

Masonaphis lambersi MacGillivray, 1960 (Homoptera, Aphididae), a new pest of *Rhododendron* in Europe

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Masonaphis lambersi was described from Washington State, USA, from *Rhododendron* sp. Later I found it in coastal California on cultivars of *R. japonicum* and *R. molle* (Hille Ris Lambers, 1966); more material was received for identification from the native *R. occidentale*, and from Oregon. In America it lives on the underside of the leaves, and overwinters as eggs on *R. molle*, on which I collected fundatrices, and probably on *R. japonicum*, on which I found oviparous females.

The aphids are spindle-shaped, about 2–3.75 mm long, with long legs and antennae. The somewhat swollen, long siphunculi are strongly attenuated near the tip. It occurs in three colour varieties: 1. apple-green and moderately shiny, with light-green to grayish green, slightly powdered larvae; 2. bright pinkish red, slightly shiny, with reddish brown, ventrally gray larvae; and 3. bright, very slightly greenish, yellow with yellowish, ventrally gray, larvae. Mounted specimens have been described in detail by MacGillivray (1960), who gave the characters by which the species differs from the noxious *Masonaphis azaleae* (Mason), a common pest in azalea nurseries and homes (MacGillivray, 1958).

In the Netherlands, colonies were found on various hybrids of evergreen *Rhododendron ponticum*, *R. catawbiense*, wild *R. hirsutum*, and cultivars of deciduous *R. molle* and its hybrids, as well as, temporarily, on *Kalmia latifolia* growing through an evergreen *R. ponticum* hybrid. *R. ferrugineum* and *R. praecox* were not infested.

On evergreen rhododendrons, only the young, sticky, foliage developing after flowering was inhabited. Colonizing alatae, first red ones, later also green ones, arrived about 10 June 1971. By removing these daily from a bush, it was found that 10–30 alatae arrived per day. This means that with passive transport and random landing of the aphids, somewhere upwind there must have been a source producing millions of alatae per day. I could not find this source, on which the aphids must have overwintered. The larvae produced by the alatae suffered some slight mortality when trying to climb over the margins of sticky leaves, but in the main grew up without difficulty. Most of these larvae developed into apterous viviparous females, normal in this tribe of aphids, but an abnormally large proportion developed into alatae, which flew away. After 2–3 weeks when the leaves mature, the colonies die out, but, till September, new colonies were founded on the occasional young shoots. By the middle of September, all the bushes were free from aphids. The same pattern was observed in 1972, but the numbers were much smaller.

On deciduous rhododendrons, alatae arrived at the same time as on evergreen

cultivars, and produced larvae that virtually all developed into apterous females. Distribution over the foliage seemed almost random and, on one unidentified cultivar of *R. molle*, a very large population developed. Three other cultivars nearby had few or no aphids. In 1971, the heavily infested bush was free from aphids at the end of August but, in 1972, when this aphid was rare on *R. molle* hybrids, both the 'susceptible' and the 'resistant' varieties had a few apterae till 10 November when the last leaves dropped.

Sexuals did not develop. Attempts to produce sexuals by exposing colonies to long nights and low temperatures did not succeed. Dr R. L. H. Pierik (Laboratory of Horticulture, Wageningen) provided a vigorously growing *R. catawbiense album* raised under long day till the middle of September 1971. This was successfully colonized with some aphids from a young shoot of a *R. ponticum* hybrid, and then placed in the garden. After a month, the leaves had matured and the aphids died without producing sexuals. At any rate, it is virtually impossible for sexuals to be produced on evergreen *Rhododendron* because the mature leaves cannot support the aphid.

Damage done by this aphid may be conspicuous. On infested shoots of evergreen rhododendron, the leaves remain small and get an uneven surface. Such shoots do not make flowerbuds, and heavily infested bushes may not flower at all in the following year. The damage during and after infestation may look the more spectacular since cast skins and died aphids may remain for several months glued to the upper surface of leaves below colonies, so that such leaves look gray-green. Damage to deciduous cultivars is not characteristic. The underside of the leaves becomes more concave, and the whole bush may, in a massive infestation, look withered as if suffering from drought. But no amount of watering will re-establish turgidity till the aphids have been strongly diminished. Honeydew, and some cast skins give the presence of aphids away. Flowerbuds developed normally but, perhaps because of late frost, few flowered.

