The Goblin Spider Genera *Opopaea* and *Epectris* (Araneae, Oonopidae) in the New World

NORMAN I. PLATNICK¹ AND NADINE DUPÉRRÉ²

ABSTRACT

Although the type species of the widespread, speciose, and abundant goblin spider genus *Opopaea* Simon was initially described from St. Vincent in the Lesser Antilles, and 15 additional New World taxa have since been assigned to the genus, we hypothesize that *Opopaea* is not native to the New World, and is represented in America only by introduced species that, although now pantropical in distribution, are of Old World origin. *Myrmecoscaphiella* Mello-Leitão is placed as a junior synonym of *Opopaea*, and its type species, *M. borgmeyeri* Mello-Leitão from Brazil, is newly synonymized with *O. concolor* (Blackwall), as are also *O. devia* Gertsch from Texas, *O. guaraniana* Birabén from Argentina, and *O. bandina* Chickering from Florida. *Opopaea timida* Chickering, from Panama, is placed as a junior synonym of the type species, *O. deserticola* Simon, which is newly recorded from Mexico, Costa Rica, Bermuda, the Bahama Islands, Jamaica, Hispaniola, Puerto Rico, the Virgin Islands, Barbados, Trinidad, Colombia, and Brazil; *O. concolor* is newly recorded from Mexico, Costa Rica, the Bahama Islands, Cuba, Jamaica, Ecuador, the Galápagos Islands, Peru, and Hawaii. A third widespread species has most commonly been cited as *O. lena* Suman, originally described from Hawaii and recently chosen as the type species of the monotypic genus *Nale* Saaristo and Marusik. *Nale* is here placed as a junior synonym of *Epectris* Simon, as its type species is placed as a junior synonym of *E. apicalis* Simon, described from the Philippines; *E. apicalis* is newly recorded from Florida, Mexico, Panama, Ecuador, Réunion, Singapore, Borneo, Micronesia, and New Caledonia. *Opopaea cupida* (Keyserling) is transferred to *Marsupopaea* Cooke; *O. recondita* Chickering is transferred to *Brignolia* Dumitresco and Georgesco. In a supplement, *Pelicinus vernalis* (Bryant), described from Florida, is also placed as a junior synonym of *O. concolor.*

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INTRODUCTION

_Opopaea_ is one of several goblin spider genera that were first described in a paper on the spiders of the Lesser Antillean island of St. Vincent by Simon (1891). The type (and only) species initially assigned to the genus, _Opopaea deserticola_ Simon, has a distinctively enlarged male palpal patella that connects subproximally to the palpal femur (rather than proximally, as is normally the case). Both features were clearly illustrated by Simon (1891: fig. 5).

Given these obvious palpal synapomorphies, one might expect that the subsequent history of the genus would have been straightforward, but that was not the case. For many decades, the limits of the genus were highly confused, especially with regard to the earlier genus _Gamasomorpha_ Karsch (1881). Numerous species that clearly belong to _Opopaea_ were initially described in _Gamasomorpha_, and numerous species that do not share the palpal synapomorphies of _O. deserticola_ have been mistakenly assigned to _Opopaea_. Some of this confusion was resolved by Brignoli (1974, 1975, 1983), who transferred several specific names from _Gamasomorpha_ to _Opopaea_, as well as one in the other direction. Nevertheless, numerous taxa remain misplaced and their relationships still need to be clarified.

In part because of this confusion, _Opopaea_ has become one of several oonopid genera that have grown to such an unwieldy size, including species from such far-flung parts of the world, as to impede revisionary efforts. The genus encompasses no fewer than 52 currently valid specific names (and thus constitutes more than 10% of the total described diversity of the family); 13 of those names putatively represent New World members (Platnick, 2009). As part of the Planetary Biodiversity Inventory (PBI) project on oonopids, Barbara Baehr of the Queensland Museum is undertaking a revision of this large complex.

The PBI project currently involves over 40 investigators in 10 countries. One of the main reasons that goblin spiders were chosen for an intensive, global revision is that the distribution ranges of oonopid species tend to be extremely small, and the group thus has the potential to provide substantial amounts of information on areas of endemism, on a worldwide scale. Such highly localized taxa are potentially extremely valuable, both scientifically (for studies of historical biogeography) and to society (for help in establishing conservation priorities among areas of endemism).

This generalization about oonopid distribution patterns is based primarily on what has been learned to date about the ground and litter-dwelling fauna. In recent years, oonopids have also been shown to be a significant component of the canopy fauna as well, in both tropical and subtropical regions (Fannes et al., 2008), but we do not yet know whether the canopy-dwelling species tend to be as narrowly distributed as the ground-dwelling forms. The generalization about tiny species distributions also does not apply to a rather small number of species that are seemingly synanthropic and have attained pantropical or almost cosmopolitan distributions.

Given the possibility that _O. deserticola_ could be one of a large number of closely related species, each endemic to different islands in the West Indies, Barbara Baehr requested our help in determining the identity and distributional limits of the species, and we have therefore examined the specimens of _Opopaea_ currently available to us in the New World collections on hand. These collections are substantial, totaling over 2,000 specimens. We were not surprised to find that _O. deserticola_ is not a local island endemic; although initially described from St. Vincent, Simon (1891: 560) indicated that the species "habite presque toutes les régions chaudes et désertiques du globe; je l'ai trouvée dans le Sahara algérien, en Égypte, en Arabie, aux îlesPhilippines et au Vénézuela." More recently, Saaristo (2001) recorded the species from the Seychelle Islands, and Saaristo and Marusik (2008) have provided a redescription of the species, along with new records from St. Helena, Tonga, Samoa, and the Tuamotu Islands.

We were, however, very surprised to discover that the same seems to be true for all the New World members of the group. Despite the numerous specific names currently available, we hypothesize that there are actually no native American members of this complex. The three species treated below each have a
wide distribution, both within America and elsewhere, but apparently have no close relatives in the New World. We therefore suspect that all three species actually originated in the Old World and that all their American populations are introduced rather than native.

