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A REVISION OF THE *ANAME MACULATA* SPECIES GROUP (DIPLURIDAE, ARANEAE) WITH NOTES ON BIOGEOGRAPHY

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ABSTRACT

The species of the *Aname maculata* (Hogg) species-group (previously *Chenistonia*) are revised. The type species, *Chenistonia maculata* Hogg, and *C. trevallynia* Hickman are diagnosed. Five new species: *A. caeruleomontana, A. earthwatchorum, A. hickmani, A. montana* and *A. tropica,* are described. As most of these species possess a serrula, absent in many other species of *Aname*, the group is of phylogenetic significance. Because the group occurs in discontinuous montane rainforests from northern Queensland to Tasmania, it is also of biogeographic interest.

INTRODUCTION

The *Aname maculata* species group includes some of those species previously included in *Chenistonia* which Raven (1981) considered monophyletic. Although the species have revised lack a synapomorphy they remain a coherent taxonomic unit. Males of all species have a moderately short embolus on the palp and the first metatarsus is not usually as incrassate as that of the *A. pallida* species group. Two previously described species, *Aname maculata* (Hogg) and *Aname trevallynia* (Hickman), are included in the group at present. The male of *'Chenistonia tepperi'* Hogg [presumably that described by Rainbow and Pulleine (1918) as *Chenistonia major* Hogg and placed by Main (1972) in *Stanwellia*] is being revised by Main as part of the very complex *'Chenistonia tepperi'* species group.

MATERIALS AND METHODS

All drawings were made with a camera-lucida. Spermathecae were drawn after being cleared in lactic acid. All measurements are in millimetres except eye measurements which are in ocular micrometer units. Abbreviations are standard for the Araneae. Collector's acronyms are: G. B. M., G. B. Monteith; R. J. R., R. J. Raven; V. E. D., V. E. Davies. Institution acronyms are: AM, Australian Museum, Sydney; AMNH, American Museum of Natural History, New York, ANIC, Australian National Insect Collection, Canberra;

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BMNH, British Museum (Natural History), London; MV, Museum of Victoria, Melbourne; QM, Queensland Museum, Brisbane; QVM, Queen Victoria Museum, Launceston.

Descriptive Format.—To conserve space, a coded descriptive format is used. Each character statement consists of two parts separated by a comma. The first part, an integer or letter (spines), identifies the character, e.g. 1 = hair color; the second part is the value of that character. Thus statement, '4, 4', under C*a* (= Carapace) indicates that 4 bristles were observed between the PME. If a character statement is not made, either that character was not present or, if present, was not considered diagnostically useful. For each character class, e.g. carapace, eyes, chelicerae, legs, spines, etc., the number identifies a different character, i.e. the numbers are character-group specific. Thus, character 1 under *Ca* represents silver hairs, present or absent, whereas under *Claws*, character 1 represents the number of teeth per row on STC of legs I and II. In some cases, one character identifier may precede up to 4 measurements, e.g. ratio of eye sizes, or shape, length and distance from margin of posterior sternal sigilla. If two characters identifiers are equated the value given applies to both characters.

Elaboration of descriptive abbreviations [Readers intending to make frequent reference to specific descriptions should copy this key]:

Co (Color in alcohol): 1, carapace, 2, legs; 3, chelicerae; 4, dorsal abdomen; 5, ventral abdomen.

Ca (Carapace): 1, silver hairs; 2, pilosity; 3, hair or bristle color; 4, number of bristles between AME; 5, number of bristles on clypeal edge; 6, number of bristles on eye tubercle in front of AME: 7, number of anteromedian bristles; 8, fovea shape and size; 9, clypeus width; 10, bristles on margins.

Eyes: 1, tubercle; 2, eye-group width/ head width at that point; 3, eye group width/ length; 4, curvature of line through centers of front row; 5, ratio of AME:ALE:PME:PLE; 6, ratio of MOQ (median ocular quadrangle) back width: front width: length; 7, eye interspaces (in order): AME-AME, AME-ALE, PME-PLE, ALE-PLE.

Ch (Chelicerae): 1, silver hairs; 2, length, color of bristles; 3, number of teeth on promargin; 4, number of granules basomesally; 5, rastellum.

La (Labium): 1, width; 2, length; 3, separation from sternum.

Mx (Maxillae): 1, length behind; 2, length in front; 3, width; 4, shape, position and number of cuspules.

St (Sternum): 1, length; 2, width; 3, bristles on posterior margin; 4, shape, length, distance from margin of posterior sigilla; 5, same but for middle sigilla; 6, same but for anterior sigilla.

Legs: 1, formula of relative leg lengths; 2, parts with silver hairs; 3, tibia I; 4, metatarsus I; 5, occurrence of entire scopula; 6, occurrence of scopula divided by setae; 7, occurrence of thinly distributed scopula hairs.

Palp: 1, bulb; 2, embolus; 3, number of spines on retrolateral proximal tibia.

Spines: fe, femur; pa, patella, ti, tibia; me, metatarsus; ta, tarsus.

Claws: 1, number of teeth per row on superior claws (STC) of legs I and II; 2, number of teeth per row on STC of legs III and IV; 3, most distal row of teeth; 4, number of teeth on palpal claw.

Tri (Trichobothria): 1, approximate number per row on tibiae; 2, approximate number on metatarsi; 3, approximate number on tarsi.

Spin (Spinnerets): 1-3 concern posterior medians (PMS); 1, length; 2, basal width; 3, separation; 4-7 concern lengths of articles of posterior laterals (PLS); 4, basal; 5, middle; 6, apical; 7, total length.

ANAME MACULATA (HOGG) SPECIES GROUP

Diagnosis.–Males with short embolus on palpal bulb; tibia I with one long megaspine on raised spur; metatarsus I slightly incrassate, metatarsus II less noticeably so. Females with one or two pairs of simple unilocular spermathecae. Maxillary serrula present or absent. Tarsal organ low, domed with concentric ridges. Spines sometimes present on male palpal tarsi. All sigilla, if evident, small oval and close to or touching margin.

Relationships of the Group.–The *A. maculata* species group (previously *Chenistonia*) is placed in *Aname* because the presence of cuspules on a maxillary heel that is posteriorly produced, and the form of the male tibial spur and megaspine are considered synapomorphies of that genus. Differences between most species of the *maculata* group and the *pallida* group are numerous. Most species of the *pallida* group have a procurved fovea, elongate sternal sigilla remote from the margin, a comparatively narrow and domed sternum, long curved coxae I with strong thorn-like setae prolaterally, an elongate embolus, short male palpal tarsi and aserrulate maxillae. In contrast, most species of the *A. maculata* group have a short, straight fovea, small oval marginal posterior sternal sigilla, a widely cordate sternum, coxae I not longer than maxillae and lacking thorn-like setae prolaterally, a short embolus, elongate male palpal tarsi, and a serrula. However, those characters only support the monophyly of the *pallida* group and, with the exception of elongate male palpal tarsi, they are plesiomorphic for the genus as determined by outgroup comparison with *Aname trevallynia* [which, with short male palpal tarsi, is here considered the plesiomorphic sister group of all other species of the *A. maculata* group and, as such, may require eventual recognition as a genus]. Therefore, it is the species to which those of the *pallida* group must be compared to establish the monophyly of related groups.

The Indomalayan genus, *Damarchus*, shares some of the above characters – the shape and disposition of the posterior sternal sigilla, the narrowed sternum and the elongate setose coxae I – with the *pallida* group. [That *Damarchus* has previously been placed in the Ctenizidae is indication only of its short posterior lateral spinnerets; but the apical segments are digitiform, as they are in *Aname*.] However, *Damarchus* differs from *Aname* and the related genera, *Teyl* and *Namea* Raven, 1984, in the distribution of cuspules along the maxillae rather than posteriorly onto the heel.

Other suggestions of relationships of the *A. maculata* group lie in the presence of pseudosegmented tarsi in males of *A. earthwatchorum*, sp. nov., and *A. montana*, sp. nov. Such tarsi are also found in males of *Stanwellia* and of most Pycnothelidae.

