

A trap door *jumping* spider from Brazil (Araneae: Salticidae: Marpissina: *Balmaceda* sp.)

André Arruda Lima¹ and David Edwin Hill²

¹email andre.arruda.lima@usp.br

²213 Wild Horse Creek Drive, Simpsonville, South Carolina 29680, USA, email platycryptus@yahoo.com

Here (Figures 1-5) we report the use of a *trap door* retreat by a jumping spider of the genus *Balmaceda* Peckham & Peckham 1894. Similar use of a flat retreat or nest, constructed on a vertical surface, was previously described for *Balmaceda nigrosecta* Mello-Leitão 1945, based on field observations in Misiones Province, Argentina (Rubio, Baigorria & Edwards 2016). In that study *B. nigrosecta*, a close relative of our *Balmaceda* (G. B. Edwards, pers. comm.), were often observed as they looked down from the entrance of their nest, emerging to capture prey, and then retreating back into that nest. However spiders of that species emerged through an opening at one end of retreat, and did not construct the flap or trap door that we describe here.



Figure 1. Vertical trap-door retreat of a *Balmaceda* sp. on the side of a tree in southeastern Brazil. **1**, The flat surface of the retreat covered a small hole in the trunk of this tree (18 SEP 2022, 17:11). **2**, Detail from (1). **3-4**, Two views of a *Balmaceda* sp. at the entrance of this retreat (19 SEP 2022, 10:55).

The senior author (AAL) first observed a wandering *Balmaceda* sp. in Ibiúna, a rural city in the southeast of Brazil with some relatively well-preserved areas of Atlantic Forest (elevation ~800 m ASL), in 2021 (Lima 2021). Recently returning to this site, he first observed a small bulge on the surface of a tree, but this bulge quickly disappeared when he approached to a distance of ~2 m. The spider reappeared in

about one minute, but then retreated once again when it detected movement by the observer, and did not emerge for the next 5 minutes. On the next day, the same tree was approached from the side opposite to this nest, and once again the spider retreated into the nest as soon as it detected movement by the observer. Only when the observer remained still was it possible to capture the reappearance, and subsequent disappearance, of this spider at the entrance of its retreat (Figures 1.3-1.4, 2-5).



Figure 2. Selected frames from a 30fps video showing the emergence of *Balmaceda* from the lower end of its vertical retreat. After emergence this spider made a series of very small turns as it looked out from the entrance (frames 480-1629).

