

October 1985

A New Host Family for *Lyroda Subita* (Hymenoptera: Sphecidae)

Frank E. Kurczewski
College of Environmental Science and Forestry

Margery G. Spofford
College of Environmental Science and Forestry

Follow this and additional works at: <https://scholar.valpo.edu/tgle>



Part of the [Entomology Commons](#)

Recommended Citation

Kurczewski, Frank E. and Spofford, Margery G. 1985. "A New Host Family for *Lyroda Subita* (Hymenoptera: Sphecidae)," *The Great Lakes Entomologist*, vol 18 (3)
DOI: <https://doi.org/10.22543/0090-0222.1535>
Available at: <https://scholar.valpo.edu/tgle/vol18/iss3/5>

This Peer-Review Article is brought to you for free and open access by the Department of Biology at ValpoScholar. It has been accepted for inclusion in *The Great Lakes Entomologist* by an authorized administrator of ValpoScholar. For more information, please contact a ValpoScholar staff member at scholar@valpo.edu.

**A NEW HOST FAMILY FOR *LYRODA SUBITA*
(HYMENOPTERA: SPHECIDAE)**

Frank E. Kurczewski and Margery G. Spofford¹

ABSTRACT

Lyroda subita, a sphecid that ordinarily stocks its cells with Gryllidae, is reported provisioning a two-celled nest in upstate New York with Tridactylidae. The structure of the nest, depth of cells, stages of wasps, and degree of paralysis of the prey are described.

In 1984 Evans and Hook reported on an undescribed species of *Lyroda* from Australia that preys upon Tridactylidae. This record is remarkable because species of *Lyroda* ordinarily capture Gryllidae (Evans 1964, Kurczewski and Peckham 1982) or Tetrigidae (Iwata 1938, 1963, 1964; Tsuneki and Iida 1969). Furthermore the hunting components of sphecids that capture Tridactylidae are unique (Krombein and Kurczewski 1963, Kurczewski 1966a, Kurczewski and Kurczewski 1984), and such a tridactylid-hunting species of *Lyroda* would have to alter its manner of searching for prey in contrast to the more basic prey searching components exhibited by the gryllid- and tetrigid-hunting species. Previously only two genera of Sphecidae, *Tachytes* and *Gastrosericus*, both in the subfamily Larrinae, were known to contain species that prey upon Tridactylidae (summary in Bohart and Menke [1976]), and now another larrine genus, *Lyroda*, represents a third.

On 20 July 1984, in a man-made sand pit near Owasco Lake on the outskirts of Auburn, Cayuga County, New York we were astonished to observe a female of *Lyroda subita* (Say) provisioning with Tridactylidae. The wasp with prey flew into an abandoned *Cerceris fumipennis* Say entrance. The burrow was traced obliquely downward to a depth of 7 cm. A few centimeters to the side at a depth of 10 cm we found two fully-provisioned cells of *L. subita* separated by 2-3 cm of sand. The oldest cell contained a large larva and the remains of several Tridactylidae. The most recent cell held a small larva and four adult *Neotridactylus apicalis* (Say) (det. I. J. Cantrall, Museum of Zoology, The University of Michigan). The pygmy mole-crickets were rather thoroughly paralyzed in contrast to stored prey of *Tachytes intermedius* (Viereck) and *T. mergus* (Fox) which often leap from the cell when unearthed (Krombein and Kurczewski 1963, Kurczewski and Kurczewski 1984). Because *L. subita* is a larger species it may inject relatively more venom into its small prey.

The use of Tridactylidae as prey by *L. subita* is surprising when one considers that this sphecid has been studied in some detail by Patton (1892), Peckham and Peckham (1898), Evans (1964) and Kurczewski and Peckham (1982), and, in all cases, the prey comprised Gryllidae. Kurczewski and Peckham (1982), for example, recorded 67 individual gryllid prey in their study on *L. subita*. In our current study of sphecid wasps and their cleptoparasitic miltogrammine flies we have observed an additional 65 gryllid prey items from *L. subita* cells and provisioning females.

