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Predation on an oecobiid spider by *Myrmarachne plataleoides* (Araneae: Salticidae: Myrmarachnini) in Karnataka, with comments on araneophagy by salticine jumping spiders

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Abstract. Predation on an *Oecobius* by a female *Myrmarachne plataleoides*, on a wall in Karnataka, is documented. Although salticid predation on other spiders (*araneophagy*) has received most attention with respect to members of the Spartaeini, many if not most other salticids, including members of the subfamily Salticinae, will feed on spiders if they have the opportunity to do so.

Keywords. Anasaitis, Colonus, Oecophylla, Phidippus, salticid, Salticinae, Spartaeini, trophic circle

Spartaeine salticids that feed on other spiders (*araneophagy*) have received much attention in recent years (e.g., Jackson & Hallas 1986a, 1986b; Harland et al 2012; Abhijith & Hill 2019a, 2019b), but these are not the only salticids known to feed on spiders. There are many members of the largest salticid subfamily, the Salticinae (*sensu* Maddison 2015) that frequently capture and feed on other spiders, if not as a specialization then on an opportunistic basis. These include species of *Anasaitis* (Figure 1:7-8), *Carrhotus* (Mezőfi et al 2020), *Colonus* (Figure 1:3-6; Hill 2018a), *Hyllus* (Gilman 2016), *Lyssomanes* (Hill 2018a), *Menemerus* (Huseynov 2005), *Phiale* (Robinson & Valerio 1977), *Phidippus* (Figure 1:1-2; Bilsing 1920; Tolbert 1975; Edwards 1980; Horton 1983; Hill 2018b) and *Plexippus* (Ahmed et al. 2015).

In Figure 2 we document a female *Myrmarachne plataleoides* (O. Pickard-Cambridge 1869) feeding on an oecobiid spider (*Oecobius* sp.), photographed by one of the authors (Abhijith) on a wall at his Indraprastha organic farm, Mysuru, Karnataka, India. *M. plataleoides* is a well-known mimic of the weaver ant *Oecophylla smaragdina* Fabricius 1775, and both are widely distributed in southern and southeastern Asia (Ramachandra & Hill 2018). Although feeding on small ants by a *Myrmarachne* species has been recently documented (Holmes 2019), previous observers found no evidence that *Myrmarachne* feed on spiders in webs, although some were found to open spider nests to feed on their eggs (Jackson & Willey 1994).

Oecobius (disc web spiders, or wall spiders) are common on walls of houses in this area, where they are often seen feeding on fruit flies and mosquitoes, as well as ants (particularly *Crematogaster*). Multiple *Oecobius* nests can be found in groups, each marked by the remains of captured prey. They usually rest inside of their sacs. In Figure 3 we show a weaver ant (*Oecophylla smaragdina*) that has been captured by an *Oecobius*. Since these weaver ants are known to feed on *M. plataleoides* (Ramachandra & Hill 2018), this completes a trophic circle (as in the "hand, paper, scissors" game) in which *Oecophylla* prey on *Myrmarachne*, which in turn prey on *Oecobius*, which in turn prey on *Oecophylla*.



Figure 1. Some examples of araneophagy by salticine jumping spiders. **1**, Adult female *Phidippus princeps* feeding on a spider (Greenville County, South Carolina). This species, like many other *Phidippus*, is very aggressive toward other spiders, including conspecifics of the same size (Hill 2018b). **2**, Adult female *P. audax* (Hentz 1845) feeding on a captured araneid spider (Columbia County, Florida). **3-6**, Adult *Colonus sylvanus* (Hentz 1846) feeding on captured spiders (Greenville County, South Carolina). *Colonus* are particularly skilled at hunting and capturing both web and hunting spiders (Hill 2018a). **3**, Adult female feeding on a juvenile *C. sylvanus* (Hill 2018a). **4**, Adult female feeding on thomisid spider that it has seized by the rear of the carapace. **5**, Adult female feeding on an adult female orbweaver, *Leucauge venusta* (Walckenaer 1841). *Lecauge* seem particularly vulnerable when they rest at the edge of their web. **6**, Male feeding on a captured thomisid. **7-8**, Two views of an adult male *Anasaitis canosa* (Walckenaer 1837) feeding on a captured theridiid at the edge of its cob web on a wall (Greenville County, South Carolina). *A. canosa* are better known for their predation on ants of all sizes (*myrmecophagy*; Edwards et al. 1974; Hill 2006), but they also feed on a variety of other small insects. Scale bars (1-2, 4-6) 1.0 mm. Photographs by D. E. Hill.



Figure 2. Adult female *Myrmarachne plateleoides* feeding on an *Oecobius* sp (Araneae: Oecobiidae) on a wall in Karnataka, India. **1**, View of the wall, showing the feeding *M. plataleoides* (rectangle at lower right), and captured ants around a different Oecobius nest (rectangle at upper left). A gravid female *Hersilia* sp. (Araneae: Hersiliidae) was also resting on this wall, above and to the left of this image. **2**, Detail of inset in (1) of feeding *M. plateleoides* just below the nest of the captured *Oecobius*. Some *Myrmarachne* are known to invade spider nests for their eggs (Jackson & Willey 1994), and this one was apparently able to pull the *Oecobius* out of her nest. **3**, Detail of inset in (2) showing this feeding *M. plateleoides* after she moved closer to a second nest (upper left), as the *Oecobius* that inhabited that nest fled. **4-9**, More pictures of the *M. plateleoides* as she fed for more than one hour. Photographs by Abhijith A. P. C.



Figure 3. *Oecobius* with captured ants near her nest on a wall at the Indraprastha organic farm, Mysuru, Karnataka, India. **1**, Overview (frame from video record) showing this *Oecobius* capturing an ant worker by moving quickly to encircle it as she laid down silk. Nearby can be seen two other smaller ant workers, and one larger ant worker that she has captured (weaver or green tree ant, *Oecophylla smaragdina*). **2**, Detail of the captured *Oecophylla smaragdina* from inset (3). Photographs by Abhijith A. P. C.

Oecobius species appear to be specialised ant-predators at some locations, but study of populations at different sites suggests that they actually take a variety of prey, including many dipterans, thrips and some spiders, including small salticids, depending on local abundance (Figure 4; Líznarováa et al. 2013; García et al. 2014).



Figure 4 (continued on next page). *Oecobius* capturing a small salticid spider on a wall in Bengaluru, Karnataka. Sequential but not consecutive frames from a 25fps video by M. Jithesh Pai. **1-3,** Approaching and adding silk wrap to the salticid (at center). **4-12,** *Oecobius* running around the salticid in a counter-clockwise direction, adding silk wrap to its captive.



Figure 4 (continued from previous page). *Oecobius* capturing a small salticid spider on a wall in Bengaluru, Karnataka. Sequential but not consecutive frames from a 25fps video by M. Jithesh Pai. **13-30**, *Oecobius* running around the salticid in a clockwise direction, adding silk wrap to its captive. **31-34**, *Oecobius* rocking and adding silk wrap to the salticid. **35-36**, *Oecobius* running around the salticid in a counter-clockwise direction, adding silk wrap to its captive. At times during this sequence the salticid struggled slightly, but could not escape its bondage.

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