Temnothorax nylanderi (Förster, 1850) new and a second record of *Stenamma debile* (Förster, 1850) (Hymenoptera, Formicidae) in Norway

TORSTEIN KVAMME & THOR JAN OLSEN

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Temnothorax nylanderi (Förster, 1850) is documented for the first time in Norway. This is the northernmost record of the species. Two single, wingless queens were recorded at VE Borre: Natursenteret in Horten (EIS 19). The species has been expected to occur in Norway. Three colonies of *Stenamma debile* (Förster, 1850) were recorded in an oak forest at VAY Kristiansand: Nedre Timenes (EIS 2). The first record this species was done in 1977 at AAY Grimstad: Omre (EIS 6). Both *S. debile* and *T. nylanderi* are believed to have a potential distribution along the coast of Norway, from Kristiansand to the Swedish border.

Key words: Hymenoptera, Formicidae, *Temnothorax nylanderi*, *Stenamma debile*, distribution, Norway

Torstein Kvamme, Norwegian Forest and Landscape Institute, P.O. Box 115, NO-1431 Ås, Norway. E-mail: torstein.kvamme@skogoglandskap.no

Thor Jan Olsen, P.O. Box 1062 Valaskjold, NO-1705 Sarpsborg, Norway. E-mail: t-jolse@online.no

Introduction

The first overview of the Norwegian ant fauna was written by J.H.S. Siebke (1816–1875) and published by Sparre Schneider (1880). This publication included a total of 16 ant species. The number of ant species known in Norway has increased steadily due to new records, descriptions of new species and taxonomical changes. The latest list of Norwegian ants includes 54 species (Kvamme & Wetås 2010). Compared to the ant fauna in Sweden (Douwes 1995), we should expect closer to 70 outdoor living species (Kvamme & Collingwood 2009) or even more (Kvamme 2010). The record of *Temnothorax nylanderi* (Förster, 1850) raises the number of ant species in Norway to 55.

T. nylanderi was originally described as *Myrmica nylanderi* Förster, 1850, but was later included in *Leptothorax* Mayr, 1855, and then transferred to *Temnothorax* Mayr, 1861 (Bolton 2003). Later it was included in the subgenus *Myrafant* M.R. Smith, 1950. *Myrafant* is now a junior synonym of *Temnothorax* (Bolton et al. 2007). The interpretation of the taxonomic status of *T. nylanderi* has varied between subspecies and species (Bolton et al. 2007). Seifert (1995, 1996) worked out the morphology of *T. nylanderi* and closely related species in Central Europe. Radchenko (2000) cleared up the misinterpretation and the misidentification of *T. nylanderi* in Russia and the former Soviet Union (see also Czechowski et al. 2002). We follow the common interpretation

as used by e. g. Kutter (1977), Collingwood (1979), Douwes (1995) and Seifert (2007).

Stenamma debile (Förster, 1850) was first recorded in Norway at AAY Grimstad, Omre (EIS 6), 1977, and published under the name *S. westwoodii* Westwood, 1840 (Kvamme & Bakke 1977). An old record of a supposed introduced population in the Botanical Garden in Bergen was first identified as belonging to *Monomorium* (Holgersen 1944). Later it was included in the Norwegian list under the name *S. westwoodii* (Collingwood 1974, 1979, Kvamme 1982). The record was based on misidentified exotic specimens, and consequently deleted from the Norwegian list (Kvamme & Wetås 2010).

S. debile was synonymised with *S. westwoodii* by Mayr in 1863 (Bolton et al. 2007). Dubois (1993) redefined *S. westwoodii* and close relatives and released *S. debile* from synonymy as a junior synonym of *S. westwoodii*. Later he revised the genus *Stenamma* in the Palaearctic and Oriental regions (Dubois 1998) and confirmed the status. Additional taxonomical characters are presented by Fox (2009). In Scandinavia the only species known from this genus is *S. debile* (Douwes 1995, Kvamme & Wetås 2010, Nielsen 2011, Pekka Punttila pers. com.).

T. nylanderi is a typical species in mixed oak forests (Seifert 2007), but can also be found in other types of forests. Usually the colonies are found in dead wood and bark, twigs, oak nuts, galls etc. on the ground. Colonies have also been found on the ground itself or under stones. The colonies are small with an average number of 80–90 workers and one queen (Collingwood 1979, Douwes 1995, Czechowski et al. 2002, Seifert 2007).

S. debile has a very cryptic mode of life. In addition the ants are small, move slowly and roll together when disturbed. The species is therefore

FIGURE 1. One of the single queens of *Temnothorax nylanderi* (Förster, 1850) collected at VE Borre: Natursenteret in Horten (EIS 19). Photo: K. Sund.

