line indicates the route of the authors' 1978 survey trip. Specimen Lot Numbers are shown.

No. 18. WINSOR's Slide No. Ge 733. DugesIIDae sp. of Ross River. Locality: The same with No. 17. Coll. Mr. L. WINSOR. Fig. 1; Pl. I (Top).

This sample (3 slides) was sent to Dr. BALL.

## 2) The Authors' 1978 Samples

No. 19. Specimen Lot No. 1498. DugesIIDae sp. of Ross River. Many asexual specimens; pale brown above, with numerous pigment spots (head triangular form with bluntly pointed auricles); 5–10 mm long and 1–1.2 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: Ross River, beside road crossing river, 100 m downstream of Spillway, Kelso, the vicinity of Townsville, Queensland. July 27, 1978 (water temp., 25°C, pH 5.0–6.0). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, Dr. M. HIRANO, and Mr. L. WINSOR. Fig. 1; Pl. I (Top).

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 20. Specimen Lot No. 1499. DugesIIDae sp. of Log Creek. Many asexual specimens; blackish brown above (head triangular form with bluntly pointed auricles); 5–10 mm long and 1–1.2 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: The same with Nos. 1383 and 1384. July 27, 1978 (water temp., 10°C, pH 5.5). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, Dr. M. HIRANO, and Mr. L. WINSOR. Fig. 1; PL. I (Middle).

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 21. Specimen Lot No. 1500. DugesIIDae sp. of Log Creek. Eight asexual specimens; pale brown above, with numerous pigment patterns; 8–12–q^mm long and 1–2 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: The same with No. 20 (slightly downstream of the foregoing station). July 27, 1978 (water temp., 22°C, pH 5.0–5.6). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, Dr. M. HIRANO, and Mr. L. WINSOR. Fig. 1; PL. I (Middle).

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

## II. AUSTRALIA: The Southeastern Area of Queensland

### The Vicinity of Brisbane

#### 1) Dr. IMAMURA & Dr. UÉNO's Samples

No. 22. Specimen Lot No. 1321. DugesIIDae sp. of Mt. Crosby. Seventeen asexual (?) specimens; grayish brown above; 6–8 mm long and 1.5 mm wide. The animals were fixed with 70% ethanol. Locality: Stream at

Mt. Crosby, 40 km W of Brisbane, Queensland. December 20, 1974. Coll. Dr. T. IMAMURA. Fig. 1; Pl. IV, Figs. W and X.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

#### 2) Dr. ARTHINGTON's Samples

No. 23. Test Station R1. DugesIIDae sp. of Bulimba Creek. Numerous asexual specimens; pale brown above, with numerous pigment spots; 3–8 mm long and 0.5–0.8 mm wide. The animals were fixed with 70% ethanol.

Locality: Bulimba Creek Study Area (R1), the vicinity of Brisbane, Queensland. February, March, April, August, October, November, and December, 1979; January, February and March, 1980. Coll. Dr. A. ARTHINGTON. Figs. 1 and 2; Pl. IV, Figs. Q and R.

Samples were sent back to the collector except for several preserved specimens retained in KAWAKATSU's laboratory.

No. 24. Test Station R3. DugesIIDae sp. of Bulimba Creek. Numerous asexual specimens; pale brown above, with numerous pigment spots; 2–8 mm long and 0.3–0.8 mm wide. The animals were fixed with 70% ethanol.

Locality: Bulimba Creek Study Area (R3), the vicinity of Brisbane, Queensland. March, August, September, October, November, and December, 1979; January, February and March, 1980. Coll. Dr. A. ARTHINGTON. Figs. 1 and 2; Pl. IV, Fig. S.

Samples were sent back to the collector except for several preserved specimens retained in KAWAKATSU's laboratory.

No. 25. Test Station R4. DugesIIDae sp. of Bulimba Creek. Numerous asexual specimens; pale brown above, with numerous pigment spots; 3–10 mm long and 0.5–1 mm wide. The animals were fixed with 70% ethanol. Locality: Bulimba Creek Study Area (R4), the vicinity of Brisbane, Queensland. March, April, July, and August, 1979. Coll. Dr. A. ARTHINGTON. Figs. 1 and 2; Pl. IV, Figs. T–V.

Samples were sent back to the collector except for several preserved specimens retained in KAWAKATSU's laboratory.

No. 26. Test Station R5. DugesIIDae sp. of Bulimba Creek. Six asexual specimens; pale brown above, with numerous pigment spots; 3–5 mm long and 0.3–0.5 mm wide. The animals were fixed with 70% ethanol. Locality: Bulimba Creek Study Area (R5), the vicinity of Brisbane, Queensland. March, September and November, 1979; January and February, 1980. Coll. Dr. A. ARTHINGTON. Fig. 1 and 2.

