https://doi.org/10.26749/rstpp.103.35

DESCRIPTION OF *Brachaluteres wolfei, sp. nov.* (ALUTERIDAE) AND FIRST TASMANIAN RECORD OF *Urolophus paucimaculatus* DIXON, 1969 (UROLOPHIDAE)

By

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(With two text figures)

ABSTRACT

A pigmy leatherjacket, *Brachaluteres wolfei, sp. nov.* (Aluteridae) is described and figured from the holotype and a paratype, dredged off the east coast of Tasmania in Schouten Passage in 10 fathoms, and an account and a figure are given of the first recorded Tasmanian example of the stingaree *Urolophus paucimaculatus* Dixon, 1969 (Urolophidae), trawled in Bass Strait off the Hogan Group in 60-61 fathoms.

Family UROLOPHIDAE

Genus **UROLOPHUS** Müller & Henle, 1837

Urolophus paucimaculatus Dixon, 1939

(Fig. 1)

Urolophus paucimaculatus Dixon, 1969, *Vict. Nat.*, 86, 1: 11-18, pl. I-III. Type locality: Bass Strait, approximately 13 miles off Cape Patton, Victoria; 40 fathoms.

Urolophus—'an undescribed white-spotted long-tailed species', Harrison & Scott, 1969, *Tasm. Fish. Res.*, 3, 1: 7-11 (pp. 9, 10, 11 dated, in error, January 1960): Bass Strait, off the Hogan Group; 60-61 fathoms [present specimen].

First Tasmanian record.—The first record from Tasmanian waters of this recently recognised stingaree is afforded by a male example, total length 297 mm, disc width 191 mm, trawled in Bass Strait, off the Hogan Group, on 19 January 1968 by the Japanese research vessel *Umitaka Maru*, the specimen being part of the collection made on board by Mr A. J. Harrison, Marine Biologist, Fisheries Division, Department of Agriculture, who was seconded by the Tasmanian Government to the ship for the Tasmanian section of its cruise. Three trawls (UMOT 6803-6805) were made on this day (material pooled) between latitudes 39° 06.4′ S. and 39° 10.3′ S., and between longitudes 147° 14.2′ E. and 147° 21.0′ E., at depths of 60-61 fathoms.

Description.—Disc wholly smooth; decidedly broader than long, its maximum width 1.30 its greatest length (to hindmost point on pectoral), or 1.16 length to hindmost point on pelvics, or 0.643 of total length of fish; produced into small but well defined subtriangular rostrum, with base about thrice its length, base subequal to longitudinal diameter of eye; anterior margin rather gently sinuous, exhibiting, on each side, four slight convexities, the point of inflection of the first laterad of median axis of fish by a distance subequal to length of spiracle, that of the second about twice as far laterad, that of the third, which is on horizontal level of a point about midway between front of eye and anterior wall of cranium, laterad of axis by about four times length of spiracle, or by half length of tail (appendage), that of the fourth at angle of disc; hinder lateral margin well rounded, thinned out to a narrow translucent slip that tends to have one crenulation at the tip of each ray, this small lobe entire, or, especially in anterior half of this region, with 1-5 microscopic lappets; posterior corner rather pointed; inner margin virtually straight in earlier three-fourths, gently concave at attachment of fin, its length subequal to width of base of tail.

Tail wholly smooth (except for caudal spine); without dorsal fin; length, from centre of cloaca, 1.37 distance of centre of cloaca from front of mouth, subequal to (1.01 times) distance from snout-tip to middle of cloaca; the free appendage originating, on lower surface, behind vent by a trifle less than twice length of vent, 1.8 times as wide as deep at its base, width here half interval between 3rd gill-slits, dorsal surface moderately, ventral surface barely, convex. Caudal spine stout, straight; depressible for almost its entire length into a shallow groove; dorsal surface convex, ventral flat with median ridge; origin at 0.488 of tail from middle of cloaca; total length subequal to interval between 3rd gill-slits, almost twice its free length (facing tail); at present carries 30 (right), 33 (left) well developed backwardly directed recurved lateral teeth (since specimen was measured terminal 1.5 mm has been lost; this could carry one or two more teeth). Caudal well developed, lanceolate, somewhat bluntly rounded; height about one-third its superior length, or equal to length of spiracle; lower lobe with 44, upper with 38, rays; length to origin, located about below insertion of spine, at 0.565 of tail-length; lobe extending back as a mere ridge about to level of origin of upper lobe, which is at 0.707 of tail-length, barely in advance of tip of adpressed spine. Two well developed lateral dermal ridges, beginning about as far behind origin of free tail as latter is behind vent; extending to level of origin of inferior caudal lobe, their total extension subequal to distance of their termination from tip of caudal fin.

Lengths to orbit, to anterior margin of soft eye 0.42, 0.44 in width of disc; longitudinal diameter, transverse diameter of orbit 3.3, 4.3 in length to orbit; longitudinal diameter of eye 4.1 in length to eye, or 1.4 in hard interorbital, or 2.1 in distance between free margins of eyelids. Spiracle originating just in advance of first one-third of orbit, extending behind orbit by about two-fifths of longitudinal extension of latter; curving round half

or more of posterior border of orbit, its total transverse extent about half its length; length of virtually linear, forwardly and inwardly sloping inner margin behind orbit about half longitudinal diameter of eye; minimum, maximum interspiracular distance 1.4, 1.8 length of spiracle; opening can be completely closed by a membranous flap developed along inner margin.