We have supplied stereoscope, compound microscope, and scanning electron microscope images for each species. For compound microscopy, specimens were temporarily mounted in clove oil. For scanning electron microscopy of internal structures, abdomens were digested in pancreatin before being coated (Álvarez-Padilla and Hormiga, 2008); external structures were occasionally obscured by unknown, oval artifacts (e.g., fig. 22) that were not dislodged by ultrasonication.

**COLLECTIONS EXAMINED**

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<td>FSCA</td>
<td>Florida State Collection of Arthropods, Gainesville</td>
</tr>
<tr>
<td>INBIO</td>
<td>Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica</td>
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<tr>
<td>JAB</td>
<td>J. A. Beatty collection, Carbondale, Illinois</td>
</tr>
<tr>
<td>KBIN</td>
<td>Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, Belgium</td>
</tr>
<tr>
<td>MACN</td>
<td>Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina</td>
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<td>Museum of Zoology, University of Turku, Finland</td>
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**SYSTEMATICS**

**Opopaea Simon**

*Opopaea* Simon, 1891: 560 (type species by monotypy *Opopaea deserticola* Simon).

*Myrmecoscaphiella* Mello-Leitão, 1926: 1 (type species by original designation *Myrmecoscaphiella borgmeyeri* Mello-Leitão). NEW SYNONYMY.

**DIAGNOSIS:** Males of *Opopaea* are easily recognized by the unusual conformation of the palpal patella, which is oddly enlarged and originates subbasally from the palpal femur (figs. 55, 56, 61, 62, 93, 94, 99, 100). A similarly modified palpal patella occurs in some other Old World taxa, such as those currently assigned to *Camptoscaphiella* Caporiacco (1934), but in those males, the palpal cymbium and bulb are separate, rather than fused as in *Opopaea*. In the New World, males are likely to be confused only with those of *Marsupopaea* Cooke (1972), which can easily be distinguished by the large sternal excavation that provides a “pouch” in which the palps are held (Cooke, 1972: fig. 10). Females are more difficult to characterize, but in the New World they are most likely to be confused with those of *Brignolia* Dumitresco and Georgesco (1983), which are similar in appearance but can be distinguished by the presence of a central elevated projection on the epigastric region (Saaristo, 2001: fig. 142A, B).

**DESCRIPTION:** A detailed generic description has been provided by Saaristo and Marusik (2008: 18), and improvements on that summary must await a full revision of the Old World fauna.

**MISPLACED SPECIES:** We discuss here the specific names that are currently assigned to the genus and are based on New World specimens, but do not actually belong to *Opopaea*.

*Opopaea cupida* (Keyserling, 1881) was originally described in *Oonops*, but Simon (1891) noted the similarities of this species to *O. deserticola*, and the name was later formally transferred to *Opopaea* by Simon (1893a: 299). Brignoli (1975: 228) pointed out that *O. cupida* might be a senior synonym of *Marsupopaea sturmi* Cooke (1972), which is the type species of that genus. A comparison of the two holotypes,
both from Colombia, confirms Brignoli’s conjecture (at least at the generic level), and \textit{O. cupidida} is here transferred to \textit{Marsupopaea cupidida}, \textbf{NEW COMBINATION}.

Three species from the United States, \textit{O. floridana} (Banks, 1896, originally described in \textit{Gamasomorpha}) from Florida, \textit{O. meditata} Gertsch and Davis (1936) from Texas, and \textit{O. sedata} Gertsch and Mulaik (1940) from Texas, are based on females that differ from those of \textit{Opopaea} in having the much more sclerotized epigastric region characteristic of members of the \textit{Gamasomorpha} complex of genera. Because the limits of \textit{Gamasomorpha} itself remain to be determined, we leave these species in \textit{Opopaea} pending their examination by Ricardo Ott as part of his studies on the \textit{Gamasomorpha} complex. The same is true for \textit{O. calona} Chickering (1969) from Florida, the male of which has an unexpanded palpal patella and palpal bulb morphology unlike those of true \textit{Opopaea}.

\textit{Opopaea recondita} Chickering (1951) from Panama has an epigastric region with a central elevated projection, and the name is therefore transferred to \textit{Brignolia recondita}, \textbf{NEW COMBINATION}. It may well prove to be a senior synonym of the type species of that genus, \textit{Brignolia cubana} Dumitresco and Georgesco (1983), which (like the three species treated below) is seemingly synanthropic and pantropical.

Finally, two more recently described species from southern Brazil, \textit{O. ita} Ott (2003) and \textit{O. viamao} Ott (2003), differ from true \textit{Opopaea} in having the posterior median eyes reduced or absent, and will be placed elsewhere in future contributions by Ricardo Ott.

\textbf{SYNONYM}: Mello-Leitão (1926) provided no characters to differentiate \textit{Myrmecoscapphiella} from \textit{Opopaea}, and there appears to be none.

\textit{Opopaea deserticola} Simon

\textbf{Figures 1–72}


\textbf{Opopaea darlingtoni} Bryant, 1940: 267, figs. 5, 7 (male holotype from Maisi, Gauaniana, Cuba, in MCZ, examined). First synonymized by Dumitresco and Georgesco, 1983: 103.

\textbf{Gamasomorpha floridana}: Bryant, 1945a: 199, figs. 1, 2 (male, misidentified).

\textbf{Opopaea timida} Chickering, 1951: 233, figs. 20, 21 (male holotype believed to have been taken from a bat collected in the Chilibriro Caves, Canal Zone, Panama, in MCZ, examined). \textbf{NEW SYNONYM}.


\textbf{DIAGNOSIS}: Males can be distinguished from those of \textit{O. concolor} by the ventrally more expanded palpal bulb (figs. 55–58, 61, 62, 64, 66), females by having the small, dark knob marking the origin of the receptaculum situated very close to the epigastric furrow (figs. 59, 60, 67, 68).

