

Moiseevichia leyserae, a new genus and new species
of Asteraceae-feeding plant bugs from South Africa
(Heteroptera: Miridae: Phylinae)

Moiseevichia leyserae, новый род и новый вид клопов-слепняков
из ЮАР, питающихся на Asteraceae
(Heteroptera: Miridae: Phylinae)

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KEY WORDS. Miridae, Phylinae, new species, South Africa, Asteraceae.

КЛЮЧЕВЫЕ СЛОВА. Miridae, Phylinae, новый вид, ЮАР, Asteraceae.

ABSTRACT. *Moiseevichia leyserae*, **gen.n.**, **sp.n.**, is described from the Namaqualand Region of South Africa. The taxon is distinguished by the strong sexual dimorphism with abbreviated hemelytra in the female, three types of setae on the dorsum, the very long slender right paramere, and the habitat of feeding on species of Asteraceae.

РЕЗЮМЕ. *Moiseevichia leyserae*, **gen.n.**, **sp.n.**, описан из области Намакваленд в ЮАР. Этот таксон отличается выраженным половым диморфизмом, в частности укороченными надкрыльями самки, а также тремя типами волосков на дорсальной поверхности, очень длинным и тонким правым парамером и питанием на однолетних видах сложноцветных (Asteraceae).

Introduction

Recent collecting in Namaqualand in the Western and Northern Cape provinces of South Africa has revealed that the fauna of the region is much more diverse than the existing literature [Schuh, 1974] would suggest. The present paper includes the description of the *Moiseevichia leyserae*, **gen. n. sp. n.**, which is known to feed only on species of Asteraceae.

The taxon is named in honor of I.M. Kerzhner, who during a long and distinguished career at the Zoological Institute, Russian Academy of Sciences, St. Petersburg, has made singular contributions to our knowledge of the Palearctic Heteroptera, particularly the Miridae, and to the Nabidae worldwide. Dr. Kerzhner's dedication, unrivaled breadth of knowledge, and great personal and professional generosity have had an enduring impact on my career and those of many others. It is with great pleasure that I dedicate the descrip-

tion of this taxon to him on the occasion of his 70th birthday.

Matrix code labels were affixed to specimens examined during the course of this project. They take the form AMNH_PBI 00094810, and are so listed as part of the specimens examined section of the paper. Further information such as color photographs, host images, collecting site images, specimens dissected, and specimens photographed can be found on the Plant Bug Planetary Biodiversity Inventory web site [<http://research.amnh.org/pbi>].

