



A new species of *Synsphyronus* (Pseudoscorpiones: Garypidae) from eastern Australia

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Abstract

The pseudoscorpion genus *Synsphyronus* is widely distributed in the Australasian region, with 40 species described from Australia, two from New Zealand and one from New Caledonia. This paper describes a new species from New South Wales, *S. inglisorum*, sp. nov., that inhabits the bark of eucalypt trees.

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<https://zoobank.org/References/a72dd32e-9a76-4ba5-99a5-4e12903ffb4c>

Introduction

The pseudoscorpion genus *Synsphyronus* Chamberlin, 1930 is endemic to Australasia where there are currently 43 recognised species including 40 from Australia (Beier 1954, 1969, 1971, 1975; Chamberlin 1930, 1943; Cullen and Harvey 2021; Harvey 1987, 2011, 2012, 2022; Harvey et al. 2015; Hoff 1947; With 1908), two from New Zealand (Beier 1966; Chamberlin 1930; Harvey 1987) and one from New Caledonia (Harvey 2020). Many additional unnamed species are also known from Australia, especially in arid and semi-arid ecosystems (Harvey, unpublished data). The present contribution reports on a new species of *Synsphyronus* from New South Wales which resembles various other Australian species but which differs in a number of small details.

Methods

The material utilized in the present study is lodged in the Australian Museum, Sydney (AM) and the Western Australian Museum, Perth (WAM). They were examined by preparing temporary slide mounts by immersing the specimen in 75% lactic acid at room temperature for one to several days, and mounting them on microscope slides with 10 or 12 mm coverslips supported by small sections of nylon fishing line. Specimens were examined with a Leica MZ16 dissecting microscope, and an Olympus BH-2 compound microscope, and illustrated with the aid of a drawing tube. Auto-montaged images were taken at different focal planes with a Leica DFC500 digital camera attached to a Leica MZ16A stereo microscope, using Leica Application Suite (LAS) version 2.5.OR1 software. Measurements (in mm) were taken at the highest possible magnification using an ocular

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graticule. After study the specimens were rinsed in water and returned to 75% ethanol with the dissected portions placed in 12 × 3 mm glass genitalia microvials (BioQuip Products, Inc.).

Terminology and mensuration largely follow Chamberlin (1931), with the exception of the nomenclature of the pedipalps, legs and with some minor modifications to the terminology of the trichobothria (Harvey 1992), chelicera (Harvey and Edward 2007; Judson 2007) and faces of the appendages (Harvey et al. 2012). Observations regarding variation were limited to some meristic features, but did not extend to the numbers of setae or blades in the serrula exterior.

Taxonomy

Family GARYPIDAE Simon, 1879

Subfamily SYNSPHYRONINAE Beier, 1932

Genus *Synsphyronus* Chamberlin, 1930

***Synsphyronus inglisorum*, sp. nov.**

Figures 1–13

<https://zoobank.org/NomenclaturalActs/a88fb6f0-a6f1-43d0-94f1-67913767b4a9>

Material examined

Holotype

Australia: *New South Wales*: ♂, Craigend Farm, 5.8 km SSW. of the Oaks, 34°07'16"S, 150°31'55"E, 329 m, 10 July 2022, under bark of *Eucalyptus eugenioides*, F.S.B. Harvey, M.S. Harvey, M.E. Blosfelds, W. Inglis, H. Inglis (AM KS.131262).

Paratypes

Australia: *New South Wales*: 1 ♀, collected with holotype (AM KS.131263); 1 ♂, collected with holotype (WAM T158265).

