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Two *Scolopocryptops* Newport, 1844 (Myriapoda: Chilopoda) new to the Korean fauna

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Two species new for Korea, *Scolopocryptops nigrimaculatus* Song, Song and Zhu, 2004 and *Scolopocryptops mushashiensis* Shinohara, 1984 are reported from South Korea. The Korean occurrance of *S. nigrimaculatus* is the first record of the species outside China, while *S. mushashiensis* has been known only form its type locality in Japan till now.

Keywords: centipede, Chilopoda, faunistics, Korean Peninsula, new records, *Scolopocryptops*

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Introduction

Research on the Chilopoda fauna of Korea started at the 1930's (Verhoeff, 1934). Since that, several dozen publications have been published on the centipedes of this region reporting at around 54 species from there. However, the presence of several further species might be expected from here, if we consider the topographic diversity of the region and the geographical position of the Korean Peninsula. Collecting work of one of us–Dr. Kil-Young Lim–has accumulated a large material since several years, which were further enriched by our joint field trips around the country in 2017. The first results from the investigation of this material are presented here.

Materials and Methods

Photographs were taken with a Nikon CoolPix900 digital camera mounted on a Leica MZ75 stereo microscope. The specimens examined are deposited in the National Institute of Biological Resources, Incheon, Republic of Korea (NIBR). Terminology for external anatomy follows Bonato *et al.* (2010).

Results and Discussion

Oder Scolopendromorpha Pocock, 1895 왕지네목

Family Scolopocryptopidae Pocock, 1896 왕지네과

Genus *Scolopocryptops* Newport, 1844 홍지네속 [senior synonym of *Otocryptops* Haase, 1887 according to Crabill (1953)]

1. *Scolopocryptops nigrimaculatus* Song, Song and Zhu, 2004 (Fig. 1A-H) 성산홍지네 (신칭)

Synonyms. *Scolopocryptops nigrimaculatus* Song, Song and Zhu, 2004: p. 82, fig. 2A-H.

Material examined. Korea, Seongsan Ilchubong Tuff Cone, Seongsan-eup, Seogwipo-si, Jeju-do, 33°27′36.3″N 126°56′16.4″E, 66 m, soil and litter layers of *Euonymus japonicus*, 29. Sep. 2016, leg. Yong Hong

Description of the Korean specimen. Body 32 mm long. Antennae and cephalic plate reddish-brown without dark spots (Fig. 1A); all tergites dark brown with dark spots (Fig. 1A, E, G, H); all legs orangish yellow with very few, small and faint blue spots. Cephalic plate about as long as wide, laterally marginate (Fig. 1A), posterior border covering first tergite. Basal two antennal articles sparsely hirsute dorsad, substantially less hirsute than 3rd antennomere (Fig. 1C). Forcipular coxostenite moderately and strongly punctate, with two dental margin convex on its anterior edge (Fig. 1B); forcipular trochanteroprefemur with a small medial tooth. Paramedian dorsal sutures complete from tergites 6-20 (Fig. 1G), incomplete on tergite 21 (Fig. 1H). Incomplete lateral margination from tergites 5-22 (Fig. 1G, H); ultimate tergite completely marginate, with a fine medial longitu-