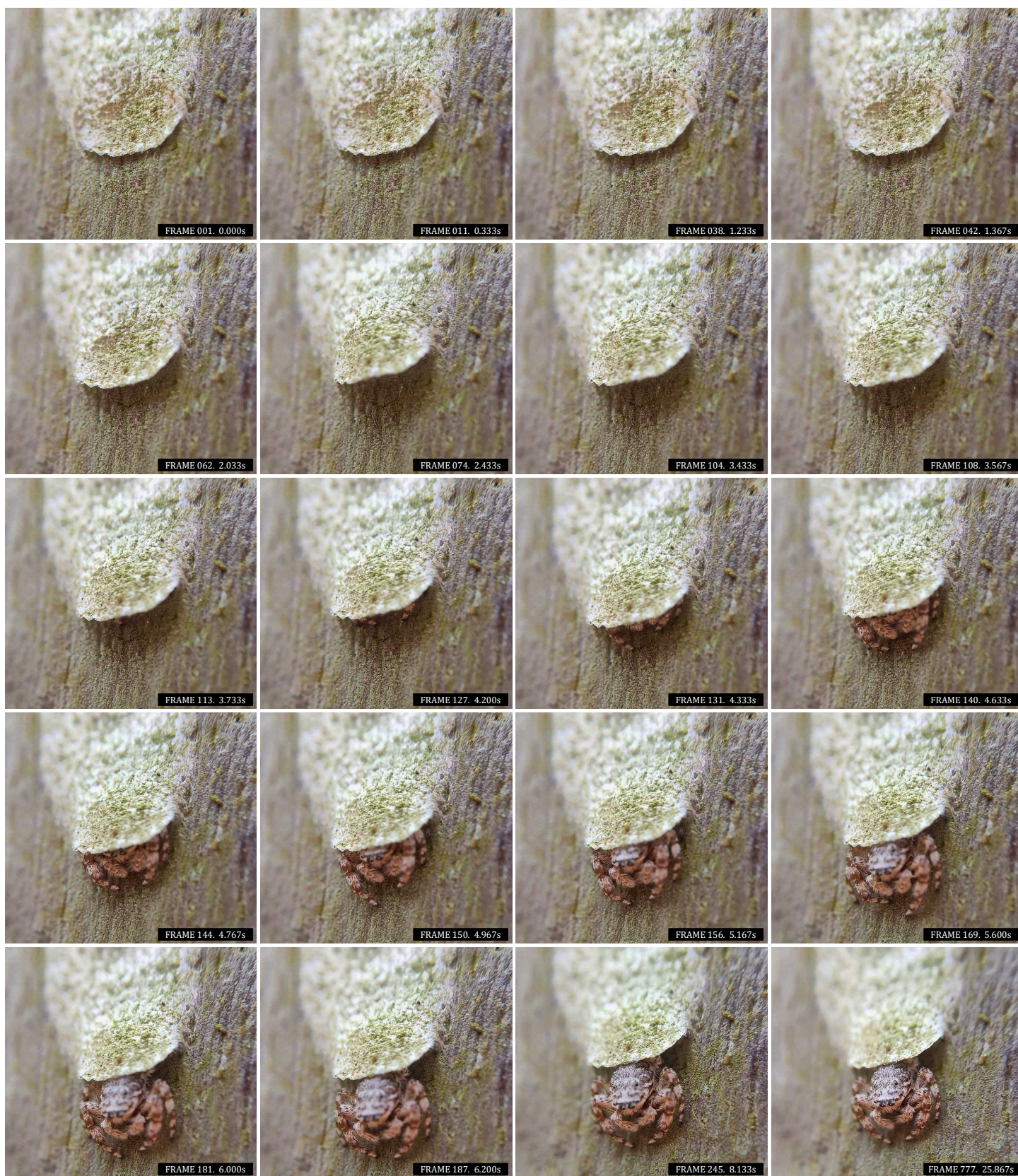


Figure 3. Selected frames from a 30fps video showing the emergence of *Balmaceda* from the lower end of its vertical retreat. After emergence the spider remained in place, motionless, for some time (frames 245-777).

