Abbreviated datasheet

Colosius spp.*

*In April 2013, the family Veronicellidae, a target on the 2013 and 2014 AHP Prioritized Pest Lists, was broken down into six genera of concern, including *Colosius* spp. Information in the datasheet may be at the family, genus, or species level. Information for specific species within the genus is included when known and relevant; other species may occur in the genus and are still reportable at the genus level.

*Information for specific species within the genus is included when known and relevant. Other species may occur in the genus and are still reportable at the genus level.

For images, see Gomes et al. (2013).

Scientific Names

Colosius confusus Gomes et al, 2013
Colosius festae (Colosi, 1921)
Colosius lugubris (Colosi, 1921)
Colosius propinquus (Colosi, 1921)
Colosius pulcher (Colosi, 1921)

Synonyms:

Colosius confusus
None

Colosius propinquus
Angustipes (*Angustipes*) *pulcher* Kraus, 1953
Vaginula propinqua Colosi, 1921

Colosius pulcher
Angustipes (*Angustipes*) *pulcher* Kraus, 1953
Vaginula pulchra Colosi, 1921

Common Name

No common name, leatherleaf slugs

Type of Pest

Mollusk

Taxonomic Position

Class: Gastropoda, **Order:** Systellommatophora, **Family:** Veronicellidae

Reason for Inclusion in Manual

CAPS Target: AHP Prioritized Pest List – 2011 through 2015*
*Originally listed under the family Veronicellidae.

Pest Description

"In the diagnosis provided by Thomé (1975) for the genus [*Colosius*], he described as features shared by these species: the rectum penetrating in the tegument close to the female genital pore; the presence of a digitiform gland, with tubules differentiated in two sets, one with short and unbranched tubules and another with long and branched tubules; an oval or globular bursa copulatrix without a "cabeçote" (= like a small tip in the bursa proper where the vas deferens penetrates), a short and, in general, thick duct; a short canalis junctor that penetrates in the bursa proper, next to the duct or in the duct, auxillary to the bursa; and lack of any accessory structure" (Gomes et al., 2013).

Damage

Due to their apparent lack of host specificity, few reports as to specific damage caused by Veronicellidae species to agriculture have been published in the malacological or agricultural literature.

Visual signs of *Veronicellidae* can include chewing or rasping damage to plants, presence of eggs, juveniles and adults, mucus and slime trails, and/or large-ribbon like feces.

Colosius confusus

This species causes damage to coffee by feeding and consuming the pericarp and mucilage of the coffee fruit. This damage causes the coffee bean to fall to the ground. *Colosius confusus* can also consume the bark of developing branches and tender new growth of the tree. Bark consumption can cause branch weakening and dryness (Constantino et al., 2010).

Pest Importance

Veronicellidae can be pests in tropical regions of America, Africa, and Asia where distribution is limited (Runham and Hunter, 1970). This family can also transmit pathogens to humans indirectly when they consume vegetables and fruits that have been contaminated with mucus and feces. The slugs can also transmit pathogens to plants and livestock. Displacement of native mollusk species may also occur (USDA-APHIS, 2010a).

Colosius confusus

Colosius confusus is a newly recognized species that is a pest of coffee and cultivated flowers in Colombia, Ecuador, and Peru (Gomes et al., 2013). This species has been observed causing economic damage to coffee trees. Constantino et al. (2010) observed this species causing an average of 15 fallen fruit per tree in Neira, Colombia in 2008. This equates to losses of about 76 kg/hectare/year to the coffee producer (Constantino et al., 2010).

Known Food Sources*

Colosius confusus

Coffea arabica (coffee) (Gomes et al., 2013).
Various flower species, including *Hydrangea* sp., *Chysanthemum* sp., *Aster* sp., *Hortensia* sp., *Solidago* sp., *Ruscus* sp., *Molluccella* sp., *Hypericum* sp., and others (Gomes et al., 2013)

*Terrestrial mollusks do not show host specificity and can feed on multiple crops as well as other materials, like decaying organic matter.

Pathogen or Associated Organisms Vectored

Human and Animal Pathogens

Species of this family have been found to carry several nematode parasites, including *Angiostrongylus cantonensis* (rat lungworm), *A. costaricensis*, and *A. malaysiensis*. *Angiostrongylus cantonensis* can cause symptoms similar to meningitis in humans including headache, stiff neck, tingling or painful feelings in the skin, lowgrade fever, nausea, and vomiting (USDA-APHIS, 2010a).

Note: While most cases of human infections result from consumption of raw or partially cooked snail meat, government inspectors, officers and field surveyors are at-risk due to the handling of live snail, samples, and potential exposure to mucus secretions. ***Wear gloves when handling mollusks and wash hands thoroughly after any mollusk survey or inspection activities.***

Plant Pathogens

Unknown.

Known Distribution

Distribution lists may not be all inclusive. This genus is reported from:

South America: Ecuador, Peru, and Colombia (Gomes et al., 2013).

Colosius propinquus

South America: Ecuador (Thomé et al., 1997).

Colosius pulcher

Caribbean: Dominican Republic; **South America:** Ecuador (Thomé et al., 1997).

Pathway

According to Gomes et al. (2013), this is “currently the second most intercepted mollusk species in Miami by federal agricultural inspectors in cut-flower from Ecuador and Colombia”.

