

A journal of world insect systematics

INSECTA MUNDI

1132

Annotated checklist and distribution of the jewel beetles (Coleoptera: Buprestidae) of Idaho

Luc Leblanc

University of Idaho, Department of Entomology, Plant Pathology and Nematology, 875 Perimeter Drive, MS 2329,
Moscow, ID 83844-2329, USA

Emma L. Eakins

University of Idaho, Department of Entomology, Plant Pathology and Nematology, 875 Perimeter Drive, MS 2329,
Moscow, ID 83844-2329, USA

Date of issue: June 27, 2025

Center for Systematic Entomology, Inc., Gainesville, FL

Leblanc L, Eakins EL. 2025. Annotated checklist and distribution of the jewel beetles (Coleoptera: Buprestidae) of Idaho. *Insecta Mundi* 1132: 1–42.

Published on June 27, 2025 by
Center for Systematic Entomology, Inc.
P.O. Box 141874
Gainesville, FL 32614-1874 USA
<http://centerforsystematicentomology.org/>

INSECTA MUNDI is a journal primarily devoted to insect systematics, but articles can be published on any non-marine arthropod. Topics considered for publication include systematics, taxonomy, nomenclature, checklists, faunal works, and natural history. *Insecta Mundi* will not consider works in the applied sciences (i.e. medical entomology, pest control research, etc.), and no longer publishes book reviews or editorials. *Insecta Mundi* publishes original research or discoveries in an inexpensive and timely manner, distributing them free via open access on the internet on the date of publication.

Insecta Mundi is referenced or abstracted by several sources, including the Zoological Record and CAB Abstracts. *Insecta Mundi* is published irregularly throughout the year, with completed manuscripts assigned an individual number. Manuscripts must be peer reviewed prior to submission, after which they are reviewed by the editorial board to ensure quality. One author of each submitted manuscript must be a current member of the Center for Systematic Entomology.

Guidelines and requirements for the preparation of manuscripts are available on the *Insecta Mundi* website at <http://centerforsystematicentomology.org/insectamundi/>

Chief Editor: David Plotkin, insectamundi@gmail.com

Assistant Editor: Paul E. Skelley, insectamundi@gmail.com

Layout Editor: Robert G. Forsyth

Editorial Board: Davide Dal Pos, José Martínez, Alex Orfinger, M. J. Paulsen, Felipe Soto-Adames

Founding Editors: Ross H. Arnett, Jr., J. H. Frank, Virendra Gupta, John B. Heppner, Lionel A. Stange, Michael C. Thomas, Robert E. Woodruff

Review Editors: Listed on the *Insecta Mundi* webpage

Printed copies (ISSN 0749-6737) annually deposited in libraries

Florida Department of Agriculture and Consumer Services, Gainesville, FL, USA
The Natural History Museum, London, UK
National Museum of Natural History, Smithsonian Institution, Washington, DC, USA
Zoological Institute of Russian Academy of Sciences, Saint-Petersburg, Russia

Electronic copies (online ISSN 1942-1354) in PDF format

Archived digitally by Portico.
Florida Virtual Campus: <http://purl.fcla.edu/fcla/insectamundi>
University of Nebraska-Lincoln, Digital Commons: <http://digitalcommons.unl.edu/insectamundi/>
Goethe-Universität, Frankfurt am Main: <http://nbn-resolving.de/urn/resolver.pl?urn:nbn:de:hebis:30:3-135240>

This is an open access article distributed under the terms of the Creative Commons, Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.
<https://creativecommons.org/licenses/by-nc/3.0/>

Annotated checklist and distribution of the jewel beetles (Coleoptera: Buprestidae) of Idaho

Luc Leblanc

University of Idaho, Department of Entomology, Plant Pathology and Nematology, 875 Perimeter Drive, MS 2329,
Moscow, ID 83844-2329, USA
leblancl@uidaho.edu

Emma L. Eakins

University of Idaho, Department of Entomology, Plant Pathology and Nematology, 875 Perimeter Drive, MS 2329,
Moscow, ID 83844-2329, USA

Abstract. An annotated checklist of the 102 species of Buprestidae (Coleoptera) known to be present in the state of Idaho is provided, with photographs and detailed distribution maps for each species. The checklist is based on label data from 7,506 museum specimens, 21 observations obtained from iNaturalist.org and Bug-Guide.net, and 63 distribution records from published literature. *Buprestis consularis* Gory is a new record for Idaho, formerly reported as *Buprestis nutalli* Kirby, which is not known to occur in the state. Obscure past records of *Anthaxia retifera* LeConte and *Melanophila occidentalis* Obenberger published in the literature are regarded as dubious and are not confirmed by actual specimens. These species are therefore excluded from the checklist. *Knowltonia calida* (Knull) and *Chrysobothris caurina* Horn are also absent from Idaho, their previously published records based on misidentifications of *K. biramosa* Fisher and *C. leechi* Barr, respectively.

Key words. Biodiversity, flathead borer, forestry, metallic wood borer, Pacific Northwest, pest, taxonomy

ZooBank registration. urn:lsid:zoobank.org:pub:2CE3F9AB-4D8E-43A5-B81B-46639EF4E9D5

Introduction

Jewel beetles are members of a large family (Buprestidae) of phytophagous beetles with over 15,000 World species, and over 800 in America north of Mexico (Bellamy 2008; Nelson et al. 2008). Its members include pests of forestry and horticultural crops, and two beneficial species introduced for the biological control of weeds (Ruzzier et al. 2024). Their charismatic nature has drawn the attention of generations of collectors and taxonomists who have compiled impressive collections. One of these, located at the University of Idaho's William F. Barr Entomological Museum (WFBM), is comprised of over 1,300 species and more than 50,000 pinned specimens. Some of the notable contributors to the growth of this collection were William F. Barr (Westcott and Merickel 2012; Westcott et al. 2014) (Fig. 1A), a reputed buprestid and clerid beetle taxonomist who published a key to the Buprestidae of the Pacific Northwest (Barr 1971); his former graduate students Richard L. Westcott (Fig. 1B) and Malcom M. Furniss (Fig. 1C); and his lifetime colleague Frank M. Beer (Westcott 1995) (Fig. 1D). The WFBM collection includes over 7,000 specimens collected in the state of Idaho, the majority identified to species level, mostly by W. F. Barr, R. L. Westcott, F. M. Beer, and Svatopluk Bílý. In addition, the WFBM has a very rich legacy collection of early books and reprints on Buprestidae and other Coleoptera inherited from William Barr and Melville Hatch (Crawford 2025). This enabled us to track and consult the original sources of species descriptions and other literature citations. This invaluable resource motivated us to use museum specimen label data, published literature, and available observation records to compile an annotated checklist of the 102 species of Buprestidae present in Idaho, enhanced with photographs and detailed distribution maps for each species. All but six of the species can be identified using available regional keys (Barr 1971; Bright 1987).

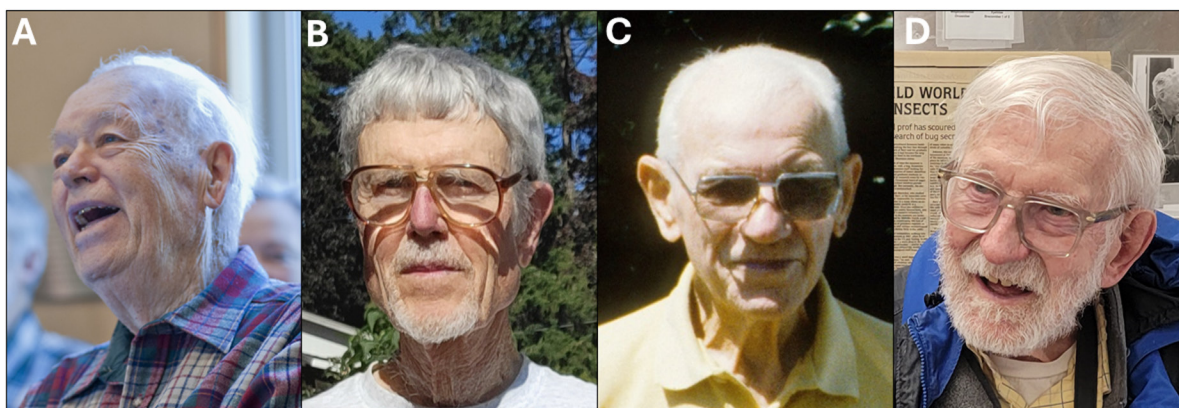


Figure 1. Major contributors to the collection of Buprestidae in the Barr Entomological Museum. **A)** William F. Barr on his 90th birthday, 22 October 2010 (photo by Ron LaForge). **B)** Richard L. Westcott in 2021 (photo by L. Leblanc). **C)** Frank M. Beer in 1987 (photo by Gary Peters). **D)** 98-year-old Malcom L. Furniss in 2024 (photo by L. Leblanc).

Materials and Methods

Label data were obtained for all the buprestid specimens collected in Idaho and available in the W. F. Barr Entomological Museum (University of Idaho, Moscow, ID) (WFBM) and the Orma Smith Natural History Museum (College of Idaho, Caldwell, ID) (CIDA). Label data were made publicly available through uploading records online on the Ecdysis (Ecdysis 2025) (WFBM specimen data) or the SCAN (Scan-bugs 2025) (CIDA specimen data) museum data portals. Data uploaded to either portal automatically become available on the Global Biodiversity Information Facility (GBIF 2025). To supplement label data, we also compiled records based on published literature, data from other museum specimens available on GBIF, and a selection of significant observations posted on iNaturalist.org (iNaturalist 2025) and BugGuide.net (VanDyk 2025), validated by entomologists known to the authors (Joshua P. Basham, Merrill Peterson, Paul Castrovillo, Steve Wells) or clearly identifiable on the posted photographs.

Specimens featured on the figure plates were photographed using an Olympus TG-6 camera, which includes a focus-stacking and image rendering function. Lighting was provided by two 13x19 cm daylight 5600K 16W LED light panels (Albinar brand) placed at 45-degree angles on either side of the photographed specimen. Photographs were processed using Adobe Photoshop Elements software to remove pins and crop image background.

Distribution maps were compiled using Quantum GIS (QGIS Development Team 2025), and Google Earth (Google 2025) was used to estimate geographic coordinates from locality information on specimen labels.

Results

A total of 102 species, including three subspecies of *Anthaxia caseyi* Obenberger, have been recorded in the state of Idaho over the years since the first published state occurrence of seven species by LeConte (1878) (Fig. 2). The list and distribution data are based on 2,713 occurrence records, or a total of 7,590 data entries of collected specimens, observed specimens, or literature records. An occurrence record is a single or a series of specimens collected at one locality on the same day. The sources of the data are WFBM (7,000 specimens, 90 species), CIDA (433 specimens, 49 species), online data from 15 other museums (73 specimens, 31 species), published literature records (63 occurrences, 23 species), and citizen science records from iNaturalist.org (17 occurrences, eight species) and BugGuide.net (four occurrences, three species).

The specimens were collected or observed at 906 localities, in all but one county between 1898 and 2023, with the largest number of species, localities, occurrences, and specimens being in Latah County, where the WFBM is located (Fig. 3–4). The eight most commonly collected species, each with at least 80 occurrences and together accounting for 47% of all occurrences and 44% of collected specimens, were *Acmaeodera idahoensis*

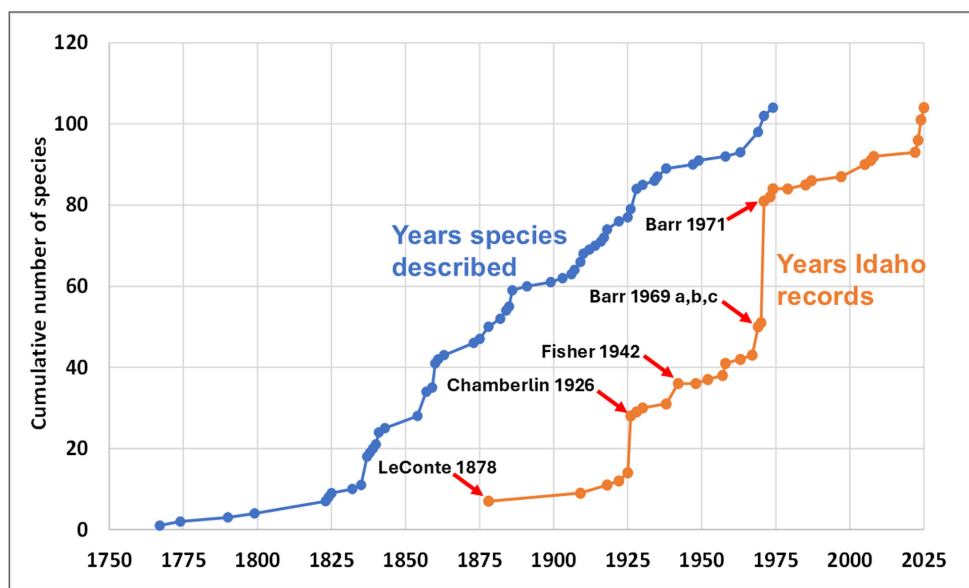


Figure 2. Cumulative number of species of Buprestidae recorded in Idaho by year of species description and year of species presence published.

Barr, *Anthaxia inornata* (Randall), *Buprestis aurulenta* Linnaeus, *Buprestis langii* Mannerheim, *Buprestis lyrata* Casey, *Dicerca tenebrosa tenebrosa* (Kirby), and *Phaenops drummondi* (Kirby).

An annotated checklist is provided for all the species recorded in Idaho. Species are referred to by their scientific names, and we also include the common names officially recognized by the Entomological Society of America (ESA 2025). For each species, we cite the year of first mention of the species presence in Idaho and include information on the total number of localities, occurrences, and specimens, and list the counties where the species was collected, observed, or reported in literature. Photographs, geographic distribution, and seasonal phenology of each species are presented in Fig. 5–31. Distribution maps include the georeferenced individual occurrence localities. The counties with species presence are shaded in striped pale-yellow pattern, and the states or province adjacent to Idaho where a species is also known to be present are shaded in solid yellow. We list and include on maps the type locality of species (or their synonym species) of which Holotypes were collected in Idaho. The seasonal phenology graphs in inserts are based on numbers of occurrences, rather than numbers of specimens.

For each beetle species, the known larval host species is listed whenever the host species is known to be present in Idaho, which does not imply that these published rearing records were specifically from hosts collected in Idaho. The presence of each known host species in Idaho was confirmed by consulting plant distribution maps in Bonap (2025), and we cite hosts following botanical nomenclature in World Flora Online (2025). Additional known host species not present in Idaho are referred to by their genera, if congeneric species other than the host are present in the state. When larval hosts are unknown, plants visited by adults are cited by their genera if present in Idaho, which does not imply that they are larval hosts but may help guide the search for specimens and new hosts.

Subfamily POLYCESTINAE, Tribe ACMAEODERINI

Acmaeodera acuta LeConte, 1860 (Fig. 5A)

First state record in Barr (1971). Records from three localities, four occurrences, and 19 specimens in Owyhee County. Adults collected on *Achillea* L. (Asteraceae), *Opuntia* Mill. (Cactaceae), *Rosa* L. (Rosaceae), *Salix* L. (Salicaceae), and *Sphaeralcea* A.St.-Hil. (Malvaceae) (Nelson et al. 2008; Westcott and La Rue 2017). Westcott et al. (1979) suggested that species of *Salix* are likely larval hosts.