\textbf{MALE} (PBI_OON 1281). Total length 1.25, habitus as in figs. 1–3, 7, 8. \textbf{CEPHALOTHORAX}: Carapace: Pale orange, without any pattern, ovoid in dorsal view (fig. 11), pars cephalica slightly elevated in lateral view (fig. 12), anteriorly narrowed to 0.49 times its maximum width or less; posterolateral corners angular, posterolateral edge without pits (fig. 14), posterior margin not bulging below posterior rim (fig. 21); anterolateral corners without extension or projections; posterolateral surface without spikes; lateral margins straight, rebordered, without denticles; surface of elevated portion of pars cephalica smooth (fig. 19), sides striated (fig. 20); deep depressions absent, fovea absent, pars thoracica without radiating rows of pits; nonmarginal pars cephalica setae dark, needlelike, in U-shaped row; nonmarginal pars thoracica setae dark, needlelike; marginal setae light, needlelike; sides of pars cephalica with scattered pores set in slight depressions (fig. 36). \textbf{Chilum}: Absent. \textbf{Eyes}: Six, well developed, ALE largest; ALE oval, PME squared, PLE oval; posterior eye row straight from above, procurred from front (fig. 13); ALE separated by less than their radius, ALE-PLE separated by less than ALE radius, PLE touching through-
out most of their length, PLE-PME separated by less than PME radius. Sternum: Longer than wide, pale orange, uniform, fused to carapace, median concavity absent; radial furrows present between coxae I–II, II–III, III–IV (fig. 25), wrinkled, radial furrow opposite coxae III absent; surface smooth, without pits, microsculpture only in furrows, sickle-shaped structures not touching, anterior margin unmodified, posterior margin not extending posteriorly of coxae IV; anterior corner unmodified, lateral margin with infracoxal grooves connecting anterior and posterior openings, distance between coxae II and III greater than distance between coxae I and II, or coxae III and IV, precoxal triangles
absent, lateral margins unmodified, without posterior hump; setae sparse, dark, needlelike, densest laterally, originating from surface; hair tufts absent. **Mouthparts:** Chelicerae, endites, and labium pale orange. Chelicerae straight, anterior face unmodified; promargin without teeth, retromargin without teeth; fang toothlike projections absent, fang directed medially, shape normal, without prominent basal process, tip unmodified (fig. 26); setae dark, needlelike, evenly scattered; paturon inner margin with scattered setae, distal region unmodified, promargin unmodified, inner margin unmodified, laminate groove absent. Labium triangular, fused to sternum, with anterior margin indented at middle, same as sternum in sclerotization; six or more setae present on anterior margin, subdistally with unmodified setae. Endites distally not excavated, serrula present in single row, anteromedian tip with one strong, toothlike projection (figs. 27, 28), posteromedian part unmodified, same as sternum in sclerotization. **ABDOMEN:** Cylindrical, without long posterior extension, rounded posteriorly, interscutal membrane without rows of small sclerotized
platelets; soft portions white, without color pattern. Book lung covers small, ovoid, without setae, anterolateral edge unmodified. Posterior spiracles connected by groove. Pedicel tube short, ribbed, with small, dorsolateral, triangular extensions (fig. 33), scuto-pedicel region with paired curved scutal ridges (fig. 29), scutum not extending far dorsal of pedicel, plumose hairs present dorsal and lateral of pedicel, matted setae on anterior ventral abdomen in pedicel area absent; cuticular outgrowths near pedicel absent. Dorsal scutum strongly sclerotized, pale orange, without color pattern, covering full length of abdomen, no soft tissue visible from above, not fused to epigastric scutum, middle surface punctate, sides punctate, anterior half without projecting denticles. Epigastric scutum surrounding pedicel, not protruding, small lateral sclerites absent. Postepigastric scutum strongly sclerotized, pale orange, long, semicircular, covering nearly full length of postepigastric area, fused to epigastric scutum, anterior margin unmodified, with short posteriorly directed lateral apodemes. Spinneret scutum present, incomplete ring. Supra-anal scutum absent. Dorsum setae light, needlelike. Epigastric area setae uniform, dark, needlelike. Postepigastric area setae dark, needlelike. Spinneret scutum with fringe of long setae. Interscutal membrane with setae. Dense patch of setae anterior to spinnerets absent. Colulus present. LEGS: Yellow, without color pattern. Femur IV not thickened, patella plus tibia I shorter than carapace, tibia I unmodified, tibia I Emerit’s glands absent, tibia IV specialized hairs on ventral apex absent, ventral scopula absent, metatarsi I and II meso-apical comb.


absent, metatarsi III and IV weak ventral scopula absent, tibiae and metatarsi with scattered pores set in small depressions without raised margins (fig. 39). Leg spines absent. Tarsal proclaws inner face striate, retroclaws inner face striate. Tarsi I, II superior claws with one tooth on lateral surface of proclaw, five teeth on median surface, one tooth on lateral surface of retroclaw, five teeth on median surface (fig. 41). Tarsi III, IV superior claws with one tooth on lateral surface of proclaw, four teeth on median surface of retroclaw, four teeth on median surface (figs. 42–44). Trichobothria examined with SEM, tibia: each with three (fig. 37); metatarsus: each with one (fig. 40); base rounded, aperture internal texture grate-like, hood smooth (fig. 38). Tarsal organ apparently with 3–5 sensillae (fig. 51).

GENITALIA: Epigastric region with sperm pore visible, small, oval, situated at level of anterior spiracles (fig. 30), rebordered (fig. 35). Epigastric furrow without Ω-shaped insertions, without setae. Palp normal size, not strongly sclerotized, right and left palps symmetrical. Cymbium pale orange, bulb pale orange, proximal segments pale orange, embolus light. Embolus prolateral excavation absent. Trochanter normal size, unmodified. Femur normal size, two or more times as long as trochanter, without posteriorly rounded lateral dilation, attaching to patella subbasally (figs. 55, 56, 61, 62). Patella longer than femur, much larger than femur, without prolateral row of ridges, setae unmodified. Tibial trichobothria examined using SEM, three (fig. 63). Tarsal
organ with at least two sensillae (fig. 52). Cymbium narrow in dorsal view, completely fused with bulb, no seam visible, not extending beyond distal tip of bulb, plumose setae absent, without stout setae, without distal patch of setae. Bulb 1 to 1.5 times as long as cymbium, slender, elongated, ventrally expanded (figs. 57, 58, 66), with dorsal fenestra (figs. 64, 65).