Interspecific Relationships.–Six characters are useful in the analysis of relationships of the *A. maculata* species group. Most characters used are taken from males. *A. tropica* is tentatively included in this group until the male is known. Because it is the smallest known *Aname* species (total length 6 mm), it is likely that it is neotenically derived, in which case its relationships may be difficult to determine. It will be omitted from the cladistic analysis.

The maxillary serrula. Previously, I stated that the serrula was absent in *Aname* (Raven 1981). However, in at least three species here described – *A. caeruleomontana*, *A. earthwatchorum* and *A. hickmani* – as well as in *A. trevallynia* (Hickman), a serrula (albeit very reduced) is present. A serrula is not present in *A. maculata* (Hogg), the type species of *Chenistonia*, nor is it present in the type species of *Aname*, *A. pallida* [determined by SEM observations], or any species of that group known to me. In *Ixamatus*, Raven (1982) regarded a reduced number of teeth and the prolateral maxillary face lacking

raised scales as indication that the serrula was being lost. *A. maculata* lacks a serrula and has no raised scales. Therefore, judged by those criteria, the presence of a serrula in other *Aname* species is symplesiomorphic. Moreover, Raven (1981) regarded the *A. maculata* group as plesiomorphic in *Aname* because males of all species have a short embolus and lack the strongly incrassate first metatarsi of males of the *A. pallida* group. Therefore, I here consider that, as in *Stanwellia* and *Ixamatus*, the absence of a serrula in the *A. maculata* species group is most parsimoniously apomorphic.

The embolic process. Although similar to the paraembolic apophysis in Hexathelidae and some *Masteria* (see Raven 1979, 1980), the embolic process of *A. trevallynia* is more distal and is part of the embolus, as is the flange in *Stanwellia* and *Entypesa* that is assumed to be plesiomorphic (see Raven 1981). Because that process is known only in *A. trevallynia*, it is parsimoniously considered a plesiomorphic retention. Therefore, process-free emboli are considered apomorphic.

Spines on male palpal tarsi. In most Diplurinae, spines are absent on male palpal tarsi. In *Masteria, Evagrus, Phyxioschaema*, the Ischnothelini (Raven 1980), some Hexathelidae (Forster and Wilton 1968), *Mediothele* (Raven and Platnick 1978), and many Ctenizidae and Migidae, spines are present on male palpal tarsi. Because of the diverse occurrence of that character it would appear that the presence of spines on male palpal tarsi is plesiomorphic. However, because no other males of related Diplurinae possess spines on palpal tarsi, it is highly unparsimonious to assume that, in this case, their presence is plesiomorphic. Therefore, the presence of tarsal spines in *A. hickmani* males is presumed to be autapomorphic.

Tip of the palpal embolus. In the *maculata* group, the embolus is always short (if actually distinct from the bulb) and distally may show some differentiation. In *A. earthwatchorum* and *A. hickmani* the embolus tapers strongly into an attenuate point; in *A. maculata, A. trevallynia*, and *A. montana*, the tip is broadly conical; and in *A. caeruleomontana*, the tip is a flat cone or roughly triangular. Because most mygalomorphs have an attenuate embolus (see Raven 1980), the poorly differentiated state of the embolus is considered plesiomorphic and modified states apomorphic. The flat tip of *A. caeruleomontana* presumably represents an intermediate state of differentiation.

Male palpal tarsus. In most of the *maculata* group species, the palpal tarsi are elongate and ventrally excavate. The newly described probable sister genus of *Aname*, *Namea* Raven, 1984, also shares this character. In *A. trevallynia*, as in the *pallida* group and most other Diplurinae, the palpal tarsi are short in males. [Ischnothelini also have elongate palpal tarsi. However, the bulb attachment is then proximal on the tarsus, whereas in *A. maculata* the bulb attachment is distal on the tarsus.] Because the short tarsus is widespread it is considered plesiomorphic and the elongate tarsus apomorphic.

Spermathecae. Although sometimes a useful character for the estimation of relationships, here the spermathecae are very homogeneous and are therefore not discussed.

Cladogram.—From the preceding character distributions, one parsimonious cladogram is possible:

[trev, 1,2 ([3, mac-mon] [4, caer (5, kick-eart)])]

Synapomorphies are indicated by numbers immediately before their qualified group: 1, elongate tarsi; 2, embolic process absent; 3, serrula absent; 4, embolic tip narrowed or flat; 5, embolic tip attentuate.

Biogeographic Notes.—Little comment has previously been made on the biogeography of this large genus or group of genera. Main (1981:865) remarked that the genera *Chenistonia, Aname* and *Dekana* (now all included in *Aname*, see Raven 1981), occur widely

over Australia and all show some adaptation to aridity. Because the taxonomy of the Australian Diplurinae was embryonic at the time Main's work (1981) was written, no further comment was possible. However, the species of the *maculata* group here revised are behaviorly atypical of *Aname*. So far as they are known, none make burrows but simply make tunnels of web in existing spaces, sometimes with a shallow (body length) retreat in the soil. Thus, at least the *maculata* group species lack xeric adaptations and indeed are found in perenially cool buffered forests.

In tropical northern Australia, only two species are known: *A. tropica*, sp. nov., and *A. earthwatchorum*, sp. nov. *A. tropica* is known from a single female collected 250 km south of the northern most tip of Australia and as mentioned above is only tentatively included in this group. However, it represents the most northern known occurrence of any diplurine in Cape York Peninsula, the presumed corridor of invasion of Oriental and boreal taxa (Main 1981). Similarly, *A. earthwatchorum* is found over 1,600 km north of the nearest other bona fide species of the *maculata* group. It is heuristic then that it is found on (although not endemic to) Mt. Bellenden-Ker, one of the higher peaks in Queensland. Presumably it was isolated in that area by early xeric events that substantially contracted the extent of coastal rainforests and its maintenance there is attributable to that of the moist buffered montane forest. That no related species are known from the climatically similar montane forests on the Mt. Warning caldera in southeast Queensland and northern New South Wales suggests that the xeric event predates the formation of the caldera.

Other species of the *maculata* group are neither common nor widely distributed. That supports the concept of the group as relicts isolated by early vicariance events. Further biogeographic discussion is withheld until wider knowledge of the relationships of *Aname* and related genera are known because without hypotheses of taxon relationships no investigation of the correspondence of area relationships is possible.

KEY TO SPECIES

Males

1. Palpal bulb with lateral process near embolus tip (Fig. 41). . . . . *A. trevallynia*
   Palpal bulb without lateral process near embolus tip. 2
2. Palpal tarsus with spines (Fig. 42). . . . . *A. hickmani*
   Palpal tarsus without spines. 3
3. Palpal bulb with flattened embolus tip (Fig. 36) . . . . . *A. caeruleomontana*
   Palpal bulb with cylindrical embolus tip. 4
4. Palpal bulb pear-shaped with very short coniform embolus . . . . . *A. maculata* Hogg
   Palpal bulb otherwise. 5
5. Palpal bulb pyriform with narrow tapered embolus (Fig. 39) . . . . *A. earthwatchorum*
   Palpal bulb spindle-shaped with short coniform embolus (Fig. 40) . . . . . *A. montana*

Females

Because of the strong similarity of females of the *maculata* group a key is not practical. However, the distinctive pigmentation patterns of some species and the allopatry of most will minimize identificatory problems.

Aname maculata (Hogg)

Chenistonia maculata Hogg 1901:262, figs. 35 a-c.
Aname maculata: Raven 1981:355, figs. 4-7, 11, 12, 15, 16, 65.

Types.—1♂, 4♀, syntypes, Macedon, 37° 27′S – 144° 34′E, Victoria, H. R. Hogg, in BMNH, examined.

Diagnosis.—Medium-sized spiders, carapace about 6 long. Males with a megaspine in distal half of incrassate tibia I; metatarsus I with slight proximal ventral excavation for one-third; palpal bulb pear-shaped. Maxillary serrula absent. Spermathecae with a short low lobe on each side.

Distribution, Habitat and Remarks.—*Aname maculata* (Hogg) is known from Mt. Macedon, Boronia and Warrandyte, southern Victoria. At Mt. Macedon, the spiders were found in webs under logs on a moist but thinly treed hillside. The webs were roughly Y-shaped opaque white tubes with a very short burrow into the ground.