Internasal valve (fig. 1*b*) with lateral borders markedly sinuous, the main convexity the anterior, occurring at about the anterior one-third, constituting a rather well defined lobe with external surface somewhat elevated marginally, internal (hidden) surface convex; posterior border with a median notch, on either side of which it is mainly gently convex (barely concave laterally), bearing about 50 small lobes, simple or exhibiting up to 4 lobules; border produced at either end as a well pointed triangular flap, longer than broad, extending laterally beyond angle of mouth and overlapping nasoral groove, this flap extending dorsad along its outer border to constitute inner wall of nasoral groove. Outer border of nostril and the very short region between its posterior termination and level of mouth echoing outer border of internasal valve, so that, when both are pressed flat, nostril is completely closed; the pennon at posterolateral angle of valve overlapping both nasoral groove itself and its outer wall arising briefly behind, and continuous with, outer nostril rim, and thence running forward, as a high curved ridge, for more than half length of nostril, to whose internal wall it thus contributes the hinder part. A superficial, transversely set *V* in the hinder part of lateral border of internasal valve, at anterior origin of posterolateral pennon, is matched in the outer narial wall by a blunt, broadly subtriangular lobe, somewhat elevated distally to project as a low process; on left side process simple, on right exhibiting a major lobule, followed behind by a second about half as large. In advance of, and dorsad of, this lobe, a curtain arising from outer nostril wall, and extending across general narial aperture, inside it, capable of closing over that part of nostril reaching forward beyond nasoral groove. A groove external to nostril, and with it delimiting a region developing behind, at about level of middle of anterior border of the somewhat elevated subtriangular nasal lobe, as a slender stalk, and expanding anteriorly to become bluntly ovate, the anterior point of the obscure platform thus constituted extending a little cephalad of narial aperture. Length to front of internasal valve more than twice minimum (anterior) width of valve, subequal to direct distance from angle of mouth to 2nd gill-slit; length to back of valve 2.8 its anteroposterior extension.

Mouth slightly arched, its width a little less than greatest width of internasal valve; length to anterior margin 4.71 in disc width, 2.1 mouth width, the latter half width between 2nd gill-slits. About a dozen small blunt closely set papillae along external surface of median three-fifths of lower jaw, of which only the inner half dozen are well differentiated by separation throughout much of their length; between these papillae and the teeth a line of less massive papillae, of which 4 central ones bear a terminal shining, translucent, subconical projection. Teeth closely set, in about 24 diagonal rows in upper jaw, in about 28 diagonal rows in lower jaw; quadrangular, each with an erect, rather blunt subconical cusp, a little higher than broad. Immediately behind teeth in upper jaw a low velum with virtually even free border; behind this a longer frenum, all, or almost all, whose free margin is formed by about 20 long subtriangular lappets. Behind teeth in lower jaw a very low, rudimentary curtain, significantly developed in less than middle half of jaw; behind this 5 erect mesial buccal papillae, 3 clustered together, subcontinuous, their blunt tips with a few very low tubules, 1 at each side, large, with 2 well developed bluntly lanceolate terminal lobes extending laterally, the angle between their main axes about 150° (fig. 1*c*).

Gill-openings small to moderate; 1st behind snout-tip by 0.33, 5th by 0.44, of disc width; distances between inner margins of 1st, of 5th, pair 0.65, 0.32 of their respective lengths from snout-tip, the first interval subequal to direct distance from 1st gill-slit to angle of mouth on opposite side. Claspers about two and one-third times as long as broad; length (a little greater on right than on left) about equal to direct distance from inner base to front of cloaca; distance between bases subequal to distance between one base and hind border of cloaca.

Irregularly scattered minute pores, typically with low, minutely lobulated rim, behind mouth, and covering more than two-thirds of area between the gill-slits back to about level of 4th slit, modal distance between pores in anterior, more crowded part of this area about 1½ mm, in less crowded posterior part about 2 mm; extending laterally between mouth and 1st slit almost to margin of disc, average distance between pores near middle of this region about 5 mm. Fewer than a dozen rimmed pores observed on lower surface of disc outside areas noted above; none on lower surface of tail. On upper surface of disc, on each side of median line, a longitudinal series of 8 pores, converging somewhat posteriorly, anterior pore of each series about as far from posterior pore of same series as from the other anterior pore, this distance two-thirds of distance of an anterior pore from its spiracle. Lateral line, ear openings not observed.

General colour of upper surface of disc (formalin specimen) rich darkish brown, almost uniform; very narrow edging, round entire margin, of opaque whitish (anterolateral and short posterior borders) or translucent whitish (posterolateral border). Upper surface with white markings as follows. (*i*) A linear series of 4 sharply delimited spots, about equally spaced, on each side of head and body along pectoral base; the two not identical, that on the left comprising (*a*) obliquely oval spot, major axis 5 mm, wholly bordered faintly with dark brown, just behind, and externad of, hind end of spiracle, in direct distance about an orbit-length from orbit; (*b*) behind, somewhat internad of, last, rounded subrectangular, annulated, somewhat incompletely, with very dark brown; (*c*) directly behind last, largest spot, rectangular, conspicuously surrounded with very dark brown; (*d*) behind, somewhat externad of, last, subcircular, vaguely ringed with darker: of the series on the right

TABLE 1

Urolophus paucimaculatus Dixon 1969. Dimensions, expressed in thousandths of total length (*Tlt*), 297 mm of a Tasmanian male, trawled in Bass Strait, off the Hogan Group, 19 January 1968