**Female** (PBI_OON 1299). Total length 1.50, habitus as in figs. 4-6, 9, 10. As in male except as noted. CEPHALOTHORAX (figs. 15-18, 22-24): Endites anteromedian tip


unmodified. *Palp*: claw absent; spines absent; tarsus unswollen (fig. 72), patella without prolateral row of ridges, tibia with two trichobothria (fig. 71), tarsal organ elongate (fig. 54). **ABDOMEN** (figs. 31, 32, 34): Dorsal scutum covering more than 3/4 of abdomen, more than 1/2 to most of abdomen width. Postepigastric scutum covering about 3/4 of postepigastric area, not fused to epigastric scutum. Anterior lateral spinnerets with large major ampullate gland spigot, posterior medians with two spigots, posterior laterals with three spigots (fig. 70). **LEGS**: Tarsi I, II superior claws median surfaces with 10–12 small, distal teeth, lateral surfaces with 5 large, basal teeth (figs. 45–48); tarsus III superior claws median surfaces with three small, distal teeth, lateral surfaces with five large, basal teeth (figs. 49, 50). Tarsal organ opening piriform (fig. 53). **GENITALIA**: Ventral view: epigastric region with sclerotization marking origin of receptaculum situated close to epigastric furrow (figs. 59, 67, 68). Dorsal view: receptaculum short, T-shaped, situated near epigastric furrow (figs. 60, 69).


Figs. 33–36. *Opopaea deserticola* Simon. 33, 35, 36. Male. 34. Female. 33, 34. Abdomen, anterior view, showing triangular projections on pedicel and plumose hairs near them. 35. Epigastric region, showing sperm pore. 36. Pore from side of pars cephalica.


Figs. 41–44. *Opopaea deserticola* Simon, male, tarsal claws. 41. Leg I, oblique prolateral view. 42. Leg III, prolateral view. 43. Leg III, apical view. 44. Leg III, retrolateral view.

Figs. 45–50. *Opopaea deserticola* Simon, female, tarsal claws. 45. Leg I, dorsal view. 46. Same, retrolateral view. 47. Leg II, apical view. 48. Same, retrolateral view. 49. Leg IV, apical view. 50. Leg IV, retrolateral view.


26718), 1♂, 6♀♀; 1 mi S Old Harbour, Dec. 7, 1957 (A. Chickering, MCZ 72361, PBI_OON 21229), 1♀; 2 mi W junction Red Hills Road and Spanish Town Road, Nov. 1957 (A. Chickering, MCZ 72365, PBI_OON 26708), 1♂, 6♀♀; School of Agriculture, Nov. 23, 1957 (A. Chickering, MCZ 72360, 72634, PBI_OON 21226, 26705), 9♂, 20♀♀; 1.5 mi SW Spanish Town, Oct. 10, 1957 (A. Chickering, MCZ 72362, PBI_OON 21225, 28178), 3♂, 4♀♀; 5.5 mi W Spanish Town, Dec. 7, 1957 (A. Chickering, MCZ 72368, PBI_OON 26714),

Puerto Rico: Desecheo Island, Feb. 18—20, 1914 (AMNH PBI_OON 1229), 1♂; Laguna Cartigano, Valle de Lejas, Jan. 8, 1964 (A. Chickering, MCZ 72383, PBI_OON 26722), 2♂; La Parguera, Institute of Marine Biology, Jan. 22, 1964 (A. Chickering, MCZ 72382, PBI_OON 26716), 1♂, 2♀; Mayagüez, July 2, 1958 (M. Sanderson, AMNH PBI_OON 1196), 1♂, Sept. 12, 1959 (A. Nadler, AMNH PBI_OON 1383), 1♂, Jan. 13, 1964 (A. Chickering, MCZ 72384, PBI_OON 26709), 1♀; Mayagüez, University campus, Jan. 29, 1964 (A. Chickering, MCZ 72380, PBI_OON 26710), 1♂; 3 mi S Mayagüez on road to Hormigueros, Jan. 8, 1964 (A. Chickering, MCZ 72376, PBI_OON 26711), 2♂; 4.6 mi E Mayagüez on Rt. 106, Jan. 19, 1964 (A. Chickering, MCZ 72385, PBI_OON 26717), 2♂, 6♀; Nicacos Island, Apr. 3, 1964 (Heatwole, Torres, MCZ 72045, PBI_OON 26674), 1♂.

Lesser Antilles: Virgin Islands: St. Croix: no specific locality, Mar. 9, 1964 (A. Chickering, MCZ 72517, PBI_OON 28012), 1♂, 1♀, Sept. 2, 1966 (A. Chickering, MCZ 72445, PBI_OON 26391), 2♂, 30♀, Sept. 8, 1966 (A. Chickering, MCZ 72510, PBI_OON 28005), 1♂, Sept. 9, 1966 (A. Chickering, MCZ 72432, PBI_OON 26381), 25♂, 30♀; Frederiksted, Mar. 13, 1964 (A. Chickering, MCZ 72436, PBI_OON 21293), 1♂, Mar. 14, 1964 (A. Chickering, MCZ 72377, PBI_OON 26385), 1♂, 1♀, Mar. 15, 1964 (A. Chickering, MCZ 72429, PBI_OON 26376), 3♂, 4♀, Mar. 19, 1964 (A. Chickering, MCZ 72431, PBI_OON 27492), 2♀; 1 mi N Frederiksted, Mar. 16, 1964 (A. Chickering, MCZ 72389, 72545, PBI_OON 26380, 26949), 4♂, 10♀; 1 mi from Frederiksted on Mahogany Road, Mar. 23, 1964 (A. Chickering, MCZ 72387, 72527, PBI_OON 21292, 26941), 1♂, 5♀; 2 mi from Frederiksted on Mahogany Road, Mar. 21, 1964 (A. Chickering, MCZ 72433, PBI_OON 26390), 2♂, 1♀; King’s Hill, Mar. 17, 1964 (A. Chickering, MCZ 72390, PBI_OON 26386), 2♂, 1♀; vicinity of King’s Hill, Mar. 18, 1964 (A. Chickering, MCZ 72386, PBI_OON 26384), 4♂, 5♀, Mar. 20, 1964 (A. Chickering, MCZ 72439, PBI_OON 26392), 3♂, 3♀; Lavataz Garden, 2 mi from Frederiksted, Mar. 21, 1964 (A. Chickering, MCZ 72388, 72441, PBI_OON 21291, 26388), 4♂, 16♀.