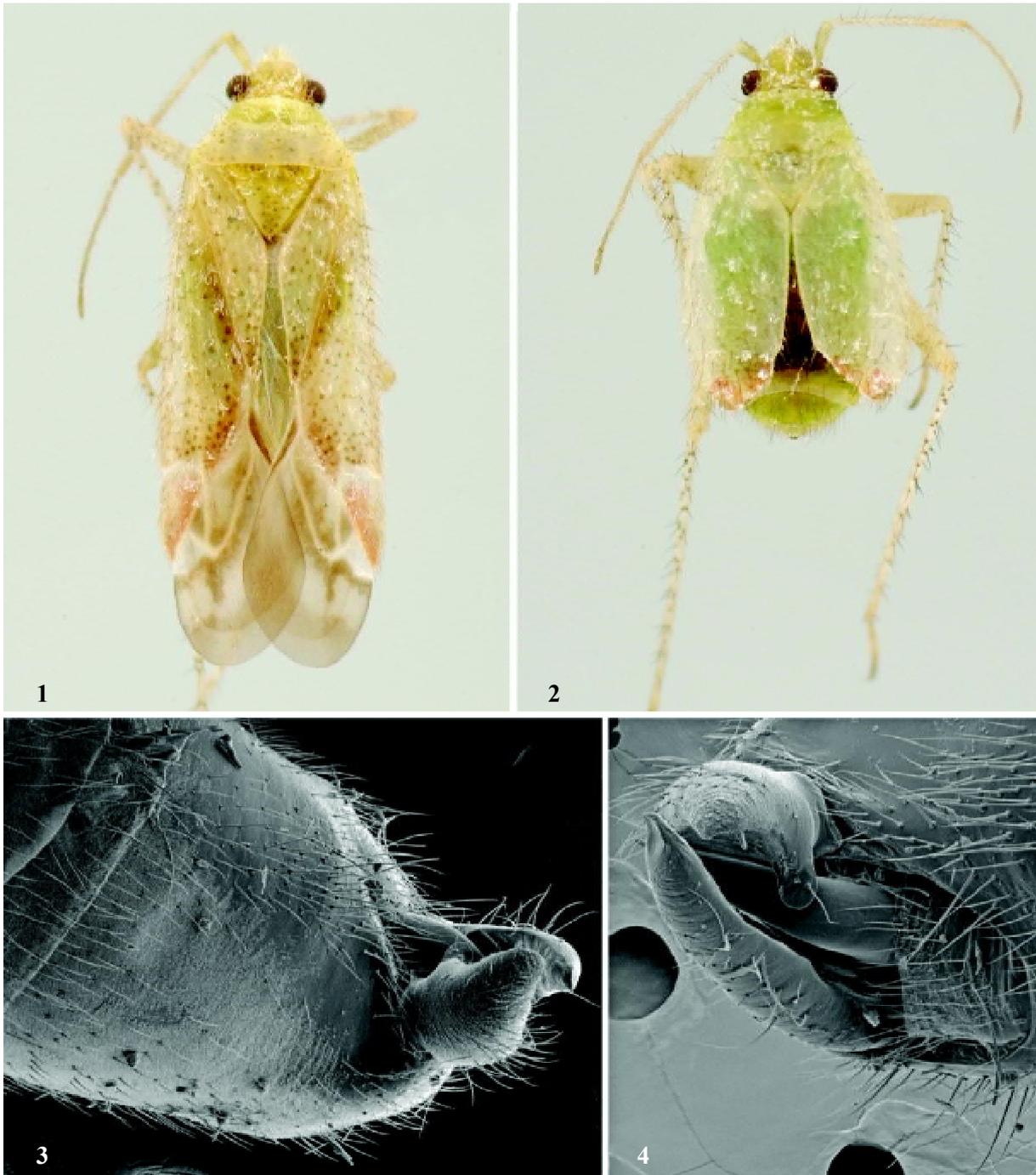
Systematic part

Moiseevichia Schuh **gen.n.**

TYPE SPECIES. *Moiseevichia leyserae* Schuh, **sp.n.**

DIAGNOSIS. Recognized by the strong sexual dimorphism, the males being long, slender, and parallel sided, the females being broadly ovate, strongly brachypterous, with the apex of the abdomen exposed (Fig. 2). Vestiture of dorsum with three types of setae: long, dark, scattered, erect, bristlelike setae, reclining, weakly-shining, pale setae, and patches of silvery, woolly setae (Figs 1–2, 5, 7–8). Appendages long. Right paramere in male large, elongate, attenuated, and overlapping entire length of left paramere in repose (Figs 4, 11–12).

Unlike other known taxa from southern Africa in type of sexual dimorphism, vestiture, and structure of the male genitalia. Long antennae reminiscent of many Orthotylinae. Somewhat similar to *Stoebea* Schuh from South Africa in overall appearance and coloration, but that taxon lacking strong sexual dimorphism and with dissimilar genitalic structure in the males. *Orthonotus* Stevens (Phylini) from the Palearctic shows strong sexual dimorphism, but is unlike *Moiseevichia* in all other respects. In many Australian taxa — all undescribed — the left paramere extends well beyond the margin of the pygophore, a situation not seen in the Holarctic fauna.