Males of *A. maculata* (Hogg) have similarly proportioned first tibiae to those of *A. montana*, sp. nov., and *A. earthwatchorum*, sp. nov., but differ from them in the pear-shaped form of the palpal bulb. The spermathecae of females were discernible with considerable difficulty and may not be typical of the species.

Material examined.—The types and the following: 1♂, 1♀, 1 juv., Mt. Macedon (near Cheniston House), 15, vii.1980, R. J. R., QM; 1♂, Boronia, 14.v.1978, M. Lintermans, MV; 1♀, same data but 15.v.1978, MV; 1♂, Warrandyte, 12.vii.1980, R. J. R. MV. All in Victoria.

Aname caeruleomontana, sp. nov.
(Figs. 4, 9, 15, 16, 20, 21, 24, 25, 34, 36, 37, Table 1)

Types.—Holotype ♂, allotype ♀, Mt. Tomar, Blue Mts., 33° 32′S – 150° 27′E, New South Wales, 21.vii.1980, R. J. R., AM KS 10692, 10693; ♂, same data, AM KS 10694.

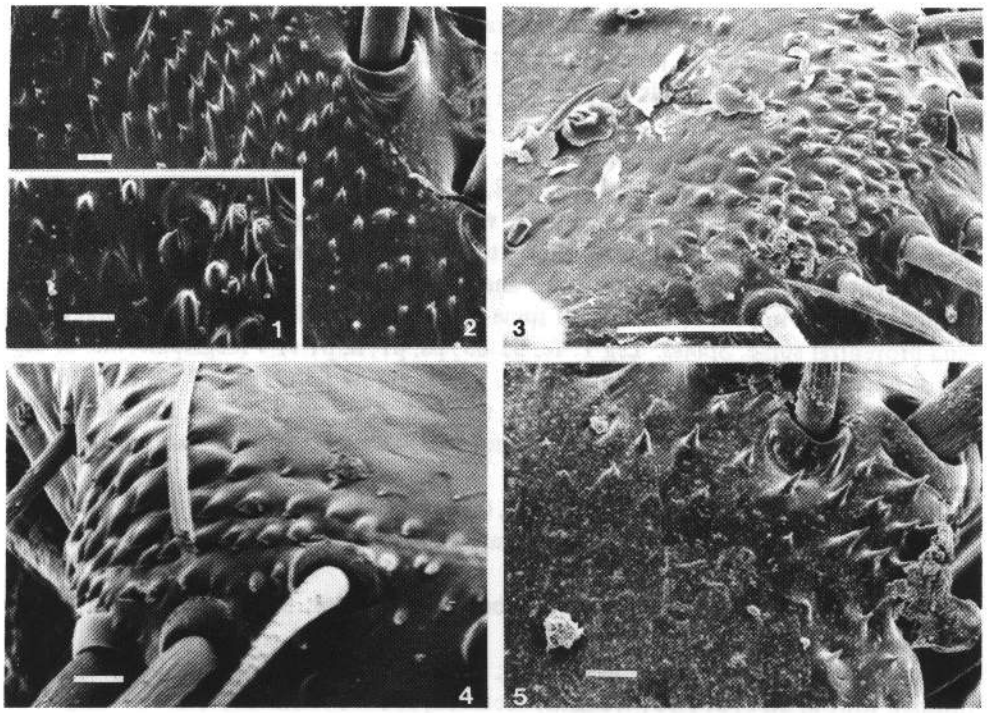
Diagnosis.—Small spiders, carapace about 4-5 long. Males with megaspine on spur as ½ length of incrassate tibia I; palpal tarsus without spines, bulb pyriform with a short flat embolus tip. Maxillary serrula present. Female with numerous setae on caput. Spermathecae of female with single lobed receptaculum on each side.

Male holotype (AM KS 10692).—Carapace 4.63 long, 3.63 wide. Abdomen 5.00 long, 3.00 wide. Total length, 11.

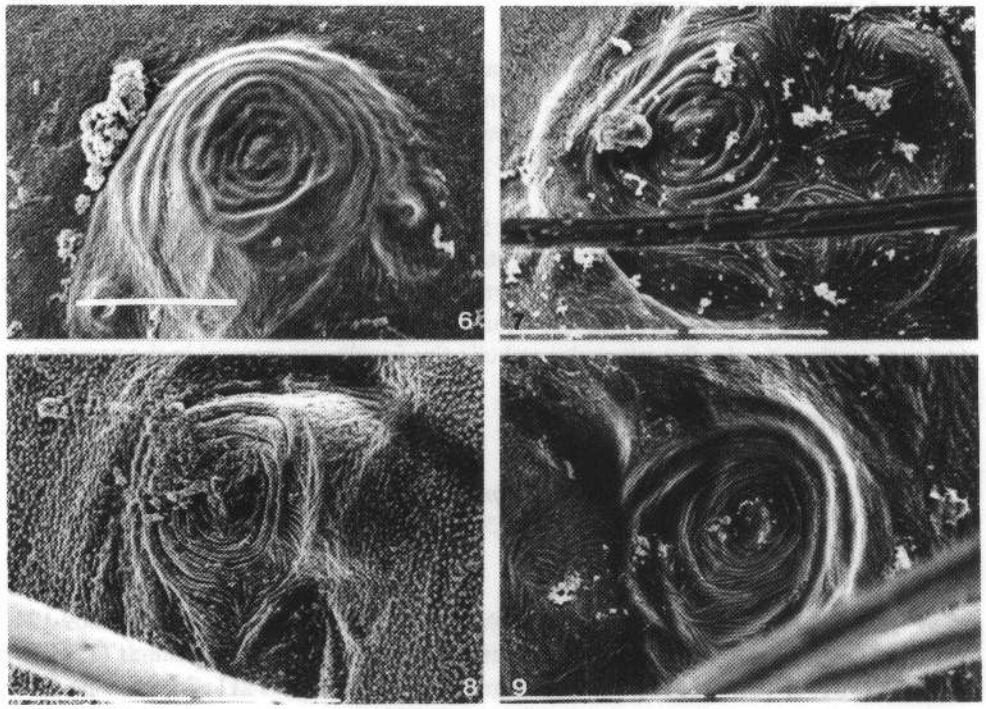
Co: 1=2=3, yellow brown but leg I orange brown; 4, mottled brown and white without discernible pattern; 5, white with brown areas between posterior median spinnerets and posterior book-lungs.

Table 1.—Leg measurements for *Aname caeruleomontana*. Values are for holotype male with allotype female in parenthesis.

	I	II	III	IV	Palp
Femur	3.63 (2.19)	3.13 (1.97)	2.88 (1.66)	3.80 (2.41)	2.56 (1.63)
Patella	2.31 (1.47)	1.94 (1.24)	1.68 (1.13)	2.04 (1.28)	1.72 (1.16)
Tibia	2.50 (1.31)	1.88 (1.06)	1.64 (0.94)	2.52 (1.56)	1.84 (0.97)
Metatarsus	2.56 (1.03)	2.06 (1.03)	2.40 (1.28)	3.52 (1.97)	- -
Tarsus	1.56 (0.72)	1.38 (0.75)	1.20 (0.75)	1.52 (0.94)	1.12 (0.88)
Total	12.56 (6.72)	10.39 (6.05)	9.80 (5.76)	13.40 (8.16)	7.24 (4.64)



Figs. 1-5.–*Aname*, maxillary serrula: 1-2, *A. earthwatchorum*, 1 (inset) female; 2, male; 3, *A. trevallynia*, female; 4, *A. caeruleomontana*, male; 5, *A. hickmani*, male. Scale lines, 10um, except fig. 3, 50 um.



Figs. 6-9.–*Aname*, tarsal organ: 6, *A. earthwatchorum;* 7, *A. montana;* 8, *A. hickmani;* 9, *A. caeruleomontana.* Same scale as fig. 6, 100 um.

