

## **On the First African Spiders of the Subfamily Molycriinae (Araneae, Prodidomidae)**

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## On the First African Spiders of the Subfamily Molycriniinae (Araneae, Prodidomidae)

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### ABSTRACT

A new genus, *Namundra*, is described to contain the first molycriniine prodidomids found in Africa; the subfamily was previously known only from Australia and two Indo-Pacific islands. As in other molycriniines, the anterior lateral spinnerets are greatly elongated and situated far in advance of the remaining spinnerets. The broad separation between the two anterior lateral spinnerets suggests that *Namundra* may be most closely related to *Wydundra* Platnick and Baehr, the geographically most widespread of the previously known molycriniine genera. Four new species are described: *N. griffinae*, *N. brandberg*, and *N. kleynjansi* from Namibia, and *N. leechi* from Angola.

### INTRODUCTION

The subfamily Molycriniinae contains some of the most striking of all ground spiders, characterized by extraordinarily elongated anterior lateral spinnerets, which originate far in advance of the other spinneret pairs, from near the middle of the abdominal venter (Platnick and Baehr, 2006: figs. 12–17). The group currently comprises six genera and 130 species; all but one of those species are

Australian endemics. The one exception, *Wydundra voc* (Deeleman-Reinhold, 2001), was described from Perhentian Island (off the east coast of Malaysia) and recorded from Lonthoir Island (in the Moluccas).

It was therefore with considerable surprise that, some years ago, we first encountered, among Namibian ground spiders taken in pitfall traps, a few species with similarly elongated anterior lateral spinnerets (figs. 1–3). Such spinnerets are known, outside the

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Molycrriinae, only in one other group, the prodidomine genus *Zimiris* Simon (see Platnick and Penney, 2004). It seems clear, from the structure of the spinneret spigots and other characters, that the Namibian taxa are more closely related to molycrriines than to *Zimiris*. Although too few specimens have been available for examination by scanning electron microscopy, the greatly elongated piriform gland spigots on the anterior lateral spinnerets are easily visible by light microscopy, and they bear only a few, scattered setae near their bases, quite unlike the dense rings of setae surrounding those spigots in prodidomines (see Platnick, 1990: figs. 119, 125, 129; Platnick and Penney, 2004: fig. 17). The African species also lack the characteristically procurved posterior eye row (fig. 1) and at least somewhat enlarged and divergent chelicerae, bearing elongated fangs, that are typical of prodidomines.

Because the vast majority of Australian molycrriines were undescribed, and the number and limits of the genera in the group were unknown, we decided to delay publication on the African species until the Australian fauna could be treated in detail. That monograph has now appeared (Platnick and Baehr, 2006). As expected, the African species have proved to represent a separate genus, but they do appear to be most closely related to one of the Australian genera. Perhaps unsurprisingly, that genus is *Wyndundra* Platnick and Baehr (i.e., the one genus previously known to occur outside of Australia).

In the generic data matrix of Platnick and Baehr (2006: fig. 2), the African spiders would receive the same entries as the two Australian genera *Wesmaldra* Platnick and Baehr and *Wyndundra*, although the tarsal onychium, tarsal cracks, and female palpal spine row are all less pronounced than in the Australian taxa. The wide separation of the two anterior lateral spinnerets is shared only with *Wyndundra* and is even more pronounced than in that genus (compare figs. 2, 3 with Platnick and Baehr, 2006: fig. 13).

We are deeply indebted to the second author's predecessor at the National Museum of Namibia (NMNW), Ms. Eryn Griffin, for first inquiring about these fasci-

nating spiders, on the suggestion of Dr. Charles Griswold (then at the Natal Museum), who had indicated to her that they might be close to *Zimiris* and hence of interest to these long-term projects. We also thank Dr. Griswold, now at the California Academy of Sciences (CAS), for making available to us the prodidomids from that collection, including the new Angolan species described below, and Dr. Mohammad Shadab of the American Museum of Natural History (AMNH) for his help with the illustrations. All measurements are in millimeters.