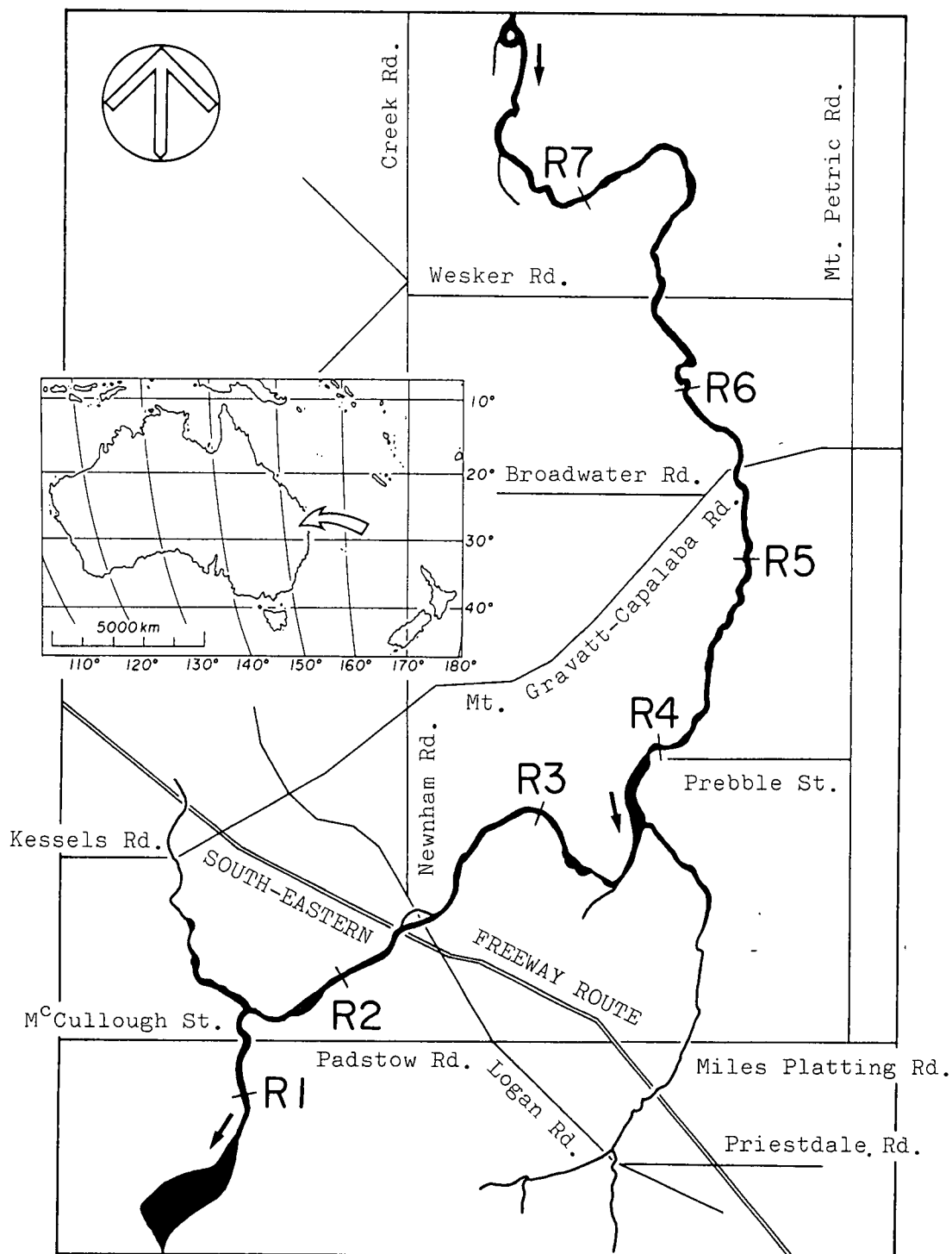


Fig. 2. Sketch map of the Bulimba Creek Study area, Queensland, Australia, showing test stations by Dr. ARTHINGTON.

Samples were sent back to the collector.

No. 27. Test Station R6. Dugesidae? sp. of *Bulimba* Creek. Numerous asexual specimens; pale brown above; 1–2 mm long and 0.2 mm wide. The animals were fixed with 70% ethanol. Locality: Bulimba Creek Study Area (R6), the vicinity of Brisbane, Queensland. August, September, November, and December, 1979; January and February, 1980. Coll. Dr. A. ARTHINGTON. Figs. 1 and 2.

Samples were sent back to the collector.

### III. AUSTRALIA: The Southeastern Area of New South Wales The Vicinity of Canberra

#### 1) Miss FLETCHER's Samples

No. 28. Specimen Lot Nos. 567, 568 and 569. *Cura pinguis* (WEISS, 1910). Over 20 sexual and asexual specimens; blackish brown above, with pigment spots; 8–10 mm long and 1–2.5 mm wide. The animals were fixed with Bouin's fluid, Zenker's fluid, etc. Locality: The Jersbom Creek, 8 km E of Canberra, New South Wales. January, 1966. Coll. Miss J. FLETCHER. Fig. 3.

Cf. KAWAKATSU, 1969. Report on freshwater planaria from Australia. Zool. Mag., Tokyo, 78: 157–162 (figs. 1–3). Serial sections are retained in KAWAKATSU's laboratory.

#### 2) Dr. IMAMURA & Dr. UENO's Samples

No. 29. Specimen Lot No. 1322. Dugesidae sp. of Murrumbidge River. Thirteen sexual and asexual specimens; dark brown above; 8–10 mm long and 2–2.5 mm wide. The animals were fixed with 70% ethanol. Locality: Murrumbidge River at Bredbo, 80 km S of Canberra, New South Wales. December 26, 1974. Coll. Dr. T. IMAMURA. Fig. 3; Pl. V, Figs. A and B.

Twelve sets of serial sections and preserved specimens in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 30. Specimen Lot No. 1346. Dugesidae? sp. of Cotter River. Two asexual specimens; without pigmentation; 0.5 mm long and 0.2 mm wide. The animals were fixed with Bouin's fluid. Locality: Cotter River, near Canberra, New South Wales. December 16, 1974. Coll. Dr. S.-I. UENO. Fig. 3.

One set of serial sections and a single preserved specimen are retained in KAWAKATSU's laboratory.

#### 3) The Authors' 1978 Samples

No. 31. Specimen Lot No. 1524. Dugesidae sp. of Cotter River. Numerous sexual and asexual specimens;

dark brown above; 10–12 mm long and 1.5 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A small stream of the Cotter River, 30 km W of Canberra, New South Wales. August 22, 1978 (water temp., 10 °C, pH 5.0). Coll. KAWAKATSU, MUMAYAMA, ÔGAWARA and Dr. M. HIRANO. Fig. 3; Pl. V, Figs. C and D.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 32. Specimen Lot No. 1525. Dugesidae sp. of Bendora River. Three asexual specimens; dark brown above; 10 mm long and 1 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A narrow stream of the Bendora River, 35 km W of Canberra, New South Wales. August 22, 1978 (water temp., 11 °C). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA and Dr. M. HIRANO. Fig. 3.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

### IV. AUSTRALIA: Tasmania

#### 1) Dr. IMAMURA & Dr. UENO's Samples

No. 33. Specimen Lot No. 135. Dugesidae sp. of Mt. Wellington. Seven asexual specimens; dark brown above; 3–4 mm long and 0.5 mm wide. The animals were fixed with Bouin's fluid. Locality: A stream at Mt. Wellington, Southeastern Tasmania. December 20, 1974. Coll. Dr. S.-I. UENO. Fig. 4.

