

On the jumping spider *Erica eugenia* Peckham & Peckham 1892 (Araneae: Salticidae: Simonellini) from Brazil

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Abstract. The species *Erica eugenia* G. W. Peckham & E. G. Peckham 1892 is redescribed and illustrated based on adult specimens collected from the Brazilian Cerrado. A new description, diagnostic characters for both males and females, some additional characters about the spermatheca, and a distribution map are provided.

Keywords. Arachnida, Brazilian Cerrado, Neotropical, taxonomy, zoogeography

Introduction

The genus *Erica* was named in 1892 by Peckham & Peckham. It includes a single species (Metzner 2022; World Spider Catalog 2022). The species *Erica eugenia* Peckham & Peckham 1892 was originally described from both males and females from Brazil, but no holotype was designated (Peckham & Peckham 1892). Subsequently this species was reported from Panama by F. O. Pickard-Cambridge (1900). Later, Galiano (1965, 1980) synonymized *Apatita tristis* Mello-Leitão 1933 and *Sarinda scutata* Mello-Leitão 1947 with *Erica eugenia*. The distribution of this species extends from Panama to Brazil (World Spider Catalog 2022).

E. eugenia has been treated by several authors, with the diagnostic characters of the male, such as the pedipalp, the best known (Peckham & Peckham 1892; Pickard-Cambridge 1900; Mello-Leitão 1933, 1947; Galiano 1965, 1980; Rubio et al. 2018). Here I redescribe this species, with illustrations of diagnostic characters based on specimens collected in the Brazilian Cerrado (Cerrado *sensu strictu*). The female epigynum is described for the first time, and some morphology data for both males and females is provided.

Materials and Methods

Specimens were collected by manual collection on general vegetation and preserved in 70% ethyl alcohol. The epigynum was dissected as in Levi (1965), treated with 10% of Lactic Acid to digest soft tissue, and then cleared in clove oil. Multifocal photographs of the genitalia were taken in the Arachnid Behavioral Ecology Laboratory (LECA), State University of Goiás, Anápolis, Brazil, with an HD digital camera attached to a Carl Zeiss stereomicroscope, Axiostar, and then composited with the image stacking software AxioVision Carl Zeiss SE64 (Rel. 4.9.1. SP2). Measurements were taken in millimeters, using a micrometer attached to a Carl Zeiss stereomicroscope, Axiostar, in conjunction with software AxioVision Carl Zeiss

SE64 (Rel. 4.9.1. SP2). The material examined is deposited in the Arachnid Behavioral Ecology Laboratory (LECA), State University of Goiás, Anápolis, Brazil. Classification of salticid tribes was based on the following order of priority: Maddison (2015), and Maddison & Szüts (2019). Morphological terms follow Galiano (1963), except PMEP (see below) that follows Edwards (2004). Spination was described according to Petrunkevitch (1925), with a few modifications as described by Bustamante & Ruiz (2017), who proposed using an asterisk (*) to denote the spines that differ in size from the others.

Abbreviations used in the text and figures. **AERW**, anterior eye row width; **AL**, abdomen length; **ALE**, anterior lateral eyes; **B**, bulb; **C**, cymbium; **Car**, carina; **CH**, caparace height (~maximum); **CL**, caparace length; **CW**, caparace width; **CD**, copulatory ducts; **D**, denticles on serrated inner edge of fang; **E**, embolus; **F**, femur; **FD**, fertilization duct; **LOQ**, length of ocular quadrangle (ALE-PLE inclusive); **M**, metatarsus; **Go**, gonopore; **P**, patella; **PERW**, posterior eye row width; **PMEP**, posterior median eye position (as ratio of ALE-PME distance to ALE-PLE distance); **PLE**, posterior lateral eyes; **RTA**, retrolateral tibial apophysis; **SD**, sperm duct; **Sp**, spermathecae; **T**, tibia; **TL**, total length; **TU**, tuberosity.