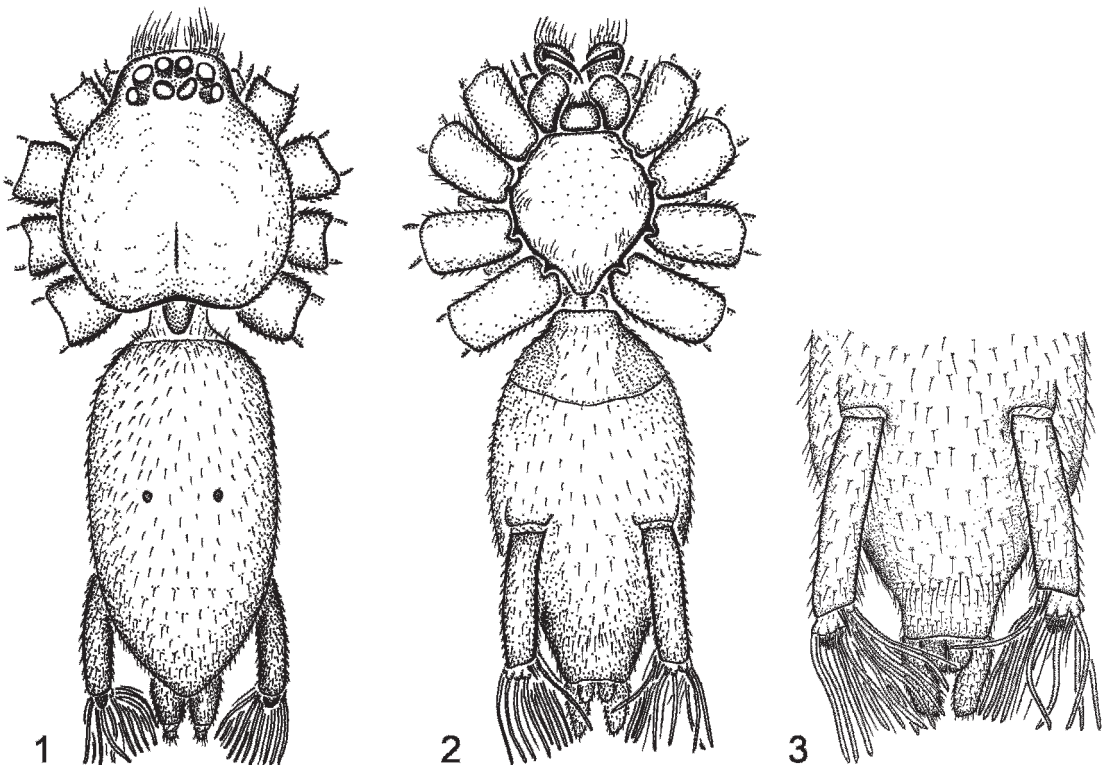
### NAMUNDRA, NEW GENUS

TYPE SPECIES: *Namundra griffinae*, new species.

ETYMOLOGY: The generic name is a contraction of Namibian *Wyndundra*, considered feminine in gender.

DIAGNOSIS: Specimens of this genus will run to *Wyndundra* in the generic key of Platnick and Baehr (2006), because of their widely separated anterior lateral spinnerets (figs. 2, 3). They do not fit that couplet completely, though, as the lateral margins of the carapace are smooth rather than denticulate. Although *Wyndundra* is a diverse genus, containing several species groups with disparate genitalic morphology, members of all those groups lack the elongate median apophysis (fig. 5) found in the males, and the elongate, narrow median epigynal septum (fig. 7) found in the females, of *Namundra*.

