

SHORT COMMUNICATION

A NEW SUBSPECIES OF *PHILODROMUS RUFUS* (ARANEAE, PHILODROMIDAE)

Bruce Cutler: Department of Ecology and Evolutionary Biology, University of Kansas, 1200 Sunnyside Avenue, Lawrence, Kansas 66045-7534 USA. E-mail: bcutler@ku.edu

ABSTRACT. A new subspecies of *Philodromus rufus*, *P. r. jenningsi* is described from the south central and southeastern United States. It is characterized by a light brown unicolorous carapace, except for dark semicircular marks at the central rear carapace edge.

Keywords: *Philodromus rufus jenningsi*, crab spider, philodromid

The *Philodromus rufus* species-complex consists of 23 related species in America north of Mexico. Two species, *Philodromus exilis* Banks 1892, and *P. rufus* Walckenaer 1826, are very similar morphologically. Further, *P. rufus* comprises three subspecies in this region, and others in the Palearctic (Dondale & Redner 1968). About a decade ago it became apparent that an undescribed *Philodromus* occurred in northeastern Kansas. While genitally indistinguishable from *P. rufus*, its color pattern was strikingly different from that of any member of the *P. rufus* group, and is closer to that of some members of the *P. aureolus* group, such as *P. keyserlingi* Marx 1890. More specimens have become available since then from the south central and south-eastern parts of the United States. Because the genitalia are identical to those of the other subspecies of *P. rufus*, and the males vibrate the front legs during courtship, it is appropriate to describe this taxon as a subspecies, since the currently known distribution is allopatric to that of any of the other subspecies. I wish to acknowledge Hank Guarisco, Lawrence, Kansas and Jamel Sandidge, Department of Ecology and Evolutionary Biology, University of Kansas who collected specimens of this subspecies and shared information with me, and Daniel T. Jennings, Garland, Maine who sent specimens of *P. exilis* and *P. rufus vibrans* Dondale 1964, for comparative study.

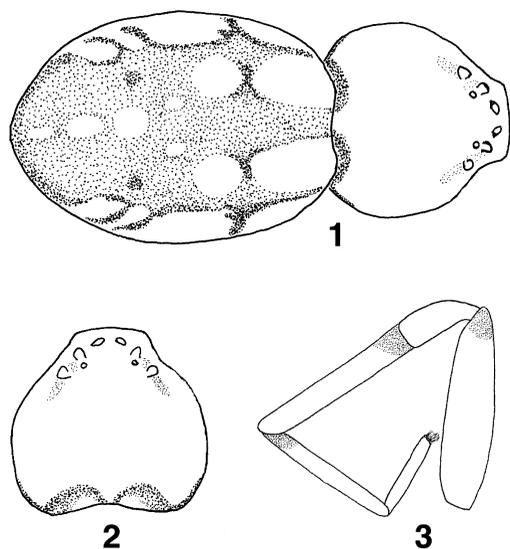
Philodromus rufus jenningsi new subspecies
Figs. 1–4

Material examined.—Holotype male: U.S.A.: KANSAS: *Douglas County*, Lawrence, University of Kansas, West Campus, 28 April 1995, B. Cutler, beating *Juniperus virginiana* L., deposited in Florida State Collection of Arthropods (FSCA), Gainesville, Florida.

Paratypes: All with same locality and habitat data as the holotype: 1♀, same data as holotype (deposited in FSCA); 1♂, 8 April 1995, matured 13 April 1995 (deposited in the American Museum of Natural History, New York (AMNH)); 1♀, 8 April 1995, matured 24 April 1995 (deposited in AMNH); 1♂, 28 April 1995 (deposited in the National Museum of Natural History, Washington, DC (NMNH)); 1♀, 2 April 1995, matured 17 April 1995 (deposited in NMNH); 1♂, 28 April 1995 (deposited in Museum of Comparative Zoology, Harvard University (MCZ)); 1♀, 8 April 1995, matured 18 April 1995 (deposited in MCZ); 1♂, 2 April 1995, matured 12 April 1995 (deposited in the Canadian National Collections, Ottawa (CNC)); 1♀, 2 April 1995, matured 16 April 1995 (deposited in CNC).

Other material examined: USA: ARKANSAS: Lonoke County, Prairie County; GEORGIA: Forsyth County (in winter webs of *Anelosimus studiosus* (Hentz 1850)); KANSAS: Douglas County (10 males and 17 females, same locality data as holotype, a few from woody vegetation other than *J. virginiana*), Jefferson County, Shawnee County; MISSISSIPPI: Lafayette County, Madison County, Marshall County (in winter webs of *A. studiosus*); NORTH CAROLINA: Gaston County (in winter webs of *A. studiosus*). Specimens in collections of the author, Hank Guarisco, and Daniel T. Jennings. Unless mentioned all were from *J. virginiana*.

Etymology.—This taxon is named for Dr. Daniel T. Jennings of Garland, Maine, USDA, Forest Service Insect Ecologist, retired. A well known spider ecologist and expert on crab spiders, and long time friend and colleague of the author, who first recognized these spiders as new.



Figures 1–3.—*Philodromus rufus jenningsi* new subspecies, female: 1. Dorsal view of prosoma and opisthosoma; 2. Dorsal view of prosoma; 3. Prolateral view of leg I.

