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Results from the Regional Identification Center of the USDA-APHIS (Eastern Region) at the Mississippi Entomological Museum for the 2012 and 2013 Wood Boring Beetle Surveys, Including New State and County Records for Alabama and Mississippi

Report

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Abstract: The Mississippi Entomological Museum (MEM) serves as a screening and identification center for the USDA-APHIS (Eastern Region). The screening center provides screening services for eastern states participating in Cooperative Agricultural Pest Surveys (CAPS). Each year thousands of samples are screened for exotic pests. Results from the 2012 and 2013 wood boring beetle surveys are reported here, including new state and county records. Four species representing new state records were detected in samples in 2012: *Ambrosiodmus minor* (Stebbing) (Coleoptera: Curculionidae: Scolytinae) and an unidentified species of *Ambrosiodmus*, probably *A. lewisi* (Blandford) (Coleoptera: Curculionidae: Scolytinae), were found in Alabama, and *Xyleborinus octiesdentatus* (Murayama) (Coleoptera: Curculionidae: Scolytinae) and *Xylopsocus capusinus* (Fabricius) (Coleoptera: Bostrichidae) were found in Mississippi. Screening in 2013 resulted in addition of new county records for these species in Alabama and Mississippi.

Keywords: *Ambrosiodmus minor* (Stebbing), *Ambrosiodmus lewisi* (Blandford), *Xyleborinus octiesdentatus* (Murayama), *Xylopsocus capusinus* (Fabricius), exotic species, Cooperative Agricultural Pest Surveys (CAPS)

Introduction

Since 2009, the Mississippi Entomological Museum (MEM) has served as a screening and identification center for the USDA-APHIS Eastern Region. As such, the MEM has supported various Cooperative Agricultural Pest Surveys (CAPS) for various eastern states during this time. The majority of samples submitted were from wood boring beetle surveys using Lindgren funnel traps. All Lindgren samples were screened for a targeted list of exotic species from the following families: Bostrichidae, Buprestidae, Cerambycidae, and Curculionidae, including Platypodinae and Scolytinae. In 2012, a total of 2271 Lindgren funnel samples were received from Alabama, Kentucky, and Mississippi. The following year, in 2013, with the addition of eastern Tennessee samples, a total of 3086 Lindgren funnel samples were received. The number of samples screened increased each year due to more states and counties being included in CAPS insect surveys. This increase in samples correlated to an increase in the number of specimens screened and allowed for a greater chance of an invasive species being identified during the screening process. In 2013, a total of 132 specimens of targeted exotic species were identified from 67 samples, a 400% increase over the previous year's total of 32 specimens in 20 samples.

Materials and Methods

Samples that were received from 2009 to 2013 were obtained following the USDA protocol for using Lindgren funnel traps for surveys of wood boring beetles. From 2009-2012 the traps were run using a variety of lures including α -pinene, α/β -pinene, and *Ips* Lure®, with collection cups filled with a 50/50 mixture of 70% ethanol and low toxicity propylene glycol. In 2013 the following changes were made in the USDA protocol: traps were baited with either *Ips* or α -pinene lures and collection cups were filled only with propylene glycol. Traps were checked by collectors at various intervals ranging from two to six weeks, with sample degradation becoming an issue in samples collected after three weeks. Samples collected in states other than Mississippi were shipped overnight to the screening and identification center for the USDA-APHIS (Eastern Region) at the Mississippi Entomological Museum. Upon arrival, all samples were logged into a database, given a unique identification number, and frozen until sorted. Supervised student workers sorted all samples to the following target taxa: Bostrichidae, Buprestidae, Cerambycidae, Curculionidae, Platypodinae, and Scolytinae. Non-target taxa were either disposed of or retained as museum specimens. Sorted samples were screened by J. Seltzer for targeted exotic species, and any suspect or unknown species were identified by T. Schiefer. Any exotic species representing a new U.S. or state record was sent by overnight delivery to the USDA-Systematic Entomology Laboratory for further confirmation, with email messages sent to the State Plant Health Director (SPHD) (APHIS) and the State Plant Regulatory Official (SPRO) for the respective state where the sample originated, to the APHIS Eastern Region Office, and to the Coordinator of the APHIS National Identification Services.