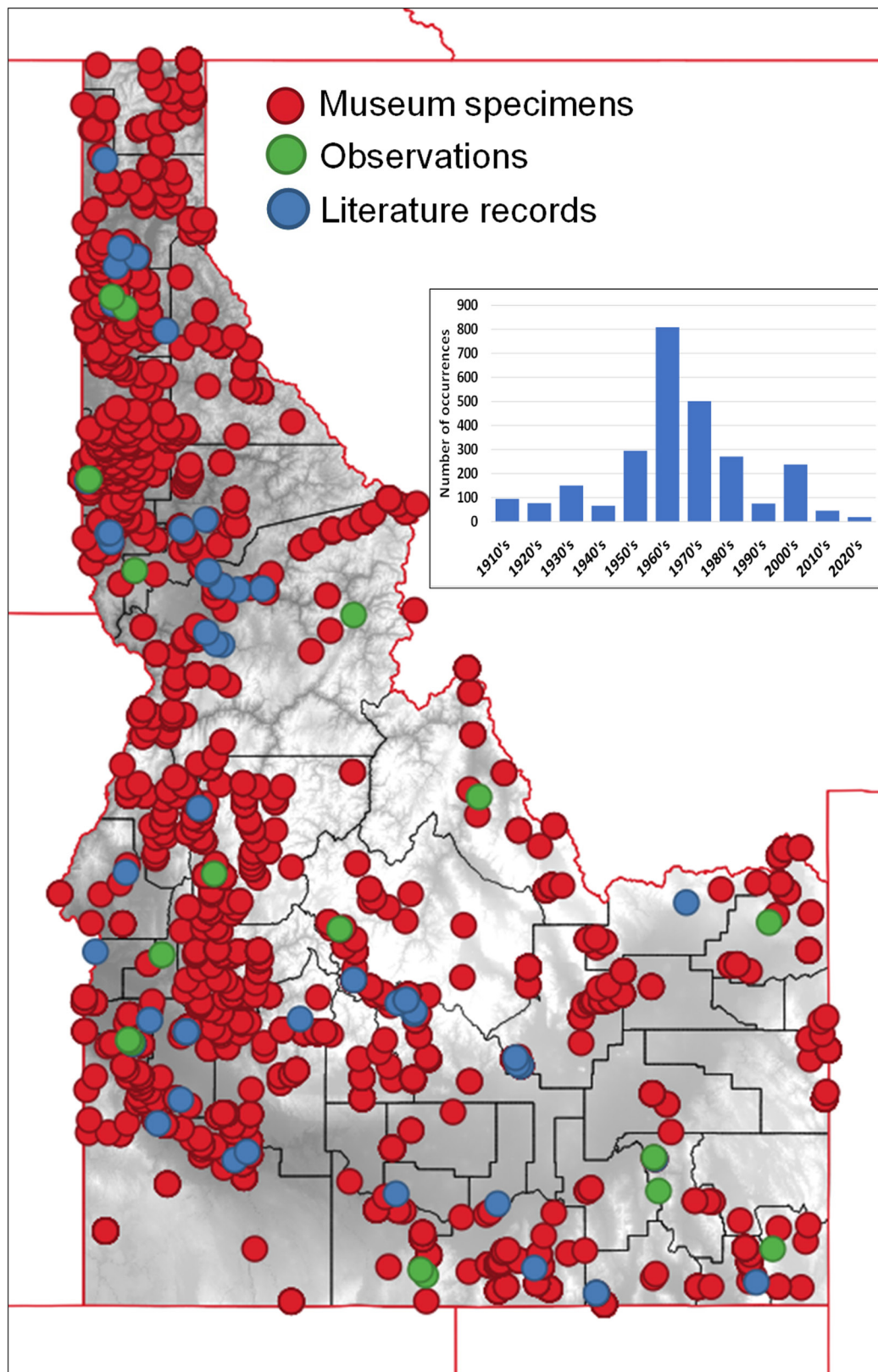


Figure 3. Occurrence records of Buprestidae in Idaho, by localities (map) and number of occurrences per decade (graph), based on museum specimens, additional literature records and observation records available online.

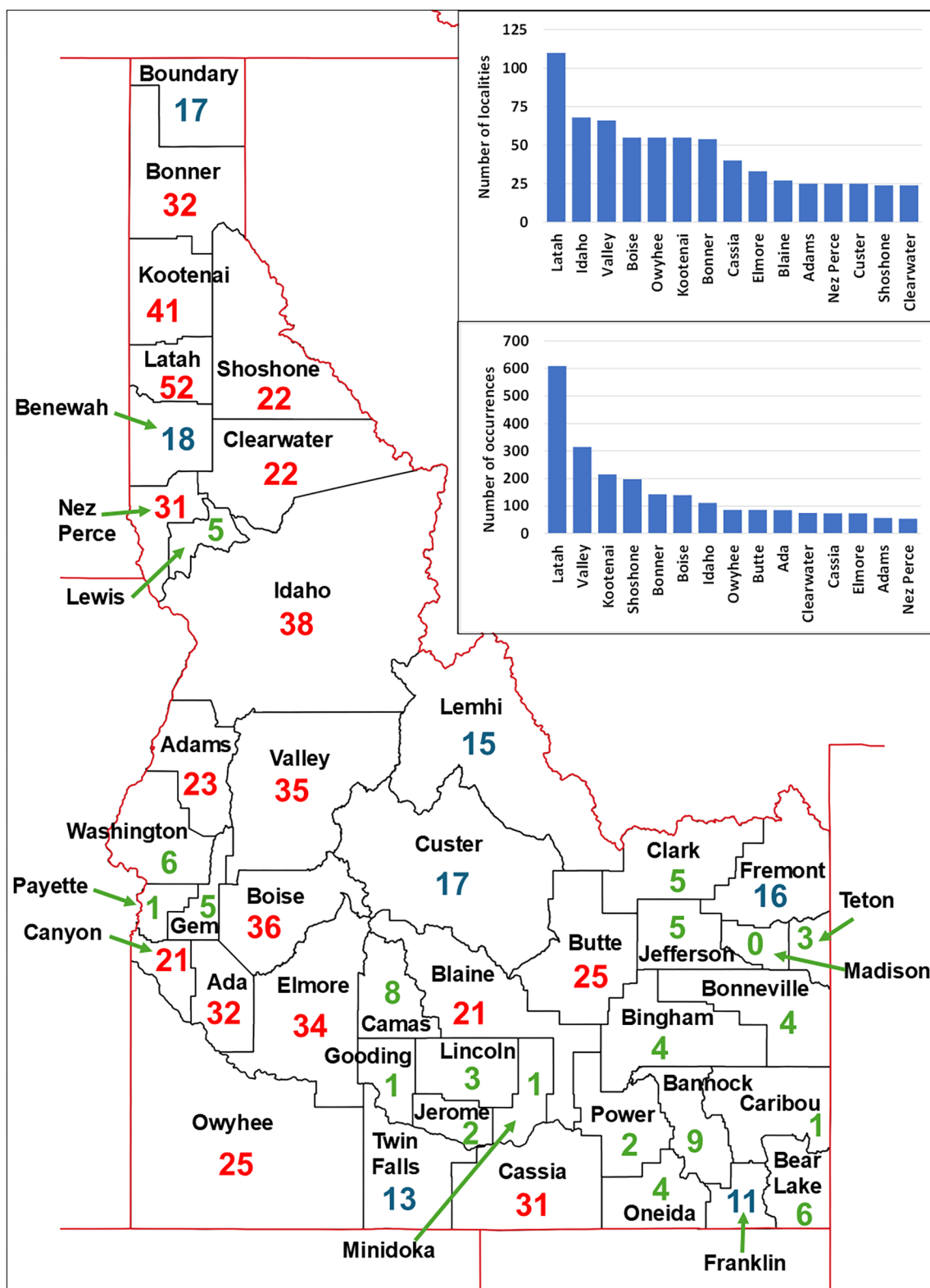


Figure 4. Number of species of Buprestidae recorded in each county in Idaho (map) and number of collecting localities and occurrences for the most thoroughly collected counties (graphs). Species numbers in red for counties with over 20 species, blue (10–19 species) and green (< 10 species).

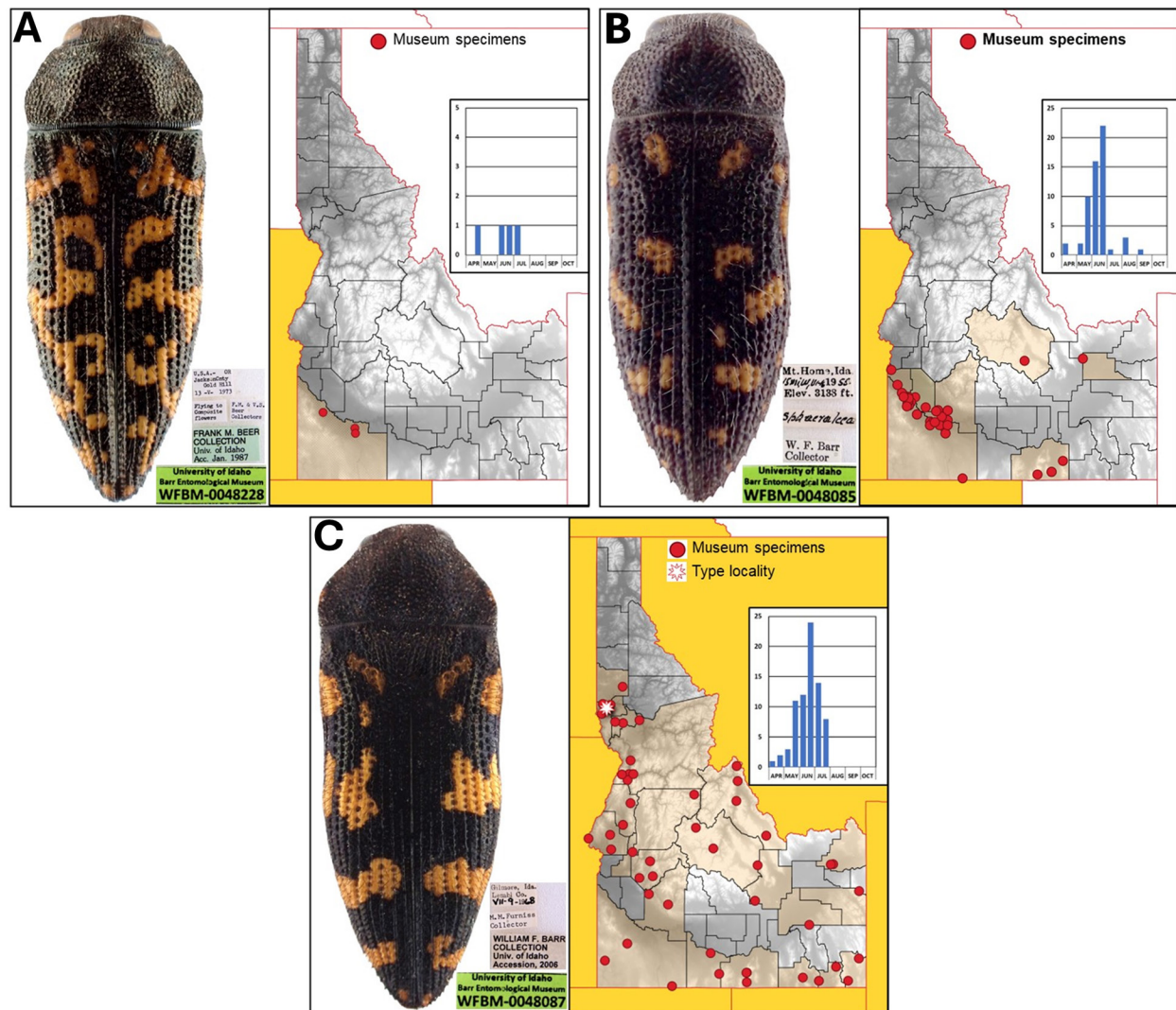


Figure 5. Photographs, distribution, and seasonal phenology of *Acmaeodera* spp. in Idaho. **A)** *A. acuta*. **B)** *A. bishopiana*. **C)** *A. idahoensis*.

Acmaeodera bishopiana Fall, 1907 (Fig. 5B)

First state record in Barr (1971). Records from 41 localities, 57 occurrences, and 400 specimens in Ada, Canyon, Cassia, Custer, Elmore, Jefferson, and Owyhee counties. Larvae feed in roots and main branches (Barr 1971) of *Atriplex canescens* (Pursh) Nutt. and *Atriplex confertifolia* (Torr. & Frem.) S. Wats (Amaranthaceae) (Nelson et al. 2008).

Acmaeodera idahoensis Barr, 1969 (Fig. 5C)

First state record in Barr (1969c). Type locality: Idaho, Nez Perce County, Spalding (WFBM type, on long-term loan to California Academy of Sciences, Type # 10220). Records from 62 localities, 80 occurrences, and 229 specimens in Adams, Bear Lake, Bingham, Boise, Bonneville, Butte, Cassia, Custer, Elmore, Franklin, Fremont, Gem, Idaho, Latah, Lemhi, Lewis, Nez Perce, Oneida, Owyhee, Twin Falls, Valley, and Washington counties. Larvae feed in *Cercocarpus ledifolius* Nutt. and *Crataegus douglasii* Lindl. (Rosaceae); outside of Idaho also in *Celtis* L. (Cannabaceae) and *Quercus* L. (Nelson et al. 2008).

