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gall wasp (Hymenoptera, Cynipidae) Chapter 14:
Factsheets for 80 representative alien species**

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14.55 – *Dryocosmus kuriphilus* (Yasumatsu, 1951) - Chestnut gall wasp
(Hymenoptera, Cynipidae)

Milka M. Glavendekić and Alain Roques

Description and biological cycle: Female black, 2.5–3 mm long (*Photo- left*). Legs, antennal scapus and pedicel, apex of clypeus and mandibles yellow brown. Antennae 14-segmented with apical segments not expanded into a club. Head finely sculptured. Scutum, mesopleuron and gaster highly polished, smooth. *Propodeum** with three distinct longitudinal *carinae**; propodeum and pronotum strongly sculptured. *Scutum** with two *notaulices** converging posteriorly. Radial cell of forewing “open”. Eggs oval, milky white, 0.1–0.2 mm long, long-stalked. Full-grown larva 2.5 mm long, milky white, without eyes and legs. Pupa 2.5 mm long, dark brown. Monophagous on *Castanea* spp. and their hybrids, attacking *Castanea crenata* Sieb. et Zucc. (Japanese chestnut), *C. dentata* (Marsh.) (American chestnut), *C. mollissima* Blume (Chinese chestnut), *C. sativa* Mill. (European chestnut) and *C. seguinii* Dode (in China). Univoltine and *thelytokous** parthenogenetic species. Adults emerge from galls from end of May until end of July. Lifetime short (about 10 d). Females lay 3–5 eggs per cluster inside buds. Each female can lay > 100 eggs. Some buds contain 20–30 eggs. Embryonic development lasts 30–40 d. Early instar larvae overwinter inside chestnut buds. At the time of bud burst in spring, gall wasps induce formation of a 5–20 mm diameter green (*Photo right*) or rose-coloured gall, containing 1–7 or 8 small cells where early instars develop. Galls develop in mid April on new shoots, leaves and twigs. Larvae feed 20–30 d within the galls before pupation from mid-May to mid-July.

Native habitat: (EUNIS code): G- Woodland and forest habitats and other wooded land.

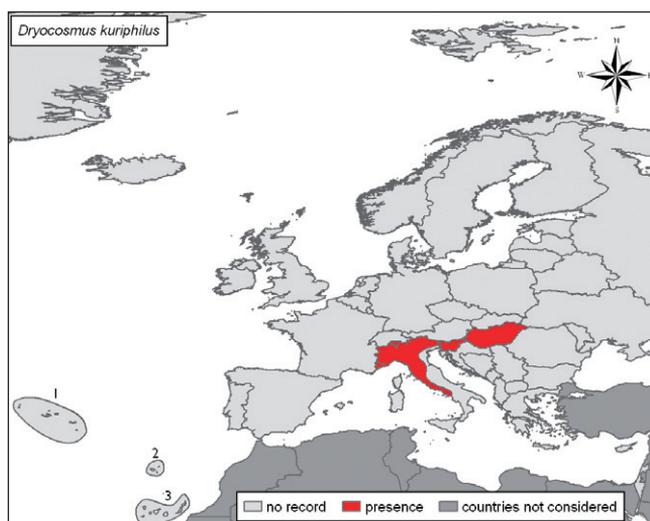
Habitat occupied in invaded range: G1 - Broadleaved deciduous woodland; G5 - Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice. Chestnut forests and monocultures within coppice deciduous forests, chestnut orchards, lines of chestnut trees, gardens, ornamental cultures.

Native range: Asia (China).

Introduced range: In Europe, first recorded in 2002 near Cuneo, Italy, then from Slovenia (2006), France (Alpes- Maritimes, 2007) Switzerland (2009), Hungary (2009) and elsewhere in Italy (*Map*). Also introduced in Japan, Korea, and USA.



Credit: Milka Glavendekić



Pathways: Passive transport with plants for planting and cut branches. Dispersal at a local scale is realized by adult flight.

Impact and management: Chestnut gall wasp is the most severe worldwide insect pest on chestnuts. It disrupts twig growth and reduces fruiting, causing yield reduction up to 70%. Severe infestations may result in the decline and death of young chestnut trees and debilitate chestnut forests. Rapid recruitment of generalist parasitoids shared with oak cynipids suggests that chestnut gall wasp may have a negative impact on native cynipids through apparent competition. An effective measure would be to prohibit import of chestnut cut branches (or young plants) for grafting from China, Japan and America. In Italy, France and Slovenia, chestnut nurseries should be inspected annually to ensure trade of safe young plants. Infestations in small chestnut orchards may be reduced by pruning and destroying infested shoots. Treatment with systemic insecticides during the growing season at the place of production can be applied but is insufficient for control; as yet there are no efficient chemicals to control this pest. *Torymus sinensis* Kamijo was already introduced as a biological control agent in Italy from Japan. Several cultivars, prevalently belonging to the species *Castanea crenata* and its hybrids, are considered resistant; among them, Bouche de Bétizac (*C. sativa* x *C. crenata*) was reported. Larvae were found also in this cultivar but they die just at shooting time and do not develop galls. There are also new resistant Japanese and Korean chestnut cultivars.

Selected references

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