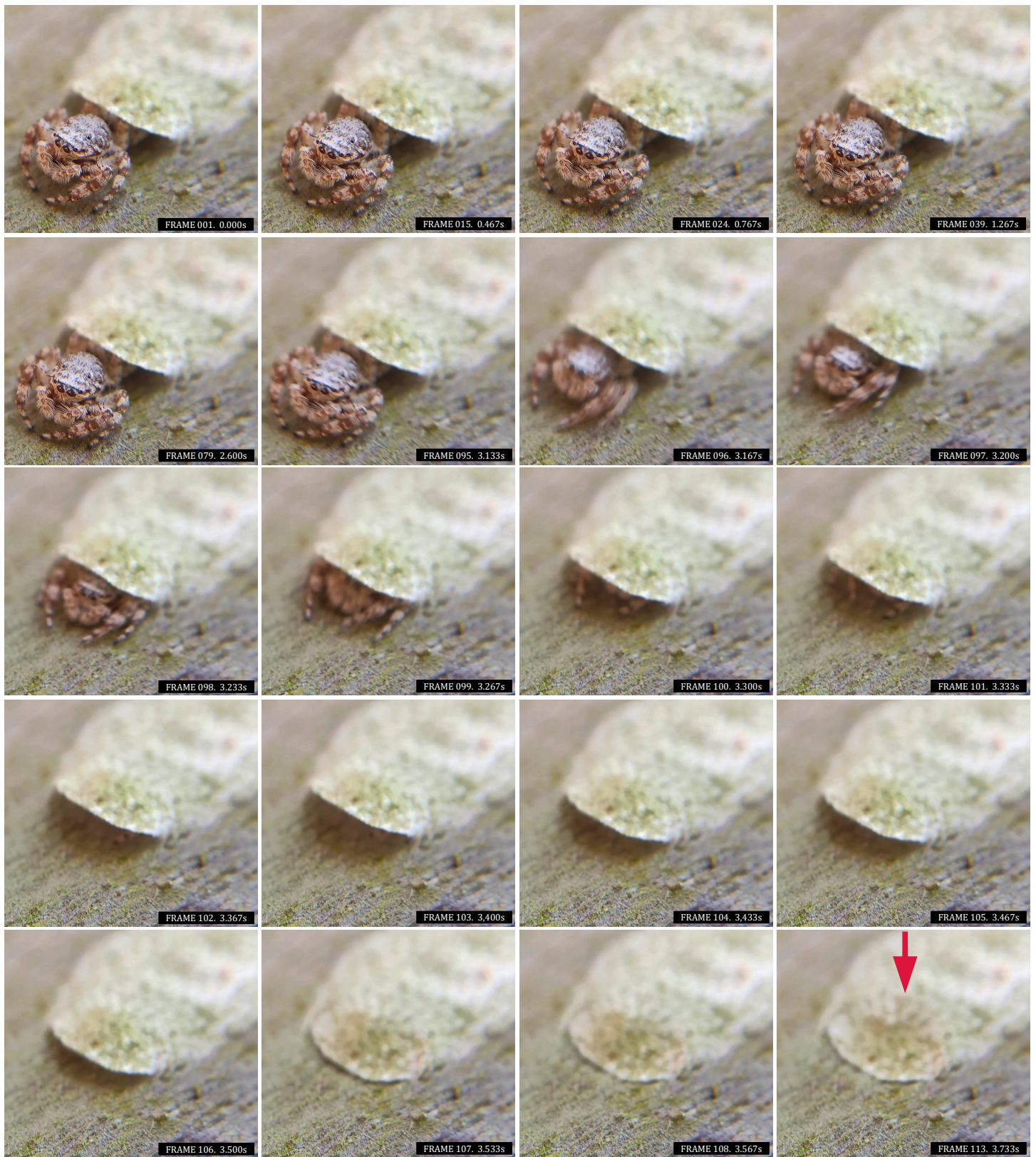


Figure 4. Selected frames from a 30fps video showing the retreat of *Balmaceda* into the lower end of its vertical retreat. At the end of this sequence the spider quickly pulled the lid (or entrance) of its retreat down (arrow, frame 113). This is barely perceptible in the image shown here, but is quite evident in the video.