Five sets of serial sections and preserved specimens in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 34. Specimen Lot No. 1352. Dugesidae sp. of Gun Lagoon Creek. Five sexual specimens; dark brown above; 20 mm long and 5–6 mm wide. The animals were fixed with Bouin's fluid. Locality: Gun Lagoon Creek, Northern Tasmania (alt. 1140 m). December 24, 1974. Coll. Dr. S.-I. UENO. Fig. 4; Pl. V, Figs. E–H.

Five sets of serial sections are retained in KAWAKATSU's laboratory.

No. 35. Specimen Lot No. 1353. Dugesidae sp. of Mt. Barrow. Eight sexual and asexual specimens; dark brown above; 10–12 mm long and 1.5 mm wide. The animals were fixed with Bouin's fluid. Locality: Pool at Mt. Barrow, Northeastern Tasmania. December 26, 1974. Coll. Dr. S.-I. UENO. Fig. 4; Pl. V, Fig. L.

Eight sets of serial sections are retained in KAWAKATSU's laboratory.

No. 36. Specimen Lot No. 1354. Dugesidae sp. of Mt. Barrow. Five sexual specimens; pale brown above; 7–10 mm long and 1 mm wide. The animals were fixed

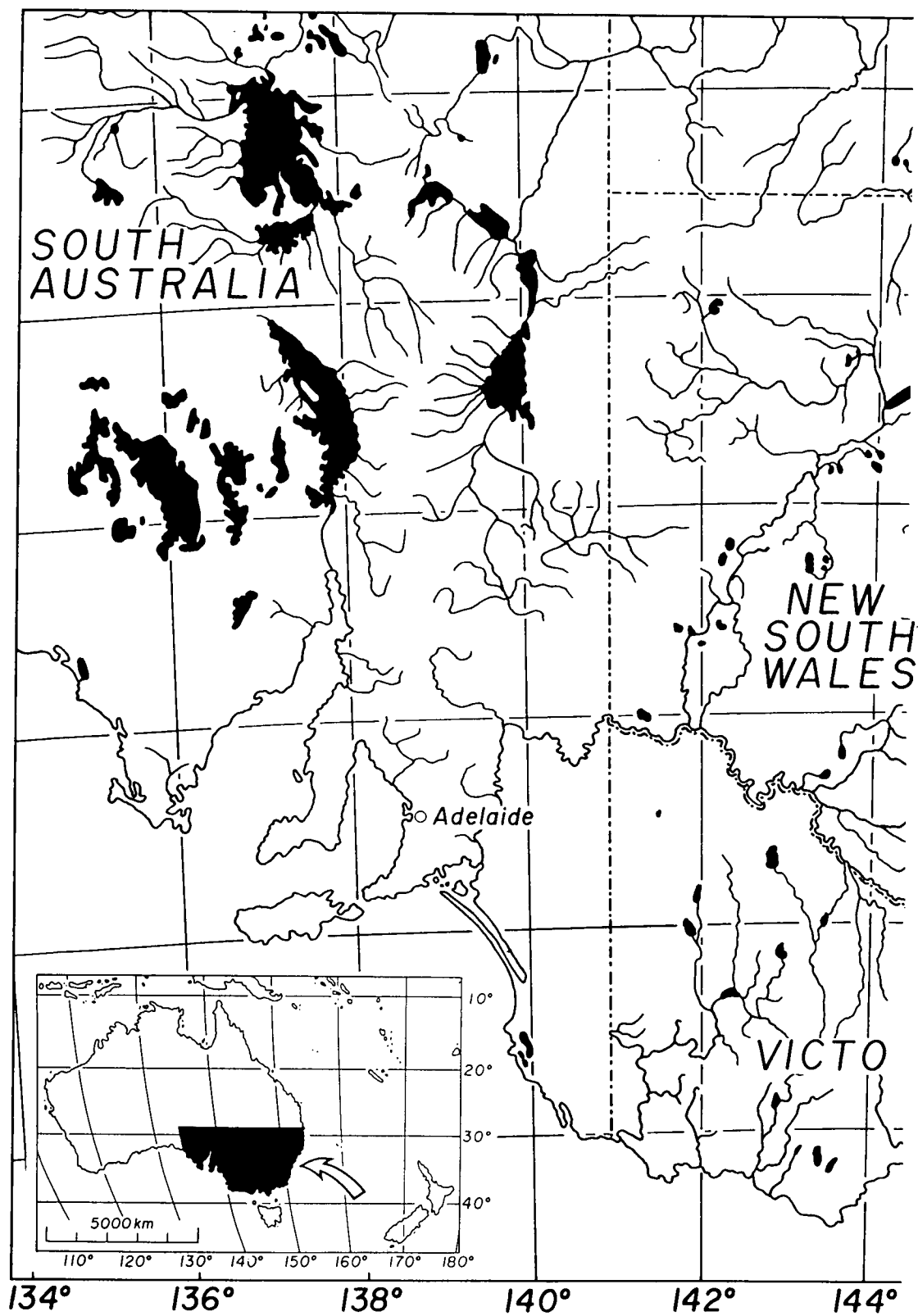
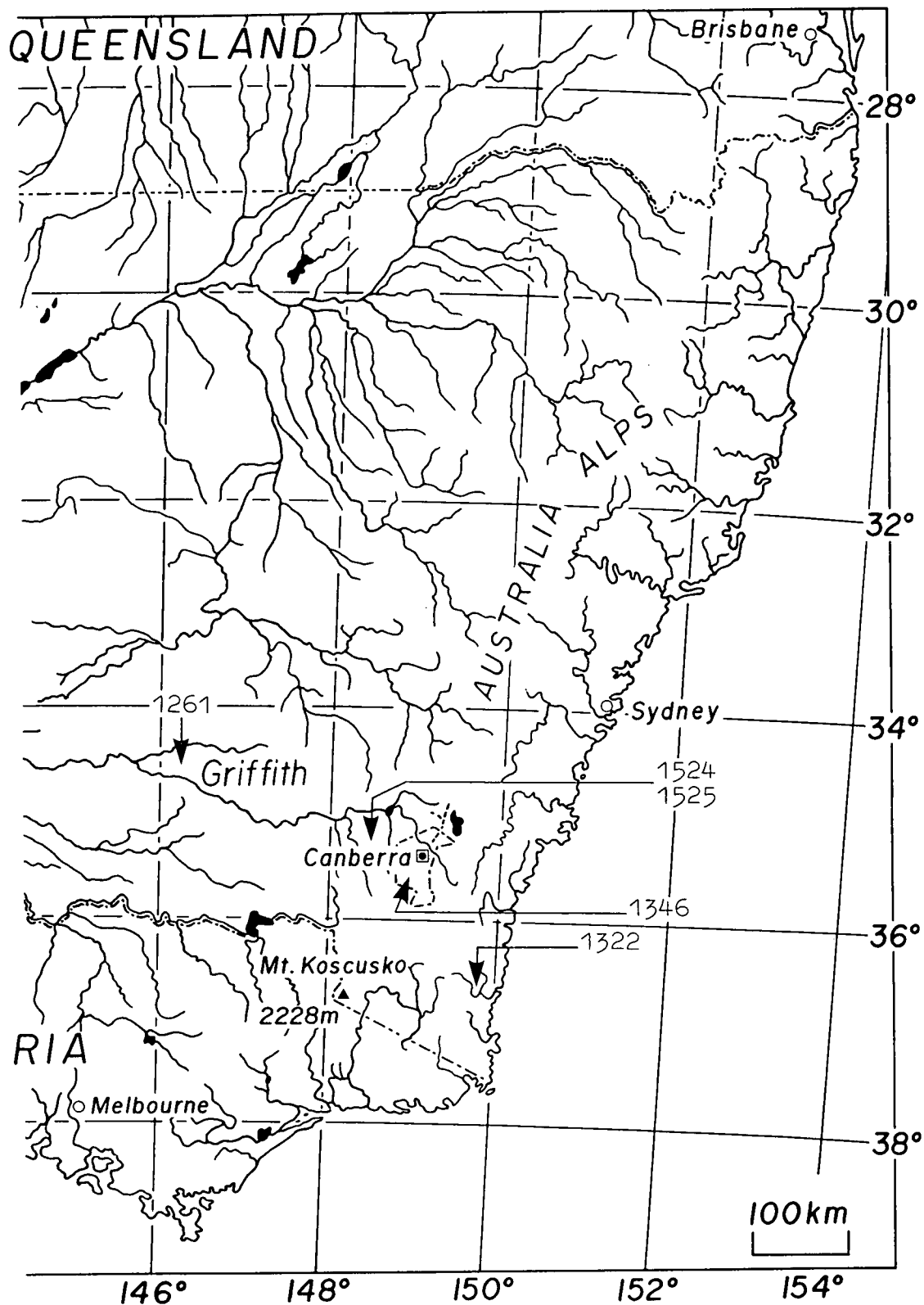


