

Mini data sheet on *Nysius huttoni*

Added in 2006 - Deleted in 2010

Reasons for deletion:

Nysius huttoni was deleted in 2010 as a British-Dutch-Belgian PRA and an EPPO PRA respectively concluded that it was not a significant risk to the EPPO region.

Nysius huttoni (Heteroptera: Lygaeidae - wheat bug)

Why	Dr Aukema (retired from the Dutch NPPO) attracted the attention of the EPPO Secretariat to the introduction of a new polyphagous bug in Europe. Since 2002, an unfamiliar species of <i>Nysius</i> was found at different localities in the extreme Southwest of the Netherlands (province of Zeeland) and the adjacent Northwestern part of Belgium (provinces of West- and Oost Vlaanderen and Brabant). The species was identified as <i>Nysius huttoni</i> , a species originating from New Zealand. So far, <i>N. huttoni</i> had not been reported outside New Zealand.
Where	EPPO region: Belgium (Brabant, Hainaut, Vlaanderen), France (Nord department), Netherlands (Zeeland), United Kingdom (along the Suffolk coast and in Essex). Oceania: New Zealand (widespread in North and South Islands). Pathways of introduction of <i>N. huttoni</i> into Europe are unknown, but as the international harbour of Antwerpen is close to the infested sites, it is suspected that it arrived accidentally with shipments from New Zealand.
On which plants	<i>N. huttoni</i> is a polyphagous species which feeds on a large number of weeds and crops. In New Zealand, it is mainly reported as a pest of wheat and Brassicaceae, but it can feed on many plant species. It can attack: <i>Brassica</i> spp., <i>Medicago sativa</i> (alfalfa), <i>Trifolium dubium</i> , <i>T. pratense</i> , <i>T. repens</i> (clovers), and Poaceae such as: <i>Avena sativa</i> (oat), <i>Bromus</i> , <i>Hordeum sativum</i> (barley), <i>Lolium</i> , <i>Secale cereale</i> (rye), <i>Triticum aestivum</i> (wheat). The following weeds have been reported as hosts: <i>Anagallis arvensis</i> , <i>Calandrinia caulescens</i> , <i>Capsella bursa-pastoris</i> , <i>Cassinia leptophylla</i> , <i>Chenopodium album</i> , <i>Coronopus didymus</i> , <i>Hieracium</i> , <i>Polygonum aviculare</i> , <i>Rumex acetosella</i> , <i>Senecio inaequidens</i> , <i>Silene gallica</i> , <i>Soliva sessilis</i> , <i>Spergularia rubra</i> , <i>Stellaria media</i> . It is also suggested that the presence of mosses (e.g. <i>Ceratodon</i> , <i>Sphagnum</i> , <i>Polytrichum</i> spp.) may be crucial for the overwintering period.
Damage	<i>N. huttoni</i> is a sap feeding insect which can attack many plant parts including seeds. Both adults and nymphs can cause damage. On wheat, damage is essentially observed when grains are attacked at the milk-ripe stage. The insect saliva contains an enzyme which affects the gluten proteins. This causes severe quality deterioration in baked products (sticky dough, poor loaf volume and poor bread texture). It is reported that during the worst outbreak recorded in New Zealand in 1970, about 10,000 tons of wheat were damaged by <i>N. huttoni</i> . On brassicas damage is observed when young plants are attacked. Feeding punctures are made around stems at ground level, often leading to plant wilting and collapse. For example during experiments, serious damage was observed on swede seedlings (<i>B. napus</i> var. <i>napobrassica</i>) with up to 70% of young plants being lost. In New Zealand, <i>N. huttoni</i> has a wide ecological distribution from coastal locations to altitudes of over 1800 m. It is noted that <i>N. huttoni</i> usually feeds on weeds growing on waste lands or roadsides, often in the vicinity of crops, and only migrates to crops in dry years. In the Netherlands and Belgium, it was found in dry, warm waste grounds and roadsides with sparse vegetation (e.g. in Oost Vlaanderen, large numbers of <i>N. huttoni</i> were found in an abandoned wheat field). <i>N. huttoni</i> overwinters as adult and has 2 or 3 generations per year in New Zealand. Under European conditions, the situation is still unclear but related species have 1 to 2 generations per year. Pictures of the pest can be viewed on Internet