Taxonomy

Family Salticidae Blackwall 1841

Subfamily Salticinae Blackwall 1841

Tribe Simonellini Peckham, Peckham & Wheeler 1889

***Erica* Peckham & Peckham 1892, monotypic genus**

Type species: *Erica eugenia* Peckham & Peckham 1892

Differential diagnosis. The genus *Erica* shares several characters with the genus *Fluda* Peckham & Peckham, 1892, but can be distinguished from the latter by the relatively high cephalothorax, with the cephalic region slightly inclined forward and a slight constriction separating it from the thoracic region, which is convex (Figures 1–4). The male is easily distinguished from the other members of the Simonellini by the pedipalp (Figures 17–18), with a simple bulb and the embolus short and thin, occupying a fossa on the prolateral side of the bulb (Figures 21–22). The copulatory ducts of the female *Erica* are somewhat similar to *Synemosyna* Hentz 1846, but the female *Erica* is easily distinguished by the circular epigynum, and the clear gonopore, connected directly by the insemination ducts (Figures 13, 15), which immediately curve, and then continue straight until they fold back on themselves, forming the spermatheca and then culminating in the fertilization ducts (Figures 14, 16).

***Erica eugenia* Peckham & Peckham 1892**

(Figures 1–27)

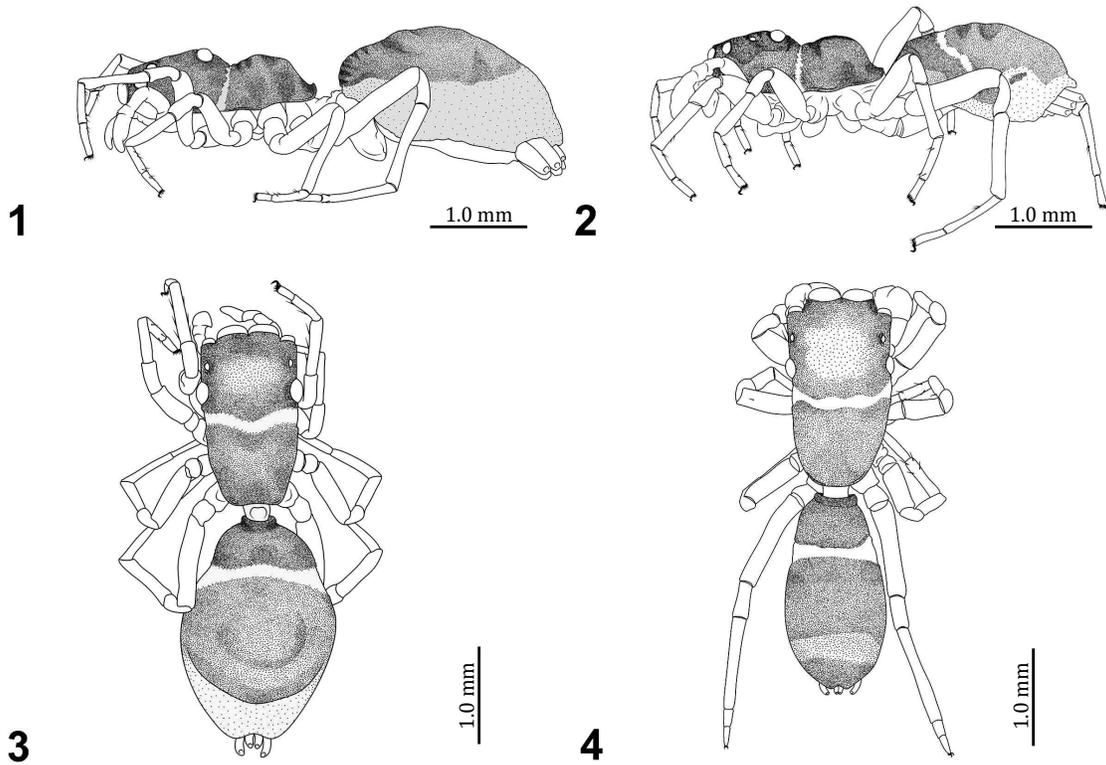
Erica eugenia Peckham & Peckham 1892; Pickard-Cambridge 1900: 175; Galiano 1965: 310; Galiano 1980: 35. It was not possible to examine syntype material deposited in the Museum of Comparative Zoology (MCZ).

