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PLANT PROTECTION NEWS

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AREA OF DISTRIBUTION AND DAMAGE OF *CHAMAEPSILA ROSAE* (DIPTERA, PSILIDAE)

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The Carrot Rust Fly (*Chamaepsila rosae* Fabr.) is one of the most dangerous pests of carrot crops. It is distinguished from related species in entirely black body, yellow head and legs, yellow antenna having narrow black limb along dorsal margin. The species lives in all regions of Europe. It is known from Mongolia, Japan (Hokkaido), Northern America, being introduced in New Zealand. In the former USSR it meets in the European part (from Georgia and Moldova to forest-tundra), in the south of Siberia and of the Far East; the species inhabits probably more northern areas of the Asian Russia, but such data are still unknown.

Treatment of collections of the Zoological institute of the Russian Academy of Sciences and Zoological museum of the Moscow University has allowed defining more accurately the known area of this pest, adding Alania, Iran and some regions of the Russian Far East to the area. The data on Iran (after material collected by N.Filippov in vicinities of Teheran at May, 5-6, 1937) require confirmation, as N.Filippov's collection knows some cases of incorrect labelling. The Helsinki Zoological museum collection (Pekka Vilkkamaa, pers.comm.) has also material from Murmansk Region (Luostari).

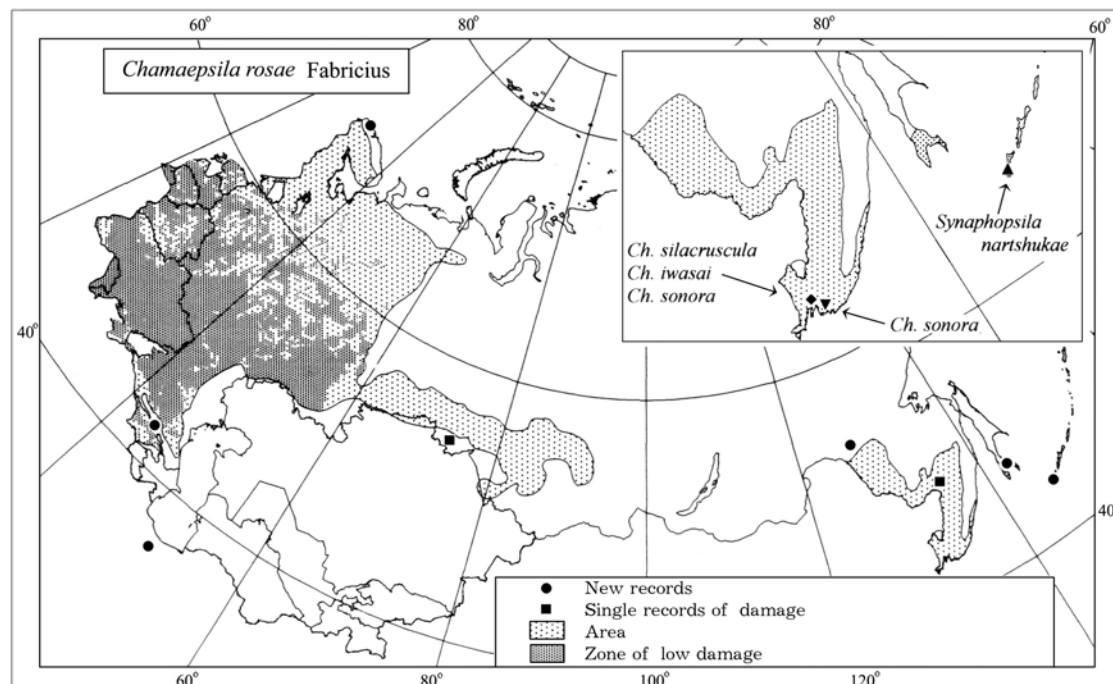


Fig. Modern data on distribution of *Chamaepsila rosae* and its Far Eastern relatives in the former USSR

On the territory of the former USSR the carrot rust fly harms in areas with higher humidification more (e.g., in western forest-steppes of Ukraine, in Polesye, foothills of Carpathian mountains). In southern regions (the Northern Caucasus, Transcaucasia) the moderate and high humidity and opacity are the necessary conditions for its harmfulness (Shavkatsishvili, 1963; Berdysh et al., 1994). Its damage is recorded also in Karelia and Komi Republics. Larvae damage pulp of carrot roots, roots of parsnip and also parsley and celery; sometimes being met on roots of hemlock, dill, and caraway.

If the agronomical rules are not observed (for example, annual crop rotation is absent), then the low harming activity of the pest becomes high, and chemical treatments are required on shoots (Savzdarg, 1927; Ovchinnikova, 1949;1959; Rogochaya, 1974; Bryantsev & Dobrozrakova, 1963; Kharchenko et al., 1975; Tanasiichuk, 1981); therefore, within the limits of the pest general area located on the territory of the former USSR, the zone of low damage is allocated, where carrots have economic value. Number of the pest in this zone usually reaches economic threshold that is 3-4 eggs/plant (Tanskii, 1985) or 1-2 flies per 1 yellow sticky trap for 3 days during the period beginning from 2-3 present leaves and before growth of roots (Gavrilova & Bakalova, 2004; Legutowska, 2004).

Vector map (Fig.) is created on scale 1:20 000 000, projection "Alber's Equal Area Conic for the USSR", 9, 1001, 7, 100, 0, 44, 68, 0, 0, by means of GIS-technologies. The Carrot Fly area in the European part includes forest, forest-steppe, and steppe zones (Rogochaya, 1974; Polyakov et al., 1982). Reports on the species distribution beyond Ural are sketchy. In the Far East the pest may exist as a complex of sibling species (Shatalkin,1986,1999) including *Chamaep-*

sila rosae, *Ch. silacruscula*, *Ch. sonora* and *Ch. iwasai*. It is possible that the last three species substitute for the Carrot Rust Fly in Primorskii Territory. *Synaphopsila nartshukae* Shatalkin (= *Phytopsila carota* Iwasa et al., 1987) is more known as a pest of carrots in Japan, meeting also on Kuril Islands (Kunashir). The analysis of publications about the Carrot Rust Fly distribution in Southern Siberia and southern Far East (the Amur Region, Khabarovsk and Primorskii Territories, Sakhalin) testifies that its area is restricted to zones of deciduous forests and forest-steppe (Tanasiichuk, 1981; Soos, 1984; Shatalkin, 1986; Iwasa, 1991); therefore the area is drawn along borders of these zones with use of map of Barysheva et al. (1992). The analysis of collections and references from Kazakhstan and Central Asia demonstrates absence of the pest here (Shtakel'berg, 1949). Dots on the map of area designate localities for the Carrot Rust Fly and related species after the collections of the Zoological institute (St.Petersburg), Zoological museum (Moscow) (det. A.I.Shatalkin) and Helsinki Zoological museum. The zone of low damage is limited mainly to territory with high humidity according to records that the species is hygrophilous (Savzdarg, 1927; Ovchinnikova, 1949;1959; Bryantsev & Dobrozrakova, 1963; Rogochaya, 1974; Kharchenko et al., 1975; Tanasiichuk, 1981), coinciding with the areas of arable lands within the European part of the former USSR (Koroleva et al., 2003).

There are only single reports from Omsk and Khabarovsk about harming activity of the Carrot Fly there (Cherkashin, 2002).

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