

Revision of *Bagheera* (Araneae: Salticidae: Dendryphantinae)

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Abstract. The genus *Bagheera* Peckham & Peckham 1896 is revised. Joining *B. kiplingi* Peckham & Peckham 1896 and *B. prosper* (Peckham & Peckham 1901), two new species are described, *B. motagua* sp. nov. from Guatemala and *B. laselva* sp. nov. from Costa Rica. Both sexes of these new species are described and illustrated. Additional illustrations of male palps, epigynes, male chelicerae and habitus of *B. kiplingi* and *B. prosper* are included for comparison, and the females of these two species are formally described for the first time.

Keywords: Jumping spider, new species, systematics, taxonomy, vegetarian spider

The genus *Bagheera* was proposed by Peckham & Peckham (1896) to include *Bagheera kiplingi* Peckham & Peckham 1896 from Guatemala. The genus remained monotypic for a century until the transfer of *Dendryphantas prosper* Peckham & Peckham 1901 by Maddison (1996), resulting in the current list of two species (Platnick 2012).

According to Maddison (1996) and corroborated by an unpublished phylogenetic study with molecular data by GRSR, *Bagheera* may be related to the genera *Gastromicans* Mello-Leitão 1917 and *Messua* Peckham & Peckham 1896 (at least to the *limbata* group of *Messua*), with which it shares a similar folding of the dendryphantine embolus (the embolus arises at the distal end of the tegulum and curls clockwise, as in Fig. 23).

Bagheera kiplingi, the type species of the genus, has recently received attention as the first known spider reported to feed mostly on vegetal sources (Meehan et al. 2009). Although *B. prosper* seems to have the standard predatory behavior, nothing is known about feeding strategies of the new species herein described. The study of feeding strategies in such species could help explain how at least one species of the group evolved towards herbivory.

METHODS

Specimens examined are deposited in the Florida State Collection of Arthropods (FSCA), American Museum of Natural History (AMNH), Instituto Nacional de Biodiversidad (INBio), Instituto Butantan (IBSP), Museum of Comparative Zoology (MCZ) and Texas A&M University Insect Collection (TAMUIC). Numerous specimens were collected as part of the Arthropods of La Selva (ALAS) Project. Some records have two associated codes, an ALAS Project collection code and an INBio accession code. In these cases, the initials of the specific collector are incorporated into the ALAS code.

Habitus and chelicera of the various species were illustrated with camera lucida by holding entire specimens with pins on a foam-covered dish under a stereomicroscope. Left male palps were dissected and illustrated in high magnification in ventral and retrolateral views. In some cases, curling emboli were illustrated in prolateral view. The leg of *B. motagua* was also illustrated after dissection. External epigynal plates were illustrated still attached to female abdomens. Internal structures were dissected, immersed in clove oil, cleared and

illustrated in dorsal view. Epigynes of *B. kiplingi* and *B. prosper* were redrawn, based on previous illustrations by Maddison (1996). Measurements are given in millimeters.

TAXONOMY

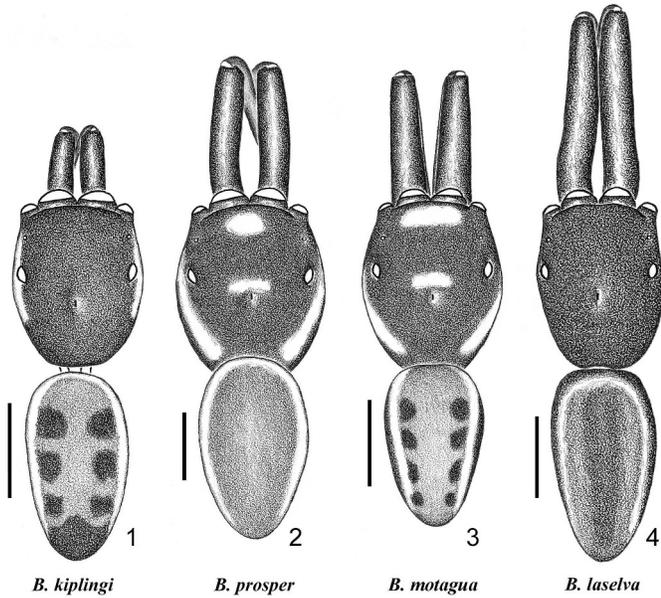
Bagheera Peckham & Peckham 1896

Bagheera Peckham & Peckham 1896 (Type species by monotypy: *Bagheera kiplingi* Peckham & Peckham 1896); Platnick 2012.

Etymology.—The genus was named for the black panther in Rudyard Kipling's *The Jungle Book*, and the type species was named after the author.

Diagnosis.—*Bagheera* males have elongate, horizontal, parallel chelicerae (Figs. 1–4, 15). The forward projection of the chelicerae is the primary synapomorphy of the genus. The retromarginal single tooth is located near the base of the chelicera (Figs. 5–8). Distally on the basal segment (paturon), near the articulation with the fang, there is a retrolateral cheliceral apophysis that is not a true tooth (Maddison 1996) (Figs. 5, 6, 8). *Bagheera* species have a typical proximal set of two promarginal teeth and one retromarginal tooth, in addition to this cheliceral apophysis.

