

in the *M. ritae* group, it seems reasonable to establish a new complex within the *M. ritae* species group – the ***M. draco*-complex** – to include *M. draco*, *M. yamanei* and *M. schoedli* sp.n. In the character of body sculpture outlined above, the *M. draco* complex well differs from all known species of the *M. ritae* group. Furthermore, all known males in the *M. ritae* group, with the exception of *M. draco*, have short antennal scape; if males of *M. yamanei* and *M. schoedli* sp.n. prove to have long antennal scape, our view will be further supported.

Myrmica schoedli sp.n. well differs from the other *M. draco* complex species (*M. draco* and *M. yamanei*) in its much longer scape: $SI_1 > 1.23$ vs. < 1.18 , $SI_2 > 1.45$ vs. < 1.40 . Additionally, the head dorsum of *M. yamanei* has coarse reticulation (vs. longitudinal rugosity in *M. schoedli* sp.n.), and the propodeum is punctated, not smooth. *Myrmica draco* has a distinctly shorter, not sub-oval head (CI < 1.10 vs. > 1.15), less developed reticulation on the mesonotal dorsum, deeper metanotal groove, shorter petiole, etc. (see also RADCHENKO & al. 2001).

***Myrmica serica* WHEELER, 1928**

Myrmica margaritae var. *serica*: WHEELER (1928: 8): worker, China, holotype in MCZ, examined; CHAPMAN & CAPCO (1951: 127).

Myrmica ritae subsp. *serica*: WEBER (1950: 222): workers, queens.

Myrmica serica: RADCHENKO (1994: 44); BOLTON (1995: 283); RADCHENKO & ELMES (1998: 7): males; RADCHENKO & ELMES (2001a: 221); ELMES & RADCHENKO (1998: 222); RADCHENKO & al. (2001: 217).

Material examined: holotype (worker), China, Yunnanfu, leg. Silvestri (MCZ); non-type material: Southern Taiwan, Arisan, 2450 m a.s.l., 20.X.1977, leg. K. Yamachi, 5 workers; Central Taiwan, Hou-hoa-shan, 22.VIII.1995, leg. K. Onoyama, 4 workers, 5 males; Taiwan, Tanta, Nantou, Hsien, 12.VII.1994 and 14.VIII.1996, leg. C. Lin, 2 workers; Taiwan, Fenchitu, 8.VIII.1969, leg. M. Kubota, 5 workers; Taiwan, Nantou Hsien, Jeiyeng, 9.VIII.2002, leg. J. Elmes, 70 workers, 3 queens, 9 gynes, 3 males (from several nests); Taiwan, Chiayi Hsien, Alishan Forest Recreation Centre, 11.VIII.2002, leg. G. W. Elmes, 56 workers, 5 gynes (from several nests); Shanxi, 34° 27' N, 110° 06' E, Qin Ling Shan, Hua Shan, 118 km E. Xian, 1200 - 1400 m a.s.l., No 958, 18.-20.VIII.1996, leg. Wrase, 2 workers, 1 queen; Guangxi, Damin Shan, 14.VI.1997, DMS-139, leg. J. Fellowes, 1 worker; Guangxi, Hua Ping, 840 m a.s.l., 16.VIII.1998, leg. J. Fellowes, 1 worker; Guangxi, Hua Ping, 6.VII.1995, No. 1, leg. S. Zhou, 1 worker; Guangxi, Da Yao Shan, 1300 m a.s.l., 21.IX.1998, leg. J. Fellowes, 2 workers; Guangxi, Da Yao Shan, 21.IX.1998, No. 5, leg. S. Zhou, 1 worker; Guangxi, Mao Er Shan, 29.VIII.1997, leg. S. Zhou, 1 worker; northern Vietnam, Xeo Mi Ti, Sa Pa district, Lao Cai province, 1680 m a.s.l., 29.-30.VII.1998, leg. B. T. Viet, 2 workers; northern Vietnam, Cong Troi, Sa Pa district, Lao Cai province, 2000 - 2200 m a.s.l., 26.IV.-2.V.2002, leg. K. Eguchi, 47 workers (from several nests).

Taxonomic notes. For the details of taxonomy and morphometrics see RADCHENKO & ELMES (1998).

Bionomics. This species inhabits the high altitude mixed forests that grow on mountains throughout SE Asia. In mainland China it was recorded at about 1300 m a.s.l., in

Vietnam between 1680 m - 2200 m a.s.l., and in Taiwan between 1400 - 2450 m a.s.l.. In Vietnam nests were located in rotten wood, or sometimes natural cavities in fallen and standing dead wood, and in dead bamboo. In Taiwan one of us (GWE) found nests under stones by the side of a forest track; sometimes these stones were quite large and deeply embedded. Other nests were found in rotting tree-stumps and branches, in fairly open forests. An earlier sample was recorded as living under a stone in grassland. The choice of nest site may be determined simply by the availability of different types of cavity / substratum for nesting, or deeply embedded stones may be favoured in more sunny, exposed places (grass and forest edge), while rotten wood and/or natural cavities may be favoured within forests. In Taiwan nests could be quite large (> 1000 workers). Despite their unusual morphology and presumed ancient origins this *M. ritae* group species appears to forage and behave like many other forest species of *Myrmica* (e.g., *M. ruginodis* NYLANDER, 1846, *M. kotokui* FOREL, 1911). Workers were not particularly aggressive, less aggressive than in *M. arisana* WHEELER, 1930 from nearby locations in Taiwan. Their sting was no more painful than that of any other *Myrmica* species. Sexualls from nuptial flights were found on the ground in Taiwan on 9 - 11 August 2002; the mating sites were not located, they were probably at the top of tall trees. In short, nothing in their ecology as far as it is known, other than an inclination to use natural cavities in wood, stands out as being remarkably different from other, possibly more recently derived, forest-living species of *Myrmica*.

Distribution. *Myrmica serica* is one of the commonest and widespread species of the *M. ritae* group, ranging from southern China and Taiwan to northern Vietnam.

***Myrmica titanica* RADCHENKO & ELMES, 2001**

Myrmica titanica: RADCHENKO & ELMES (2001 a: 222): workers.

Material examined: holotype (worker), northern Vietnam, Fan Si Pan, Sa Pa district, Lao Cai province, alt. 2020 m a.s.l., April 1998, leg. B. T. Viet (YAMANE); paratype worker with the same label (ELMES); non-type material: northern Vietnam: Lao Chau province, western slopes of Mt. Fan Si Pan (W. Cong Troi), 2100 - 2200 m a.s.l., 6.V.2002, leg. K. Eguchi, 1 worker; Cong Troi, Sa Pa district, Lao Cai province, 2000 - 2200 m a.s.l., 28.IV.-2.V.2002, leg. K. Eguchi, 11 workers.

Taxonomic notes. For the details of taxonomy and morphometrics see RADCHENKO & ELMES (2001a). It is worth noting that this species is the biggest *Myrmica* known worldwide with HL > 2.1 mm and AL > 3.3 mm. Nevertheless, *M. titanica* clearly belongs to the *M. ritae* complex of the *M. ritae* group and differs from all other species from this complex (except for *M. angulata*) in the punctures present between rugae on the petiole and postpetiole.

Bionomics. Little is known about this species. Almost all specimens have been collected foraging on the ground or on fallen trees in well-developed forests. Katsuyuki Eguchi collected workers coming out from a natural cavity in a tree cut down for timber; unfortunately he had no tools to cut into the wood to "excavate" the colony. This led us to speculate that *M. titanica* might be a truly