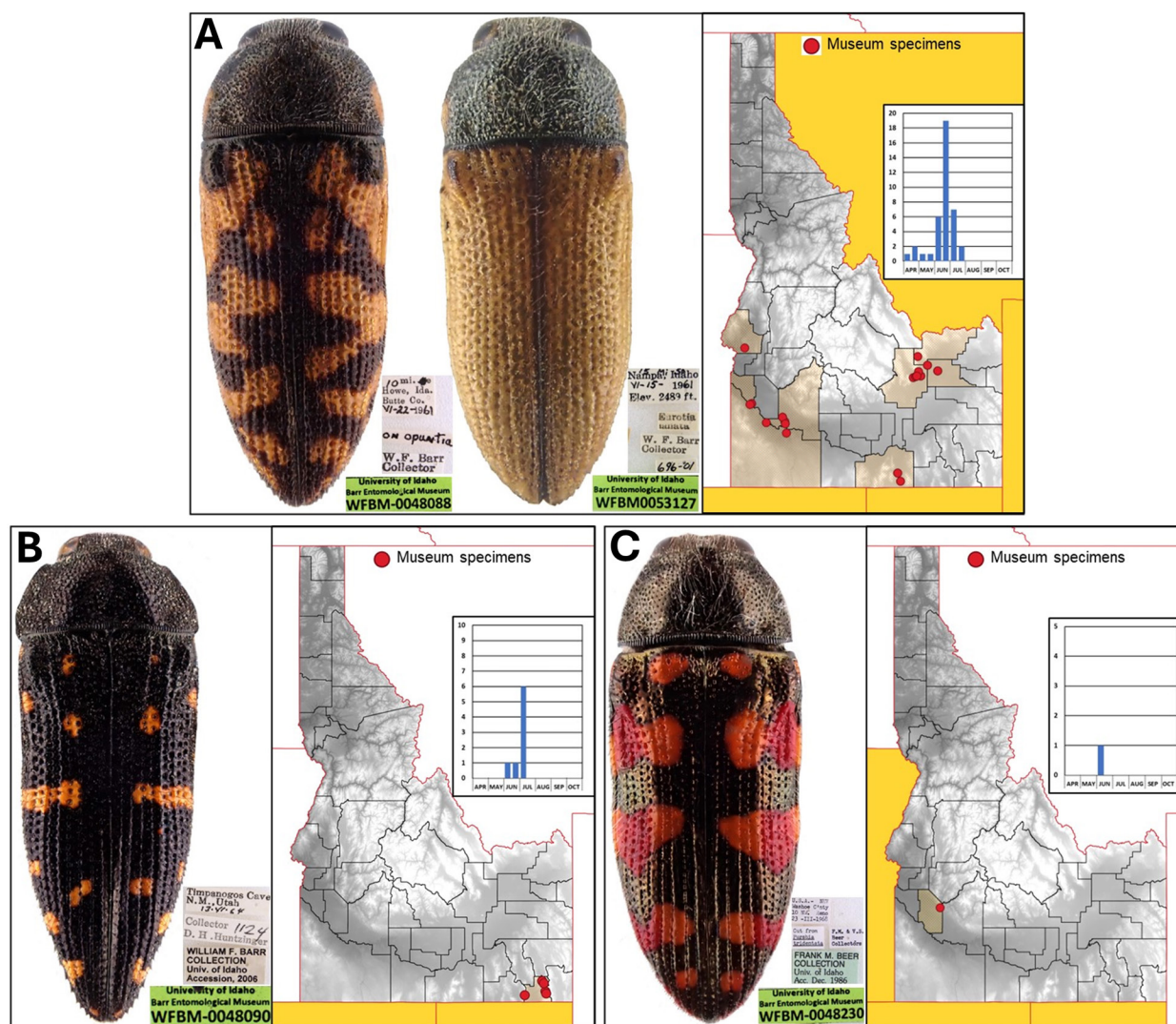


Figure 6. Photographs, distribution, and seasonal phenology of *Acmaeodera* spp. in Idaho. **A)** *Acmaeodera immaculata* (including immaculate variant). **B)** *A. knowltoni*. **C)** *A. purshiae*.

Acmaeodera immaculata Horn, 1878 (Fig. 6A)

First state record in Barr (1969a). Records from 29 localities, 39 occurrences, and 322 specimens in Butte, Canyon, Cassia, Clark, Elmore, Jefferson, Owyhee, and Washington counties. Larvae feed in roots of winterfat, *Krascheninnikovia ceratoides* subsp. *lanata* (Pursh) Heklau (Amaranthaceae) (Barr 1971; Nelson et al. 2008). Variants lacking maculations also exist in this species (Barr 1971), one of which is included in Fig. 6A.

Acmaeodera knowltoni Barr, 1969 (Fig. 6B)

First state record in Barr (1969c). Records from six localities, nine occurrences, and 16 specimens in Franklin County. Larval host unknown, but adults have been collected on flowers of *Calochortus* Pursh (Liliaceae), *Ericameria* Nutt. (Asteraceae), *Lotus* L. (Fabaceae), *Peraphyllum* Nutt. (Rosaceae), *Rosa*, and *Vicia* L. (Fabaceae) (Nelson et al. 2008; Westcott and LaRue 2017).

Acmaeodera purshiae Fisher, 1926 (Fig. 6C)

First state record in Barr (1971). Record from one locality, one occurrence, and one specimen in Ada County.

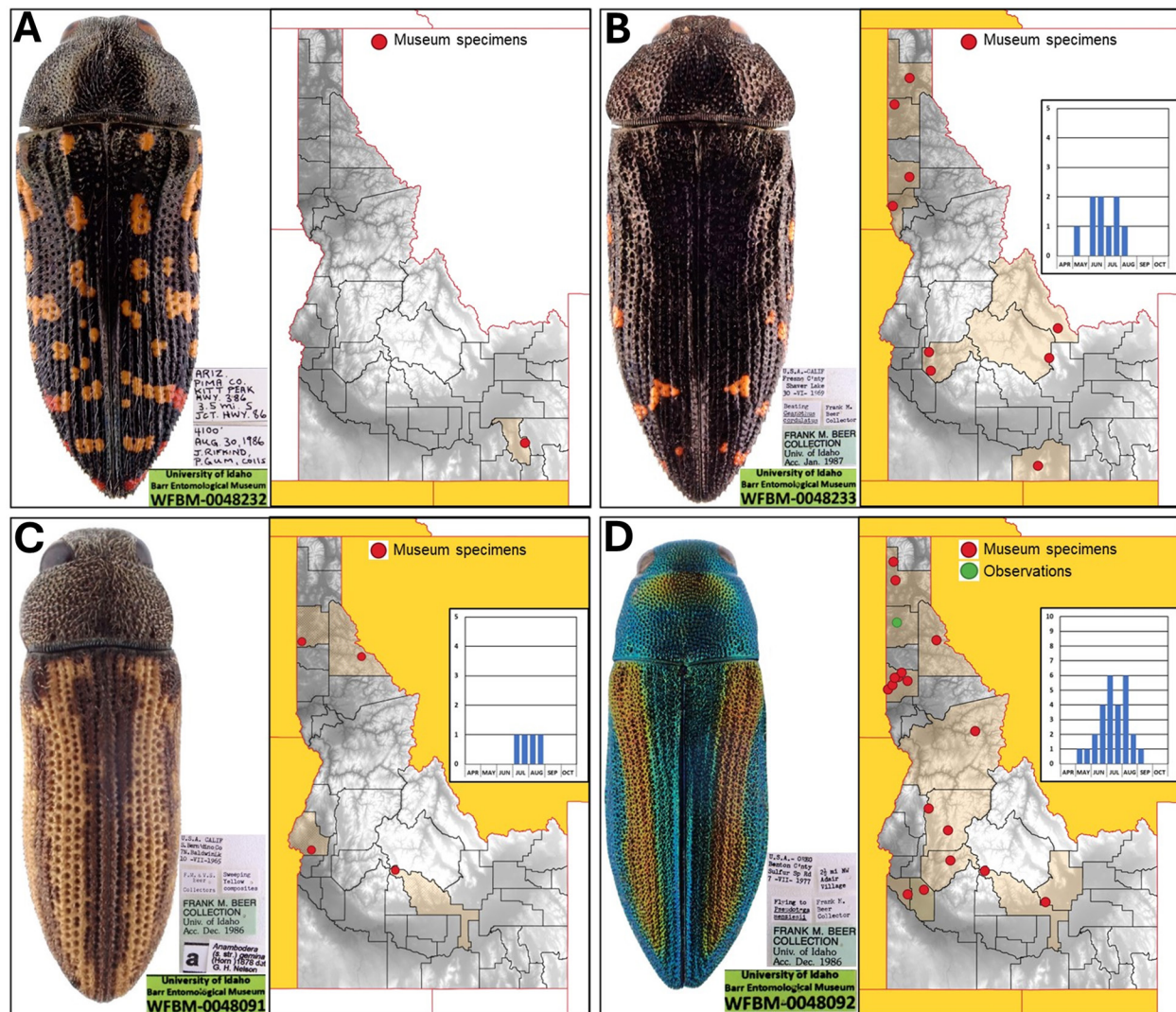


Figure 7. Photographs, distribution, and seasonal phenology of *Acmaeodera* spp, *Anambodera* and *Chrysophana* in Idaho. A) *Acmaeodera rubronotata*. B) *A. vandykei*. C) *Anambodera gemina*. D) *Chrysophana placida*.

Larvae feed in stems and branches of *Purshia glandulosa* Curran (Rosaceae) (Nelson et al. 2008). Although *P. glandulosa* is not present in Idaho, larvae likely can also feed on *P. tridentata* (Pursh) DC., which occurs in Idaho.

Acmaeodera rubronotata Laporte and Gory, 1835 (Fig. 7A)

First state record in Barr (1971) (as synonym *Acmaeodera sparsa* Horn, 1878). Record from one locality (Lava Hot Springs), one occurrence, and one specimen in Bannock County. Larvae feed in *Quercus* L. (Fagaceae) (Nelson et al. 2008), which is not native to Idaho, though present as planted trees. This record should be treated as questionable (R. L. Westcott, pers. comm.). However, two herbarium specimens of *Quercus gambelii* Nutt., which have a distribution that coincides with that of *A. rubronotata* (Bonap 2025; World Flora Online 2025), were collected in Bannock County in 1939 (PNW Herbaria 2025). The native range of this oak species extends to counties in Utah bordering Idaho (Bonap 2025). Alternatively, it may be a specimen emerged from oak firewood transported from Utah (R. L. Westcott, pers. comm.). The identity of Barr's identified specimen (catalogued as WFBM0048474) was confirmed by R. L. Westcott based on the photograph in Fig. 7A.

***Acmaeodera vandykei* Fall, 1899 (Fig. 7B)**

First state record in Barr (1971). Records from nine localities, 10 occurrences, and 10 specimens in Boise, Bonner, Cassia, Custer, Kootenai, Latah, Lemhi, and Nez Perce counties. Larvae feed in *Ceanothus velutinus* Dougl. (Rhamnaceae) and several other species of *Ceanothus* not found in Idaho (Nelson et al. 2008). Larvae also observed mining wood of injured roots of *Quercus wislizeni* A. DC. (Burke 1917).

***Anambodera gemina* (Horn, 1878) (as *Acmaeodera*) (Fig. 7C)**

First state record in Barr (1971) (as *Acmaeodera gemina*). Records from four localities, four occurrences, and six specimens in Blaine, Kootenai, Shoshone, and Washington counties. Larval host unknown, but adults have been collected on *Polygonum* L. (Polygonaceae) (Bright 1987).

Subfamily POLYCESTINAE, Tribe THRINCOPYGINI

***Chrysophana placida* (LeConte, 1854) (as *Ancyllochira*) (Fig. 7D)**

First state record in Barr (1971). Records from 18 localities, 30 occurrences, and 30 specimens in Ada, Blaine, Boise, Bonner, Butte, Canyon, Idaho, Kootenai, Latah, Shoshone, and Valley counties. Larvae feed in *Abies concolor* (Gord. & Glend.) Lindl., *Abies lasiocarpa* (Hook.) Nutt., *Pinus contorta* Loud., *Pinus contorta* var. *murrayana* (Grev. & Balf.) Critchf., *Pinus flexilis* James, *Pinus monophylla* Torr. & Frem., *Pinus monticola* Dougl., *Pinus ponderosa* Laws., *Pseudotsuga menziesii* (Mirb.) Franco, and *Tsuga mertensiana* (Bong.) Carr (all Pinaceae) (Nelson et al. 2008). Larvae feed in stumps, limbs, trunks, and tops of dying and dead conifers (Barr 1971). Its impact as a forestry pest is unimportant (Furniss and Carolin 1977).

Subfamily CHRYSOCHROINAE, Tribe PARATASSINI

***Nanularia brunneata* (Knull, 1947) (as *Hippomelas*) (Fig. 8A)**

First state record in Barr (1971), as *Hippomelas brunneata*. Records from five localities, six occurrences, and 10 specimens in Butte, Jefferson, Lemhi, and Owyhee counties. Larvae feed in roots and woody stems of *Eriogonum microthecum* Nutt. (Polygonaceae) (Nelson and Westcott 1976; Bellamy 1987; Nelson et al. 2008).

Subfamily CHRYSOCHROINAE, Tribe CHRYSOCHROINI

***Chalcophora angulicollis* (LeConte, 1857) (as *Buprestis*) (Fig. 8B) – sculptured pine borer**

First state record in LeConte (1878). Treated as synonym of *C. virginensis* (Drury, 1770) by Bright (1987) but now recognized as a distinct species (Maier and Ivie 2013). Records from 137 localities, 249 occurrences, and 462 specimens in Ada, Adams, Bear Lake, Benewah, Blaine, Boise, Bonner, Boundary, Canyon, Clearwater, Custer, Elmore, Fremont, Gem, Idaho, Kootenai, Latah, Nez Perce, Shoshone, and Valley counties. Larvae feed in *Abies grandis* (Douglas ex D. Don) Lindl., *A. concolor*, *P. contorta*, *P. ponderosa*, and *P. menziesii* (Nelson et al. 2008; Maier and Ivie 2013). Larvae feed extensively in wood of injured and dead trees, though damage is limited compared to that from *Buprestis* spp. (Furniss and Carolin 1977).

Subfamily CHRYSOCHROINAE, Tribe POECILONOTINI

***Poecilonota californica* Chamberlin, 1922 (Fig. 8C)**

First state record in Chamberlin (1922). Records from 17 localities, 17 occurrences, and 49 specimens in Bear Lake, Boise, Butte, Camas, Cassia, Fremont, Idaho, Oneida, Twin Falls, and Valley counties. Larvae mine under the bark and into sapwood and heartwood of *Populus tremuloides* Michx. (Salicaceae) (Solomon 1995).

***Poecilonota cyanipes* (Say, 1823) (as *Buprestis*) (Fig. 8D)**

First state record in Evans (1957). Records from three localities, three occurrences, and three specimens in Boundary, Fremont, and Lemhi counties. Larvae feed in *Populus deltoides* Bartr. ex Marsh. and *P. tremuloides*;

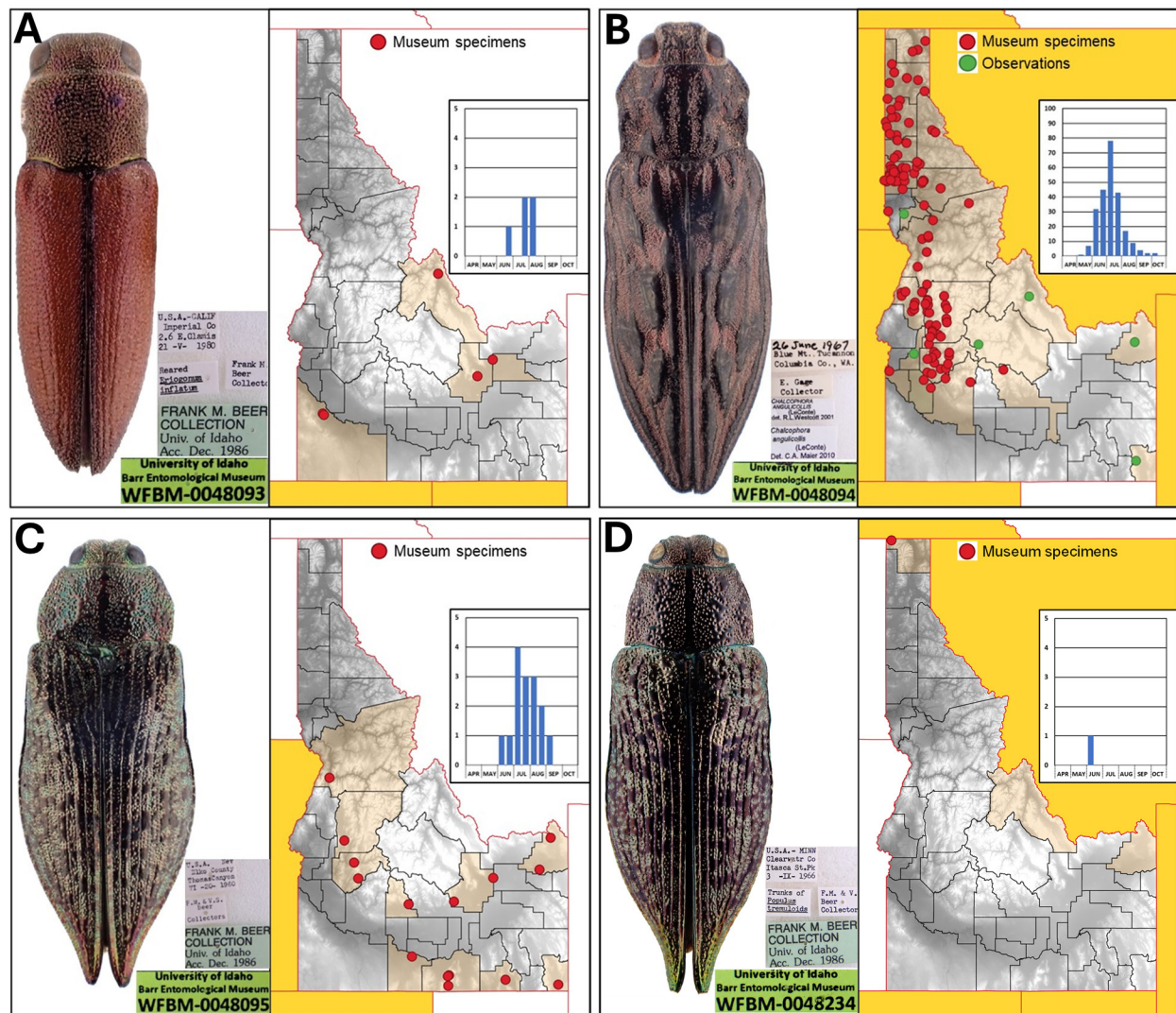


Figure 8. Photographs, distribution, and seasonal phenology of *Nanularia*, *Chalcophora*, and *Poecilonota* in Idaho. A) *N. brunneata*. B) *C. angulicollis*. C) *P. californica*. D) *P. cyanipes*.

