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RESEARCH NOTE

GROUP DISPERSAL IN JUVENILE *BRACHYPELMA VAGANS* (ARANEAE, THERAPHOSIDAE)

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Cutler & Guarisco (1995) summarized the literature accounts of juvenile dispersal by mygalomorph spiders and noted that such observations were rare. None of those reports involved the Theraphosidae because juvenile behaviors associated with dispersal had not been described for this family. This report documents three instances of aggregative juvenile dispersal by theraphosid spiders observed in the Lamanai Archaeological Reserve, Orange Walk District, Belize (17°45′08″N, 88°39′25″W).

On 26 May 1998, and 8–9 June 1999, juvenile *Brachypelma vagans* (Ausserer 1875) were observed in large aggregations and were apparently dispersing from their natal burrows in a manner not previously described for any spider. Only one other large theraphosid occurs in the area, *Crassicrus lamanai* Reichling & West 1996, and juveniles of this species are distinguished by their uniform light gray color, as opposed to juvenile *B. vagans* which are pale with a black spot on the abdomen. In addition, *C. lamanai* prefers cleared habitat and is rare in dense forest where these observations were made. Each encounter took place at night between 2015–2115 h on a dirt road leading into old growth secondary forest. In each instance, groups of spiderlings (numbering 72, 76, and 135 respectively) were walking in single file, forming a line which slowly snaked its way along the road. From a distance the processions resembled a column of ants, and the largest of these aggregations formed a line 1.09 m in length (Fig. 1). The spiders maintained close proximity to one another while walking, often lightly touching the abdomen of the individual ahead of them with their front legs. The spiderlings were observed for 8–12 m as they moved diagonally across the road and into the vegetation. A thorough daytime search of the surrounding area revealed that the nearest burrows occupied by adult *B. vagans* were ~50 m from the site where the June observations were made.

The spiders were disturbed by the direct beam of a flashlight; or if approached too closely, they stopped their progression and scattered slightly. Once the disturbance ceased they reassembled in single file and proceeded as before. On two occasions road dust was sprinkled across the spiderlings' path in a small gap which had formed in the line. When they reached the road dust the spiderlings stopped and began milling about as the ones ahead of them continued on their way. After a minute, the spiderlings began moving in the same general direction as before and appeared to recapture the trail beyond the dust.

The tarantula occupying the front of the line changed frequently. As the leading spider took a slight turn to the left or right, the spider behind it would move ahead and take over the lead while the previous leader would insert itself farther back in line. This replacement of the leading spider occurred every 7–10 cm.

Terrestrial theraphosid spiders often occur in dense, local aggregations, with burrows abundant in some locations but absent in adjacent sites which represent similar habitat (Baerg 1958). These assemblages exhibit underdispersed distribution patterns, with nearest neighboring burrows in closer proximity than would be predicted by chance alone (Reichling 1999). Some fossorial lycosids also occur in clusters. *Geolycosa xera archboldi* McCrone 1963, a sandhill endemic of central Florida, typically disperse less than one meter

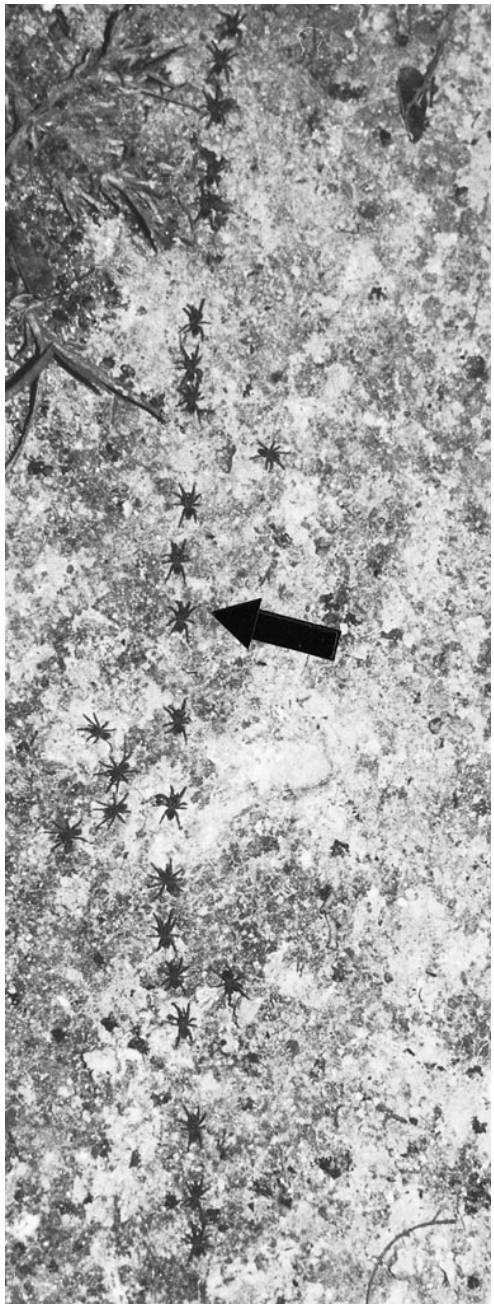

Figure 1.—Line of juvenile *Brachypelma vagans* (arrow) moving across a dirt road in the Lamanai Archaeological Reserve, Orange Walk District, Belize. Some spiderlings have scattered due to the beam of a flashlight.

from their maternal burrow and settle within one hour, leading Marshall (1995) to propose that the burrow aggregations characteristic of this taxon are due to highly restricted juvenile dispersion distances. This mechanism does not appear satisfactory for explaining theraphosid aggregations in light of the considerable distance from potential maternal burrows that dispersing *B. vagans* were seen.

The observations described here suggest a plausible explanation for the clustered spatial patterns of theraphosid spiders. With the exception of mature males, terrestrial theraphosids are rarely observed far from their burrow, and it is likely that an individual's burrow site remains close to the location where it was first established by the juvenile. If the mass movement of single clutches of *B. vagans* continues until the juveniles settle and establish residence, it would result in the aggregations characteristic of tarantulas in Belize and elsewhere. The hypothesis that these clusters are composed primarily of siblings can be tested.

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