

Hyphantria cunea

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Lepidoptera	Arctiidae

Common name noctuelle d'automne (French, France), chenille blanche (French, France), Spinner, Weisser Baeren (German, Germany), Amerika-siro-hitori (Japanese, Japan), chenille à tête estivale (French, France), écaille fileuse (French, France), hvit bjørnespinner (Norwegian, Norway), vid bjørnspinnare (Swedish, Sweden), Webebär, Amerikanischer (German, Germany), weisser Bärenspinner (German, Germany), weisser Bär (German, Germany), fall budworm (English), hvit bjoernespinner (Norwegian, Norway), hvid bjoernespinder (Danish, Denmark), American white moth (English), fall webworm moth (English), fall webworm (English), gusano de la bolsa (Spanish, Spain), black-headed webworm (English), falena tessitrice (Italian, Italy), ifantria americana (Italian, Italy), hvid bjørnespinder (Danish, Denmark), weisser amerikanischer Bärenspinner (German, Germany), mulberry moth (English), redheaded webworm (English), Amerikanischer weisser Bärenspinner (German, Germany), Amerikanischer Webebär (German, Germany)

Synonym *Hyphantria textor* , (Harris)

Similar species

Summary Biological invasions of insects, plants and fungal pest species often cause substantial disturbance to forest ecosystems as well as severe socio-economic impacts. Posing an agricultural and economic threat, *Hyphantria cunea* is significant due to its high polyphagy, which puts a wide variety of plant species at potential risk. *Hyphantria cunea* is commonly known as the fall webworm and can be a pest in both natural and planted forests.



[view this species on IUCN Red List](#)

Species Description

The adult fall web worm (*Hyphantria cunea*) has a wingspan of 25-31mm and is snowy white, usually with dark spots on the wings (Virginia State University 1996). Larvae are brownish-grey, 25 - 30/40mm long, and have 12 small warts surmounted by characteristic tufts of hair (Virginia State University 1996; Wittenberg, R. (ed.) 2005). Their silk nests enclosing a number of leaves are characteristic (Wittenberg, R. (ed.) 2005). Eggs are small, yellow or light green, and usually located in hair-covered masses on the underside of leaves. Mature larvae are 25-31mm long and covered with silky hairs. Colour varies from pale yellow to green, with a black stripe on the back and a yellow stripe on each side. Head colour varies from red to black. Pupation occurs in thin cocoons usually spun in the duff or just beneath the surface of the soil (Virginia State University 1996).

Lifecycle Stages

In Central Europe there are usually 2 generations per year. Pupae overwinter in the bark cracks or in the soil. Adults fly in April-May and lay eggs in groups, usually on the underside of leaves. Larvae usually have 7 instars, but up to 11 can be observed. Early instars are gregarious and build colonial silk nests enclosing leaves, in which they live to the fifth to sixth instars when they become solitary and disperse. Then, they pupate in refuges and emerge for a second generation, which flies in July-August (Wittenberg, R. (ed.) 2005). In North America from May to July, adult moths lay their eggs. Eggs hatch within two weeks and the larvae immediately begin feeding and constructing webs. Larvae feed and webs continue to enlarge for four to eight weeks. There are at least two generations per year in the South (Virginia State University 1996).

Habitat Description

Because of its polyphagy the adult fall web worm (*Hyphantria cunea*) can invade most types of habitats (with respect to European habitats) (Wittenberg, R. (ed.) 2005). However it seems to be unable to establish itself in the northern half of Europe, probably because of climatic constraints (Wittenberg, R. (ed.) 2005).

Reproduction

According to Biosecurity New Zealand and the FAO (2007) a female fall webworm (*Hyphantria cunea*) may lay up to 500/600 eggs at a time and there can be up to four generations of the moth in a single year.

Nutrition

The fall web worm (*Hyphantria cunea*) is a highly polyphagous Lepidoptera and eats a wide range of forest and fruit trees, shrubs and herbaceous plants. Some of 600 host plant species have been recorded as food. In Romania, it was demonstrated that, although *H. cunea* is polyphagous, normal development will occur only on the few preferred food plants: mulberries, maples, apples, cherries, pears and plums (rather than grapes, strawberries, roses, hops or *Ailanthus altissima*) (Iamandei *et al.* 2004; Smith *et al.* 1992). The most favourable for development are *Morus* spp., maple (*Acer* spp.), cottonwood (*Populus* spp.), *Platanus* spp., *Malus* spp. and *Prunus* spp. (Wittenberg, R. (ed.) 2005). Host plants also include willow (*Salix* spp.), *Fraxinus* spp., *Betula* spp., alder (*Alnus* spp.), pecan and hickory (*Carya* spp.), walnut (*Juglans* spp.), elm (*Ulmus* spp.), persimmon (*Diospyros* spp.) and sweetgum (*Liquidambar*) spp. (FAO 2007). Other cultivated plants such as grapevine, maize or soybean can be attacked (Wittenberg, R. (ed.) 2005).