Apatita tristis Mello-Leitão 1933: 83. Holotype material deposited in the (MNRJ), Brazil was destroyed by the fire in 2018.

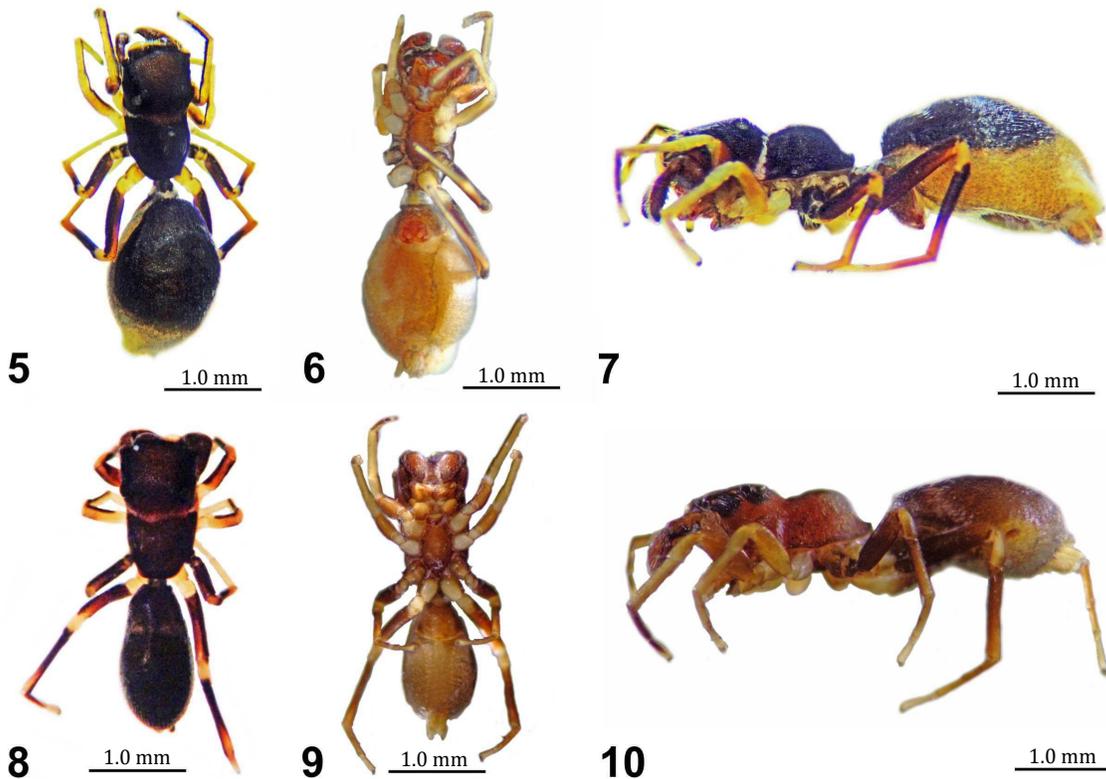
Sarinda scutata Mello-Leitão 1947: 30. Syntype material deposited in the (MNRJ), Brazil, was destroyed by the fire in 2018.

Material examined. 3♀, BRAZIL, Goiás, Anápolis, Reserva Ecológica e Científica, Universidade Estadual de Goiás; this locality can be associated with approximate coordinates of [16°22'54.5"S 48°56'44.1"W], [1102 m], 22 XI 2019, Brazilian Cerrado, collected by hand, E. Bedoya-Roqueme & R. Filgueiras leg. (MSB1-LECA). 2♂, same locality, 11 IX 2019, Brazilian Cerrado, same collectors (A2B1-LECA).