Ca: 1, absent; 3, black; 4, 6; 5, 4; 6, several; 8, short straight; 9, 0.06. *Eyes:* 1, distinct; 2, 0.40; 3, 2.06; 4, slightly procurved; 5, 9: 10: 6: 10; 6, 23: 19: 16; 7, 3, 1, 1, 1. *Ch:* 1, absent; 2, long brown; 3, 7 thick; 4, 10 fine.

La: 1, 0.75; 2, 0.28. *Mx:* 1, 1.88; 2, 1.30; 3, 0.75; 4, about 40 on inner edge of slightly produced heel. Serrula a small toothed area. *St:* 1, 2.30; 2, 2.00; 4=5=6, small oval and marginal; 4, 0.23, 0.05; 5, 0.10, 0.18; 6, 0.08, 0.05.

Legs: (Table 1). 1, 4123; 2, absent; 3, ventrally with large median spur, long distal megaspine and short predistal spine, short stout spine prolaterally; 4, with metatarsus II, bowed ventrally; 5, metatarsi and tarsi I and II, distal palpal tarsi. *Palp:* 1, tear-shaped, twisted; 2, blunt-tipped; 3, a cluster of spine-like bristles distally, 1 thick prolateral and 1 long proventral spine. *Spines:* Leg 1: fe, p1 d3; pa, p1; ti, p1 v1 + megaspine; me, 0. Leg 2: fe, p2 d3; pa, p1; ti, p2 v5; me, p1 v5. Leg 3: fe, p4 d5 r3; pa, p3 r2; ti, p3 d1 r3 v8; me, p6 r4 v7. Leg 4: fe, p2 d4 r3; pa, r1; ti, p4 d1 r4 v9; me, p6 r4 v8. Palp: fe, p1 d3; pa, p2; ti, p2 d1 r1 v5; ta, 0. *Claws:* 1, about 9; 2, about 12; 3, rows juxtaposed. *Tri:* 1, 12, for entire length; 2, 16; 3, 10.

Spin: 1, 0.50; 2, 0.18; 3, 0.43; 4, 0.73; 5, 0.70; 6, 0.85; 7, 2.28.

Female allotype (AM KS 10693).–Carapace 3.47 long, 2.59 wide. Abdomen 5.50 long, 3.83 wide. Total length, 10.

Co: 1=2=3, yellow brown; 4, mottled brown and white; 5, pale cream with brown mottling anteriorly.

Ca: 1, absent; 2, almost glabrous; 4, 4; 5, 2; 8, short procurved; 9, 0.08. *Eyes:* 1, distinct, low; 2, 0.36; 3, 1.96; 4, slightly recurved; 5, 14: 17: 12: 13; 6, 37: 27: 23; 7i, 4, 2, 1, 1. *Ch:* 1, absent; 2, short brown; 3, 7; 4, 8 fine.

La: 1, 0.70; 2, 0.28. *Mx:* 1, 1.44; 2, 0.96; 3, 0.64; 4, about 25 blunt on slightly produced heel. Serrula present. *St:* 1, 1.70; 2, 1.60; 4=5=6, oval, 0.12 and touching margin.

Legs: (Table 1). 1, 4123; 2, absent; 5, tarsi I and II, distal palpal tarsi, thin on metatarsi I. *Spines:* Leg 1: fe, p1; pa, 0; ti, v5; me, v5. Leg 2: fe, p1; pa, p1; ti, p1 v2; me, p1 v7. Leg 3: fe, d1 r1; pa, p2 r1; ti, p2 d1 r1 v6; me, p5 r4 v8. Leg 4: fe, d1 r1; pa, r1; ti, p2 v6; me, p6 r4 v8. Palp: fe, p1; pa, 0; ti, v3; ta, v2. *Claws:* 1=2, 9 in scoop; 3, rows juxtaposed; 4, 7. *Tri:* 1, 9; 2, 14; 3, 12.

Spin: 1, 0.52; 2, 0.16; 3, 0.40; 4, 0.70; 5, 0.58; 6, 0.70; 7, 1.98. *Spermathecae:* On each side, a low broad mound with a short stalked lobe.

Distribution and Remarks.–*Aname caeruleomontana* is known only from an area of wet sclerophyll and fern forest in the Blue Mountains, mid-eastern New South Wales. Males are unique in the flat triangular embolic tip; females are unusual in the presence of numerous setae on the caput.

Material examined.–Only the types.

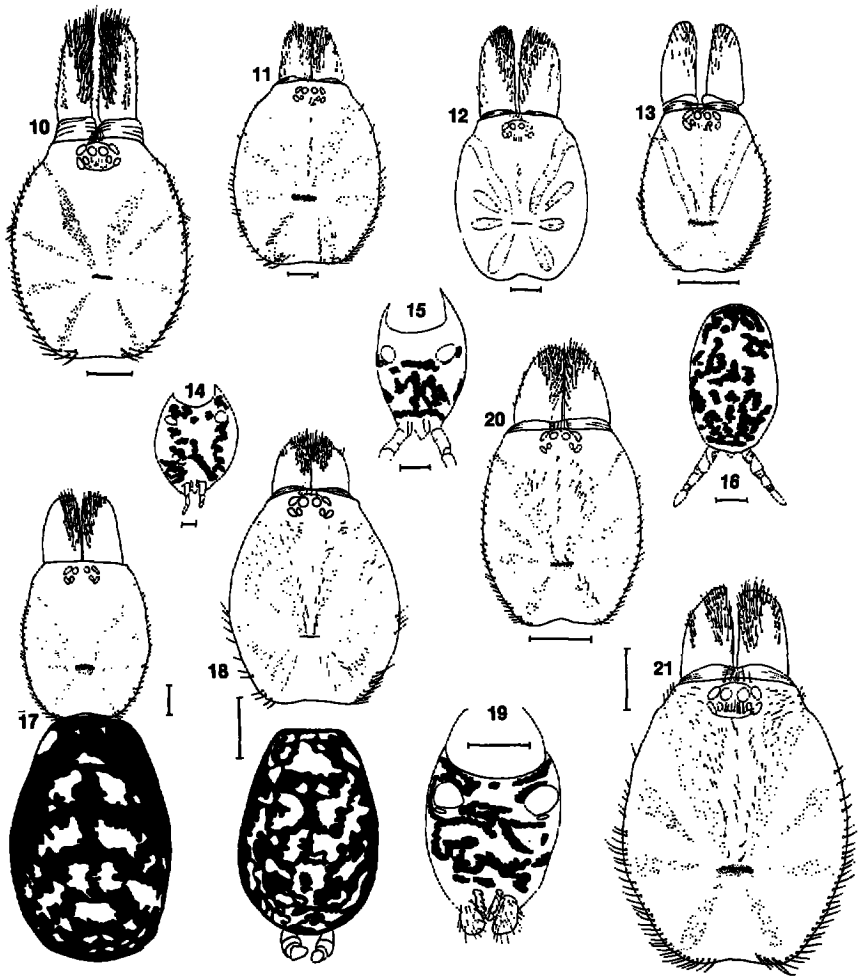
Aname earthwatchorum, sp. nov.

(Figs. 1, 2, 6, 10, 17, 23, 26, 32, 38, 39 Table 2)

Types.–Mt. Bellenden-Ker, 17° 16′S – 145° 55′E: Holotype ♂, paratype ♀, centre peak summit 10-12.iv.1979, G. B. M., QM S 1207, 1208; Paratypes: QM 1209-1216 are Earthwatch-Queensland Museum collections. ♀, allotype, 1♂, 2♀, summit (1560 m), 25-31.x.1981, S 1209, 1210; 1♂, 1♀, summit, 1-7.xi.1981, S 1211; 3♂, as cable tower 3 (1054 m), 25-31.x.1981, S 1212, 1213; 1♂, 0.50 km south of cable tower 7 (500

m) 17-24.x.1981, S 1214. 1♂, Mt. Bartle-Frere, south peak summit (1620 m), 6-8.xi. 1981, S 1215; 1♀, same data but, northwest centre peak ridge (1400-1500 m), S 1216. 1♀, Mt. Lewis, 16° 35′S – 145° 15′E, summit (1200 m), 9.xi.1981, G. B. M. and D. Cook, S 1217; 1♀, Mt. Fisher, 17° 35′S – 145° 33′E, 23.iv.1978, R. J. R., V. E. D., S 1218; 2♀, Malaan State Forest, 17° 40′S – 145° 37′E, 20-24.iv.1978, R. J. R., V. E. D., S 1219; 1♀, North Bell Peak, 20 km south of Cairns (900-1000 m), 17° 05′S – 145° 53′E, 15-16.ix.1981, S 1220. All in northeast Queensland and lodged in QM.