<http://www.hortnet.co.nz/key/stone/bugkey2a/wings/dblwing/clrwings/wbugad1.htm>

Dissemination	Data is lacking on the natural spread of <i>N. huttoni</i> . Over long distances, movements of infested plants could theoretically transport the pest, but its major host plants (e.g. cereals) are not traded in this form. <i>N. huttoni</i> is reported as being a contaminating pest often found on apple fruit packages exported from New Zealand.
Pathway	Plants for planting? vegetables? Pathways are difficult to identify as it seems that the pest is mainly a hitchhiker.
Possible risks	In New Zealand, <i>N. huttoni</i> is reported as an economically important pest of wheat and brassicas. It is reported as a pest of other Poaceae (cereals and grasses) and of Fabaceae but more data is needed on type and extent of damage. Wheat and brassica crops are widely grown and economically important throughout the EPPO region. Control is difficult because <i>N. huttoni</i> usually feeds on weeds and only migrates to crops under certain circumstances. In New Zealand, no natural enemies are known (except starlings). Laboratory studies on thermal requirements of <i>N. huttoni</i> concluded that the pest was probably able to establish in regions with mild to warm climates. Its recorded presence in some parts of the EPPO region over several years showed that it can establish in Europe. More information is needed on its pathways of introduction. It may have to be recognised that it will be difficult to prevent its further spread, as <i>N. huttoni</i> is polyphagous, spreading naturally and is most likely a contaminant of many traded products.
Source(s)	<p>Aukema B (2005) <i>Nysius huttoni</i>, a New Zealand endemic heading for Britain? <i>Het News</i> no.6, p13. Available online: http://www.hetnews.org.uk/pdfs/Issue%206_Autumn%202005_%20631Kb.pdf</p> <p>Aukema B, Bruers JM, Viskens G (2005) A New Zealand endemic <i>Nysius</i> established in The Netherlands and Belgium (Heteroptera: Lygaeidae). <i>Belgian Journal of Entomology</i> 7, 37-43.</p> <p>Aukema B, Bruers JM, Viskens GM (2007) [New and rare Belgian bugs II (Hemiptera: Heteroptera)]. <i>Bulletin de la Société royale belge d'Entomologie</i> 143, 83-89 (in Dutch).</p> <p>Bejakovich D, Pearson WD, O'Donnell MR (1998) Nationwide survey of pests and diseases of cereal and grass seed crops in New Zealand. 1. Arthropods and molluscs. Paper presented at the 51st Conference of the New Zealand Plant Protection Society. Available on-line: http://www.hortnet.co.nz</p> <p>Bonte J, Casteels H, de Clercq P, Maes M (2009) Occurrence, ecology, impact and management of <i>Nysius huttoni</i> in Belgium (NYSHUT). Abstract of a paper presented at the 6th International Symposium on Crop Protection (Gent, BE, 2009-05-19).</p> <p>Bonte J, Casteels H, Maes M, De Clercq P (2010) Occurrence, ecology and potential impact of the New Zealand wheat bug <i>Nysius huttoni</i> White (Hemiptera: Lygaeidae) in Belgium. <i>Bulletin OEPP/EPPO Bulletin</i> (in press).</p> <p>Bowdrey J (2009) <i>Nysius huttoni</i> spreading. <i>Het News</i> no.14, p 14. Available online: http://www.hetnews.org.uk/pdfs/Issue%2014_Autumn%202009_966kb.pdf</p> <p>Cuming N (2008) New to British Isles: <i>Nysius huttoni</i> White, 1878. <i>Het News</i> no.11, p 10. Available online: http://www.hetnews.org.uk/pdfs/Issue%2011_Spring%202008_1667Kb.pdf</p> <p>Every D, Farrell JA, Stufkens MW, Wallace AR (1998) Wheat cultivar susceptibility to grain damage by the New Zealand wheat bug, <i>Nysius huttoni</i>, and cultivar susceptibility to the effects of bug proteinase on baking quality. <i>Journals of Cereal Science</i> 27(1), 37-46. (Abstract).</p> <p>He XZ, Wang Q (1999) Laboratory assessment of damage to swede, <i>Brassica napus rapifera</i>, by wheat bug <i>Nysius huttoni</i>. Paper presented at the 52nd Conference of the New Zealand Plant Protection Society. Available on-line: http://www.hortnet.co.nz</p> <p>He XZ, Wang Q, Carpenter A (2003) Thermal requirements for the development and reproduction of <i>Nysius huttoni</i> White (Heteroptera: Lygaeidae). <i>Journal of Economic Entomology</i> 96(4), 1119-1125.</p> <p>Smit JT, Reemer M, Aukema B (2007) [Invasion of the New Zealand wheat bug <i>Nysius huttoni</i> in the Netherlands (Heteroptera: Lygaeidae)]. <i>Nederlandse Faunistische Mededelingen</i> 27, 51-70 (in Dutch).</p> <p>INTERNET (last retrieved in 2010-01) The Suffolk biological records centre. <i>Nysius huttoni</i> by N. Cuming (October 2008). http://www.boxvalley.co.uk/nature/sns/wad70/w70-sbrc.asp</p>