

# ***Thanatus arcticus* Thorell, 1872 (Araneae: Philodromidae) new to the Korean spider fauna**

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Philodromidae Thorell, 1869 is one of the most diversified and largest families comprising 522 species in 29 genera within the order Araneae Clerck, 1757. The genus *Thanatus* C. L. Koch, 1837 comprise 99 species of the family and four species of the genus *Thanatus* (Philodromidae) have been recorded in Korea: *T. coreanus* Paik, 1979, *T. miniaceus* Simon, 1880, *T. nipponicus* Yaginuma, 1969, and *T. vulgaris* Simon, 1870. Two females of *T. arcticus* Thorell, 1872 were collected by sweep net between the shrubs in mountainous mixed forests from Mt. Chiaksan National Park, Wonju-si, Gangwon-do and Mt. Naejangsan National Park, Jangseong-gun, Jeollanam-do. The present study describes *T. arcticus* with measurements and taxonomic illustrations.

Keywords: Araneae, description, Korea, Philodromidae, *Thanatus arcticus*

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## INTRODUCTION

Philodromidae Thorell, 1869 is one of the most diversified and largest families comprising 522 species in 29 genera within the order Araneae Clerck, 1757. The genus *Thanatus* C. L. Koch, 1837 comprise 99 species of the family and four species have been recorded in Korea: *T. coreanus* Paik, 1979, *T. miniaceus* Simon, 1880, *T. nipponicus* Yaginuma, 1969, and *T. vulgaris* Simon, 1870 (Yoo *et al.*, 2015; WSC, 2023). Two females of *T. arcticus* Thorell, 1872 were collected by sweep net between the shrubs in mixed forests during the seasonal survey of mountainous spider fauna in 2018. Present study describes female of *T. arcticus* with a measurement and taxonomic illustrations. Specimens were collected by sweep net on the leaves of shrubs of and preserved in 98% ethyl alcohol and external morphology was examined under a Leica S8APO (Singapore) stereomicroscope. Images were captured with a Dhyana 400DC zoom digital camera (China) mounted on a Leica S8APO and assembled using Helicon Focus 8.2.0 image stacking software (Khmelik *et al.*, 2006). Measurements of body parts were made with an ocular micrometer and are recorded in millimeters. Internal genitalia of females were removed and treated in 10%

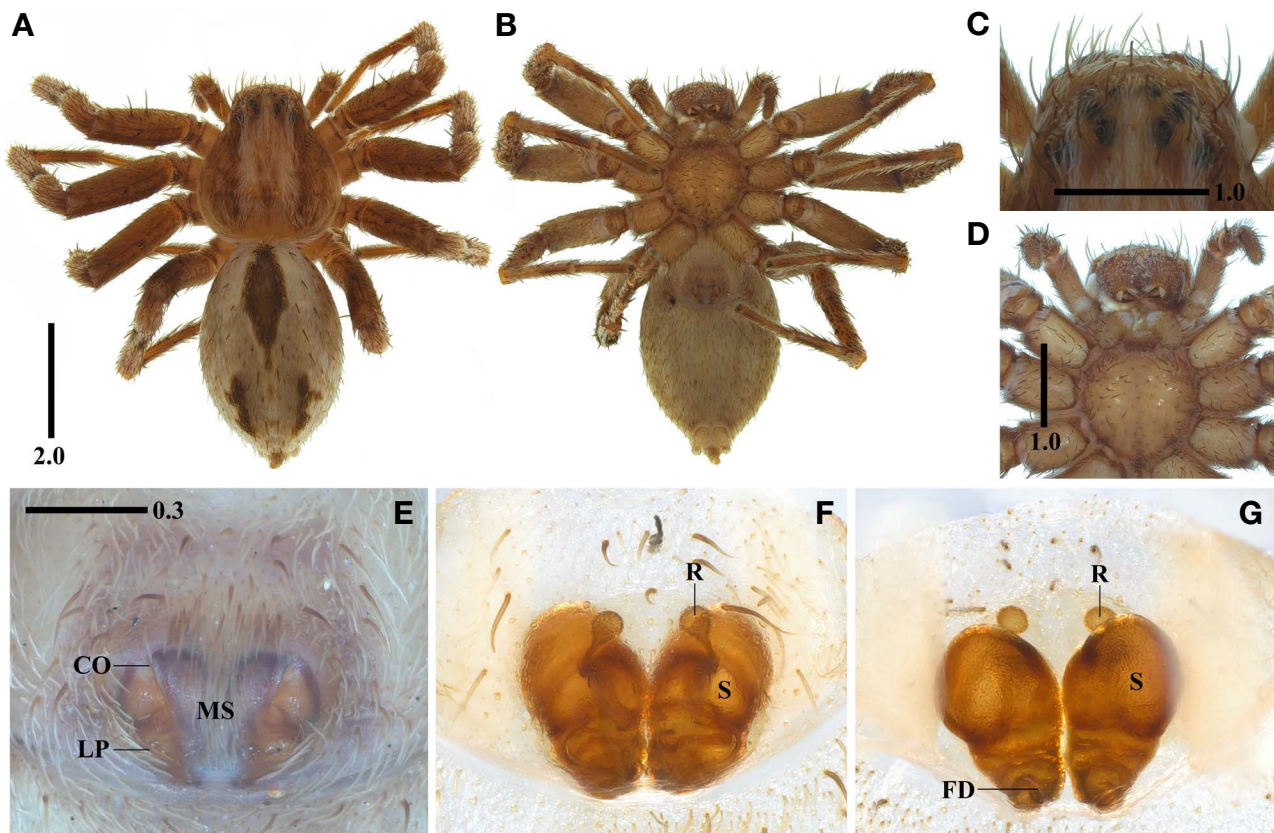
KOH for 2 hours before illustration. Leg measurements are shown as: Total length (femur, patella, tibia, metatarsus, tarsus). Morphological terminology follows Logunov (1996). Specimens examined are deposited in the National Institute of Biological Resources (NIBR), Incheon, South Korea.