outside of Idaho also in *Salix* (Salicaceae) (Nelson et al. 2008). Larvae bore galleries, preferably in weakened stems of the host tree (Solomon 1995). The larval record from *Robinia pseudoacacia* L. (Fabaceae) (Nelson et al. 2008) is hereby treated as highly questionable and unlikely (R. L. Westcott and J. P. Basham, pers. comm.).

Poecilonota montana Chamberlin, 1922 (Fig. 9A)

First state record in Chamberlin (1925b). Records from nine localities, 10 occurrences, and 114 specimens in Butte, Camas, Cassia, Custer, Elmore, Kootenai, Twin Falls, and Valley counties. Larvae feed in *Populus balsamifera* L. ssp. *trichocarpa* (T. & G.) Brayshaw (Nelson et al. 2008), digging shallow galleries, mostly near the outer surface of the living phloem (Beer 1970).

Subfamily CHRYSOCHROINAE, Tribe SPHENOPTERINI

Sphenoptera jugoslavica Obenberger, 1926 (Fig. 9B)

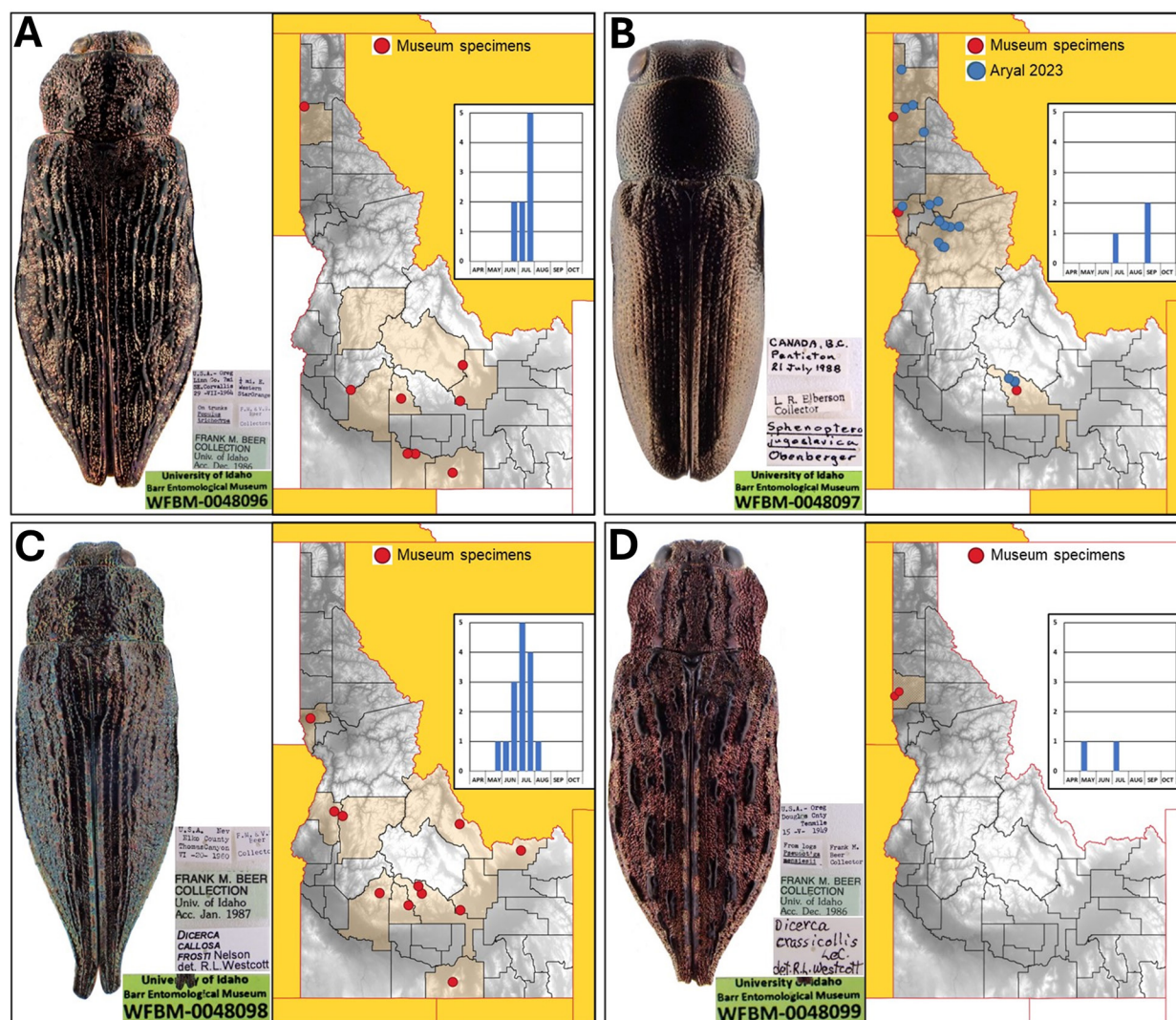


Figure 9. Photographs, distribution, and seasonal phenology of *Poecilnota*, *Sphenoptera*, and *Dicerca* in Idaho. A) *P. montana*. B) *S. jugoslavica*. C) *D. callosa frosti*. D) *D. crassicollis*.

Introduced to Idaho in 1987 as biological control agent from Europe to control knapweed (*Centaurea diffusa* Lam.) (Asteraceae) (Lang et al. 2000). Biological control monitoring sites with recorded presence of this species are reported by Aryal (2023) and included in the distribution map. Records from 22 localities, 22 occurrences, and 24 specimens in Blaine, Bonner, Clearwater, Idaho, Kootenai, Lewis, and Nez Perce counties. Larvae feed in roots of host plant (Nelson et al. 2008).

Subfamily CHRYSOCHROINAE, Tribe DICERCINI

Dicerca callosa frosti Nelson, 1963 (Fig. 9C)

First state record in Nelson (1963). Referred to as *Dicerca frosti* in Barr (1971). Records from 14 localities, 15 occurrences, and 15 specimens in Adams, Blaine, Butte, Camas, Cassia, Clark, Elmore, Lemhi, Nez Perce, and Valley counties. Larval host unknown, but adults have been collected on *Populus* L. (Nelson et al. 2008).

Dicerca crassicollis LeConte, 1857 (Fig. 9D)

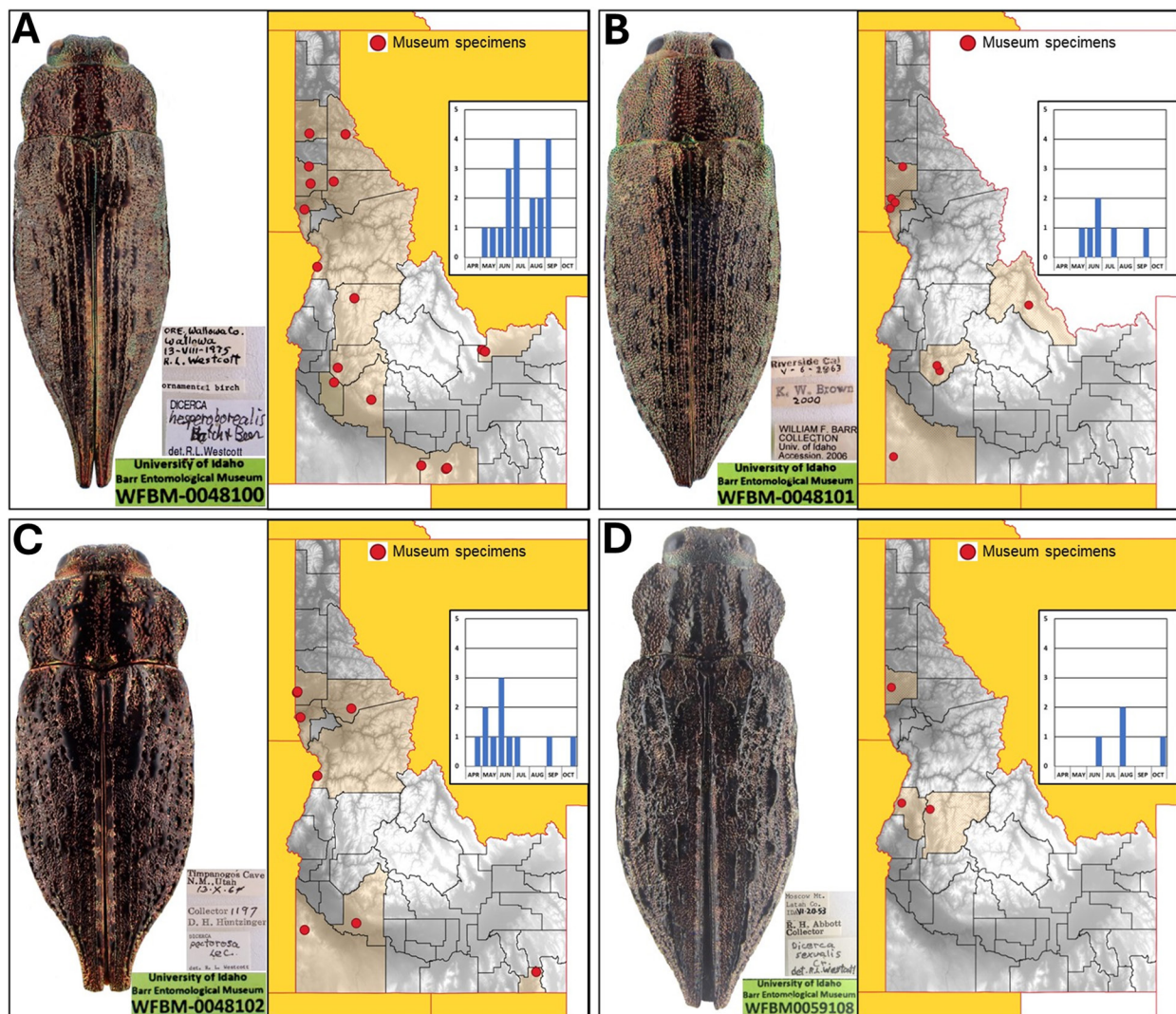


Figure 10. Photographs, distribution, and seasonal phenology of *Dicerca* spp. in Idaho. A) *D. hesperoborealis*. B) *D. hornii*. C) *D. pectorosa*. D) *D. sexualis*.

First state record in Barr (1971). Records from two localities, two occurrences, and two specimens in Latah County. Larvae feed in *P. menziesii* (Keen 1952).

***Dicerca hesperoborealis* Hatch and Beer, 1938 (Fig. 10A)**

First state record in Barr (1971). Records from 19 localities, 25 occurrences, and 31 specimens in Ada, Boise, Cassia, Clark, Clearwater, Elmore, Idaho, Kootenai, Latah, Nez Perce, Shoshone, Twin Falls, and Valley counties. Larvae feed in *Alnus* Mill. and *Betula occidentalis* Hook (both Betulaceae) (Nelson et al. 2008).

***Dicerca hornii hornii* Crotch, 1873 (Fig. 10B)**

First state record in Chamberlin (1926). Records from eight localities, nine occurrences, and 11 specimens in Boise, Latah, Lemhi, Nez Perce, and Owyhee counties. Larvae feed in *Alnus rhombifolia* Nutt. (Betulaceae) and *Juglans regia* L. (Juglandaceae); outside of Idaho also in *Ceanothus* L. and *Rhamnus* L. (both Rhamnaceae) (Nelson et al. 2008).