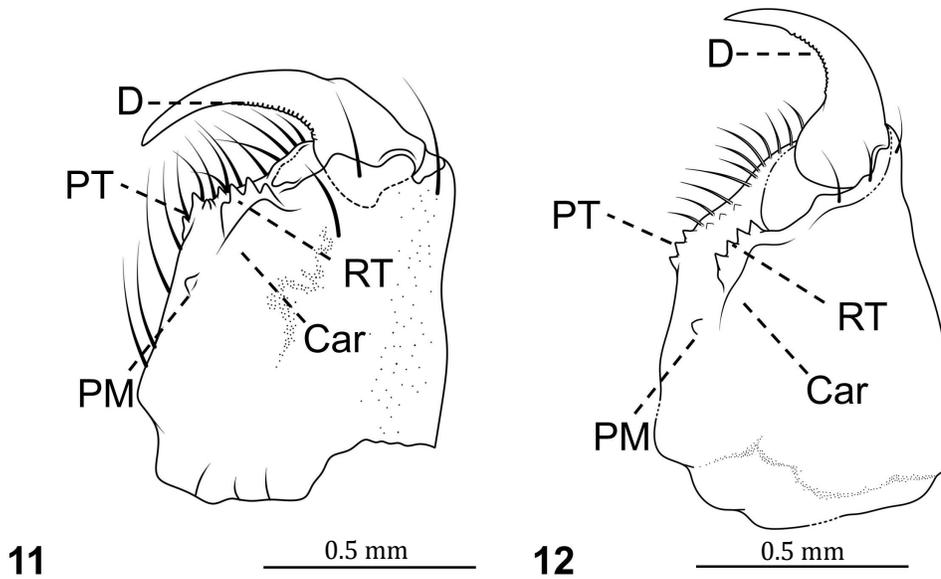
Diagnosis. As in the differential diagnosis for *Erica*.



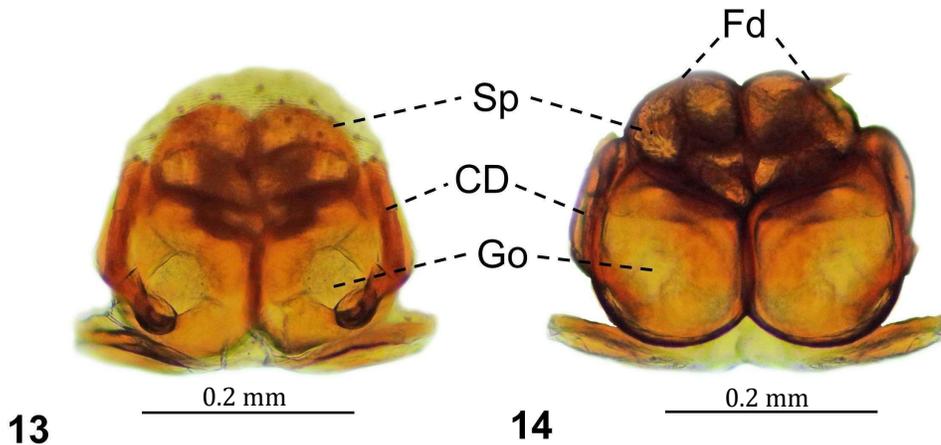
Figures 1-4. Habitus of *Erica eugenia* from the Brazilian Cerrado. **1**, Female, lateral view. **2**, Male, lateral view. **3**, Female, dorsal view. **4**, Male, dorsal view.