Fig. 3. Sketch map of Southeastern Australia (New South Wales), showing collecting sites of planarians.





Broken line indicates theroute of the authors' 1978 survey trip. Specimen Lot Numbers are shown.

with Bouin's fluid. Locality: The same with No. 35.  
 December 26, 1974. Coll. Dr. S.-I. UENO. Fig. 4; Pl. V,  
 Figs. J and K.

Five sets of serial sections are retained in KA-  
 WAKATSU's laboratory.

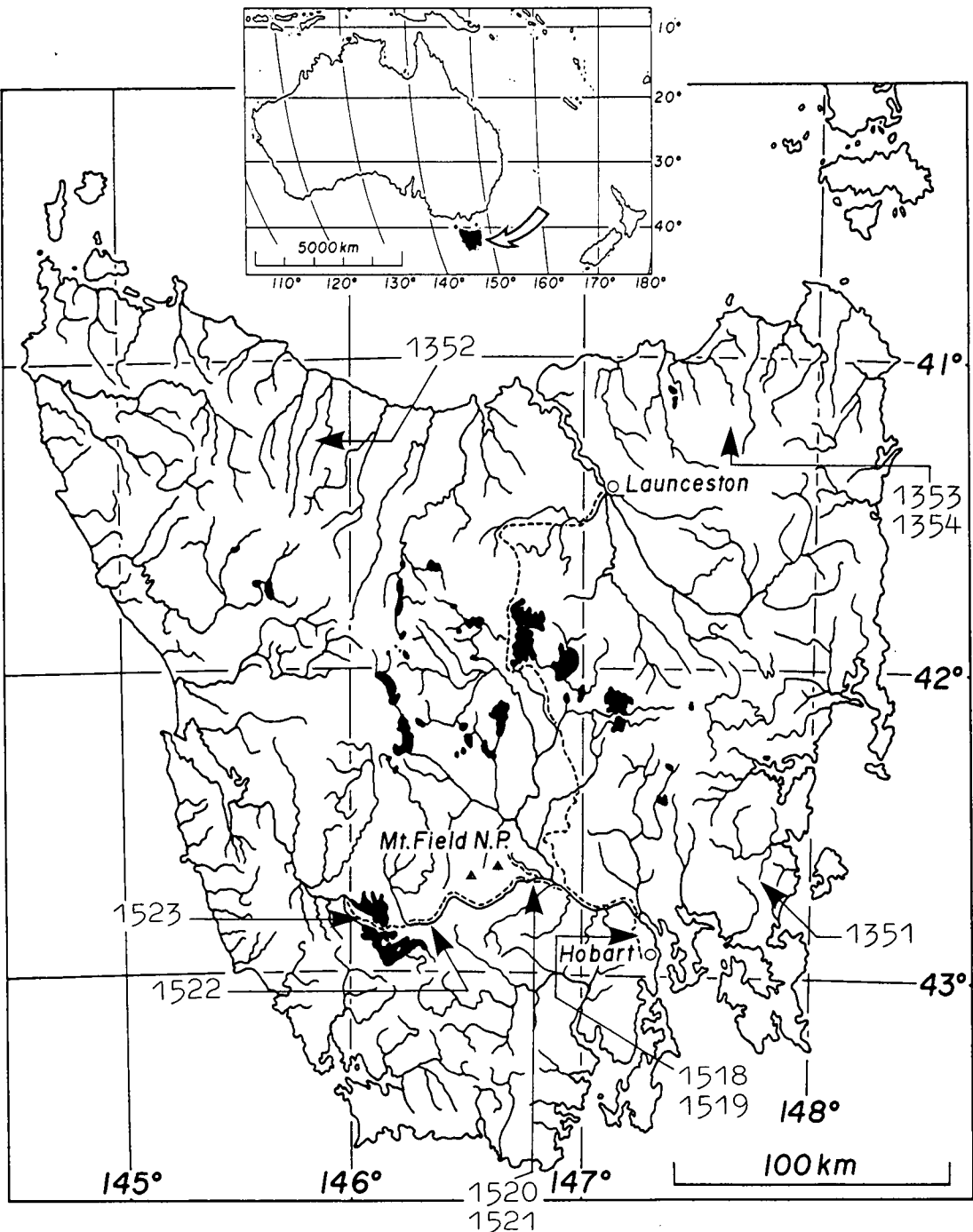


Fig. 4. Sketch map of Tasmania, Australia, showing collecting sites of planarians. Broken line indicates the route of the authors' 1978 survey trip. Specimen Lot Numbers are shown.

## 2) The Authors' 1978 Samples

No. 37. Specimen Lot No. 1518. DugesIIDae sp. of Hobart. Two sexual specimens; dark brown above (head triangular form with short auricles); 20–25 mm long and 2–2.5 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A stream at the foot of Mt. Wellington, Hobart, Southeastern Tasmania. August 17, 1978 (water temp., 3 °C, pH 5.0). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 4.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 38. Specimen Lot No. 1519. DugesIIDae sp. of Hobart. Twenty or more sexual and asexual specimens; dark brown above (head low triangular form, with short and bluntly pointed auricles); 12–15 mm long and 2–3 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: The same with No. 37. August 17, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 4; Pl. V, Figs. L and M, R.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 39. Specimen Lot No. 1520. DugesIIDae sp. of Mt. Field. A single asexual (?) specimen; brown above (with a head of low triangular form); 10 mm long and 1.5 mm wide (live specimen). The animal was fixed with Bouin's fluid. Locality: A stream at the middle of Mt. Field, Mt. Field National Park, Southeastern Tasmania. August 17, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 4; Pl. V, Fig. R.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 40. Specimen Lot No. 1521. DugesIIDae sp. of Mt. Field. A single asexual (?) specimen; brown above (with a head of low triangular form); 10 mm long and 1 mm wide (live specimen). The animal was fixed with Bouin's fluid. Locality: The same with No. 39. August 17, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 4; Pl. V, Figs. N and O, R.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 41. Specimen Lot No. 1522. DugesIIDae sp. of Mt. Field National Park. Ten sexual and asexual specimens; dark brown above (with a head of low triangular form); 15 mm long and 1.5 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: An outlet of the lake located at the end of a mountain road, the Mt. Field National Park, Southeastern Tasmania (alt. 900 m; 42° 40' S, 146° 40' E). August 17, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 4; Pl. V, Figs. P and Q.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 42. Specimen Lot No. 1523. DugesIIDae sp. of the Pass of Lake Cordon. Fifteen sexual and asexual specimens; pale brown above (with a head of triangular form); 15–20 mm long and 3 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A stream at the top of the Pass, near the Dam of Lake Cordon (near the end of a connecting road), Southwestern Tasmania. August 18, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 4; Pls. I (Bottom), VI, Fig. A.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

