**SCIENTIFIC NOTE**

*Ceracis californicus* (Casey) (Coleoptera: Ciiidae): Newly Recognized Herbarium Pest

JAMES J. MADENJIAN  
U. S. Food & Drug Administration  
19701 Fairchild  
Irvine, CA 92612, U.S.A.

PAMELA REGENSBERG  
Denver Botanic Gardens  
909 York Street  
Denver, CO 80206, U.S.A.

AND

MICHAEL CATERINO  
E-143 Poole Agricultural Center  
Clemson University  
Clemson, SC 29634, U.S.A.

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*Ceracis californicus* (Casey) is a minute tree fungus beetle (Ciidae). Larvae and adults of the family bore into and feed upon sterile hyphae, which comprise the bulk of the fruiting structures (sporophores = mushrooms) of Polyporaceae and other Basidiomycota that grow on woody structures (Lawrence 1974). Ciid densities can be very high (1,000 or more individuals per sporophore) (Graves 1960). Ciiids are mycetobionts, spending most of their lives within the sporophores and being entirely dependent on them for food and shelter (Lawrence 1973). This is consistent with Graves’ (1960) speculation that some individuals may live their lives in one sporophore.

Ciid adults can be recognized by the following characteristics (Lawrence 1971): (1) head usually declined and partly concealed by the pronotum; (2) eyes oval and entire; (3) frontoclypeal area in male often raised to form a ridge, tubercles, or horns; (4) antennae 8- to 10-segmented with a 2- or 3-segmented club bearing large, complex sensilla; (5) anterior edge of pronotum in male often bearing tubercles or horns; (6) tarsal formula 4-4-4 in both sexes, the tarsal segments simple (not lobed beneath); (7) abdomen with five freely articulated sternites.

During 2010, Pamela Regensberg (Curatorial Assistant) discovered a live ciid infestation of sporophores in the Sam Mitchel Herbarium of Fungi, Denver Botanic Gardens, Denver, CO. Ciids were found in Cabinets 12, 13, and 14 (containing the herbarium’s entire collection of the Order Aphyllophorales). Sporophores from Cabinet 13 were the most heavily infested. These specimens — housed in telescoping boxes of various sizes — and specimens from a nearby display shelf were placed in a residential, upright freezer for a minimum of two weeks during 2010. The cabinet was sanitized before specimens were returned to the collection. The herbarium obtained a −20°C chest freezer in February 2011, and staff began refreezing specimens from Cabinet 13 to ensure beetle mortality. Specimens in Cabinets 12 and 14 were subsequently placed in the freezer for a minimum of 14 days. Each cabinet was sanitized before specimens were returned. The entire process took several months and was completed during the summer of 2011. Prior to the freezer treatments, Pamela collected 37 samples of beetles / frass / fungal fragments from infested specimens representing 22 or 23 different species of fungi. Individual samples were carefully collected and placed in acid-free envelopes labeled with the taxon name and the herbarium accession number. She observed beetles living and breeding (as evidenced by tunneling, fragmentation, and frass) in these herbarium specimens.

The samples were sent to James Madenjian at the US Food & Drug Administration in Irvine, CA. Most of the samples were simply examined microscopically (Wild M5A dissecting microscope). A wet extraction method (AOAC (18th Edition) 967.24B) (Ziobro 2005) was used for seven of the