General Impacts

The fall web worm (*Hyphantria cunea*) can impact a wide variety of crop and cultivated broadleaf plant species. In Europe it is a serious pest in Bulgaria, Romania, Hungary, former Yugoslavia, Russia and northern Italy.

According to Biosecurity New Zealand heavy feeding by the caterpillars over time, can lead to defoliation (leaf loss) and limb and branch dieback. Trees/plants are often totally defoliated by the late-instar larvae, particularly in the second generation (Wittenberg, R. (ed.) 2005). Environmental impacts are likely given the high polyphagy and impact on individual plants. *H. cunea* is a threat to orchards, ornamentals and forest trees in some regions in Central and eastern Europe, as well as in eastern Asia. It is particularly damaging to ornamentals (Wittenberg, R. (ed.) 2005).

Newly emerged larvae immediately begin to spin a silken web over foliage on the terminal portions of the branches. The larvae feed on the leaves within the webs. As the larvae grow, webs enlarge and enclose more foliage. Large portions of tree branches are commonly enclosed by such webs, and are most apparent from mid-to late-summer. Early stage larvae feed on the upper surfaces of the leaves, and late instar larvae eat entire leaves except for larger veins and midribs. The insect is considered an ornamental pest due to the unsightliness of the webs; however, it is ordinarily of no great importance as a forest pest (Virginia State University 1996). Experiments showed that sixth-instar larvae of *H. cunea* can consume a daily average of 435mm² of fresh ash foliage while seventh-instar larvae brought it to an average of 814mm² (Jarfas and Miklos 1986, in Smith *et al.* 1992).

Management Info

Preventative measures: Regulatory controls are in place in some countries to ensure that the adult fall web worm (*Hyphantria cunea*) is not spread incidentally in wood products. In Switzerland *Hyphantria cunea* is listed as a quarantine pest ("whose introduction into Switzerland is prohibited without reference to any specific plants or plant products" (OEPP/EPPO 1999). There are also phytosanitary regulations in place which have provisions to restrict importations of wood into Switzerland and make sure that certain wood products are free of *H. cunea* (OEPP/EPPO 1999). Phytosanitary measures include the thorough inspection of plants, plant products, accompanying packing materials and vehicles from countries where *H. cunea* occurs for the presence of larvae and other stages, since all may be present at any time of year. Fumigation with HCN or methyl bromide will destroy adults, larvae or pupae, even if hidden in cracks. Vehicles may also be treated (OEPP/EPPO 1990, in Smith *et al.* 1992).

Please follow this link for [detailed management information](#) including chemical and biological control options, compiled by the ISSG.

Pathway

International trade can facilitate movement to new areas (Smith *et al.* 1992). *Hyphantria cunea* is liable to be carried on vegetative host-plant material as well as on packing materials and in vehicles (Smith *et al.* 1992). Transportation of the pest also occurs relatively often in wood logs where it inhabits cracks or holes in the bark (Shu and Yu 1984, in Smith *et al.* 1992). The facility of the larvae to withstand starvation for up to 2 weeks means that they can easily be transported on vehicles to different areas and survive to initiate new infestations (Smith *et al.* 1992). *Hyphantria cunea* can spread with vehicles, packing material, host plant material, etc. (CABI Bioscience 2005).