The palp of *B. laselva* is much like that of *Messua limbata* (Banks 1898). This seems to be the plesiomorphic form of embolus for the clade that includes *Bagheera*, *Messua* and *Gastromicans* and does not indicate any closer relationship within the group. The cheliceral apophysis, however, seems to be a synapomorphy of *Bagheera*, but there is ambiguity between its presence and the shift of the embolus toward the prolateral side. If the presence of the cheliceral apophysis is indeed a synapomorphy of the genus, it would have been lost at least in one species (*B. motagua*). If *B. motagua* were the sister of the other three species (which do have cheliceral apophyses), we would have the embolus shift evolving independently twice (in *B. kiplingi* + *B. prosper* and in *B. motagua*). Moreover, male ornaments on the carapace suggest a close relationship between *B. prosper* and *B. motagua* that is not corroborated by any other feature (Figs. 2, 3). Based on the characters and taxa we have so far, it is not possible to trace character evolution or clearly reconstruct the phylogeny within the genus. This scenario is expected to get a better resolution when other taxa are discovered.



Figures 1-4.—*Bagheera* spp., male body, dorsal view; 1. *B. kiplingi*; 2. *B. prosper*; 3. *B. motagua* sp. nov.; 4. *B. laselva* sp. nov. Scale = 1.0 mm.

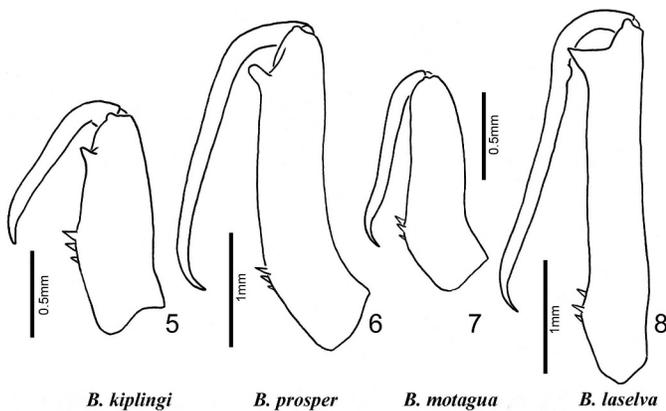
List of species:

- Bagheera kiplingi* Peckham & Peckham 1896 (type species)
- Bagheera laselva* sp. nov.
- Bagheera motagua* sp. nov.
- Bagheera prosper* (Peckham & Peckham 1901)

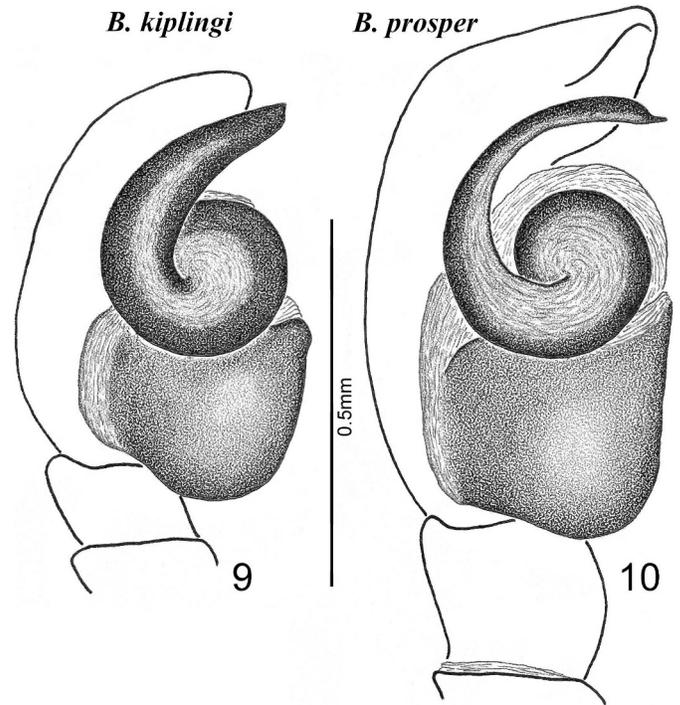
Bagheera kiplingi Peckham & Peckham 1896
Figs. 1, 5, 9, 11, 12

Bagheera kiplingi Peckham & Peckham 1896:88, pl. 7, fig. 1 (Male holotype from Eastern Guatemala, deposited in MCZ, examined); F.O.P.-Cambridge 1901:298, pl. 29, fig. 5; Maddison 1996:335, fig. 71, 80-83; Platnick 2012.

Diagnosis.—Very similar to *B. prosper* by the elongate, laminar embolus relocated on the prolateral side of the tegulum, but can be distinguished from that species by having both edges of the embolus sclerotized (Fig. 9).