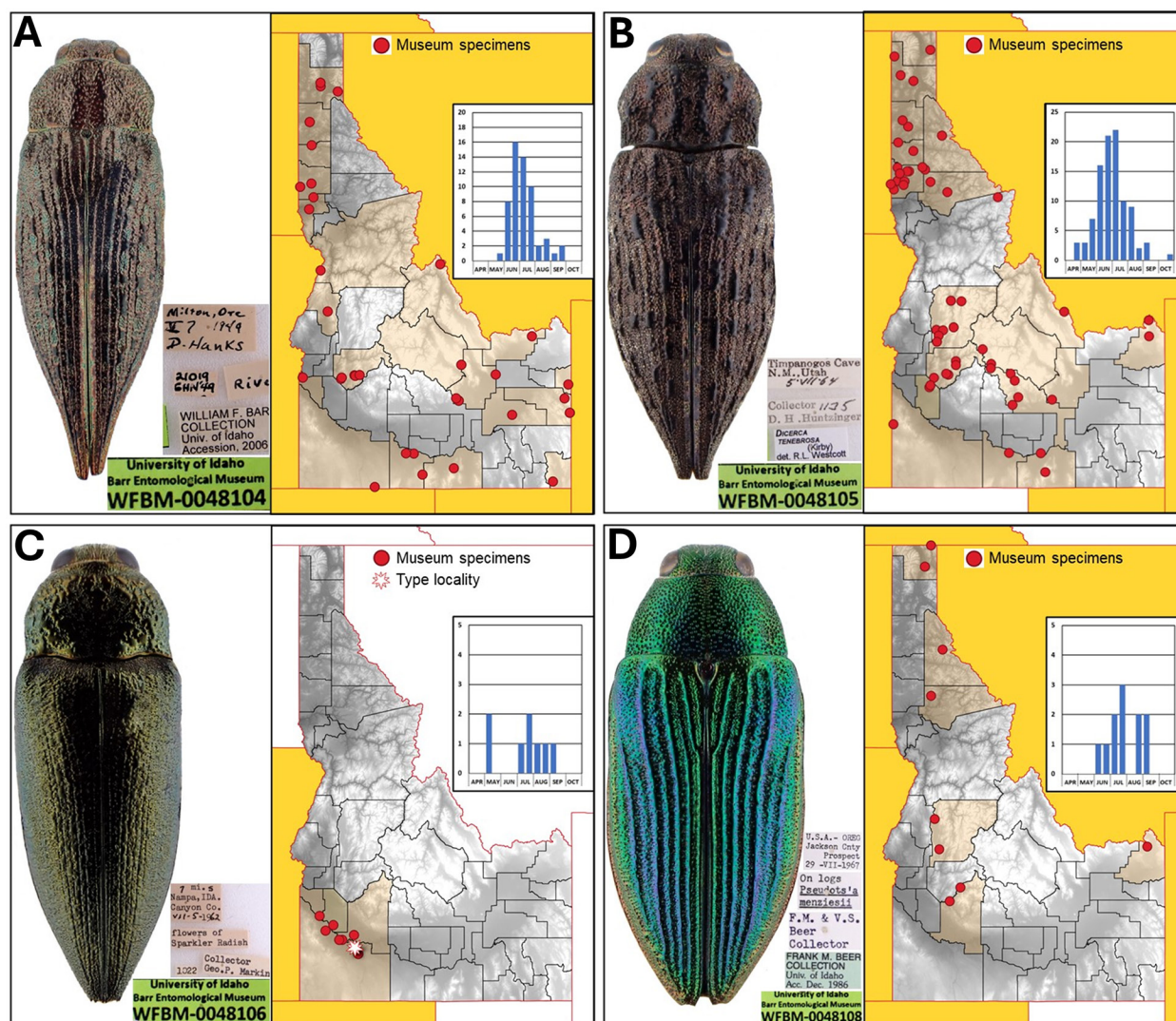


Figure 11. Photographs, distribution, and seasonal phenology of *Dicerca*, *Gyascutus*, and *Buprestis* in Idaho. A) *D. tenebrica*. B) *D. tenebrosa tenebrosa*. C) *G. fulgidus*. D) *B. adjecta*.

Dicerca pectorosa LeConte, 1857 (Fig. 10C)

First state record in Chamberlin (1926). Records from eight localities, 11 occurrences, and 11 specimens in Clearwater, Elmore, Franklin, Idaho, Latah, Nez Perce, and Owyhee counties. Larvae feed in the lower trunk and roots of *Prunus domestica* L. (Rosaceae) (Chamberlin 1925a; Nelson et al. 2008).

Dicerca sexualis Crotch, 1873 (Fig. 10D)

First state record in LeConte (1878). Records from three localities, four occurrences, and four specimens in Adams, Latah, and Valley counties. Larvae feed in *P. menziesii* (Nelson et al. 2008).

Dicerca tenebrica (Kirby, 1837) (as *Buprestis*) (Fig. 11A)

First state record in LeConte (1878) (as synonym *Dicerca prolongata* LeConte, 1860). Records from 32 localities, 60 occurrences, and 155 specimens in Adams, Bear Lake, Benewah, Bingham, Boise, Bonner, Bonneville, Butte, Canyon, Cassia, Clark, Custer, Idaho, Kootenai, Latah, Lemhi, Nez Perce, Owyhee, Teton, and Twin

Falls counties. Outside of Idaho, larvae feed in *Populus grandidentata* Michx. (Nelson et al. 2008), burrowing in the sapwood (Solomon 1995).

***Dicerca tenebrosa tenebrosa* (Kirby, 1837) (as *Buprestis*) (Fig. 11B)**

First state record in Chamberlin (1926). Records from 55 localities, 97 occurrences, and 126 specimens in Ada, Benewah, Blaine, Boise, Bonner, Boundary, Butte, Cassia, Clearwater, Custer, Fremont, Kootenai, Latah, Owyhee, Shoshone, Twin Falls, and Valley counties. Larval host unknown, but adults have been collected on *Abies* Mill., *Picea* Mill., *Pinus* L., and *Pseudotsuga* Carrière (Nelson et al. 2008).

***Gyascutus fulgidus* (Barr, 1969) (as *Hippomelas*) (Fig. 11C)**

First state record in Barr (1969c) and referred to as *Hippomelas fulgida* in Barr (1971). Type locality: Idaho, Owyhee County, 2 miles SW Bruneau (WFBM type, on long-term loan to California Academy of Sciences, Type # 19217). Records from 10 localities, 10 occurrences, and 25 specimens in Ada, Canyon, Elmore, and Owyhee counties. Larvae feed in roots of *A. confertifolia* (Barr 1971; Nelson et al. 2008).

Subfamily BUPRESTINAE, Tribe BUPRESTINI

***Buprestis adjuncta* (LeConte, 1854) (as *Ancylochira*) (Fig. 11D)**

First state record in Nicolay and Weiss (1918). Records from 10 localities, 11 occurrences, and 19 specimens in Boundary, Clearwater, Elmore, Fremont, Shoshone, and Valley counties. Larvae feed in dead logs of *A. concolor*, *P. contorta* var. *murrayana*, *P. ponderosa*, and *P. menziesii* (Beer 1949; Nelson et al. 2008).

***Buprestis aurulenta* Linnaeus, 1767 (Fig. 12A) – golden buprestid**

First state record in LeConte (1878) (as synonym *Ancylochira lauta* LeConte, 1854). Records from 83 localities, 148 occurrences, and 198 specimens in Ada, Benewah, Blaine, Boise, Bonner, Boundary, Butte, Cassia, Clearwater, Custer, Elmore, Fremont, Idaho, Kootenai, Latah, Shoshone, Twin Falls, Valley, and Washington counties. Larvae feed in *A. concolor*, *A. grandis*, *P. contorta*, *P. flexilis*, *P. ponderosa*, *P. menziesii*, and *Thuja plicata* D. Don (Cupressaceae) (Nelson et al. 2008). It is the most damaging species of *Buprestis* in the Pacific Northwest, with larvae mining logs and cut timber, and that can emerge from building structural timber years, even decades after construction (Furniss and Carolin 1977). The 51-year delayed emergence record reported by Smith (1962) holds the record for the longest known insect life cycle duration.

***Buprestis confluenta* Say, 1823 (Fig. 12B)**

First state record in Chamberlin (1926). Records from 14 localities, 14 occurrences, and 21 specimens in Bannock, Blaine, Boise, Camas, Canyon, Cassia, Custer, Elmore, Kootenai, and Twin Falls counties. Larvae feed in *Populus deltoides* ssp. *monilifera* (Ait.) Eckenwalder, *P. deltoides*, and *P. tremuloides* (Nelson et al. 2008), mining wood of injured, dying or dead trees (Burke 1917).

***Buprestis connexa* Horn, 1875 (Fig. 12C)**

First state record in Nicolay and Weiss (1918). Records from three localities, three occurrences, and three specimens in Elmore, Latah, and Valley counties. Larvae feed in stumps and fallen trees of *P. ponderosa* (Burke 1918; Nelson et al. 2008).

***Buprestis consularis* Gory, 1840 (Fig. 12D)**

NEW STATE RECORD confirmed by R. L. Westcott and J. P. Basham (pers. comm.), who examined the WFBM specimens from Idaho identified as *Buprestis nutalli* Kirby, 1837 (misspelt as *B. nuttalli* in Barr (1971)), and confirmed that they actually belong to *B. consularis*. Label data of the ten new record specimens, all located in WFBM, as follows: Kootenai County: Athol, 24-VII-1962, W. F. Barr, WFBM0048925; Rathdrum, 4-VIII-1965, W. F. Barr, WFBM0048927. Latah County: south slope of Moscow Mountain, 15-VIII-1964, R. L. Westcott,

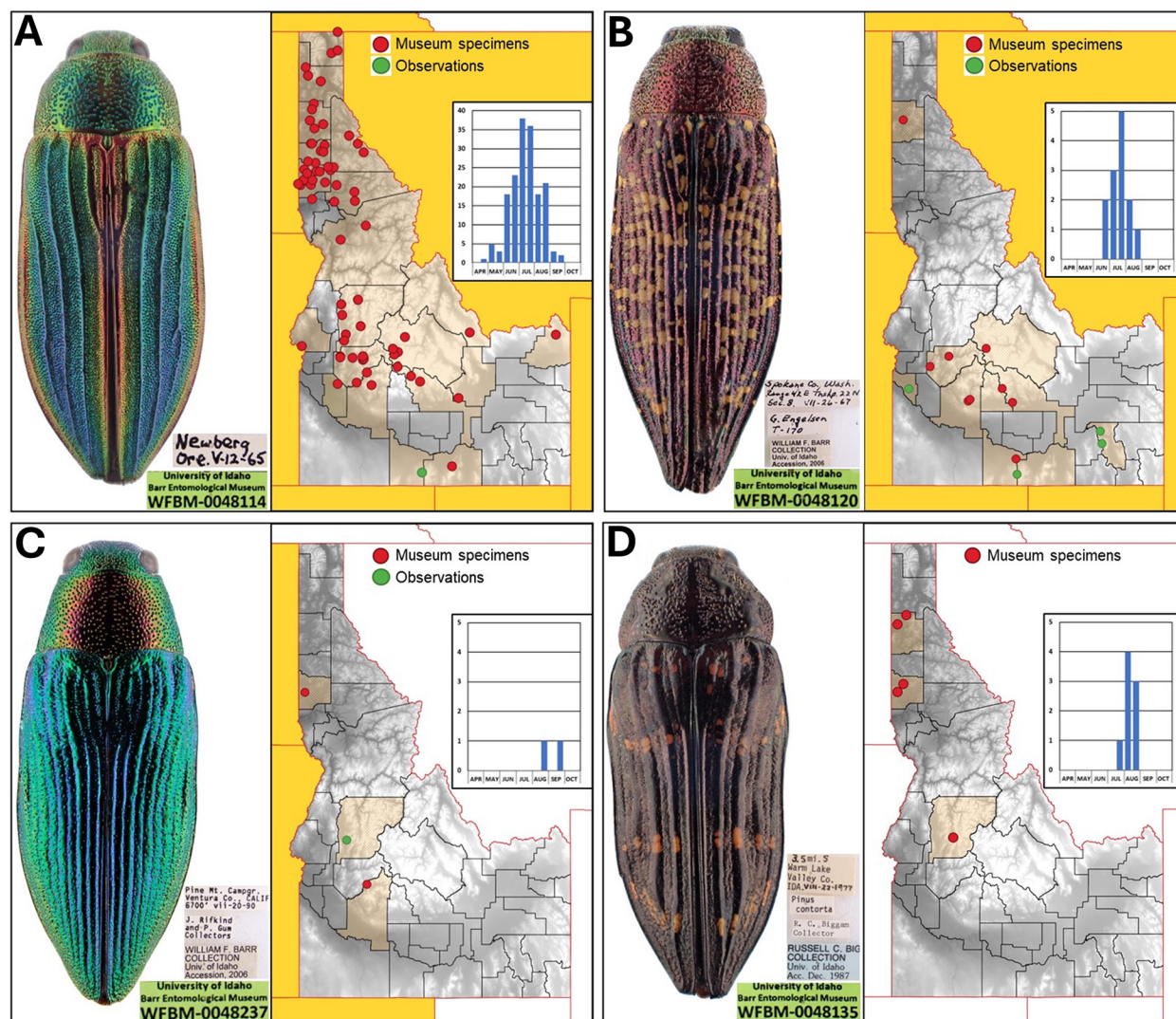


Figure 12. Photographs, distribution, and seasonal phenology of *Buprestis* spp. in Idaho. **A)** *B. aurulenta*. **B)** *B. confluenta*. **C)** *B. connexa*. **D)** *B. consularis*.

WFBM0048926; Moscow Mountain, west of Twin Buttes, IX-1986, R. C. Biggam, WFBM0048924; Lumber yard 2 miles East of Princeton, 1-VIII-1971, P. C. Schroeder, WFBM0062372. Valley County: 3.5 miles south of Warm Lake, 15-VIII-1977 (WFBM0054387), 16-VIII-1977 (WFBM0054386), 18-VIII-1977 (WFBM0054389), 22-VIII-1977 (WFBM0048135 and WFBM0054388), R. C. Biggam. The status of other specimens traditionally identified as *B. nutalli* and the extent of the distribution of *B. consularis* in the Pacific Northwest remains to be investigated further. Larvae feed in *P. ponderosa* and *P. menziesii*, listed as hosts of *B. nutalli* in Nelson et al. (2008).

***Buprestis intricata* Casey, 1909 (Fig. 13A)**

First state record in Barr (1971). Records from 13 localities, 13 occurrences, and 14 specimens in Elmore, Idaho, Kootenai, Lemhi, Shoshone, and Valley counties. Larvae feed in *P. contorta* (Nelson et al. 2008).

***Buprestis laevis* (LeConte, 1857) (as *Ancylochira*) (Fig. 13B)**

First state record in Chamberlin (1926). Records from 45 localities, 63 occurrences, and 190 specimens in Ada, Adams, Blaine, Boise, Bonner, Boundary, Cassia, Custer, Elmore, Fremont, Gem, Idaho, Kootenai, Latah,

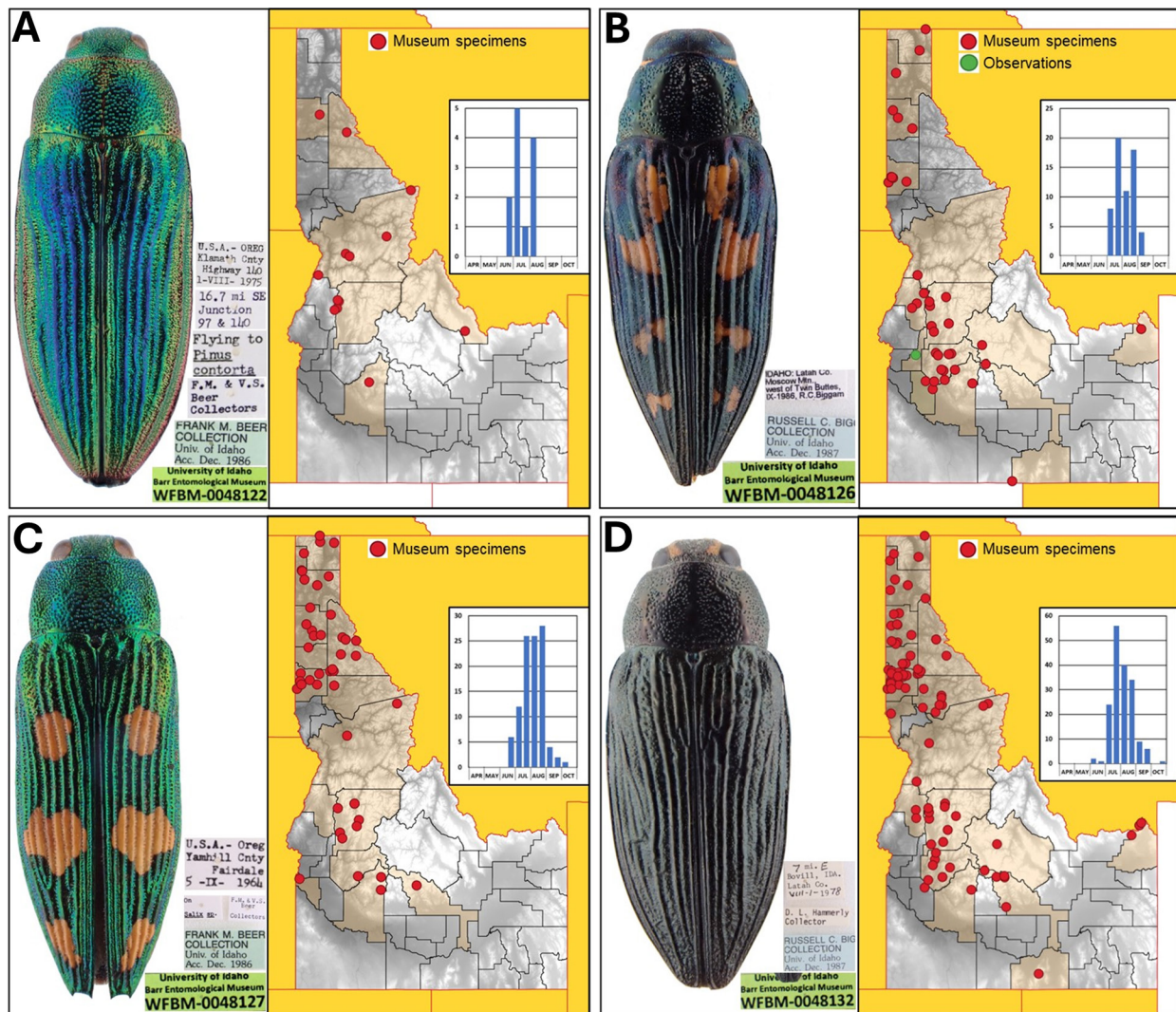


Figure 13. Photographs, distribution, and seasonal phenology of *Buprestis* spp. in Idaho. **A)** *B. intricata*. **B)** *B. laeviventris*. **C)** *B. langii*. **D)** *B. lyrata*.

and Valley counties. Larvae feed in injured, dying, and dead trees of *P. contorta* var. *murrayana*, *P. ponderosa*, and *P. menziesii* (Burke 1918; Nelson et al. 2008).