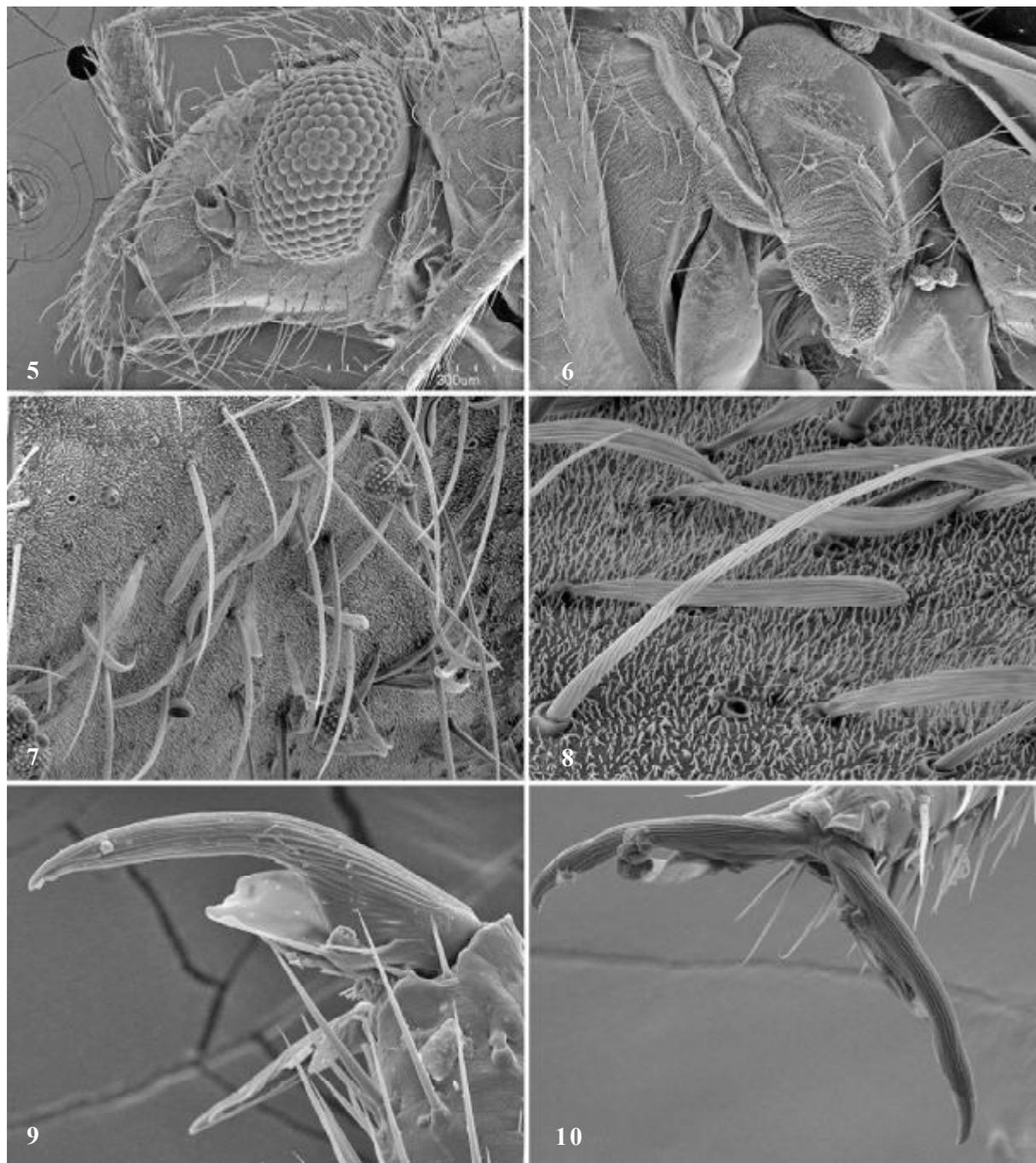
Figs 1–4. *Moseevichia leyserae* sp.n.: 1 — habitus view, male; 2 — habitus view, female; 3 — lateral view of genital capsule; 4 — dorsal view of genital capsule.

Рис. 1–4. *Moseevichia leyserae* sp.n.: 1 — внешний вид, самец, 2 — внешний вид, самка; 3 — генитальная капсула, вид сбоку; 4 — генитальная капсула, вид сверху.

Comparison of Australian material with *Moseevichia* did not reveal any apparent congeners from the two areas.