Diagnosis

Synsphyronus inglisorum most closely resembles those species of the genus that have eight trichobothria on the fixed finger and three on the movable finger (Figure 10), separate metatarsi and tarsi (Figure 12) and a constricted anterior eye (Figure 8): *S. christopherdarwini* Harvey, 2012, *S. dorotheae* Harvey, 1987, *S. silveirai* Harvey, 1987 from Australia and *S. platnicki* Harvey, 2020 from New Caledonia. It differs from these species as follows: from *S. christopherdarwini*, *S. dorotheae* and *S. silveirai* by the position of trichobothrium *st* which is slightly closer to *b* than to *t* in *S. inglisorum* (Figure 10) (much closer to *sb* than to *t* in *christopherdarwini*, and midway between *b* and *t* in *dorotheae* and *S. silveirai*); and from *S. platnicki* in the shape of the chelal hand which is broader in *S. platnicki* than in *S. inglisorum* (Figure 9).

Description

Adults

Colour (Figures 1–6): sclerotized portions generally dark red-brown; tergites II–X with paired darker patches. Waxy epicuticle. Setae generally aligned perpendicularly from body, each seta quadricarinate. Most cuticular surfaces roughened, but not granulate.

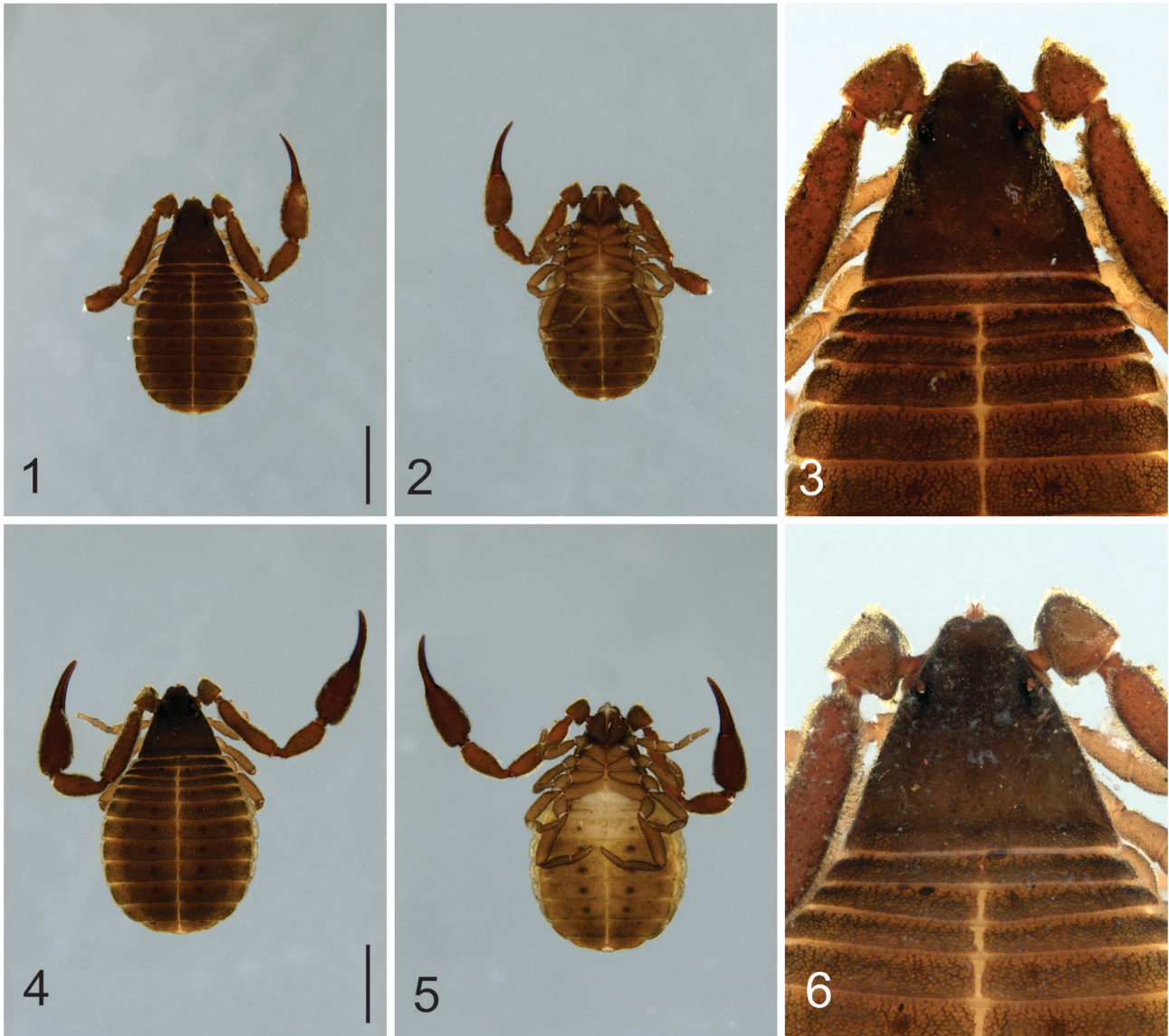
Chelicera: with 5 setae on hand and 1 subdistal seta on movable finger, all setae acuminate; setae *sbs* and *bs* shorter than others; 2 dorsal lyrifissures and 1 ventral lyrifissure; galea of ♂ and ♀ with small distal bifurcation; rallum of 3 blades (Figure 13), distal and medial blade with 2 small spinules on leading edge, basal blade with 1 spinule, medial and basal blades much shorter than distal blade; serrula exterior with 17 (♂), 18 (♀) blades; lamina exterior present.

