

Predation on a trap-jaw ant (Hymenoptera: Formicidae: Ponerinae: *Anochetus* sp.) by a jumping spider (Araneae: Salticidae: Aelurillini: *Langona tigrina*)¹

Muralidharan S² and David E. Hill³

¹ Detailed attribution for images that appear in figures is given in Appendix 1. All images have been edited or modified by the author (s). This paper may be freely copied, posted or redistributed under the terms of a [CC BY NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/) license, provided that the owners of respective images and other content have authorized this use and are properly attributed in any derived work.

² email murezhi@gmail.com

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

The senior author (MS) recently observed a female aelurilline, *Langona tigrina* (Simon 1885), as she fed on a trap-jaw ant (*Anochetus* sp.) at Perundurai, Erode District, Tamil Nadu (11.29812°N, 77.56534°E, 08:30, 29 AUG 2022) (Figure 1). The Aelurillini are widely distributed ground-dwelling species in India, mostly found in grassland and agroecosystems, preying on grasshoppers, termites, and many other insects (Figure 2). Seven species of *Langona* Simon 1901 are known from India (WSC 2022). We do not know of any other records of salticids feeding trap-jaw ants, but three species of trap-jaw ants of the genus *Anochetus* have been observed in the same area (Figure 3).



Figure 1. Female *Langona tigrina* feeding on a trap-jaw ant of the genus *Anochetus* in Tamu Nadu.

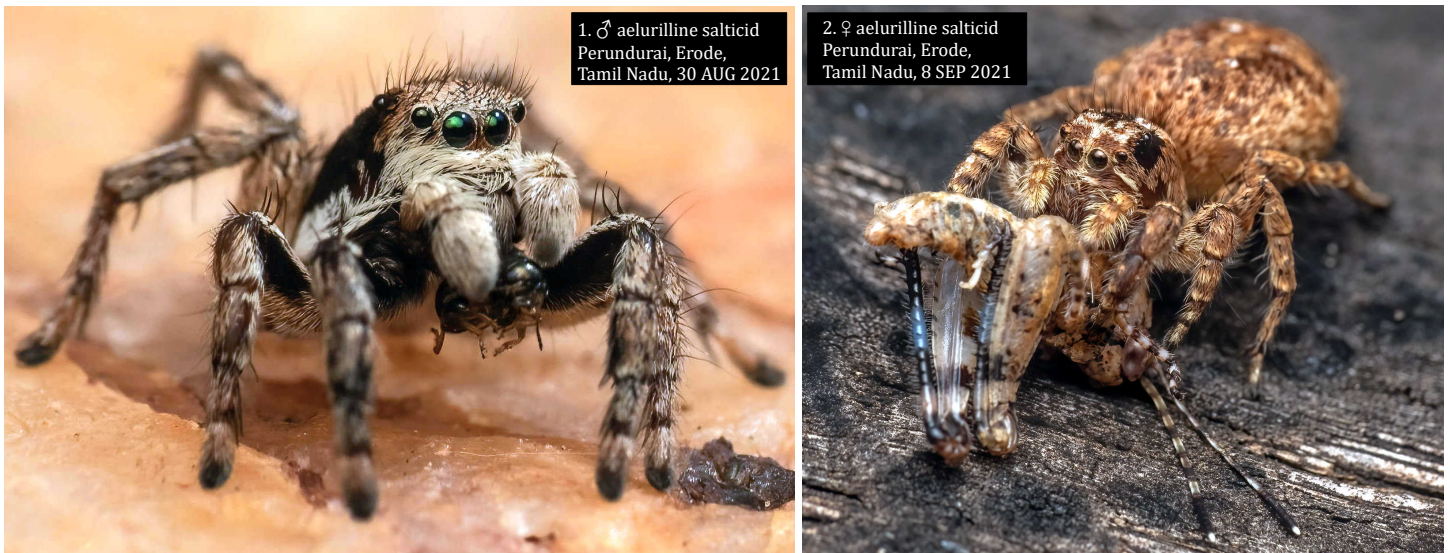


Figure 2. Aelurilline salticids in Tamu Nadu, feeding on (1) a small beetle and (2) a grasshopper.



Figure 3. Two ponerine ants of the genus *Anochetus* in Tamu Nadu. These are not frequently observed.