DESCRIPTION. Male: Elongate, parallel sided; total length 4.07–4.56, length apex clypeus–cuneal fracture 2.88–3.16 width pronotum 1.17–1.31. **COLORATION** (Fig. 1): Ranging from largely pale or weakly green to heavily reddish brown; membrane largely infuscate, mottled; bases of erect dark setae on dorsum often brown. Venter light green. Appendages and labium pale to weakly red, femora rather densely covered with

small brown spots; tibial spines dark, with dark bases. **SURFACE AND VESTITURE** (Figs 1–2, 5, 7–8): Vestiture of dorsum with three types of setae: long, dark, scattered, erect, bristlelike setae; reclining, weakly-shining, pale setae; and silvery, woolly setae. Abdominal venter and all femora uniformly covered with reclining pale setae; middle and hind tibiae with numerous long, erect black spines on dorsal and lateral surfaces, spines on fore tibia not so numerous and weaker. Antennal segment 1 with reclining pale setae and an erect dark spine on



Figs 5–10. *Moiseevichia leyserae* sp.n., male, scanning micrographs of morphological details: 5 — lateral view of head; 6 — mesothoracic spiracle and metathoracic scent-efferent system; 7 — setae on hemelytra; 8 — detail of flattened silvery setae on hemelytra; 9 — pretarsus, lateroventral view; 10 — pretarsus, dorso-frontal view.

Рис. 5–10. *Moiseevichia leyserae* sp.n., самец: электронограммы деталей строения: 5 — голова, вид сбоку; 6 — дыхальце среднегруди и отверстие пахучей железы заднегруди; 7 — волоски на надкрыльях; 8 — детали строения уплощенных серебристых волосков на надкрыльях; 9 — претарзус, латероventральное; 10 — претарзус, дорсофронтальное.

medial surface; segments 2, 3, and 4 uniformly covered with suberect pale or dark setae of length somewhat greater than diameter of segments. **STRUCTURE: Head** (Figs 1, 5): Projecting beyond anterior margin of eyes by distance equal to 1.5 times length of eye; eyes small in dorsal view, appearing almost spherical, weakly dorsoventrally elongate in lateral view, occupying about two-thirds height of head; antennae elongate, segment 1 substantially surpassing apex of head,

segment 2 very long, slender, of slightly smaller diameter than segment 1, weakly increasing in diameter distally, segments 3 and 4 slightly more than one-half diameter of segment 2. **Thorax:** Lateral and posterior margins of pronotum weakly concave; anterior margin reflexed as in most Phylini; calli distinctly demarcated but not elevated; scutellum weakly swollen and elevated (Fig. 1). Metathoracic scent-gland evaporatory area as in figure 6, evaporatory area in the form of a mirror-

image C, the auricle occupying the center of the structure; mesothoracic spiracle (Fig. 6) with an elongate evaporatory area of mushroom bodies. *Hemelytra*: Corium elongate, lateral margin nearly straight; cuneus elongate. *Legs*: Long, slender; claws broad basally, parempodia setiform, pulvilli flaplike, attached to shoulder of base of claw, reaching just past mid-point of claw; external surface of claw with one long claw hair (Figs 9–10). *Abdomen*: Relatively broad, lateral margin convexly rounded. *GENITALIA* (Figs 3–4, 11–14): *Pygophore*: Moderately large, without distinctive ornamentation. *Vesica*: Small relative to size of parameres; heavily sclerotized, with two prominent straps; body of vesica bearing a cylindrical spine (Fig. 14); apically with two large blades reminiscent of form found in *Oligotylus* Van Duzee [see Schuh, 2000] and *Plagiognathus* Fieber [see Schuh, 2001] in the Northern Hemisphere; secondary gonopore large, elongate oval. *Phallosome*: L-shaped, of form typical of many Phylinae, lacking distinctive morphological features (Fig. 13). *Parameres*: Left paramere elongate, broad bodied, strongly projecting beyond margin of pygophore (Fig. 12); anterior and posterior processes appearing relatively short and weakly developed relative to total size of paramere. Right paramere large, greatly elongate, covering entire left paramere in repose (Fig. 11), weakly parallel sided over much of length, acuminate and decurved apically, dorsal surface strongly convex in transverse cross section.