Results and Discussion

During 2012 Alabama and Mississippi samples each had two new state records that were identified and reported as a result of CAPS surveys. Nine samples from Alabama contained specimens of *Ambrosiodmus minor* (Stebbing) (Coleoptera: Curculionidae: Scolytinae) (Figure 1), a new state record. First detected in North America in Florida in 2011, *A. minor* is native to southern and southeastern Asia (Halbert 2011).

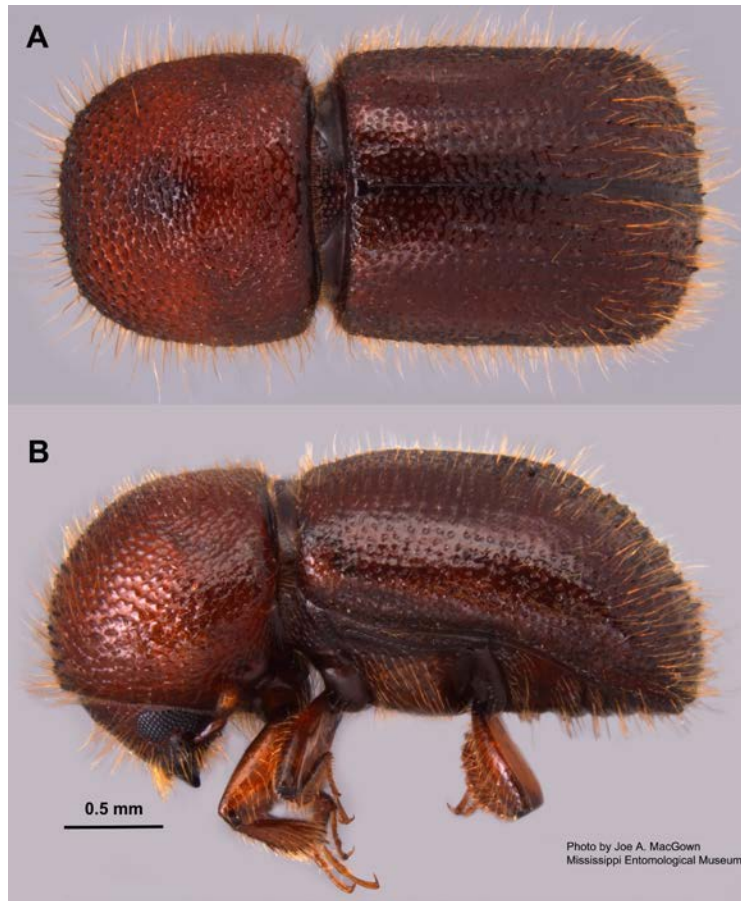


Figure 1. *Ambrosiodmus minor*, A) dorsal view; B) lateral view.

In Asia, its hosts include trees in the families Combretaceae, Dipterocarpaceae, Lamiaceae, and Malvaceae (Wood and Bright 1992), but its hosts in North America are unknown. Specimens of *A. minor* were detected in Alabama samples from Coffee, Conecuh, Geneva, Houston, Monroe, and Montgomery Counties (Figure 2) and were collected between 2 May and 2 August 2012.

