

Depending how Europe is defined, its Odonata fauna comprises some 125-140 species. Altogether about 70 species have been recorded in 'northern' Europe (Denmark, Norway, Sweden, Finland, Estonia, Latvia, Lithuania and the European part of Russia north of the latitude 55° N). However, 7-8 of them must be ranked as migrants or vagrants.

In Finland a total of 53 established species occur. In addition there is one regular migrant (*Aeshna mixta* Latreille, 1805), which can also temporarily breed there in favourable places in warm summers. In addition five vagrant species from central or southern Europe have been recorded in Finland. It is rather surprising that the ranges of half of the established Finnish species reach the Polar Circle, and no less than 18 species occur north of the latitude 68° N.

Due to ongoing global warming several European species have expanded their range northwards during the last 10-15 years and this process seems to be continuing. For example the first record of *Anax imperator* Leach, 1815 in Scandinavia was made in Denmark in 1994. In Sweden this species was found in 2003. At present this species ranges throughout Denmark and southernmost part of Sweden and it has also been casually recorded north of Stockholm and in Åland Islands in Finland. East of the Baltic it has reached Estonia.

Northern Europe is home to five species, which do not occur in central and southern parts of Europe.

Somatochlora sahlbergi Trybom, 1889 (Figs. 1-2) is the northernmost dragonfly species in the world. It is a widespread circumpolar taiga species, which occurs in Eurasia, Alaska and Canada. In Europe it has been recorded only north of the Polar Circle, in Norway, Sweden, Finland and in Kola Peninsula in Russia. Most of the known populations in Europe are located north of the latitude 69° N. Here the typical habitats are subarctic palsa mires.

The impressively large *Aeshna crenata* Hagen, 1856 (Fig. 3) occurs in southeastern Finland. Its range extends eastwards to the Kamchatka Peninsula in the Russian Far East. A few populations are known also in Latvia, Lithuania and White Russia. In Finland its typical habitats are small *Sphagnum* and *Carex* bordered forest lakes in depressions in pine forests.

Another gorgeous hawkler species, *Aeshna serrata* Hagen, 1856 (Fig. 4) occurs in southern



Fig. 1. *Somatochlora sahlbergi* Trybom, 1889. Male. Utsjoki, Finnish Lapland. July 2009. Photographed by Matti Hämäläinen.

図1. 強風に、パルサ樹林地帯の背後の地表に逃げ込んだ *Somatochlora sahlbergi* Trybom, 1889. ♂. フィンランド・ラップランド地方・ウツヨキ. 2009年7月. Matti Hämäläinen 撮影.



Fig. 2. *Somatochlora sahlbergi* Trybom, 1889. Female. Utsjoki, Finnish Lapland. July 2009. Photographed by Matti Hämäläinen.

図2. *Somatochlora sahlbergi* Trybom, 1889. ♀. フィンランド・ラップランド地方・ウツヨキ. 2009年7月. Matti Hämäläinen 撮影.

Sweden and along the coastline of the Baltic Sea in Finland and Estonia. In the European part of Russia it occurs at least in the Arkhangelsk Oblast (Archangel) and obviously also in the Komi Republik.

The range of *Coenagrion johanssoni* (Wallengren, 1894) (Fig. 5), a rather small damselfly, covers parts of Norway, central and northern Sweden, the whole of Finland and much of the northern parts of European Russia. It is also known from Estonia, Latvia and Lithuania. In Asia it reaches Kamchatka in the Russian Far East.



Fig. 3. *Aeshna crenata* Hagen, 1856. Male. Espoo, Finland. August 2009. Photographed by Sami Karjalainen

図 3. 松類の樹幹に静止する *Aeshna crenata* Hagen, 1856. ♂. フィンランド・エスポー。2009年8月。Sami Karjalainen 撮影。



Fig. 5. *Coenagrion johanssoni* (Wallengren, 1894). Male. Espoo, Finland. August 2009. Photographed by Sami Karjalainen

図 3. *Coenagrion johanssoni* (Wallengren, 1894). ♂. フィンランド・エスポー。2009年8月。Sami Karjalainen 撮影。



Fig. 4. *Aeshna serrata* Hagen, 1856. Male. Virolahti, Finland. August 2000. Photographed by Sami Karjalainen

図 4. *Aeshna serrata* Hagen, 1856. ♂. フィンランド・ヴィロラティ。2000年8月。Sami Karjalainen 撮影。

Rather unexpectedly, a few relict populations of the north Asian damselfly species, *Coenagrion glaciale* (Selys, 1872) were found recently (in 2009) in the Pinega region (64° 30' - 58' N, 43° 13' - 30' E in the Arkhangelsk Oblast (Archangel) in the European part of Russia, only some 600 km east of the Finnish border. In the same area also populations of *Coenagrion hylas* (Trybom, 1889) were discovered. Relict populations of this north Asian species have earlier been found in the Alps in Central Europe.

北ヨーロッパのトンボ

ヨーロッパのトンボは 125 ~ 140 種から成るが、そのうち約 90 種は、デンマーク、ノルウェー、スウェーデン、フィンランド、バルト三国、ロシア北部といった北ヨーロッパから記録されている。フィンランドでは 53 種がみられ、そのうちマダラヤンマ *Aeshna mixta* は、暖かな夏季に適地へと移動し、一時的な繁殖行動を行う。地球規模の温暖化のために、最近の 10 ~ 15 年間のうちに、いくつかの種（ギンヤンマ科の 1 種、*Anax imperator* など）では分布を北へと拡大しており、その傾向は続いているようにみえる。

北部ヨーロッパを分布の本拠とするものには 5 種（イトトンボ科の *Coenagrion johanssoni*、ヤンマ科の *Aeshna crenata* (オオルリボシヤンマ)、*A. serrata*、エゾトンボ科の *Somatochlora sahlbergi* など）がいる。オオルリボシヤンマの分布はカムチャツカ半島、極東ロシア（訳者注：日本まで分布）まで達しているほか、*S. sahlbergi* は世界のトンボの中でもっとも最北に分布するものの一つである。

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