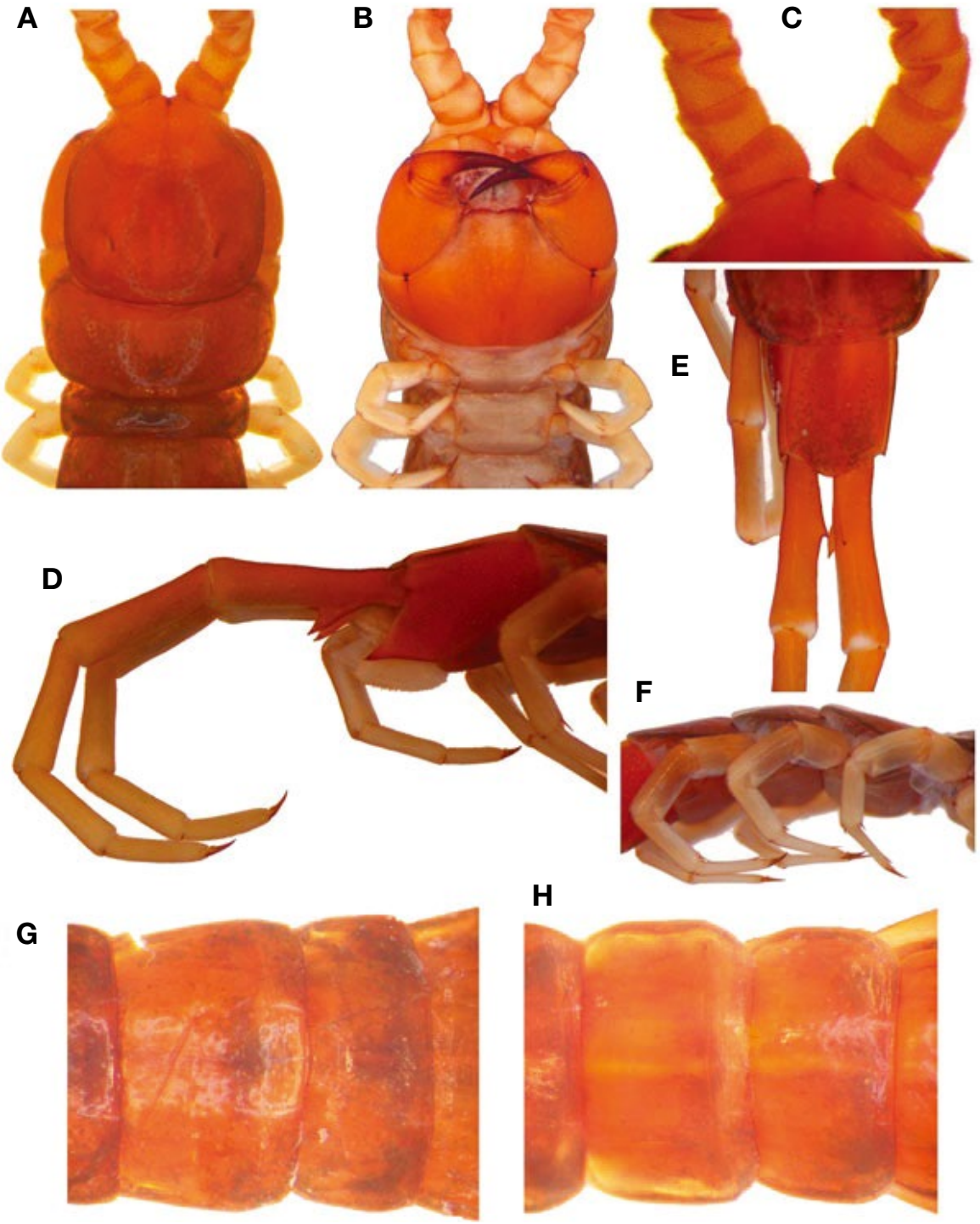

Fig. 1. *Scolopocryptops nigrimaculatus* Song, Song and Zhu, 2004. A, head and anterior trunk segments, dorsal; B, head, forcipular segment and first trunk segments, ventral; C, basal articles of antennae; D, posterior end of body, lateral; E, tergite 23 and prefemur of ultimate leg, dorsal; F, legs 19-21, lateral; G, tergites 5-6, dorsal; H, tergites 20-21, dorsal.

dinal depression on the 2/5 of its length (Fig. 1E). Sternites with puncti, without sutures; last sternite with lateral margins converging caudally and posterior margin slightly concave. Coxopleuron with considerable pores and coxopleural process with a long spine (Fig. 1D). All legs with two claw spines. All legs almost glabrous, only with sparse and very short hairs. Legs 1-19 with two tibial spines and one tarsal spine each; leg 20 with one/two