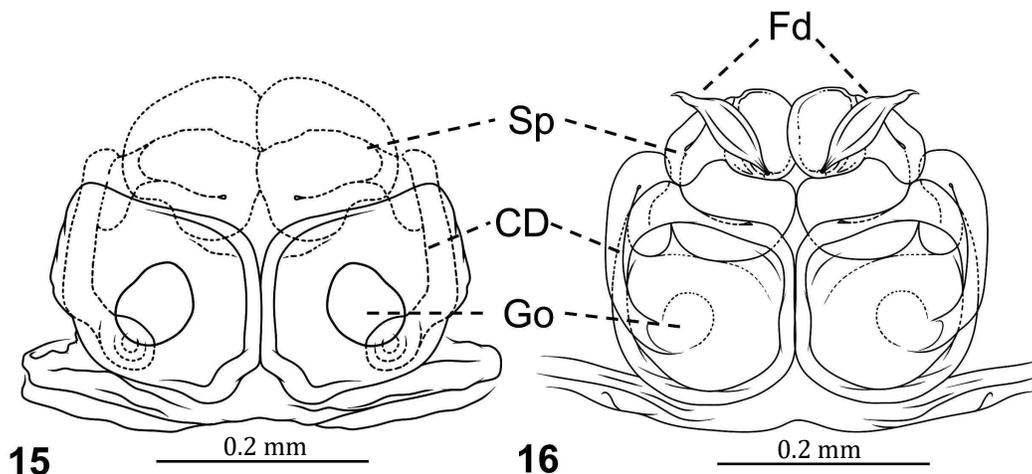
Figures 5-10. Habitus of *Erica eugenia* from the Brazilian Cerrado. **5-7**, Female: **5**, Dorsal view. **6**, Ventral view. **7**, Lateral view. **8-10**, Male: **8**, Dorsal view. **9**, Ventral view. **10**, Lateral view.



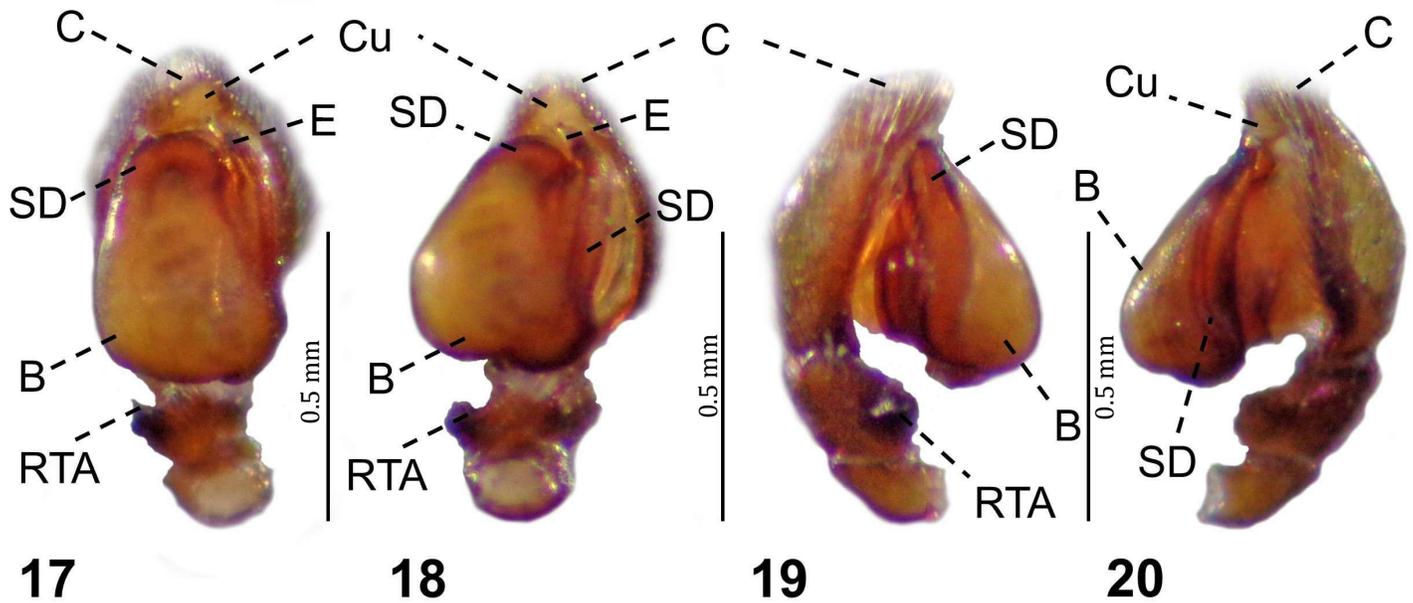
Figures 11–12. Posterior view, left chelicera of *Erica eugenia* from the Brazilian Cerrado. **11**, Male. **12**, Female. **Car**, carina; **D**, denticles on serrated inner edge of fang; **PMT**, prolateral medial tooth; **PT**, prolateral tooth; **RT**, retrolateral tooth.