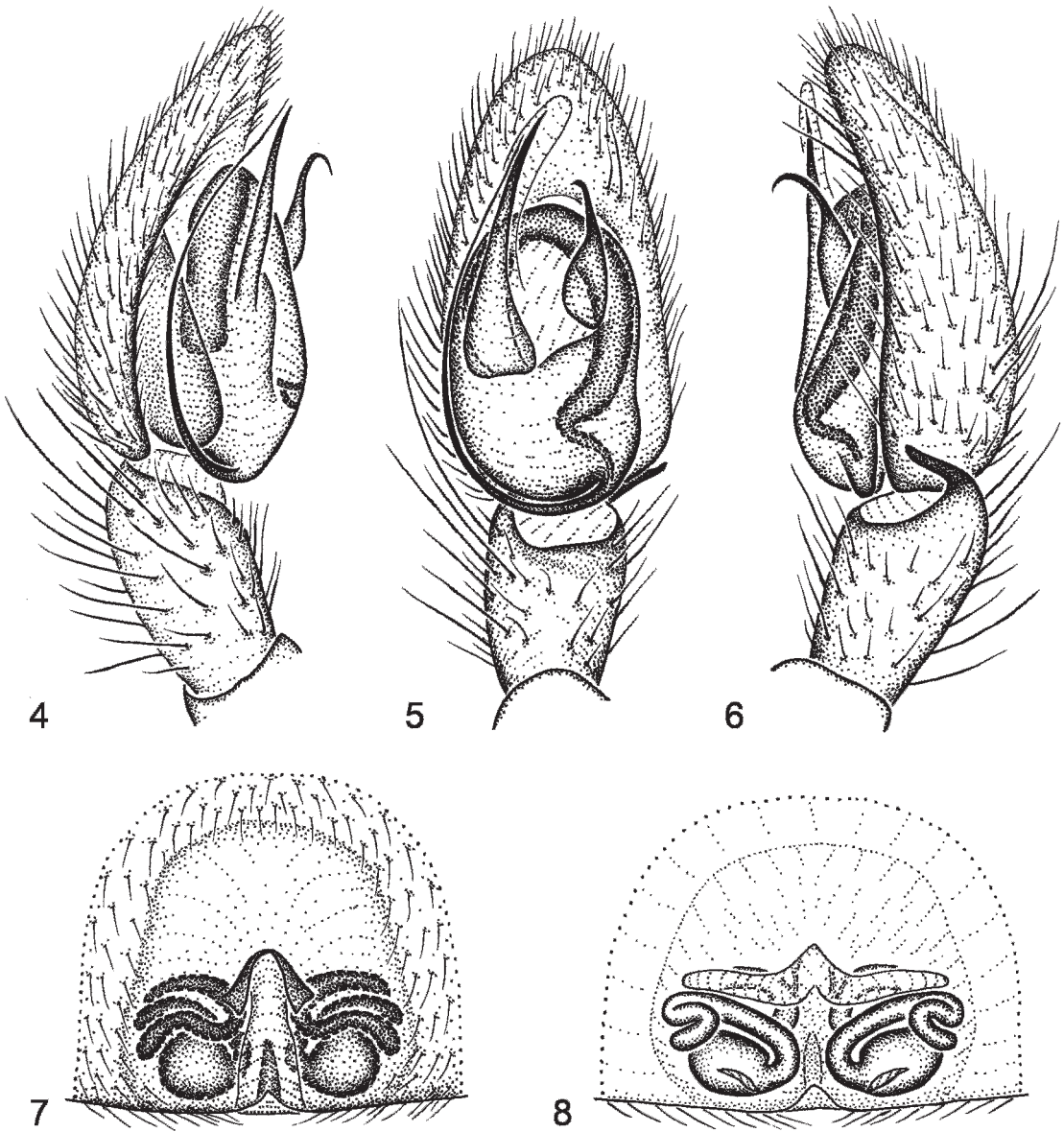
DESCRIPTION: Medium-size spiders, total length ca. 2–5. Carapace rounded, narrowed in front to less than half its maximum width, with rebordered lateral margins, reflexed posterior margin; surface coated with long, recumbent setae, without tubercles; few long, dark, erect setae present on clypeus and along anterior edge of posterior declivity; thoracic groove long, longitudinal, deeply depressed, cephalic grooves shallow. Eight subequal eyes in two rows, anterior medians circular, dark, lateral eyes oval, light, posterior medians irregularly rectangular, flat; from above, both eye rows strongly recurved, from front, anterior row strongly recurved, posterior row slightly procurved; anterior medians separated by less than their diameter, by less than their