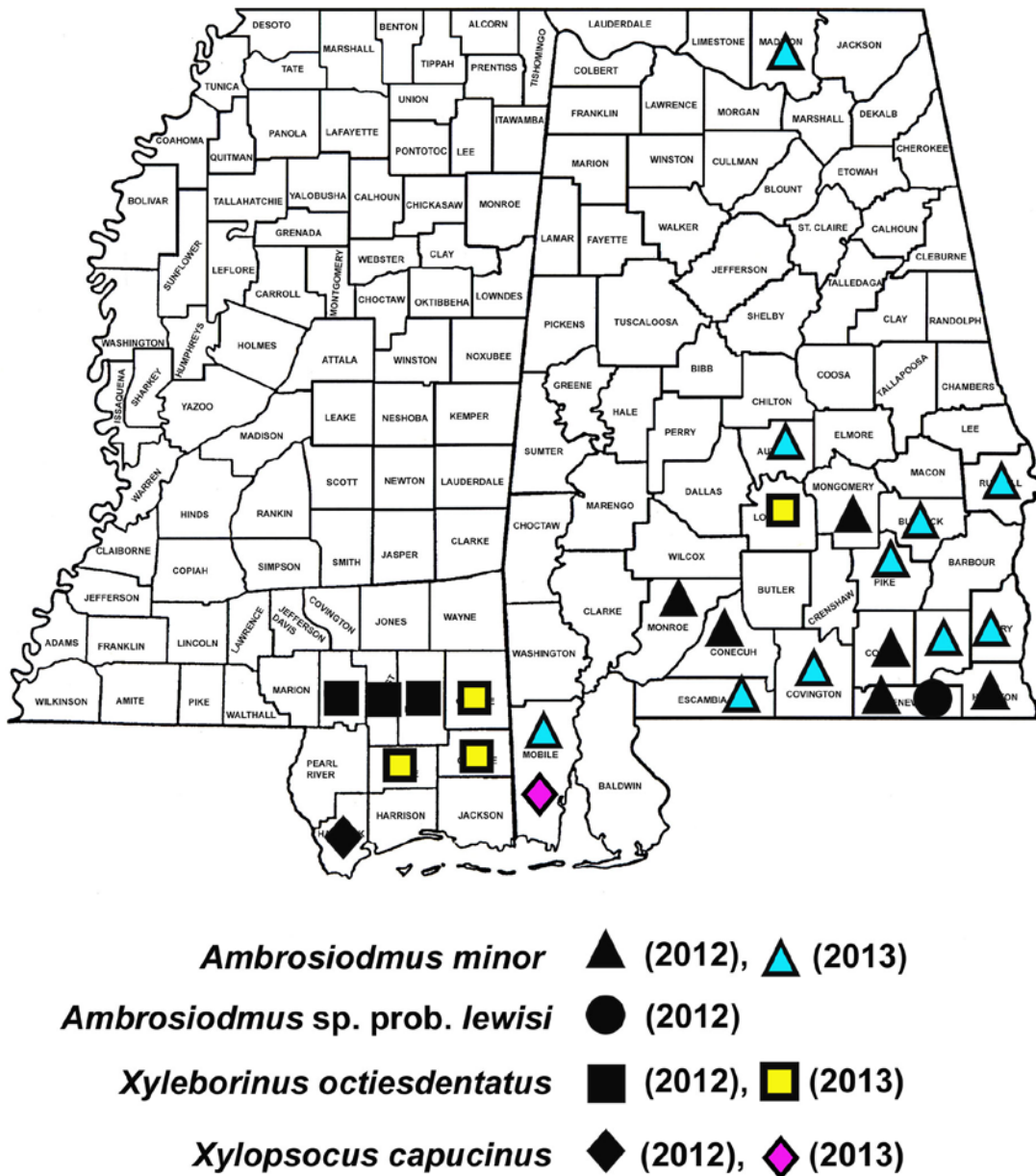


Figure 2. Map showing county distribution of samples with targeted exotic species found in Alabama and Mississippi during 2012-2013, with records from 2012 in black.

A single specimen of *Ambrosiodmus* species probably *lewisi* (Blandford) (Coleoptera: Curculionidae: Scolytinae) (Figure 3) was collected in Geneva County (Figure 2) in a trap run from 18 to 30 June 2012. This collection represented an additional state record for Alabama. In comparison to *A. minor*, this specimen is much larger with relatively longer setae (Figure 4). *Ambrosiodmus lewisi*, native to Asia, has not been collected in the United States since 1990, when it was collected in Pennsylvania (Hoebeke 1991).