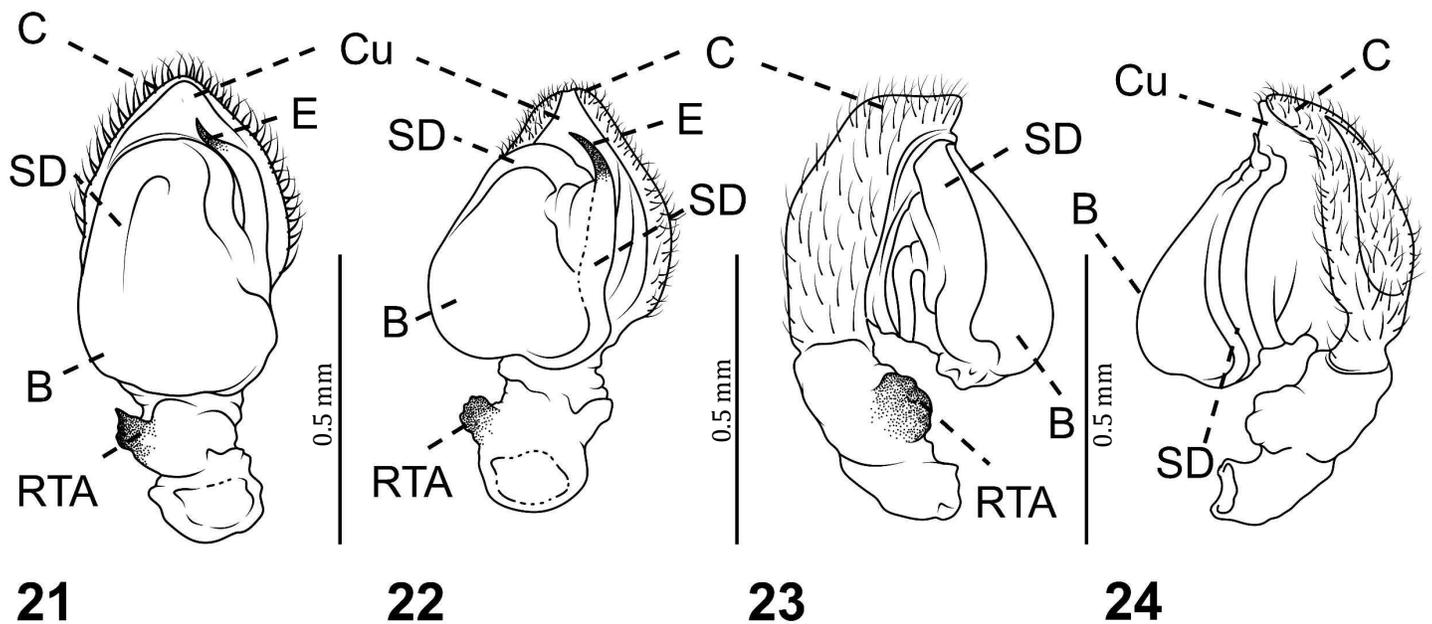
Figures 13–14. Epigynum of *Erica eugenia* from the Brazilian Cerrado. **13**, Ventral view. **14**, Dorsal view. **Go**, gonopore; **CD**, copulatory duct; **FD**, fertilization duct; **Sp**, spermatheca.