Ecologically the aphids on evergreen rhododendron live in an exceptional situation. There is an *Aphis* sp. that lives on the underside of the leaves of *Drosera* spp., almost completely escaping parasitization because hymenopterous parasites are caught by the plant. On evergreen rhododendrons about the same happens. Though the aphids live exposed, the sticky shoots and leaves act as an efficient trap for hymenopterous aphid parasites as well as for many other small insect including all other aphid species. Mr H. Vlug (Institute for Phytopathological Research, Wageningen) observed larvae of cecidomyids preying on this aphid at Driebergen. I saw in or near aphid colonies only one larva of the coccinellid *Adalia bipunctata* (which could hardly move, and died without further moults) and one larva of a *Chrysopa* (which had difficulty in walking and disappeared). The joint effect of predation and parasitization in our observations was nil. Parasitization did not occur either on deciduous non-sticky rhododendrons on which only one unidentified syrphid larva was observed eating aphids. Parasitism by fungi was not found.

In the Netherlands, this species in 1971 caused damage to evergreen rhododendrons wherever we examined bushes at The Hague, Amsterdam, Utrecht, Driebergen, Bennekom, Ede, Wageningen and Arnhem. A pest of this kind may cause nurseries difficulties with exports. Immediately after the discovery in the Netherlands I therefore asked Dr V. F. Eastop, London, and Dr H. L. G. Stroyan, Harpenden, England to look out for it. Within a week both reported that they had found it nearby, and Stroyan (1972) wrote a brief note on it, referring to my warning. In view of the masses

of colonizing alatae in June 1971, the aphid must have been imported into the Netherlands earlier than 1971. Yet it must have been recently introduced, because it could not possibly have escaped my notice during the 18 years in which I have picked off inflorescences after flowering.

Control by insecticides is simple, but may often be too late because the damage is hardly conspicuous until the aphids are dying out anyway. At my request, colleagues in California are searching for adapted natural enemies of this aphid species native to Western America.

Samenvatting

Masonaphis lambersi MacGillivray, 1960 (Homoptera, Aphididae) een nieuwe plaag van rhododendron in Europa

Een beschrijving wordt gegeven van de levenswijze van de groene, rode of gele bladluis *Masonaphis lambersi*, die in Nederland en Engeland bladhoudende en bladverliezende, buitengroeijende rhododendrons aantast. Aan aangetaste scheuten van bladhoudende *Rhododendron ponticum* hybriden blijven de bladen klein, en er worden geen bloemknoppen aangelegd. Vervellingshuidjes en dode luizen blijven meestal maandenlang aan de daardoor grijsgroene bladeren vastkleven. *R. molle* hybriden vertonen bij ernstige aantasting onregelmatig gewelfd blad en verdrogingsverschijnselen, maar maken normaal bloemknoppen. *R. ferrugineum* and *R. praecox* werden niet aangetast. De bladluis was slechts uit de Westelijke kuststaten van de Verenigde Staten bekend, en werd, na signalering vanuit Nederland, ook in Engeland gevonden. De kleverige jonge scheuten en bladeren van *R. ponticum* hybriden werken als lijmstokken voor bladluisparasieten en ook voor andere bladluissoorten. Inheemse roofvijanden worden op eendere wijze in hun verplaatsing belemmerd. Op bladverliezende rhododendrons vond evenmin parasitering en nagenoeg geen predatie plaats. Invoer van eventuele, aangepaste natuurlijke vijanden uit Amerika wordt wenselijk geacht. Op bladhoudende rhododendrons zou bestrijding gewenst kunnen zijn, maar de schade valt pas op als de luizen door verouderen van het blad uitsterven. De overwintering op bladhoudende vormen lijkt uitgesloten.

References

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