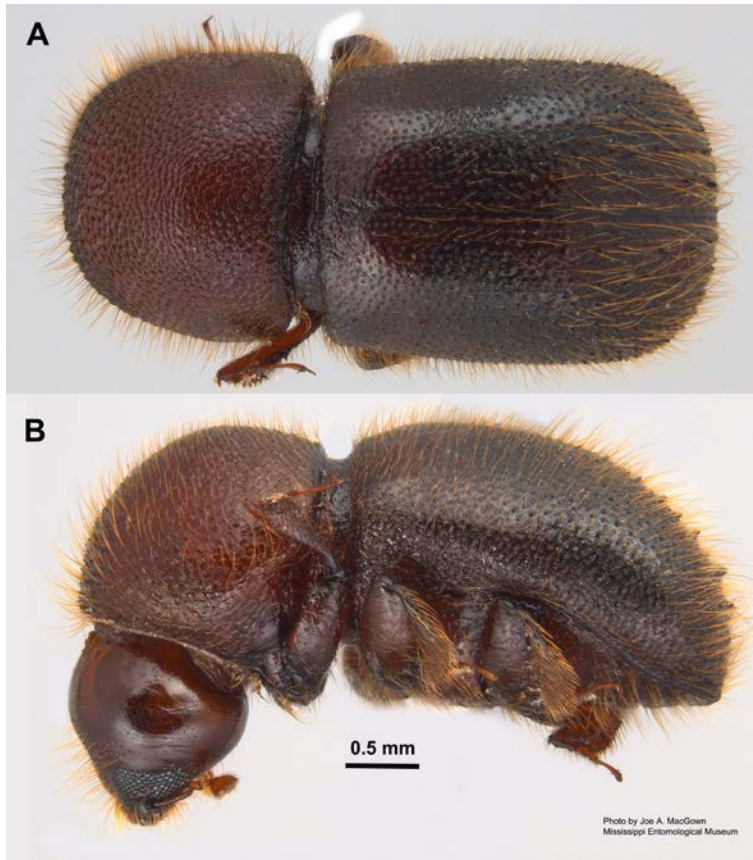


Figure 3. *Ambrosiodmus* species probably *lewisii*. A) dorsal view; B) lateral view.

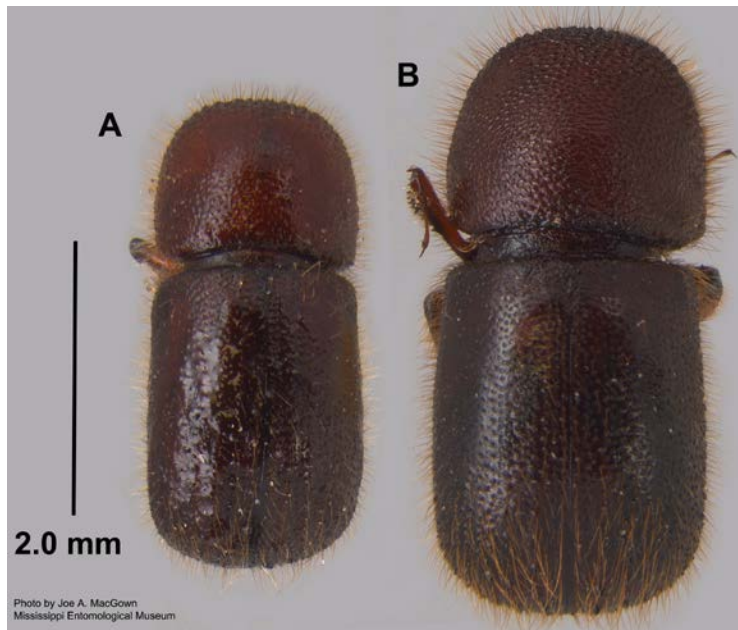


Figure 4. Comparison of *Ambrosiodmus* species. A) *Ambrosiodmus minor*, B) *Ambrosiodmus* species probably *lewisii*.

Host plants for *A. lewisi* include woody plants in the families Anacardiaceae, Betulaceae, Calophyllaceae, Combretaceae, Dipterocarpaceae, Fabaceae, Fagaceae, Lauraceae, Meliaceae, Moraceae, Rosaceae, Rutaceae, Salicaceae, Sapindaceae, and Simaroubaceae (Wood and Bright 1992). Its impact on North American forestry commodities is not known.