Potential Distribution within the United States

No risk documents exist for any of the tropical terrestrial mollusks that give potential distribution in the United States. Host material is unlikely to limit their distribution since they are all polyphagous, but these species are limited by climate. If introduced, the tropical terrestrial mollusks would most likely be limited to the southern part of the United States and possibly the West Coast where the climate is similar to native ranges. This is supported by detections of these species which have all been in either the southern United States or West Coast (USDA-APHIS, 2010a).

Survey

CAPS-Approved Method*:

Visual. See the Introduction to the mollusk manual for specific information on visual surveys.

Survey Site Selection

New introductions of terrestrial mollusks will likely be related to commerce and human-assisted movement. The habitat and land-use type of each survey site may be variable, ranging from agricultural land, to residential or industrial features. When planning the survey route for a particular site, examine the following microhabitats:

- Near heavily vegetated areas, especially gardens and fields where plants have been damaged by feeding;
- Under rocks, asphalt or cement pieces that are in loose contact with the ground surface;
- Discarded wooden boards and planks, fallen trees, logs, and branches;
- Damp leaf litter (not wet or soggy), compost piles, and rubbish heaps; and
- Under flower pots, planters, rubber mats, tires, and other items in contact with the soil.

Trap Placement

Trapping ***cannot*** be used alone but can be used to supplement visual surveying. Trapping for terrestrial mollusks is not species-specific and will attract non-target species, including non-mollusks. Platform or baiting traps can be used to supplement visual inspection. Trap placement can occur in the same areas that visual surveys occur.

Time of year to survey

Most species of terrestrial mollusks are active during nocturnal hours, when environmental conditions are cool and wet. Some species may also be active during daylight, especially during overcast and rainy days in the spring and fall. If possible, plan surveys during spring and fall, during the early morning, and on overcast days. Many slugs and snails have diurnal patterns of activity, so early morning and evening hours may be the best time to carry out a survey (Pearce and Örstan, 2006).

*For the most up-to-date methods for survey and identification, see Approved Methods on the CAPS Resource and Collaboration Site, at http://caps.ceris.purdue.edu/.

Key Diagnostics/Identification

CAPS-Approved Method*:

Morphological and Molecular: Differentiation from the native species is only by dissection and only if the specimen is mature enough. All veronicellid samples should be sent to Dr. Robinson for morphological identification. All specimens will then be confirmed through molecular diagnostics performed at the CPHST Mission lab.

A key to terrestrial mollusks (including Veronicellidae) is found here: http://idtools.org/id/mollusc/index.php.

In April 2013, the family Veronicellidae, a target on the 2013 and 2014 AHP Prioritized Pest Lists, was broken down into six genera of concern. When conducting a general mollusk survey, if samples are negative for Veronicellidae, then negative data may be reported for each of these six genera: *Belocaulus, Colosius, Laevicaulis, Sarasinula, Semperula,* and *Veronicella*. All positives must be reported at the species level.

Refer to "Appendix N - Data Entry Guide for Selected Taxonomic Groups" of the most recent year's CAPS Guidelines for additional information on data entry for mollusks. https://caps.ceris.purdue.edu/caps_agreement_guidelines.

*For the most up-to-date methods for survey and identification, see Approved Methods on the CAPS Resource and Collaboration Site, at http://caps.ceris.purdue.edu/.

References

Constantino, L. M., S. Gomes, and P. Benavides. 2010. Decripción y daños causados por las babosas *Colosius pulcher* y *Sarasinula plebeia* en el cultivo del café en Colombia [in Spanish]. Avances Técnicos Cenicafè. 392. Federación Nacional de Cafeteros de Colombia.

Gomes, S. R., D. G. Robinson, F. J. Zimmerman, O. Obregón, and N. B. Barr. 2013. Morphological and Molecular Analysis of the Andean Slugs *Colosius confusus*, n. sp., A Newly Recognized Pest of Cultivated Flowers and Coffee from Colombia, Ecuador and Peru, and *Colosius pulcher* (Colosi, 1921) (Gastropoda, Veronicellidae). Malacologia, 56(1–2):1-30.

Pearce, T. A. and A. Örstan, 2006. Chapter 22. Terrestrial Gastropoda. In Sturm, C. F., T. A. Pierce, and A. Valdés (eds.). The Mollusks: A Guide to Their Study, Collection, and Preservation. American Malacological Society.

Runham, N. W. and P. J. Hunter. 1970. Terrestrial slugs. Hutchinson and Company LTD, London, England.

Thomé, J. W., P. Dos Santos, and L. Pedott. 1997. Annotated list of Veronicellidae from the collections of the Academy of Natural Sciences of Philadelphia and the National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (Mollusca: Gastropoda: Soleoifera). Proceedings of the Biological Society of Washington 110:520-536.

USDA-APHIS. 2010a. New Pest Response Guidelines. Tropical Terrestrial Gastropods. USDAAPHIS-PPQ-Emergency and Domestic Programs-Emergency Planning, Riverdale, Maryland.

http://www.aphis.usda.gov/import_export/plants/manuals/

USDA-APHIS. 2010b. New Pest Response Guidelines. Temperate Terrestrial Gastropods. USDA-APHIS-PPQ-Emergency and Domestic Programs-Emergency Planning, Riverdale, Maryland. http://www.aphis.usda.gov/import_export/plants/manuals/

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