## TAXONOMIC ACCOUNT

### Family Philodromidae Thorell, 1869

### Genus *Thanatus* C. L. Koch, 1837

**Diagnosis.** Male palp: cymbium with variable spines on the ventral tip and dorsal surface; tibia rather short, retrolateral tibial apophysis (RTA) developed, ventral tibial apophysis (VTA) reduced and formed a ridge or cusp extending from the base retrolateral tibial apophysis; embolus hooked, not spirally ridged, usually originated from the distinguishable base at distal end of tegulum (except *T. vulgaris*, where the base of embolus indistinguishable). Female epigynum: median septum broad or narrow, usually flat (except *T. vulgaris*, where it is concave), lateral guide pocket situated on the both sides of median septum, with



**Fig. 1.** *Thanatus arcticus* Thorell, 1872, female: A. Habitus, dorsal view; B. *Ditto*, ventral view; C. Eye area from above; D. Sternum; E. Epigynum, ventral view; F. Internal genitalia, ventral view; G. *Ditto*, dorsal view (CO = copulatory opening, FD = fertilization duct, LP = lateral guide pocket, MS = median septum; R = receptaculum, S = spermatheca). Scale bars in mm.

auriculate part or not; copulatory opening slit-shaped; spermatheca kidney-shaped, slender to broad, smooth or grooved; receptaculum visible anteriorly to medially on spermatheca, duct of receptaculum unfree and contained within spermatheca (Dondale *et al.*, 1964; Schick, 1965; Levy, 1977; Dondale and Redner, 1978).

**Type species.** *Araneus fonnycinus* Clerck, 1757.

***Thanatus arcticus* Thorell, 1872 (Fig. 1)**

북방창계거미 (신칭)

*Thanatus arcticus* Thorell, 1872: 157; Lenz, 1897: 76; Sørensen, 1898: 225; Fedotov, 1912: 463; Kulczyński, 1916: 24; Holm, 1958: 530; Dondale, Turnbull & Redner, 1964: 651; Holm, 1967: 81; Holm, 1968: 205; Hauge, 1976: 122; Dondale & Redner, 1978: 119; Marusik, 1991: 50; Logunov, 1996: 147; Almquist, 2006: 469; Tang & Wang, 2008: 78; Ono & Ban, 2009: 476; Pajunen, 2009: 86; Zhang, Peng & Zhang, 2022: 264; Marusik & Szűts, 2023: 95.

