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A Revision of the Australian Jumping Spider Genus *Prostheclina* Keyserling, 1892 (Araneae: Salticidae)

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ABSTRACT. The genus *Prostheclina* is commonly found in collections made in the wetter parts of eastern Australia from South Australia to northern Queensland. The type species *P. pallida* and six new species, *P. amplior* n.sp., *P. basilonesa* n.sp., *P. boreoaitha* n.sp., *P. boreoxantha* n.sp., *P. eungella* n.sp. and *P. bulburin* n.sp. are described. Both sexes are described for all species except *P. boreoaitha* (male only). Remarks on the biology and known and predicted distribution of each species are given.

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The genus *Prostheclina* and a single included species, *P. pallida*, were described by Keyserling in 1882. A further two Australian and twelve American species have been described since. All of the latter were removed to other genera by Simon (1901) and Bryant (1950). The genus (including the three Australian species) was synonymized with *Saitis* by Simon (1901), a proposal rejected by Davies & Zabka (1989) for *P. pallida* but not for *S. signatus* (Keyserling, 1883) and *S. insectus* (Hogg, 1896). The genus *Saitis*, as used for Australian material, includes a number of ill defined species, none of which belong to *Saitis sensu stricto*. The type material for neither *S. signatus* nor *S. insectus* could be found. The description of *S. insectus* is poor and revision of the generic placement of the species could not be made. Neither the collection location (central Australia) nor the patterning of the abdomen shown in the figure match that of any of the species considered here. The figure of the female genitalia of *S. signatus* in the original description shows the species does not have a pair of adjoining fossae or the other characteristics of *Prostheclina* given below.

Prostheclina is clearly identifiable by the presence of a single combined conductor and embolus in the male and pear-shaped spermathecae, partly posterior to the pair of adjoining fossae, in the females (Davies & Zabka, 1989). Though often found in collections made in southeastern Australia, no species, other than *P. pallida*, have been described. Variation in size and secondary sexual characters, however, are conspicuous in males and the observed patterns are discontinuously distributed. Similar situations are found in other jumping spiders, for example, in the American genus *Habronattus* (Griswold, 1987). As well as re-describing *P. pallida*, six new species, namely: *P. amplior* n.sp., *P. basilonesa* n.sp., *P. boreoaitha* n.sp., *P. boreoxantha* n.sp., *P. eungella* n.sp. and *P. bulburin* n.sp. are described in this work.

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Material and methods

Material from the collections of AM (Australian Museum, Sydney), ANIC (Australian National Insect Collection, CSIRO, Canberra), NMV (Museum Victoria, Melbourne), QM (Queensland Museum, Brisbane) and SAM (South Australian Museum, Adelaide), as well as the types from ZMH (Zoologisches Museum Hamburg), and BMNH (Natural History Museum London), was used in the study.

Meristic characteristics were noted for specimens of each form. As well, a series of measurements were taken, as shown in Fig. 1. The following abbreviations are used: *AEW*, anterior eye width; *AL*, abdomen length; *AMEW*, anterior median eye width; *AW*, abdomen width; *CH*, cephalothorax height; *ChL*, cheliceral length; *CL*, cephalothorax length; *ClH*, clypeal height; *CLWP*, cephalothorax length to the widest point; *CW*, cephalothorax width; *EFL*, eye field length; *F1*, femur 1; *M1*, metatarsus 1; *PEW*, posterior eye width; *P1*, patella 1; *L1–4*, legs 1–4; *StL*, sternum length; *StW*, sternum width; *P1+T1*, tibia plus patella length; *Ts1*, tarsus 1; *T1*, tibia 1. The values for the types (and the means and standard errors for sets of specimens of each species and sex) are given. Where ever possible only one specimen (of each sex) was measured from a locality. The data for each character were examined separately and the combined data set was analysed (excluding AL and AW, sexes separate) using Principal Component Analysis.

Female copulatory organs were dissected, cleared using 50% lactic acid, and drawn.

The predicted distributions of each species and the genus were calculated using BIOCLIM (Nix, 1986) as compiled in BIOLINK. Twelve environmental variables were used in the analysis, namely: annual mean temperature (°C), hottest month mean maximum temperature (°C), coldest month mean minimum temperature (°C), annual temperature range (°C), wettest quarter mean temperature (°C), driest quarter mean temperature (°C), annual mean precipitation (mm), wettest month mean precipitation (mm), driest month mean precipitation (mm), annual precipitation range (mm), wettest quarter mean precipitation (mm), driest quarter mean precipitation (mm). These variables provide estimates of total energy and water inputs, seasonal extremes and a measure of conditions prevailing during potential active and dormant seasons (Richardson *et al*., 2006). Conservation status was determined according to IUCN Red Listing Criteria (IUCN, 2001).

Table 1. Means, standard errors and sample sizes for measurements for each sex and species. Significance of Wilcoxan Signed Rank Tests for each sex are also given.

species	character (mean±S.E.)							n
	CL (mm)	AEW/CL	AMEW/CL	CW/CL	PEW/CL	EFL/CL	CWP/CL	
pallida ♂	2.10±0.04	0.72±0.01	0.45±0.01	0.77±0.01	0.69±0.01	0.51±0.01	0.62±0.01	13
pallida ♀	2.01±0.03	0.77±0.01	0.47±0.01	0.83±0.01	0.74±0.01	0.51±0.01	0.60±0.01	11
amplior ♂	2.33±0.04	0.72±0.01	0.44±0.01	0.81±0.01	0.70±0.01	0.51±0.01	0.59±0.01	27
amplior ♀	2.42±0.03	0.72±0.01	0.44±0.03	0.81±0.01	0.70±0.01	0.48±0.01	0.61±0.01	24
basilonesa ♂	1.90±05	0.70±0.02	0.43±0.01	0.81±0.04	0.75±0.08	0.51±0.04	0.62±0.00	2
basilonesa ♀	2.04	0.70	0.42	0.82	0.73	0.52	0.61	1
boreoaitha ♂	1.72	0.82	0.50	0.80	0.79	0.57	0.68	1
boreoxantha ♂	1.67	0.85	0.56	0.85	0.82	0.56	0.59	1
boreoxantha ♀	1.91	0.77	0.48	0.84	0.74	0.53	0.57	1
eungella ♂	1.85±0.00	0.86±0.01	0.53±0.01	0.88±0.01	0.83±0.00	0.60±0.00	0.70±0.10	2
eungella ♀	2.22±0.06	0.76±0.01	0.47±0.02	0.79±0.02	0.74±0.01	0.50±0.01	0.59±0.04	2
bulburin ♂	2.43±0.04	0.70±0.02	0.43±0.00	0.76±0.01	0.69±0.02	0.50±0.02	0.59±0.03	3
bulburin ♀	2.18±0.00	0.75±0.01	0.47±0.01	0.81±0.01	0.74±0.00	0.51±0.01	0.61±0.02	3
sign ♂	0.0003**	0.047*	0.058 ns	0.049*	0.096 ns	ns	ns	
sign ♀	<0.0001**	0.01**	0.02*	ns	0.02*	0.08 ns	ns	

species	character (mean±S.E.)								n
	AL/CL	AW/CL	CH/CL	ClH/CL	ChH.CL	StL/CL	StW/CL	(P1+T1)/CL	
pallida ♂	0.96±0.03	0.67±0.03	0.59±0.01	0.06±0.01	0.36±0.01	0.40±0.01	0.30±0.01	0.88±0.01	13
pallida ♀	1.18±0.05	0.97±0.05	0.60±0.01	0.06±0.01	0.37±0.01	0.40±0.01	0.31±0.01	0.67±0.01	11
amplior ♂	1.00±0.02	0.69±0.01	0.59±0.01	0.07±0.00	0.38±0.01	0.41±0.01	0.31±0.00	1.04±0.02	27
amplior ♀	1.25±0.05	1.01±0.04	0.58±0.01	0.06±0.00	0.38±0.01	0.40±0.01	0.31±0.00	0.69±0.01	24
basilonesa ♂	1.09±0.04	0.72±0.02	0.66±0.04	0.09±0.01	0.29±0.04	0.43±0.01	0.33±0.01	0.93±0.04	2
basilonesa ♀	1.70	1.36	0.64	0.06	0.39	0.42	0.30	0.67	1
boreoaitha ♂	1.00	0.61	0.64	0.04	0.32	0.41	0.29	0.93	1
boreoxantha ♂	1.00	0.74	0.59	0.06	0.41	0.48	0.37	0.96	1
boreoxantha ♀	1.29	1.10	0.61	0.05	0.45	0.39	0.32	0.68	1
eungella ♂	1.05±0.02	0.62±0.12	0.68±0.02	0.07±0.00	0.38±0.02	0.45±0.02	0.34±0.01	1.00±0.00	2
eungella ♀	1.33±0.07	1.01±0.07	0.54±0.03	0.04±0.02	0.38±0.02	0.39±0.01	0.29±0.22	0.64±0.02	2
bulburin ♂	0.93±0.02	0.68±0.01	0.58±0.01	0.06±0.02	0.42±0.01	0.39±0.01	0.30±0.01	0.95±0.02	3
bulburin ♀	1.39±0.17	1.08±0.08	0.60±0.00	0.06±0.00	0.42±0.01	0.40±0.02	0.30±0.01	0.63±0.02	3
sign ♂	ns	ns	ns	ns	0.064 ns	0.094 ns	0.049*	<0.0001*	
sign ♀	ns	ns	0.09 ns	ns	ns	ns	ns	ns	

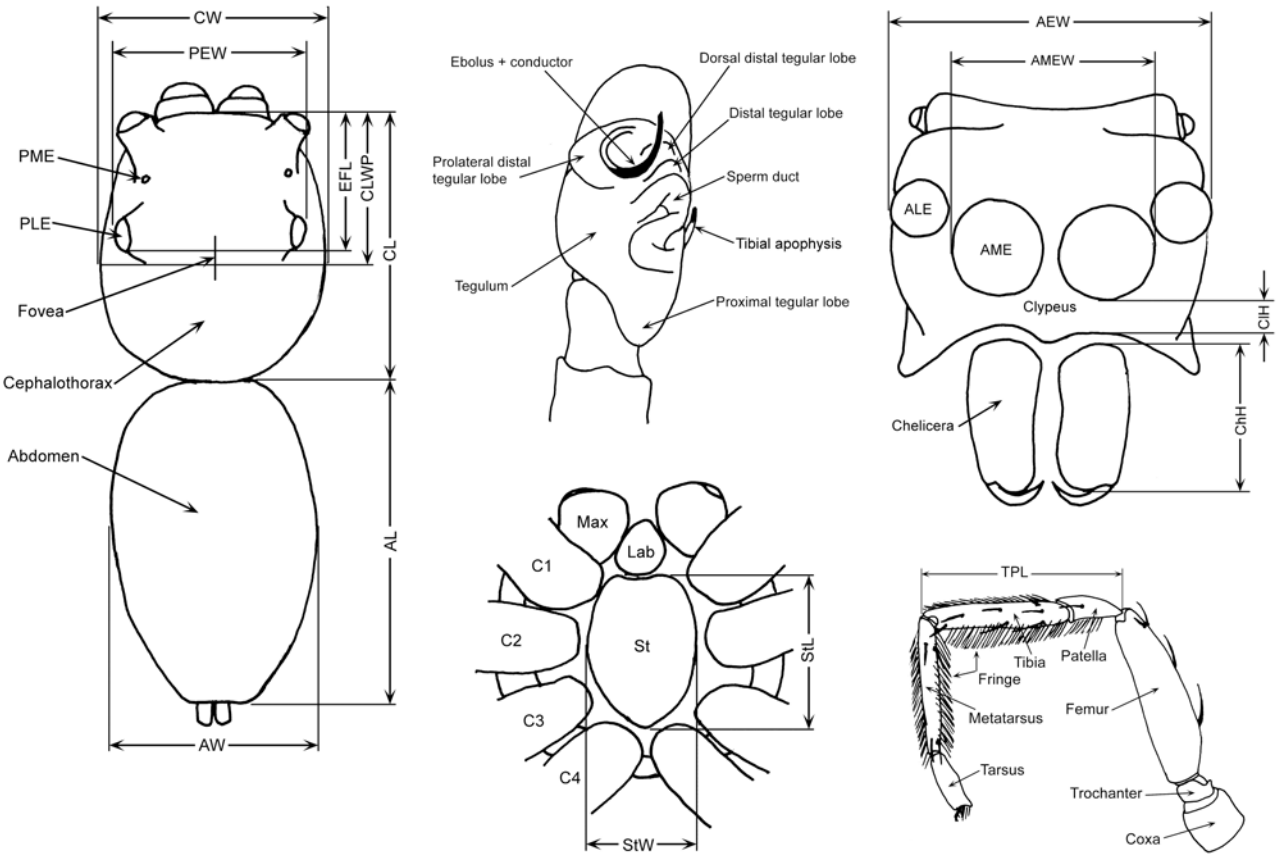

Fig. 1. Characters and measurements taken from specimens. See Methods for abbreviations.

Morphological and meristic results

The analysis of the morphological data set showed that, though variation in size could be corrected for in some characters by dividing by CL (see Fig. 2A), this was not always the case (see Fig. 2B). The size of the eye-field in particular did not vary linearly with overall size; it covered proportionately more of the cephalothorax in small species (e.g., PEW/CL versus CL in Fig. 2B). Sexual dimorphism was present in the length of L1 (i.e., (P1+T1)/CL, Fig. 2A). As well, (P1+T1)/CL is proportionally shorter in male *P. pallida* and relatively longer in *P. amplior* than in the other species (Table 1). There were also differences in overall size between species and in some cases (e.g., *P. bulburin*) between the sexes (Table 1). The first dimension of the PCA reflected the size related differences between specimens and species. No patterns were discernable in the other dimensions that might differentiate between species.