Female: Short, stout, strongly brachypterous; total length 2.78–3.32, length apex clypeus–cuneal fracture 2.57–3.03, width pronotum 0.97–1.11. *COLORATION* (Fig. 2): Most of dorsum and appendages pale to very light green, abdominal dorsum dark medially, green laterally and apically. *SURFACE AND VESTITURE*: As in male; erect setae on antennal segment 2–4 at least 2 times diameter of segments. *STRUCTURE*: *Head*: Similar to male; eye slightly smaller than in male; antenna similar to male. *Thorax*: Less strongly elevated posteriorly than in male; anterolateral angles rounded; posterior margin weakly concave; scutellum about as long as broad, almost flat. *Hemelytra*: Strongly brachypterous, lateral margins broadly convex, corium and clavus fused, clavi not connected by frena except on most anterior portion of claval commissure; cuneus reduced or absent; membranous area greatly reduced, coriaceous; apex of hemelytron rounded, reaching to about posterior margin of abdominal tergum 6 (Fig. 2). *Legs*: Not so elongate as in male. *Abdomen*: Broad and deep. *GENITALIA* (Figs 15–16): Sclerotized rings more or less quadrate; vestibulum without distinctive development of sclerotized structures; posterior wall simple, uniformly covered with microspicules.

ETYMOLOGY: Named for Izyaslav Moiseevich Kerzhner; feminine.

DISCUSSION: The extension of the left paramere over the margin of the pygophore is unknown in the Phylini outside of *Moiseevichia* except in the Australian fauna, all of whose members with this condition remain undescribed. The possible connection between these two faunas will require further investigation of the South African and Australian faunas.

Moiseevichia leyserae Schuh sp.n.

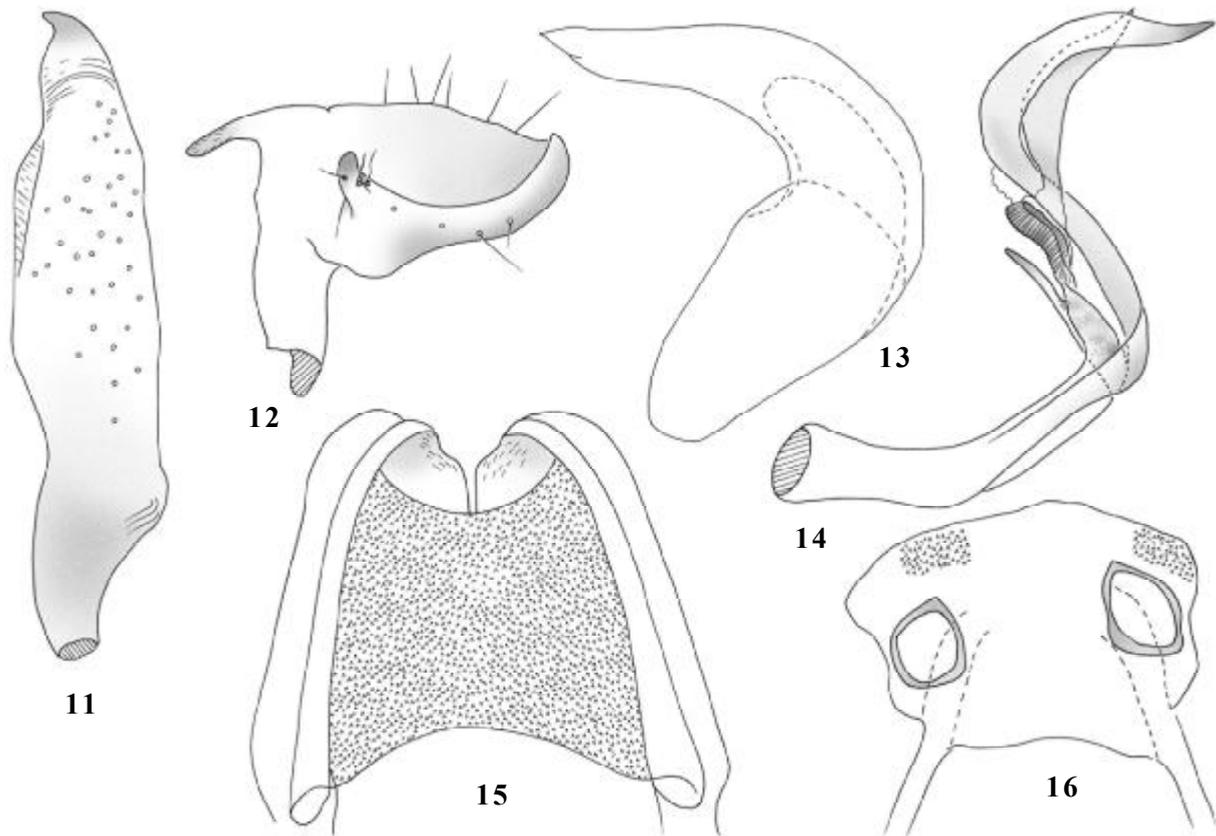
Figs 1–17.