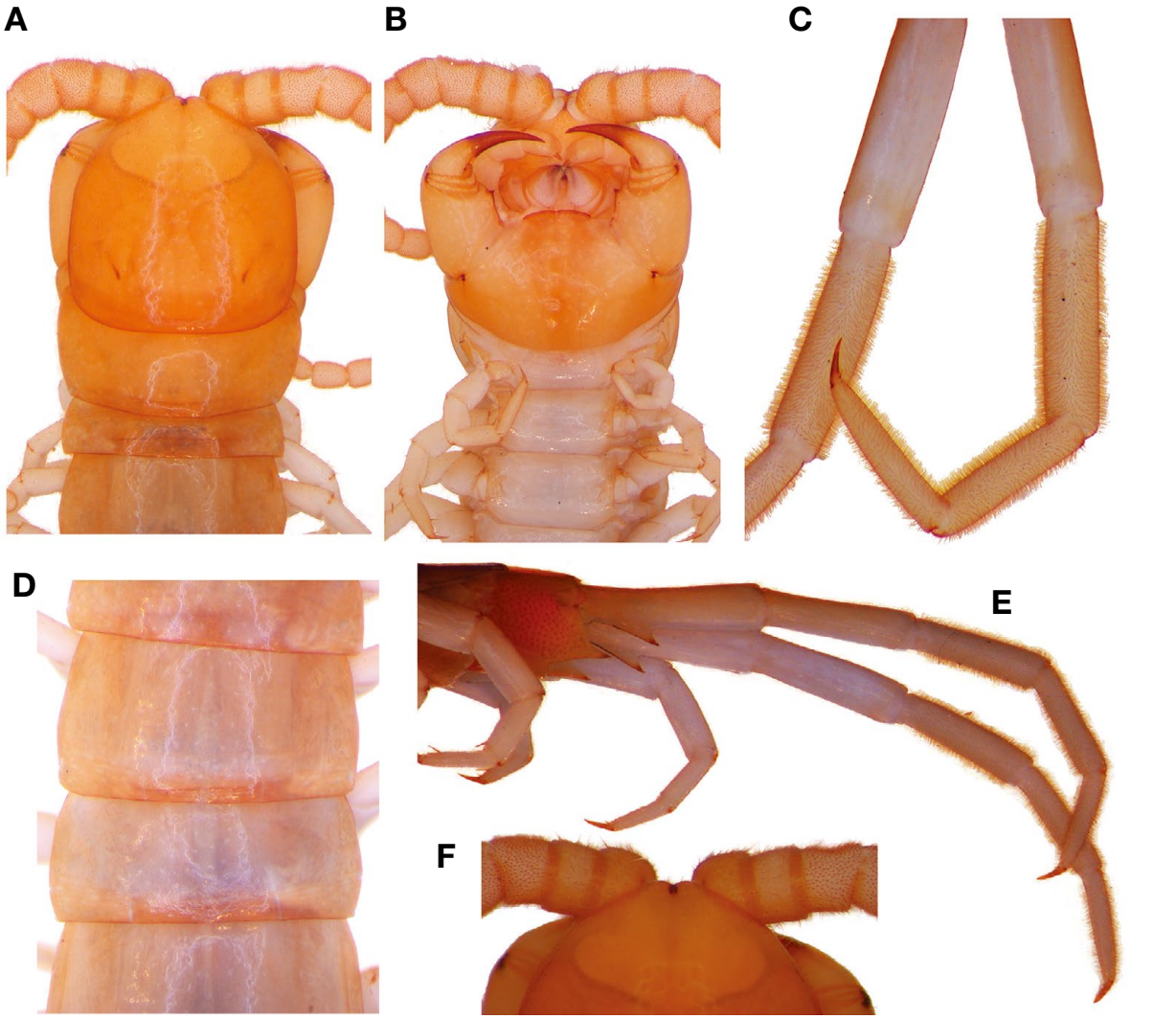

Fig. 2. *Scolopocryptops mushashiensis* Shinohara, 1984. A, head and anterior trunk segments, dorsal; B, head, forcipular segment and first trunk segments, ventral; C, distal articles of ultimate legs, ventrolateral; D, tergites 5-6, dorsal; E, posterior end of body, lateral; F, basal articles of antennae, dorsal.

tibial spine(s) asymmetrically and with one tarsal spine, leg 21 with one tibial spine and one tarsal spine each (Fig. 1F); leg 22 with one tibial spine and without tarsal spine; ultimate legs without spine. Ultimate legs almost glabrous; prefemur with a large ventral spur and a small lateral spur (Fig. 1D).

Remarks. Based on the presence of complete paramedian sulci on the tergites, *Scolopocryptops nigrimaculatus* is very similar to another species, *Scolopocryptops rubiginosus* L. Koch, 1878, but differs from that by having dark pattern on the tergites (without dark pattern in *rubiginosus*) and by the two basal antennal articles being less hirsute than the third one (second article similarly hirsute like the third in *rubiginosus*). The Korean specimen fits well the species by the differential characters of tergites having dark pattern and the two basal antennal articles being less hirsute than the third one. It cannot be ruled out that some of the earlier Korean data of *Scolopocryptops rubiginosus* referred to *S. nigrimaculatus*.