Variation in the males in meristic patterns related to the face and cephalothorax plus colour variation in the face, palps, chelicerae and first legs (Fig. 3) are related to variations in size and geographical distribution, allowing seven different species to be identified. Differences in female copulatory organs were detected between these species (see below).

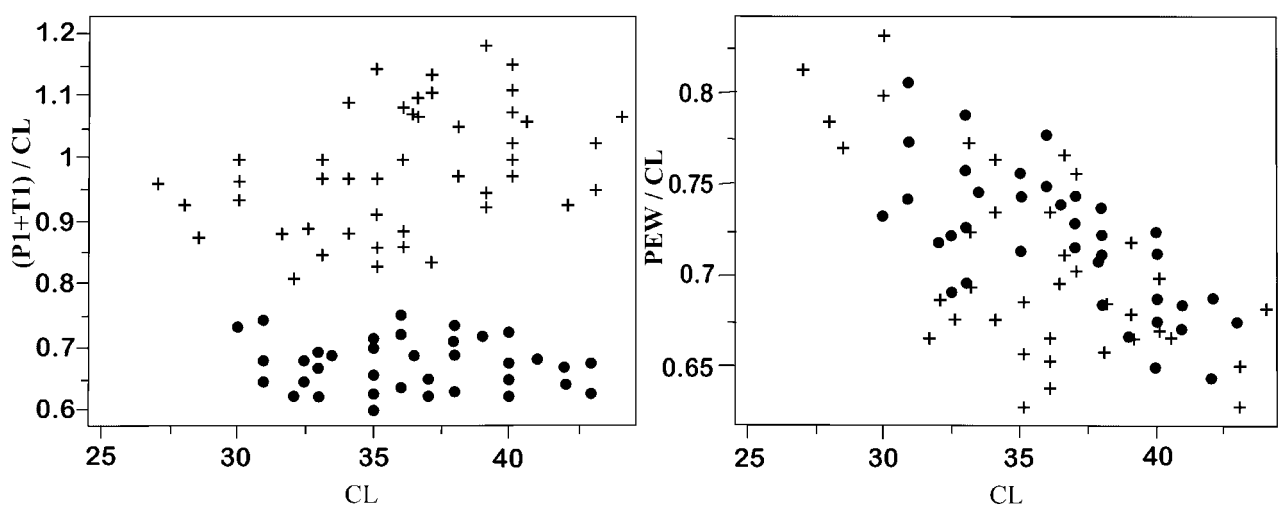

Fig. 2. Allometric effects of size, and sex on the proportional size of: (*A*) (P1+T1) and (*B*) PEW. + males; • females.

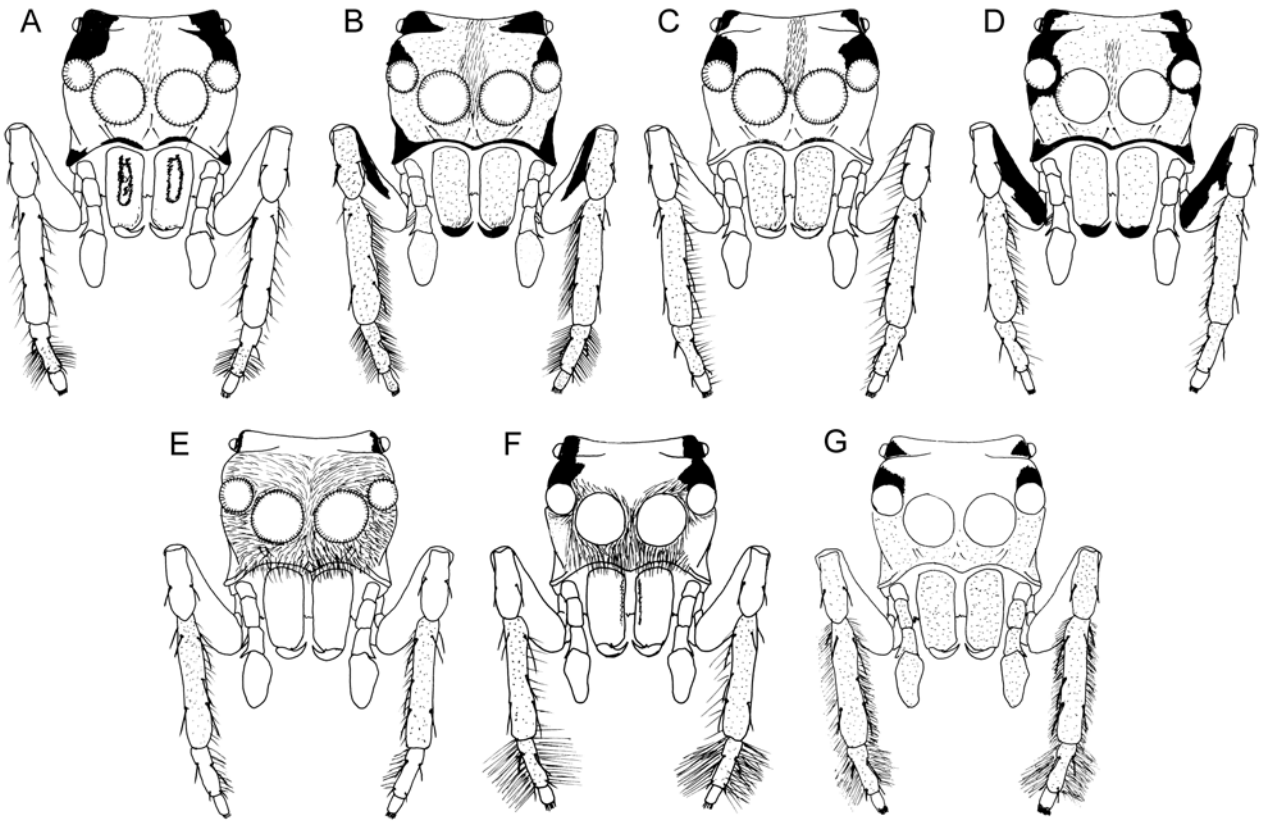

Fig. 3. Male face patterns (semi-diagramatic). (*A*) *Prostheclina basilonesa*; (*B*) *P. amplior*; (*C*) *P. eungella*; (*D*) *P. boreoaitha*; (*E*) *P. pallida*; (*F*) *P. bulburin*; (*G*) *P. boreoxantha*. Stippled areas are orange/mid-brown in colour, plain areas are yellow, black areas are black or very dark brown, median dorsal strip of hair is white, mat of hair on clupeus and surrounding areas is normally mid-orange but may be paler (to off-white) in occasional animals.

Taxonomic survey

Prostheclina Keyserling, 1882

Prostheclina Keyserling, 1882: 1368.
Saitis Simon (part), 1901: 558.
Prostheclina Davies & Zabka, 1989: 238.

Type species. *Prostheclina pallida* Keyserling 1882, by monotypy.

Diagnosis. Unidentate spiders with the left embolus curved anticlockwise through 270° and combined with the conductor, leg 4 longer than leg 3, sparse to thick fringing on at least the metatarsus of leg 1 of the male, distinct ventral lip anterior to spinnerets in male (Fig. 6F), female fossae clearly separated with pear-shaped spermathecae at least partially below the fossae. It can be separated from *Saitis sensu stricto*, which is not found in Australia, by the absence of colored fringing on leg 3 of the male.

Description. Medium sized spiders, adult body length (3–7 mm). Colour varying from vanilla to dark brown, males usually darker than females, variously sized and shaped, carapace high steeply sloped from behind PLE to posterior margin, fovea short and just behind PLE, ALE set at an angle to AME, PME relatively small and about halfway between ALE and PLE, ALEW equal to PLEW, EFL 50% of CL, chelicerae medium size and vertical with single, retromarginal tooth and either two closely aligned or a fissident promarginal tooth, labium subtriangular, sternum oval in shape, width 70% of length, abdomen ovoid, spinnerets subequal in length, legs of medium length, leg 4 longer than leg 3, in the **male**, the left embolus curved anticlockwise through 270° and combined with the conductor, proximal tegular lobe, leg 1 more strongly developed than in the female, sparse to thick fringing on at least the metatarsus of leg 1, distinct ventral lip anterior to spinnerets (Fig. 6F), in the **female**, the fossae clearly separated with pear-shaped spermathecae at least partially below the fossae.

Biology. Animals are found on foliage in tropical and temperate rainforests and in wet eucalypt forest as well as in drier and grassier areas. They are frequently collected on ferns and in disturbed or artificial habitats (e.g., amenity plantings of shrubs). The distinctive colouring, markings and fringing on L1 and face, combined with limited differences in the copulatory organs, leads to the conclusion that visual cues are important in species recognition.

Distribution. The genus is restricted to Australia and is found, or predicted to be found, in the wetter parts of Queensland, New South Wales, Australian Capital Territory, Victoria, South Australia and Tasmania. Though Keyserling reports specimens from Cape York, the furthest north specimen in collections is from the Windsor Tableland. The inland edge of distributions roughly follows the 600 mm rainfall line.

Key to *Prostheclina* species

Males

1 Chelicera and clypeus mid- to dark brown coloured 2

—— Chelicera and clypeus yellow or orange, occasionally with dark markings 3

2 M1 and T1 fringed, F1 with brown and yellow patches, occasionally almost entirely brown, legs, F2–4 yellow/orange patches, CL >2.2 ..... *amplior*

—— M1 and T1 not fringed, F1–4 dark brown and yellow patches, CL <1.9 mm ..... *boreoaitha*

3 Clypeus with orange or white fringe (see Fig. 3A–D) 4

—— Clypeus without orange or white fringe (see Fig. 3E–G) 5

4 F1 orange with strong double fringe on M1, body length >4.5 mm, central Queensland (see Fig. 3G) ..... *bulburin*

—— F1 yellow with single, usually sparse, fringe varying from almost absent to medium, body length 3.5–5 mm, southern Queensland to South Australia (see Fig. 3E) ..... *pallida*

5 T1 with thick double fringe (see Fig. 3G) ..... *boreoxantha*

—— T1 with sparse or no fringe 6

6 M1 with double fringe, T1 orange, from King Island and SW Victoria ..... *basilonesa*

—— M1 with sparse or no fringe, T1 yellow, from central Queensland ..... *eungella*

Females*

1 Insemination duct entrance anterior to spermatheca and insemination duct forms a median loop beside the spermatheca ..... *basilonesa*

—— Insemination duct entrance beside spermatheca, and insemination duct with no median loop beside the spermatheca 2

2 Left insemination duct (in ventral view) makes a full clockwise spiral coil prior to joining spermatheca (e.g., Fig. 6E) 3

—— Left seminal duct joins directly to spermatheca without following a spiral path (e.g., Fig. 4E) 4

3 Spermatheca round with the spiral in the seminal duct visible anterior to the spermatheca (in ventral view) (see Fig. 13E) ..... *eungella*

—— Spermatheca pear shaped with spiral in the seminal duct hidden under the spermatheca (in ventral view) (see Fig. 6E) ..... *amplior*

4 Cephalothorax length >2.1 mm, seminal duct relatively long and forming "S" bends before joining spermatheca (see Fig. 12E) ..... *bulburin*

—— Cephalothorax length <2.1 mm, seminal duct relative short and directly (no "S" bends) joining spermatheca (e.g., Fig. 4E) 5

5 Found southwards from southern Queensland to South Australia ..... *pallida*

—— Found in northern Queensland ..... *boreoxantha*

* *Prostheclina boreoaitha* is not included in the female key as no female specimens were found. It will be found in northern Queensland and probably be separable from *P. boreoxantha* by the presence of a spiral coil in the insemination duct.

Prostheclina pallida Keyserling, 1882

Figs 2, 4, 5; Table 1

Prostheclina pallida Keyserling, 1882: 1368
Saitis pallidus.–Simon, 1901: 558

Material examined. LECTOTYPE female, Sydney, NSW, Daemel, ZMH (ex Museum Godeffroy 8646). A lectotype is here designated to stabilize nomenclature. The larger of the ZMH syntypes from Sydney has been used. The original description reports further syntype(s) from Peak Downs in central Queensland (not found) and specimens from there would belong to a different species to the Sydney specimens. PARALECTOTYPES The other ZMH specimen, a female also from Sydney, two females in NMV, K9712–K9713, also labelled "Museum Godeffroy 8646", plus one female labelled "Sidney" in BMNH (1891.8.1.797) become paralectotypes.