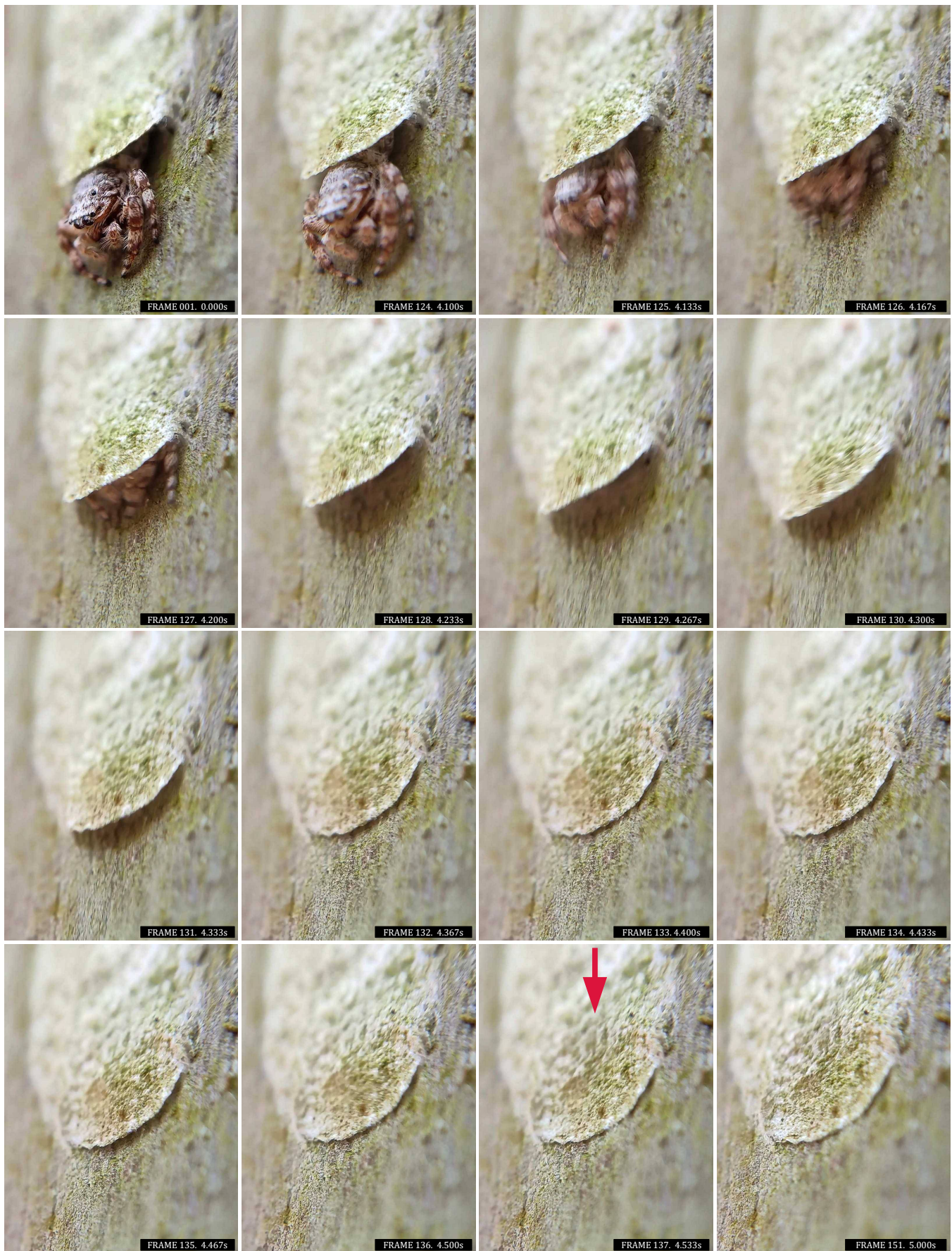


Figure 5. Selected frames from a 30fps video showing the retreat of *Balmaceda* into the lower end of its vertical retreat. Rapid depression of the lid can also be seen at the end of this sequence (arrow, frame 137).

Balmaceda Peckham & Peckham 1894 (Figure 6) is a Neotropical marpissine genus with 11 recognized species, ranging from Mexico to Argentina (Edwards 2006; Edwards & Baert 2018; Galvis et al. 2018; WSC 2022). This genus is closely related to *Platycryptus* Hill 1979, a genus with 4 recognized species, mostly found in North America but with one species found in Brazil. *Balmaceda* and *Platycryptus* appear to be sister genera, and they might even be placed in the same genus (Edwards 2006). Like *Balmaceda*, *Platycryptus* live on or under the bark of tree trunks (Edwards 2006; Hill personal observation).



Figure 6. Male (1) and female (2) spiders from Mexico, tentatively identified as *Balmaceda*, but very close to *Platycryptus* in appearance. Attribution and ©: 1-2, Francisco Farriols Sarabia (iNaturalist observations 2932398 and 681145, [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)).

The characterization of this *Balmaceda* as a *trap door jumping spider* seems appropriate, although the name *trap door spider* has usually been associated with some very different spiders, including members of the family Halonoproctidae (Figure 7).