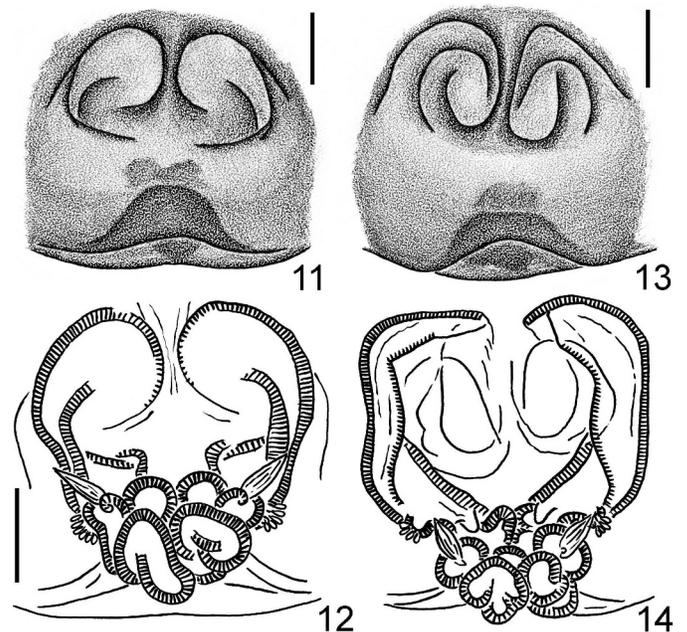


Figures 5-8.—*Bagheera* spp, male left chelicera, retrolateral view; 5. *B. kiplingi*; 6. *B. prosper*; 7. *B. motagua* sp. nov.; 8. *B. laselva* sp. nov.



Figures 9, 10.—*Bagheera* spp, male left palp, prolateral view; 9. *B. kiplingi*; 10. *B. prosper*.

Male.—Male body in dorsal view (Fig. 1) and the male chelicera (Fig. 5) are illustrated here for comparison. For description and further diagnostic illustration, see F.O.P.-Cambridge (1901:298, pl. 29, fig. 5) and Maddison (1996: fig. 81).



Figures 11-14.—*Bagheera* spp, epigyne; 11. *B. kiplingi*, ventral view; 12. *B. kiplingi*, dorsal view, cleared; 13. *B. prosper*, ventral view; 14. *B. prosper*, dorsal view, cleared. Modified from Maddison 1996.



Figure 15.—*Bagheera prosper* live male from Texas, USA. Photo: J.H. Pete Carmichael.

Description.—Female. Total length: 6.15. Carapace reddish dark brown with white scales, 2.50 long, 1.65 wide and 1.05 high. Cephalic region darker, covered with translucent (iridescent?) shiny scales. Length of ocular quadrangle: 1.20. Width of anterior eye row: 1.35, posterior: 1.50. Chelicera reddish brown. Palp, endite, labium and sternum light orange. Legs 142=3, I reddish brown with ventroprolateral region of femur darker, II–IV light orange. Length of femur I: 1.55, II: 1.20, III: 1.12, IV: 1.30; patella + tibia I: 1.75, II: 1.30, III: 1.25, IV: 1.62; metatarsus + tarsus I: 1.25, II: 1.00, III: 1.12, IV: 1.22. Abdomen light, dorsally with a pair of long longitudinal dark brown stripes; posterior half darker, separated from anterior half by light lateral marks. Epigyne with large copulatory openings; flower-shaped glands on the external inner end of the copulatory duct heads (the duct section immediately adjacent to the copulatory duct openings); ducts extend posteriorly and fold on themselves several times, turning into unmodified, poorly developed spermathecae, from which fertilization ducts emerge (Figs. 11, 12). Spinnerets yellow.

Distribution.—Belize, Costa Rica, Guatemala and Mexico (Meehan et al. 2009; Platnick 2012; present study).

Additional material examined.—BELIZE: *Cayo*: Never Delay, 17.316667°N, 88.75°W, August 1959, 1♀ (N.L.H. Krauss, AMNH); GUATEMALA: *Petén*: Parque Natural Ixpanajul, 16–20 October 2005, 1♂ (G.B. Edwards, FSCA); MEXICO: *Oaxaca*: Puerto Escondido, 15 July 1985, 1♂ (J. Woolley & G. Zolnerowich, TAMUIC); Temescal (5 mi E), 14 June 1964, 4♂ (D.H. Janzen, AMNH); same data, with *Pseudomyrmex ferruginea*, 1♂, 1♀ (D.H. Janzen, FSCA); same location, 1♀, predator of *P. ferruginea*, 13 April–25 May 1964, 3♀, 3 juv (D.H. Janzen, AMNH); *Tamaulipas*: Tampico, 1942, 1♂ (G. Elaboard, AMNH).

Bagheera prosper (Peckham & Peckham, 1901)
Figs. 2, 6, 10, 13–16

Dendryphantes prosper Peckham & Peckham 1901:314, pl. 27, fig. 5 (Two male syntypes from San Antonio, Texas, USA,



Figure 16.—*Bagheera prosper* live female from Oklahoma, U.S.A. Photo: V. Bugh.

deposited in MCZ, examined); Peckham & Peckham 1909:475, 477.

Metaphidippus maxillosus F.O.P.-Cambridge, 1901:265, pl. 23, fig. 14 [Male holotype from Orizaba, Mexico, H.H. Smith, deposited in the Godman & Salvin collection (British Museum of Natural History?), not examined]; synonymized by Peckham & Peckham 1909:477.