Other material. New South Wales: 1 female, Batemans Bay, 35°44'S 150°15'E, D. Hirst, SAM NN19594; 1 male, Beecroft Peninsula, northern headland of Jervis Bay, 35°03'S 150°47'E, L. Gibson, 6 Jun 1999, AM KS63497; 4 males 14 females, Beecroft Reserve, 33°45'S 151°04'E, J. Noble, 15 Feb 1997, AM KS58514; 22 Jan 1994, AM KS56527; 25 Mar 2001, AM KS71717; 15 Nov 1999, AM KS66267; 15 Oct 1997, AM KS51246, AM KS51445, AM KS51243; 26 Oct 1997, AM KS51238, AM KS51247; 25 May 1997, AM KS51998; 11 Sep 1997, AM KS51441; 28 Jan 1994, AM KS56534; 20 Aug 1995, AM KS56526; 10 Oct 1997, AM KS51443, AM KS51444, AM KS51442; 28 Oct 1997, AM KS51446; 20 May 2001, AM KS72873; 1 male, Bellangary State Forest Wilson River Flora Reserve; 31°18'S 152°29'E, M.R. Gray, 6 Mar 1981, AM KS045775; 1 male, Berowra Valley Regional Park, 33°42'S 151°06'E, G. Milledge, H. Smith, 29 Dec 2000, AM KS70053; 1 male, Brooklana East of Dorrigo; 30°16'S 152°51'E, W. Herron, 30 Dec, 1899, AM KS19186; 1 female, Bulga State Forest, Pole Bridge Rd 0.5km E of Knodingbul Rd, 31°37'S 152°10'E, M.R. Gray, G. Cassis, 4 Feb 1993, AM KS042941; 1 male 2 females 4 immatures, Bulledelah State Forest, O'Sullivans Gap rest area, 32°19'S 152°16'E, D. Hirst, 14 May 1988, SAM NN19591-3; 1 female, Carrai State Forest, Hogsback Track, "Heydonville", 31°04'S 152°20'E, M.R. Gray, 26 Jan 1981, AM KS49103; 1 female, Carrow Brook, 32°18'S 151°19'E, J. Noble, 2 Sep 1998, AM KS54055; 1 male, Cathedral of Ferns, Mount Wilson, 33°28'S 150°23'E, J. Stanisic, G. Ingram, 15 Aug 1992, S60227; 1 male, Cheltenham, 33°45'S 151°05'E, J. Noble, 20 Dec 1999, AM KS65708; 1 male, Cundletown, 31°54'S 152°32'E, J. Noble, 26 Mar 1995, AM KS51454; 1 male 1 female, Epping Station, 33°47'S 151°05'E, J. Noble, 10 Mar 1995, AM KS56533; 4 Feb 1995, AM KS56531; 1 female, Ewingar State Forest, Nogrigar Rd, 29°07'S 152°27'E, M.R. Gray, G. Cassis, 4 Feb 1993, AM KS042393; 1 male 1 female, Foxground, near Gerringong, 34°43'S 150°46'E, M. Zabka, M.R. Gray, 29 Oct 2002, AM KS81356; G. Wishart, 12 Apr 1999, AM KS56353; 2 males1 female, Gordon; 33°45'S 151°10'E, AM, KS12436; M. Horseman, D. Jones, 8 Dec 1982, AM KS10481; AM KS13489; AM KS9549; M. Horseman, M. McEvoy, 17 Feb 1989, AM KS20226; 1 male, Gumbayngirr Nature Res [League Scrub]; 30°36'S 152°32'E, D D. Bickel, 11 Jan 2001, AM KS70888; 1 male, Hornesby, Calnack Gully, 33°42'S 151°06'E, M.R. Gray, 19 Feb 1973, AM KS51672; 2 males, Hornesby, Waitara Creek, 33°42'S 151°06'E, G. Milledge, 8 Oct 2000, AM KS68316; 1 male, Jamberoo Mountain, 34°40'S 150°43'E, J. Noble, 25 Apr 2001, AM KS76934; 1 male 4 females, Jamberoo Mountain, 34°40'S 150°43'E, J. Noble, 20 Apr 1995, AM KS51657; 24 Dec 1994, AM KS54044; 11 Apr 1994, AM KS54046; 14 Apr 1998, AM KS56454; 24 Apr 1998, AM KS56427; 1 male 6 females, Jamieson Pk Narrabeen; 33°43'S 151°18'E, M.R. Gray, 10 Nov 2002, AM KS81983; M.R. Gray, H.M. Smith, 5 Mar 1996, AM KS49764; 2 males, Kuringai Chase National Park, Grovenor Track, 33°38'S 151°12'E, M.R. Gray, 8 Oct 1987, AM KS19188; 3 males, Kuringai Chase National Park, 33°41'S 151°14'E, D. Bickel, 23 Sep 2001, AM KS75560; E, M. Zabka, M.R. Gray, AM KS81944; 1 male, 4 females, Lane Cove River National Park, North Ryde, 33°48'S 151°10'E, D. Hirst, 17 Apr 1990, SAM NN19587; 22 Apr 1990, SAM NN19588; 11 Apr 1990, SAM NN19589-90; 1 male, Lindfield, 33°47'S 151°10'E, D. Doolan, 16 Oct 1966, AM KS18980; 1 male 1 female, Macquarie Pass National Park, 34°34'S 150°39'E, M. Zabka, 12 Sep 1988, AM KS64648; 1 male, Mount Keira, 34°25'S 150°51'E, D. Bickel, 21 Dec 1986, AM KS32212; 1 male 3 females, Mulligans Hut, Gibralter Range, 29°36'S 152°11'E, R. Raven, 10 Nov 1980, S61014, S61014; 1 male, Munmorah National Park, 33°13'S 151°34'E, M.R. Gray, 12 Nov 2002, AM KS81975; 1 male, Nadgee Nature Reserve, Table Creek, 29°29'S 152°38'E, D. Bickel, 15 Feb 1986, AM KS32174; 1 male, Royal National Park, E of Waterfall, 34°08'S 151°03'E, D. Bickel, 8 Mar 1991, AM KS27960; 3 males 2 females 1 immature, Royal National Park, 34°08'S 151°04'E, M. Zabka, 24 Mar 1988, AM KS64514; 25 Aug 1988, AM KS64512;, R. Mascord, 15 Dec 1966, AM KS18280; 1 female, Royal National Park, Reids Flat, 34°08'S 151°04'E, M. Zabka, 20 Apr 1988, AM KS64513; 1 male, Seven Mile Beach National Park, 34°48'S 150°46'E, M.R. Gray, 28 Oct 2002, AM KS81906; 1 male, Seven Mile Beach, 34°49'S 150°46'E, M. Zabka, AM KS64509; 1 female, Wahroonga, Frazer Res., 33°43'S 151°07'E, J. Noble, 10 Dec 1994, AM KS56506; 1 male, Waitara Creek, Hornesby, 33°43'S 151°05'E, G. Milledge, 22 Sep 2002, AM KS79676; 1 male, Washpool State Forest, 29°18'S 152°21'E, AM KS9327; 1 male, Washpool State Forest, Moogen Rd past Coombadjah TO, 29°18'S 152°21'E, AM KS9344; 1 male, Waterfall; 34°08'S 151°00'E, M.R. Gray, 14 Jan 1969, AM KS18935; 1 male, Werrikimbe National Park, Cobcroft Creek; 31°12'S 152°10'E, D. Bickel, 18 Nov 1998, AM KS56331; 1 male 1 female 3 immatures, Willowvale, "Scalloway", near Gerringong, 34°44'S 150°48'E, M.R. Gray, AM KS18470; AM KS81894; 4 males 1 female, Wilson River Flora Reserve, 31°19'S 152°51'E, AM KS9598; AM KS9674; D. Bickel, 21 Jul 1986, AM KS32171. **Queensland**: 1 male, Conondale National Park, Booloumba Creek Rd, 26°41'S 152°37'E, G. Milledge, AM KS56465; 1 male 2 females, Gold Creek Reservoir, Brookfield, 27°28'S 152°53'E, V. Davies, R. Raven, 15 Oct 1980, S61008; 14 Nov 1980, S61010; 1 male 1 female, Kenilworth State Forest, Booloumba Creek Rd, 4 km W of Cambroon, 26°38'S 152°39'E, G. Milledge, 5 May 1998, AM KS52192; 1 female, Kenilworth State Forest, Sunday Creek Rd; 26°41'S 152°33'E, G. Milledge, 6 May 1998, AM KS52184; 1 male 1 immature, Lamington National Park, Binna Burra, Tullawallal Circuit, 28°12'S 153°11'E, D.

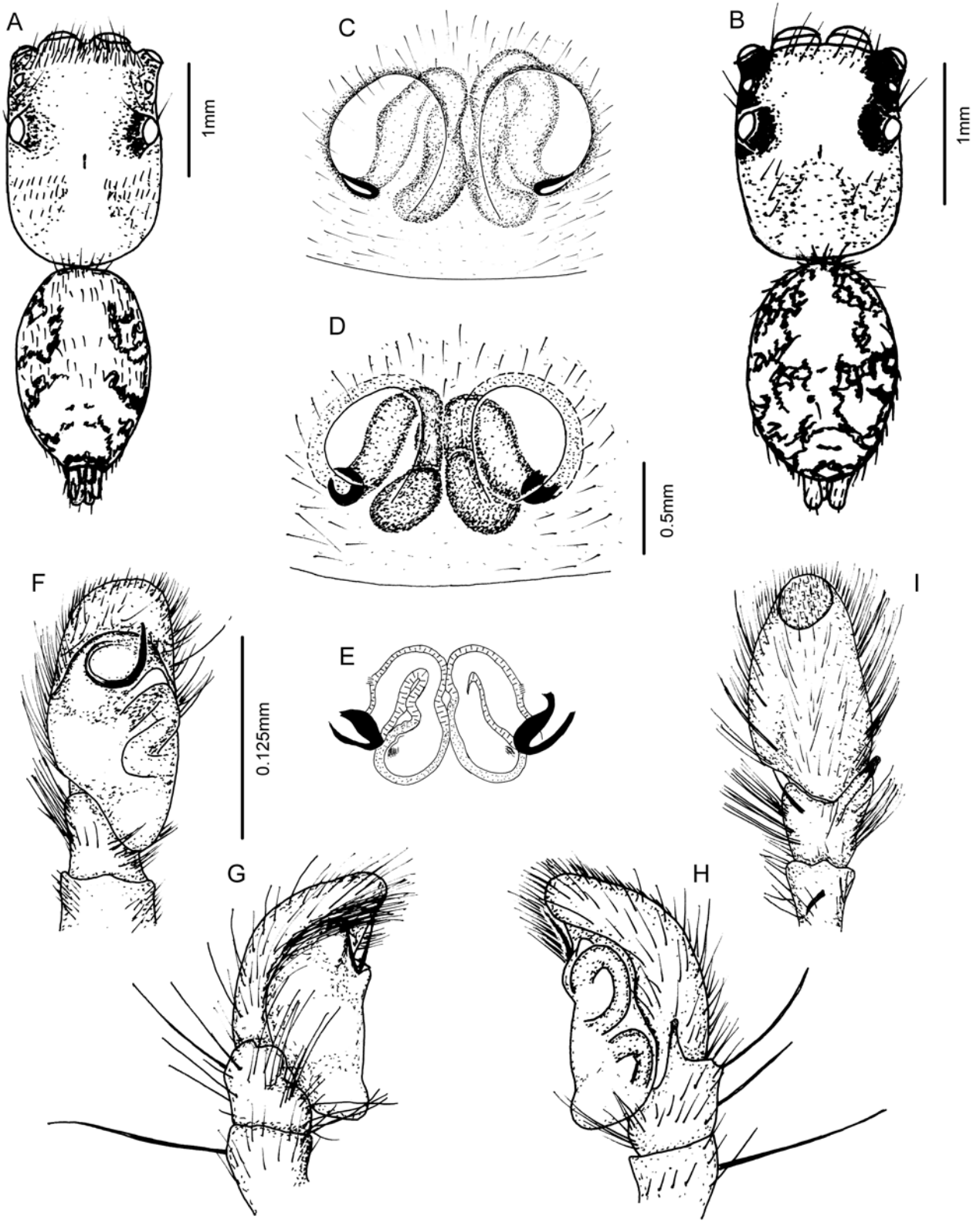

Fig. 4. Morphology of *Prostheclina pallida*. (*A*) male, dorsal view; (*B*) female, dorsal view; (*C*) female copulatory organs, external view of lectotype; (*D*) female copulatory organs, external view; (*E*) female copulatory organs, internal anatomy of the same specimen; (*F*) male left palp, ventral view; (*G*) male left palp, right side; (*H*) male left palp, right side; (*I*) Male left palp, dorsal view.

Hirst, SAM NN19586; 1 male, The Head, near Wilsons Peak, 28°09'S 152°17'E, I. Naumann, J. Cardale, 13 Oct 1984, ANIC 42-000002; 2 males 5 immatures, Upper Brookfield, 27°29'S 152°52'E, V. Davies, R. Raven, 11 Nov 1981, S61016; 11 Dec 1980, S61007. **South Australia**: 1 female 1 immature, Cleland Conservation Park, 34°57'S 138°41'E, G. Crook, P. Christie, 7 Oct 1975, SAM NN19596; 1 female, Mark Oliphant Conservation Park, 35°02'S 138°42'E, L. Nicolson, 27 Mar 1990, SAM NN19597. **Victoria**: 1 female, Rubicon State Forest, 37°15'S 145°45'E, M.R. Gray, 7 Apr 1978, AM KS045342.

Diagnosis. Clypeal mat of hairs in the males extending over the front of the cephalothorax (separating it from all but *P. bulburin*), relatively faint markings on the dorsal abdomen, sparse fringing on M1 (separates it from *P. bulburin*), male copulatory organs without prolateral distal tegular lobe or dorsal distal tegular lobe, female copulatory organs with proximal seminal ducts long and uncoiled anterior to spermatheca (separating it from *P. basilonesa* and *P. amplior*).

Description

Male. Medium sized species, cephalothorax yellow with orange marks and striae on the thorax, eye field brown, clypeus orange with orange mat of hairs, chelicera yellow with small, blunt retromarginal tooth and one small fissident promarginal tooth, maxillae yellow, labium yellow, sternum yellow, abdomen dorsal vanilla with black pattern, ventral yellow and squared posterior lip, L1 relatively smaller and weaker than in other species, T1 orange, F1, P1, M1 and Ts1 yellow, T1 and M1 sparsely fringed, (P1+T1) relatively short, L2–4 yellow, palps yellow, male copulatory organs with only distal and proximal tegular lobes. Dimensions: (AM KS64514) 2.2 mm CL, 0.71 AEW/CL, 0.46 AMEW/CL, 0.77 CW/CL, 0.66 PEW/CL, 0.46 EFL/CL, 0.63 CWP/CL, 0.91 AL/CL, 0.63 AW/CL, 0.57 CH/CL, 0.057 ClH/CL, 0.37 ChH/CL, 0.43 StL/CL, 0.31 StW/CL, 0.83 (P1+T1/CL).