Figs. 1–3. *Namundra brandberg*, new species, female. 1. Cephalothorax and abdomen, dorsal view. 2. Same, ventral view. 3. Spinnerets, ventral view.

radius from anterior laterals; posterior medians separated by less than their width, by about their width from posterior laterals; anterior and posterior laterals separated by about their radius; median ocular quadrangle slightly wider in back than in front, longer than wide in back. Chelicerae vertical, paturon with low boss and row of strong, erect setae near midline, promargin with row of short, curved setae, most basal seta greatly elongated, widened, distinctly bent toward midline at about one-fifth its length; promargin and retromargin bare; chilum tiny, unipartite, triangular. Labium wider than long, posteriorly depressed, evenly narrowed toward rebordered, medially shortened anterior margin. Endites rectangular, convergent, with oblique depression; serrula present, straight; anteromedian edges bearing wide patch of long, stiff, dark setae. Sternum shield-shaped, not deeply depressed opposite intercoxal spaces, with strongly rebordered, slightly depressed lateral margins, not expanded anteri-

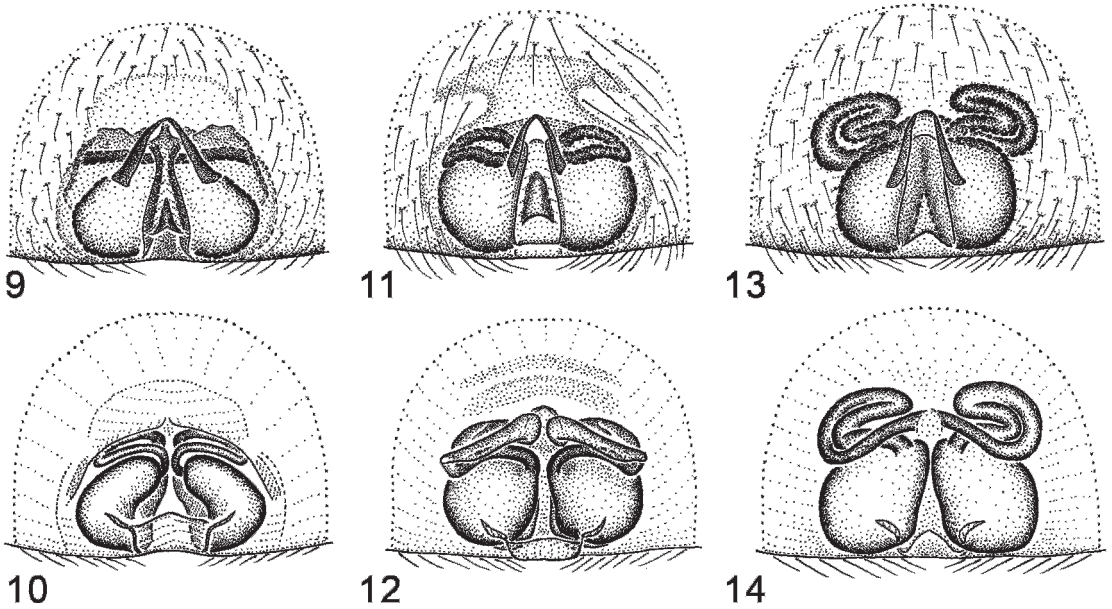
orly, with only indistinct extensions between coxae but with large, triangular extensions to coxae, posterior pairs largest, coxae III, IV with deep invaginations accommodating sternal extensions; surface smooth, with long, thick setae around margins; posterior margin prolonged, widely separating coxae IV. Weakly sclerotized epimeric sclerites on each side, extended slightly between coxae, not fused to carapace. Pedicel composed of two dorsal sclerites (anterior sclerite without posterior invagination) and wide ventral sclerite with distinct sclerotization opposite posterior tip of sternum, only narrowly separated from sternal tip. Abdominal dorsum without anterior scutum in males; cuticle with long, recumbent setae; epigastric scutum weakly sclerotized, without postepigastric sclerites, booklung covers not ridged; colulus apparently absent, posterior spiracle not obvious. Six spinnerets, anterior laterals greatly elongated, equal to roughly half of total abdominal length, greatly advanced anteriorly, originat-