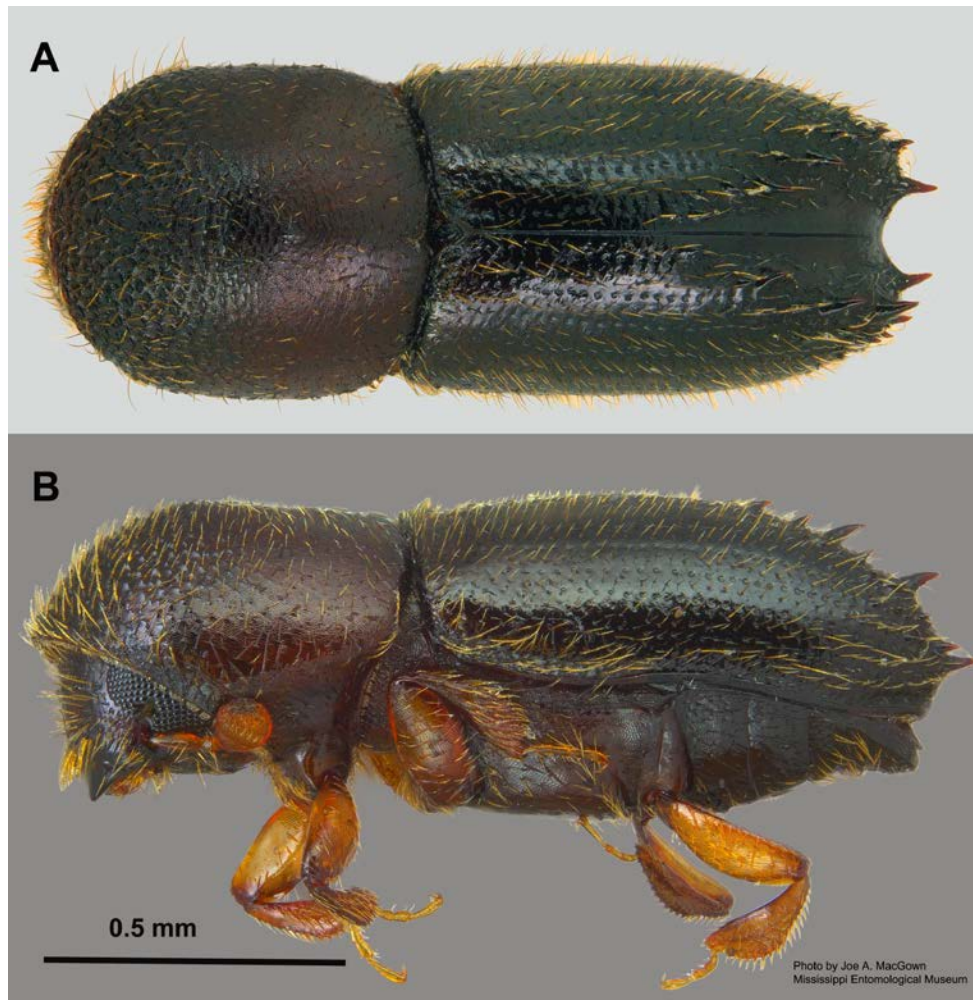


Figure 5. *Xyleborinus octiesdentatus*. A) dorsal view; B) lateral view.

One of the new state records from Mississippi samples was *Xyleborinus octiesdentatus* (Murayama) (Coleoptera: Curculionidae: Scolytinae) (Figure 5), a native of Asia. Seven specimens of this species were collected in traps run between 16 April and 24 May 2012 in Forrest, Lamar, and Perry Counties (Figure 2). This species was initially detected in the US in 2008 and was reported from Alabama, Louisiana and South Carolina (Rabaglia et al. 2010, Chong et al. 2012). Hosts in Asia include plants in the families Aquifoliaceae, Betulaceae, Schisandraceae, and Theaceae (Wood and Bright 1992), but North American hosts are unknown.