Figures 15–16. Epigynum of *Erica eugenia* from the Brazilian Cerrado. **15**, Ventral view. **16**, Dorsal view. **Go**, gonopore; **CD**, copulatory duct; **FD**, fertilization duct; **Sp**, spermatheca.



Figures 17–20. Right pedipalp of *Erica eugenia* from the Brazilian Cerrado. **17**, Ventral view. **18**, Ventral-prolateral view. **19**, Retrolateral view. **20**, Prolateral view. **B**, bulbus; **C**, cymbium; **Cu**, cusp of cymbium; **E**, embolus; **SD**, spermatid ducts.



Figures 21–24. Right pedipalp of *Erica eugenia* from the Brazilian Cerrado. **21**, Ventral view. **22**, Ventral-prolateral view. **23**, Retrolateral view. **24**, Prolateral view. **B**, bulbus; **C**, cymbium; **Cu**, cusp of cymbium; **E**, embolus; **SD**, spermatid ducts.

Description of female, color in alcohol. Body dark-colored, pedipalps and endites reddish-brown (Figures 5–7). Cephalothorax longer than wide, with greater height above the PLE and divided by a large furrow covered with white hairs proximal to the PLE; dark brown ocular quadrangle, delineated by a very faint dark band, scattered iridescent scales (Figure 5); sternum octagonal in shape (Figure 6). Chelicerae are light-yellow, vertical, and small, with four large teeth on the retrolateral margin, three small prolateral teeth, three large teeth on the prolateral margin, and a small inconspicuous prolateral medial tooth, with small, curved fang with small denticles on the inner margin, and a small tubercle on the base (Figure 12). The abdomen is globose, with a faint white transverse band proximal to the anterior margin and a dorsal

hump scattered with white hairs, and a longitudinal central olive-green ventral band (Figures 5, 7). The first and second pair of legs are light-yellow with a dark brown dorsal band, the metatarsi dark brown, and the apical region of the segment lighter; the third and fourth pair of legs are dark brown, each segment with a light-yellow apical region, except for the metatarsi and tarsi which are light yellow (Figures 5, 7). Epigynum sclerotized, reddish-brown, circular, with a clear gonopore (*Go*, Figures 13–15), connected directly with the copulatory ducts (*CD*, Figures 14–16), which immediately curve, and then continue straight until they fold back on themselves, forming the spermathecae (*Sp*, Figures 14–16) until reaching the end, culminating in the fertilization duct (*FD*, Figures 14–16).

Measurements for three females: TL= 4.1–4.3; CL= 1.72–1.75; CW= 0.95–0.98; AL= 2.12–2.15; AERW= 0.88–0.91; PERW= 0.84–0.87; LOQ= 0.76–0.79; PMEP= 0.41–0.43; eyes of the second row separated from the ALE by 0.15–0.17 mm and from the PLE by 0.17–0.19 mm. Spination: Leg I: F= d 0-0-1p*; P= 0; T= v 0-0-2; M=0-2-2. Leg II: F= d 0-0-1p*; P= 0; T= v 0-0-2; M=v0-2-2. Leg III: F= d 0-0-1p*; P= 0; T= v 0-0-2; M=v0-2-2. Leg IV: F= d 0-0-1p*; P= 0; T= v 0-0-2; M=v2-2-2.