## V. NEW ZEALAND: North Island

### 1) Dr. IMAMURA & Dr. UENO's Samples

No. 43. Specimen Lot No. 1317. DugesIIDae sp. of Wellington. Two sexual and asexual specimens; dark brown above; 6–8 mm long and 3–3.5 mm wide. The animals were fixed with 70% ethanol. Locality: A narrow river, Wellington. January 1, 1975. Coll. Dr. T. IMAMURA. Fig. 5.

Two sets of serial sections are retained in KAWAKATSU's laboratory.

No. 44. Specimen Lot No. 1318. DugesIIDae sp. of Akatarawa Valley. A single asexual specimen; dark brown above; 6 mm long and 3 mm wide. The animal was fixed with 70% ethanol. Locality: A tributary of Bull stream, Akatarawa Valley, 20 km N of Upper Hutt, Hutt County, Wellington. January 14, 1975. Coll. Dr. T. IMAMURA. Fig. 5.

One set of serial sections is retained in KAWAKATSU's laboratory.

### 2) The Authors' 1978 Samples

No. 45. Specimen Lot No. 1501. DugesIIDae sp. of Waingaro Spring. Over 40 sexual and asexual specimens; dark brown above (with a head of low triangular form); 10–15 mm long and 2 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: Waingaro Spring, Waingaro, 20 km W of Hamilton. August 6, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pls. II (Top), VI, Figs. B and C.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 46. Specimen Lot No. 1502. DugesIIDae sp. of Atiamuri. Six asexual specimens; dark brown above

(head triangular form with conspicuous auricles); 6-10mm long and 1 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A narrow stream at Atiamuri, 25 km SW of Rotorua. August 9, 1978 (water temp., 9°C, pH 5.0). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA and Dr. M. HIRANO. Fig. 5.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 47. Specimen Lot No. 1503. DugesIIDae sp. of Barryville. Eight asexual (?) specimens; blackish brown above (with a head of low triangular form); 10-12 mm long and 1-2 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A stream at Barryville, 60 km SW of Rotorua. August 9, 1978 (water temp., 5°C, pH 5.0-5.6). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pl. VI, Figs. D and E.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 48. Specimen Lot No. 1504. DugesIIDae sp. of Benneydale. Nine asexual (?) specimens; dark brown above (head triangular form with conspicuous auricles); 12-15 mm long and 2-3 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A stream at Benneydale, 30 km SE of Te Kuiti. August 9, 1978 (water temp., 7.5°C, pH 5.0-5.4). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pl. VI, Fig. F.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 49. Specimen Lot No. 1505. DugesIIDae sp. of Mairoa. Ten asexual (?) specimens; blackish brown above (with a head of low triangular form); 8-12 mm long and 1-1.5 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A stream at Mairoa, 15 km SW of Te Kuiti, near Waitomo. August 10, 1978 (water temp., 10°C). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pl. VI, Figs. G and H, P and Q.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 50. Specimen Lot No. 1506. DugesIIDae sp. of Mairoa. Fifteen sexual and asexual specimens; dark brown above (with a head of low triangular form); 10-12 mm long and 2 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: The same with No. 49. August 10, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pl. VI, Figs. I and J, R.