The best-known trap-jaw ants are ponerine members of the sister genera *Anochetus* and *Odontomachus*, with a cosmopolitan distribution (Figures 3-4). There are seven other formicine and myrmicine genera that have also evolved trap-jaws (Larabee & Suarez 2014; Larabee 2015). The ponerine trap-jaw ants are thought to have originated in the early Eocene (52.5Ma), in South America or Southeast Asia, then diversified in tropical Asia for the last 30My (Larabee 2015; Larabee et al. 2016). In these ants, the mandibles latch open at a right angle to the body axis, then, released by a stimulus applied to fine trigger hairs, snap together with a powerful force to seize their prey (Larabee, Gronenberg & Suarez 2017; Gibson et al. 2018).

Because of their fine visual sense, however, salticid spiders can avoid this trap by attacking these ants from the sides or rear, and by holding their thorax securely between the fangs.

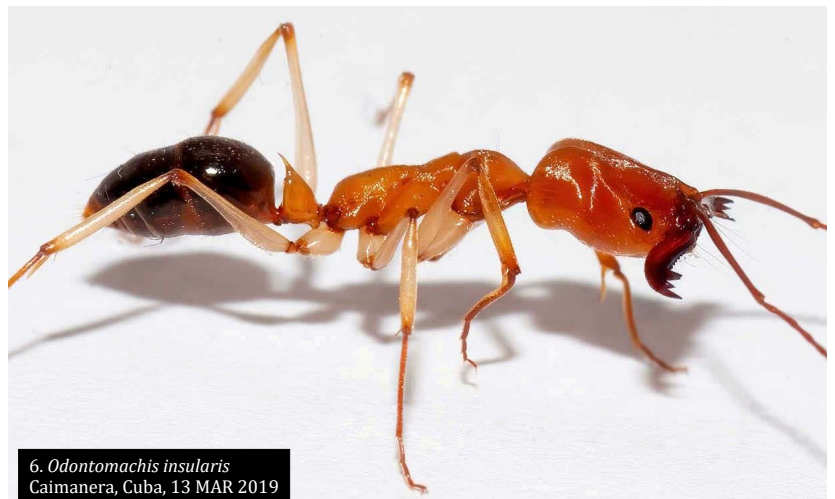
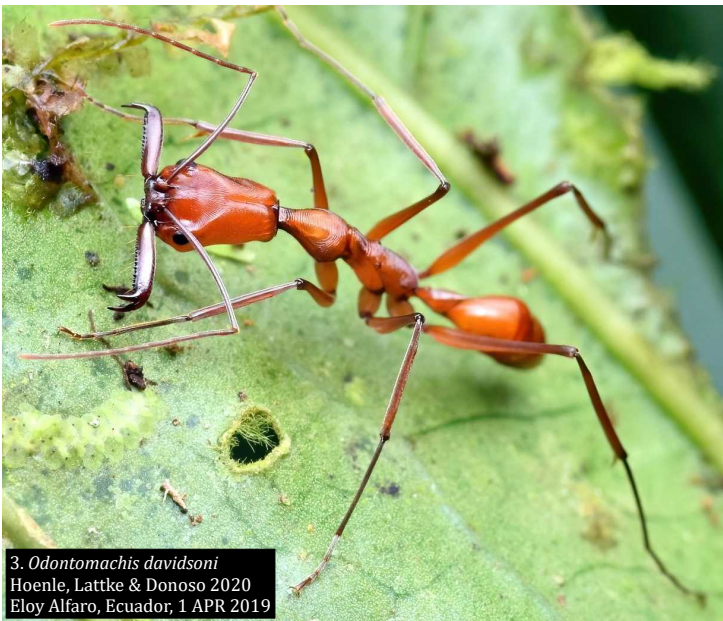
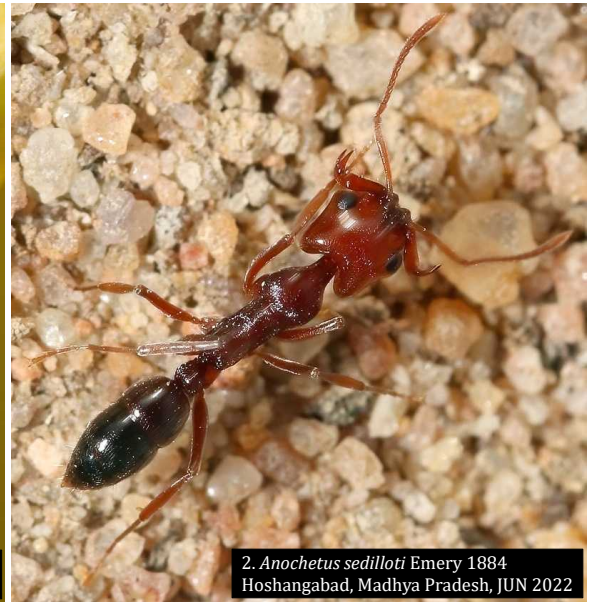


Figure 4 (continued on next page). Representatives of the ponerine ant genera *Anochetus* and *Odontomachis*. Each of these closely related, sister genera is monophyletic, and *Anochetus* species tend to be smaller (Larabee et al. 2016). Attribution and ©: 1, alex_insect; 2, Aniruddha H D; 3-4, Philipp Hoenle; 5-6, Wayne Fidler.