Principal source:

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ALIEN RANGE

[1] AUSTRIA	[1] BULGARIA
[7] CHINA	[1] CROATIA
[1] CZECH REPUBLIC	[1] DENMARK
[1] FRANCE	[2] GERMANY
[1] HUNGARY	[1] ITALY
[1] JAPAN	[1] KAZAKHSTAN
[1] KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF	[1] KOREA, REPUBLIC OF
[1] KYRGYZSTAN	[1] MOLDOVA, REPUBLIC OF
[1] NEW ZEALAND	[1] POLAND
[1] ROMANIA	[1] RUSSIAN FEDERATION
[1] SLOVAKIA	[1] TURKEY
[1] UKRAINE	

BIBLIOGRAPHY

27 references found for ***Hyphantria cunea***

[Management information](#)

[Biosecurity New Zealand. Undated. Fall Webworm.](#)

Summary: A look at the potential of this pest to invade New Zealand and what is being done to prevent it from becoming established. Available from: <http://www.biosecurity.govt.nz/pest-and-disease-response/pests-and-diseases-watchlist/fall-webworm> [Accessed 28 September 2007]

Ding Jianqing and Xie Yan. 1996. The mechanism of biological invasion and the management strategy, in: *Conserving China's Biodiversity II* (Peter, J.S., Wang, S. and Yan, X. eds.). China Environmental Science Press: Beijing. 125-156p.

Summary: Review of invasive species in China and their management.

[European and Mediterranean Plant Protection Organization \(EPPO\). 1996. Paris. EPPO Reporting Service \(No. 02\).](#)

Summary: Available from: <http://archives.eppo.org/EPPOReporting/1996/Rse-9602.doc> {Accessed 5 March 2008}

Food and Agriculture Organisation of the United Nations (FAO), 2007a. *Overview of Forest Pests: Romania* (Working Paper FBS/28E). Rome: Forest Management Division FAO (Food and Agriculture Organization of the United Nations).

Summary: Record of *Hyphantria cunea* in Romania and relevant information in regard to Romania, including an overview of its host plants. Food and Agriculture Organisation of the United Nations (FAO), 2007b. *Overview of Forest Pests: Kyrgyz Republic* (Working Paper FBS/21E). Rome: Forest Management Division FAO (Food and Agriculture Organization of the United Nations).

Summary: Record of *Hyphantria cunea* in the Kyrgyz Republic and relevant information in regard to the Kyrgyz Republic, including an overview of its host plants.

Food and Agriculture Organisation of the United Nations (FAO), 2007c. *Overview of Forest Pests: Moldova* (Working Paper FBS/25E). Rome: Forest Management Division FAO (Food and Agriculture Organization of the United Nations).

Summary: Record of *Hyphantria cunea* in Moldova and relevant information in regard to Moldova, including an overview of its host plants. Food and Agriculture Organisation of the United Nations (FAO), 2007. *Overview of Forest Pests: People's Republic of China* (Working Paper FBS/13E). Rome: Forest Management Division FAO (Food and Agriculture Organization of the United Nations).

Summary: Record of *Hyphantria cunea* in China and relevant information in regard to China, including an overview of its host plants.

[Humphreys, N. 1983. Fall Webworm. Forestry Canada, Forest Insect and Disease Survey, Forest Pest Leaflet No. 11 4p.](#)

Summary: Geographic range, description, hosts, life traits and control of *Hyphantria cunea*.

Available from: <http://warehouse.pfc.forestry.ca/pfc/2201.pdf> [Accessed 28th September 2007]

Iamandei, M., Manole, T., Teodorescu, I., Iamandei, A. 2004. Evaluation of a Baculoviral Product Efficacy on Biological Control of *Hyphantria cunea* Drury (Lepidoptera: Arctiidae) in Romania, Rev. Roum. ♦ Biol. Anim., Tome 49, (1♦2): 41-46.

Summary: A resource detailing the use of baculoviruses to control *Hyphantria cunea*.

[Kansas State University. 2003.](#)

Summary: Problems caused by the fall webworm are described and control options are described.

Available from: http://www.oznet.ksu.edu/dp_hfr/extensn/problems/fallwebw.htm [Accessed 28th September 2007]

OEPP/EPPO. 1999. *EPPO Summaries of Phytosanitary Regulations*. Paris: OEPP/EPPO (Organisation Europeenne et Mediterraneenne Pour La Protection Des Plantes / European and Mediterranean Plant Protection Organisation).

Summary: Regulations concerning phytosanitary procedures produced by the OEPP/EPPO.

[Ohio State University. Undated. Ohio State University Extension Fact Sheet: Fall Webworm Management.](#)

Summary: An overview of control options pertaining to *Hyphantria cunea*.

Available from: <http://ohioline.osu.edu/hyg-fact/2000/2026.html> [Accessed 28th September 2007]

[Smith, I.M., McNamara D.G., Scott P.R. and Harris K.M. 1992. Data Sheets on Quarantine Pests: *Hyphantria cunea* \(Drury\). CABI and EPPO.](#)

Summary: A good account of the problems caused by *Hyphantria cunea* and related information.