Diagnosis.–Medium-sized spiders, carapace about 6 long. Males with megaspine on spur on tibia I; palpal tarsus without spines, bulb pyriform with a short embolus. Maxillary serrula present. Spermathecae of female with single lobed receptaculum arising from a low basal mound on each side.



Figs. 10-21.–*Aname*, carapace, chelicerae and abdomen, holotype male and allotype female: 10, *A. earthwatchorum*, male; 11-12, *A. montana*, male (11), female (12); 13, *A. tropica*, holotype female; 14, *A. earthwatchorum*, female; 15-16, *A. caeruleomontana*, male; 17, *A. earthwatchorum*, female carapace chelicerae and abdomen; 18-19, *A. hickmani*, male carapace, chelicerae and abdomen; 20-21, *A. caeruleomontana*, female (20), male (21). All scale lines, 1 mm.

Table 2.—Leg measurements of *Aname earthwatchorum*. Values are for holotype male with allotype female in parentheses.

	I	II	III	IV	Palp
Femur	4.63 (3.92)	4.19 (3.60)	3.88 (3.24)	4.81 (4.20)	3.25 (2.80)
Patella	2.69 (2.64)	2.38 (2.24)	2.00 (1.84)	2.31 (2.12)	1.88 (1.80)
Tibia	3.38 (2.80)	2.69 (2.24)	2.25 (1.76)	3.44 (3.08)	2.50 (1.96)
Metatarsus	3.88 (2.64)	3.00 (2.32)	3.31 (2.56)	4.69 (3.84)	- -
Tarsus	2.44 (1.68	1.88 (1.48)	1.56 (1.32)	1.88 (1.60)	1.50 (1.76)
Total	17.02 (13.68)	14.13 (11.88)	13.00 (10.72)	17.13 (14.84)	7.13 (8.32)

Male holotype (QM S 1207).—Carapace 5.13 long, 4.00 wide. Abdomen 5.88 long, 4.19 wide. Total length, 11.

Co: 1=2=3, orange brown; 4, brown with white mottling forming longitudinal and diagonal lines; 5, large pale areas interspersed with brown areas.

Ca: 1, present; 2, light, uniform; 3, brown; 4, 6; 5, 7; 7, 11; 8, short straight; 9, 0.08. *Eyes:* 1, distinct; 2, 0.40; 3, 1.95; 4, slightly procurved; 5, 10: 13: 8: 8; 6, 26: 20: 17; 7i, 3, 2, 1, 2. *Ch:* 1, present; 2, black; 3, 9; 4, 30.

La: 1, 0.84; 2, 0.44. *Mx:* 1, 2.00; 2, 1.40; 3, 0.84; 4, about 80 on heel and distally to form broad triangle. Serrula present. *St:* 1, 2.68; 2, 2.20; 3, form 'cage'; all sigilla oval and marginal; 4, 0.15; 5, 0.10; 6, 0.10.

Legs: (Table 2). 1, 4123; 2, absent; 3, laterally flattened with large spur and megaspine at mid-tibia; 4, proximally bent with slight ridged excavation for proximal one-third, metatarsus II unmodified; 5, tarsi I and II, distal metatarsi I and II, palpal tarsi. Ventral tarsi III and IV with pallid 'weak' area resembling pseudosegmentation as in *Stanwellia*. *Palp:* 1, pyriform; 2, short, enclosed in flattened translucent flange. *Spines:* Leg 1: fe, p4 d5 r2; pa, p1; ti, p1 v2 + megaspine; me, 0. Leg 2: fe, p4 d4; pa, p1; ti, p1 v6; me, p1 v6. Leg 3: fe, p4 d3 r3; pa, p3 r1; ti, p2 d2 r2 v7; me, p4 d3 r3 v7. Leg 4: fe, p1 d4 r2; pa, r1; ti, p3 d2 r3 v8; me, p3 d3 r4 v8. Palp: fe, p1 d3 r1; pa, p1; ti, p1 d2 v6; ta, 0. *Claws:* 1=2, 10. *Tri:* 1, 15; 2, 20; 3, 14.

Spin: 1, 0.64; 2, 0.16; 3, 0.72; 4, 1.24; 5, 0.88; 6, 1.28; 7, 3.40.

Female allotype (QM S 1209).—Carapace 5.63 long, 4.92 wide. Abdomen 8.40 long, 5.20 wide. Total length, 15.

Co: 1=3, reddish brown; 2, yellow brown; 4, brown with large white mottling forming four irregularly defined chevrons; 5, mottled brown and white.

Ca: 1, absent; 2, light, uniform; 3, golden hair, black bristles; 4, 4; 5, 7; 7, several; 8, short straight; 9, 0.08; 10, fringe on lateral and posterior margins. *Eyes:* 1, distinct; 2, 0.35; 3, 1.96; 4, slightly procurved; 5, 13; 16: 10: 10; 6, 34: 25: 21; 7i, 5, 2, 1, 1. *Ch:* 1, absent; 2, short black; 3, 8; 4, 11.

La: 1, 1.12; 2, 0.56. *Mx:* 1, 2.60; 2, 1.72; 3, 1.28; 4, about 60 blunt in a semicircular area on produced heel. Serrula present. *St:* 1, 2.96; 2, 2.32; all sigilla oval and marginal; 4, 0.25; 5, 0.18; 6, 0.15 long respectively.

Legs: (Table 2). 1, 4123; 2, absent; 6, sparse on tarsi of palp, and thin on metatarsi and tarsi I, and on metatarsi I and II. In distal ventral tarsi III and IV a pallid fracture zone allowing the tarsi to curve as in *Stanwellia*. *Spines:* Leg 1: fe, p1 d2; pa, 0; ti, p2 v5; me, v6. Leg 2: fe, p1 d1; pa, p1; ti, p2 v3; me, p1 v6. Leg 3: fe, p1 d1 r2; pa, p2, r1; ti, p2 d2 r2 v6; me, p3 d3 r4 v7. Leg 4: fe, d1 r1; pa, 0; ti, r2 v6; me, p3 d3 r4 v6. Palp: fe, p1;

pa, p1; ti, p2 v7; ta, v2/5. *Claws:* 1=2, 6-9; 3, inner of legs III and IV more distal than on legs I and II; 4, 6. *Tri:* 1, 11; 2, 23; 3, 15.

Spin: 1, 0.80; 2, 0.28; 3, 0.64; 4, 1.20; 5, 0.84; 6, 1.12; 7, 3.16. *Spermathecae:* On each side, a low mound ectally with U-shaped receptaculum enlarged terminally.