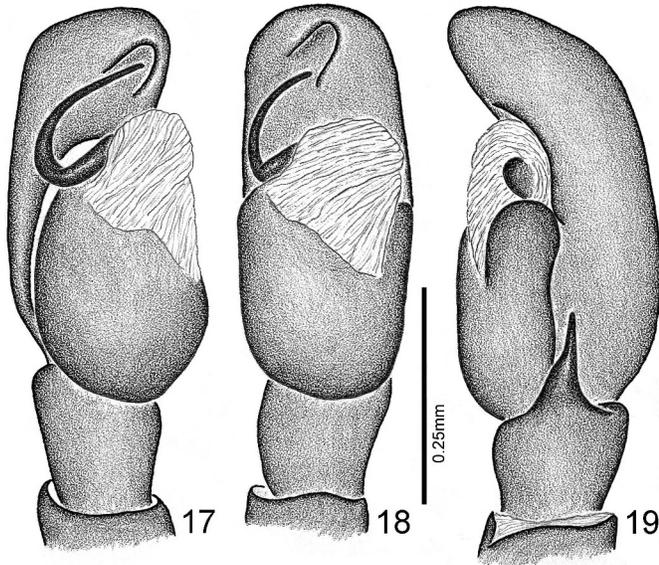
Metaphidippus prosper: Prószyński 1971:434.

Bagheera prosper: Maddison 1996:233, fig. 84–85, 99; Platnick 2012.

Diagnosis.—Very similar to *B. kiplingi* by the elongate, laminar embolus relocated on prolateral side of the tegulum, but can be distinguished from that species by having only the external edge of the embolus sclerotized in the male palp (Fig. 10).

Male.—Males of this species have chelicerae proventrally covered by small tubercles. The male cheliceral length varies considerably, as in *B. laselva*. It is also the largest of the four species (Fig. 1–4). The male body in dorsal view (Fig. 2) and the male chelicera (Fig. 6) are illustrated here for comparison. For description and further diagnostic illustration, see Peckham & Peckham (1901:314, pl. 27, fig. 5) and Maddison (1996, fig. 84).

Description.—Female. Total length: 6.10. Carapace reddish dark brown with white scales, 3.00 long, 1.40 wide and 1.32 high. Cephalic region covered with iridescent scales. Length of ocular quadrangle: 1.50. Width of anterior eye row: 1.90, posterior: 2.10. Clypeus covered with many white scales. Chelicera reddish dark brown. Palp orange. Endite, labium sternum light brown. Legs 1423, I light brown with a dark stripe along the ventroprolateral face of femur (as in *B. kiplingi*) extending to patella and tibia, and dark brown rings distally on patella and subdistally on tibia; metatarsus and tarsus orange; II–IV orange, with same markings present in I and extra dark brown ring on distal femora. Length of femur I: 1.85, II: 1.55, III: 1.50, IV: 1.80; patella + tibia I: 2.45, II: 1.82, III: 1.65, IV: 2.15; metatarsus + tarsus I: 1.62, II: 1.45, III: 1.50, IV: 1.65. Abdomen light, dorsally with five pairs of



Figures 17–19.—*Bagheera motagua* sp. nov., left male palp; 17. proventral view; 18. ventral; 19. retrolateral.

dark brown, irregular spots (but symmetrical within each pair), the posterior three pairs sometimes fused forming chevrons or W's; on inner side of each dark brown spot is a patch of white scales (Fig. 16); ventrally with a median, longitudinal dark brown stripe. Epigyne with large copulatory openings; flower-shaped glands on the external inner end of the copulatory duct heads; ducts extend posteriorly and fold on themselves several times, turning into unmodified, poorly developed spermathecae, from which fertilization ducts emerge (Figs. 13, 14). Spinnerets light brown.

Distribution.—USA and Mexico (Platnick 2012). The Arkansas and Oklahoma records are the first for those states.

Additional material examined.—MEXICO: *San Luis Potosí*: El Salto (W Antigua Morelos), 20 June 1953, 1♂ (P. & C. Vaurie, AMNH); *Veracruz*: Mantla, 1 July 1946, 2♀, 2juv (H. Wagner, AMNH); USA: *Arkansas*: Pulaski Co., Little Rock, Riverfront Park along Arkansas River, 34.749256°N, 92.268317°W, 8 June 2012, 1♂ (R.K. Walton, FSCA); *Oklahoma*: Marshall Co., Willis, University of Oklahoma

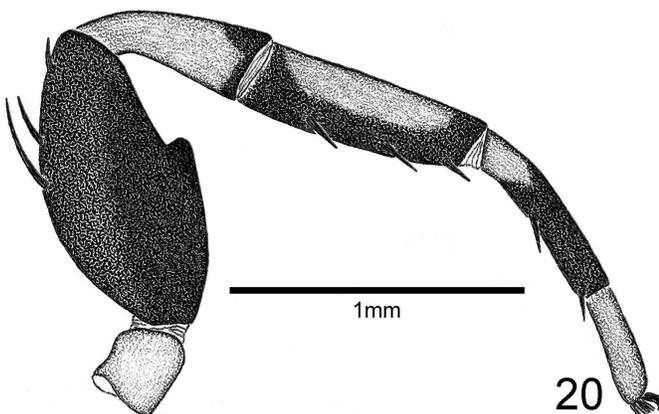
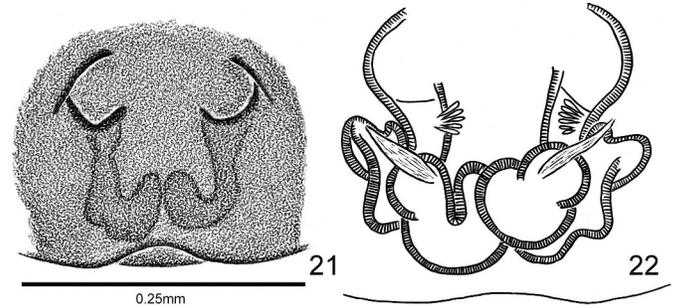


Figure 20.—*Bagheera motagua* sp. nov., left male leg I, prolateral view.