Figs. 4-8. *Namundra griffinae*, new species. 4. Left male palp, prolateral view. 5. Same, ventral view. 6. Same, retrolateral view. 7. Epigynum, ventral view. 8. Same, dorsal view.

ing at position about one-half of distance between epigastric furrow and anal tubercle (fig. 2); anterior laterals with one elongated major ampullate gland spigot and about eight greatly elongated piriform gland spigots (fig. 3), piriform gland spigots apparently not surrounded by circle of setae at their base; posterior medians small, only narrowly sepa-

rated, situated anterior of posterior laterals; posterior laterals bisegmented, about twice as long as posterior medians, those of females with at least three large spigots near tip. Legs elongate, leg formula 4312, coated with recumbent, dark setae; coxae and trochanters IV elongated; coxae and trochanters without dorsal tubercles, anterior coxae without pro-



Figs. 9–14. 9, 10. *Namundra brandberg*, new species. 11, 12. *N. kleynjansi*, new species. 13, 14. *N. leechi*, new species. 9, 11, 13. Epigyna, ventral views. 10, 12, 14. Same, dorsal views.

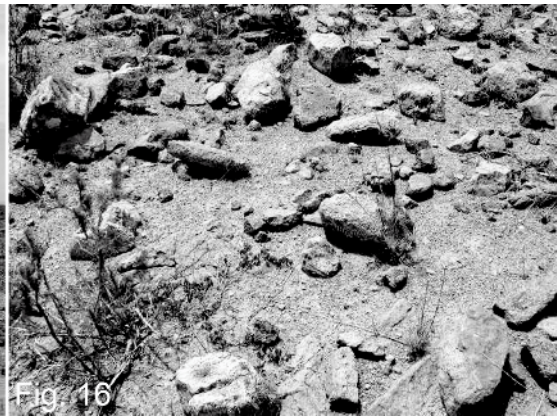
tuberant posterolateral corners; trochanters not notched, with ventral, subdistal rows of erect setae; femora I, II incrassate, much higher than femora III, IV; metatarsi and tarsi I, II with strong ventral scopulae composed of short, straight setae; posterior metatarsi without distal preening brushes; tarsi elongated, with two long claws on onychium, bearing no ventral teeth, weak claw tufts composed of few pairs of distally widened setae; tarsi I, II without, III, IV with few weak cuticular cracks, tarsi not bent at cracks; dorsal surface of tarsi with modified proximal margin consisting of patch of unsclerotized cuticle followed by strong cuticular ridge, that ridge opposing distinct distal extensions situated at distal edge of metatarsi; trichobothria present, in two rows on tarsi and metatarsi, one on tibiae. Female palp long, narrow, femur, patella, tibia, tarsus each with strong spines; female palpal tarsus with long claw bearing few or no ventral teeth, without ventral scopula or dorsal pad of setae, with cluster of short, thick setae near claw. Typical leg spination pattern (counts refer to morphological surfaces, only surfaces bearing spines

listed): femora: I d1-1-0, p1-1-0; II d1-1-0, p1-0-0; III d1-1-1, p0-1-1, r0-1-0; IV d1-1-1, p0-1-1, r0-0-1; tibiae: I, II v0-1p-0; III v1p-1p-2; IV d0-1-0, p0-1-1, v1p-1p-2, r0-1-1; metatarsi: III v0-0-1p; IV p1-0-1, v1p-1p-2, r1-0-1. Male palpal cymbium short, tip conical; palpal tibia short, with distal, bent retrolateral apophysis; tegulum rounded, embolus originating retrobasally, accompanied by triangular terminal apophysis and membranous conductor; median apophysis long, narrowed distally. Epigynum with anterior atrium and posteromedian septum, spermathecae small to large, with long, anterior ducts.