Samples in 70% ethanol are retained in KAWAKATSU's

laboratory.

No. 51. Specimen Lot No. 1507. DugesIIDae sp. of Mairoa. Fifteen sexual and asexual specimens; blackish brown above, with numerous pigment spots (head triangular form with conspicuous auricles); 15-16 mm long and 1-1.5 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: The same with No. 49. August 10, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA and Dr. M. HIRANO. Fig. 5; Pl. VI, Fig. K.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 52. Specimen Lot No. 1508. DugesIIDae sp. of Waikaka Stream. Fifteen sexual and asexual specimens; dark brown above (head triangular form with conspicuous auricles); 15-20 mm long and 3 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A tributary of the Waikaka Stream (between Aria and Matiere), 25 km NW of Taumarunui. August 10, 1978 (water temp., 9°C, pH 5.0-5.6). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pl. VI, Figs. L and M.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 53. Specimen Lot No. 1509. DugesIIDae sp. of Waioura. Six sexual and asexual specimens; blackish brown above (head triangular form with short auricles); 15-20 mm long and 4 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A stream near Waioura, southwestern area of "Kaimanawa Mountains". August 11, 1978 (water temp., 8°C, pH 5.0-5.6). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pls. VI, Fig. S, VII, Figs. A and B.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 54. Specimen Lot No. 1510. DugesIIDae sp. of Waioura. Numerous sexual and asexual specimens; blackish brown above (body form slender; head sub-truncated form, with short and bluntly pointed auricles); 15-20 mm long and 1 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: The same with No. 53. August 11, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Figs. 5; Pl. VI, Figs. N and O.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 55. Specimen Lot No. 1511. DugesIIDae sp. of Waikanae. A single asexual specimen; blackish brown above (with a head of low triangular form); 10 mm long and 1 mm broad (live specimen). The animal was fixed with Bouin's fluid. Locality: A stream at a foot of the

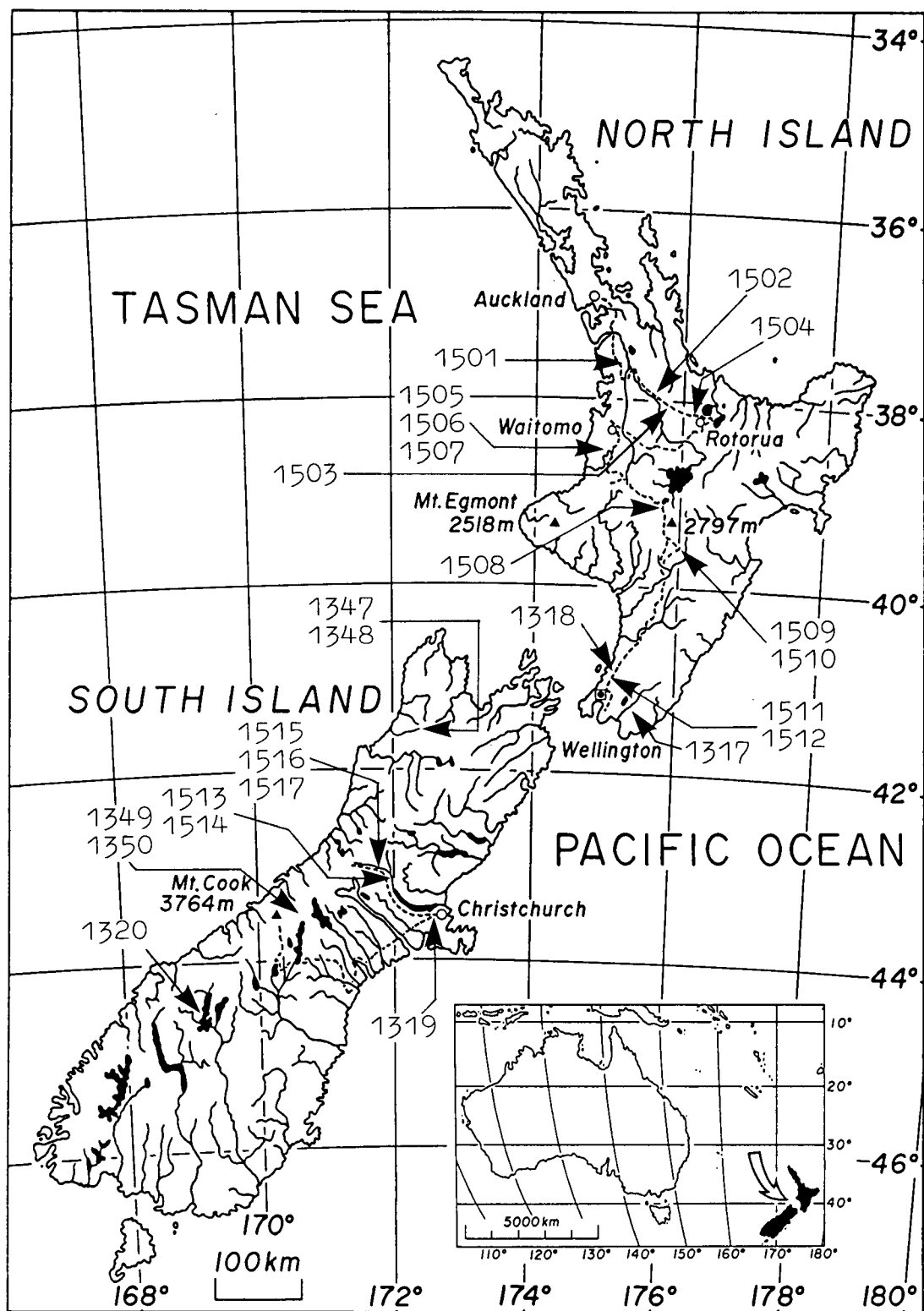


Fig. 5. Sketch map of New Zealand (South and North Islands), showing collecting sites of planarians. Broken line indicates the route of the authors' 1978 survey trip. Specimen Lot Numbers are shown.