Feature	*Tlt*
Pectoral:	
Maximum width (disc)	643
Length to inner margin	495
Length to hind border	552
Pelvic:	
Length to anterior insertion	471
Length to fold at junction with clasper	552
Length to hind border	599
Width of base; between parallels, oblique	81, 104
Interval between bases	148
Clasper:	
Length to tip	623
Inner length	71
Outer length	44
Cloaca:	
Length to anterior, to posterior border	485, 508
Tail:	
Total length (from middle of cloaca)	503
Free length (dorsal aspect)	448
Width at free base	61
Depth at free base	34
Length to origin of lateral dermal fold	576
Length to termination of lateral dermal fold	781
Length to origin of spine	754
Total length, free length, of spine	119, 65
Length to origin of caudal fin; inferior, superior	781, 852
Maximum depth of fin	49
Gill-slits:	
Lengths to slits I-V	209, 232, 253, 269, 283
Intervals between members of pairs I-V	135, 128, 114, 98, 90
Orbit:	
Length to anterior border	145
Length	44
Interorbital (between tops of ridges)	51
Eye:	
Length to anterior border	152
Length	37
Interocular; internal border, external border of eyelids	61, 77
Spiracle:	
Length to anterior border	162
Length	49
Interspiracular distance; maximum, minimum	120, 90
Mouth:	
Length to anterior border	136
Width	64
Nasal opening:	
Length to anterior border	99
Length	24
Internasal valve:	
Width; maximum (posterior), minimum (anterior)	73, 47
Length	35

(*b*), (*c*), (*d*) agree in location, size, character of dark rims with (*a*), (*b*), (*c*) on left side, while the unmatched (*a*) is a rather smaller subcircular white spot without obvious dark border, at level of front of orbit, collinear with (*b*), (*c*), (*d*). (*ii*) Irregular whitish patches, not sharply defined, include a region immediately behind right eye, subequal in area on right to whole eye, but less extensive, and less clearly defined, behind left eye; some small areas inside, and in advance of, anterior one-third of each eye; an indistinct splash a little to the right of the median line, near the level of the last regular white spot of the right series. General colour of lower surface of disc whitish, with some indistinct purplish suffusion; a conspicuous brownish border, scarcely in evidence in front of level of nostrils; starting from virtual zero at this point, quickly reaching its maximum width (on left, subequal to length from snout-tip to level of nostril; on right, a trifle less), thence decreasing in width to about middle of posteroexternal border of fin (being here about two-thirds of maximum width, or about half length to mouth); behind this continuing without marked change in width to end of pectoral, where it becomes just continuous with dark colour of upper surface of pelvic. Ventral surface of pelvics white, with dark brown border, somewhat more slatey than that of pectoral, occupying roughly the area external to a straight line drawn from anterior origin of fin to junction with clasper. Claspers dark brown on their narrow dorsal exposure, clear white below, whitish on internal surface facing tail.

Dimensions.—Greatest width of disc 191 mm; disc length (to level of end of pectorals) 164 mm; length from tip of rostrum to middle of cloaca 147.5 mm; total length 197 mm. Other dimensions, expressed as thousandths of total length, are set out in table 1.

Note added in press.—In this contribution as presented to the Royal Society of Tasmania on 30 September 1968 the present specimen was described as the holotype of a new species, named after the collector. The fact that publication of a subsequently submitted paper, based on Victorian material of this form (Dixon, 1969), is expected prior to the appearance of this paper has rendered necessary the cancellation of the specimen's status as a type, with reduction of its treatment here to that of a report on the first Tasmanian example of the newly recognised form—this rehandling involving, in addition to the making of contingent formal modifications, the omission of a fairly extensive discussion of species affinities in *Urolophus*.

To obviate possible later nomenclature confusion, it is necessary to make, at date of proof reading (March 1969) an addition to the preceding paragraph (incorporated in original manuscript, as rehandled in January 1969). The present specimen is recorded as '*Urolophus*—an undescribed white-spotted long-tailed species' in a systematic list of fishes collected in Tasmanian waters by the *Umitaka Maru* in January 1968, by ed. J. Harrison & E. O. G. Scott, published in January 1969 in *Tasmanian Fisheries Research*, Vol. 3, No. 1 (publication delayed; originally envisaged for September 1968, subsequently for December 1968): the statement at the end of the list (p. 11) that 'a description' of the ray as a new species 'has been submitted elsewhere for publication' refers to the present paper in its original form. It unfortunately proved impracticable to make in the paper on the *Umitaka Maru* material an emendation recognizing the appearance of the description of Victorian material as *Urolophus paucimaculatus* Dixon, 1969 in the same month. In *Tasmanian Fisheries Research*, 3, 1 the date of publication appears incorrectly on pp. 9, 10, 11 as January 1960; being correctly given elsewhere as January 1969.

Family ALUTERIDAE

Genus **BRACHALUTERES** Bleeker, 1866

Brachaluteres wolfei, sp. nov.

(Fig. 2)

Description.—Compressed, high, short, ovoid; greatest depth 1.20, 1.38 (holotype, paratype; cited similarly throughout) in standard length (*Ls*), at about level of dorsal spine; depth at origin of soft dorsal 1.25, 1.49 in *Ls*. Abdomen distensible, hanging loosely in the form of a dewlap, into which the intestines descend; no thin membranous edge, at vent as thick as, or thicker than, back. Dorsal profile slightly convex for one-third snout; slightly concave to front of orbit; evenly convex to dorsal spine; first one-third of interorbital almost flat, second third very gently sigmoid, last third rising sharply, convexly to origin of soft dorsal; below the dorsal highly arched, descending abruptly at end of end of base, which thus comes to constitute a convex elevated strip; changing direction markedly at beginning of peduncle, and proceeding caudad with a very slight, or moderate (paratype), concavity, then rising slightly and briefly just before caudal base. Ventral profile to level of lowest point an overall convexity, resolvable into two and a half minor sigmoid curves; convex to origin of anal; thence, with sudden change of direction, convex to anal termination, with fin base extending below general body profile, whose general course it follows, as a compressed ridge; on caudal peduncle, with abrupt change of direction, ascending gently, or more steeply (paratype), in both specimens a little sigmoid. Head from most anterior point, chin (full head) 1.25, 1.49, head from tip of upper jaw (strict head) 1.33, 1.54, in *Ls*. Eye 6.8, 4.6 in full head; 2.04, 1.58 in snout including lower jaw, 1.51, 1.12 in snout from tip of upper jaw. Orbital rim somewhat elevated.

