The spreading of Ostearius melanopygius (Araneae: Linyphiidae) through Central Europe

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Abstract. A complete list of records of Ostearius melanopygius in the Czech and Slovak Republics is given. The opportunistic life strategy of this species and its gradual progress from the coast towards the inland indicates unambiguously that the species has been imported to Europe. Over the past decades the species has been progressing through Europe eastwards at a rate of approximately 30 km annually.

Introduction

The spider Ostearius melanopygius (O.P.-Cambridge, 1879) (Araneae: Linyphiidae) is widespread over the southern hemisphere. In early 20th century this species was observed in Europe, to which it had been presumably imported on ships. Currently this spider is observed spreading eastwards through Europe.

The cosmopolitan distribution of O. melanopygius

O. melanopygius was described from New Zealand. After finding individuals of this species on Atlantic islands and in England, a widely-accepted assumption was made that O. melanopygius had been imported into Europe from New Zealand (Locket & Millidge, 1953; Wiehle, 1960). Denis (1964) supported this assumption, based on the similar maritime climate of these two regions. Reverse examples of the introduction of the European species, Diplolcaucus cristatus and Leptophantes tenuis, into New Zealand are known (Denis, 1964). However, Holm (1962), found that this species had been known, under various synonyms, over the entire southern hemisphere, including Africa, South America, and islands in the Indian and Pacific Oceans, and Wunderlich (1976) reported a finding in Australia. Denis (1964) remarked on the possible Upper Cretaceous origin of this species and on its distribution throughout southern landmass before the separation of the present continents. The present spreading of O. melanopygius in the southern hemisphere and mixing of individual populations (which do not exhibit symptoms of isolation) is probably possible. Findings of wind-blown specimens in Kenya and in the Alps at altitudes over 2,000 m (Holm, 1962; Thaler, 1978) is evidence of the enormous ability of this species to spread.

At latitudes north of the tropic of Cancer, this species has been seen in the Azores, Madeira, the Canaries, Morocco, Great Britain and Europe (Denis, 1964) and some sparse data comes from Japan (Oi, 1960) and from the United States (Ivie, 1967).

O. melanopygius in the Czech and Slovak Republics

O. melanopygius was first recorded in the Czech Republic in 1974 (Potužáková, 1975) and from the Slovak Republic in 1990 (Ign. M. and P. Antuš). Currently there are 29 sites in the two republics where this spider has been recorded (Fig. 1).

The suggestion that this species prefers higher temperatures, as reported by Sacher (1978), is consistent with its occurrence on south-facing slopes, often in rocky steppe in protected regions (sites No. 74, 80b, 81b, 91f). Its occurrence in initial biotopes, such as spoil banks remaining after coal- and ore-mining (sites No. 80a, 88, 90), in fields (sites No. 91b-e), and in villages (sites No. 75b, 91a) is characteristic. Single findings have been made in sylvan biotopes (sites No. 84a, b, 87b). Its occurrence in Krkonoše.

Mountains (Giant Mountains) (site No. 85, 1,450 m altitude), Jizerské Hory (site No. 93a, 860 m altitude), and the High Tatras (site No. 93c, 1,780 m altitude) indicates that the species may spread by ballooning.

A mass occurrence of males, females with cocoons, and immature individuals has been observed by M. Antus and F. Zbytek in the winter months (November–January) in fields, under heaps of rotting straw. In the material from the Dubeč site (No. 75a), nearly all specimens (over 30 individuals) were hosts of hypopi of the mite *Anoetus fermoniarum* (Acari: *Anoetiidae*) (det. K. Samšťák). Some specimens hosted as many as 16 mites.

**O. melanopygius** in Europe

Denis (1964) considered the most probable route of introduction into Europe was from New Zealand to England, then to Portugal, Azores and Madeira, and then repeatedly at various places on the French coast.

The first observation in England was near London in 1906. On the continent, the spider was first observed in 1937 in the surroundings of the Portuguese port of Porto. In 1944, it was found on the western coast of France; the same year it was first seen inland, near Paris (Denis, 1964). The first observation in Germany was near Hamburg in 1957 (Wieleh. 1960). Denis (1964) described the distribution of the species in west Europe in the early 1960s. The next records were made in Belgium (Keekenbosch, 1963),
Fig. 2. Eastern boundaries of *Ostearius melanoppygius* (O.P.-Cambridge) in Europe in the last five decades. Source: Denis (1964), Wiehle (1960), Wunderlich (1971), Dziabaszewski (1979) and Antúš (unpubl.).

Czech and Slovak Republics (see above), Austria (Thaler, 1978), Poland (Dziabaszewski, 1979) and in Switzerland (Benz et al., 1983). The biology of this species has been described by Braun (1961). It occurs in wide variety of habitats, often in association with man, such as rubbish heaps, fields, gardens and, in particular, on compost-heaps (Benz et al., 1983) and in greenhouses (Sacher, 1978).

The spreading of *O. melanoppygius* in Europe is passive and is caused by the prevailing wind direction from west to east. A similar expansion of distribution, caused by passive spreading, was noted in the gastromycetace fungus *Clathrus archeri* (Berk.) Dring. It is probable that this fungus was imported into Europe with cotton shipments from Australia and New Zealand. The first record was made in France about 1914, in Germany in the early 1930’s, in the Czech Republic in 1963 and in 1977 the species was recorded from the Ukraine (Klužák, 1990, Krieglsteiner, 1992).

Since the 1940s, *O. melanoppygius* has been spreading through central Europe eastwards. Intensive activity of arachnologists in the former German Democratic Republic (Sacher, 1978) and Czechoslovakia, over the past decades, has enabled this process to be documented accurately. Over the 1941–1990 period, the limit of distribution *O. melanoppygius* has moved eastwards at a rate of approximately 30 km annually (Fig. 2).

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References


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