Pedipalp (Figure 9): trochanter with conical prolateral face, femur slightly procurved; trochanter 1.24–1.30 (♂), 1.25 (♀), femur 4.09–4.11 (♂), 4.14 (♀), patella 2.62–2.74 (♂), 2.78 (♀), chela (with pedicel) 4.12–4.24 (♂), 3.90 (♀), chela (without pedicel) 3.93–3.99 (♂), 3.71 (♀), hand (without pedicel) 1.94 (♂), 1.83 (♀) × longer than broad, movable finger 1.04–1.05 (♂), 1.04 (♀) × longer than hand (without pedicel). Fixed chelal finger with 8 trichobothria, movable chelal finger with 3 trichobothria (Figure 10): *eb*, *esb* and *isb* situated basally, *est* submedially, closer to *isb* than to *et*, *et* subdistally, *ib* and *ist* basally in diagonal row, and *it* subdistally, well posterior to *et*; *b* situated basally, *st* submedially, slightly closer to *b* than to *t*, and *t* subdistally; patch of microsetae present on retrolateral margin of fixed chelal finger near *et*. Venom apparatus present in both chelal fingers, venom ducts long, terminating in nodus ramosus slightly basal to *et* in fixed finger and slightly distal to *t* in movable finger. Chelal teeth: the distal teeth retrorse and acute distally, becoming rounded basally (Figure 11); fixed finger with 39 (♂), 43 (♀) teeth; movable finger with 31 (♂), 32 (♀) teeth; accessory teeth absent.

Carapace (Figures 3, 6, 7): 0.85–0.87 (♂), 0.83 (♀) × longer than broad; anterior margin slightly indented medially; subtriangular; with 2 pairs of corneate eyes (Figure 8) situated ca. one-third carapace length from anterior margin; anterior eye constricted (Figure 8); with 4 setae near anterior margin and 6 (♂), 5 (♀) near posterior margin; with numerous lyrifissures; without furrows.

Coxal region: manducatory process rounded, with 3 apical acuminate setae, plus 5 (♂), 6 (♀) additional setae; medial maxillary lyrifissure situated submedially; chaetotaxy of coxae I–IV: ♂, 3: 4: 7: 9; ♀, 3: 4: 6: 12.

Legs (Figure 12): junction between femora and patellae I and II slightly oblique to long axis; junction between femora and patellae III and IV very angulate; femora III and IV much smaller than patellae III and IV; femur + patella of leg IV 3.68 (♂), 3.91 (♀) × longer than broad; metatarsi and tarsi separate and without tactile seta;



Figures 1–6. *Synsphyronus inglisorum*, sp. nov.: 1–3, male holotype (AM KS.131262): 1, body, dorsal; 2, body, ventral; 3, cephalothorax, dorsal; 4–6, female paratype (AM KS.131263): 4, body, dorsal; 5, body, ventral; 6, cephalothorax, dorsal. Scale lines = 1.0 mm.

subterminal tarsal setae arcuate and acute; arolium much longer than claws, not divided.