Female. Medium sized species, cephalothorax yellow with faint orange marks on the thorax, eye field black, AME fringe sparse, sparse hairs covering cephalothorax, clypeus yellow, chelicera yellow with medium, blunt retromarginal tooth and a medium fissident promarginal tooth, maxillae yellow, labium yellow, sternum yellow, dorsal abdomen vanilla with black pattern, ventral abdomen yellow, L2–4 yellow, palps yellow, female copulatory organs with proximal seminal ducts straight and anterior to spermatheca, accessory glands in insemination ducts weakly developed. Dimensions: lectotype 2.1 mm CL, 0.70 AEW/CL, 0.44 AMEW/CL, 0.77 CW/CL, 0.70 PEW/CL, 0.49 EFL/CL, 0.56 CWP/CL, 1.17 AL/CL, 0.94 AW/CL, 0.56 CH/CL, 0.067 ClH/CL, 0.33 ChH/CL, 0.43 StL/CL, 0.33 StW/CL.

Distribution. Southern Queensland, New South Wales, inland Victoria and South Australia (Fig. 5). At lower altitudes on the eastern and western side of the Great Dividing Range.

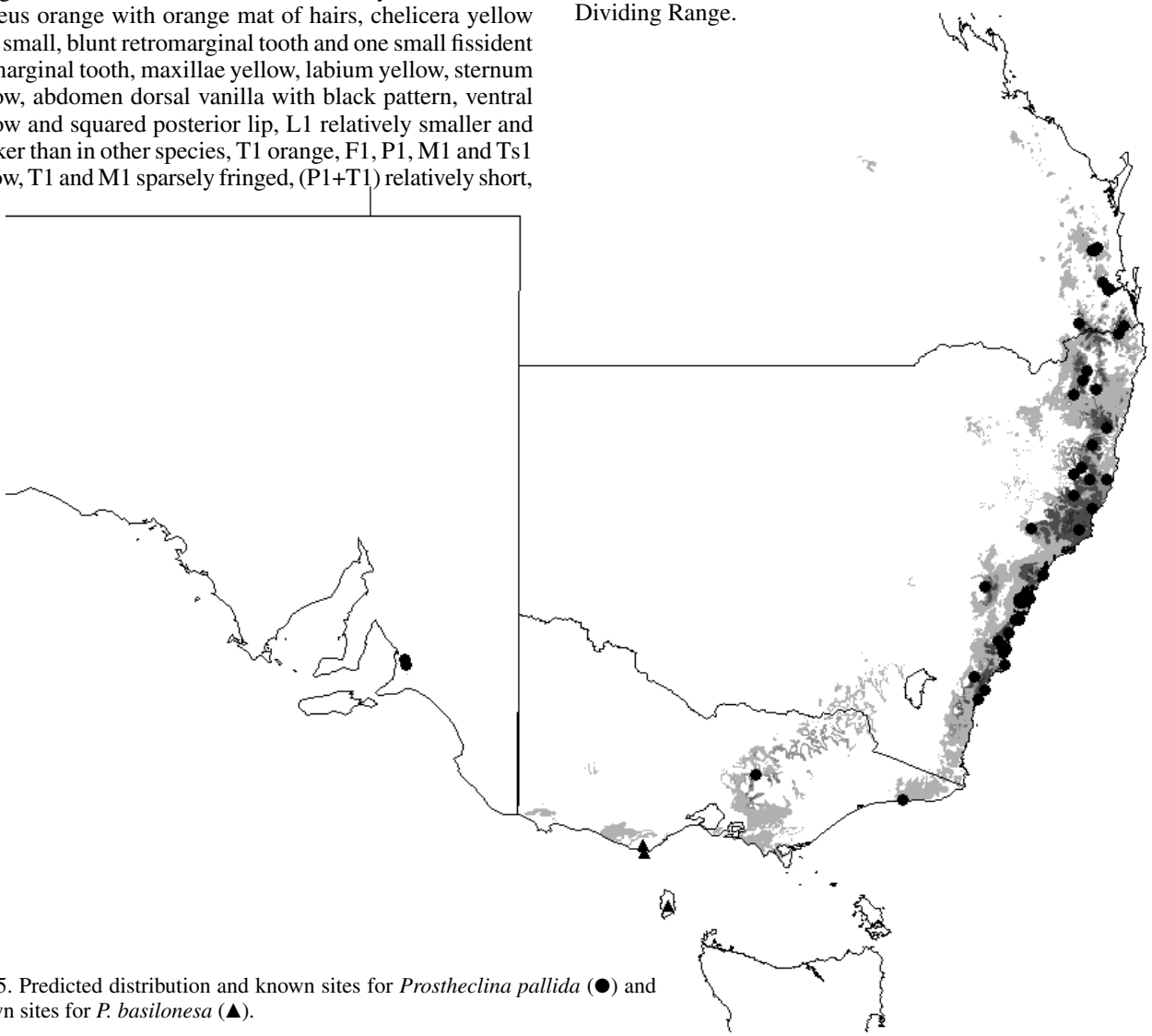

Fig. 5. Predicted distribution and known sites for *Prostheclina pallida* (●) and known sites for *P. basilonesa* (▲).

Prostheclina amplior n.sp.

Figs 2, 6, 7; Table 1

Material examined. HOLOTYPE male, Kanagra-Boyd National Park, Filly Creek near Jenolan Caves, NSW, (33°49'S 150°02'E), M. M.R. Gray, G.S. Hunt, J. McDougall, 27 March 1976, AM KS29984. PARATYPES 3 males, 2 females, 4 juveniles, details as for holotype.

Other material. ACT: 1 female, Tidbinbilla Nature Reserve; 35°28'S 148°52'E, AM KS13841; **New South Wales**: 3 females, Carrow Brook, 32°18'S 151°19'E, J. Noble, 21 Apr 1999, AM KS56413, KS56412, 10 Feb 1999, AM KS56391; 1 female, Dorrigo National Park, Dome Rd, 1km W of Never Never Picnic Area, 30°21'S 152°47'E, M.R. Gray, G. Cassis, 4 Feb 1993, AM KS037601; 1 female, Marengo State Forest, 2km NE along Chimney Rd from Chaelundi Rd, 30°07'S 152°26'E, M.R. Gray, G. Cassis, 4 Feb 1993, AM KS037587; 1 female, Marengo State Forest, Opossum Creek, 30°07'S 152°26'E, M.R. Gray, G. Cassis, 18 Feb 1993, AM KS64614; 2 males, Mt Dromedary Summit, 36°18'S 150°04'E, D. Bickel, 9 Nov 1985, AM KS23689; 4 males 6 females, 2 immatures, Kanagra-Boyd National Park, Filly Creek near Jenolan Caves, 33°49'S 150°02'E, M.R. Gray, G. Hunt, J. McDougall, 27 Mar 1976, AM KS30018; AM KS29984; 1 female, Bondi State Forest, 37°09'S 149°12'E, M. Zabka, 6 Apr 1988, AM KS64510; 1 male 2 females, Jamberoo Mountain, 34°40'S 150°43'E, J. Noble, 12 Jan 2001, AM KS70904; 12 Apr 1994, AM KS54048; 26 Apr 2001, AM KS72898; 1 female, Jenolan, 33°49'S 150°02'E, AM KS22277; 1 male, Barren Grounds Nat Res, 14km NW Jamberoo, Illawarra Escarp, 34°40'S 150°42'E, Robinson, 12 Mar 2000, AM KS65025; 1 male, Boyd River Crossing, 34°03'S 150°05'E, M.R. & G. Gray, 3 Mar 1973, AM KS19187; 1 male, Washpool State Forest Moongem Rd before Coobadjah, 29°16'S 152°22'E, C. Horseman, 2 Oct 1982, AM KS9229; 1 female, Guthega, 36°21'S 148°25'E, J. Noble, 17 Jan 1992, AM KS045454; 1 male, Tubrabucca, 31°53'S 151°25'E, R. Prescott and A. Burns, 18 Jan 1948, NMV; 1 female, 1 immature, Point Lookout, New England N.P., 30°29'S 152°25'E, I. Naumann, 12 Nov 1984, ANIC 42-000013; 1 male, 1 female, Monga Forest, 35°28'S 149°54'E, R. Moran, 4 Mar 1984, ANIC 42-000005; 1 male 2 females, 12 immatures, Cobark Forest Park, Barrington Tops, 31°54'S 151°36'E, I. Naumann, 11 Feb 1984, ANIC 42-000003; 11 Nov 1984, ANIC 42-000001. **Queensland**: 1 male, Mount Superbus, 28°13'S 152°26'E, QM S16607. **Tasmania**: 1 female, 8 immatures, SW Tasmania, V.V. Hickman, 2 Feb 1976, AM KS27035; 2 males, Farmhouse Creek, Picton Rd, 43°15'S 146°38'E, D. Bickel, 22 Jan 1989, AM KS56414; 1 male, Tarraleah; 42°18'S 146°24'E, V.V. Hickman, 1 May 1952, AM KS31050; 1 male, 2 females, Mount Field National Park, Russell Falls; 42°45'S 146°50'E, D. Bickel, 25 Jan 1989, AM KS56352; 1 female, Bathurst Harbour, eastern entrance, Old River; 43°21'S 146°10'E, J. Waterhouse, 14 Feb 1987, AM KS17513; 2 males, 1 female, Western Creek; 41°39'S 146°30'E, 31 Jan 1930, AM KS30969; 1 male, 1 female, 1 immature, Lenah Valley; 42°52'S 147°17'E, V.V. Hickman, 4 Jan 1934, AM KS30961; 1 male, Tarraleah; 42°18'S 146°24'E, V.V. Hickman, 27 Dec 1954, AM KS31049; 1 female, 7 immatures, Mount Nelson; 42°56'S 147°20'E, J.L. Hickman, 5 Apr 1987, AM KS31577; 1 male, Hellyer River, south of Wynyard; 41°14'S 145°31'E, D. Bickel, 29 Jan 1989, AM KS56369; 1 female, SW Tasmania, L. Hill, 4 Feb 1978, AM KS27080; 1 female, SW Tasmania; C.L. Howard, 19 Jan 1978, AM KS27126; 1 male, Gordon River Rd and Little Florentine Rd; D. Bickel, 5 Feb 1983, AM KS53426; 4 females, Ferntree; 42°55'S 147°15'E, V.V. Hickman, 4 Mar 1964, AM KS31073; 1 female, south of Tayene; 41°20'S 147°26'E, D. Bickel, 1 Nov 1989, AM KS56347; 1 immature, Andrew River Caves area; 42°20'S 145°47'E, M.R. Gray, Eberhard, 22 Mar 1988, AM KS20899; 1 female, Melaleuca; 43°26'S 146°07'E, M.L. Potts, Feb 2000, SAM NN19595; 1 male, Tunnel Hill; 42°51'S 147°24'E, K.C. Collins, 16 Jan 1974, AM, KS19233; 1 female, Flowery Gully; 41°16'S 146°49'E, G. Hunt, 25 Oct 1988, AM KS56328; 1 male, Mount Field National Park, Lyrebird Walk; 42°45'S 146°50'E, D. Bickel, 25 Jan 1989, AM KS56348; 1 male, Liffey Falls; 41°30'S 147°02'E, V.V. Hickman, 14 May 1953, AM KS31078; 1 male, Lake Pedder; 42°50'S 145°59'E, A. Neboiss, 1 Feb 1965, NMV; 1 male, Birthday Bay and Hibbs Lagoon; 42°27'S 145°15'E, ANZSS Expedition, Jan 1983, S61011; 30 males and females 4 immatures, Pelion Hut, 3km S Mt Oakleigh; 41°50'S 146°03'E, I. Naumann, 5 Feb 1990, ANIC 42-000015; Mar 1991, ANIC 42-000004; 3 males, 1 female, Weldborough; 41°50'S 146°03'E, I. Naumann, J. Cardale, 13 Jan 1983, ANIC 42-000014; 1 female, Melaleuca; 43°26'S 146°07'E, E. Nielsen, E. Edwards, 3 Dec 1990, ANIC 42-000007; 1 female, Mount Rufus; 42°07'S 146°07'E, J. Lawrence, T. Weir, 26 Jan 1980, ANIC 42-000006: 2 males 1 female Lake St Clair, 42°04'S 146°10'E, 25 Jan 1980, ANIC 42-000008. **Victoria**: 1 female, Otway Ranges, 9.5 km SSE Beech Forest, 38°43'S 143°37'E, LaTrobe University Otway Survey, 19 May 1975, AM KS50829; 3 males, Blanket Bay, Otway National Park, 38°50'S 143°35'E, D. Bickel, 4 Dec 1994, AM KS045180; 3 males 6 females, Otway Ranges, Young Creek Rd, 38°40'S 143°29'E, G. Milledge, 15 Nov 1994, NMV; 1 male, 2 females, Tarra-Bulga National Park, Strzelecki Ranges, Tarra Valley Picnic Area, 38°27'S 146°32'E, G. Milledge, 14 Nov 1995, NMV; 10 Jan 1996, NMV; 3 females, The Big Culvert, 2.5 km ENE of Mt Observation, 37°34'S 145°52'E, G. Milledge, 19 Feb 1996 NMV; 4 males, Phillips Track, 0.5km N of Triplet Falls, 38°40'S 143°29'E, G. Milledge, 31 Jan 1995, NMV; 2 males, Aire Crossing Track, 0.5km N of Aire River Crossing, 38°42'S 143°29'E, G. Milledge, 31 Jan 1995, NMV; 2 females 1 immature, Young Creek Road, 0.4km NW of Triplet Falls, 38°40'S 143°29'E, G. Milledge, 31 Jan 1995, NMV; P. Lillywhite, 31 Jan 1995, NMV; 1 male1 immature, Myrtle Gully Reserve, 3.4 WSW of Mount Donna Buang, 37°43'S 145°38'E, G. Milledge, 29 Nov 1994, NMV; 21 Jan 1995, NMV; 2 males, 2 females 1 immature, Croydon, 37°48'S 145°17'E, S.W. Fulton, 11 Jan 1909, NMV; 28 Feb 1909, NMV; 2 females, Young Creek Road, 0.2 km NE of Ciancio Creek Crossing, 38°40'S 143°29'E, P. Lillywhite, 31 Jan 1995, NMV; 1 female, Phillips Track, Youngs Creek Crossing, 0.6 km N Triplet Falls, 38°40'S 143°29'E, P. Lillywhite, G. Milledge, 30 Oct 1991, NMV; 3 males, Gunyah-Toora Road, 2km SSW of Gunyah Gunyah, 38°32'S 146°19'E, G. Milledge, 5 May 1996, NMV; 1 immature, 0.7km N of Acheron Gap, 7 km NE of Mount Donna Buang, 37°40'S 145°44'E, G. Milledge, 29 Aug 1996, NMV; 1 male, Sassafras, 37°52'S 145°21'E, Jan 1922, NMV; 2 males, 1 female, Maits Rest, 10km W of Apollo Bay; 38°45'S 143°34'E, K. Walker, 18