***Buprestis langii* Mannerheim, 1843 (Fig. 13C)**

First state record in Keen (1938), who cited it as present in all Western States. Records from 50 localities, 112 occurrences, and 134 specimens in Adams, Benewah, Blaine, Boise, Bonner, Boundary, Canyon, Clearwater, Elmore, Idaho, Kootenai, Latah, Shoshone, and Valley counties. Larvae feed in dead logs of *P. menziesii* (Beer 1949; Nelson et al. 2008), and also mine cut timber and can emerge from building structural timber years after construction, though it is not as destructive as *B. aurulenta* (Furniss and Carolin 1977).

***Buprestis lyrata* Casey, 1909 (Fig. 13D)**

First state record in Casey (1909) (described as the synonym *Buprestis adducta* Casey, 1909). Referred to as *Buprestis rusticorum* Kirby, 1837 in Barr (1971) and *Buprestis lecontei* Saunders, 1871 in Barr (1972). Records from 93 localities, 179 occurrences, and 468 specimens in Ada, Adams, Benewah, Blaine, Boise, Bonner, Boundary,

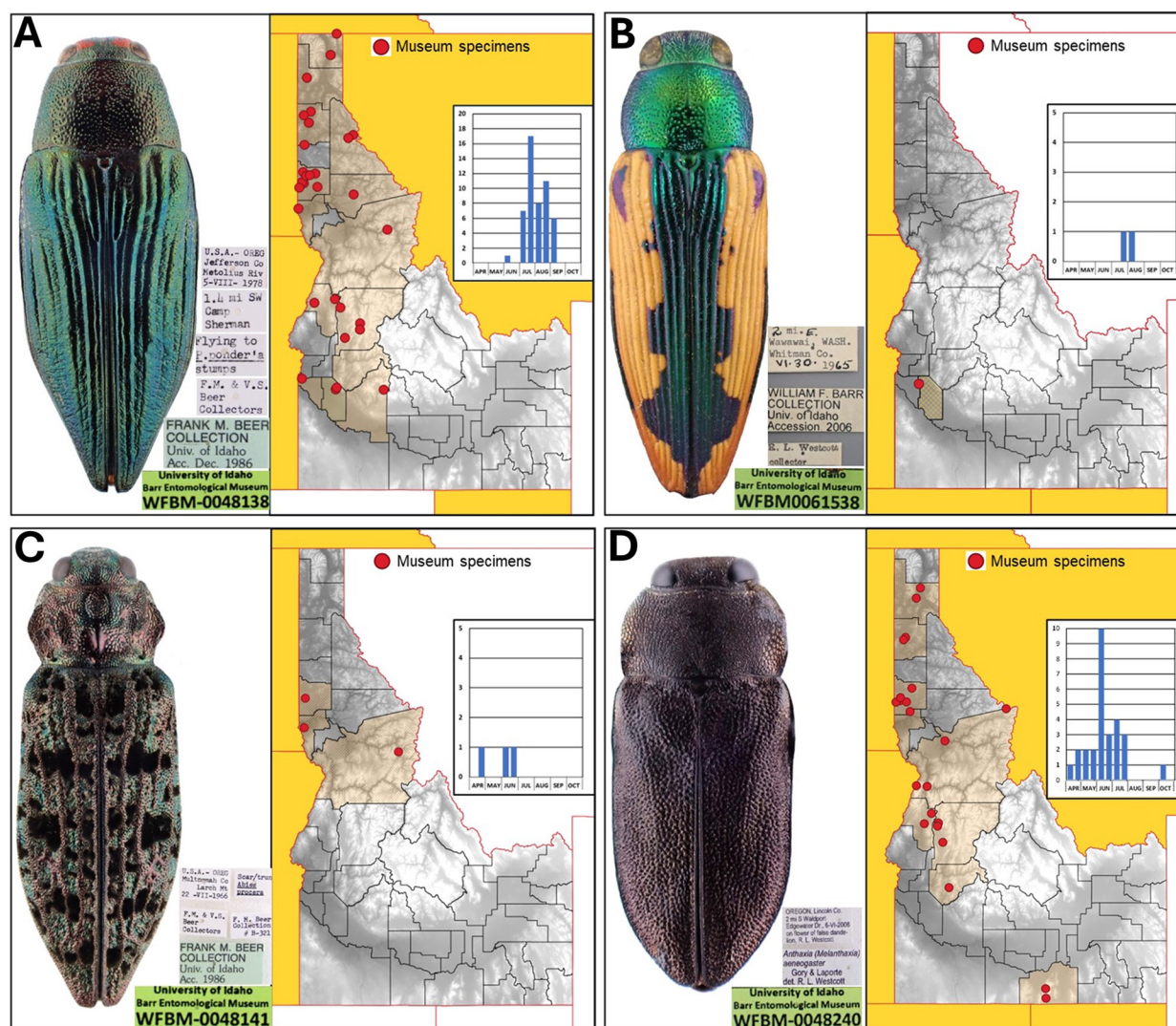


Figure 14. Photographs, distribution, and seasonal phenology of *Buprestis*, *Trachykele*, and *Anthaxia* in Idaho. A) *B. subornata*. B) *B. viridisuturalis*. C) *T. nimbosa*. D) *A. aeneogaster*.

Cassia, Clearwater, Custer, Elmore, Fremont, Idaho, Kootenai, Latah, Nez Perce, Shoshone, and Valley counties. Larvae feed in *A. grandis*, *P. ponderosa*, and *P. menziesii* (Nelson et al. 2008).

***Buprestis subornata* (LeConte, 1860) (as *Ancyllochira*) (Fig. 14A)**

First state record in Casey (1909). Records from 34 localities, 56 occurrences, and 91 specimens in Ada, Adams, Benewah, Bonner, Boundary, Canyon, Clearwater, Elmore, Idaho, Kootenai, Latah, Nez Perce, Shoshone, and Valley counties. Larvae feed in *P. monophylla*, *P. ponderosa*, and *P. menziesii* (Nelson et al. 2008).

***Buprestis viridisuturalis* Nicolay and Weiss, 1918 (Fig. 14B)**

First state record in Westcott (2024). Records from one locality, two occurrences, and two specimens in Ada County. Larvae feed in *P. balsamifera* ssp. *trichocarpa* and *P. deltoides* (Nelson et al. 2008).

***Trachykele nimbosa* Fall, 1906 (Fig. 14C)**

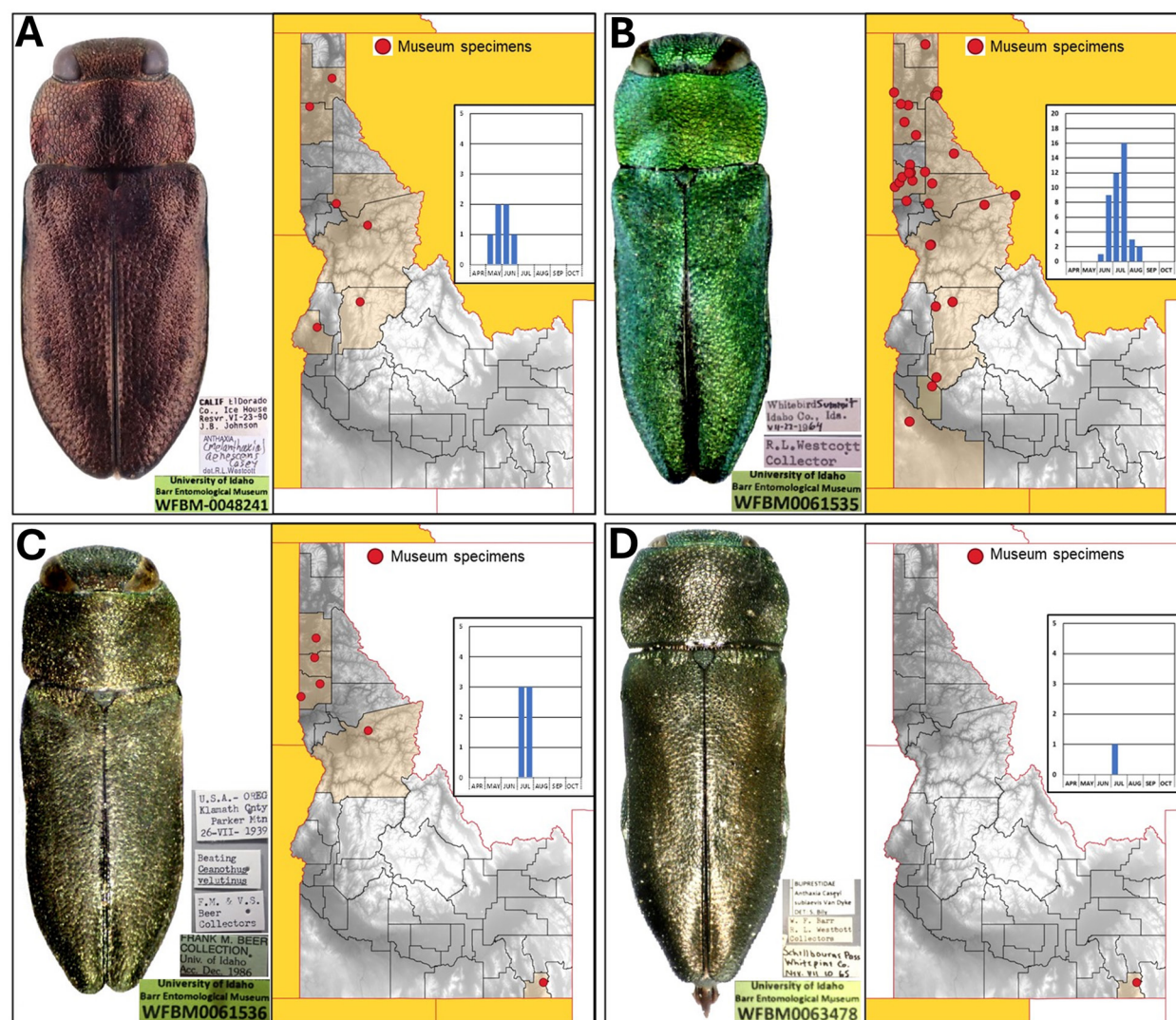


Figure 15. Photographs, distribution, and seasonal phenology of *Anthaxia* spp. in Idaho. A) *A. aenescens*. B) *A. caseyi caseyi*. C) *A. caseyi pseudotsugae*. D) *A. caseyi sublaevis*.

First state record in Keen (1952). Records from three localities, three occurrences, and three specimens in Idaho, Latah, and Nez Perce counties. Larvae feed in wood of normal, injured, dying, and dead *A. concolor*, *A. grandis*, and *T. mertensiana* (Burke 1917; Nelson et al. 2008).

Subfamily BUPRESTINAE, Tribe ANTHAXIINI

Anthaxia aeneogaster Gory and Laporte, 1839 (Fig. 14D)

First state record in Cobos (1958). Records from 23 localities, 30 occurrences, and 52 specimens in Adams, Boise, Bonner, Cassia, Idaho, Kootenai, Latah, Nez Perce, and Valley counties. Larvae feed in branches and twigs of *P. ponderosa* (Barr 1971; Nelson et al. 2008).

Anthaxia aenescens Casey, 1884 (Fig. 15A)

First state record in Barr (1971). Records from six localities, six occurrences, and nine specimens in Bonner, Clearwater, Idaho, Kootenai, and Valley counties. Larvae feed in *P. menziesii* (Nelson et al. 2008).