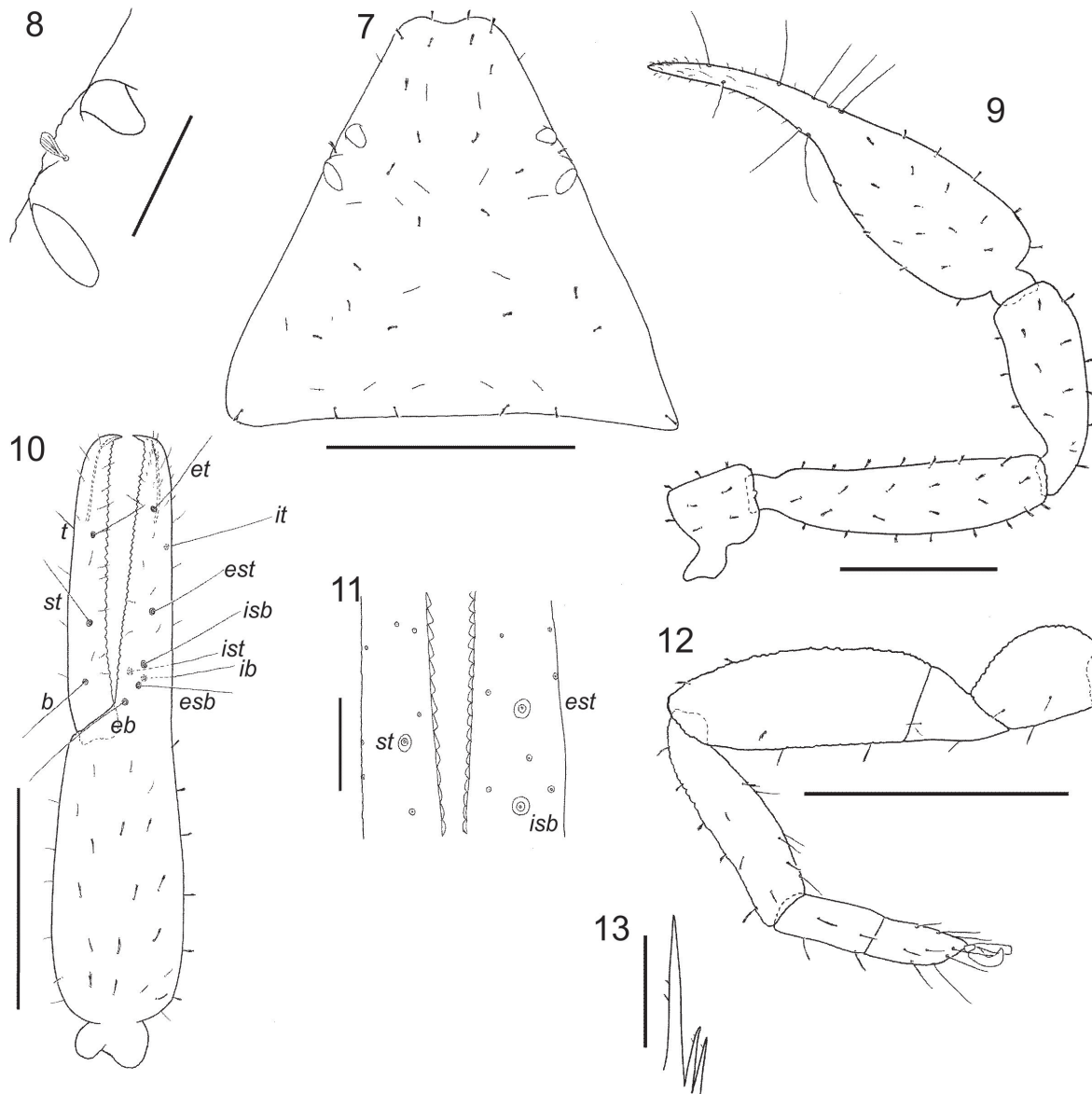
Abdomen: tergites II–X (♂), II–XI (♀) and sternites IV–X (♂), V–X (♀) with median suture line (Figures 1, 2, 4, 5). Tergal chaetotaxy: ♂, 6: 8: 7: 7: 9: 8: 8: 8: 8: 6: 2: 2; ♀, 6: 6: 7: 8: 8: 10: 8: 8: 8: 6: 2: 2; uniseriate; all setae quadricarinate. Sternal chaetotaxy: ♂, 4: (0) 6 [4 + 2] (0): (0) 6 (0): 9: 10: 7: 6: 8: 6: 4: 2; ♀, 5: (0) 5 (0): (0) 9 (0): 7: 8: 8: 7: 6: 6: 4: 2; uniseriate; all setae quadricarinate except for setae on sternites II–IV and medial setae on sternites V–VI, which are acuminate. Spiracles without helix. Anal plates (tergite XII and sternite XII) situated within sternite XI, surrounded by slightly raised rim. Pleural membrane wrinkled-plicate; without any setae.