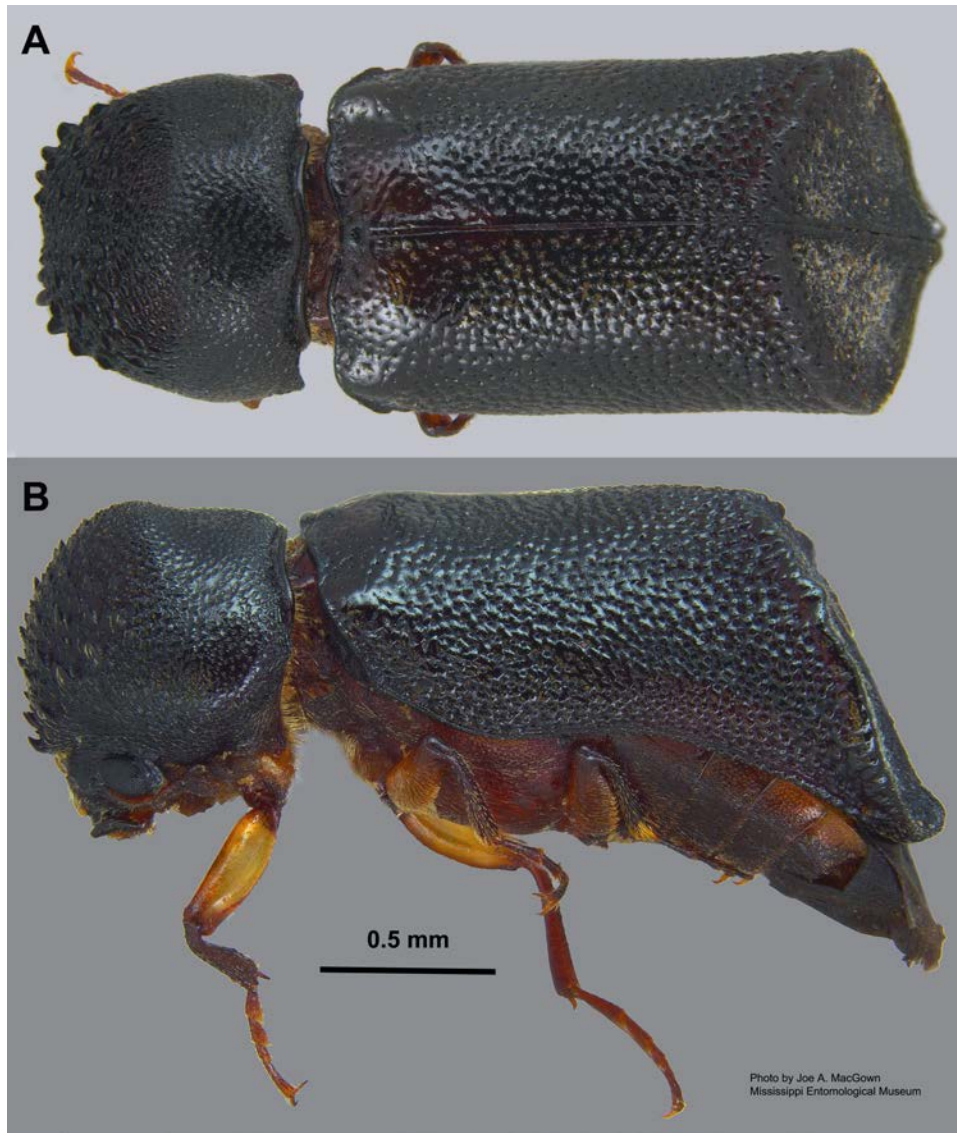


Figure 6. *Xylopsocus capucinus*. A) dorsal view; B) lateral view.

Xylopsocus capucinus (Fabricius) (Coleoptera: Bostrichidae), also native to Asia, is another new state record for Mississippi (Figure 6). A single specimen of this species was detected in a sample from Hancock County from a trap run between 26 April and 11 May 2012 (Figure 2).

No new state records were recorded for 2013 from the samples submitted, but several new county records were recorded from 2013 Alabama and Mississippi samples. Thirty-eight of the samples from Alabama had specimens of *A. minor*.

This exotic species was recorded in an additional ten counties during 2013: Autauga, Bullock, Covington, Dale, Escambia, Henry, Madison, Mobile, Pike, and Russell (Figure 2). Samples from Alabama also contained specimens of *Xyleborinus octiesdentatus* and *Xylopsocus capucinus*, which represent new county records for Lowndes and Mobile Counties respectively (Figure 2). Fifteen samples from Mississippi contained specimens of *X. octiesdentatus* (Murayama), with new county records from George, Greene, and Stone Counties (Figure 2).