Figures 21, 22.—*Bagheera motagua* sp. nov., female epigyne; 21. ventral view; 22. dorsal view, cleared.

Biological Station, 26 June 2012, 3♂, 1♀, 2 juv (P.K. Morton, FSCA); *Texas*: Atascosa Co., San Antonio (30 mi S), 20 August 1935, 1♂ (S. Mulaik, AMNH); Burnet Co., junc. Hwys 29 & P4 at bridge, stream edge vegetation, 13 July 1993, 1♀ reared (G.B. Edwards & P.D. Barron, FSCA); Comal Co., New Braunfels, on tree, 12 April 1936, 1♂, 1♀ (S. Mulaik, AMNH); Hays Co., San Marcos, 31 March 1936, 1♂, 1 juv (AMNH); Hunt Co., Lake Tawakoni, on leaf, 22 September 2007, 1♂ (S.R. Dean, TAMUIC); Kimble Co., Llano River, S. London on Hwy 385, 14 March 1982, 1♂ (J.C. Cokendolpher, FSCA); same county, Junction, 15 October 2001, 1♂ (L.A. Brooks, TAMUIC); Llano Co., nr. Ferguson Power Plant, creek vegetation, oak, cedar, mesquite, 13 July 1993, 1♂, 3♀, 1 juv (G.B. Edwards & P.D. Barron, FSCA); same data, 1♂ (G.B. Edwards & P.D. Barron, FSCA); Llano City Lake Park, lake edge, cedar, elms, oaks etc., 13 July 1993, 2♂ reared (G.B. Edwards & P.D. Barron, FSCA); same county, August 1935, 1♂ (L.I. Davis, AMNH); Runnels Co., Lake Ballinger, lake edge, grasses and herbs, 11 July 1993, 2♂ reared (G.B. Edwards & P.D. Barron, FSCA); same county, junction Colorado, 4♂, 1♀, 1 juv reared (G.B. Edwards & P.D. Barron, FSCA); Starr Co., near Falcon Dam, 20 April 1985, 2♂ (J.B. Woolley 85/004, TAMUIC); same county, Salineño, Lower Rio Grande Valley National Wildlife Refuge, 26.515264°N, 99.115142°W, el. 20m, FIT – riparian mesquite forest, 4 March–3 April 2004, 1♂ (S. & J. Peck, TAMUIC); Tom Green Co., 1974–1980, 2♀ (N.K. & J.L. Fisher, FSCA); Val Verde Co., vegetation, 21 October 1972, 1♂ (J.F. Parrish, FSCA).

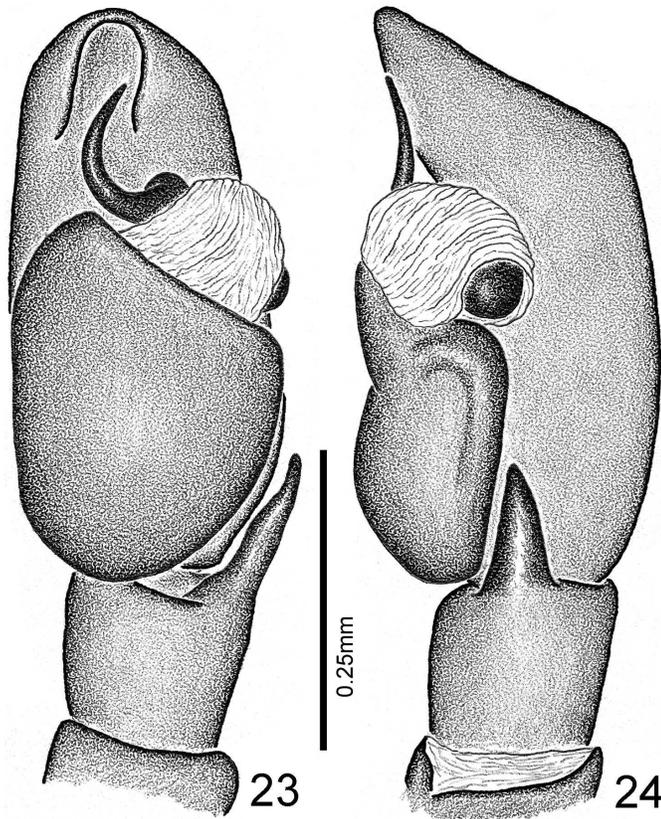
Bagheera motagua sp. nov.

Figs. 3, 7, 17–22

Types.—Male holotype, 1 male and 4 female paratypes, from El Progreso, Guatemala (highway between El Rancho and Cobán, km 190, along Motagua River, elev. 600m), 12 October 2005, G.B. Edwards (FSCA, IBSP).

