

RE: The citation to my work on sierra dome spider male-male contests in, Elwood, R.W. and Arnott, G. 2012. Understanding how animals fight using Lloyd Morgan's canon. *Animal Behavior* 84, 1095-1102.

Elwood and Arnott (2012) write:

“Finally, when spiders hold out their legs in prefight displays the view of the opponent's legs will be very different to the focal animal's view of its own legs (Keil & Watson 2010). In these cases the animal will not have information about both displays and thus cannot judge relative magnitude.”

Ugg.

After observing and publishing on the wonderfully complex fighting behavior of male sierra dome spiders (*Neriene litigiosa*: Linyphiidae) for over 30 years, is this the best that these well-known experts on fighting behavior can come up with? That's very annoying. The actual fighting behavior of sierra dome males has long been detailed in many of my papers.

I cannot help wondering how many other examples of animal fighting are grossly misrepresented, in a way that supports the authors' conclusions by the way, in this potentially influential review article.

In their convenient two-sentence virtual dismissal of one of the coolest and well-studied male-male assessment systems in nature (OK, yes, I'm both proud and angry – you may wish to take that into account if you read on), Elwood and Arnott are referring, only to phase one of sierra dome spider fighting. There actually are three potential fighting phases, two “ritualized” and one non-ritualized (i.e., the third involving full-on deadly combat). Escalation occurs contingently based on at least several factors, especially if the opponents are closely matched in body mass (within 15-20%), which is not uncommon in nature.

Moreover, Elwood and Arnott write, ludicrously, as if phase one entails a display in which a visual size comparison might be made by the opponents. I've never suggested this anywhere, knowing, as should the authors, that Linyphiid spiders, like spiders of many other taxa, have rudimentary vision. Instead, they live in a world primarily based on unimaginably fine chemical, tactile, and vibrational senses. **Phase one assessments primarily are based on vibrational and, maybe, very delicate and safely delivered tactile information.**

Anyway, to clarify what happens in phase one assessment displays of sierra dome spiders, as I've apparently confused these authors and so perhaps others, the two males come face-to-face, within 1-3 mm of each other, and spread their front legs almost straight out to their sides. They then pluck the web with the tips of these outstretched front legs. While the display sends plenty of vibrational information for a size comparison to be made on the basis of relative front leg lengths, the tips of the legs also may make light momentary contacts, adding direct tactile information.

Simultaneously, other legs are plucking the web, especially the third pair, which evidently sends vibrational information about mass, ferocity, determination, and strength. Males vary a great deal

in how vigorously they perform this largely and often entirely non-contact VIBRATIONAL display.

It is distressing that Elwood and Arnott fail to mention phase two fighting, a highly ritualized full-contact wrestling match, because even if it were true that an RHP comparison could not be made during phase one, it obviously a very rich one could be accomplished in phase two.

While scientists certainly cannot abandon Occam's razor as an objectifying influence, if we assign it too great a role it can make the world seem dull place, which it isn't. Certainly, pursuing simple explanations just by ignoring complex details of natural phenomena, as these authors seem to have done here at least in the case of sierra dome spiders, is counterproductive. Hey. If you are interested in studying the potentially sophisticated multi-factorial assessments that fighting arthropods may be performing, don't let this paper, which claims that they are just too stupid for that kind of thing, discourage you.

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