Specimen Data

Ambrosiodmus minor: **Alabama:** *Autauga Co.*, 32.420146° -86.470028°, 1-15 April and 29 May-24 June 2013, D. Barcliff; 32.451100° -86.736467°, 1-15 April 2013, D. Barcliff. *Bullock Co.*, 31.88266° -85.71048°, 10 June-8 July 2013, D. M. Hutto. *Coffee Co.*, Industrial Area, 31.4127970° -86.078856°, 9 July 2012, J. Reynolds. *Conecuh Co.*, No location data given, 14 May-12 June 2012, E. Wilson. *Covington Co.*, 31.00880° -86.34336°, 14 May- 4 June and 3 July-7 August 2013, J. Reynolds. *Dale Co.*, 31.324717° -85.727833°, 6 May-5 June 2013, J. Reynolds; 31.358583° -85.705233°, 3 July-7 August 2013, J. Reynolds. *Escambia Co.*, 31.013183° -87.260933°, 18 June-1 July 2013, A. Hoogmoed; 31.078650° -87.114900°, 18 June-1 July 2013, A. Hoogmoed. *Geneva Co.*, Geneva Co. Tree Farm, 31.102825° -86.054266°, 30 April-18 June 2012, J. Reynolds. *Henry Co.*, 31.572883° -85.260167°, 1-8 April 2013, J. Reynolds; 31.599433° -85.278367°, 8 April-5 May 2013, J. Reynolds; 31.518317° -85.305733°, 1-8 April, 8 April-7 May, 7 May-4 June, and 4 June-2 July 2013, J. Reynolds; 31.369300° -85.314500°, 1-8 April 2013, J. Reynolds. *Houston Co.*, Sony Magnetic Plant Site, 31.234788° -85.458095°, 4-27 June 2012, R. Tuten; Michelin Tire Factory, 31.292549° -85.468288°, 10 July-9 August 2012, J. Reynolds. *Madison Co.*, 34.750369° -86.457419°, 11 June-10 July 2013, L. Slade. *Mobile Co.*, 30.738383° -88.053783°, 13 June-2 July 2013, A.V. Hoogmoed. *Monroe Co.*, Harrigan Lumber, 31.51605° -87.29380°, 2-23 May 2012, M. Lott. *Montgomery Co.*, Hope Hull Industrial Park, 32.263566° -86.365842°, 29 May-27 June 2012, R. Tuten; Hope Hull Industrial Park, 32.263566° -86.365842°, 16-25 July 2012, R. Tuten. *Pike Co.*, 31.776650° -85.940650°, 3 April-6 May and 10 June-11 July 2013, J. Reynolds. *Russell Co.*, 31.18324° -85.03291°, 10 June-8 July and 8 July-5 August 2013, D. M. Hutto.

Ambrosiodmus species probably lewisi: **Alabama:** *Geneva Co.*, Geneva Co. Tree Farm, 31.102825° -86.054266°, 18 June-30 July 2012, J. Reynolds.

Xyleborinus octiesdentatus: **Alabama:** *Lowndes Co.*, 32.33094° -86.56815°, 8-28 May 2013, D. M. Hutto. **Mississippi:** *Forrest Co.*, 31.02919° -89.18215°, 16-27 April 2012, L. McAnally. *George Co.*, 30.99431° -88.67839°, 9-22 May 2013, D. Haynes. *Greene Co.*, 31.09283° -88.54118°, 10-22 May 2013, D. Haynes. *Lamar Co.*, 31.00653° -89.46576°, 18-26 April 2012, L. McAnally; 31.32791° -89.47878°, 26 April-10 May 2012, L. McAnally; 31.40861° -89.57858°, 10-24 May 2012, L. McAnally. *Perry Co.*, 31.20136° -89.03761°, 16-27 April 2012, L. McAnally. *Stone Co.*, 30.85656° -88.99448°, 6-20 May 2013, L. McAnally; 30.88111° -89.16264°, 6-20 May 2013, L. McAnally.

Xylopsocus capucinus: **Alabama:** *Mobile Co.*, 30.738383 -88.053783, 9-30 April 2013, M. Lott. **Mississippi:** *Hancock Co.*, no location data given, 26 April-11 May 2012, B. A. Lotz.

Acknowledgments

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