The use of atypical prey by species of solitary wasps is indeed a rarity. Evans's (1948) record of *Anoplius marginatus* (Say) (Pompilidae) capturing a harvestman and Kurczewski's (1966b) observation of *Tachysphex terminatus* (Smith) (Sphecidae) storing false katydids exemplify the capture of atypical prey by common, well-studied species of

¹Department of Environmental and Forest Biology, College of Environmental Science and Forestry, Syracuse, NY 13210.

wasps. Kurczewski (1966b) attributed the use of false katydids, instead of the usual acridid prey, to a scarcity of grasshopper nymphs of suitable size at a particular time of year. One record of *Ammophila azteca* Cameron, a species which usually uses lepidopterous and sawfly larvae, storing larval weevils is also exceptional (Evans 1965). Evans believed that caterpillars are the "preferred" prey of *A. azteca* but that sawfly or, rarely, weevil larvae may be taken when caterpillars are in "short supply." According to Evans (1963), wasps do not normally "make mistakes" in capturing prey. The prey taken by a wasp may vary over time from cell to cell, indicating that one source of prey has been exhausted and another has been found, but a sudden drastic switch to an atypical family of prey is highly unusual.

The reason for the female of *L. subita* storing Tridactylidae is unknown but this observation is certainly unique in view of the fact that 14 conspecifics nesting at this locality preyed entirely upon gryllids and that both adult and nymphal gryllids were plentiful under fallen bark, in cavities in the soil, and in grasses at the edge of a field. The *L. subita* female probably unearthed the pygmy mole-crickets; exactly how remains a mystery. Did she excavate them with her mandibles in the manner of *Tachytes intermedius* and *T. mergus*, or did she obtain them in some other way? Perhaps the answer will never be known in view of this rare occurrence.

LITERATURE CITED

- Bohart, R. M. and A. S. Menke. 1976. Sphecids of the world. A generic revision. Univ. California Press, Berkeley. ix + 695 pp.
- Evans, H. E. 1948. Biological notes on two species of *Anoplius* (Hymenoptera: Pompilidae). Entomol. News 59:180-184.
- . 1963. Predatory wasps. Sci. Amer. 208:145-154.
- . 1964. The classification and evolution of digger wasps as suggested by larval characters. Entomol. News 75:225-237.
- . 1965. Simultaneous care of more than one nest by *Ammophila azteca* Cameron. Psyche 72:8-23.
- Evans, H. E. and A. W. Hook. 1984. Nesting behaviour of a *Lyroda* predator (Hymenoptera: Sphecidae) of *Tridactylus* (Orthoptera: Tridactylidae). Australian Entomol. Mag. 11:16-18.
- Iwata, K. 1938. On the habits of some Larridae in Japan. Kontyû 12:1-13.
- . 1963. Miscellaneous biological notes on aculeate Hymenoptera in Kagawa in the years of 1948 and 1949. Trans. Shikoku Entomol. Soc. 7:114-118.
- . 1964. Bionomics of non-social wasps in Thailand. Nat. Life Southeast Asia 3:323-383.
- Krombein, K. V. and F. E. Kurczewski. 1963. Biological notes on three Floridian wasps (Hymenoptera, Sphecidae). Proc. Biol. Soc. Washington 76:139-152.
- Kurczewski, F. E. 1966a. Behavioral notes on two species of *Tachytes* that hunt pygmy mole-crickets (Hymenoptera: Sphecidae, Larrinae). J. Kansas Entomol. Soc. 39:147-155.
- . 1966b. *Tachysphex terminatus* preying on Tettigoniidae—an unusual record (Hymenoptera: Sphecidae, Larrinae). Ibid. 39:317-322.
- Kurczewski, F. E. and E. J. Kurczewski. 1984. Mating and nesting behavior of *Tachytes intermedius* (Viereck) (Hymenoptera: Sphecidae). Proc. Entomol. Soc. Washington 86:176-184.
- Kurczewski, F. E. and D. J. Peckham. 1982. Nesting behavior of *Lyroda subita* (Say) (Hymenoptera: Sphecidae). Ibid. 84:149-156.
- Patton, W. H. 1892. Notes upon Larradae. Entomol. News 3:89-90.
- Peckham, G. W. and E. G. Peckham, 1898. On the instincts and habits of the solitary wasps. Wisconsin Geol. Natur. Hist. Surv., Sci. Ser., Bull. 2:1-245.
- Tsuneki, K. and T. Iida. 1969. The biology of some species of the Formosan Sphecidae, with descriptions of their larvae. Etizenia 37:1-21.