Dorsal spine (fig. 2*c*) originating just behind eye; depressed, extending about 0.6, 0.5 of distance towards second dorsal; direct distance (dividers) from tip of snout to front of spine base 1.61, 1.60 distance from last-mentioned point to first dorsal ray, or 1.26, 1.10 full head; distance from dorsal spine to nearest point on orbit 1.45, 1.14 eye, or 1.78, 1.43 distance from middle of orbit to dorsal profile vertically above it; much longer in holotype, length 1.94, 3.07 in full head; stout; markedly, barely (paratype) sigmoid; anterior surface convex, posterior concave; sharply acuminate distally, the tip in holotype (possibly also originally in paratype) protected by rounded fleshy mass; anterior surface beset, very closely in holotype, with conical flesh-covered projections not in regular rows, about 6-9, about 4-5, side by side extending right to, stopping short of, base of spine, in holotype becoming more slender, more acute near tip; posterior surface smooth. Dorsal membrane attached to spine almost to tip and along back for a distance subequal to length of spine. Spine depressible into a groove; no sign of a locking spine. Interdorsal 5.40, 3.52 in head.

Soft dorsal with 27, 27 rays; rising rapidly to 11th and 12th rays, then decreasing steadily, more sharply in last few rays; lengths of 1st, 5th, 10th 11th (and 12th), 15th, 20th, 27th rays of holotype 3.1, 1.5, 1.3, 1.27, 1.4, 1.5, 2.5, 2.6 in strict snout; length to origin 1.71, 1.60 in *Ls*, subequal to height at anal origin; base, between parallels, 3.21, 3.60, or, directly with dividers, 2.59, 2.68, in *Ls*, the measurement with dividers subequal to caudal fin plus caudal peduncle, to caudal fin (paratype).

Anal with 25, 25 rays; originating behind dorsal; general form as in dorsal, with greatest height at 11th and 12th rays; lengths of 1st, 5th, 10th, 11th (and 12th), 15th, 20th, 25th rays 2.1, 1.5, 1.5, 1.4, 1.5, 1.8, 1.9 in strict snout; length to origin 1.38, 1.51 in *Ls*; terminating slightly behind dorsal; base between parallels, 4.88, 4.02, or, directly with dividers, 4.00, 3.21, in *Ls*, the measurement with dividers subequal to combined eye and strict snout.

Pectoral with 10 (left), 10 (right), 10 (left), 11 (right) rays; moderate; its length 0.9, 0.9 strict snout, slightly exceeding minimum depth of caudal peduncle; its longest (4th, 4th) ray 1.2, 1.1 eye; originating just in advance of, just behind, posterior orbital border. Caudal 12, 12, rays in two closely opposed fans of 6 each; rounded; base 0.9, 0.9 depth of end of caudal peduncle; length 1.05, 0.95 head.

Gill-opening above pectoral base; its posterior border, its whole extent (paratype) immediately behind level of eye; visible opening an oblique oval with length a trifle less than half an eye-diameter, but the addition of a superior slit, covered by a membranous flap, makes total length 0.7, 0.8 an eye-diameter; direct distance from orbit just less than full length of opening, from origin of soft dorsal 2.41, 2.81 in *Ls*, from origin of anal 2.12, 2.30 in *Ls*. No pelvic spine; pelvic bone small, reaching three-fifths of the distance from its lower end to lower lip. Lateral line not evident. Depth of caudal peduncle, just before caudal base, 2.1, 1.6 its own length, slightly exceeding interorbital.

The whole general surface of the fish is almost velvety, very slightly prickly: the feel is about the same whether the finger is drawn forward or backward. Scales (fig. 2*b*) small, oval, closely set: each with about a score, or fewer, well developed ridges radiating from a point near, often somewhat behind, its centre; arising from point of radiation of ridges an erect flexible bristle, straight or very slightly curved, slender, of constant diameter through nine-tenths, or more, of its length, expanding moderately and briefly at its attachment and rounding off distally to a blunt, or somewhat pungent, tip; bristles continuously, and fairly evenly, disposed over head, trunk, tail (smaller, more crowded on both surfaces of pectoral base), intervals between them anteriorly subequal to, posteriorly rather less than, their height; longest on trunk (where in holotype they reach a length of 0.6 mm), a little shorter elsewhere; bristles on head, in what is perhaps the normal, undamaged condition, sheathed in clear membrane, which on one face (commonly the posterior) bulges, in distal one-third or so, as an ovoid swelling in which are enclosed 1, 2, 3, or a small group of rounded melanophores; elsewhere many bristles on which fleshy bulge has collapsed (or is missing?) still exhibit 1 or 2 conspicuous black dots. In holotype, and less clearly in paratype, scales disposed in about a score of forwardly concave rows between level of dorsal spine and caudal base, the anterior 4-5 not traceable below

level of lower border of orbit, the remainder extending continuously between dorsal and ventral profiles; approximately 80 scales between soft dorsal base and vent.