**DISTRIBUTION:** Known only from Namibia and Angola; see below for natural history information.

*Namundra griffinae*, new species  
figures 4–8

**TYPE:** Male holotype taken in pitfall trap in Crusher Dust Area, Rössing Mine Survey, 22°28'S, 15°02'E, Swakopmund Distr., Namibia (Aug. 3–28, 1984; J. Irish, H. Rust), deposited in NMNW (SMN38266).



Figs. 15, 16. Habitat of *Namundra leechi*, new species, in Angola (see text for details).

**ETYMOLOGY:** The specific name is a patronym in honor of Eryn Griffin, who sorted the first known specimens.

**DIAGNOSIS:** This is the only species for which males are known, and the palpal conformation (figs. 4–6) is presumably diagnostic. Females can be distinguished from those of the other species by their much smaller spermathecae (figs. 7, 8).

**MALE:** Total length 2.38. Carapace 1.28 long, 1.18 wide. Femur II 1.21 long. Carapace pale orange, darkest anteriorly; abdomen pale yellow; legs pale orange, unmarked. Leg spination typical for genus except metatarsi IV p1-0-0, r1-0-0. Retrolateral tibial apophysis strongly bent, embolus narrow, originating basally, extending to near tip of cymbium (figs. 4–6).

**FEMALE:** Total length 3.94. Carapace 1.76 long, 1.58 wide. Femur II 2.31 long. Coloration as in male. Leg spination typical for genus except femora III, IV p0-1-0, r0-0-0. Epigynal ducts occupying as much space as relatively small spermathecae (figs. 7, 8).

**OTHER MATERIAL EXAMINED:** **NAMIBIA:** *Swakopmund Distr.:* Crusher Dust Area, Rössing Mine Survey, 22°28'S, 15°02'E, Oct. 23–Nov. 19, 1984, pitfall (J. Irish, H. Rust, NMNW SMN38436), 1♂, Nov. 20–Dec. 18, 1984, pitfall (J. Irish, H. Rust, NMNW SMN38507), 1♀; Dome Gorge, Rössing Mine Survey, 22°28'S, 15°04'E, July 3–30, 1984, pitfall (J. Irish, H. Rust, NMNW SMN38203), 1♂.

**DISTRIBUTION:** Known only from the Rössing Mine area, Namibia.

*Namundra brandberg*, new species  
figures 1–3, 9, 10

**TYPE:** Female holotype taken in a yellow pan trap at an elevation of 700 m in Hungarob Ravine, Brandberg, 21°13'25"S, 14°31'3"E, Omaruru Distr., Namibia (Nov. 2, 1999; K. Meakin), deposited in NMNW (SMN45303).

**ETYMOLOGY:** The specific name is a noun in apposition taken from the type locality.

**DIAGNOSIS:** Females can be distinguished from those of the other known species by their more pea-shaped spermathecae and relatively small epigynal ducts (figs. 9, 10).

**MALE:** Unknown.

**FEMALE:** Total length 4.45. Carapace 1.79 long, 1.54 wide. Femur II 2.06 long. Coloration as in *N. griffinae*. Leg spination typical for genus except femora: I, II p0-0-0, III p0-0-0, r0-0-0; IV p0-0-0; metatarsi IV p0-1-0, r0-1-0. Spermathecae pea-shaped, occupying about three times as much of epigynal length as do ducts (figs. 9, 10).

**OTHER MATERIAL EXAMINED:** **NAMIBIA:** *Omaruru Distr.:* Brandberg-Nuwarib Gorge, 21°02'26.4"S, 14°35'38.4"E, May 6, 2004, pitfall, elev. 620 m (EduVentures 4 Expedition, NMNW), 1 juv., probably this species.