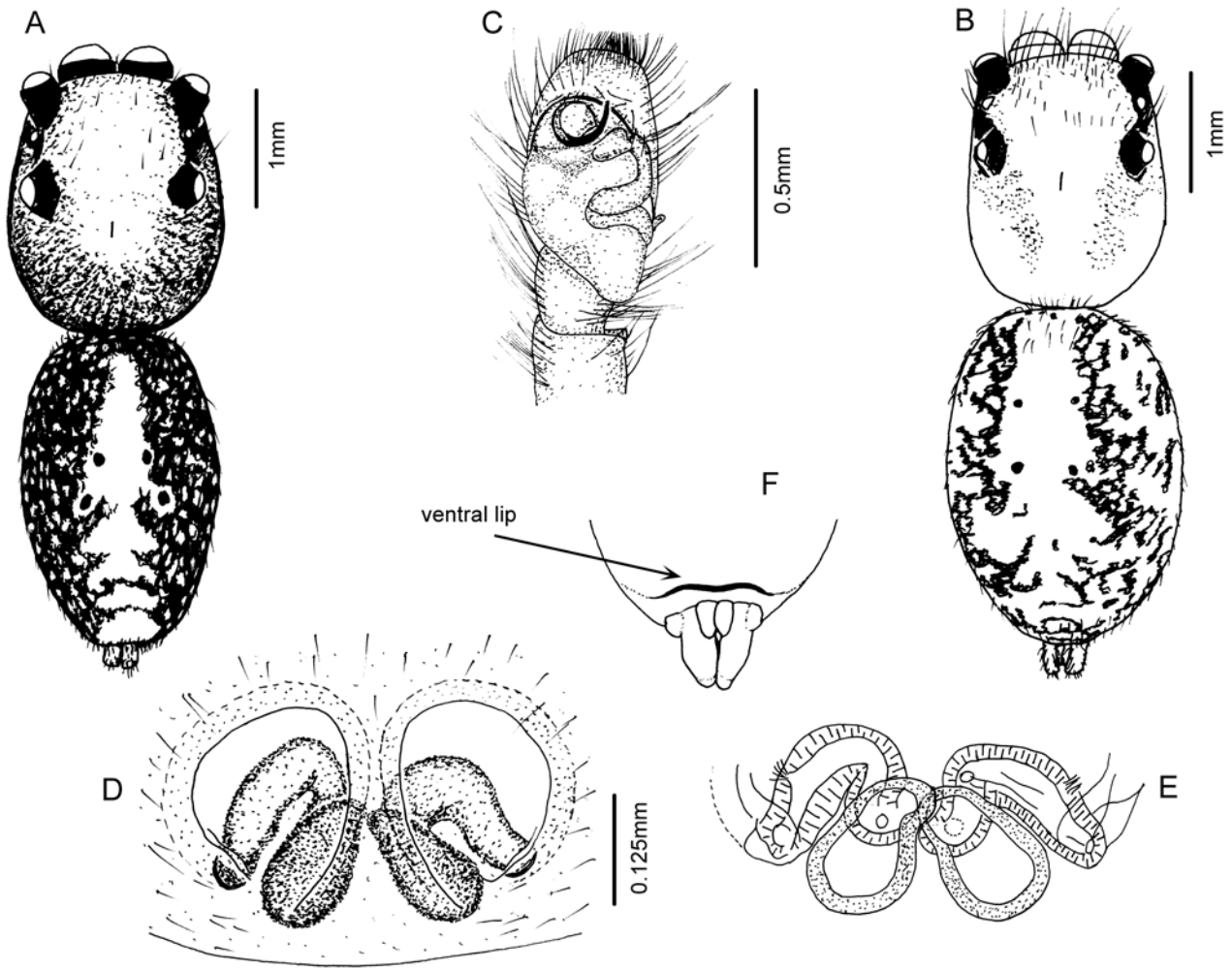

Fig. 6. Morphology of *Prostheclina amplior*. (*A*) male, dorsal view; (*B*) female, dorsal view; (*C*) male left palp, ventral view; (*D*) female copulatory organs, external view; (*E*) female copulatory organs, internal anatomy of the same specimen; (*F*) posterior section of male abdomen showing ventral lip, ventral view.

Feb 1992, NMV; 2 females, 3.5 km SW of Beauchamp Falls, 38°40'S 143°35'E, G. Milledge, 16 Mar 1992, NMV; 1 male, Jeeralang West Road, 0.1km N of Binns Hill Junction, 38°27'S 146°29'E, G. Milledge, 14 Nov 1995, NMV; 1 male, Jeeralang West Rd, 0.1km N of Binns Hill Junction, 38°27'S 146°29'E, G. Milledge, 10 Jan 1996, NMV; 4 females, 1 immature, Beauchamp Falls, 33.6km ESE of Beech Forest, 38°39'S 143°36'E, K. Walker, 18 Feb 1992, NMV; 1 female, Mount Buffalo, 36°43'S 146°46'E, A. Neboiss, 24 Feb 1955, NMV; 1 male, 1 immature, Dart-Mitta Road Junction, 36°32'S 147°31'E, 4 Mar 1973, NMV; 1 male, The Big Culvert, 2.5km ENE of Mount Observation, 37°34'S 145°52'E, G. Milledge, 28 Dec 1995, NMV; 1 male, Mount Baw Baw, 37°50'S 146°17'E, M. Baehr? 5 Jan 1973, QM S61201.

Diagnosis. White scales on cephalothorax and around eyes, no clypeal mat of hairs (separating it from *P. pallida*), square brown end to abdomen, male copulatory organs without well-developed prolateral distal tegular lobe (separating it from *P. basilonesa*), female copulatory organs with proximal seminal ducts coiled anterior to spermatheca (separating it from *P. basilonesa* and *P. pallida*).

Description

Male. Relatively large species, cephalothorax orange with clear dark brown marks and striae on the thorax, faint median white strip of hairs, eye field brown, AME fringe sparse, white scales on cephalothorax and around eyes, clypeus dark brown with no mat of hairs, chelicera dark brown with large, pointed retromarginal tooth and one large fissident promarginal tooth, maxillae brown, labium brown, sternum brown, abdomen dorsal orange with black pattern, ventral with brown markings and squared posterior lip, L1 larger and stronger than in other species, F1 with brown and yellow patches, P1, T1, M1 and Ts1 orange, T1 and M1 strongly fringed, (P1+T1) relatively long, L2–4 yellow, palps yellow, male copulatory organs with distal and proximal tegular lobes. Dimensions: holotype 2.3 mm CL, 0.77 AEW/CL, 0.51 AMEW/CL, 0.92 CW/CL, 0.76 PEW/CL, 0.54 EFL/CL, 0.64 CWP/CL, 1.22 AL/CL, 0.81 AW/CL, 0.57 CH/CL, 0.081 ClH/CL, 0.43 ChH/CL, 0.46 StL/CL, 0.34 StW/CL, 1.12 (P1+T1/CL).

Female. Relatively large species, cephalothorax orange with dark orange/brown marks on the thorax, eye field black, AME fringe sparse, sparse hairs covering cephalothorax, clypeus yellow, chelicera yellow with large, pointed

retromarginal tooth and a large fissident promarginal tooth, maxillae yellow, labium yellow, sternum yellow, dorsal abdomen vanilla with black pattern, ventral abdomen yellow, L2–4 yellow, palps yellow, female copulatory organs with proximal seminal ducts coiled anterior to spermatheca, the spermathecae, accessory glands in insemination ducts well developed. Dimensions: paratype 2.3 CL, 0.71 AEW/CL, 0.42 AMEW/CL, 0.82 CW/CL, 0.71 PEW/CL, 0.47 EFL/CL, 0.61 CWP/CL, 1.24 AL/CL, 0.97 AW/CL, 0.61 CH/CL, 0.053 ClH/CL, 0.40 ChH/CL, 0.37 StL/CL, 0.32 StW/CL, 0.63 (P1+T1/CL).

Distribution. Tasmania, to southern Queensland in higher, cooler and wetter regions (Fig. 7).

Etymology. From αμπλιορ = large.

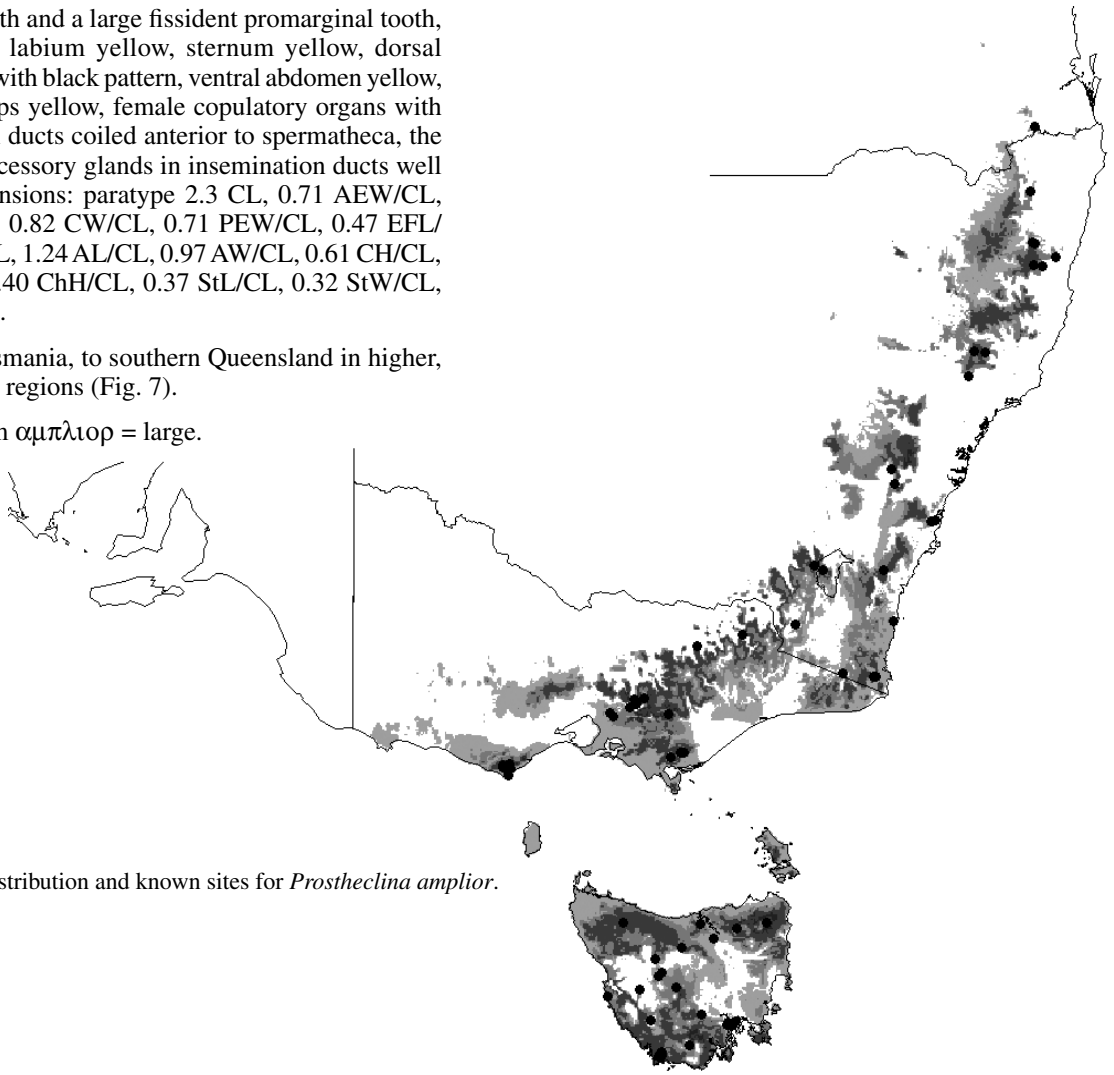

Fig. 7. Predicted distribution and known sites for *Prostheclina amplior*.

Prostheclina basilonesa n.sp.

Figs 2, 5, 8; Table 1

Material examined. HOLOTYPE Tasmania: 1 male, King Island, 39°55'S 144°00'E, J.A. Kershaw, Dec 1906, NMV K9709. PARATYPES 2 females, details as above, NMV K9710–K9711.

