

Agonopterix nervosa (Haworth)

INVASIVE SPECIES ATTACKED: Gorse (*Ulex europaeus* L.)
Scotch broom (*Cytisus scoparius* L.)

TYPE OF AGENT: Foliar feeding moth

COLLECTABILITY: Not permitted

ORIGIN: Unknown

DESCRIPTION AND LIFE CYCLE

Adult:

Agonopterix nervosa adults are small and considered to be micro-moths⁵. Their wingspan measures 16–22 mm across and their bodies measure 10–12 mm long^{1,5}. Although adult colouring can vary, typically their wings are a light creamy-brown colour with a distinct dark reddish-brown “blemish-like” marking on their front wings¹. Their wings are fringed, with the hind wings fringed more than the front wings⁵. In addition, the front wings usually have a distinct whitish band that curves from the wing’s base. With magnification it is possible to observe the pinkish-purple tinged legs on newly emerged adults⁵. Overwintering adults emerge in the late spring and early summer and the summer generation adults emerge in July and August^{2,1}. Depending on the geographic area and climate, the adults can persist through October³. *A. nervosa* produces one generation per year. The eggs are laid during the plants flowering period. The females lay their eggs individually near a flower or a developing leaflet on the moth’s selected host plant¹.



Fig. 1. *A. nervosa* adult

Egg:

Very little information is available at this time in regards to the egg color, shape, size, and incubation period.

Larva:

The eggs hatch in early spring and *A. nervosa* larvae emerge and feed on host plants in May and June and are often found in flowers or on leaf terminals^{1,5}. Mature larva measure 10–15 mm long¹. *A. nervosa* larvae can be highly variable in colouring⁷. The head can be medium to dark brown with variable black markings or completely black. Generally the abdomen is greenish-brown, however, late instar larva may develop into either a green or a brown colour scheme. The two color forms also have distinct markings depending on their color. The green form can be green or yellowish-green coloured throughout with darker green or grey-green linear markings on its top and sides. The brown form has a dull brown upper side (dorsal) with lighter brown lines that run along its entire body length⁵. Both colour forms have dots (sphericals) arranged in a consistent pattern along their entire abdominal section; the green form has brown coloured sphericals and the brown form has dark brown to black sphericals⁷. *A. nervosa* larvae are sensitive to handling and when touched they will rapidly wriggle with jerking movements¹. Mature larvae construct a tubular structure around aging blossoms or leaf terminals where they will pupate or they will develop and pupate within a cocoon in the soil^{2,5}.

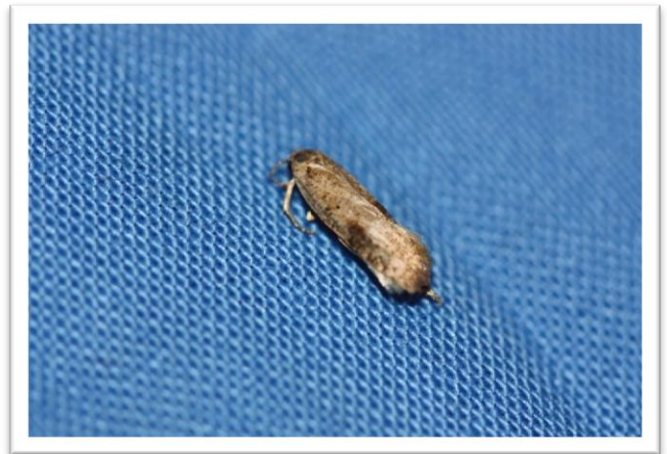


Fig. 2. *A. nervosa* adult

Pupa:

Pupal development begins in late spring and early summer. Pupae are dark and shiny brown coloured and the pupation period takes 2-3 weeks to complete¹.

Overwintering stage:

A. nervosa is documented to overwinter as an adult^{3, 1, 5}. In France, adults that overwinter often remain active and can be found during mid-winter³.

EFFECTIVENESS ON HOST PLANT

Larvae feed on and damage flowers and young leaves¹. Larvae feeding may stunt shoots and reduce seed production. Feeding appears to have minimal impact; however, there is some indication the feeding damage may be more effective on gorse than on Scotch broom⁸.

HABITAT AND DISTRIBUTION

Native:

A. nervosa is native to western and southern Europe¹. The recorded distribution of *A. nervosa* in Europe includes: Austria; Albania; Belgium; Great Britain; Hungary; Germany; Greece; Denmark; Ireland; Spain; Italy; Latvia; Lithuania; Luxembourg; Netherlands; Norway; Poland; Portugal; Romania; Sardinia; Slovakia; European USSR; Finland; France; Czech Republic; Switzerland; Sweden; Estonia; and, Yugoslavia⁴. *A. nervosa* is one of the most common *Agonopterix* species in Great Britain⁵. In France, *A. nervosa* is found wherever food plant sources are growing including woodland areas⁶. In Belgium, *A. nervosa* is rarely observed¹.

North America:

In North America, *A. nervosa* is found in B.C., Calif., Nev., Oreg. and Wash. In the United States, *A. nervosa* is frequently found in sunny host plant infestations west of the Cascade Mountains. The moth is not expected to do well near the ocean or at elevations greater than 800 meters¹. In Oregon, *A. nervosa* is found at most Scotch broom infestations⁶.

British Columbia:

A. nervosa has only been recorded in the Coastal Douglas-fir biogeoclimatic zone. In contrast to its reputation for not preferring areas near the ocean it has been found at three sites near salt water on Scotch broom and gorse.



Fig. 3. *A. nervosa* dispersal location at gorse and Scotch broom site near Nanoose Bay (Coastal Douglas-fir zone)

BRITISH COLUMBIA RECORD

Origin:

The origin of the adventive *A. nervosa* population found in B.C. is uncertain.

History:

A. nervosa is believed to initially have arrived on southern Vancouver Island between 1915 and 1920 and self-dispersed into the U.S.A. in the 1920's^{7, 1}.

Field results:

Records indicate that two or three years prior to 1994, *A. nervosa* feeding was observed on several gorse plants near waterfront areas in Victoria. In 2008, a pupa was collected off a Scotch broom plant from the Richmond area that later yielded an *A. nervosa* adult. The following year *A. nervosa* adults were reared from larvae collected from gorse plants on Vancouver Island near Nanoose Bay. The moths were later positively identified by entomologists. *A. nervosa* larvae were found defoliating plants less than 3 kilometers from salt water (Nanoose Bay) and a pupa found in the Richmond area was within 100 meters of the ocean.

NOTES

- *A. nervosa* larva are known to feed on several plants including: Scotch broom (*C. scoparius*), gorse (*U. europaeus*), dyer's greenweed (*Genista tinctoria*), petty whin (*G. angelica*) and tree lupin (*Lupinus arboreus*)⁵.
- *A. nervosa* is commonly referred to as the shoot tip leaf moth^{1, 6}.

REFERENCES

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