MATERIAL. *Holotype*: SOUTH AFRICA: *Western Cape*: 3 km S of Clanwilliam, E side of reservoir, 32.21115°S 18.90545°E, 185 m, 3 Sep 2004, Schuh, Schwartz, Henry, Wyniger, Forero, *Leysera tenella* DC. (Asteraceae), det. J Manning VOUCHER-NYBG, 1♂ (AMNH_PBI 00058820) (SANC). *Paratypes*: SOUTH AFRICA: *Northern Cape*: 30 km SE of Kamieskroon, 30.32691°S 18.0805°E, 1350 m, 11 Sep 2004, Schuh, Schwartz, Henry, Wyniger, Forero, *Dimorphoth-*

eca tragus (Aiton) B.Nord. (Asteraceae), det. D Snijman voucher-NYBG, 25♂ (AMNH_PBI 00138994-AMNH_PBI 00139005, AMNH_PBI 00139011-AMNH_PBI 00139023), 15♀ (AMNH_PBI 00139006-AMNH_PBI 00139010, AMNH_PBI 00139030-AMNH_PBI 00139039) (AMNH). *Dimorphotheca tragus* (Aiton) B.Nord. (Asteraceae), det. D Snijman voucher-NYBG, 2♂ (AMNH_PBI 00139024, AMNH_PBI 00139025), 2♀ (AMNH_PBI 00139040, AMNH_PBI 00139041) (SANC). *Dimorphotheca tragus* (Aiton) B.Nord. (Asteraceae), det. D Snijman voucher-NYBG, 2♂ (AMNH_PBI 00139026, AMNH_PBI 00139027), 2♀ (AMNH_PBI 00139028, AMNH_PBI 00139029) (SANC). *Dimorphotheca tragus* (Aiton) B.Nord. (Asteraceae), det. D Snijman voucher-NYBG, 8♂ (AMNH_PBI 00069817-AMNH_PBI 00069824), 1♀ (AMNH_PBI 00069825) (USNM). 4.7 km W of Springbok on R355, 29.68108°S 17.84683°E, 866 m, 5 Sep 2004, Schuh, Schwartz, Henry, Wyniger, Forero, 2♂ (AMNH_PBI 00137291, AMNH_PBI 00137292), 1♀ (AMNH_PBI 00137293) (AMNH). *Western Cape*: 3 km S of Clanwilliam, E side of reservoir, 32.21115°S 18.90545°E, 185 m, 3 Sep 2004, Schuh, Schwartz, Henry, Wyniger, Forero, *Leysera tenella* DC. (Asteraceae), det. J Manning voucher-NYBG, 2♂ (AMNH_PBI 00138962, AMNH_PBI 00138963), 2♀ (AMNH_PBI 00138983, AMNH_PBI 00138984) (AM). *Leysera tenella* DC. (Asteraceae), det. J Manning VOUCHER-NYBG, 28♂ (AMNH_PBI 00137265-AMNH_PBI 00137266, AMNH_PBI 00137272-AMNH_PBI 00137275, AMNH_PBI 00138943-AMNH_PBI 00138961, AMNH_PBI 00138968-AMNH_PBI 00138970), 15♀ (AMNH_PBI 00058821, AMNH_PBI 00137267-AMNH_PBI 00137268, AMNH_PBI 00138971-AMNH_PBI 00138982), 1 nymph (AMNH_PBI 00138991) *Leysera tenella* DC. (Asteraceae), det. J Manning voucher-NYBG, 28♂ (AMNH_PBI 00137265-AMNH_PBI 00137266, AMNH_PBI 00137272-AMNH_PBI 00137275, AMNH_PBI 00138943-AMNH_PBI 00138961, AMNH_PBI 00138968-AMNH_PBI 00138970), 15♀ (AMNH_PBI 00058821, AMNH_PBI 00137267-AMNH_PBI 00137268, AMNH_PBI 00138971-AMNH_PBI 00138982), 1♂ (AMNH_PBI 00138991) (AMNH). *Leysera tenella* DC. (Asteraceae), det. J Manning voucher-NYBG, 2♂ (AMNH_PBI 00138964, AMNH_PBI 00138965), 2♀ (AMNH_PBI 00138985, AMNH_PBI 00138986) (CNC). *Leysera tenella* DC. (Asteraceae), det. J Manning voucher-NYBG, 2♂ (AMNH_PBI 00138938, AMNH_PBI 00138939), 2♀ (AMNH_PBI 00138989, AMNH_PBI 00138990) (SANC). *Leysera tenella* DC. (Asteraceae), det. J Manning voucher-NYBG, 3♂ (AMNH_PBI 00138940-AMNH_PBI 00138942), 2♀ (AMNH_PBI 00138992, AMNH_PBI 00138993) (SANC). *Leysera tenella* DC. (Asteraceae), det. J Manning voucher-NYBG, 2♂ (AMNH_PBI 00138966, AMNH_PBI 00138967), 2♀ (AMNH_PBI 00138987, AMNH_PBI 00138988) (ZISP).