Pass, 10 km SE of Waikanae. August 12, 1978 (water temp., 8°C, pH 5.0–5.6). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 56. Specimen Lot No. 1512. DugesIIDae sp. of Akatarawa. Ten sexual and asexual specimens; dark brown above, with numerous pigment spots (head triangular form with conspicuous auricles); 20–22 mm long and 4 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A stream at Akatarawa (Picnic area), 15 km NW of Upper Hutt. August 12, 1978 (water temp., 7.5°C, pH 5.0–6.0). Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pls. II (Middle), VIII, Figs. C and D.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

## VI. NEW ZEALAND: South Island

### 1) Dr. IMAMURA & Dr. UENO's Samples

No. 57. Specimen Lot No. 1319. DugesIIDae sp. of Avon River. Two sexual and asexual specimens; dark brown above; 5–8 mm long and 1.5–3 mm wide. The animals were fixed with 70% ethanol. Locality: The River Avon in Christchurch. January 19, 1975. Coll. Dr. T. IMAMURA. Fig. 5; Pl. VI, Fig. U.

Two sets of serial sections are retained in KAWAKATSU's laboratory.

No. 58. Specimen Lot No. 1320. DugesIIDae sp. of Lake Wanaka. A single sexual specimen; dark brown above; 10 mm long and 6.5 mm wide. The animal was fixed with 70% ethanol. Locality: A brook running into Lake Wanaka, Otago. January 25, 1975. Coll. Dr. T. IMAMURA. Fig. 5; Pl. VII, Figs. E and F.

One set of serial sections are retained in KAWAKATSU's laboratory.

No. 59. Specimen Lot No. 1347. DugesIIDae sp. of Twin Forks Cave. Two asexual (?) specimens; slightly pigmented above (without eyes); 2 mm long and 0.5 mm wide. The animals were fixed with Bouin's fluid. Locality: Twin Forks Cave, NW of Nelson. January 15, 1975. Coll. Dr. S.-I. UENO.

One set of serial sections and another preserved specimen in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 60. Specimen Lot No. 1348. DugesIIDae sp. of Wylies Cave. Two sexual and asexual specimens; dark brown above; 25 mm long and 6 mm wide (the small one, 5 mm long and 1 mm wide, was broken). The animals

were fixed with Bouin's fluid. Locality: Wylies Cave, NW of Nelson. January 24, 1975. Coll. Dr. S.-I. UENO. Fig. 5; Pl. VII, Fig. G.

Two sets of serial sections are retained in KAWAKATSU's laboratory.

No. 61. Specimen Lot No. 1349. DugesIIDae sp. of Blue Stream. Eight asexual (?) specimens; brown above; 4–5 mm long 0.5–1 mm wide. The animals were fixed with Bouin's fluid. Locality: Blue Stream, Tasman Glacier Terminal of Mt. Cook. January 24, 1975. Coll. Dr. S.-I. UENO. Fig. 5.

Three sets of serial sections and preserved specimens in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 62. Specimen Lot No. 1350. DugesIIDae sp. of Tasman River. Two asexual specimens; brown above; 2 mm long and 1 mm wide. The animals were fixed with Bouin's fluid. Locality: Tasman River, Mt. Cook. January 24, 1975. Coll. Dr. S.-I. UENO. Fig. 5.

One set of serial sections and another preserved specimen in 70% ethanol are retained in KAWAKATSU's laboratory.

### 2) The Authors' 1978 Samples

No. 63. Specimen Lot No. 1513. DugesIIDae sp. of Kowai River. Fifteen sexual and asexual specimens; grayish to blackish brown above (head low triangular form with very short auricles); 25 mm long and 2–4 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A tributary of the Kowai River, Porters Pass, 80 km W of Christchurch. August 14, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pls. II (Bottom), VII, Fig. H.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 64. Specimen Lot No. 1514. DugesIIDae sp. of Kowai River. Three asexual (?) specimens; blackish brown above (body form slender; head subtruncated form); 5–8 mm long and 0.8 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: The same with No. 63. August 14, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pls. II (Bottom), VI, Figs. T, V, VII, Fig. L.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 65. Specimen Lot No. 1515. DugesIIDae sp. of Lake Lyndon. Numerous sexual and asexual specimens; blackish brown above (head triangular form, with conspicuous auricles); 20–30 mm long and 4–5 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A stream near Lake Lyndon, 85 km of Christ-

church. August 14, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pls. VI, Fig. W, VII, Figs. J-L.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 66. Specimen Lot No. 1516. Dugesiidae sp. of Lake Lyndon. Ten asexual (?) specimens; blackish brown above (body form slender; head low triangular form); 10~12 mm long and 1 mm wide. The animals were fixed with Bouin's fluid. Locality: The same as No. 65. August 14, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pl. VII, Fig. N.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 67. Specimen Lot No. 1517. Dugesiidae sp. of Broken River. Numerous sexual and asexual specimens; blackish brown above (head triangular form, with conspicuous auricles); 20~25 mm long and 3~4 mm wide (live specimens). The animals were fixed with Bouin's fluid. Locality: A tributary of the Broken River (near limestone caves), 95 km W of Christchurch. August 14, 1978.

Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 5; Pl. VII, Figs. M, O and P.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

## VII. LAND PLANARIAN FROM TOWNSVILLE AND GREEN ISLAND

No. 1. Specimen Lot No. 1526. Geoplanidae sp. of Townsville. A single sexual specimen; dark blue above, with a yellowish, middorsal, longitudinal stripe;

50~60 mm long and 4 mm wide. The animal was fixed with Bouin's fluid. Locality: Queen's Park, Townsville, Queensland, Australia. July 26, 1978. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, Dr. M. HIRANO, and Mr. L. WINSOR. Fig. 1.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

No. 2. Specimen Lot No. 1527. Geoplanidae sp. of Green Island. Several sexual specimens; external features are the same with those of the species from Townsville (No. 1); 50~60 mm or more long and 4~5 mm wide. The animals were fixed with Bouin's fluid. Locality: A forest of Green Island (Great Barrier Reef), Queensland, Australia. August 8, 1987. Coll. KAWAKATSU, MURAYAMA, ÔGAWARA, and Dr. M. HIRANO. Fig. 1.

