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Nukuhiva Berland, 1935 is a troglobitic wolf spider (Araneae: Lycosidae), not a nursery-web spider (Pisauridae)

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Abstract

The monotypic genus *Nukuhiva* Berland, 1935 with *N. adamsoni* (Berland, 1933) as type species, is re-described and transferred from the Pisauridae Simon, 1890 (fishing or nursery-web spiders) to the Lycosidae Sundevall, 1833 (wolf spiders) based on genitalic and somatic characters. *Nukuhiva adamsoni*, originally described from French Polynesia, appears to inhabit mountainous habitats of volcanic origin. Its troglobitic morphology—comparatively small eyes and pale, uniform coloration—suggest it to be associated with subterranean habitats such as caves or lava tubes, similar to the Hawaiian troglobitic species *Lycosa howarthi* Gertsch, 1973 and *Adelocosa anops* Gertsch, 1973.

Key words: Lycosinae, subterranean, troglomorphy

Introduction

Obligatory (troglobitic) and facultative (troglophilic) inhabitants of caves and other subterranean systems are common in spiders world-wide (Deeleman-Reinhold & Deeleman 1980; Harvey *et al.* 1993). They occur in many taxa, including mygalomorph (Gertsch 1982; Main 1993) and many araneomorph families, both hunting (Gray 1992; Paquin & Dupérré 2009) or web-building (Lehtinen & Saaristo 1980). A number of higher taxa are renowned for their subterranean tendencies, such as the Nesticidae Simon, 1894 (Lehtinen & Saaristo 1980) or Pholcidae C. L. Koch, 1850 (Peck & Finston 1993), or the genus *Troglohyphantes* Joseph, 1881 within the Linyphiidae Blackwall, 1859 (Deeleman-Reinhold 1978). The recent description of a whole new cave-inhabiting spider family (Griswold *et al.* 2012) shows that there remains much to be learned on subterranean spiders.

Subterranean spiders, in particular troglobites, often display varying degrees of morphological adaptations to a life in eternal darkness, i.e. enlargement of sensory and ambulatory appendages, reduction or lack of pigment in the integument, and reduction or loss of the eyes (Bloom *et al.* 2014; Langecker 2000). Two hypotheses aim to explain the evolution of troglobites, i.e. the Climatic Relict Hypothesis and the Adaptive Shift Hypothesis (Cardoso & Scharff 2009). Both assume divergence from terrestrial ancestors and it is therefore not surprising that most cave-dwelling spiders have congeneric relatives living on the surface. Examples with well-resolved taxonomy are documented from limestone caves in Texas in the dictynid genus *Cicurina* Menge, 1871 (Paquin & Dupérré 2009; Hedin 2015) and Western Australian representatives of the goblin spider genus *Prethopalpus* Baehr, Harvey, Burger & Thoma 2012 (Baehr *et al.* 2012). Subterranean radiations from surface ancestors may occur over vast geographic distances. For example, the symphytognathid *Anapistula* Gertsch, 1941 has subterranean representatives in, amongst other places, Western Australia (Harvey 1998) and Portugal (Cardoso & Scharff 2009). Caution should therefore be taken when diagnosing monotypic subterranean spider genera based on troglomorphic adaptation such as the lack of eyes (Gertsch 1973; Platnick 2008), as these may only be highly apomorphic representatives of terrestrial genera.

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