DIAGNOSIS. Recognized by the characters outlined in the generic diagnosis, in addition to the faintly reddish coloration of the dorsum (Fig. 1), and the structure of the male genitalia, the posterior apical spine of the vesica unornamented (Fig. 14).

DESCRIPTION. *Male*: Elongate, parallel sided; total length 4.07–4.56, length apex clypeus–cuneal fracture 2.88–3.16 width pronotum 1.17–1.31. *COLORATION* (Fig. 1): Dorsum pale to weakly green, hemelytra sometimes with areas of brown to orange, particularly along posterior margin of corium and on cuneus; veins of membrane white; bases of erect dark setae on dorsum sometimes brown. Venter light green; apex of labium castaneous. *SURFACE AND VESTITURE* (Figs 1, 5, 7–8): Silvery, woolly setae on dorsum aggregated in small patches. *STRUCTURE*: *Head* (Figs 1, 5): Head weakly declivent, elongate, projecting beyond anterior margin of eyes by about 1.5 times length of eye; frons sloping uniformly to nearly vertical and weakly prominent clypeus; bucculae relatively narrow, occupying about two-thirds length of gula; labium long, reaching at



Figs 11–16. *Moiseevichia leyserae* sp.n., male and female genitalia: 11 — right paramere; 12 — left paramere; 13 — phallosome; 14 — vesica; 15 — posterior wall; 16 — sclerotized rings.

Рис. 11–16. *Moiseevichia leyserae* sp.n., гениталии самца и самки: 11 — правый параметер; 12 — левый параметер; 13 — фаллотэка; 14 — везика; 15 — задняя стенка; 16 — склеротизованные кольца.

least to posterior margin of abdominal sternum 4; eyes small in dorsal view, appearing almost spherical, weakly dorsoventrally elongate in lateral view, occupying about two-thirds height of head; ventral margin of antennal fossa located at ventral margin of eye, eye vaguely emarginate at antennal insertion. **Thorax:** Pronotum very weakly sloping anteriorly. **GENITALIA** (Figs 3–4, 11–14): **Pygophore:** As in generic diagnosis. **Vesica:** Posterior spine lacking in ornamentation on dorsal surface; spine on vesica arising at base of, and extending to about apex of, secondary gonopore. **Phallosome:** As in generic diagnosis. **Parameres:** Left paramere as in generic diagnosis. Right paramere as in generic diagnosis.

