



Watch the release of wasps to help control the stinging nettle caterpillar in Hawai'i! Scan with a QR code smart-phone app or visit:

<http://www.bigislandvideonews.com/2010/06/17/video-wasp-released-to-help-stinging-caterpillar-fight/> Video: David Corrigan

Stinging Nettle Caterpillar

Darna pallivitta



Report new infestations in areas other than Hilo and Puna districts to the State Pest Hotline: 643-PEST (643-7378)

For more information, contact:

Hawai'i Department of Agriculture
Hilo: (16 E. Lanikaula St.) 974-4146
 (or UH-CTAHR, 875 Komohana St., 981-5199)
Kahului: (635 Mua St.) 873-3962
Honolulu: (1428 S. King St.) 973-9525
Līhu'e: (4398 Pua Loke St.) 274-3072

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Photos of larva and predator wasps by W. Nagamine; other photos by S. Chun and A. Hara.

Caution: Pesticide use is governed by state and federal regulations. Read the pesticide label to ensure that the intended use is included on it, and follow all label directions.

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Cock, M.J.W., H.C.J. Godfray, and J.D. Holloway (eds). 1987. Slug and nettle caterpillars. CAB International, Wallingford, UK.
 Conant P., A.H. Hara, L.M.Nakahara, R.A. Heu. Nettle caterpillar. New Pest Advisory no. 01-03, March 2002 (revision). Hawai'i Department of Agriculture.
 Nagamine, W.T. and M.E. Epstein. 2007. Chronicles of *Darna pallivitta* (Moore 1887) (Lepidoptera: Limacodidae): biology and larval morphology of a new pest in Hawaii. The Pan-Pacific Entomologist 83(2): 120-135.



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Stinging Nettle Caterpillar



Darna pallivitta

The stinging nettle caterpillar is of major concern because of its painful sting, voracious appetite, lengthy larval feeding stage (2 months), high fecundity (480 eggs per female), and wide host range. A heavy infestation can defoliate a potted plant in just a few days.

Stinging nettle caterpillar was first discovered in Hawai'i in September 2001, at a foliage nursery in Pana'ewa on the island of Hawai'i. Nursery workers there experienced an unusual burning and itching sensation on their skin after handling rhaps palms. Specimens sent to the Smithsonian Institution were identified as *Darna pallivitta* Moore. The insect probably arrived from Taiwan and is also found in China, Thailand, Malaysia, and Indonesia.

Currently, nettle caterpillar infestations have been reported from Volcano to Ninole in East Hawai'i, with most of lower Puna and nearly all of south Hilo district having infestations. In West Hawai'i, *D. pallivitta* has been detected in Kailua-Kona, Ke'āhole, Ka'ūpūlehu, and Kōhala. Infestations on O'ahu include central O'ahu (Mililani, Mililani Mauka, Waipi'o-Gentry, Waikele), Makakilo, and Waimānalo. On Maui, infested areas include Ha'ikū, Pā'ia, Makawao, Wailuku, and Kihei. During 2010, the nettle caterpillar was detected on Kaua'i (Līhu'e, Kapa'a, and Kīlauea areas), but has yet to be recorded on Moloka'i or Lāna'i.

Report any new infestations of stinging nettle caterpillar in areas other than Hilo and Puna to the State Pest Hotline, 643-PEST (643-7378), or contact the Hawai'i Department of Agriculture (see the back panel of this brochure for the branch nearest you).

What to do if you are stung

- Avoid further contact with the caterpillar's spines.
- Wash the area immediately with soap and water to reduce initial pain.
- An oral antihistamine may stop itching and swelling.
- Hydrocortisone cream may also stop itching and swelling.
- **Get medical attention immediately if you experience difficulty breathing or are stung in the eye.**
- Skin reactions vary from a red welt to severe swelling lasting a couple of days.



The caterpillar's spiny hairs release an irritant on contact

Harm to humans

The nettle caterpillar's stinging, spiny hairs have a physical effect on human skin similar to that of fiberglass. In addition, the spines release an irritant (a mixture of histamines) produced by a poison gland. The irritant causes the skin to burn and itch. If spines get into the eyes, the irritation can be acute; seek medical attention quickly.

Identifying and Managing Stinging Nettle Caterpillars

Host Plants

In Hawai i, the nettle caterpillar has been found on more than 30 plants including palms, pasture and ornamental grasses, weeds, and foliage plants. The nursery industry has a very low tolerance for the nettle caterpillar any feeding by the larvae significantly damages and reduces the value of ornamental and landscape plants. Many of the host plants are of high economic value for export and are common in residential and commercial landscaping.

The pest has been observed to complete its life cycle on palms, including areca, fishtail, manila, rhaps, phoenix, and coconut; it also reproduces on dracaena (cultivars Lisa, Compacta, and Massangeana) and on starfruit, ti, iris, coffee, honohono grass, the beach pea (indigenous *Vigna marina*), and the endemic mamaki.