Available from: <http://www.vaxteko.nu/html/sli/eppo/EDS/E-HYPCHU.HTM> [Accessed 28th September 2007]

[State Environmental Protection Administration of China. Undated. CBD National Report.](#)

Summary: A report of alien pest management in China.

Available from: <http://www.cbd.int/doc/world/cn/cn-nr-fe-en.doc> [Accessed 20th October 2007]

[Virginia State University. 1996. Fall Webworm.](#)

Summary: An overview of the description and impact of the fall webworm and its control in North America.

Available from: <http://www.ext.vt.edu/departments/entomology/factsheets/fallweb.html> [Accessed 28 September 2007]

[Wittenberg, R. \(ed.\) 2005. An inventory of alien species and their threat to biodiversity and economy in Switzerland. CABI Bioscience Switzerland Centre report to the Swiss Agency for Environment, Forests and Landscape](#)

Summary: Available from: <http://www.nobanis.org/files/invasives%20in%20CH.pdf> [Accessed 29 May 2008]

Yang, Z., Wei, J. and Wang, X. 2006. Mass rearing and augmentative releases of the native parasitoid *Chouioia cunea* for biological control of the introduced fall webworm *Hyphantria cunea* in China, *BioControl* 51: 401-418.

Summary: A look at this pest (*Hyphantria cunea*) in China and the use of a native parasite to control it.

General information

[CAB. 2006. Forestry Compendium: *Hyphantria cunea*.](#)

Summary: List of common names.

Available from: <http://www.cabicompendium.org/NamesLists/FC/Full/HYPCHU.htm> [Accessed 28th September 2007]

[Douce, G.K. 2003. Fall Webworm *Hyphantria cunea* \(Drury\).](#)

Summary: A look at the impact of the fall webworm on crops and plants in North America.

Available from: <http://www.bugwood.org/factsheets/webworm.html> [Accessed 28 September 2007]

[European and Mediterranean Plant Protection Organization \(EPPO\). 1996a. EPPO Reporting Service: Reporting Service 1996, No. 06: EPPO: Paris.](#)

Summary: A record of *Hyphantria cunea* in Southern Russia.

Available from: <http://archives.eppo.org/EPPOReporting/1996/Rse-9606.doc> [Accessed 28th September 2007]

[European and Mediterranean Plant Protection Organization \(EPPO\), 1997. EPPO Reporting Service: Reporting Service 1997, No. 04: EPPO: Paris.](#)

Summary: A record of *Hyphantria cunea* in Denmark.

Available from: <http://archives.eppo.org/EPPOReporting/1997/Rse-9704.doc> [Accessed 28th September 2007]

IOP (Instytut Ochrony Przyrody). 2002. *Alien Species in Poland*.

Summary: Online list of alien species in Poland.

[Kiritani, K. 2003. Invasive Alien Species Issues, Proceedings: IUFRO Kanazawa 2003 Forest Insect Population Dynamics and Host Influences](#).

Summary: Mentions the significance of *Hyphantria cunea* in Japan.

Available from: http://kamatan.uf.a.u-tokyo.ac.jp/symp/iufro2003kanazawa/proceedings/17_0815_Kiritani.pdf [Accessed 28th September 2007]

[Mingyang, L. and Haigen, X. 2005. Indirect Economic Losses Associated with Alien Invasive Species to Forest Ecological System in China, Electronic Journal of Biology 1\(1\): 14-16.](#)

Summary: The economic impact of various forestry pests in China.

Available from: <http://www.ejbio.com/pps/14.pdf> [Accessed 20th October 2007]

People's Daily Online. 2006. *China breeding parasites to destructive American White Moths*.

Summary: A popular article describing the pest status of the American white moth in China and the use of biological control against it. [State Environmental Protection Administration of China. 2001. China's Second National Report on Implementation of the Convention on Biological Diversity. China Environmental Science Press: Beijing.](#)

Summary: A report of the pest status of *Hyphantria cunea*.

Available from: <http://www.cbd.int/doc/world/cn/cn-nr-02-en.pdf> [Accessed 28th September 2007]

Zobrik, M., Kunca, A., Turani, M., Vakula, J. and Leontovyc, R. 2006. Invasive and quarantine pests in forests in Slovakia, *OEPP/EPPO Bulletin* 36: 402-408.

Summary: History of *Hyphantria cunea* in Slovakia and a description of problems posed by this pest in this region.