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mis, decayed pads, elev. 50 m (W. Reeder, TMM 57851, PBI_OON 1595), 1♂, 1♀. Isla Santa Cruz: trail to Bellavista, Oct. 7, 1975, sifting litter under Bursera, elev. 10-12 m (W. Reeder, TMM 57844, PBI_OON 10433), 1♂, Oct. 11, 1975, under rocks and dead Zanthoxylum limb, elev. 100 m (W. Reeder, TMM 57854, PBI_OON 10489), 1♀; Darwin Research Station, Academy Bay, Feb. 12, 1964 (D. Cavagnaro, R. Schuster, CAS 9023414, PBI_OON 35233), 1♀.

**Distribution:** Pantropical; in the New World, known from Baja California and Florida south to the Galapagos Islands and Brazil.

**Synonymy:** Chickering (1951) provided no characters to distinguish *O. timida* from *O. deserticola*, and there appears to be none.

**Opopaea concolor** (Blackwall)

**Figures 73-104**

*Oonops concolor* Blackwall, 1859: 265 (male and female syntypes from Madeira, should be in Hope Department of Entomology, Oxford University, but not found there by Zoe Simmons, personal commun.).


*Myrmecoscaphiella borgmeyeri* Mello-Leitão, 1926: 2 (male holotype from Rodeio, Santa Catarina, Brazil, in MNRJ, examined). NEW SYNONYMY.

*Opopaea devia* Gertsch, 1936: 5, fig. 13 (female holotype from Edinburg, Hidalgo Co., Texas, in AMNH, examined). NEW SYNONYMY.

*Opopaea guarantiana* Birabén, 1954: 203, figs. 30-36, 50 (male holotype and male allotype from Manantiales, Corrientes, Argentina, lost). NEW SYNONYMY.

*Opopaea bandina* Chickering, 1969: 147, figs. 1-3 (female holotype from Largo, Pinellas Co., Florida, in MCZ, examined). NEW SYNONYMY.


*Opopaea atlantica*: Brignoli, 1983: 188.

**Diagnosis:** Males can be distinguished from those of *O. deserticola* by the ventrally unexpanded palpal bulb (figs. 93-96, 99-104), females by having the small, dark knob marking the origin of the receptaculum situated quite far from the epigastric furrow (figs. 91, 92, 97, 98).

**Male** (PBI_OON 1058). Total length 1.23, habitus as in figs. 73-75. As in *O. deserticola* except as noted. CEPHALOTHORAX (figs. 79-81, 87): pars cephalica pores, serrula not scanned. ABDOMEN (figs. 82, 86, 90): setae and outgrowths near pedicel not scanned. LEGS: tibial glands and pores, tarsal claw dentition, trichobothria and tarsal organs not scanned. GENITALIA: Palpal trichobothria not scanned. Bulb not expanded ventrally (figs. 93-96, 99-104).

**Female** (PBI_OON 1213). Total length 1.47, habitus as in figs. 76-78. As in female of *O. deserticola* except as noted. CEPHALOTHORAX (figs. 83-85, 88): Palpal trichobothria not scanned. ABDOMEN (figs. 86, 90): Spinnerets not scanned. LEGS: Not scanned. GENITALIA: Ventral view: epigastic region with protruding knob situated posterior of epigastic furrow (figs. 91, 97). Dorsal view: sclerotized portions of receptaculum short, T-shaped, originating well posterior of epigastic furrow (figs. 92, 98).

Figs. 73–78. *Opopaea concolor* (Blackwall), habitus. 73–75. Male. 76–78. Female. 73, 76. Dorsal view. 74, 77. Ventral view. 75, 78. Lateral view.

Archbold Biological Station, Lake Placid, Nov. 23, 1952 (A. Nadler, AMNH PBI_OON 1204), 1♀, Dec. 8, 1959 (A. Nadler, AMNH PBI_OON 1195), 1♀, Oct. 1, 1962 (A. Nadler, AMNH PBI_OON 1194), 1♀, July 3–8, 1978, litter, elev. 20 m (J., F. Murphy, AMNH PBI_OON 36544, 36545), 2♂; De Soto City, Oct. 5, 1962 (A. Nadler, AMNH PBI_OON 1202), 1♀; Highlands Hammock State Park, along County Road, N boundary, Apr. 5, 1966, palmetto pine/pine swamp forest (J. Wagner, FMNH PBI_OON 37515), 1♂. Indian River Co.: no specific locality, Australian pine (K. Hibbard, R. Kendrick, FSCA PBI_OON 21187), 1♀. Lee Co.: Fort Myers Beach, 26°26′N, 81°56′W, Mar. 17,
Figs. 79–82. *Opopaea concolor* (Blackwall), male. 79. Cephalothorax, dorsal view. 80. Same, anterior view. 81. Same, lateral view. 82. Epigastric area, ventral view.


Figs. 83–86. *Opopaea concolor* (Blackwall), female. 83. Cephalothorax, dorsal view. 84. Same, anterior view. 85. Same, lateral view. 86. Epigastric area, ventral view.