Figure 4 (continued from previous page). Representatives of the ponerine ant genera *Anochetus* and *Odontomachis*. Attribution and ©: 7-8, Philipp Hoenle.

References

- Gibson, J. C., F. J. Larabee, A. Touchard, J. Orivel and A. V. Suarez. 2018.** Mandible strike kinematics of the trap-jaw ant genus *Anochetus* Mayr (Hymenoptera: Formicidae). *Journal of Zoology* 306: 119-128.
- Larabee, F. J. 2015.** The evolution and functional morphology of trap-jaw ants. Ph.D. Dissertation, University of Illinois at Urbana: i-vii, 1-132.
- Larabee, F. J., B. L. Fisher, C. A. Schmidt, P. Matos-Maraví, M. Janda and A. V. Suarez. 2016.** Molecular phylogenetics and diversification of trap-jaw ants in the genera *Anochetus* and *Odontomachus* (Hymenoptera: Formicidae). *Molecular Phylogenetics and Evolution* 103: 143-154.
- Larabee, F. J., W. Gronenberg and A. V. Suarez. 2017.** Performance, morphology and control of power-amplified mandibles in the trap-jaw ant *Myrmoteras* (Hymenoptera: Formicidae). *Journal of Experimental Biology* 220: 3062-3071.
- Larabee, F. J. and A. V. Suarez. 2014.** The evolution and functional morphology of trap-jaw ants (Hymenoptera: Formicidae). *Myrmecological News* 20: 25-36.
- WSC. 2022.** World Spider Catalog. Version 23.5. Natural History Museum Bern, *online at* <http://wsc.nmbe.ch>, accessed on 6 NOV 2022, doi: 10.24436/2

Appendix 1. Detailed attribution for images by figure.

All photographs have been modified (cropped and/or edited) from their original format.

terms of use	description of license or permission	link
CC BY-NC 4.0 with permission	Attribution-NonCommercial 4.0 International permission granted for this paper only by copyright holder	https://creativecommons.org/licenses/by-nc/4.0/

Figure	subject	© attributed to	link	terms of use
1.1-1.2	♀ <i>Langona tigrina</i> feeding on <i>Anochetus</i> sp., Perundural, Erode, Tamil Nadu, 29 AUG 2022	Mutalidharan S		with permission
2.1	aelurilline feeding on beetle, Perundural, Erode, Tamil Nadu, 30 AUG 2021	Mutalidharan S		with permission
2.2	aelurilline feeding on grasshopper, Perundural, Erode, Tamil Nadu, 8 SEP 2021	Mutalidharan S		with permission
3.1	<i>Anochetus</i> sp., Perundural, Erode, Tamil Nadu, 17 SEP 2022	Mutalidharan S		with permission
3.2	<i>Anochetus</i> sp., Perundural, Erode, Tamil Nadu, 13 JUL 2021	Mutalidharan S		with permission
4.1	<i>Anochetus risii</i> , Yau Tsim Mong, Hong Kong, 4 JUL 2016	alex_insect	https://www.inaturalist.org/observations/68960055	CC BY-NC 4.0
4.2	<i>Anochetus sedilloti</i> , Hoshangabad, Madhya Pradesh, JUN 2022	Aniruddha H D	https://www.inaturalist.org/observations/123841043	CC BY-NC 4.0
4.3	<i>Odontomachus davidsoni</i> , Eloy Alfaro, Ecuador, 1 APR 2019	Philipp Hoenle	https://www.inaturalist.org/observations/78375730	CC BY-NC 4.0
4.4	<i>Odontomachus hastatus</i> , Eloy Alfaro, Ecuador, 24 SEP 2021	Philipp Hoenle	https://www.inaturalist.org/observations/98828034	CC BY-NC 4.0
4.5-4.6	<i>Odontomachus insularis</i> , Caimanera, Cuba, 13 MAR 2019	Wayne Fidler	https://www.inaturalist.org/observations/21222662	CC BY-NC 4.0
4.7-4.8	<i>Odontomachus malignus</i> , Madang, Papua New Guinea, 17 JUL 2022	Philipp Hoenle	https://www.inaturalist.org/observations/126941304	CC BY-NC 4.0