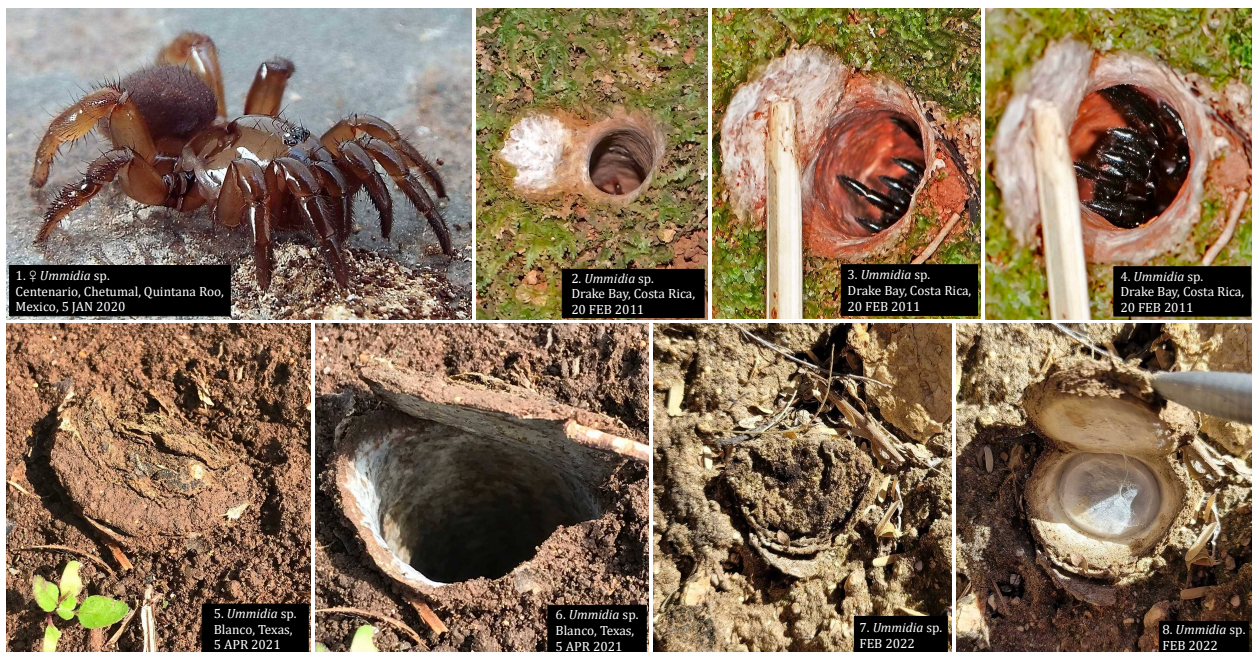


Figure 7. Four traps and trap door spiders of the genus *Ummidia* Thorell 1875 (1, 2-4, 5-6, 7-8). These are currently placed in the family Halonoproctidae, recently resurrected by Godwin et al. (2018). Attribution and ©, with iNaturalist observation number in parens (all [CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/)): 1, Cesar Raziel Lucio (42730498); 2-4, Seig (71796327); 5-6, Sheryl Smith-Rogers (73022540); 7-8, Addie Leimroth (107161541).

Acknowledgements

We thank G. B. Edwards and Alexandre Michelotto for their assistance with the identification of this spider.

References

- Edwards, G. B. 2006.** A review of described *Metacyrba*, the status of *Parkella*, and notes on *Platycryptus* and *Balmaceda*, with a comparison of the genera (Araneae: Salticidae: Marpissinae). *Insecta Mundi* 19: 193-226.
- Edwards, G. B. and L. Baert. 2018.** New species, combinations, and records of jumping spiders in the Galápagos Islands (Araneae: Salticidae). *Belgian Journal of Entomology* 67: 1-27.
- Galvis, W., O. Pulgarín, E. Correa, I. Castrillón, and N. Acevedo. 2018.** First record of the jumping spider genus *Balmaceda* Peckham & Peckham (Salticidae: Salticinae: Dendryphantini) from Colombia. *Peckhamia* 163.1: 1-5.
- Godwin, R. L., V. Opatova, N. L. Garrison, C. A. Hamilton and J. E. Bond. 2018.** Phylogeny of a cosmopolitan family of morphologically conserved trapdoor spiders (Mygalomorphae, Ctenizidae) using Anchored Hybrid Enrichment, with a description of the family, Halonoproctidae Pocock 1901. *Molecular Phylogenetics and Evolution* 126: 303-313.
- Hill, D. E. 1979.** The scales of salticid spiders. *Zoological Journal of the Linnean Society* 65 (3): 193-218.
- Lima, A. A. 1971.** Genus *Balmaceda*. Record from vicinity of Vororantim, São Paulo, Brazil. *Online at* <https://www.inaturalist.org/observations/72737922>
- Mello-Leitão, C. F. de. 1945.** Arañas de Misiones, Corrientes y Entre Ríos. *Revista del Museo de La Plata (New Series, Zoology)* 4: 213-302.
- Peckham, G. W. and E. G. Peckham. 1894.** Spiders of the *Marptusa* group. *Occasional Papers of the Natural History Society of Wisconsin* 2 (2): 83-156.
- Rubio, G. D., J. E. M. Baigorria and G. B. Edwards. 2016.** First description of the female of the jumping spider *Balmaceda nigrosecta* Mello-Leitão (Salticidae, Dendryphantini, Marpissina). *ZooKeys* 563: 11-19.
- Thorell, T. 1875.** Descriptions of several European and North African spiders. *Kongliga Svenska Vetenskaps-Akademiens Handlingar* 13 (5): 1-204.
- WSC. 2022.** World Spider Catalog. Version 23.5. Natural History Museum Bern, *online at* <http://wsc.nmbe.ch>, accessed on 23 OCT 2022. doi: 10.24436/2