**Hidalgo:** Taxquillo, Tzindejeh, Río Tula, 20°33'N, 99°19'W, Aug. 20, 1964 (J., W. Ivie, AMNH PBI_OON 1369, 1409), 5♂, 4♀, July 29, 1966 (J., W. Ivie, AMNH PBI_OON 1395), 1♂, 1♀. **Nayarit:** Compostela, July 26, 1954 (W. Gertsch, AMNH PBI_OON 1394), 1♂. **Oaxaca:** Tlacolula, 16°57'N, 96°27'W, Apr. 30, 1963, under cliff (W. Gertsch, W. Ivie, AMNH PBI_OON 1393, 9♂, 1♀). **Sinaloa:** 6 mi S Culiacán, July 22, 1954 (W. Gertsch, AMNH PBI_OON 1415), 1♂. **COSTA RICA:** no specific locality, intercepted at New Orleans, Louisiana, June 1, 1936, USNM 2046648, PBI_OON 27926), 1♀. **Alajuela:** Alfaro Ruiz, Zarcero, Mar. 18, 1997, elev. 1600–1700 m (INBIO 2805767, PBI_OON 29668), 1♂. **Heredia:** Llorente, Flores coffee plantation, Feb. 11, 2007, dead leaves (C. Viquez, AMNH PBI_OON 29679), 1♀; INBIO, Santo Domingo, June 23, 1997, in book (A. Solis, C. Viquez, INBIO 47179, PBI_OON 29678), 1♀. **San José:** San Joaquin, June 9, 1997 (C. Viquez, AMNH PBI_OON 37516), 1♀. **WEST INDIES:** Bahama Islands:
Figs. 87–92. *Opopaea concolor* (Blackwall), SEM. 87, 89. Male. 88, 90–92. Female. 87, 88. Carapace, dorsal view. 89, 90. Abdomen, anterior view, showing triangular projections on pedicel and plumose hairs near them. 91. Epigastric area, ventral view. 92. Same, digested, showing T-shaped sclerotized portion of receptaculum and lateral apodemes, and basal portion of tracheal trunks, dorsal view.


Distribution: Pantropical; in the New World, known from the southern United States and Bahama Islands south to the Galapagos Islands, Peru, and Argentina. The type specimens of this species were captured “in a house among loose papers” on the island of Madeira (Blackwall, 1859: 266). The species is obviously synanthropic; although probably native only to the Old World, it can today be found throughout both the Old and New World tropics and subtropics (sometimes sympatrically with O. deserticola).

Synonymy: No differences from O. concolor (or from each other) were noted in the original descriptions of Myrmeoscaphiella borgmeyeri, O. devia, or O. bandina, and none were detected during examination of their holotypes (figs. 103, 104). The types of O. guaraniana, originally deposited in the personal collection of Biraben, are apparently lost; although other types from that paper are now in the La Plata or Buenos Aires collections, these specimens are not among them (C. Grismado, personal commun.). Biraben’s illustration of the female genitalic region leaves no doubt that his specimens belonged to O. concolor.

Epectris Simon

Epectris Simon, 1893b: 74 (type species by monotypy Epectris apicalis Simon).

Diagnosis: Because the type species of this genus has been known only from females, and no illustrations were provided by Simon (1893b), the identity and relationships of the taxon have remained obscure. Simon did recognize the affinity of Epectris apicalis with Opopaea, and might well have placed the species in Opopaea instead had he known that the male palpal patella shares the synapomorphies of that genus. However, Simon (1893a) separated Epectris from Opopaea on the basis of its more procurred posterior eye row (figs. 111, 113, 115, 117). Males can easily be separated from those of Opopaea by the presence of a long basal protrusion on the palpal bulb (fig. 151), and both sexes have a posterior dark spot on the abdominal dorsum (figs. 105, 108) that is lacking in Opopaea, but these differences, like those in the eye pattern, may be just highly autopomorphic characters of the type species (see below, under Synonymy).

Description: A description has been provided by Saaristo and Marusik (2008: 39, as Nale).

Misplaced Species: Two modern species have been placed in the genus: Epectris aenobarbus Brignoli (1978) from Bhutan and Epectris conujaingensis Xu (1986) from China, but it is clear from the palpal illustrations provided by those authors that both of those species are misplaced, and are not congeneric with the type species of either Epectris or Opopaea. The only other species currently assigned to the genus is Epectris mollis Simon (1907), based on a female from Sri Lanka; Simon provided no illustrations, but his indication that the abdomen lacks scuta shows that this species is also misplaced, possibly even at the subfamily level. The affinities of all three taxa will remain uncertain until their types can be examined in the course of revisionary studies on Old World oonopids.

Synonymy: Saaristo and Marusik (2008) removed O. lena from Opopaea and placed it in the monotypic new genus Nale, arguing that the remaining species of Opopaea are united by a palpal fenestra that is lacking in O. lena. Because O. lena is a junior synonym of the type
species of *Epectris, Nale* is here placed as a junior synonym of *Epectris*. We suspect that *E. apicalis* is just a highly autapomorphic species of *Opopaea*, rather than its sister group, and that *Epectris* and *Nale* may both therefore be junior synonyms of *Opopaea*. A decision on that question should wait until the Old World fauna is fully revised and the relationships of *E. apicalis* and the many species of *Opopaea* can be analyzed in detail, using both morphological and molecular data. It seems likely, though, that *E. apicalis* does actually have a palpal fenestra (see figs. 155, 156).

**Epectris apicalis** Simon

*Figures 105–160*

*Epectris apicalis* Simon, 1893b: 74 (female holotype from Antipolo, Luzon, Philippines, in MNHN, examined).  
*Opopaea lena* Suman, 1965: 227, figs. 9–14 (male holotype from Kailua, Oahu, Hawaii, in Bishop Museum, not examined). – Saaristo, 2001: 337, figs. 112A–C, 113–117. – Burger et al., 2003: 90, fig. 23. – Baert et al., 2008: 56. NEW SYNONMY.

*Gamasomorpha ladiguei* Benoit, 1979: 198, fig. 4A–D (female holotype from Mont La Digue, La Digue, Seychelle Islands, in Tervuren, examined by Michael Saaristo). First synonymized with *O. lena* by Saaristo, 2001: 337.