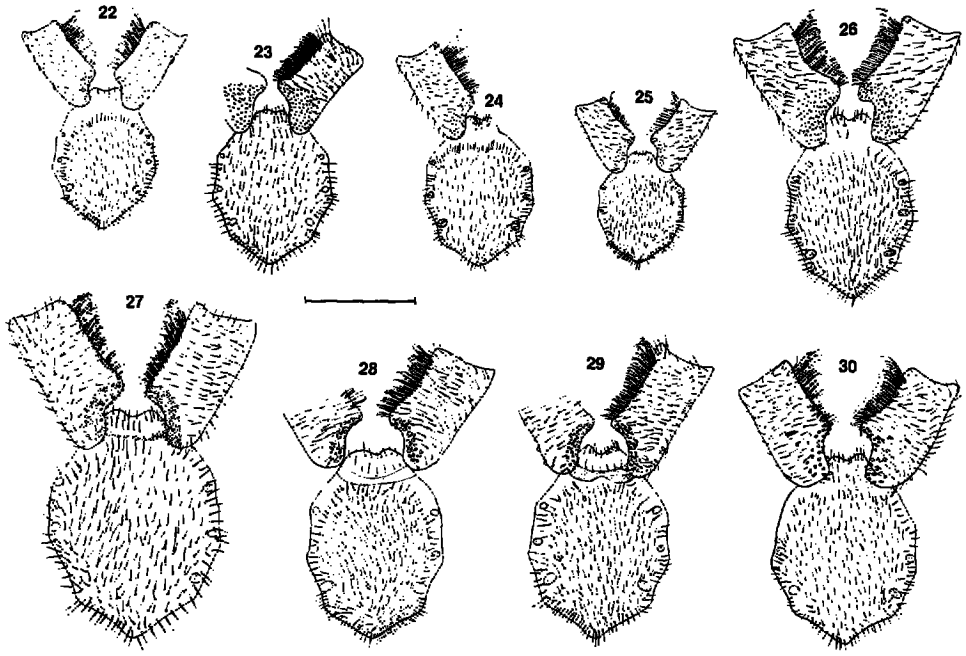
Distribution and Remarks.–*Aname earthwatchorum* is known only from montane rainforests in northern Queensland. Males of *A. earthwatchorum* closely resemble those of *A. maculata* (Hogg) from Macedon, Victoria and *A. hickmani* from northern New South Wales. Males of *A. earthwatchorum* differ from those of *A. hickmani* in lacking spines on the palpal tarsi, and from those of *A. maculata* in possessing a serrula.

The specific epithet is a patronym both in honor of the nine members of an Earthwatch expedition who travelled to north Queensland for experience and so contributed to an altitudinal survey of insects, arachnids and molluscs, and in honor of the staff of the Queensland Museum and associated institutions which participated in that survey proposed and co-ordinated by Dr. Geoff B. Monteith, Curator (Lower Entomology), Queensland Museum.

Material examined.–Only the types.

Aname hickmani, sp. nov.
(Figs. 5, 8, 18, 19, 27, 35, 42 Table 3)

Types.–Holotype ♂, 2♂ paratypes, Bruxner Park near Coffs Harbour, 30° 15′S – 153° 04′E, ca. 150 m, rainforest pitfall trap, 22.iii-13.xi.1980, G. B. & S. R. Monteith,



Figs. 22-30.–*Aname*, sternum, maxillae and labium, holotype male and allotype female (except figs. 22, 30): 22, *A. trevallynia*, male; 23, *A. earthwatchorum*, male; 24-25, *A. caeruleomontana*, male (24), female (25); 26, *A. earthwatchorum*, female 27, *A. hickmani*, male; 28-29, *A. montana*, female (28), male (29); 30, *A. tropica*, female holotype. Common scale line, 2 mm, except figs. 27, 30, 1 mm.

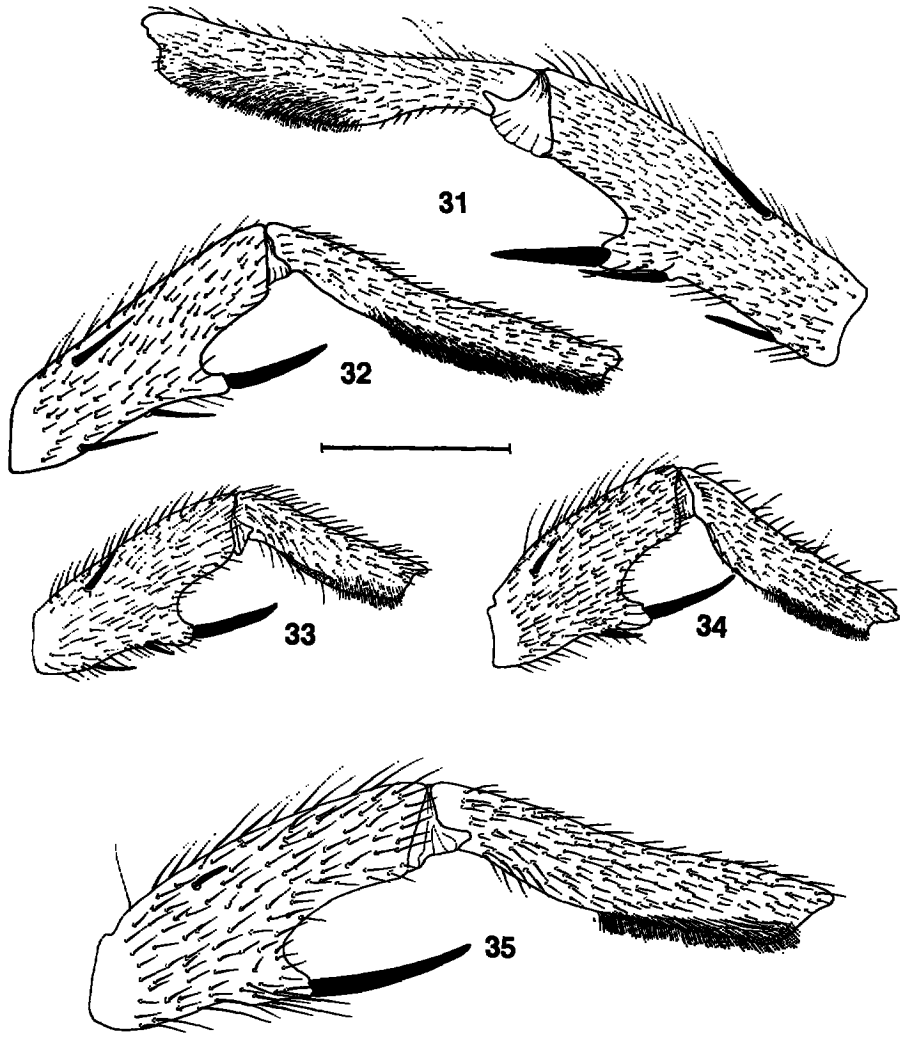
QM S 1221, 1222; 1♂, Never Never, Dorrigo National Park, 30° 21'S – 152° 45'E, ca. 760 m, 28.ii-5.iii.1980, A. Newton, M. Thayer, AMNH.

Diagnosis.–Small spiders, carapace about 3 long. Males with megaspine on spur in proximal half of incrassate tibia I; palpal tarsus with strong spines, bulb pyriform with a short tapered embolus. Maxillary serrula present. Females unknown.

Male holotype (QM S 1221).–Carapace 3.16 long, 2.53 wide. Abdomen 3.06 long, 2.03 wide. Total length, 7.

Co: 1=2=3, orange brown; 4, brown with large white mottling; 5, white with brown transverse mottling anterior to spinnerets.

Ca: With slight posterior ridge, 2, almost glabrous; 7, 5; 8, short slightly, procurved; 10, 4-5 anterior to fovea; several paired bristles on caput; numerous brown bristles behind ALE; 3 pairs of foveal bristles. *Eyes:* 1, distinct, low; 2, 0.45; 3, 2.00; 4, straight; 5, 15:



Figs. 31-35.–*Aname*, prolateral tibia and metatarsus I, holotype male (except fig. 33): 31, *A. montana;* 32, *A. earthwatchorum;* 33, *A. trevallynia;* 34, *A. caeruleomontana;* 35, *A. hickmani.* Common scale, 2 mm, except fig. 35, 1 mm.

Table 3.–Leg measurements of *Aname hickmani.* Measurements are for holotype male.

	I	II	III	IV	Palp
Femur	2.47	2.09	1.88	2.56	1.80
Patella	1.59	1.34	1.16	1.25	1.18
Tibia	1.75	1.38	1.16	1.81	1.38
Metatarsus	2.09	1.47	1.72	2.47	-
Tarsus	1.31	1.00	0.88	1.09	0.84
Total	9.21	7.28	6.80	9.18	4.00

14: 11: 12; 6, 35: 28: 25; 7i, 4, 1, 2, 1. *Ch:* 2, short brown; 3, 8; 4, 5-8; elongate stiff bristles distally.

La: 1, 0.64; 2, 0.24. *Mx:* 1, 1.10; 2, 0.90; 3, 0.60; 4, 30-40 blunt on inner edge and heel; serrula absent. *St:* 1, 1.72; 2, 1.46; only posterior sigilla discernible, small, oval and touching margin.