Samples in 70% ethanol are retained in KAWAKATSU's laboratory.

## VIII. MARINE PLANARIAN FROM NEW SOUTH WALES

No. 1. Specimen Lot No. 1261. *Bdellasilis barwicki* RICHARDSON, 1968. Two preserved specimens from the type locality (host: turtles from a lake near Griffith, New South Wales) were received from Dr. L. R. RICHARDSON (May, 1974). The animals were collected on December 28, 1968. Cf. RICHARDSON, 1968. A new bdellorid-like triclad turbellarian ectoconsortic on Murray River cheilonia. Proc. Linn. Soc. New S. Wales, 93 (1): 90~97. Fig. 3.

Two sets of serial sections are retained in KAWAKATSU's laboratory.

## ACKNOWLEDGEMENTS

The authors are indebted to the collectors of animals mentioned in the text. Especially, they are indebted to Mr. Leigh WINSOR for his assistance in obtaining many samples of planarians from Queensland. They are also grateful to Dr. Robert E. OGREN (Pennsylvania) for his reading an early draft of this paper.

## EXPLANATION OF PLATES I-XI

### Plate I

Top: The Ross River, near Townsville, Queensland, Australia (the locality of animals of Specimen Lot No. 1498). Dugesiidae sp. of Ross River occurred.

Middle: The Log Creek, near Townsville, Queensland, Australia (the locality of animals of Specimen Lot

Nos. 1499 and 1500). Dugesiidae sp. of Log Creek occurred.

Bottom: A stream near the top of the Pass, near the Dam of Lake Cordon, Southwestern Tasmania, Australia (the locality of animals of Specimen Lot No. 1523).

Plate II

Top: A stream from Waingaro Spring, Waingaro, near Hamilton, North Island, New Zealand (the locality of animals of Specimen Lot No. 1501).

Middle: A stream at Akatarawa, North Island, New Zealand (the locality of animals of Specimen Lot No. 1512).

Bottom: A tributary of the Kowai River, Porters Pass, South Island, New Zealand (right, enlarged photograph; the locality of animals of Specimen Lot Nos. 1513 and 1514).

Plate III

DugesIIDae spp. from Queensland (A-R, preserved specimens), Australia.

A-E: Lot No. 1301 (C and E: ventral views of B and D, respectively). F: Lot No. 1331. G-I: Lot No. 1332 (I: ventral view of H). J and K: Lot No. 1333. L: Lot No. 1377. M: Lot No. 1378. N: Lot No. 1382. Q-R: Lot No. 1383 (P and R: ventral views of O and Q, respectively).

Plate IV

DugesIIDae spp. from Queensland (A-V) and New South Wales (W and X), Australia (preserved specimens).

A-E: Lot No. 1384 (C and E: ventral views of B and D, respectively). H-K: Lot No. 1432. I and K: ventral views of H and J, respectively). L-P: Lot No. 1434 (M and O: ventral views of L and N, respectively). Q: R1-12; R: R1-33; S: R3-1; T: R4-1; U and V: R4-4 (V: ventral view of U). W and X: Lot No. 1321.

Plate V

DugesIIDae spp. from New South Wales (A-D) and Tasmania (E-R), Australia (A-Q, preserved specimens; R, live specimen).

A and B: Lot No. 1322. C and D: Lot No. 1524 (D: ventral view of C). E-H: Lot No. 1352 (F: ventral view of E). I: Lot No. 1353. J and K: Lot No. 1354. L and M: Lot No. 1519 (M: ventral view of L). N and O: Lot No. 1521 (O: ventral view of N). P and Q: Lot No. 1522 (Q: ventral view of P). R: Lot Nos. 1519-1521.

Plate VI

DugesIIDae spp. from Tasmania (A), Australia and North Island (B-T) and South Island (U-W), New Zealand (A-O and U, preserved specimens; P-T, V and W, live specimens).

A: Lot No. 1523. B and C: Lot No. 1501 (C: ventral view of B). D and E: Lot No. 1503 (E: ventral view of D). F: Lot No. 1504. G and H: Lot No. 1505 (H: ventral view of G). I and J: Lot No. 1506 (J: ventral view of I). K: Lot No. 1507. L and M: Lot No. 1508 (M: ventral view of L). N and O: Lot No. 1510 (O: ventral view of N). P and Q: Lot No. 1505. R: Lot No. 1506. S: Lot No. 1510. T: Lot No. 1514. U: Lot No. 1319. V: Lot No. 1514. W: Lot No. 1515.

Plate VII

DugesIIDae spp. from North Island (A-D) and South Island (E-F), New Zealand (A-M, preserved specimens; N-P, live specimens).

A and B: Lot No. 1509 (B: ventral view of A). C and D: Lot No. 1512 (D: ventral view of C). E and F: Lot No. 1320 (F: ventral view of E). G: Lot No. 1348. H: Lot No. 1513. I: Lot No. 1514. J-L: Lot No. 1515 (L: ventral view of K). M: Lot No. 1517. N: Lot No. 1516. O and P: Lot No. 1517 (P: ventral view of O).

Plate VIII

Semidiagrammatic sagittal view of the copulatory apparatus of DugesIIDae sp. from the vicinity of Townsville, Queensland, Australia.

DugesIIDae sp. of Ross River (WINSOR's Lot No. Ge 732).

Abbreviations: See Part II.

Plate IX

Photomicrographs of parts of genital organs of DugesIIDae sp. of Ross River. Sagittal sections.

A: Pharynx (transverse view). B and C: Anterior parts of the body (prepharyngeal region). D-F: Copulatory apparatus.

Abbreviations: See part II.



Semidiagrammatic sagittal view of the copulatory apparatus of Dugesidae sp. from the vicinity of Townsville, Queensland, Australia.

Dugesidae sp. of Log Creek (WINSOR's Lot No. Ge 731).

Abbreviations : See Part II.

Photomicrographs of parts of genital organs of Dugesidae sp. of Log Creek. Sagittal sections.

A and B : Anterior parts of the body (prepharyngeal region). C-E : Copulatory apparatus.

Abbreviations : See Part II.

*Note. Plates I-XI are published as Part II of this series.*

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