*Opopaea mortenseni* Brignoli, 1980: 6, fig. 3 (female holotype from Lem Ngob, Thailand, in Copenhagen, examined by Michael Saaristo). First synonymized with *O. lena* by Saaristo, 2001: 337.


**Diagnosis**: This distinctive species is easily recognized by the dark spot at the posterior end of the abdominal dorsum (figs. 105, 108), the long, basal protrusion on the palpal bulb (fig. 151), and the inverted V-shaped sclerotization in the female genital area (figs. 149, 158).

**Male** (PBI_OON 26956). Total length 1.12, habitus as in figs. 105–107. **CEPHALOTHORAX**: Carapace pale orange, without any pattern, elongate oval in dorsal view (fig. 111), pars cephalica slightly elevated in lateral view (fig. 112), anteriorly narrowed to 0.49 times its maximum width or less; posterolateral corners angular, posterolateral edge without pits, posterior margin not bulging below posterior rim (fig. 114); anterolateral corners without extension or projections; posterolateral surface without spikes; lateral margins straight, rebordered, without denticles; surface of elevated portion of pars cephalica smooth (fig. 119), sides striated (fig. 120); deep depressions absent, fovea absent, pars thoracica without radiating rows of pits; nonmarginal pars cephalica setae dark, needlelike, in U-shaped row; nonmarginal pars thoracica setae dark, needlelike; marginal setae dark, needlelike; sides of pars cephalica with scattered pores set in slight depressions (as in fig. 126). **Chilum**: Absent. **Eyes**: Six, well developed, all subequal; ALE oval, PLE squared, PLE oval; posterior eye row procured from both above and front (fig. 113); ALE separated by their radius to diameter, ALE-PLE separated by less than ALE radius, PLE separated by less than their radius, PLE-PME separated by less than PLE radius. **Sternum**: Longer than wide, pale orange, uniform, fused to carapace, median concavity absent; radial furrows present between coxae I–II, II–III, III–IV, wrinkled, radial furrow opposite coxae III absent; surface smooth, without pits, microsculpture only in furrows, sickle-shaped structures not touching, anterior margin with semicircular depression in middle half (fig. 122), posterior margin not extending posteriorly of coxae IV; anterior corner unmodified, lateral margin with infracoxal grooves connecting anterior and posterior openings, distance between coxae II and III greater than distance between coxae I and II, or coxae III and IV, precoxal triangles absent, lateral margins with rounded extensions between coxae, without posterior hump; setae sparse, dark, needlelike, densest laterally, originating from surface; hair tufts absent. **Mouthparts**: Chelicerae, endites, and labium pale orange. Chelicerae straight, anterior face unmodified; promargin without teeth, retromargin without teeth; fang tooth-like projections absent, fang directed medially, shape normal, without prominent basal process, tip unmodified; setae dark, needlelike, evenly scattered; patagon inner margin with scattered setae, distal region unmodified, promargin unmodified, inner margin unmodified, lamina grove absent. Labium triangular, fused to sternum, with anterior margin

indented at middle, same as sternum in sclerotization; six or more setae present on anterior margin, subdistally with unmodified setae. Endites distally not excavated, serrula present in single row (as in fig. 128), anteromedian tip with one strong, rounded, toothlike projection (fig. 121), posteromedian part unmodified, same as sternum in sclerotization. ABDOMEN: cylindrical, without long posterior extension, rounded posteriorly, interscutal membrane without rows of small sclerotized platelets; soft portions white, without color pattern. Book lung covers large, ovoid, without setae, anterolateral edge unmodified. Posterior spiracles connected by groove. Pedicel tube short, ribbed, scutopedicel region with paired curved scutal ridges (fig. 129), scutum not extending far dorsal of

pedicel, plumose hairs absent, matted setae on anterior ventral abdomen in pedicel area absent; cuticular outgrowths near pedicel absent. Dorsal scutum strongly sclerotized, pale orange, with one dark spot at posterior half, covering full length of abdomen, no soft tissue visible from above, not fused to epigastric scutum, middle surface punctate, sides punctate, anterior half without projecting denticles. Epigastric scutum surrounding pedicel, not protruding, small lateral sclerites absent. Postepigastric scutum strongly sclerotized, pale orange, long, semicircular, covering nearly full length of epigastric area, fused to epigastric scutum, anterior margin unmodified, with short posteriorly directed lateral apodemes. Spinneret scutum present, incomplete ring. Supra-anal scutum absent. Dorsum setae light, needlelike. Epigastric area setae uniform, dark, needlelike. Postepigastric area setae light, needlelike. Spinneret scutum with fringe of long setae. Interscutal membrane with setae. Dense patch of setae anterior to spinnerets absent. Colulus present. LEGS: yellow, without color pattern. Femur IV not thickened, patella plus tibia I shorter than carapace, tibia I unmodified, tibia I Emerit's glands absent, tibia IV specialized hairs on ventral apex absent, ventral scopula absent, metatarsi I and II meso-apical comb absent, metatarsi III and IV weak ventral scopula absent, tibiae and metatarsi with scattered pores set in small depressions without raised margins. Leg spines absent. Tarsal proclaws
inner face striate, retroclaws inner face striate. Tarsi I, II superior claws with one tooth on lateral surface of proclaw, five teeth on median surface, one tooth on lateral surface of retroclaw, five teeth on median surface (fig. 139). Tarsi III, IV superior claws with one tooth on lateral surface of proclaw, four teeth on median surface, one tooth on lateral surface of retroclaw, four teeth on median surface (fig. 140). Trichobothria examined with SEM, tibia: each with three; metatarsus: each with one; base rounded, aperture internal texture not gravelike, hood smooth. Tarsal organ with 2 sensilla visible. GENITALIA: Epigastric region with sperm pore visible, small, oval, situated at level of anterior spiracles (fig. 130), rebordered. Epigastric furrow without Ω-shaped insertions, without setae. Palp normal size, not strongly sclerotized, right and left palps symmetrical. Cymbium yellow brown, bulb yellow brown, proximal segments yellow brown, embolus dark. Embolus prolateral excavation absent. Trochanter normal size, unmodified. Femur normal size, two or more times as long as trochanter, without posteriorly rounded later-
al dilation, attaching to patella subbasally. Patella longer than femur, much larger than femur, without prolateral row of ridges, setae unmodified. Tibial trichobothria examined using SEM, one. Cymbium narrow in dorsal view, completely fused with bulb, no seam visible, not extending beyond distal tip of bulb, plumose setae absent, without stout setae, without distal patch of setae. Bulb 1 to 1.5 times as long as cymbium, slender, elongated, with sharp basal protrusion, middle part strongly narrowed, with beak-shaped terminal elements (figs. 145–148, 151–156).