Other material. Victoria: 1 male, Cape Otway, Lighthouse, 39°55'S 144°00'E, D. Bickel, 4 Dec 1994, AM KS045959; 1 male Phillips Track, 0.5km N of Triplet Falls, 38°40'S 143°29'E, G. Milledge, 20 Feb 1992, NMV; 1 male, Young Creek Road, 0.4km NW of Triplet Falls, 38°40'S 143°29'E, G. Milledge, 31 Jan 1995, NMV

Diagnosis. Median white stripe on the cephalothorax, white scales on cephalothorax and around eyes, square brown end to abdomen, male copulatory organs with well-developed prolateral distal tegular lobe, female copulatory organs with seminal ducts folded down between the spermathecae.

Description

Male. Medium sized species, cephalothorax yellow with clear orange marks on the thorax, median white strip of hairs, eye field brown, AME fringe sparse, white scales on cephalothorax and around eyes, clypeus yellow with no mat of hairs, chelicera yellow with large, pointed retromarginal tooth and one fissident promarginal tooth, maxillae yellow, labium yellow, sternum yellow, abdomen dorsal yellow with black pattern, ventral yellow/orange with squared posterior lip, L1–4 yellow, T1 sparsely fringed and M1 fringed, (P1+T1) medium length, palps yellow, male copulatory organs with broad tegulum compared to other species, a distinctive prolateral distal tegular lobe, as well as distal and proximal tegular lobes. Dimensions: holotype 1.9 mm CL, 0.72 AEW/CL, 0.43 AMEW/CL, 0.85 CW/CL, 0.83 PEW/CL, 0.55 EFL/CL, 0.62 CWP/CL, 1.13 AL/CL, 0.73 AW/CL, 0.70 CH/CL, 0.10 ClH/CL, 0.333 ChH/CL, 0.43 StL/CL, 0.33 StW/CL, 0.97 (P1+T1/CL).

Female. Medium sized species, cephalothorax yellow with orange marks on the thorax, eye field brown, AME fringe sparse, sparse hairs covering cephalothorax, clypeus yellow, chelicera yellow with large, pointed medium retromarginal tooth and two closely placed promarginal teeth, maxillae yellow, labium yellow, sternum yellow, dorsal abdomen vanilla with black pattern, ventral abdomen yellow, legs yellow, palps yellow, female copulatory organs with proximal seminal ducts folded down between the spermathecae, accessory glands in insemination ducts not well developed.

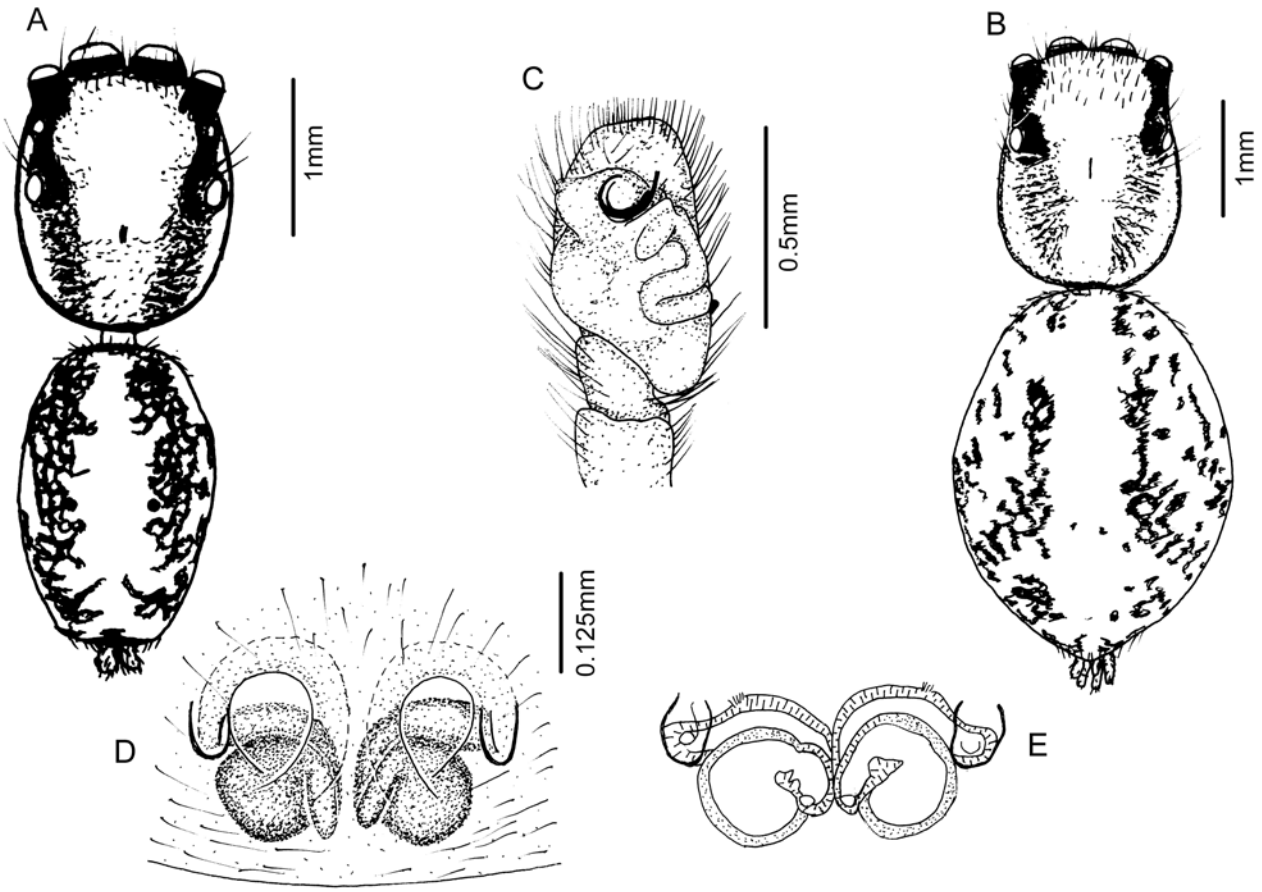

Fig. 8. Morphology of *Prostheclina basilonesa*. (*A*) male, dorsal view; (*B*) female, dorsal view; (*C*) male left palp, ventral view; (*D*) female genitalia, external view; (*E*) female genitalia, internal anatomy of the same specimen.

Dimensions: paratype 2.0 mm CL, 0.70 AEW/CL, 0.42 AMEW/CL, 0.82 CW/CL, 0.73 PEW/CL, 0.52 EFL/CL, 0.61 CWP/CL, 1.70 AL/CL, 1.36 AW/CL, 0.64 CH/CL, 0.061 ClH/CL, 0.39 ChH/CL, 0.42 StL/CL, 0.30 StW/CL, 0.68 (P1+T1/CL).

Distribution. King Island and the Otway area of Victoria (Fig. 5).

Etymology. From Greek βασιλευς = king and νησος = island, to be treated as a female noun in apposition

Prostheclina boreoaitha n.sp.

Figs 2, 9, 10; Table 1

Material Examined. HOLOTYPE Queensland: Male, Windsor Tableland, (approx. 16°13'S 145°00'E), J. Thompson, M. Moulds, F. McKillop, 17 April 1994, AM KS45747.

Diagnosis. Relatively small species, F1–4 covered with black and vanilla coloured patches, T1 and M1 orange with sparse fringing, P1 and Ts1 yellow, palps vanilla colour. Can be separated from *P. boreoxantha* by colour, the presence of white median strip of hair, and the presence of dorsal distal tegular lobe as well as a distal tegular lobe in *P. boreoxantha*, and from *P. amplior*, the only other species with black leg markings, by smaller size (75%) and the presence of black leg markings on F1–4 rather than just F1.

Description

Male. Relatively small species, cephalothorax orange with tan margin and striae, eye field black, median white strip of hair present but sparse, AME fringe sparse, clypeus tan with no moustache, chelicera tan with large and pointed retromarginal tooth and one fissident promarginal tooth maxillae yellow, labium tan with yellow margin, sternum yellow, abdomen dorsal yellow with black pattern, ventral yellow/orange with squared posterior lip, T1 and M1 orange with sparse fringing, P1 and Ts1 yellow, F1–4 covered with black and vanilla patches remainder of L2–4 yellow, (P1+T1) medium length, palps yellow, male copulatory organs with dorsal distal tegular lobe as well as distal and proximal tegular lobes. Dimensions: holotype CL 1.7 mm, AEW/CL 0.82, AMEW/CL 0.50, CW/CL 0.80, PEW/CL 0.79, EFL/CL 0.57, CWP/CL 0.68, AL/CL 1.0, AW/CL 0.61, CH/CL 0.64, ClH/CL 0.04, ChH/CL 0.32, StL/CL 0.41, StW/CL 0.29, (P1+T1/CL) 0.93.

Distribution. Known only from the type locality (Fig. 10).

Etymology. From Greek βορεας = northern and αιθος = reddish-brown, to be treated as a female noun in apposition.

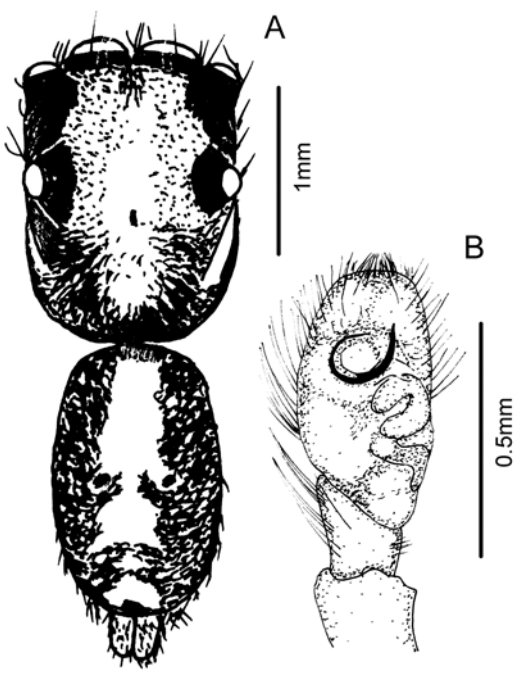

Fig. 9. Morphology of *Prostheclina boreoaitha*. (*A*) male, dorsal view; (*B*) male left palp, ventral view.

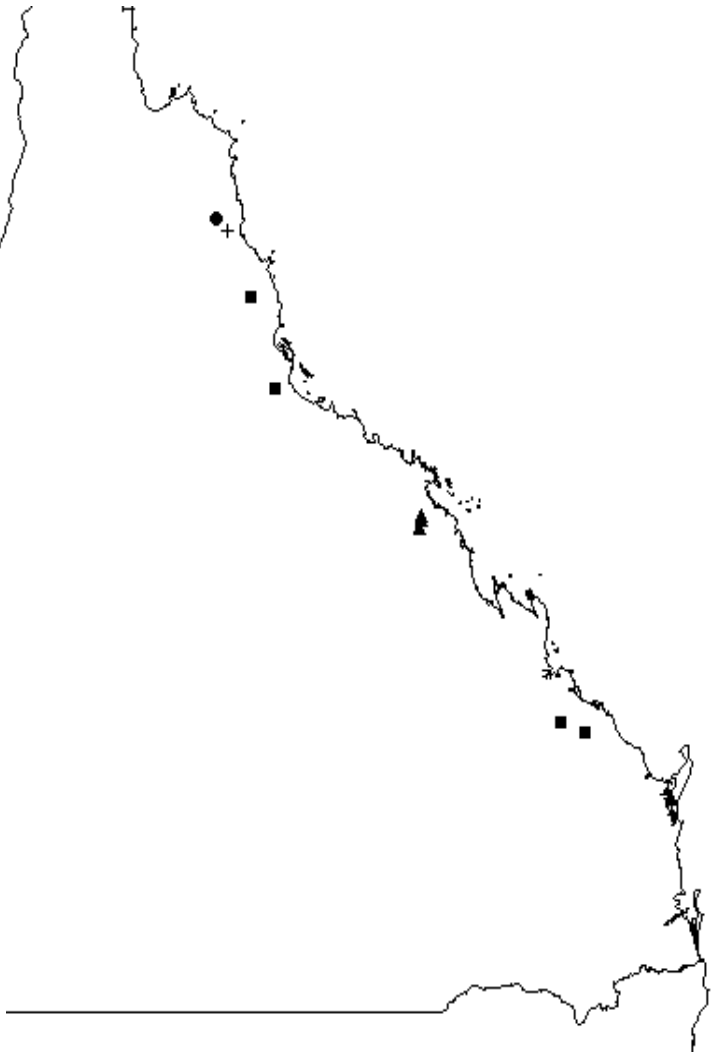

Fig. 10. Distribution of location data for *Prostheclina boreoaitha* (●), *P. eungella* (▲), *P. boreoxantha* (+) and *P. bulburin* (■).

Prostheclina boreoxantha n.sp.

Figs 2, 10, 11; Table 1

Material Examined. HOLOTYPE Queensland: 1 male, Mt Spurgeon area, 16°26'S 145°12'E, J. Thompson, M. Moulds, F. McKillop, 9 Apr 1994, AM KS64638. PARATYPE Queensland: 1 female, Mt Spurgeon area, 16°26'S 145°12'E, J. Thompson, M. Moulds, F. McKillop, 19 Apr 1994, (copulatory organs missing) AM KS64610.

Diagnosis. F1–4 yellow, P1, T1 and M1 orange, Ts1 yellow, lush fringes on M1 and T1, palps vanilla colour. Neither dorsal median white strip of hair nor red clypeal moustache, Male copulatory organs with dorsal distal tegular lobe as well as distal and proximal tegular lobes. Female copulatory organs with proximal seminal duct short and straight. Can be separated from *P. boreoaitha* by the absence of dark colour patches on F1–F4 and the presence of a dorsal, distal tegular lobe, and from *P. bulburin*, by smaller size (75%), the presence of a dorsal, distal tegular lobe and the absence of the red mat of hairs covering the clypeus and around AME found in *P. bulburin*.