Dental formula $\frac{3+3}{2+2}$. In upper jaw (fig. 2*d*) the four inner teeth, viewed frontally, present the outer surfaces, convex both vertically and transversely, of four blunt hyaline half-cones (internal oral surface flattish or concave); each half-cone surmounted by a subtriangular horn-coloured plate, the plates of the two inner teeth having vertical internal borders, these being closely opposed to each other, so that the two inner half-cones come to be surmounted by a single composite subtriangular plate, giving a net set of three horn-coloured cusps; these three cusps soldered to the four hyaline half-cone summits by hyaline material, almost flat externally; half-cones themselves soldered together, by flattish hyaline sheets, from their bases upwards, the matrix expanding distally to fill all the space between the horn-coloured cusps, its free outer border somewhat thickened, the cutting edge between each outer tooth and its neighbour thus coming to constitute a deep concavity, the middle of which is hyaline, the sides horn-coloured. Lying at the angle of the gape laterad of, and well separate from, each external tooth of the set of four noted above is a low long tooth, subrectangular, with its distal angles rounded; its cutting edge subvertical, virtually rectilinear throughout most of its length; its base subequal to combined bases of the two teeth nearest it; its height about half height of adjacent tooth; set in hyaline matrix continuous above with adjacent tooth, and extending below well beyond this most lateral tooth itself. Teeth in lower jaw (fig. 2*e*) presenting three net cusps, as in upper jaw, but teeth here wholly hyaline, lacking terminal horn-coloured plate; central cusp highest; each tooth with its sides strongly sinuous (except closely applied inner borders of the two inner teeth), narrower basally; inner tooth overlapping outer, the latter also largely overlapped at its external border by third tooth of upper jaw.

The following account of coloration is based on the holotype; no noteworthy variations are exhibited by the paratype, though in it the ground colours are rather less clearly differentiated, or paler, and some of the more obscure markings of the holotype are either even less clearly traceable or unrecognisable. No well defined discrete markings in the form of spots, bars, or stripes, other than a darkish circumoral band that continues as a tolerably well marked saddle over the snout; the more obscure markings (as preserved in alcohol; probably with some fading), in the form of indefinite darker regions, not always identical on the two sides (the more extensive here recorded). Three main ground colours can be recognised: (*i*) green, with, in places, a somewhat bluish tinge; (*ii*) greyish, the net outcome of a peppering of brownish chromatophores on the whitish integument; with a faint tinge of green, due to the presence of the mainly pale green bristles; (*iii*) isabelline, resulting from the combination of a whitish or somewhat yellowish flesh-coloured ground and a crowded assemblage of brown, or reddish brown, dots of variable concentration. The main areas occupied by these colours are: (*i*) whole of narrow dorsal surface (except for dark saddle across posterior half of snout); with extensions on to sides at tip of snout down to level of gape, at interorbital down to orbit, at from orbit to middle of interdorsal down to level of middle of orbit, and behind this as a narrow band below second half of interdorsal and along whole elevated base of soft dorsal; fringing posterior border, also, narrowly and imperfectly, superior and inferior borders, of caudal peduncle (these green areas on caudal peduncle somewhat more obvious in paratype); in an ill-defined arc covering the pubic bone and continuing down nearly to vent; in a band along elevated base of anal; (*ii*) most of the distensible belly; delimited above by lower border of skull; roughly delimited behind by an oblique line from pectoral base to vent; extending within these limits, except for the greenish arc along pubic bone, to ventral profile; (*iii*) the overall isabelline remainder of head, trunk, tail exhibiting variable intensity of punctulation with some local concentrations constituting usually more or less obscure darker areas, of which the most noticeable are the darkish circumoral band continuing upward to become the rostral saddle already mentioned; patches below interdorsal and early part of soft dorsal base, below hinder part of soft dorsal, on caudal peduncle, above and behind gill-opening. Dorsal spine dark green, whitish distally; membrane translucent, punctulated with reddish brown, more densely at base, and very densely in a fine line along external border. Soft dorsal and anal whitish. Pectoral base dark green proximally, with a more or less pellucid distal fold, whitish or very pale greenish, along bases of rays; rays faintly greenish, some somewhat yellowish distally; membrane colourless. Caudal with basal half pale orange, each ray with a row (on parts of some rays two or three rows) of closely set dots or short cross strokes; distal half greenish, rays immaculate, save that most of the internal ones are punctulated with brown for about half an eye-diameter at the tip. Visible walls of gill-opening white. Iris indeterminate fawnish, with some dark peppering superiorly, and with indication of two dark rings; pupil blackish. Lips white. Teeth almost colourless, hyaline, except (see above) for the three terminal horn-coloured subtriangular plates.

No conspicuous markings were observed in the fresh specimens; the above account probably represents a reasonable approximation to the disposition of the main colour-masses in life.

Fin counts and dimensions.—Fin counts of the two specimens, and their principal dimensions, expressed in thousands of standard length, are set out in table 2. For all dimensions measured from the anterior end of the body two values are entered in the table, the first obtained by starting from the most advanced point (tip of chin), the second by starting from the anterior border of the upper lip. The millesimals are based on standard length as measured from tip of chin.

Material.—Described from the holotype, *Ls* 42.0 mm, *Lt* 55.2 mm, and one paratype, *Ls* 24.1 mm, *Lt* 32.8 mm, made available for examination by the Fisheries Division, Department of Agriculture (fig. 2).

TABLE 2

Brachyluteres wolfei, sp. nov. Meristic data, and dimensions, expressed as thousandths of standard length (*TLs*), of holotype and paratype dredged off eastern Tasmania in Schouten Passage in 10 fathoms

Where two entries occur for one dimension, the first is measured from most advanced point (chin), the second from anterior border of upper lip: standard length is taken from chin to hypural joint.

