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First record of *Thyene* cf. *pulchra* (Araneae: Salticidae: Plexippina) in Brazil

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Summary. A single female *Thyene* that agrees with published descriptions of *T. pulchra* is reported from Rio de Janeiro, Brazil where it has apparently been introduced. *T. pulchra* is a little-known species previously known only from eastern South Africa. Functional implications of the relatively small ALE of *Thyene* are not known.

Key words. ALE, anterior lateral eye, *Colonus sylvanus*, *Cytaea*, *Habronattus coecatus*, introduced species, jumping spider, *Lyssomanes viridis*, *Maevia inclemens*, *Parabathippus*, *Phidippus putnami*, Rio de Janeiro, South Africa, *Thyene imperialis*, *Thyene pulchra*, *Triplaris*, *Tutelina*

A female spider (Figures 1 and 4:1) that agrees with published descriptions of the jumping spider *Thyene pulchra* Peckham & Peckham 1903 (Peckham & Peckham 1903; Wesołowska & Haddad 2009) was recently found by one of the authors (9 OCT 2018, RMM) standing on a leaf of *Triplaris* sp. (Polygonaceae, "Ant Tree"), a common native tree in Brazil, at the Oswaldo Cruz Institute, a campus of Fiocruz, a scientific institution for research and development in the biological sciences, Rio de Janeiro, Brazil. This campus has many native trees separated by the stairs, sidewalks and paths that give access to the buildings (Figure 2). Many Neotropical salticids (e.g., *Bryantella*, *Chira*, *Colonus*, *Corythalia*, *Frigga*, *Lyssomanes* and *Maeota*) have previously been found at the same location.

Excluding *Gangus longulus* Simon 1902 from Queensland, listed as a *species inquirenda* by Richardson (2016), *Thyene* Simon 1885 is an endemic Afroeurasian genus with 48 known species, mostly tropical (WSC 2018). *T. pulchra* is a little-known species known only from a few female specimens collected in areas near the eastern coast of South Africa (Figure 3). No representatives of *T. pulchra* have been reported outside of Africa. How this specimen got to Brazil is unknown, but almost certainly this was the result of human activity. One possibility is the international trade in goods (Kobelt & Nentwig 2007; Nedvěd et al. 2011). Increasing trade between Brazil and Africa (White 2010) may lead to many more spider introductions in the future.

If this female represents a successful introduction of the species to Brazil then it should also be possible to find the male of this species there at some time. We do not know if *T.* cf. *pulchra* has invaded unaltered natural habitats in Brazil, but the finding of a specimen in a semi-natural habitat in Rio de Janeiro should not be ignored, since some introduced spiders can become invasive and displace native species. Although the best-known introduced spiders are synanthropic and cosmopolitan (Cutler 1990; Taucare-Ríos & Edwards 2012; Taucare-Ríos 2013), some recent salticid introductions that are neither synanthropic nor cosmopolitain have also been very successful (Kaldari et al. 2011; Gall & Edwards 2016). It is quite unlikely that this single specimen would have been found if it were not already reproducing in the vicinity of Rio de Janeiro.

Figure 1. Photographs of the female *Thyene* cf. *pulchra* captured in Rio de Janeiro. Note the relatively small ALE, the long setal tuft flanking each ALE and the multiple tracts of white scales beneath each ALE. Dark tranverse lines or striae are most prominent on the front of each femur I.

Figure 2. Pathways and native vegetation on the grounds of the Oswaldo Cruz Institute in Rio de Janeiro, Brazil. **3-4,** Leaves of *Triplaris* sp.