FEMALE (PBI_OON 26956). Total length 1.39, habitus as in figs. 108–110. As in male except as noted. CEPHALOTHORAX (figs. 115–118, 123–128): Sternum surface anterior margin unmodified. Endites anteromedian tip unmodified. Palp: claw absent; spines absent; tarsus unswollen, patella without prolateral row of ridges, tibia with three trichobothria (fig. 135); tarsal organ with elongate aperture (fig. 138). ABDOMEN (figs. 131, 157): Dorsal scutum covering more than 3/4 of abdomen, more than 1/2 to most of abdomen width. Postepigastric scutum covering about 3/4 of postepigastric area, not fused to epigastric scutum. Spinnerets not scanned. LEGS (figs. 133, 134, 136, 137): Tarsi I, II superior claws median surfaces with 15–20 small, distal teeth, lateral surfaces with five large, basal teeth (figs. 141, 142); tarsus III superior claws median surfaces with six small, distal teeth, lateral surfaces with five large, basal teeth (fig. 143); tarsus IV superior claws median surfaces with five small distal teeth, lateral surfaces with five large, basal teeth (fig. 144). GENITALIA: Ventral view: epigas-

Material Examined: UNITED STATES: Florida: Monroe Co.: Big Pine Key, Long Beach National Key Deer Refuge, Long Beach Drive, 24°38.716′N, 81°19.900′W, Apr. 15, 2008, hand sifted, litter, broad-leaf forest (P. Sierwald, FMNH 34929, 34931,


MASCARENE ISLANDS: *Réunion*: near Savannah, Feb. 1, 1989, ground layer at ruins, moderately moist (H. Müller, MHNG

PBI_OON 12172), 2♂, 4♀. SEYCHELLES ISLANDS: no specific locality, Jan. 23, 1977 (A. Rundle, AMNH PBI_OON 36431), 1♀. SINGAPORE: Kent Ridge Road, Mar. 24, 1986, shrubs, litter, elev. 70 m (J., F. Murphy, AMNH PBI_OON 36579), 1♂; Kusu Island, Mar. 24, 1986, scrub, stones, elev. 5 m (J., F. Murphy, AMNH PBI_OON 36578), 1♀; MacRitchie Reserve, Oct. 10, 1982, litter, elev. 40 m (J., F. Murphy, AMNH PBI_OON 36585), 1♂. PHILIPPINES: Luzon: “Manila!” (per label, Antipolo per description) (MNHN...

11842, PBI_OON 6255), 1♀ (holotype). BORNEO: Brunei: Brunei-Muara District: beach 4 km from Muara, 118 km from Kuala Belait, Nov. 27, 1988, elev. 0 m (C. Linehard, MHNG PBI_OON 15379), 1♀. Sabah: Manutik Isle, July 29, 1979, shore, scrub, elev. 0 m (J., F. Murphy, AMNH PBI_OON 36566), 1♀; Ulu Dusun, Aug. 6–7, 1979, garden, jungle edge, elev. 100 m (J., F. Murphy, AMNH PBI_OON 36565), 3♀. HAWAII: Hawaii: Kau District, Route 11, mile marker 61, Feb. 6, 1997, ginger litter in cemetery (J., E. Berry, JAB PBI_OON 242), 1♂; Puna District, MacKenzie State Park, Feb. 3, 1997 (J., E. Berry, JAB PBI_OON 245), 1♂, 1♀. Kauai: Eleelie, Jan. 25, 1998, scrub in abandoned lot (J., E. Berry, JAB PBI_OON 244), 1♂, 2♀; National Tropical Botanical Garden, near


elev. 125 m (N. Platnick, R. Raven, P. Goloboff, AMNH PBI_OON 216), 1♂.

**Distribution:** Previously recorded from the Philippines, Banda Islands, Hawaii, Seychelle Islands, and Thailand, but also widespread in the New World (Florida, Mexico, Panama, Ecuador, and the Galapagos Islands), and here newly recorded from Réunion, Singapore, Borneo, Micronesia, and New Caledonia as well.

**Synonymy:** Suman's redescription of the species as *O. lena* is readily attributed to the absence of published illustrations for *E. apicalis*.

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**SUPPLEMENT**

We recently had the opportunity to examine the holotype of *Pelicinus vernalis* (Bryant), originally described as *Philesius vernalis* by Bryant, 1945b: 178, without any illustrations. The female holotype, collected at Sebastian, Indian River Co., Florida (March, 1944, G. Nelson, MCZ PBI_OON 293) belongs to *O. concolor* and Bryant’s name is here placed as yet another junior synonym of that species (NEW SYNONYMY). Bryant’s redescription of the species is readily attributed to her generic misplacement, and her taxon was apparently completely overlooked by Chickering (1969) when he described the species yet again from Florida.

**REFERENCES**


Complete lists of all issues of the *Novitates* and the *Bulletin* are available at World Wide Web site http://library.amnh.org/pubs. Inquire about ordering printed copies via e-mail from scipubs@amnh.org or via standard mail from: American Museum of Natural History, Library—Scientific Publications, Central Park West at 79th St., New York, NY 10024. TEL: (212) 769-5545. FAX: (212) 769-5009.