Feature	*Holotype* *Ls* 42.0 mm	*Paratype* *Ls* 24.1 mm
Dorsal	I, 27	I, 27
Anal	25	25
Pectoral: left/right	10/10	10/11
Caudal	12	12
Total length	1314, 1254	1361, 1336
First dorsal:		
Length to origin	383, 324	402, 377
Length to termination	429, 369	436, 411
Length of spine	155	124
Second dorsal:		
Length to origin	576, 517	627, 602
Length to termination	888, 829	905, 880
Direct length of base (dividers)	393	373
Lengths of 1st, 5th, 10th, 11th (and 12th) rays	57, 121, 136, 140	
Lengths of 15th, 20th, 25th, 27th rays	124, 117, 76, 69	
Anal:		
Length to origin	729, 670	664, 639
Length to termination	933, 874	913, 888
Direct length of base (dividers)	310	311
Lengths of 1st, 5th, 10th, 11th (and 12th) rays	83, 117, 121, 124	
Lengths of 15th, 20th, 25th rays	117, 98, 93	
Pectoral:		
Length to origin	262, 202	365, 340
Length of fin	164	183
Length of longest (*n*th) ray	140 (4th)	162 (4th)
Oblique length of base	74	83
Vent:		
Length to anterior border	650, 590	568, 544
Length to posterior border	714, 655	651, 626
Head	300, 240	382, 357
Snout	238, 179	228, 203
Eye	117	145
Interorbital	119	126
Gill opening:		
Apparent length	48	66
Total length	71	87
Depth:		
Maximum	833	726
At origin of second dorsal	798	672
Caudal peduncle at caudal origin	143	137
Direct distance (dividers) between:		
Base of dorsal spine and nearest point on eye	169	166
Middle of orbit and nearest point on dorsal profile	95	116
Gill opening and origin of first dorsal	307	328
Gill opening and origin of second dorsal	408	402
Gill opening and origin of anal	471	438
Gill opening and base of pectoral	14	12
Gill opening and nearest point of eye	60	58
Median anterior border of upper lip and origin of first dorsal	360	402
Median anterior border of upper lip and origin of second dorsal	557	456
Median anterior border of upper lip and origin of anal	788	701

The species is named in honour of Mr D. C. Wolfe, who collected the types.

Locality.—Off eastern Tasmania; mid-western end of Schouten Passage in line between Weatherhead Point and Supply Rock; dredged in 10 fathoms.

General discussion.—Only two species of *Brachaluteres* Bleeker, 1866 are generally recognised—see, *e.g.*, McCulloch (1929: 41), Fraser-Brunner (1941: 86)—namely, (*i*) the genotype *Aluterius trossulus* Richardson, 1846, type locality Western Australia [type specimen lost (Günther, 1870: 235)] (*ii*) *Aluterius? baueri* Richardson, 1846, type locality Australia, based on a drawing by Ferdinand Bauer (not seen), now (*fide* McCulloch, 1929) in the British Museum—Richardson was uncertain of its generic position, remarking that the drawing exhibited 'the undivided dental plate of *Diodon*, the inflated body and dermal spines of *Tetraodon*, and the fins of *Aluterius?*': the species was assigned to *Brachaluteres* by Waite (1903: 40). However, two additional descriptions call for notice: (*iii*) *Monocanthus oculatus* Günther, 1870, type locality Port Lincoln, South Australia; (*iv*) the form from Lord Howe Island described and figured by Waite (1903: 38, pl. iii, fig. 2), and identified by him as *B. baueri*. Of (*iii*) Waite stated 'I can confidently pronounce *M. oculatus* to be a synonym of *A. trossulus* Richardson, having a large collection showing perfect intermediate grades. It is in fact the ocellated colour-pattern of *M. oculatus*, which is described and figured by Hollard[37]' [Footnote: '[37] Hollard—*Ann. Sci. Nat. Zool.* (4), iv, 1855, p. 6, pl. 1, fig. 1']. This identification is formally accepted in the Check-List (distribution given as Australia, Lord Howe Island): Günther's species is rejected also by Frasser-Brunner [without recorded synonymy, leaving unstated whether he sinks it in (*i*) or in (*ii*)]. The insertion of the dorsal spine is in (*i*) 'over the middle of the eye', (*ii*) no data in Richardson or in Günther, (*iii*) 'behind the eye', (*iv*) 'above the middle of the eye'. In synonymising (*iii*) with (*i*) and presenting a diagnosis of (*ii*) in terms of (*iv*) Waite, it will be seen, fails to extend recognition to any form with a first dorsal originating behind the eye. Failing an assumption that the insertion of the dorsal spine varies within a species from above the middle of the eye to behind the eye—a possibility that, in view of the marked stability of the location of the spine in other aluterids, seems decidedly remote—the identification of Günther's species with *B. trossulus* appears unwarranted. Waite's identification of his Lord Howe Island material as *B. baueri* would extend the soft dorsal count for that species, as given by Richardson, from 26-27 to 29, and, more notably, the anal count from 21 to 26; for differences in pectoral and caudal counts, see below: agreement in colour-pattern is very satisfactory. The validity of this concept of *B. baueri* receives strong, if indirect, support from the fact that Fraser-Brunner admits in *Brachaluteres* only that species and *B. trossulus*.

The original pectoral and caudal counts for *B. baueri* (6-7, 9) are lower than those for *B. trossulus* (11, 12) and than those for Waite's fish (10-11, 12); no data for *B. oculatus*. These low values are probably accountable for by their derivation from a drawing. An unduly low caudal count could well arise from the fact that in the Aluteridae the caudal rays are characteristically inserted alternately in two vertical planes, so that while one ray is more conspicuous when the fish is viewed from, say, the left side, the two rays immediately flanking it are more conspicuous when the fish is viewed from the right side. The low number of pectoral rays reported is probably explicable by difficulty, either in depiction or in counting, consequent upon the small size of the fin.

