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A EUROPEAN ANT (*MYRMICA LEVINODIS*) INTRODUCED INTO MASSACHUSETTS

It is surprising that very few ants have been introduced into North America from Europe, notwithstanding the great facilities for transportation between the two countries, the similarity of their climatic and physiographic conditions and the close affinities of their ant-faunas. One species only, *Tetramorium cespitum*, has been recorded as of European provenience, and this, though of many years' residence among us, is still confined to the Atlantic States (Connecticut to Maryland). I have recently come upon a second ant which must have been introduced into Massachusetts. Early in September I found a large colony of *Myrmica levinodis* Nylander in the grass at the edge of the Arnold Arboretum, a few steps from the Bussey Institution, at Forest Hills, Mass. The workers were attending plant-lice (*Aphis* sp. near *rumicis*) on a few stalks of *Chenopodium album* very near their nest. Some days later a second colony was discovered at the edge of Franklin Park, about a mile from the Arboretum. Early in October a third colony was seen on a lawn near the postoffice in Jamaica Plain. Though by no means common, it is certain that this ant has begun to spread over the country about Forest Hills.

M. levinodis was formerly regarded as one of a number of subspecies of a single circumpolar species, *Myrmica rubra* L. Emery¹ has recently raised the subspecies *scabrinodis*, *sulcinodis*, etc., to specific rank, but has retained *levinodis* and *ruginodis* as subspecies of *rubra*. It is clear, as he remarks, that Linné must have described one or both of these forms as *rubra*, since he introduced into his diagnosis the

¹Beiträge zur Monographie der Formiciden des paläarktischen Faunengebiets. Deutsch. Ent. Zeitschr., 1908, pp. 165-182.

words "*pessime nostratum pungit*," and it is now known that none of the other European or North American forms of *Myrmica* (except *rubida* and *mutica*, which form a group by themselves) has well-developed stinging powers. As there are no means of telling to which of the two forms Linné referred, and as they are connected by numerous intermediate varieties, known to European myrmecologists as *levinodis-ruginodis*, we had best adopt Emery's interpretation.

A few years ago I described¹ a form of *levinodis* from Woods Hole, Mass., as var. *bruesi*. On comparing workers of this and of the *levinodis* from Boston with workers from a number of colonies from various parts of Europe (Scotland, England, Norway, Sweden, Germany, Austria, Switzerland and Russia), I find that the Boston specimens are indistinguishable from the typical Old World form. They are yellowish, with brownish head, feebly sculptured head and thorax, and with smooth and shining epinotal declivity and postpetiole. These characters will serve to distinguish *levinodis* from any of our American *Myrmicas*. The workers of the var. *bruesi* have the head and thorax somewhat more coarsely rugose, and the postpetiole, though smooth, is subopaque, so that this variety is more like some of the European intermediates between *levinodis* and *ruginodis*. The males of *bruesi*, however, have prominent, suberect hairs on the legs, like the males of the true *levinodis*.

I believe there can be no doubt that both the Boston and Woods Hole specimens are the offspring of females that were accidentally imported from Europe. The mothers of the Boston colonies were in all probability introduced into the Arnold Arboretum with European trees or shrubs, and as the few colonies observed by Mr. C. T. Brues and myself at Woods Hole occupied a very circumscribed locality adjoining Mr. Fay's rose-garden, they probably had a similar history.

²Forel has described two subspecies of *rubra* from North America as *neolevinodis* and *champlaini*, and if these be regarded as indigenous to the country, it is clear that the Massachusetts colonies of *levinodis* and *bruesi* might be similarly interpreted. The Swiss myrmecologist states that *M. neolevinodis* was introduced into Hamburg "from New York with iris roots." The worker is described as having thicker and shorter antennæ than the typical *levinodis*, with more decidedly bent scapes, a shorter petiole, with nearly straight anterior declivity and somewhat coarser cephalic and thoracic sculpture. As I have never been able to find any form of *levinodis* in New York state, and as the

¹New Ants from New England. *Psyche*, XIII, 1906, pp. 38-41, pl. IV.

²Formiciden des naturhistorischen Museums zu Hamburg. *Mittheil. aus d. naturhist. Mus. Hamb.* XVIII, 1901, pp. 45-82.

iris roots in which Forel's form were found may have reached Hamburg from Japan or Siberia by way of New York, I am not convinced that *neolevinodis* is an American insect. *M. champlaini* was taken by Forel himself in a meadow near Quebec. The worker of this subspecies is described as being very similar to that of *neolevinodis*, but as having teeth instead of spines on the epinotum. The sculpture of the head and thorax is coarser than in the European *ruginodis*, the petiole and postpetiole are smooth except for a few lateral furrows, and the antennæ are as short as those of *neolevinodis* or even shorter. As Quebec has long been in direct and intimate communication with Europe, it is not at all improbable that *M. champlaini* is merely a rather pronounced imported variety of *levinodis*. Finally, I may state that although I have brought together a very large collection of *Myrmicas* from all parts of temperate North America, I have never been able to find any forms allied to *levinodis* except the two mentioned above. I am therefore of the opinion that the true *M. rubra*, as recently defined by Emery, is not indigenous to North America.

The preceding remarks have merely a theoretical bearing, but the introduction of *M. levinodis* into the United States may have some economic importance, for this ant is the most disagreeable of the pale-arctic *Myrmicas*. It forms much more populous colonies than *scabrinodis*, *sulcinodis*, *brevinodis* and their numerous varieties, and its workers are aggressive and sting severely.

It is very fond of attending aphids and, unlike our timid native *Myrmicas* which live in the retirement of woods, bogs, heaths and waste places generally, it prefers to nest in cultivated soil. Hence it may become a nuisance in lawns and dooryards, like the fire-ant (*Solenopsis geminata*) of the Southern States. It is, of course, impossible to ascertain how long the typical *levinodis* and its variety *bruesi* have been living in Massachusetts, or whether their spread will be checked by any of our native ants. The aggressive character of the imported forms would seem to indicate that they will meet with little or no opposition from the allied indigenous species, and as *levinodis* flourishes in Norway and the Alps, it will hardly find our severe winters a serious obstacle to the growth and multiplication of its colonies. It may be advisable, therefore, to keep this belligerent immigrant under observation.

W. M. WHEELER.

Bussey Institution,

Forest Hills, Boston, Mass.,

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