The caterpillar has been observed feeding (but not reproducing) on many other plants, including bamboo orchid, banana, Pink Quill bromeliad, chickweed, Chinese star jasmine, cigar plant, rabbitsfoot fern, gardenia, glory bush (*Tibouchina*), Golden Glory perennial peanut, californiagrass, hilograss, mondgrass, napiergrass, vaseygrass, wainakugrass, guava, Koster s curse, macadamia, maunaloa vine, monstera, ponytail palm, red and shampoo gingers, sleeping grass, Spanish clover (silverleaf desmodium), walking iris, wedelia, whaleback, and the endemics maile and wiliwili (data gathered by UH-CTAHR and HDOA).



Damage by feeding of large larvae on (clockwise from upper left) rhaps, coconut, dracaena, mondgrass, and ti.

Life Cycle

Life cycle

The nettle caterpillar s life span from egg to adult is 75 99 days, depending on the number of larval stages (instars), which ranges from 8 to 11 (45 72 days total). Adult female and male moths live for approximately 10 and 11 days, respectively. As the larvae develop over the 7-day incubation period, the C-shaped embryos are clearly visible. When the larvae are ready to pupate, they migrate toward the base of the host plant to find protected crevices in dried leaves and overlapping plant parts, and they often pupate in clusters. The larva s underside darkens to orange just before pupation. The prepupa spins brown silk around itself, eventually forming a hardened outer shell. The round cocoons are 5/8 inch (16 mm) long, and pupation occurs within the cocoon after 5 days.

Eggs

The female adult moth deposits eggs in small clusters, a line, or singly, usually on the undersides of older leaves. Eggs are flattened, transparent ovals, 1/32 inch (0.8 mm) wide and 1/16 inch (1.6 mm) long, appearing as a glassy sheen on the leaf surface that can easily be overlooked.

Larva

The larva can be up to 1 inch (25 mm) long and is covered with many rows of stinging spines. Larvae vary from white to light gray, with a dark longitudinal stripe down the back.

Prepupa, pupa

Larvae begin feeding 2 days after hatching. Onset of pupation depends on food availability and environmental conditions. The pupal period ranges from 17 to 21 days.



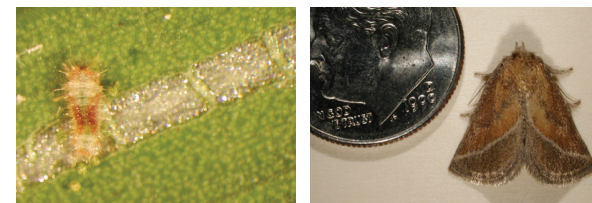
Larvae often pupate in clusters in sheltered spots at the base of the host plant.



Eggs Incubating larvae Newly hatched larvae An early larva on a quarter



Fully developed larva, about 1 inch long Prepupa Pupa



Smaller larvae cause damage by feeding on the leaf surface, creating a windowpane effect. Adult moth

Adult

The adult moth is approximately 1/2 inch (12.7 mm) long. The forewing is divided by a white diagonal marking, with the upper portion rust-colored and the lower portion lighter brown; the hind wings are uniform light brown. These nocturnal moths have not been observed feeding. Mating begins about two days after emergence. During the day they are inactive and retreat into vegetation, usually in an upside-down, perching position.



Adults, resting



Male Female

Control Methods

Cultural control

Control weeds and modify landscape plantings to limit caterpillar food availability. To avoid transporting the eggs, which are difficult to detect, to new areas, don't bring in known host plants from any infested area. Ti leaf, mondgrass and related *Liriope* groundcover, and palms are preferred host plants of nettle caterpillar. Peak caterpillar populations occur in late summer, so trim these host plants before then and avoid contact during that time.

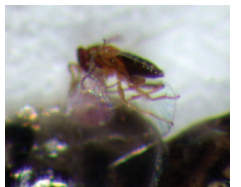
Chemical control

Some pesticides (pyrethroid, organophosphate, carbamate, and microbial types including *Bacillus thuringiensis*, or Bt) are effective against the larval stage of the nettle caterpillar. Consult a UH-CTAHR Cooperative Extension Service agent or an agricultural products professional for help in choosing an insecticide.

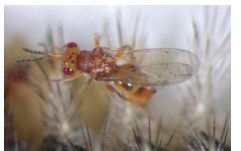
Biological control

HDOA staff discovered a locally established trichogrammatid wasp depositing its eggs into *D. pallivitta* eggs, which provide a food source for the wasp larvae, which eventually emerge as adults. This wasp, however, has had only limited effect on the nettle caterpillar population on Hawai i. Therefore, HDOA has worked with researchers in Indonesia and Taiwan to identify other biological control agents of *D. pallivitta*.

Larvae of a wasp (*Aroplectrus dimerus*) from Taiwan feed and develop on the nettle caterpillar, killing it. These wasps were evaluated and found safe for release in Hawai i, and they are now established on several islands. A naturally occurring cytoplasmic polyhedrosis virus found infecting *D. pallivitta* larvae helps control heavy infestations.



Trichogrammatid



Aroplectrus

Physical control

The adult moth is instinctively attracted to light, so minimize outdoor lighting at night and use bug-zappers with ultraviolet bulbs to reduce the numbers of this pest. Position the unit away from any potential host plants and under protected eaves, and place a bucket of soapy water directly beneath it to capture fallen moths.