Etymology.—The epithet is a toponymy in apposition and refers to the river along which the type specimens were found.

Inclusion in *Bagheera*.—Despite males not having the typical distal retrolateral cheliceral apophyses (Fig. 7), the chelicerae are elongate, horizontal and parallel (Fig. 3) and bear small proventral tubercles similar to those of *B. prosper*. The thin embolus is elongate and relocated to the prolateral side of the tegulum, as those of *B. kiplingi* and *B. prosper*. The male carapace has the same pattern of white scales as that found on the carapace of *B. prosper* (Figs. 2, 3), while the abdominal pattern is similar to that of *B. kiplingi* (Figs. 1, 3). In addition,

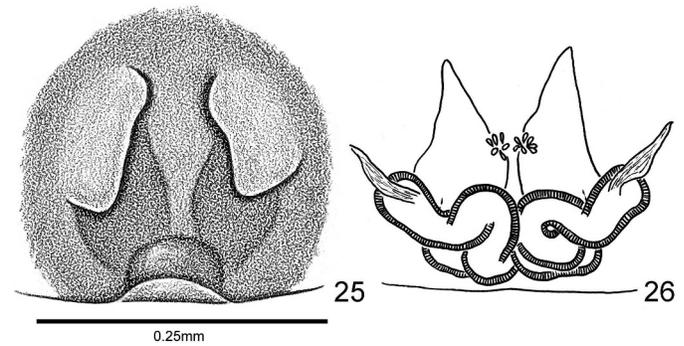


Figures 23, 24.—*Bagheera laselva* sp. nov., left male palp; 23. ventral view; 24. retrolateral.

males have dark marks on proventral femora I and II, similar to those of *B. kiplingi* (Fig. 20).

Diagnosis.—Males can easily be recognized by a ventral projection on femora I (Fig. 20), while females can be distinguished by having small copulatory openings (Fig. 21).

Description.—Male. Total length: 4.25. Carapace dark brown with lateral stripes of white scales, a group of white scales right behind the anterior median eyes and another right in front of fovea (Fig. 3). Rest of carapace covered with iridescent scales, especially cephalic region. Carapace 2.15 long, 1.70 wide and 1.05 high. Length of ocular quadrangle: 1.10. Width of anterior eye row: 1.30, posterior: 1.45. Chelicera dark brown with two promarginal and one retro-marginal tooth, all proximal (Fig. 7). Endite, labium and sternum yellow. Palp yellow, with straight and acute retrolateral tibial apophysis (Fig. 19), round cymbium and tegulum, well developed embolic hematodocha and relatively long embolus, arising at distal end of tegulum and curling to prolateral side and back to ventral position, the tip lying in oblique ventral groove (Figs. 17, 18). Legs 1423. Leg I yellow, with dark brown marks on following areas: proventral femur, distal prolateral patella, ventral tibia and ring on distal half of metatarsus (Fig. 20). Ventral projection well developed on ventral femur I (Fig. 20) and poorly developed on femur II. Legs II–IV yellow, II with dark brown marks on proventral femur. Length of femur I: 1.45, II: 1.05, III: 1.05, IV: 1.20; patella + tibia I: 2.05, II: 1.30, III: 1.10, IV: 1.45; metatarsus + tarsus I: 1.40, II: 1.00, III: 1.05, IV: 1.10. Abdomen yellow



Figures 25, 26.—*Bagheera laselva* sp. nov., female epigyne; 25. ventral view; 26. dorsal view, cleared.

dorsally with four pairs of dark brown spots and lateral stripes of white scales (Fig. 3); area among pairs of dark spots covered with clear iridescent scales; ventrally yellow. Spinnerets yellow.

Female.—Total length: 4.05. Carapace dark brown with sparse white scales, 1.65 long, 1.30 wide and 0.75 high. Length of ocular quadrangle: 1.40. Width of anterior eye row: 1.10, posterior: 1.22. Chelicera dark brown. Palp and endite yellow. Labium dark brown and sternum yellow. Legs 4123, yellow, with no markings. Length of femur I: 0.90, II: 0.75, III: 0.75, IV: 1.05; patella + tibia I: 1.10, II: 0.85, III: 0.80, IV: 1.10; metatarsus + tarsus I: 0.77, II: 0.70, III: 0.72, IV: 0.90. Abdomen light with four well developed pairs of dark brown spots, the fourth medially fused, and narrow transverse dark stripe right in front of spinnerets; iridescent scales on longitudinal stripe among dark spots and spots separated by narrow transverse bands of white scales. Epigyne with small copulatory openings; flower-shaped glands on dorsum of copulatory duct heads; ducts extend posteriorly and immediately to lateral sides, fold dorsally back to middle and enter poorly developed spermathecae, from which fertilization ducts emerge (Figs. 21, 22). Spinnerets yellow.

Remarks.—Male-female matching established based on co-occurrence in type locality.

Biological notes.—The specimens were collected by beating in a xeric area dominated by *Acacia* sp. and other desert shrubs. The habitat suggests that this species has a diet similar to *B. kiplingi*, or if not, it might provide comparative behavioral data on the evolution of different dietary choices under similar environmental conditions.

Bagheera laselva sp. nov.