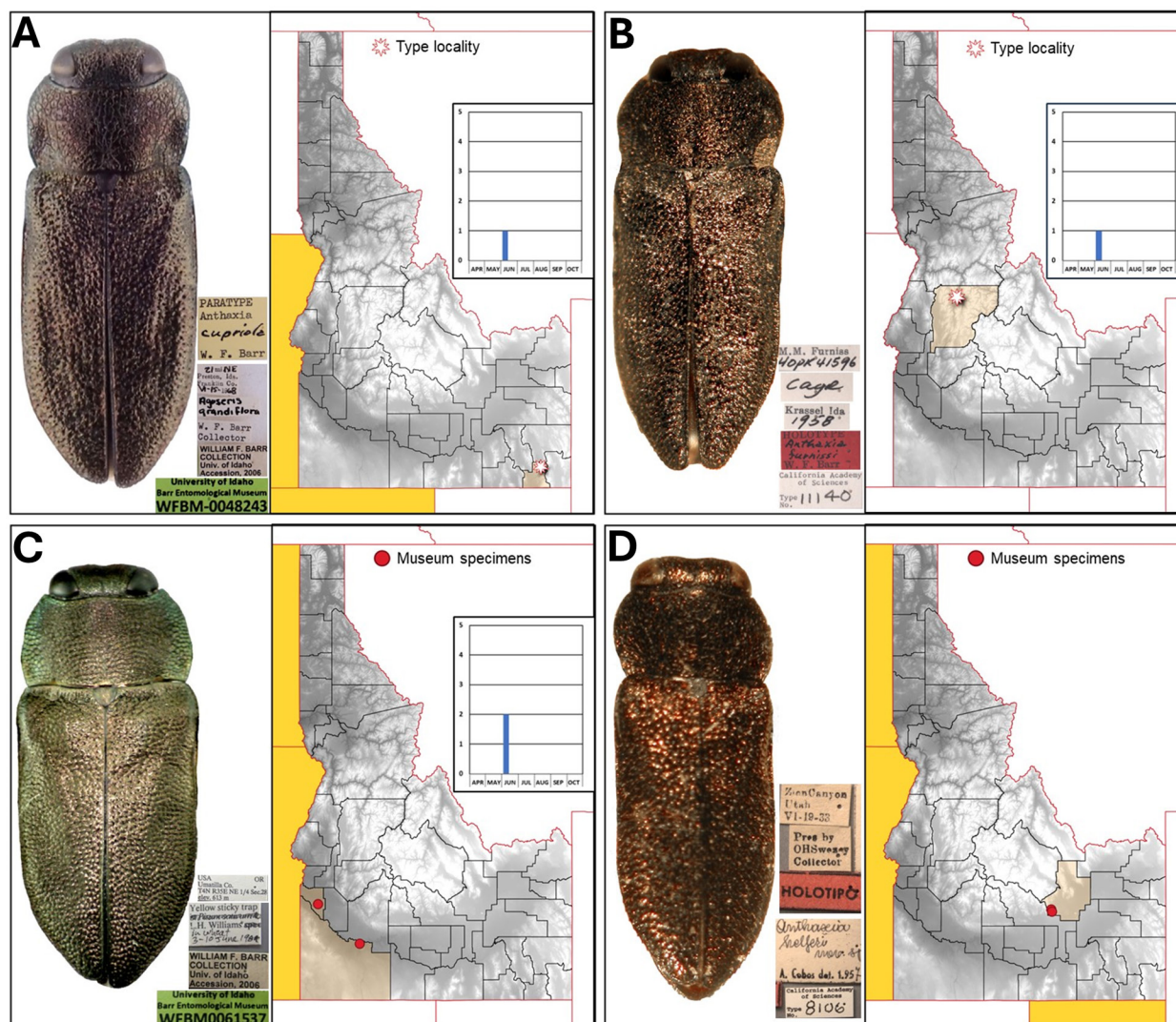


Figure 16. Photographs, distribution, and seasonal phenology of *Anthaxia* spp. in Idaho. **A)** *A. cupriola*. **B)** *A. furnissi* (Holotype) (photo from California Academy of Sciences). **C)** *A. hatchi*. **D)** *A. helferiana* (Holotype of *A. helferi* Cobos) (photo from California Academy of Sciences).

Anthaxia caseyi caseyi Obenberger, 1914 (Fig. 15B)

First state record (as synonym *Anthaxia deleta* LeConte, 1878) in Chamberlin (1926) and referred to as *A. deleta deleta* in Barr (1971) and *Haplanthaxia deleta* in Bright (1987). Records from 32 localities, 47 occurrences, and 132 specimens in Ada, Boise, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Owyhee, Shoshone, and Valley counties. Larvae feed in branches of *P. ponderosa* (Nelson 1987; Nelson et al. 2008).

Anthaxia caseyi pseudotsugae Chamberlin, 1928 (Fig. 15C)

First state record (as *A. deleta pseudotsugae*) in Cobos (1958) and referred to as *A. deleta pseudotsugae* in Barr (1971) and *Haplanthaxia pseudotsugae* in Bright (1987). Records from five localities, five occurrences, and six specimens in Benewah, Idaho, Kootenai, and Latah counties. Larvae feed in *A. concolor*, *P. monophylla*, *P. menziesii*, and *Juniperus occidentalis* Hook. (Cupressaceae) (Nelson et al. 2008). Two rearing records were from dead branches (MacRae 2006).

Anthaxia caseyi sublaevis Van Dyke, 1916 (Fig. 15D)

First state record published in Westcott and Leblanc (2025). Record from one locality, one occurrence, and six specimens in Franklin County. Larvae feed in *Pinus sabiniana* Douglas in California (Nelson et al. 2008), a host not present in Idaho.

***Anthaxia cupriola* Barr, 1971 (Fig. 16A)**

First state record in Barr (1971). Type locality: Idaho, Franklin County, 21 miles NE Preston, 15 June 1968, W. F. Barr (WFBM type, on long-term loan to California Academy of Sciences, Type # 11143). Record from one locality, one occurrence, and 156 specimens in Franklin County. Larval host unknown, but adults have been collected on flowers of *Agoseris* Raf. (Asteraceae), *Chaenactis* DC. (Asteraceae), *Prunus*, *Purshia* DC. Ex Poir. (Rosaceae), *Salvia* L. (Lamiaceae), and *Senecio* L. (Asteraceae) (Nelson et al. 2008).

***Anthaxia furnissi* Barr, 1971 (Fig. 16B)**

First state record in Barr (1971). Type locality: Idaho, Valley County, Krassel Ranger Station; South Fork Salmon River, 1958 (WFBM type, on long-term loan to California Academy of Sciences, Type # 11140). Record from one locality, one occurrence, and one specimen in Valley County. Larvae feed in *P. menziesii* (Nelson et al. 2008), reared from stump (Barr 1971).

***Anthaxia hatchi* Barr, 1971 (Fig. 16C)**

First state record in Westcott (2024). Records from two localities, two occurrences, and two specimens in Canyon and Owyhee counties. Larvae feed in *Salix laevigata* Bebb (Salicaceae) in California (Wellso 2014), a species not present in Idaho.

***Anthaxia helferiana* Bílý, 1995 (Fig. 16D)**

First state record in Horning and Barr (1970) (as synonym *Anthaxia helferi* Cobos, 1958; name preoccupied by *A. helferi* Obenberger, 1928). Also referred to as *A. helferi* in Barr (1971). Records from two separate localities within the Craters of the Moon National Monument, in Butte County (Horning and Barr 1970). Larval host unknown, but adults have been collected on flowers of *Eriogonum* (Michx.) (Polygonaceae) and *Heterotheca* Cass. (Asteraceae) (Nelson et al. 2008).

***Anthaxia inornata* (Randall, 1838) (as *Buprestis*) (Fig. 17A)**

First state record in Cobos (1958) and referred to as *A. expansa* LeConte, 1857 in Barr (1971). Records from 104 localities, 136 occurrences, and 760 specimens in Ada, Adams, Bear Lake, Benewah, Blaine, Boise, Bonner, Bonneville, Boundary, Butte, Camas, Caribou, Cassia, Clearwater, Custer, Elmore, Franklin, Fremont, Gem, Idaho, Jerome, Kootenai, Latah, Lemhi, Shoshone, Teton, Twin Falls, and Valley counties. Larvae feed in *Picea mariana* Britton, Sterns and Poggenb. (Pinaceae) in Michigan (Wellso 2014), a species not found in Idaho. Larvae probably develop in the twigs and small branches of conifers (Barr 1971).

***Anthaxia porella* Barr, 1974 (Fig. 17B)**

First state record in Barr (1974). Type locality: Idaho, Adams County, 1 mile S Mesa (WFBM type, on long-term loan to California Academy of Sciences, Type # 12299). Record from one locality, one occurrence, and 32 specimens in Adams County. Larval host unknown, but adults have been collected on flowers of *Agoseris*, *Eriogonum*, and *Heterotheca* (Nelson et al. 2008).

***Anthaxia prasina* Horn, 1882 (Fig. 17C)**

First state record in Barr (1971). Records from three localities, three occurrences, and 11 specimens in Boise and Owyhee counties. Larval host unknown, but adults have been collected on *Ceanothus* (Rhamnaceae) and *Ranunculus* L. (Ranunculaceae) (Nelson et al. 2008).

***Anthaxia retifer* LeConte, 1860**

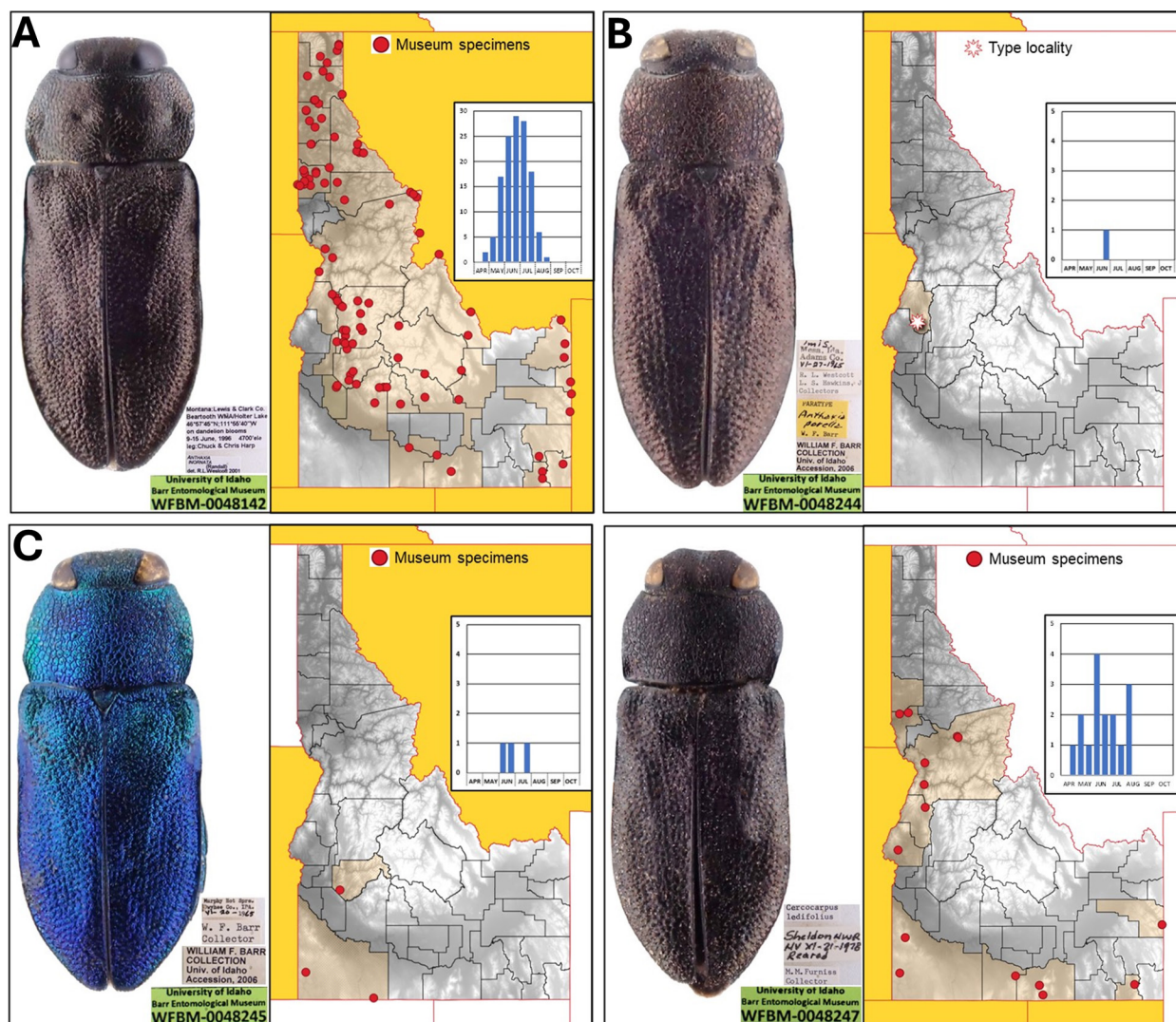
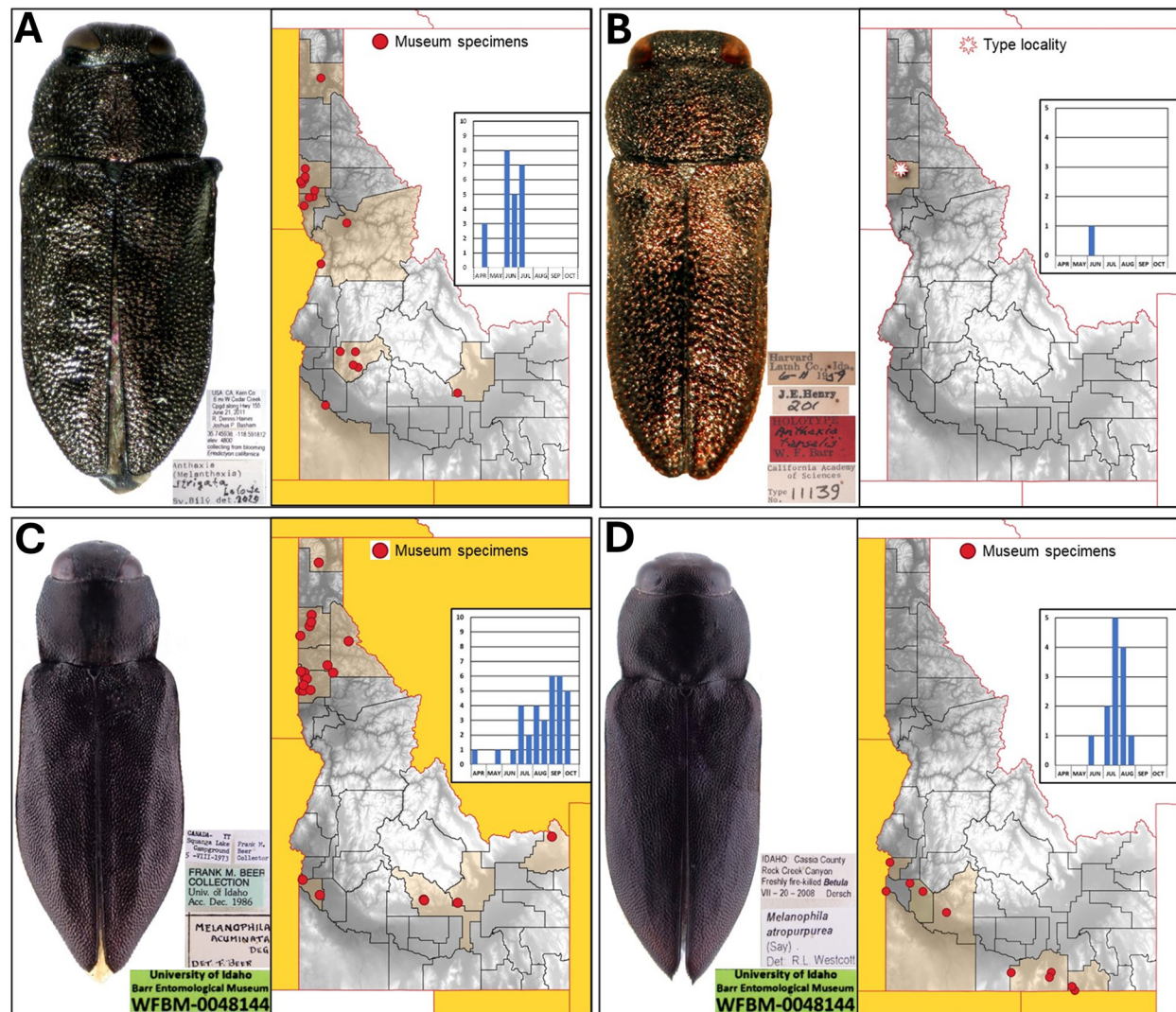


Figure 17. Photographs, distribution, and seasonal phenology of *Anthaxia* spp. in Idaho. A) *A. inornata*. B) *A. porella*. C) *A. prasina*. D) *A. simiola*.