Genitalia: male: lateral apodeme laterally extended and distally broadened; anterior apodeme acute; a pair of acute dorsal apodemes; lateral rod very broad ventrally

and with a blunt, anterior projection; ejaculatory canal atrium large and cup-shaped. Female: with one pair of lateral cribriform plates and 2 pairs of median cribriform plates.

Dimensions: male: holotype (AM KS.131262) followed by the paratype (when measured): Body length 2.77 (2.97). Pedipalps: trochanter 0.390/0.300 (0.390/0.315), femur 0.940/0.230 (0.965/0.235), patella 0.685/0.250 (0.655/0.250), chela (with pedicel) 1.420/0.345 (1.440/0.340), chela (without pedicel) 1.355 (1.355), hand (without pedicel) length 0.670 (0.660), movable finger length 0.700 (0.690). Carapace 0.805/0.930 (0.830/0.980); eye diameter, anterior 0.045, posterior 0.080. Leg IV: femur + patella 0.680/0.185, tibia 0.455/0.110, metatarsus 0.190/0.085, tarsus 0.185/0.075.

Female: paratype (AM KS.131263): Body length 3.12. Pedipalps: trochanter 0.410/0.335, femur 1.055/0.255,



Figures 7–13. *Synsphyronus inglisorum*, sp. nov., male holotype (AM KS.131262): 7, carapace, dorsal; 8, left eyes, dorsal; 9, right pedipalp, dorsal; 10, left chela, retrolateral; 11, detail of chelal teeth, retrolateral; 12, left leg IV, retrolateral; 13, left rallum. Scale lines = 0.5 mm (Figures 7, 9, 10, 12); 0.1 mm (Figures 8, 11); 0.05 mm (Figure 13).

patella 0.750/0.270, chela (with pedicel) 1.600/0.410, chela (without pedicel) 1.520, hand (without pedicel) length 0.750, movable finger length 0.780. Carapace 0.890/1.070; eye diameter, anterior 0.045, posterior 0.080. Leg IV: femur + patella 0.800/0.205, tibia 0.530/0.120, metatarsus 0.210/0.095, tarsus 0.185/0.085.

Remarks

The three specimens of *Synsphyronus inglisorum* were collected from under the bark of a mature thin-leaved stringybark tree *Eucalyptus eugenioides* in remnant bushland.

A COI barcode sequence of the paratype male specimen, WAM T158265, is available under the GenBank accession number OQ918547.

Etymology

The species epithet is in honour of the Inglis family, on whose property the specimens were collected, and in recognition of their efforts to rehabilitate sections of Craigend Farm for conservation purposes.