Figs. 4, 8, 23–26

Types.—Male holotype from Turrialba, Costa Rica, 16 August 1963, W. Peck (FSCA); 6 male paratypes from Estación Biológica La Selva, Heredia, Costa Rica, 10.433333°N, 84.016667°W, January 1997, INBio-OET (FSCA, IBSP); 9 female paratypes from Estación Biológica La Selva, Heredia, Costa Rica, November 1996 (FSCA, IBSP).

Etymology.—The epithet is a toponymy in apposition and refers to the Estación Biológica La Selva, Costa Rica, from where most of the type specimens were collected.

Diagnosis.—This species has a well developed distal retrolateral male cheliceral apophysis (Fig. 8), similar to that

present in *B. kiplingi* and *B. prosper*. However, this is the only known species of the genus whose embolus is short and not remarkably relocated on the prolateral side (Fig. 23). Females can be recognized by the large copulatory openings at the inner border of large light areas (Fig. 25).

Description.—Male. Total length: 4.40. Carapace dark brown with sparse white scales, 2.10 long, 1.45 wide and 0.97 high (Fig. 4). Length of eye quadrangle: 1.07. Width of anterior eye row: 1.35, posterior: 1.35. Chelicera dark brown with two promarginal and one retromarginal tooth, all proximal, and a well developed distal, retrolateral, cheliceral apophysis (Fig. 8). Length of the proximal article of chelicera: 2.65. Endite, labium and sternum dark brown. Palp dark brown, with straight and triangular retrolateral tibial apophysis, round tegulum, well developed embolic hematodocha and short, curved embolus at the distal end of the tegulum (Figs. 23, 24). Legs 1423 dark brown, with coxae and trochanters yellow; posterior half of coxa IV dark brown. Length of femur I: 1.27, II: 1.10, III: 1.10, IV: 1.35; patella + tibia I: 1.95, II: 1.40, III: 1.20, IV: 1.60; metatarsus + tarsus I: 1.52, II: 1.15, III: 1.15, IV: 1.35. Abdomen dorsally light brown with a median longitudinal dark brown stripe covered with iridescent scales and lateral stripes of white scales (Fig. 4); ventrally dark brown. Spinnerets dark brown.

Female.—Total length: 5.40. Carapace light brown with sparse white scales, 1.95 long, 1.45 wide and 0.90 high. Length of the eye quadrangle: 1.05. Width of anterior eye row: 1.25, posterior: 1.35. Chelicera light brown. Palp yellow with a dark brown mark on proximal dorsal tibia and tarsus. Endite, labium and sternum light brown. Legs 4123, yellow. Leg I with dark brown rings on subdistal femur, distal half of patella and distal half of tibia; II with dark brown mark on distal prolateral patella; III with dark brown mark on distal retrolateral tibia; IV with dark brown marks on the prolateral and retrolateral faces on subdistal femur and distal patella, and black rings on distal tibia and metatarsus. Length of femur I: 1.10, II: 1.00, III: 0.97, IV: 1.25; patella + tibia I: 1.45, II: 1.22, III: 1.07, IV: 1.50; metatarsus + tarsus I: 1.07, II: 0.97, III: 1.10, IV: 1.22. Abdomen dorsally light with four well developed pairs of dark brown spots and a narrow transverse dark brown band right in front of the spinnerets; iridescent scales on the spots; front three pairs of dark spots with small tufts of white scales on their medial borders; third and fourth spot pairs separated by thin band of white scales; ventrally with longitudinal light brown stripe. Epigyne with large copulatory openings, with flower-shaped glands at the inner border of large duct heads; copulatory ducts extend toward the posterior border, then to the middle, fold dorsally and then to the lateral sides, entering poorly developed spermathecae, from which fertilization ducts emerge (Figs. 25, 26). Spinnerets dark brown.

Remarks.—Male-female matching established based on co-occurrence in type locality. Some males have smaller chelicerae, of about the same length as the carapace. These shorter chelicerae are also straighter and do not have the proximal arch.

Biological notes.—The La Selva specimens were collected at 50–150m elevation, by sweeping tall and often dense grass in early successional stages where the forest had been cleared. Additional specimens were collected nearby on Mt. Barva at 450–550m.