*Thanatus mediocris* Kulczyński, 1908: 66; Logunov, 1996: 135.

*Thanatus lapponicus* Jackson, 1932: 109.

*Thanatus kolymensis* Marusik, 1991: 48; Marusik &

Kovblyuk, 2011: 209.

**Specimens examined.** 1♀, Mt. Chiaksan National Park, Hakgok-ri, Socho-myeon, Wonju-si, Gangwon-do, 4 May 2018 (Kim S.T. & Lee S.Y. leg.); 1♀, Namchang Valley, Mt. Naejangsan National Park, Sinseong-ri, Bukhamaeon, Jangseong-gun, Jeollanam-do, 16 May 2018 (Kim S.T. & Lee S.Y. leg.).

**Description.** Female. Total length 6.70. Carapace: 2.83 long, 2.62 wide. AER 0.78, PER 1.19. Chelicera: 0.92 long, 0.51 wide. Endite: 0.50 long, 0.41 wide. Labium: 0.27 long, 0.44 wide. Sternum: 1.50 long, 1.38 wide. Legs: I 7.94 (2.37, 1.16, 1.82, 1.47, 1.12)/ II 8.94 (2.68, 1.29, 2.08, 1.70 1.19)/ III 7.80 (2.43, 1.15, 1.86, 1.47, 0.89)/ IV 8.76 (2.65, 1.16, 1.99, 1.86, 1.10). Palp: 2.57 (0.79, 0.49, 0.53, -, 0.76). Epigynum 0.53 long/0.67 wide.

Carapace pear-shaped, brown, clothed densely with short, recumbent, and white hairs, lateral sides dark, cervical and radial furrows distinct and dark brown, transverse fovea slightly depressed, longer than wide (Fig. 1A). Eight eyes enclosed with a dark patch in two rows, AER slightly recurved and PER strongly recurved, median

eyes slightly smaller than lateral eyes (Fig. 1C). Chelicera brown with two promarginal teeth (distal tooth larger than basal tooth). Endite pale brown, anterior margin truncated, longer than wide (Fig. 1B). Labium brown, wider than long (Fig. 1B). Sternum heart-shaped, brown with dark margin, convex, longer than wide, posterior tip round and not protruded between coxae IV, margin clothed sparsely with blackish brown recumbent bristles (Fig. 1D). Legs brown, robust and strongly developed, femora with two dark parallel lines on dorsal surface and two streaks on retrolateral surface, tibiae with a dark smudge proximally, leg spination: I (femur 0-0-0-1-1-1-2d/0v; tibia 0-1d/1-2-2v; metatarsus 0d/2-2-0v; tarsus 0d/0v); II (femur 0-1-1d/0v; tibia 0-1d/2-2-2v; metatarsus 0d/2-2-0v; tarsus 0d/0v); III (femur 0-1-1d/0v; tibia 1-2d/2-2-2v; metatarsus 0-1-3d/2-2-1v; tarsus 0d/0v); IV (femur 0-1-1d/0v; tibia 0-2-2d/1-2-2v; metatarsus 1d/2-2-3v; tarsus 0d/0v), leg formula II-IV-I-III. Abdomen ovoid, pale grayish brown, clothed densely with short white hairs, longer than wide, dorsum with a blackish brown longitudinal spear-shaped cardiac pattern occupying anterior half, a pair of blackish brown short streaks posteriorly, clothed sparsely with long blackish brown recumbent bristles (Fig. 1A), venter pale grayish brown, clothed densely with short white and brown hairs (Fig. 1B). Epigynum (Fig. 1E): round and simple, sclerotized, wider than long; median septum broad anteriorly narrowing posteriorly; lateral guide pocket auricular; anteromedial copulatory opening slit-shaped. Internal genitalia (Fig. 1F, G): spermatheca kidney-shaped and grooved posteriorly, almost contiguous each other; receptaculum spherical, approximately equal to receptaculum duct in length, protruded anteromesad.

**Habitat.** Mountainous mixed forest.

**Distribution.** Korea (new record), USA (Alaska), Canada, Greenland, Northern Europe, Russia (Europe to Far East), Kazakhstan, China, Japan.

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