Description of male, color in alcohol. Body dark-colored; pedipalps and endites reddish-brown (Figures 8–10). Cephalothorax longer than wide (Figures 2–4), divided by a large furrow covered with white hairs proximal to the PLE; dark brown ocular quadrangle, delineated by a very faint dark band, with scattered iridescent scales (Figures 8–10); sternum octagonal in shape (Figure 9). Chelicerae light yellow, vertical, and small, dentition as in the female, fang small and curved with small denticles on the inner margin and a small tubercle at the base (Figure 11). Abdomen with scattered white hairs, with a faint white transverse band proximal to the anterior margin, and a longitudinal central olive-green ventral band (Figure 10). The first pairs of legs are light yellow, except the femur, patella, and tibia light brown, with a dark brown band on each side (Figure 8, 10); the second pair of legs is light yellow, with a dark brown dorsal band, metatarsi and tarsi light yellow (Figure 8, 10); third and fourth pair of legs dark brown, each segment with a light-yellow apical region, except for the tarsi which are light yellow (Figure 8; 10). The pedipalp is small and globose, with a simple bulb (Figures 17–18), embolus short and thin, occupying a fossa on the prolateral side of the bulb (Figures 21–22); the sperm duct (*SD*) begins in the upper part of the bulb and continues through the retrolateral side and surrounding the bulb (Figures 19–20); the retrolateral tibial apophysis (*RTA*) is well developed, visible in a ventral view (Figures 23–24).

Measurements for two males: TL= 3.9–4.0; CL= 1.75–1.86; CW= 0.91–1.01; AL= 1.92–2.02; AERW= 0.93–1.03; PERW= 0.81–0.91; LOQ= 0.55–0.65; PMEP= 0.35–0.37; eyes of the second row separated from the ALE by 0.16–0.18 mm and from the PLE by 0.17–0.19 mm. Spination: Leg I: F= d 0-1p*-0; P= 0; T= v 2-0-2; M=0-2-2. Leg II: F= d 0-1p*-0; P= 0; T= v 2-0-2; M=v0-2-2. Leg III: F= d 0-0-1p*; P= 0; T= v 0-0-1r; M=v0-2-2. Leg IV: F= d 0-0-1p*; P= 0; T= v 0-0-1r; M=v2-2-2.

Habitat and distribution. *Erica eugenia* is a myrmecomorph. In the Brazilian Cerrado it was found in the phytophysiographic province of the Cerrado *sensu strictu*, near nests of ants of the genus *Crematogaster* Lund 1831, in low densities (Figures 25–26). Therefore it can be considered a rare species in the Cerrado, which is consistent with previous records. Despite being a common species in some localities, it is usually a rare species (Rubio et al. 2018). This is the only species described for the genus *Erica*, with a known distribution that extends from Argentina to southeastern Brazil, Panama (Bugaba, Champion), and Peru (Figure 27). The present study extends its known distribution to the central region of the Brazilian Cerrado. Some differences that I have observed suggest, however, that the record of this species from Argentina represents a different, undescribed species (G. D. Rubio, unpublished data).



Figures 25-26. Habitat of record for *Erica eugenia* in the Brazilian Cerrado, *sensu strictu*.



Figure 27. Known distribution of *Erica eugenia* in America. Map credits: © OpenStreetMap contributors, base map, and data from OpenStreetMap and the OpenStreetMap Foundation.

Comments and observations

It was not possible to examine the syntype material deposited in the Museum of Comparative Zoology of Harvard University (MZC). However, the specimens examined in this study (Brazilian Cerrado) agree with earlier descriptions of this species (Peckham & Peckham 1892; F. O. Pickard-Cambridge 1900). The specimens from the Brazilian Cerrado have very visible spines on each of the legs (except for the femur, which is very small), unlike the specimens from Panama, whose spines are scarcely visible (see F. O. Pickard-Cambridge 1900, p. 175). Finally, the pedipalps agreed with descriptions made by Mello-Leitão (1933, 1947) for *Apatita tristis* and *Sarinda scutata*, but for these the type material was lost in a 2018 fire at the National Museum in Rio de Janeiro, so they could not be compared directly. I therefore agree with Galiano (1965, 1980), to maintain and conserve these species as synonyms of *E. eugenia*.

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