Description

Male. Relatively small species, cephalothorax yellow with faint orange marks on the thorax, sparse hairs covering cephalothorax, no median white strip of hairs, eye field brown, AME fringe sparse, clypeus orange with no moustache, chelicera orange with small, pointed retromarginal tooth and one fissident promarginal tooth, maxillae yellow, labium yellow, sternum yellow, abdomen dorsal yellow with black pattern, ventral yellow/orange with squared posterior lip, P1, T1 and M1 orange, T1 and M1 fringed, Ts1 yellow, (P1+T1) medium length, F1–4 yellow, palps yellow, male copulatory organs with dorsal distal tegular lobe as well as distal and proximal tegular lobes. Dimensions: holotype 1.7 mm CL, 0.85 AEW/CL, 0.56 AMEW/CL, 0.85 CW/CL, 0.82 PEW/CL, 0.56 EFL/CL, 0.59 CWP/CL, 1.00 AL/CL, 0.74 AW/CL, 0.59 CH/CL, 0.056 ClH/CL, 0.41 ChH/CL, 0.48 StL/CL, 0.37 StW/CL, 0.96 (P1+T1/CL).

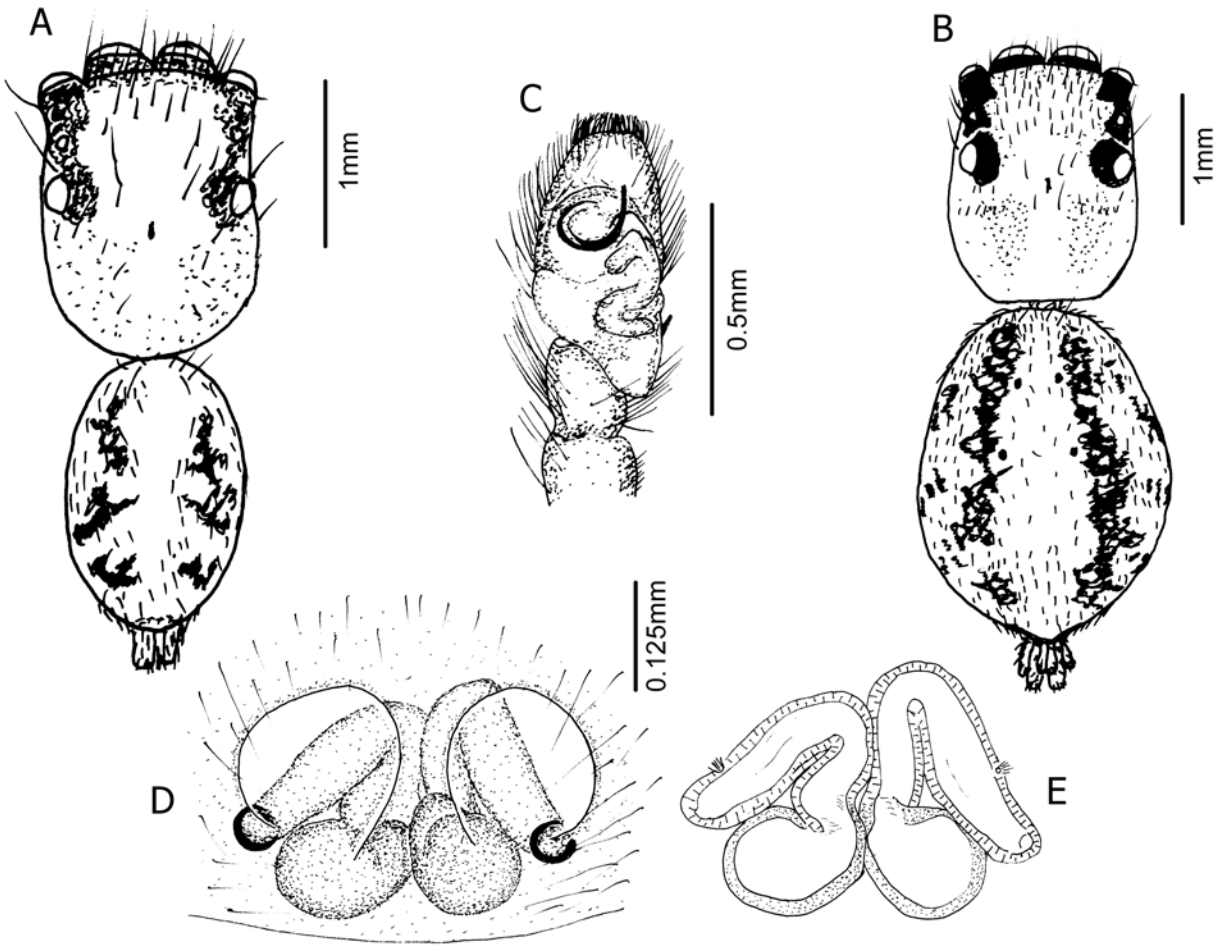

Fig. 11. Morphology of *Prostheclina boreoxantha*. (*A*) male, dorsal view; (*B*) female, dorsal view; (*C*) male left palp, ventral view; (*D*) female genitalia, external view; (*E*) female genitalia, internal anatomy of the same specimen.

Female. Relatively small species, cephalothorax yellow with faint orange marks on the thorax, eye field black, AME fringe sparse, sparse hairs covering cephalothorax, clypeus orange with no moustache, chelicera yellow with large, blunt retromarginal tooth and two promarginal teeth, maxillae yellow, labium yellow, sternum yellow, dorsal abdomen vanilla with black pattern, ventral abdomen yellow, legs yellow, palps yellow, female copulatory organs with proximal seminal duct short and straight, accessory glands in insemination ducts not well developed. Dimensions: paratype 1.9 mm CL, 0.77 AEW/CL, 0.48 AMEW/CL, 0.84 CW/CL, 0.74 PEW/CL, 0.53 EFL/CL, 0.57 CWP/CL, 1.29 AL/CL, 1.10 AW/CL, 0.61 CH/CL, 0.048 ClH/CL, 0.45 ChH/CL, 0.39 StL/CL, 0.32 StW/CL, 0.68 (P1+T1/CL).

Distribution. The species has only been collected at two sites on Mt Spurgeon in northern Queensland (Fig. 10).

Etymology. From Greek βορεας = northern and χανθος = yellowish-brown, to be treated as a female noun in apposition.

Prostheclina bulburin n.sp.

Figs 2, 10, 12; Table 1

Prostheclina pallida Davies & Zabka, 1989: 238

Material Examined. HOLOTYPE Queensland: 1 male, Bulburin Forestry Nursery NW of Bundaberg, 24°31'S 151°29'E, M.R. Gray & C. Horseman, 1 Mar 1975, AM KS0101. PARATYPES Queensland: 2 males 3 females 11 immatures, data as for holotype.

Other material. Queensland: 1 male 1 female, Kroombit Tops, 18°59'S 146°02'E, R. Raven, 25 Nov 1987, S 35066, (illustrated in Davies & Zabka, 1989 as *P. pallida*); 1 female, Paluma Dam Road, 18°59'S 146°02'E, Monteith, Seymor, 8 Dec 1990, QM S60379; 3 immatures, Kroombit Tops, Beauty Spot 98, 45 km SSW Calliope, 24°22'S 151°03'E, E.V. Davies, Gallon, 9 Dec 1983, QM S61015; Kroombit Tops, Dawes Range, 45km SSW Calliope, 24°22'S 151°03'E, E. Davies, Gallon, 9 Dec 1983, QM S61013; Kroombit Tops, upper TA47 Creek, 45km SSW Calliope, 24°22'S 151°03'E, E. Davies, Gallon, 9 Dec 1983, QM S61012, Millaa Millaa, 17 30'S 145 37'E, Richardson, 3 Aug 2003, ANIC 42 000142.

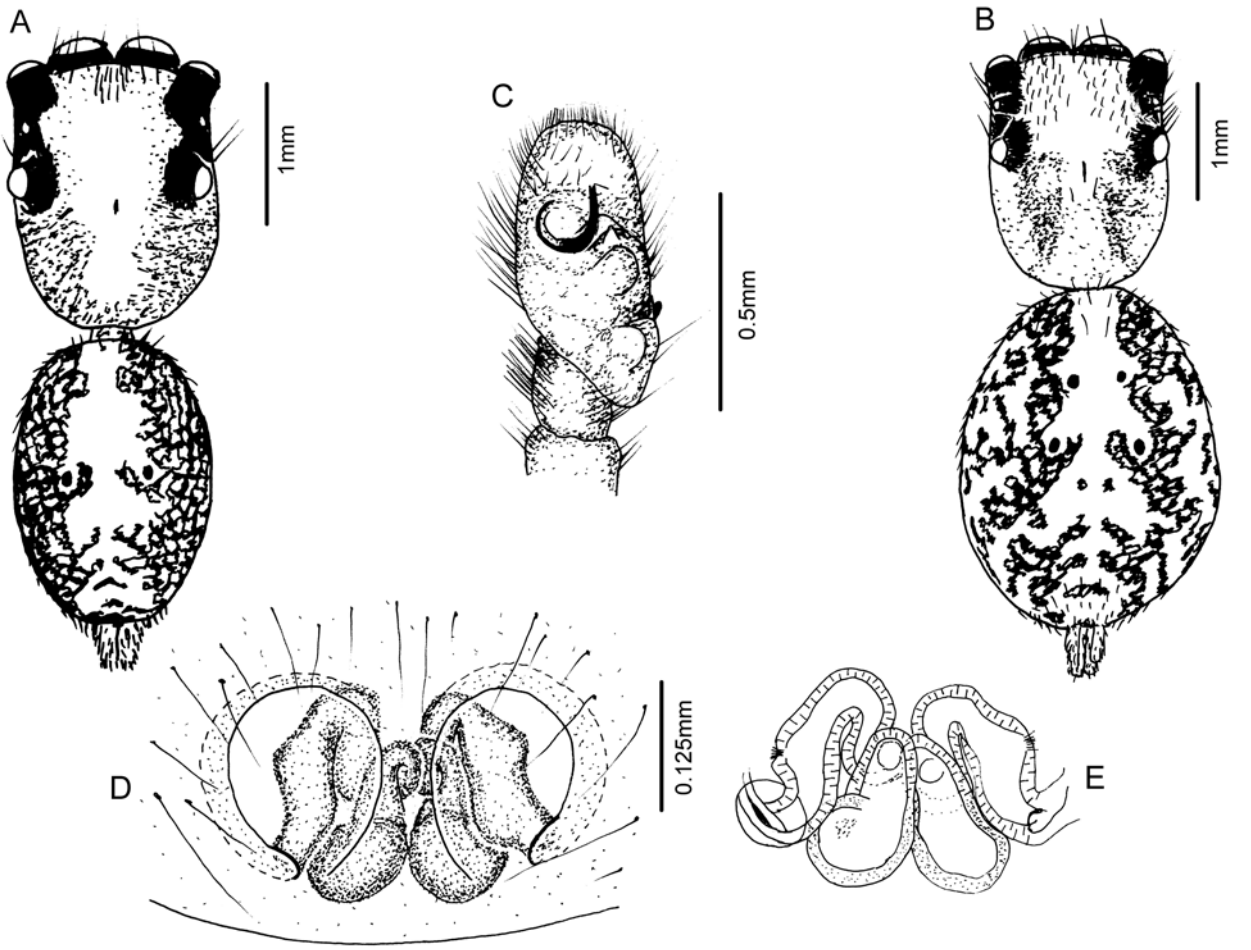

Fig. 12. Morphology of *Prostheclina eungella*. (*A*) male, dorsal view; (*B*) female, dorsal view; (*C*) male left palp, ventral view; (*D*) female genitalia, external view; (*E*) female genitalia, internal anatomy of the same specimen.

Diagnosis. *Male*, large size, F1–4 yellow, P1,T1 and M1 orange, M1 and Ts1 orange, lush fringes on M1 and T1, palps vanilla colour. dorsal median white strip of hair on cephalothorax, white to red mat of hairs covering the clypeus and around AME, copulatory organs with dorsal distal tegular lobe as well as distal and proximal tegular lobes. Males can be separated from *P. eungella*, by the presence of only a sparse fringe on M1 and long thick fringe on T1, absence of a dorsal, distal tegular lobe on the male palp and the presence of white to red mat of hairs covering the clypeus and around AME. *Female* large size, copulatory organs with coiled proximal seminal ducts, unlike *P. bulburin*.

Description

Male. Medium size, cephalothorax orange with faint strong orange marks on the thorax, sparse hairs on front of cephalothorax, eye field black, AME fringe thick, clypeus orange, mat of white to orange hair covering clupeus and front of cephalothorax, chelicera yellow with large, pointed retromarginal tooth and one fissident promarginal tooth, maxillae yellow, labium yellow, sternum yellow, abdomen dorsal yellow with black pattern, ventral yellow/orange with brown squared posterior lip, T1 and M1 orange, T1 sparse fringe and M1 with long lush fringe, (P1+T1) medium length, F1, P1 and Ts1 yellow, L2–4 yellow, palps yellow, male copulatory organs with distal and proximal tegular lobes plus a weak prolateral distal tegular lobe. Dimensions: holotype, 2.4 mm CL, 0.72 AEW/CL, 0.44 AMEW/CL, 0.77 CW/CL, 0.72 PEW/CL, 0.51 EFL/CL, 0.64 CWP/CL, 0.90 AL/CL, 0.69 AW/CL, 0.59 CH/CL, 0.077 ClH/CL, 0.41 ChH/CL, 0.39 StL/CL, 0.28 StW/CL, 0.92 (P1+T1/CL).