Legs: (Table 3). 1, 1423; 3, proximally incrassate with medial spur and megaspine and distally excavate; 4, bowed ventrally; 5, thin on metatarsi and tarsi I; ventral tarsi III and IV with pallid weak area. *Palp:* 4 distal spines on tarsi; tarsi elongate, ventrally excavate; 1, pyriform; 2, short, pointed; long ventral spine on tibia. *Spines:* Leg 1: fe, p1 d4; pa, 0; ti, p1 v1 + megaspine; me, 0. Leg 2: fe, p2 d4; pa, 0; ti, p2 v4; me, p1 v5. Leg 3: fe, p2 d2 r2; pa, p2 r1; ti, p2 d1 r2 v7; me, p6 r4 v8. Leg 4: fe, d3 r1; pa, r1 v1; ti, p2 r2 v7; me, p6 r5 v8. Palp: fe, p1 d1 r1; pa, d1; ti, p2 r1 v4; ta, v4. *Claws:* 1=2, 10=12. *Tri:* 1, 10; 2, 10; 3, 8.

Spin: 1, 0.32; 2, 0.10; 3, 0.22; 4, 0.64; 5, 0.42; 6, 0.64; 7, 1.70.

Distribution, Habitat and Remarks.–*Aname hickmani* is known only from rainforest in the type locality, Bruxner Park, and in Dorrigo National Park, northern New South Wales. Males of *Aname hickmani* are readily distinguished from all other known species in the *maculata* group in possessing spines on the palpal tarsi. The specific epithet is a patronymn in honor of Emeritus Professor V. V. Hickman, in recognition of his many careful and thorough studies on Australian spider taxonomy and biology.

Material examined.–Only the types.

Aname montana, sp. nov.
(Figs. 7, 11, 12, 28, 29, 31, 40, 43; Table 4)

Types.–Holotype ♂, allotype ♀, 13 km from Beechwood, on Bellangary and Wilson River State Forest Road, 31° 23′S – 152° 39′E, 17.vii.1975, R. J. R., S 1223, 1224. Paratypes: 4♂, Bruxner Park, 30° 15′S – 153° 04′E, 22.iii-26.vii.1980, G. B. M., S 1225; 3♂, Never Never, Dorrigo National Park, 30° 21′S – 152° 45′E, 26.vii-12.xi.1980, G. B. M., S 1226. All in New South Wales and lodged in QM.

Diagnosis.–Medium-sized spiders, carapace about 6 long. Males with megaspine on spur at ½ length of tibia I; palpal tarsus without spines, bulb pyriform with coniform embolus with pre-distal constriction. Maxillary serrula absent. Spermathecae of female with one short receptaculum on each side arising from a common mound.

Male holotype (QM S 1223).–Carapace 6.23 long, 5.13 wide. Abdomen 5.75 long, 3.19 wide. Total length, 14.

Table 4.–Leg measurements of *Aname montana*. Values are for holotype male, with allotype female in parentheses.

	I	II	III	IV	Palp
Femur	5.19 (4.44)	5.06 (3.63)	4.44 (3.44)	5.63 (4.56)	4.25 (3.25)
Patella	3.19 (2.81)	2.69 (2.44)	2.25 (2.00)	2.62 (2.38)	2.19 (1.94)
Tibia	3.94 (3.00)	3.25 (2.50)	2.81 (1.88)	4.13 (3.13)	2.62 (2.00)
Metatarsus	4.00 (2.38)	3.50 (2.38)	3.75 (2.88)	5.38 (4.38)	- -
Tarsus	2.50 (1.56)	2.25 (1.63)	1.88 (1.50)	2.25 (1.75)	2.69 (1.75)
Total	18.82 (14.19)	16.75 (12.58)	15.13 (11.70)	20.02 (16.20)	11.76 (8.94)

Co: 1=2=3, orange brown; 4, brown with white mottling forming 3-4 brown chevrons; 5, almost entirely off-white.

Ca: 1, present on interstrial ridges; 2=3, fine brown hairs on interstrial ridges; 4, 5; 5, 7; 7, 7; 8, narrow straight; 9, 0.12. *Eyes:* 1, low; 2, 0.36; 3, 1.82; 4, straight; 5, 12: 12: 8: 10; 6, 30: 25: 19; 7i, 3, 1, 1, 1. *Ch:* 1, present; 2, small, slender, long brown; 3, 8; 4, 6-8.

La: 1, 1.08; 2, 0.48. *Mx:* 1, 2.44, 2, 1.72; 3, 1.04; 4, 30-40 on inner edge. Serrula absent. *St:* 1, 3.28; 2, 2.64; 3, form 'cage'; 4=5=6, all oval and marginal; 4, 0.25, 0.08; 5, 0.18, 0.05; 6, 0.10, 0.03.

Legs: (Table 4). 1, 4123; 2, absent; 3, ventrally with large median spur, long megaspine in distal half; 4, with metatarsus II, proximally excavate; 5, metatarsi and tarsi I and II, palpal tarsi; 6, tarsi III and IV. *Palp:* 1, spindle-shaped; 2, very short. *Spines:* Leg 1: fe, p3 d4 r2; pa, p2; ti, p1 v2 + megaspine, me, 0. Leg 2: fe, p4 d4; pa, p2; ti, p2 v5; me, p1 v6. Leg 3: fe, p3 d3 r4; pa, p2 r1; ti, p2 d3 r3 v9; me, p2 d4 r3 v4. Leg 4: fe, p3 d3 r3; pa, r1; ti, p2 d3 r3 v8; me, p4 d3 r3 v8. Palp: fe, p2 d3; pa, p2; ti, p2 d2 r2 v4; ta, 0. *Claws:* 1=2, 8-9. *Tri:* 1, 12; 2, 15; 3, 16.

Spin: 1, 0.68; 2, 0.24; 3, 0.52; 4, 1.08; 5, 1.16; 6, 1.40; 7, 3.64.

Female allotype (QM S 1224).–Carapace 5.88 long, 4.44 wide. Abdomen 6.44 long, 4.19 wide. Total length, 15.

Co: 1=2=3, orange brown; 1, with slightly brown lateral margins; 4, brown with irregular white mottling; 5, off-white with few brown markings.

Ca: 1, present; 2, light, uniform; 3, brown; 4, 6; 5, 4; 7, 12; 8, short straight; 9, 0.08. *Eyes:* 1, low; 2, 0.35; 3, 1.87; 4, straight; 5, 10: 12: 8: 10; 6, 30: 22: 21; 7i, 5, 2, 1, 2. *Ch:* 1, absent; 2, brown; 3, 9; 4, 6.

La: 1, 1.12; 2, 0.56. *Mx:* 1, 2.40; 2, 1.72; 3, 0.56; 4, about 25 on slightly produced heel. Serrula absent. *St:* 1, 3.28; 2, 2.48; all sigilla oval and marginal; 4, 0.23; 5, 0.13; 6, 0.10 long respectively.

Legs: (Table 4). 1, 4123; 5, metatarsi and tarsi I and II, palpal tarsi; 6, metatarsi and tarsi III and IV. *Spines:* Leg 1: fe, p1 d1; pa, p1; ti, p2 v5; me, v5. Leg 2: fe, p1 d1; pa, p1; ti, p2 v4; me, p1 v6. Leg 3: fe, p2 d1 r3; pa, p2 r1; ti, p2 d2 r2 v7; me, p4 d2 r4 v8. Leg 4: fe, d1 r1; pa, r1; ti, p2 r2 v6; me, p3 d3 r4 v8. Palp: fe, p1; pa, p2; ti, p2 v5; ta, v2/3. *Claws:* 1=2, 6-8; 3, inner on legs III and IV; 4, 9. *Tri:* 1, 11; 2, 8; 3, 14.

Spin: 1, 0.68; 2, 0.28; 3, 0.44; 4, 1.12; 5, 0.88; 6, 1.32; 7, 3.32. *Spermathecae:* One short receptaculum on each side arising from a common invagination.

Distribution and Remarks.–*Aname montana* is known in northeastern New South Wales in the rainforests of Bruxner Park, Dorrigo and the Mt. Boss area near Beechwood. Males are unique in the combination of the pre-distal constriction of the embolus tip and in lacking a serrula.