Additional Material Examined.—COSTA RICA: Heredia: 10 km SE La Virgen, 10.333333°N, 84.083333°W, 450–550m, primary succession, 8–22 April 2003, 1♀, 1 juv (G.S. Bodner & G.B. Edwards, GBE4.10.03SW1C1, FSCA); same data, 2♂, 6♀, 3 juv (G.S. Bodner & G.B. Edwards, FSCA); Estación Biológica La Selva, 10.433333°N, 84.016667°W, 50–150m, September 1996: 1♀ (G.B. Edwards, G.S. Bodner, D. Brenes, R. Vargas, M. Paniagua, N. Oconitrillo, AGBE96-1 INBIOCR1002734421, INBio/FSCA); same data for all following records except as noted: 1♂ (AGBE96-1 INBIOCR-1002734425); 1♀ (AGBE96-12 INBIOCR1002735165); 1♂, 2♀ (AGBE96-18 INBIOCR1002735081); 1♂ (AGSB03setGO2 INBIOCR1002069504); 1♀ (AGSB03setRE1 INBIOCR10-02069562); 1♀ (AGSB06setGO1 INBIOCR1002069651); 1♂, 1♀ (ANOM03setRE1 INBIOCR1002069497); 1♂ (ARVC03 setRE1 INBIOCR1002069498); 1♂ (ASCNOMBA04 INBIOCR1002735619); November 1996: 3♂ (AHRVCRE02 INBIOCR1002737731); 1♂ (AHRVCRE01 INBIOCR100273-7758); 3♂ (AHRVCRE02 INBIOCR1002737738); 2♂ (AHRVCRE03 INBIOCR1002737843); 5♀ (AHRVCRE03 INBIOCR1002737847); 1♂ (AHRVCRE04 INBIOCR10027-37828); 11♀ (AHRVCRE04 INBIOCR1002737837); 2♂ (AHRVCRE05 INBIOCR1002737812); 3♀ (AHRVCRE06 INBIOCR1002737819); 3♂ (AHRVCRE06 INBIOCR100-2737822); December 1996: 6♀ (AHRVCBA06 INBIOCR100-2738025); 8♂ (AHRVCBA01 INBIOCR1002737970); 5♀ (AHRVCBA01 INBIOCR1002737972); 11♂ (AHRVCBA-02 INBIOCR1002737961); 9♀ (AHRVCBA02 INBIOCR-1002737962); 8♂ (AHRVCBA03 INBIOCR1002737981); 10♂ (AHRVCBA04 INBIOCR1002738001); 7♀ (AHRV- CBA04 INBIOCR1002738004); 9♀ (AHRVCBA05 INBIO- CR1002737996); 1♂ (AHRVCGO01 INBIOCR1002737871); 4♀ (AHRVCGO06 INBIOCR1002737905); 3♂ (AHRVC- GO06 INBIOCR1002737906); January 1997: 1♂ (AHRBDM- GO01 INBIOCR1002738482); 1♂ (AHRBMPGG08 INBIO- CR1002738436); 1♀ (AHRBMPGRE04 INBIOCR1002738587); 1♂ (AHRBMPGRE04 INBIOCR1002738593); 1♀ (AHRBNOM- RE02 INBIOCR1002738352); 2♂ (AHRBNOMRE02 INBIO- CR1002738357); 1♂ (AHRBNOMRE04 INBIOCR1002738371); 2♀ (AHRDBMGO04 INBIOCR1002738224); 1♂ (AHR- DBMGO05 INBIOCR1002738238); 6♀ (AHRDBMRE01 INBIOCR1002738243); 4♂ (AHRDBMRE01 INBIOCR1002- 738254); 4♀ (AHRDBMRE02 INBIOCR1002738260); 1♂ (AHRDBMRE02 INBIOCR1002738271); 3♂ (AHRDBMR- E03 INBIOCR1002738289); 1♂ (AHRDBMRE03 INBIOCR- 1002738295); 2♀ (AHRDBMRE04 INBIOCR1002738300); 1♂ (AHRDBMRE04 INBIOCR1002738320); 2♀ (AHRDB- MRE05 INBIOCR1002738330); 1♂ (AHRDBMRE06 INBIO- CR1002738338); 1♂ (AHRDBMRE06 INBIOCR1002- 738343); 1♂ (AHRMPGBA01 INBIOCR1002738687); 2♀ (AHRMPGG01 INBIOCR1002738621); 1♂ (AHRMPG- GO01 INBIOCR1002738622); 1♀ (AHRMPGG01 INBIO- CR1002738655); 1♀ (AHRMPGG02 INBIOCR100- 2738640); 2♀ (AHRMPGG06 INBIOCR1002738671); 1♂ (AHRMPGG06 INBIOCR1002738676); 6♂ (AHRMPGR- E01 INBIOCR1002738871); 1♀ (AHRMPGRE04 INBIOCR- 1002738894); 4♂ (AHRMPGRE04 INBIOCR1002738897); 3♀ (AHRMPGRE05 INBIOCR1002738905); 1♂ (AHRMPGR- E05 INBIOCR1002738910); 5♀ (AHRMPGRE06 INBIOCR- 1002738915); 9♂ (AHRMPGRE06 INBIOCR1002738917);

1♂ (AHCNOMGO02 INBIOCR1002738454); 1♀ (AHCNOMGO06 INBIOCR1002738529); 1♀ (AHCNOMRE01 INBIOCR1002738558); 1♂ (AHCNOMRE01 INBIOCR1002738559); 3♀ (AHCNOMRE02 INBIOCR1002738745); 2♂ (AHCNOMRE02 INBIOCR1002738750); 6♂ (AHCNOMRE03 INBIOCR1002738753); 4♀ (AHCNOMRE03 INBIOCR1002738761); 5♀ (AHCNOMRE04 INBIOCR1002738763); 8♂ (AHCNOMRE04 INBIOCR1002738771); 3♂ (AHCNOMRE05 INBIOCR1002738793); 1♂ (AHCNOMRE05 INBIOCR1002738796); 7♀ (AHCNOMRE05 INBIOCR1002738801); 15♀ (AHCNOMRE06 INBIOCR1002738809); 4♂ (AHCNOMRE06 INBIOCR1002738834).

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