Female. Relatively large size, cephalothorax yellow with faint orange marks on the thorax, eye field black, AME fringe sparse, sparse hairs covering cephalothorax, clypeus yellow, chelicera yellow with large, narrow and pointed retromarginal tooth and two very close promarginal teeth, maxillae yellow, labium yellow, sternum yellow, dorsal abdomen vanilla with black pattern, ventral abdomen vanilla with faint dark markings, legs yellow, palps yellow, female copulatory organs with proximal seminal ducts long and uncoiled, accessory gland in spermatheca large. Dimensions: paratype, 2.3 mm CL, 0.77 AEW/CL, 0.49 AMEW/CL, 0.80 CW/CL, 0.74 PEW/CL, 0.51 EFL/CL, 0.63 CWP/CL, 1.06 AL/CL, 0.91 AW/CL, 0.60 CH/CL, 0.057 ClH/CL, 0.40 ChH/CL, 0.43 StL/CL, 0.31 StW/CL, 0.66 (P1+T1/CL).

Distribution. Central eastern Queensland (Fig. 10).

Etymology. A combination of letters, to be treated as a female noun in apposition.

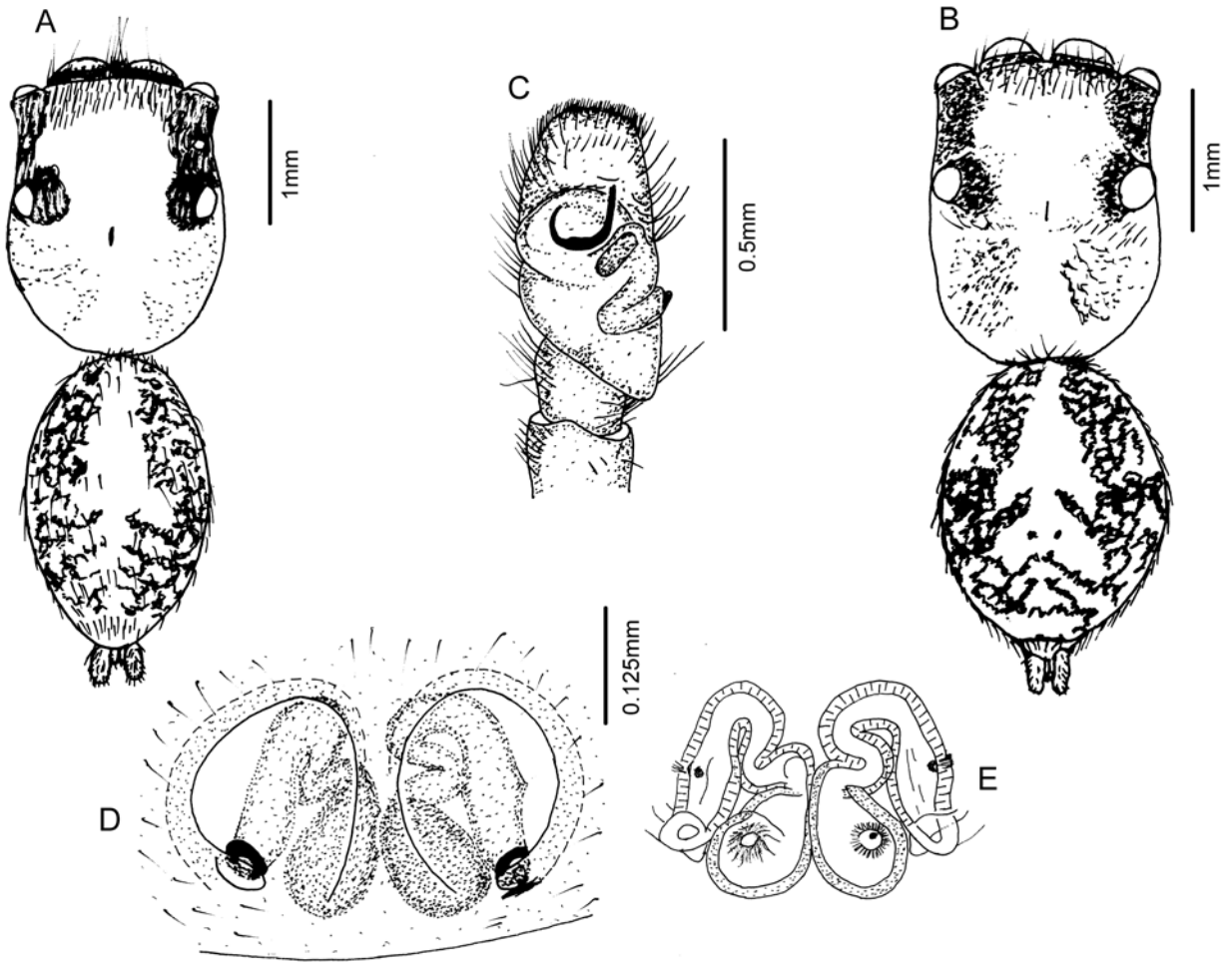

Fig. 13. Morphology of *Prostheclina bulburin*. (*A*) male, dorsal view; (*B*) female, dorsal view; (*C*) male left palp, ventral view; (*D*) female genitalia, external view; (*E*) female genitalia, internal anatomy of the same specimen.

Prostheclina eungella n.sp.

Figs 2, 10, 13; Table 1

Material Examined. HOLOTYPE Queensland: 1 male, Mount William, Dalrymple Heights, near Eungella, Qld, 21°01'S 148°36'E, M.R. Gray, C. Horseman, Apr 1975, KS0372. PARATYPES Queensland: 2 males, 1 female, 22 immatures (as for holotype).

Other material. **Queensland**: 1 male, 3 immatures, Crediton, Campsite, 21°13'S 148°33'E, 14 Apr 1975, QM S4694; 1 male, 2 females, 3 immature, Dalrymple Heights near Eungella, 21°04'S 148°35'E, M.R. Gray, C. Horseman, Mar 1975, AM KS0293; 1 male, Fraser Island, 25°33'S 152°59'E, Australian National University, 1 Jan 1971, AM KS19249.

Diagnosis. **Male**, medium size, F1–4 yellow, P1, T1 and M1 orange, M1 and Ts1 orange, very sparse fringes on M1 and T1, (P1+T1) relatively long, palps vanilla colour. dorsal median white strip of hair on cephalothorax, no red clypeal moustache, copulatory organs with dorsal distal tegular lobe as well as distal and proximal tegular lobes. Males can be separated from *P. bulburin*, by the presence of only a sparse fringe on M1 and T1, of a dorsal, distal tegular lobe on the male palp and the presence of a white median stripe on the cephalothorax and absence of the white to red mat of hairs covering the clypeus and around AME found in *P. bulburin*. **Female** large size, copulatory organs with coiled proximal seminal duct, unlike *P. bulburin*.

Description

Male. Medium size, cephalothorax orange with faint strong orange marks on the thorax, sparse hairs on front of cephalothorax, median white strip of hairs, eye field black, AME fringe thick, clypeus orange with no mat of hairs, chelicera orange with large, pointed retromarginal tooth and one fissident promarginal tooth, maxillae yellow, labium yellow, sternum yellow, abdomen dorsal yellow with black pattern, ventral yellow/orange with brown squared posterior lip, P1, T1 and M1 orange, T1 and M1 very sparse fringe, Ts1 yellow, F1 yellow, L2–4 yellow, palps orange, male copulatory organs with dorsal distal tegular lobe as well as distal and proximal tegular lobes. Dimensions: holotype, 1.9 mm CL, 0.87 AEW/CL, 0.53 AMEW/CL, 0.88 CW/CL, 0.83 PEW/CL, 0.60 EFL/CL, 0.60 CWP/CL, 1.07 AL/CL, 0.50 AW/CL, 0.67 CH/CL, 0.067 ClH/CL, 0.40 ChH/CL, 0.43 StL/CL, 0.33 StW/CL, 1.00 (P1+T1/CL).

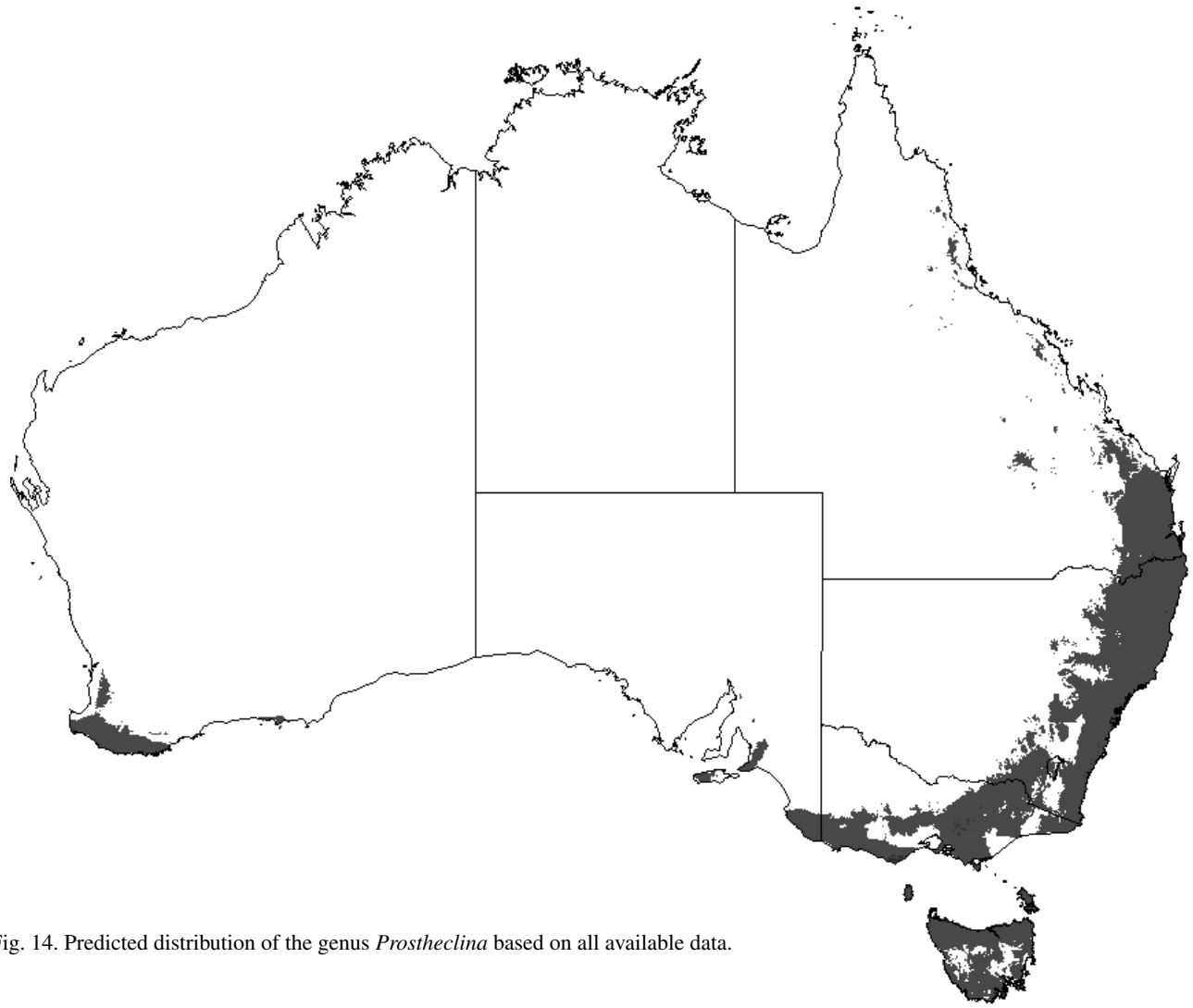

Fig. 14. Predicted distribution of the genus *Prostheclina* based on all available data.

Female. Relatively large, cephalothorax yellow/orange with orange marks on the thorax, eye field black, AME fringe sparse, sparse hairs covering cephalothorax, clypeus yellow, chelicera yellow with large, blunt retromarginal tooth and fissident promarginal tooth, maxillae yellow, labium yellow, sternum yellow, dorsal abdomen vanilla with black pattern, ventral abdomen yellow with faint dark markings, legs yellow, palps yellow, female copulatory organs with proximal seminal ducts long and coiled, accessory glands in insemination ducts clear. Dimensions: paratype, 2.3 CL, 0.76 AEW/CL, 0.46 AMEW/CL, 0.76 CW/CL, 0.73 PEW/CL, 0.49 EFL/CL, 0.54 CWP/CL, 1.41 AL/CL, 1.08 AW/CL, 0.57 CH/CL, 0.027 ClH/CL, 0.35 ChH/CL, 0.38 StL/CL, 0.27 StW/CL, 0.62 (P1+T1/CL).

Distribution. Eastern central Queensland (Fig. 10).

Etymology. A combination of letters, to be treated as a female noun in apposition (pronounced "young-gella").

General considerations

The predicted distribution of the genus based on all available records is shown in Fig. 14. The only large additions to the combined predicted distributions of the species are the prediction that areas in SW WA are suitable for the genus and an increased coverage in SW Vic and SE SA. The genus has not been found in WA (J. Waldock, pers. comm.). The increased ranges predicted for the genus in SA and western Vic are probably due to the limited numbers of specimens available from these areas. It is likely that *P. pallida* and, perhaps, *P. basilonesa* will be found more widely in the region.

The conservation status of *P. pallida, P. amplior, P. bulburin* and *P. eungella* is LC as they are widely distributed, including in national parks. The two northern species *P. boreoxantha* and *P. boreoaitha* are only known from their type localities but in each case they are in protected areas; consequently they also may be graded LC. The environment of King Island however has been greatly altered since 1906 and the status of *P. basilonesa* should be checked; it should be considered NT B2b(iii) until then.

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