Material examined.–Only the types.

Aname trevallynia (Hickman)
(Figs. 3, 22, 33, 41)

Chenistonia trevallynia Hickman 1926:171, pl. XII, XIII, figs. 1-4.
Aname trevallynia: Raven 1981:329.

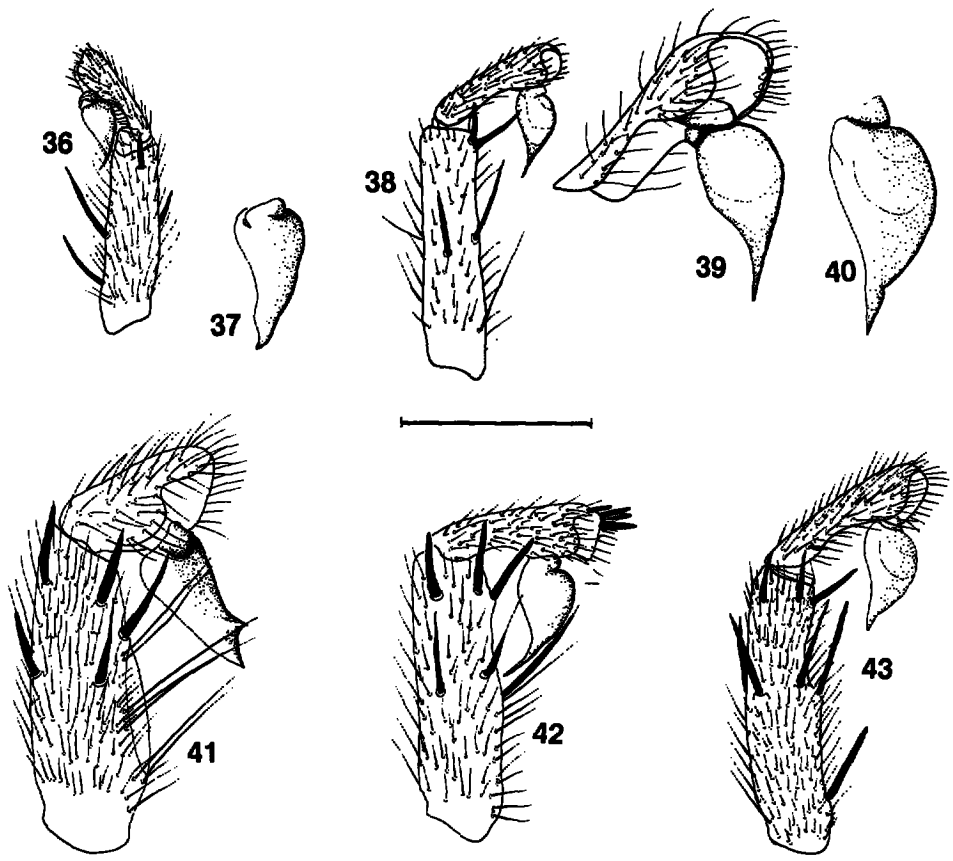
Types.–♂, ♀, syntypes, Trevallyn, Launceston, 41° 25'S – 147° 07'E, Tasmania, 11.ix.1925, V. V. Hickman, QVM, not examined.

Diagnosis.–Small to medium-sized spiders; carapace length, 4-5. Males with spur and long megaspine on mid-ventral tibia I, and with short curved spine below spur, metatarsus I slightly excavate proximally; palpal tarsus without spines; bulb pyriform with sharp thorn-like process near embolus tip. Spermathecae consisting of two pairs of very short closely placed receptacula opening separately.

Distribution and Habitat.–*Aname trevallynia* is widespread throughout Tasmania (Hickman, in litt.) where it makes a silken tube of web under stones (Hickman 1926).

Remarks.–*A. trevallynia* is readily distinguished from other *Aname* species by the short process near the embolus tip.

Material examined.–3♂, 1 penult. ♂, 1♀, Trevallyn, Launceston, Tasmania, 11.ix.1925, V. V. Hickman, ANIC; 1♂, Columbo Falls, Tasmania, 12-14.ii.1980, A. Newton, M. Thayer, AMNH.



Figs. 36-43.–*Aname*, palpal tibia, tarsus and bulb, male holotype (except fig. 41): 36-37, *A. caeruleomontana*, retrolateral (36); 38-39, *A. earthwatchorum*, prolateral (38); 40, *A. montana*; 41, *A. trevallynia*, prolateral; 42, *A. hickmani*, prolateral; 43, *A. montana*, prolateral. Common scale line, 1 mm, except figs. 36, 38, 43, 2 mm.

Aname tropica, sp. nov.
(Figs. 13, 30; Table 5)

Type.–Holotype ♀, Lamond Hill, Iron Range, Queensland, 12° 43′S – 145° 19′E, 28.vi.1976, V. E. D., R. J. R., QM S 1227.

Diagnosis.–Small spiders, carapace about 3 long. All sigilla small, oval and touching margin. Inferior tarsal claw small. Prolateral coxae with elongate bristles. Spermathecae consisting of two pyriform lobes on each side discharging separately. Males unknown.

Holotype female (QM S 1227).–Carapace 2.80 long, 2.00 wide. Abdomen 3.00 long, 1.80 wide.

Co: 1=2=3, yellow brown; 1, with brown areas on caput and on interstrial ridges; 4, brown with large white mottling – anteriorly least mottled; 5, dull yellow with faint transverse brown bars in front of spinnerets and behind book-lungs.

Ca: 1, absent; 2, edges of interstrial ridges with few brown bristles; 4, 4-6; 6-7 pairs of weak foveal bristles; 7, 4-6; 8, short slightly procurved; 8, absent. *Eyes:* 1, raised; 2, 0.34; 3, 1.92; 4, straight; 5, 12: 14: 10: 11; 6, 33: 24: 20; 7, 3, 1, 1, 2. *Ch:* 1, absent; 2, short, brown; 3, 8; 4, 7.

La: 1, 0.50; 2, 0.28; 3, a groove. *Mx:* 1, 1.20; 2, 0.80; 3, 0.42; 4, 40-50 club-like on inner edge; heel rounded. Serrula not observed with stereo microscope. *St:* 1, 1.50; 2, 1.32; 3, present on posterior margin, absent on anterior margin; 4=5=6, all oval, about 0.14 long, and touching margin; 7, domed.

Legs: (Table 5). 1, 4123; 5, tarsi I and II, palpal tarsi. *Spines:* No spines on leg tarsi, femora I-IV only with 1 long slender bristle basally. Leg: 1: pa, 0; ti, p2 v2; me, v6. Leg 2: pa, 0; ti, p2 v2; me, p1 v6. Leg 3: pa, p2 r1; ti, p2 d3 r1 v6; me, p3 r3 v6. Leg 4: pa, 0; ti, r2 v6; me, p3 r4 v7. Palp: fe, 0; pa, 0; ti, p1 v3; ta, v2. *Claws:* 1, 7-8; 2, 5-7; 4, 8. *Tri:* 1, 8; 2, 9; 3, 7-10.

Spin: 1, 0.40; 2, 0.14; 3, 0.22; 4, 0.64; 5, 0.42; 6, 0.62; 7, 1.68. *Spermathecae:* A pair of separated short lobes on each side.

Distribution and Remarks.–*Aname tropica* is known only from one locality at Iron Range, north Queensland. The spider was collected from leaf-litter in tropical rainforest on a flood-free hillock. *Aname tropica* is readily distinguished from other small *Aname* species of the *maculata* group by the two pairs of spermathecal receptacula.

Material examined.–Only the type.

Table 5.–Leg measurements of *Aname tropica*. Values are for holotype female.

	I	II	III	IV	Palp
Femur	2.03	1.75	1.50	2.06	1.44
Patella	1.25	1.09	0.84	1.13	0.88
Tibia	1.41	1.16	0.78	1.56	0.78
Metatarsus	1.22	1.16	1.19	1.78	-
Tarsus	0.88	0.78	0.66	0.81	0.94
Total	6.78	5.94	4.97	7.34	4.03

ACKNOWLEDGMENTS

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