Distribution. *Scolopocryptops nigrimaculatus* was known only from China till now (type locality: Donghu Lake, Wuhan, China, ~30°33.311′N 114°23.473′E); other known localities: Wugai Mountain, Chenzhou area of Hunan province, China (~ 25°44.511′N 113°13.306′E); Tanjiaqiaozhen, Huangshan, Anhui, China (~30°9.521′N 118°15.830′E) (Song *et al*., 2004). New to the fauna of the Korean Peninsula.

Deposition. Specimen (NIBRIV0000812481) has been deposited in the National Institute of Biological Resources, Korea (NIBR).

2. *Scolopocryptops mushashiensis* Shinohara, 1984
도초홍지네 (신칭) (Fig. 2A-F)

Synonyms. *Scolopocryptops mushashiensis* Shinohara, 1984: p. 40, figs. 8-13.

Material examined. Specimen 1 (adolescent, sex undeterminable, NIBRIV0000812482) and specimen 2 (adolescent, sex undeterminable, NIBRIV0000812483): Mannyeon-ri, Docho-myeon, Shinan-gun, Jeollanam-do, Korea. 34°70′46.3″N 125°97′99.8″E, 41 m, sea side near, pine tree and brush, soil and litter layers, 30. Aug. 2011, leg. Yong-Gun Choi, specimen 3 (juvenile, NIBRIV 0000812484): same locality, 02. Jun. 2011, leg. Yong-Gun Choi.

Description of the Korean specimens. Body-lengths 16, 19 and 20 mm. Antennae, cephalic plate, forcipules, and posterior end of the body ochraceous (Fig. 2A, B, E), other body-parts pale (Fig. 2B, D). Cephalic plate slightly longer than wide, laterally marginate (Fig. 2A), posterior border covering first tergite. Basal two antennal artices sparsely hirsute dorsad, substantially less hirsute than 3rd antennomere (Fig. 2F). Forcipular coxosternite with two dental margins convex on anterior edge (Fig. 2B); forcipular trochanteroprefemur with a small medial tooth. All tergites with 3 short paramedian dorsal sutures on posterior margin (Fig. 2D), without long ridges. Incomplete lateral margination on tergites 7-22 (Fig. 2D); ultimate tergite completely marginate. Ventral plates without sutures; last sternite with lateral margins converging caudally and posterior margin slightly concave. Coxopleural process with a long spine (Fig. 2E). All legs with two claw spines. Legs 1-20 with two tibial spines and one tarsal spine each; leg 21 with one tibial spine and one tarsal spine; leg 22 with one tibial spine and without tarsal spine; ultimate leg without spine. Ultimate leg with densely hirsute tibia and tarsi (Fig. 2C, E); prefemur with a single large ventral spur and a small lateral spur (Fig. 2E).

Remarks. *Scolopocryptops mushashiensis* is very similar to *Scolopocryptops ogawai* Shinohara, 1984 but *S. ogawai* is without the 3 short longitudinal sulci on the tergites. The ultimate legs' hairy tibia and tarsi differentiates *S. mushashiensis* from other two Korean species, *Scolopocryptops capillipedatus* (Takakuwa, 1938) with hairy 23th femur, and *Scolopocryptops spinicaudus* Wood, 1862 with glabrous 23th leg. The Korean specimens fit well *S. mushashiensis* by the differential characters. The species is only separated from two related species only by the hairiness of the ultimate legs' articles, a character known to vary intraspecifically in some North American species (Shelley, 2002). However, the different stages of this character seem to be stable within *S. capillipedatus* and *S. spinicaudus* in Korea (orig. obs.), thus the characteristic intermediate form seems to separate *mushashiensis* reliable.

Distribution. *Scolopocryptops mushashiensis* was known only from its type locality in Japan [Ichikawa (Ichikawa-shi), Chiba Prefecture, ~35°43.315′N 139° 55.863′E] till now. New to the fauna of the Korean Peninsula.

Deposition. Specimen 1 (NIBRIV0000812482), specimen 2 (NIBRIV0000812483), specimen 3 (NIBRIV 0000812484) have been deposited in the National Institute of Biological Resources, Korea (NIBR).

General Discussion

The number of known Korean species in genus *Scolopocryptops* Newport, 1844 has been elevated now to six. One of the two newly recorded species, *Scolopocryptops mushashiensis* shows the zoogeographical connection of the Korean Peninsula with the Japanese Islands, while *Scolopocryptops nigrimaculatus* links the Korean fauna with China.

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