**DISTRIBUTION:** Known only from the Brandberg massif, Namibia.

*Namundra kleynjansi*, new species  
figures 11, 12

TYPE: Female holotype taken in reptile traps at 17°37'S, 12°12'E, Opuwo Distr., Namibia (Oct. 15, 1988; H. Kleynjans), deposited in NMNW (SMN40806).

ETYMOLOGY: The specific name is a patronym in honor of the collector of the type.

DIAGNOSIS: Females resemble those of *N. leechi* in having large, almost rectangular spermathecae, but have shorter epigynal ducts (figs. 11, 12).

MALE: Unknown.

FEMALE: Total length 5.07. Carapace 2.30 long, 2.05 wide. Femur II 2.97 long. Coloration as in *N. griffinae* except anterior portion of carapace only slightly darkened. Leg spination typical for genus. Spermathecae large, almost rectangular, with epigynal ducts restricted to anterior edge of spermathecae (figs. 11, 12).

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Known only from the type locality in northwestern Namibia.

*Namundra leechi*, new species  
figures 13, 14

TYPE: Female holotype taken at an elevation of 900 m at a site 32 miles NE of Vila Arriaga (apparently = Bibala, Namibe, 14°46'S, 13°21'E), Namibe Prov., Angola (May 23, 1958; E. S. Ross, R. E. Leech), deposited in CAS.

ETYMOLOGY: The specific name is a patronym in honor of one of the collectors of the holotype, Dr. Robin Leech.

DIAGNOSIS: Although the holotype was apparently collected only shortly after maturing and is poorly sclerotized, detailed examination of the epigynum (using clove oil and Hoyer's medium) indicates that females resemble those of *N. kleynjansi* in having large, almost rectangular spermathecae, but have longer, anterior folded epigynal ducts (figs. 13, 14).

MALE: Unknown.

FEMALE: Total length 3.56. Carapace 1.19 long, 1.03 wide. Femur II missing. Coloration as in *N. kleynjansi*. Leg spination (legs I, II missing): femora: III p0-1-0, r0-0-0; IV d1-0-1, p0-0-1. Spermathecae large,

almost rectangular, with epigynal ducts folded in three transverse bands anteriorly (figs. 13, 14).

OTHER MATERIAL EXAMINED: ANGOLA: *Namibe Prov.*: 92 km NNE Namibe, 14°30'43.3"S, 12°24'57.0"E, Jan. 13, 2006, hand collected, elev. 425 m (T., C. Bird, NMNW SMN45825), 1 juv., probably this species.

DISTRIBUTION: Known only from southwestern Angola.

#### NATURAL HISTORY

With the possible exception of the holotype of *N. leechi*, all known specimens of these extremely fast-moving spiders were collected from within the driest zones of the Nama-Karoo Biome. Their habitat preference seems to be loose rubble, in areas with little vegetation. Although the records often involve mountains and hills, the animals seem to be found not at higher altitudes but, rather, in the foothills, where loose rubble can be abundant.

Specimens of *N. griffinae* were collected where the Namib plain breaks down into the Khan River valley, on the low side slopes of the gorge and the slopes of low hills. Those of *N. brandberg* were taken in an area with loose basalt rubble at the base of the isolated Brandberg massif, in the mouth of the Hungarob Ravine. A probably conspecific juvenile collected in similar rubble in the climatically harsher Nuwuarib Gorge, on the northern side of the mountain (at an altitude of 620 m) suggests that this species is probably relatively widespread around the lower altitudes of the Brandberg.

The type locality of *N. kleynjansi* is situated near the foot of low mountains flanking the very arid Hartman's Valley. In Angola, the habitat of the juvenile probably belonging to *N. leechi* (collected approximately 100 km west of the type locality) seems typical of the sites seemingly preferred by all members of the genus (figs. 15, 16).

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