FIGURE 2. The mixed deciduous forest around Natursenteret at VE Borre (EIS 19) where *Temnothorax nylanderi* (Förster, 1850) was recorded. Photo: T. Kvamme.

easily overlooked (e.g. Czechowski et al. 2002). The typical habitats are deciduous forests with a good layer of litter, but it can also establish colonies in other forests types. The colonies are monogynous or polygynous (Czechowski et al. 2002, Seifert 2007) with up to 150 workers (Collingwood 1979) and are most commonly found under rather deep set stones. The species prefers shaded habitats. In Sweden *S. debile* is known from Skåne, Gotland and Vestergötland counties (Douwes 1995).

The records

Two single wingless queens were recorded at **VE** Borre: Natursenteret i Horten (EIS 19) (UTM 32V E581650 N 6587350) at the northern end of Borrevannet, on 21 June 2008 (Leg. Thor Jan Olsen). The queens were collected from dead wood. No colony of the species was found. The locality is characterized by having a rich mixed forest where *Quercus robur*, *Tilia cordata*, *Fraxinus excelsior*, *Betula pendula*, *Salix* spp., *Ulmus glabra* and other deciduous trees are common. Some *Picea abies* and *Pinus sylvestris* trees occur, but they are not dominant tree species (Figure 2). The authors searched for *T. nylanderi* at the same locality on 19 May 2011, but without success.

The first author and the butterfly specialist Kai Berggren sampled at **VAY** Kristiansand: Nedre Timenes (EIS 2) (UTM 32V E446950 N6447085) on 27 June 2011. The locality is a sheltered forest stand of *Quercus robur*, close to Drangsvann, which is a fjord with brackish water. Due to the density of trees the locality is shaded (Figure 4). The colonies were found under deep set stones, 20–25cm below soil surface after about 30 minutes of searching. According to the development plan, the area will be part of a planned nature reserve.

Discussion

The occurrence of *T. nylanderi* in Norway was expected. In Sweden it is known from Skåne,

FIGURE 3. Worker (A) and queen (B) of *Stenamma debile* (Förster, 1850) from VAY Kristiansand: Nedre Timenes (EIS 2). Photo: K. Sund.

Östergötland and Dalsland Counties (Douwes 1995). The species was earlier listed as doubtful from Finland (Söderman & Vikberg 2002), but has later been deleted (Pekka Punttila pers. com., Seifert 2007, Paukkunen 2011). This makes the Norwegian record the northernmost ever.

Localities with oak or mixed forests are common along the coast from Mandal to the Swedish border and we believe that both species might be found locally within this area. Both species are easily overlooked, but *S. debile* even more so (e. g. Czechowski et al. 2002). The combination of one and two records respectively, cryptic modes of life and the ants and colonies themselves being easily overlooked, makes it difficult to evaluate the abundance and the true

FIGURE 4. The oak stand at VAY Kristiansand: Nedre Timenes (EIS 2) in spring, where *Stenamma debile* (Förster, 1850) was recorded. The fjord Drangsvann can be seen behind the trees. Photo: K. Berggren.

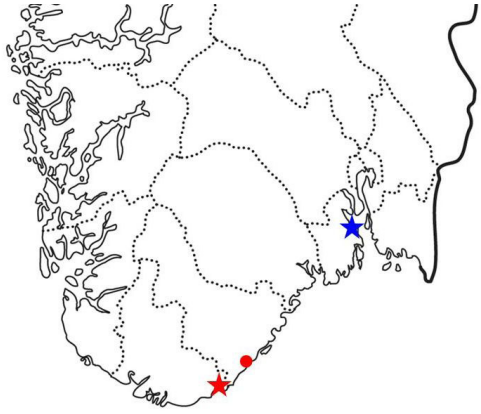

FIGURE 5. The blue star shows the locality of *Temnothorax nylanderi* (Förster, 1850). The new record of *Stenamma debile* (Förster, 1850) is marked with a red star and the old record is marked with a red dot.

distribution of the species.

Today *S. debile* is listed as vulnerable (VU) in the Norwegian red list (Hansen et al. 2010). The uncertainty indicates that both species should be listed in the red list category Data Deficient (DD). A proper evaluation of the status in Norway can only be done when more data are available.

No Norwegian name has previously been proposed for *T. nylanderi* (Kvamme & Wetås 2010). Förster dedicated the species to the ant-specialist William Nylander (1822–1899). In honour of his work as an important myrmecologist, we propose that the Norwegian name should be "Nylanders smalmaur".

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