Female: Short, stout, strongly brachypterous; total length 2.78–3.32, length apex clypeus–cuneal fracture 2.57–3.03, width pronotum 0.97–1.11. **COLORATION** (Fig. 2): Most of dorsum and appendages pale green, exocorium appearing almost white, cuneo-membranal area often reddish; abdominal dorsum dark medially, green laterally and apically; thoracic venter pale, abdominal venter strongly green laterally, otherwise pale, with some infuscation near base of ovipositor. **SURFACE AND VESTITURE:** As in generic description. **STRUCTURE:** **Head** (Fig. 2): Frons more strongly tumid than in male; eye slightly smaller than in male; labium slightly surpassing base of ovipositor. **Thorax** (Fig. 2): Less strongly elevated posteriorly than in male; anterolateral angles rounded; posterior margin weakly convex; scutellum almost flat. **Hemelytra:** Cuneus reduced but present, costal fracture and cuneal incisure

evident; membranal area greatly reduced, coriaceous; apex of hemelytron rounded, reaching to about posterior margin of abdominal tergum 6. **GENITALIA** (Figs 15–16): As in generic diagnosis.

ETYMOLOGY: Named for the genus of one of the known hosts, *Leysera tenella* DC.

HOSTS: Known to feed on *Leysera tenella* DC. and *Dimorphotheca tragus* (Aiton) B. Nord. (Asteraceae), annual members of the Asteraceae and part of the profusion of spring flowers that bring botanists and nature lovers to Namaqualand in the early spring time.

DISTRIBUTION (Fig. 17). Namaqualand, from near Clanwilliam north to Springbok.

DISCUSSION. Although specimens of *Moiseevichia leyserae* can be collected in quite large numbers by sweeping the low-growing hosts, no representatives of this taxon have been found in preexisting collections from South Africa.

ACKNOWLEDGMENTS: I thank the following individuals for assistance that made the completion of this paper possible: Jason Larimer for the habitus images; Steve Thurson for inking, scanning, and assembly of the genitalic figures, and for assembling the digital photographs and scanning micrographs; Jakob Mey and Margaret Hart for assistance with scanning microscopy; Margaret Hart for producing specimen measurements and the map; Dimitri Forero, Thomas J. Henry, Michael D. Schwartz, and Denise Wyniger for assistance in the field; Timothy Crowe, Chris Tobler, and Gerhard

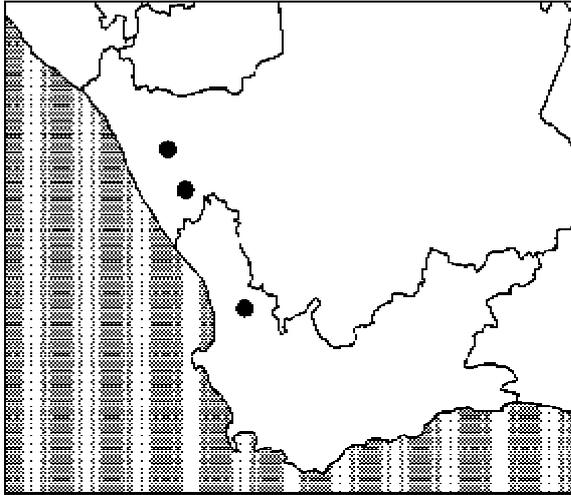


Fig. 17. Distribution of *Moiseevichia leyserae* sp.n. in the Western and Northern Cape Provinces of South Africa.

Рис. 17. Распространение *Moiseevichia leyserae* sp.n. в южноафриканских провинциях Западный и Северный Кейп.

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