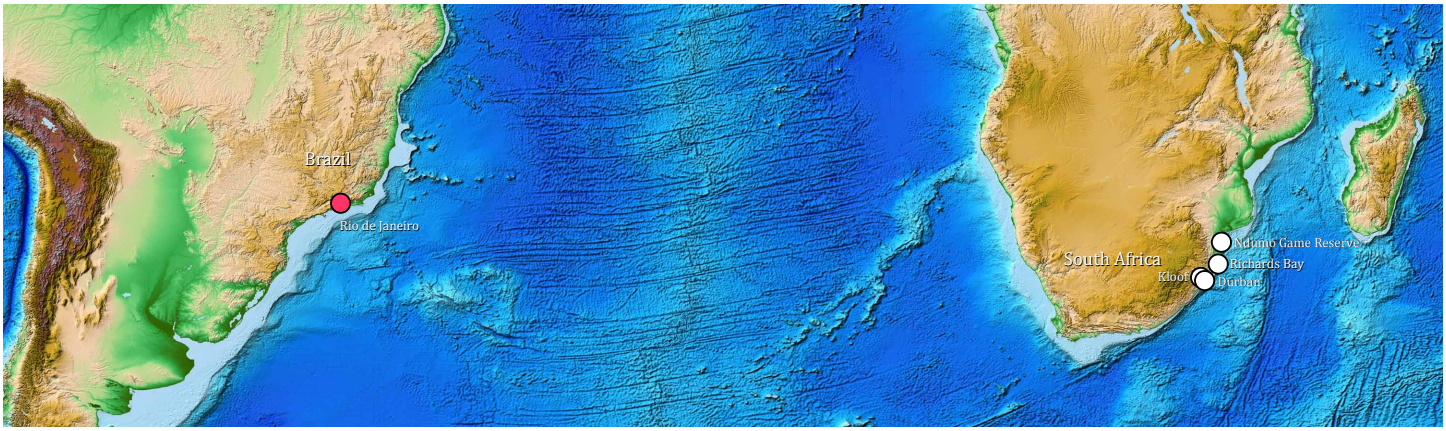


Figure 3. Distribution of *Thyene pulchra* (white circles at right) and *Thyene* cf. *pulchra* (possibly the same species, red circle at left). Peckham & Peckham (1903) first reported this species from Durban. More recently Wesołowska & Haddad (2009) redescribed *T. pulchra* from a female collected along the northern shore of Nyamiti Pan in the Ndumo Game Reserve (26° 53.192' S, 32° 18.272' E). Van Der Walt (2017) also posted photos of spiders from Richards Bay and Kloof, also in eastern South Africa, that might represent two female forms of this species. Background map courtesy of NASA.

1. ♀ *Thyene* cf. *pulchra*, Rio de Janeiro [0.44]

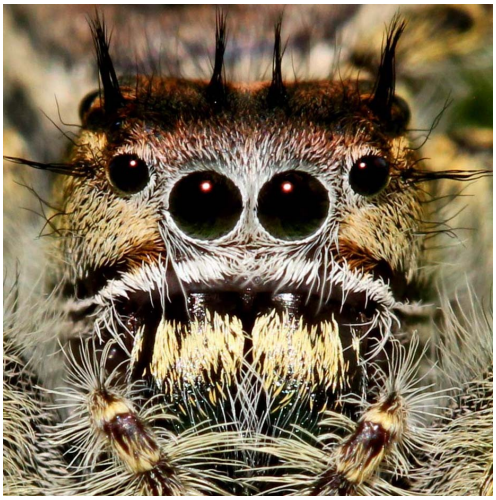
2. ♀ *Lyssomanes viridis*, South Carolina [0.48]

3. ♀ *Colonus sylvanus*, South Carolina [0.48]

4. ♀ *Habronattus coecatus*, South Carolina [0.48]

5. ♂ *Parabathippus* sp., Singapore [0.55]

6. ♀ *Maevia inclemens*, South Carolina [0.58]



7. ♀ *Phidippus putnami*, South Carolina [0.58]

8. ♀ *Tutelina* sp., South Carolina [0.59]

9. ♂ cf. *Cytaea* sp., Singapore [0.66]

Figure 4. Comparison of the anterior eyes of this *Thyene* cf. *pulchra* (1) with other salticids. For each spider the ratio of ALE to AME diameter is given in brackets. For many salticids, this ratio is close to 0.50. Photograph (5) by Gio Diaz and photograph (9) by Aaron Morales, both used under a Creative Commons Attribution-Noncommercial 2.0 Generic license (CC BY-NC 2.0).

This female *Thyene* from Rio de Janeiro has the small ALE and the series of dark, transverse striae or lines on the front of femora I-III, most pronounced on femora I, that distinguish *T. pulchra* (Figures 1 and 4:1). The male *Thyene imperialis* (Rossi 1846), type for the genus, has an even smaller ratio of ALE to AME diameter, about 0.37. The role of the lateral eyes of salticids in the detection and location of moving objects is well-known (Land 1971; Duelli 1977, 1978, 1980; Hardie & Duelli 1978; Bennett & Lewis 1979; Hill 2010; Spano et al. 2012; Zurek & Nelson 2012). Recently Jakob et al. (2018) also demonstrated that information from the ALE was required for the AME to fix upon and to follow moving objects in front of a salticid. In *Phidippus*, the relatively large ALE (ALE/AME ratio ~0.58 for these relatively large salticids) are elongated and provided with a high density of receptors in the area that receives light from the area of binocular overlap to the front of the spider (Hill 2006). The functional significance of the observed variation in the size of the ALE (Figure 4), and the small size of the ALE of *Thyene* in particular, is not known.

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