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References

- Beier M (1954) Report from Prof. T. Gislén's expedition to Australia in 1951–1952. 7. Pseudoscorpionidea. *Acta Universitatis Lundensis, nova series* (2) 50: 1–26.
- Beier M (1966) Zur Kenntnis der Pseudoscorpioniden-Fauna Neu-Seelands. *Pacific Insects* 8: 363–379.
- Beier M (1969) Neue Pseudoscorpione aus Australien. *Annalen des Naturhistorischen Museums in Wien* 73: 171–187.
- Beier M (1971) A new *Synsphyronus* Chamberlin (Pseudoscorpiones) from the Great Victoria Desert. *Journal of the Australian Entomological Society* 10: 161–162.
- Beier M (1975) Neue Pseudoscorpione aus Australien und Neu-Guinea. *Annalen des Naturhistorischen Museums in Wien* 78: 203–213.
- Chamberlin JC (1930) A synoptic classification of the false scorpions or chela-spinners, with a report on a cosmopolitan collection of the same. Part II. The Diplosphyronida (Arachnida-Chelonethida). *Annals and Magazine of Natural History* (10) 5: 1–48, 585–620.
- Chamberlin JC (1943) The taxonomy of the false scorpion genus *Synsphyronus* with remarks of the sporadic loss of stability in generally constant morphological characters (Arachnida: Chelonethida). *Annals of the Entomological Society of America* 36: 486–500.
- Cullen KL & Harvey MS (2021) New species of the pseudoscorpion genus *Synsphyronus* (Pseudoscorpiones: Garypidae) from Australia. *Records of the Western Australian Museum* 36: 33–65.
- Harvey MS (1987) A revision of the genus *Synsphyronus* Chamberlin (Garypidae: Pseudoscorpionida: Arachnida). *Australian Journal of Zoology, Supplementary Series* 126: 1–99.
- Harvey MS (1992) The phylogeny and classification of the Pseudoscorpionida (Chelicerata: Arachnida). *Invertebrate Taxonomy* 6: 1373–1435.
- Harvey MS (2011) Two new species of *Synsphyronus* (Pseudoscorpiones: Garypidae) from southern Western Australian granite landforms. *Records of the Western Australian Museum* 26: 11–22.
- Harvey MS (2012) A new species of *Synsphyronus* (Pseudoscorpiones: Garypidae) from Western Australia. *Records of the Western Australian Museum* 27: 55–61.
- Harvey MS (2020) *Synsphyronus platnicki* sp. nov.: first *Synsphyronus* (Pseudoscorpiones: Garypidae) from New Caledonia. *Arachnology* 18: 468–472.
- Harvey MS (2022) Three new species of the pseudoscorpion genus *Synsphyronus* (Pseudoscorpiones: Garypidae) from semi-arid Western Australia. *Australian Journal of Taxonomy* 5: 1–15.
- Harvey MS, Abrams KM & Burger MAA (2015) A new species of the pseudoscorpion genus *Synsphyronus* (Pseudoscorpiones: Garypidae) from Barrow Island, Western Australia. *Records of the Western Australian Museum* 30: 137–143.
- Harvey MS & Edward KL (2007) A review of the pseudoscorpion genus *Ideoblothrus* (Pseudoscorpiones, Syarinidae) from western and northern Australia. *Journal of Natural History* 41: 445–472.
- Harvey MS, Ratnaweera PB, Udagama PV & Wijesinghe MR (2012) A new species of the pseudoscorpion genus *Megachernes* (Pseudoscorpiones: Chernetidae) associated with a threatened Sri Lankan rainforest rodent, with a review of host associations of *Megachernes*. *Journal of Natural History* 46: 2519–2535.
- Hoff CC (1947) New species of diplosphyronid pseudoscorpions from Australia. *Psyche, Cambridge* 54: 36–56.
- Judson MLI (2007) A new and endangered species of the pseudoscorpion genus *Lagynochthonius* from a cave in Vietnam, with notes on chelal morphology and the composition of the Tyrannochthoniini (Arachnida, Chelonethi, Chthoniidae). *Zootaxa* 1627: 53–68.
- With CJ (1908) Remarks on the Chelonethi. *Videnskabelige Meddelelser fra den Naturhistorisk Forening i Kjøbenhavn* (6) 10: 1–25.



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