Diagnosis.—The genitalic characters easily place this taxon in the *P. rufus* species complex. It may be distinguished from all other members of the complex by the solid light brown carapace with almost no markings except for the dark brown semicircular marks at the rear of the carapace, see Fig. 2. In the key to species and subspecies of the *P. rufus* group in Dondale and Redner (1968), this subspecies keys to couplet 3 where the color pattern does not match. Similarly in Dondale and Redner (1978) this subspecies keys to couplet 21 where again the color pattern does not match.

Description.—*Male*: Carapace 1.48 ± 0.11 (range 1.29–1.68) mm long and 1.47 ± 0.08 (range 1.25–1.58) mm wide; femur II 2.08 ± 0.25 (range 1.39–2.34) mm long (15 specimens). Carapace uniform light brown with two dark semicircular marks at rear center (Fig. 2). Legs I–III brown with dark speckling at distal end of femur, and at proximal ends of tibia and metatarsus (Fig. 3). Leg IV uniform light brown. Dorsum of opisthosoma in well marked individuals with a complex pattern (Fig. 1).

Female: Carapace 1.58 ± 0.13 (range 1.42–1.91) mm long and 1.52 ± 0.08 (range 1.32–1.62) mm wide; femur II 1.99 ± 0.17 (range 1.68–2.18) mm long (15 specimens). Coloration as in male but more clearly demarcated. Genitalia and leg spination as in other subspecies, see Dondale and Redner (1968). As in other subspecies of *P. rufus* males vibrate the first two pairs of legs during courtship and most habitat records are from woody vegetation.

Distribution.—The range of this subspecies

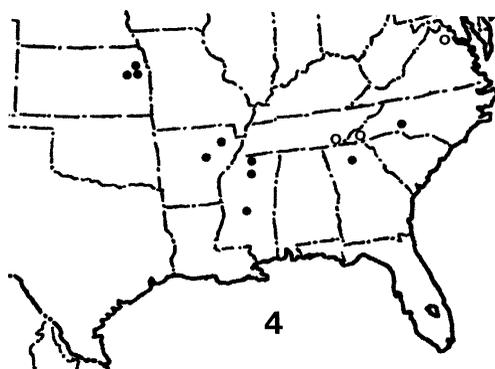


Figure 4.—Distribution of *Philodromus rufus jenningsi* in the south central and southeastern United States (filled circles); open circles are localities for *P. r. vibrans* from Dondale & Redner (1968).

(Fig. 4) is allopatric to all other known subspecies of *P. rufus* except in North Carolina. *P. rufus vibrans* occurs in the Smoky Mountains in the extreme southwestern part of that state, but at a higher elevation, not at the lower elevations where *P. rufus jenningsi* was taken.

Natural History.—Collector bias is marked in the records of *P. r. jenningsi*. Most records are from *J. virginiana*, because of the interest of the author and H. Guarisco in spiders from this conifer. The records from webs of the social theridiid spider *Anelosimus studiosus* resulted from the interest of Jamel Sandidge in that species. There are a few records from beating and sweeping broad-leaved shrubs and trees, and it is expected that, as in the other subspecies, *P. r. jenningsi* will be found to occur on woody vegetation throughout its range. In the laboratory, specimens of the later instars feed readily on species of *Drosophila* and other small insects and can easily be reared to maturity in small Petri dishes (55 mm in diameter by 15 mm tall). Courtship and mating observations were conducted in plastic tissue culture dishes 100 mm in diameter by 20 mm tall.

Courtship was initiated by males approaching females and rapidly vibrating the first and second pair of legs, see Dondale (1964) for details. Egg sacs made as a result of these laboratory matings were lenticular, about 10 mm in diameter, and attached to the surfaces of the Petri dishes. Up to three egg sacs may be made by mated females with the number of eggs decreasing in successive egg sacs. For the first egg sac, the mean number of eggs per sac was 16.6 ± 3.8 , range 12–25 (15 egg sacs).

Attempts were made to assess fertility as a result of matings between specimens of *P. r. jenningsi* and specimens from two populations of *P. r. vibrans* (MAINE: Penobscot County and MINNESOTA: Ramsey County). There were some cross

population matings, but the numbers were low and resulted in few fertile eggsacs. Future attempts using larger cages such as those utilized by Dondale (1964) may be more productive.

Remarks.—Pattern intensity varies considerably in *P. r. jenningsi*. Well-marked specimens resemble those in Figs. 1–3. Other individuals have the pattern reduced. Extreme reduction results in a loss of all pattern, except for the dark semicircular marks at the rear of the carapace. Immature specimens of *P. r. jenningsi* closely resemble immature specimens of *P. keyserlingi*, and both are found on foliage of *J. virginiana*. Except for the earliest instars, specimens of the latter species have a thin black margin around the carapace which is lacking in the former species, except at the very rear of the carapace.

LITERATURE CITED

- Dondale, C.D. 1964. Sexual behavior and its application to a species problem in the spider genus *Philodromus* (Araneae: Thomisidae). *Canadian Journal of Zoology* 42:817–827.
- Dondale, C.D. & J.H. Redner. 1968. The *imbecillus* and *rufus* groups of the spider genus *Philodromus* in North America (Araneida: Thomisidae). *Memoirs of the Entomological Society of Canada* 55, 78 pp.
- Dondale, C.D. & J.H. Redner. 1978. The Insects and Arachnids of Canada; part 5. The crab spiders of Canada and Alaska. Araneae: Philodromidae and Thomisidae. Agriculture Canada, Publication 1663, 255 pp.

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