From all the published forms (*i*)-(*iv*), as interpreted by Waite and as recognised in the Check-List, *B. wolfei* is trenchantly distinguished by the insertion of the dorsal spine behind the eye. From *B. oculatus*, taken, as in the original description, as having the spine behind the eye, it is separable (*a*) by higher dorsal and anal counts (27, 25; *cf.* 24, 22); (*b*) by the absence of anything more definite in the way of colour-pattern than a dark circumoral band extending as a saddle over snout and several obscure dark patches elsewhere (*cf.* 'with about nine rather irregular longitudinal rows of purplish ocelli edged with white, and about as large as the pupil of the eye'). In its lack of black specks, and of white or blue spots tending to form lines on the lower parts it differs from *B. trossulus*; and in its lack of seven interrupted dark brown longitudinal stripes and nine short bars radiating from the orbit from *B. baueri*.

Note on dentition.—The present specimens cast some additional light on the curious matter of the dentition in this genus. The available data may conveniently be considered chronologically. (*a*) In his description of *B. trossulus* Richardson. (1846: 68) makes no mention of the teeth, but in his account, on the same page, speaking of *B. baueri* he observes of Bauer's figure 'it exhibits the undivided dental plate of *Diodon*'. (*b*) Of *B. baueri* Günther (1870: 235) states 'The artist has represented a dentition similar to that of *Diodon*, but with notches on the edges of the jaws', and he immediately goes on to add 'Also the single teeth are not so well differentiated in *M. oculatus* as in other Monocanths; but it then remains uncertain whether this is not due to the young age of the individual. I could distinguish four teeth clearly in the upper jaw, but two only in the lower'. (*c*) Waite, having first remarked (1903: 40) that Günther 'appears to have had very grave doubts as to the correct representation of *A. baueri*, for, though, unlike Emery, Bauer was a skilled draughtsman, he was not an Ichthyologist, and would fail to appreciate the necessary characters', he then sets out, in a separate paragraph of his description, the statement 'The teeth do not differ from those of typical monocanths'.

A comparison of the teeth of *Brachaluteres wolfei* with those of half a dozen other Tasmanian Aluteridae shows: (*a*) apart from individual variations (one large example of *Scobinichthys granulatus* (Shaw), 1790 has two small supernumerary teeth in right side of upper jaw) they all agree in dental formula $\left(\frac{3+3}{2+2}\right)$, and in the general disposition of the teeth, including the presence in the angle of the mouth of a subrectangular tooth with a more or less vertical cutting surface; (*b*)

in some small specimens of other species, with standard length of the order of 50 mm, the cutting edges of the middle two pairs of teeth, instead of being pointed in the upper jaw and pointed and excavate in the lower jaw, are nearly linear in both jaws, all these teeth usually being hyaline throughout, but those of the upper jaw exhibiting in one form a narrow subrectangular amber strip at the free margin; (*c*) the close apposition of the front teeth may lead to the formation of a more or less continuous dental wall, most noticeable in some smaller individuals; (*d*) the situation found in the present examples of *B. wolfei,* with the subconical front teeth of the upper jaw embedded in a hyaline matrix and surmounted by subtriangular horn-coloured plates, was not paralleled in the material examined. It may thus be concluded that at least some species of *Brachaluteres* exhibit, in the upper jaw, an arrangement of the more readily visible teeth that involves an unusual measure of fusion—of which Richardson and Günther found some indication in Bauer's drawing of *B. baueri,* but which Waite reported does not occur in material examined by him and referred to that species.

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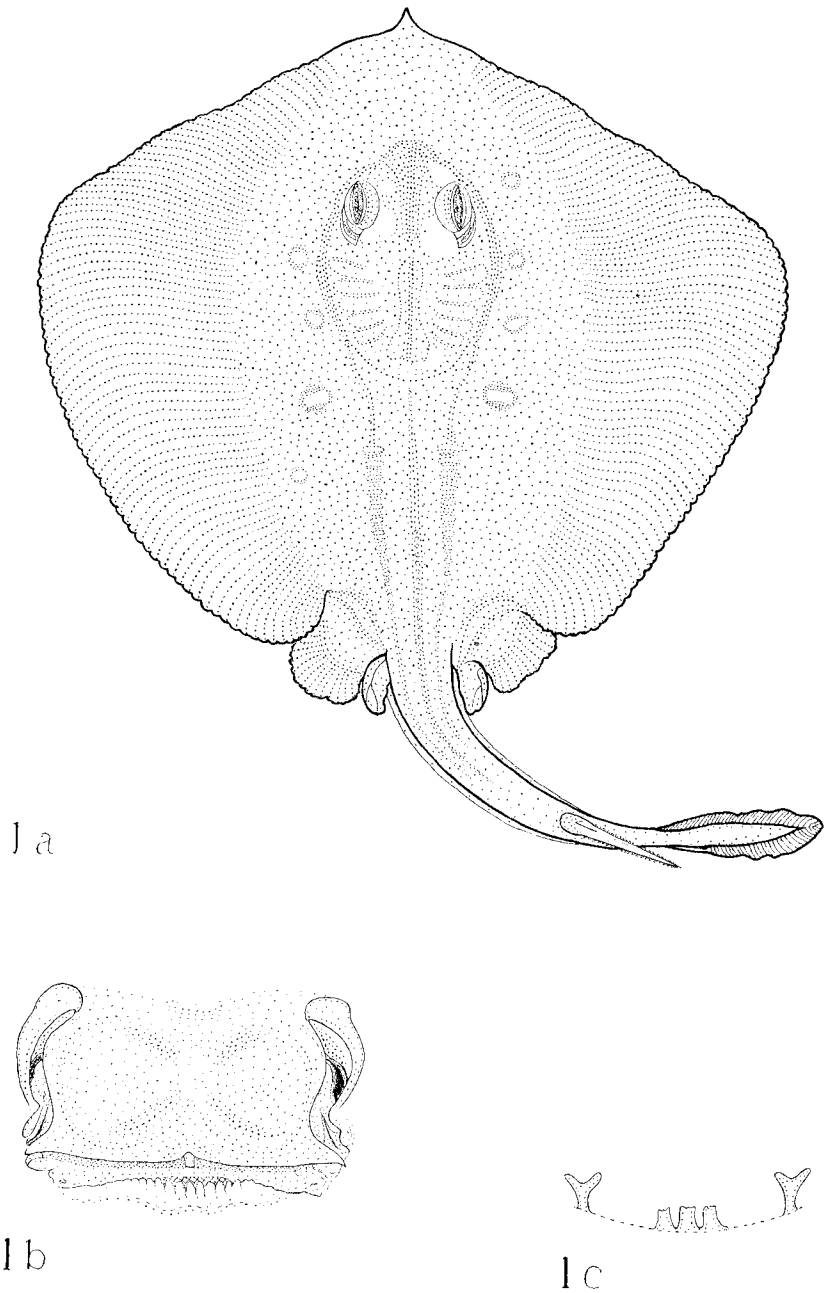

FIG. 1.—*Urolophus paucimaculatus* Dixon, 1939. First specimen recorded from Tasmanian waters; male; total length 297.0 mm, disc width 191 mm; trawled (*Umitaka Maru*) in Bass Strait east of the Hogan Group. *a.*—Dorsal aspect; × ½. *b.*—Nasoral region (note minor bilateral asymmetry; both postural and morphological; ×2. *c.*—Buccal papillae; × 3.

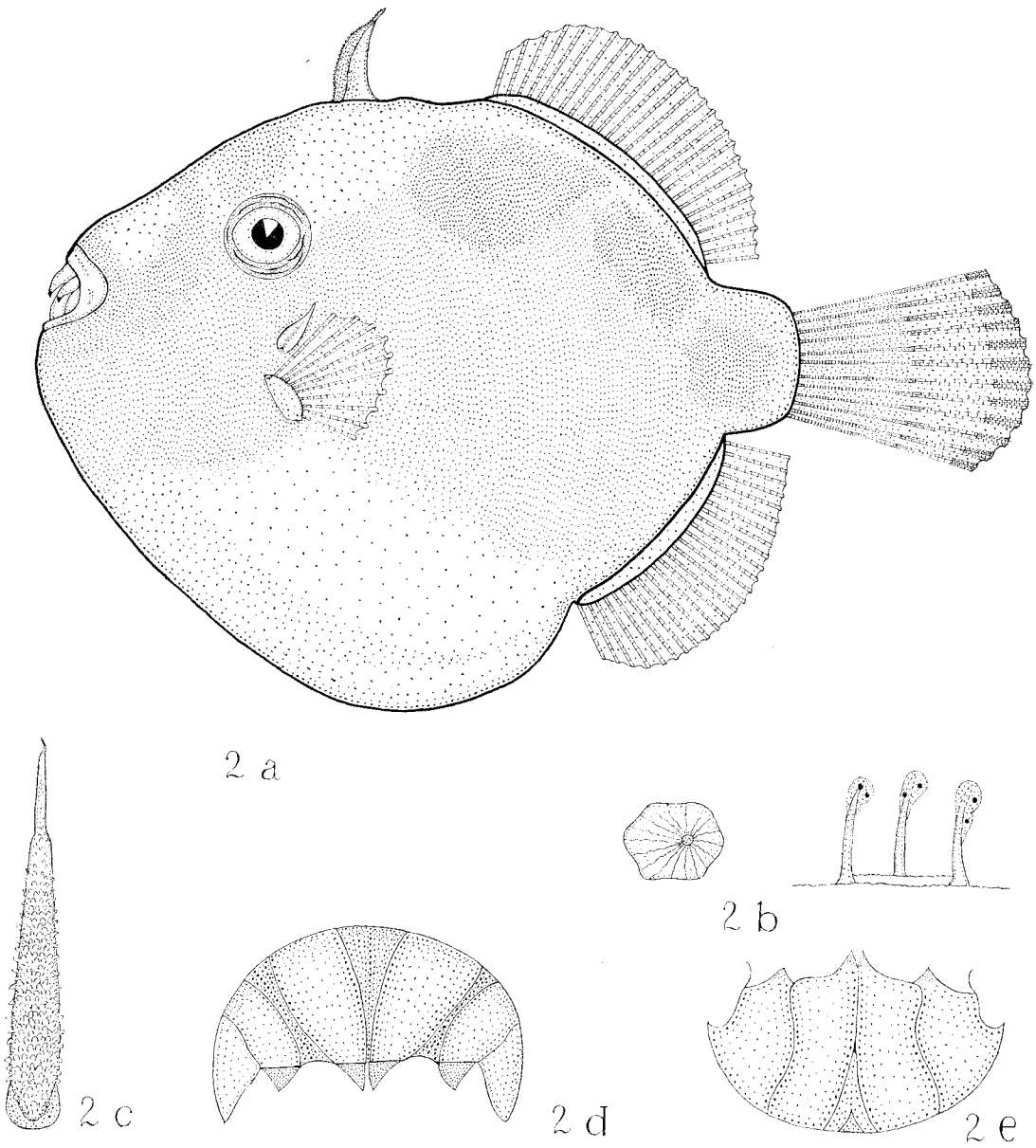

FIG. 2.—*Brachaluteres wolfei, sp. nov.* Holotype, total length 55.2 mm, standard length 32.8 mm; Schouten Passage (between Maria Island and mainland of Tasmania). *a.*—Lateral aspect; × 2½. *b.*—A scale external aspect (base only of bristle shown), and three bristles; all × 25. *c.*—Dorsal spine, anterior aspect; × 8. *d.*—Teeth of upper jaw (mouth tilted slightly downwards); × 15. *e.*—Teeth of lower jaw (mouth tilted slightly upward); × 15.