The presence of this species in Idaho, reported in Barr (1971) and subsequently by Bellamy et al. (2008), Nelson et al. (2008), and Bílý (2022), is not confirmed by actual specimens, in the Barr Museum or among the identified *Anthaxia* loaned to Bílý and returned in 2024. We therefore treat it as a dubious record and absent from Idaho, until specimens are collected in the state.

Anthaxia simiola Casey, 1884 (Fig. 17D)

First state record in Furniss and Barr (1967). Records from 17 localities, 19 occurrences, and 82 specimens in Adams, Bonneville, Cassia, Franklin, Idaho, Latah, Nez Perce, Owyhee, Twin Falls, and Washington counties.



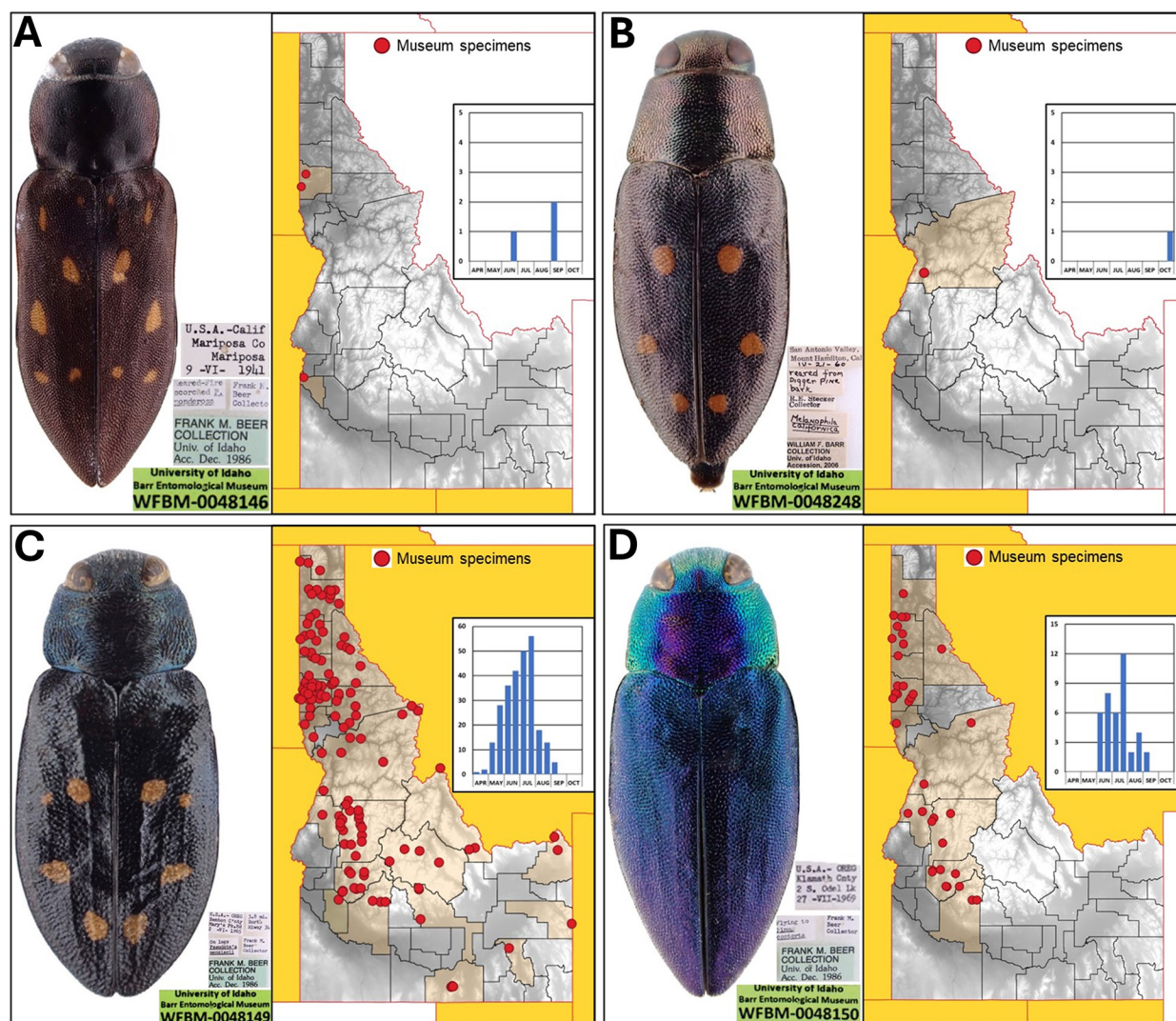


Figure 19. Photographs, distribution, and seasonal phenology of *Melanophila* and *Phaenops* in Idaho. **A)** *M. consputa*. **B)** *P. californica*. **C)** *P. drummondi*. **D)** *P. gentilis*.

***Melanophila acuminata* (DeGeer, 1774) (as *Buprestis*) (Fig. 18C)**

First state record in LeConte (1878) (as synonym *Melanophila appendiculata* (Fabricius, 1792). Records from 24 localities, 34 occurrences, and 76 specimens in Benewah, Blaine, Boundary, Butte, Canyon, Fremont, Kootenai, Latah, and Shoshone counties. Larvae feed in *A. grandis*, *Picea glauca* (Moench) Voss., and *P. contorta* var. *murrayana*; outside of Idaho also in *Betula* L. and *Thuja* L. (Nelson et al. 2008). Adults are attracted to forest fire smoke to oviposit in trees weakened by fire (Furniss and Carolin 1977), and mine inner bark and outer wood of injured, dying, and dead trees (Burke 1919).

***Melanophila atropurpurea* (Say, 1823) (as *Buprestis*) (Fig. 18D)**

First state record in Westcott and Leblanc (2025). Records from nine localities, 13 occurrences, and 64 specimens in Ada, Cassia, Elmore, Oneida, Owyhee, and Payette counties. Larvae feed in *Abies* sp., *P. ponderosa*, and *P. menziesii* (Nelson et al. 2008).

***Melanophila consputa* LeConte, 1857 (Fig. 19A) – charcoal beetle**

First state record in Barr (1971). Records from three localities, three occurrences, and five specimens in Canyon and Latah counties. Larvae feed in *P. contorta*, *P. contorta* var. *murrayana*, *P. ponderosa*, and *P. menziesii* (Nelson et al. 2008). Adults are attracted to forest fire smoke and oviposit in trees burnt or weakened by fire (Beer 1940; Furniss and Carolin 1977).

***Melanophila occidentalis* Obenberger, 1928**

This species was cited as present in Idaho by Barr (1971), but he did not include specific collecting localities or past literature citations. Furthermore, no specimens from Idaho were located in the Barr Entomological Museum. This record is regarded as dubious and the species is hereby excluded from the Idaho species list (Westcott and Leblanc 2025).

***Phaenops californica* (Van Dyke, 1918) (as *Melanophila*) (Fig. 19B) – California flatheaded borer**

First state record in Chamberlin (1926) and referred to as *Melanophila californica* in Barr (1971) and Bright (1987). Record from one locality, one occurrence, and 18 specimens in Idaho County. Larvae feed in *P. ponderosa*; outside of Idaho also in *Pseudotsuga macrocarpa* (Vasey) Mayr (Nelson et al. 2008). Larvae mine inner bark and outer wood of normal, injured, dying, and dead trees (Burke 1919).

***Phaenops drummondi* (Kirby, 1837) (as *Buprestis*) (Fig. 19C) – flatheaded fir borer**

First state record in LeConte (1878) and referred to as *Melanophila drummondi* in Barr (1971) and Bright (1987). Records from 158 localities, 264 occurrences, and 944 specimens in Ada, Adams, Bannock, Benewah, Blaine, Boise, Bonner, Bonneville, Boundary, Cassia, Clearwater, Custer, Elmore, Fremont, Idaho, Kootenai, Latah, Lemhi, Nez Perce, Shoshone, and Valley counties. Larvae feed in numerous species of *Abies*, *Cedrus* Trew, *Larix* Mill., *Picea*, *Pinus*, *Pseudotsuga*, and *Tsuga* (Endl.) Carrière (all Pinaceae) (Nelson et al. 2008; MacRae and Westcott 2012). A forestry pest whose larvae bore in inner bark of injured, weakened, and fire-killed trees (Furniss and Carolin 1977).

***Phaenops gentilis* (LeConte, 1863) (as *Melanophila*) (Fig. 19D)**

First state record in LeConte (1878) and referred to as *Melanophila gentilis* in Barr (1971) and Bright (1987). Records from 44 localities, 47 occurrences, and 157 specimens in Adams, Benewah, Boise, Bonner, Elmore, Idaho, Kootenai, Latah, Nez Perce, Shoshone, and Valley counties. Larvae feed in *P. contorta*, *P. contorta* var. *murrayana*, and *P. ponderosa* (Nelson et al. 2008). Larvae usually mine inner bark and wood of normal, injured, dying, and dead trees (Burke 1917; Furniss and Carolin 1977).

***Phaenops intrusa* (Horn, 1882) (as *Melanophila*) (Fig. 20A)**

First state record in Barr (1971) and referred to as *Melanophila intrusa* there and in Bright (1987). Records from 18 localities, 43 occurrences, and 125 specimens in Ada, Boise, Butte, Clearwater, Idaho, Kootenai, Latah, and Nez Perce counties. Larvae feed in *Larix occidentalis* Nutt., *P. flexilis*, and *P. ponderosa* (all Pinaceae) (Nelson et al. 2008), mining inner bark and outer wood of injured, dying, and dead trees (Burke 1917, 1919).

***Phaenops lecontei* (Obenberger, 1928) (as *Melanophila*) (Fig. 20B)**

First state record in Barr (1971), referred to as *Melanophila lecontei*. Records from 25 localities, 29 occurrences, and 73 specimens in Adams, Bear Lake, Boise, Bonner, Boundary, Cassia, Clearwater, Idaho, Kootenai, Latah, Nez Perce, Shoshone, and Valley counties. Larvae feed in bark of *A. concolor*, *A. lasiocarpa*, and *T. mertensiana* (Nelson et al. 2008).

***Xenomelanophila miranda* (LeConte, 1854) (as *Phaenops*) (Fig. 20C)**

First state record in Westcott (2007). Referred to as *Melanophila miranda* in Barr (1971). Record from one locality, one occurrence, and seven specimens in Cassia County. Adults observed attracted in large numbers to

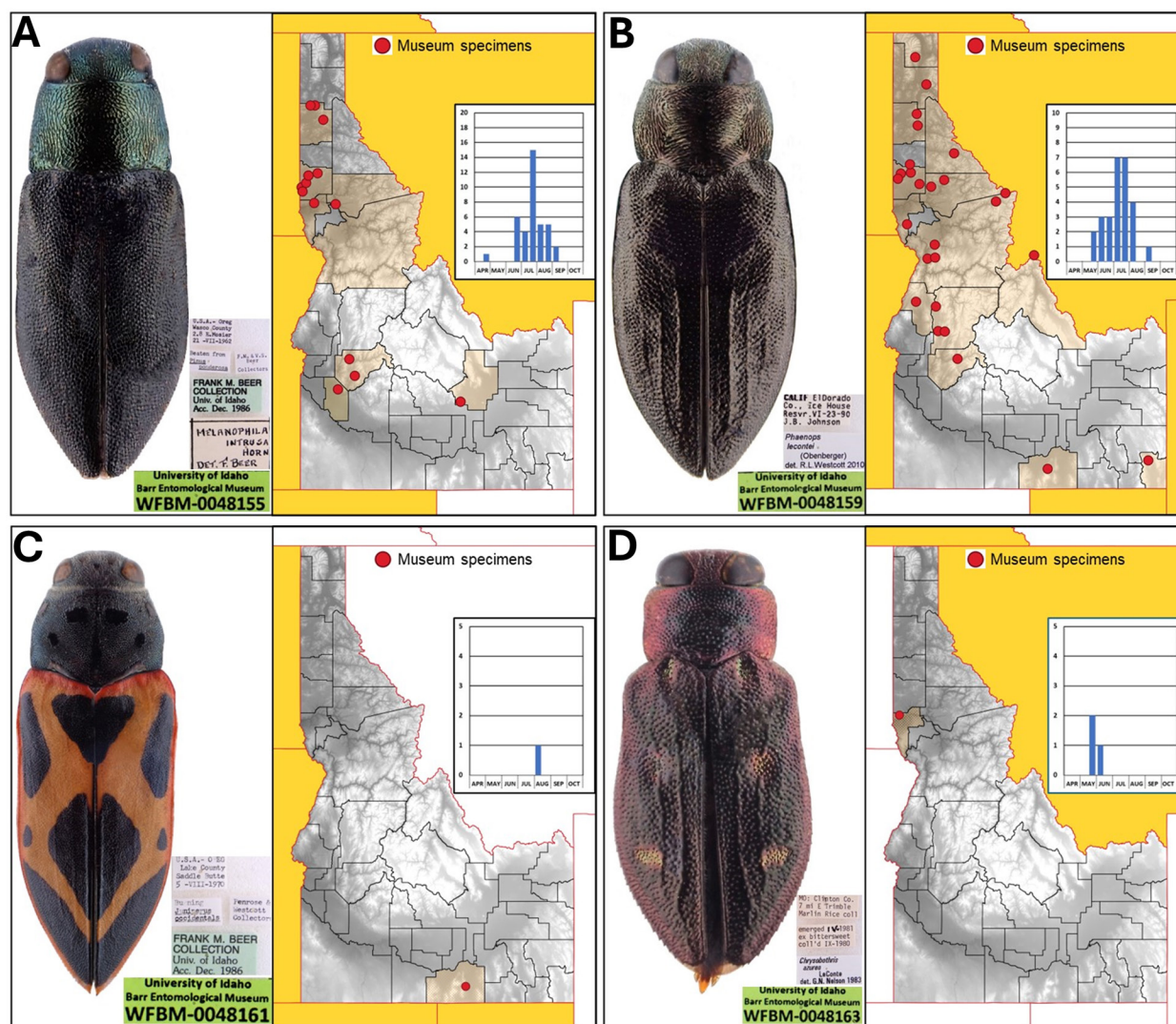


Figure 20. Photographs, distribution, and seasonal phenology of *Phaenops*, *Xenomelanophila* and *Chrysobothris* in Idaho. A) *P. intrusa*. B) *P. lecontei*. C) *X. miranda*. D) *C. azurea*.

and ovipositing in *J. occidentalis* damaged or destroyed by forest fires (R. L. Westcott, pers. comm.), but it has not been formally confirmed as a larval host (Westcott 2007).

Subfamily BUPRESTINAE, Tribe CHRYSOBOTHRINI

Chrysobothris azurea LeConte, 1857 (Fig. 20D)

First state record in Barr (1971). Records from one locality, three occurrences, and five specimens in Nez Perce County. Larvae feed in *Acer* sp. L. (Aceraceae), *Alnus incana* (L.) Moench ssp. *rugosa* (DuRoi) Clausen (Betulaceae), *Juglans nigra* L. (Juglandaceae), *Malus* sp. Mill. (Rosaceae), *Prunus virginiana* L., *Rhus glabra* L. (Anacardiaceae), and *Vitis* sp. L. (Vitaceae); outside of Idaho also in *Amelanchier* Medik. (Rosaceae), *Betula* L., *Crataegus* Tourn. ex L., and *Quercus* (Nelson et al. 2008; MacRae and Basham 2024). Records from *Pinus* are

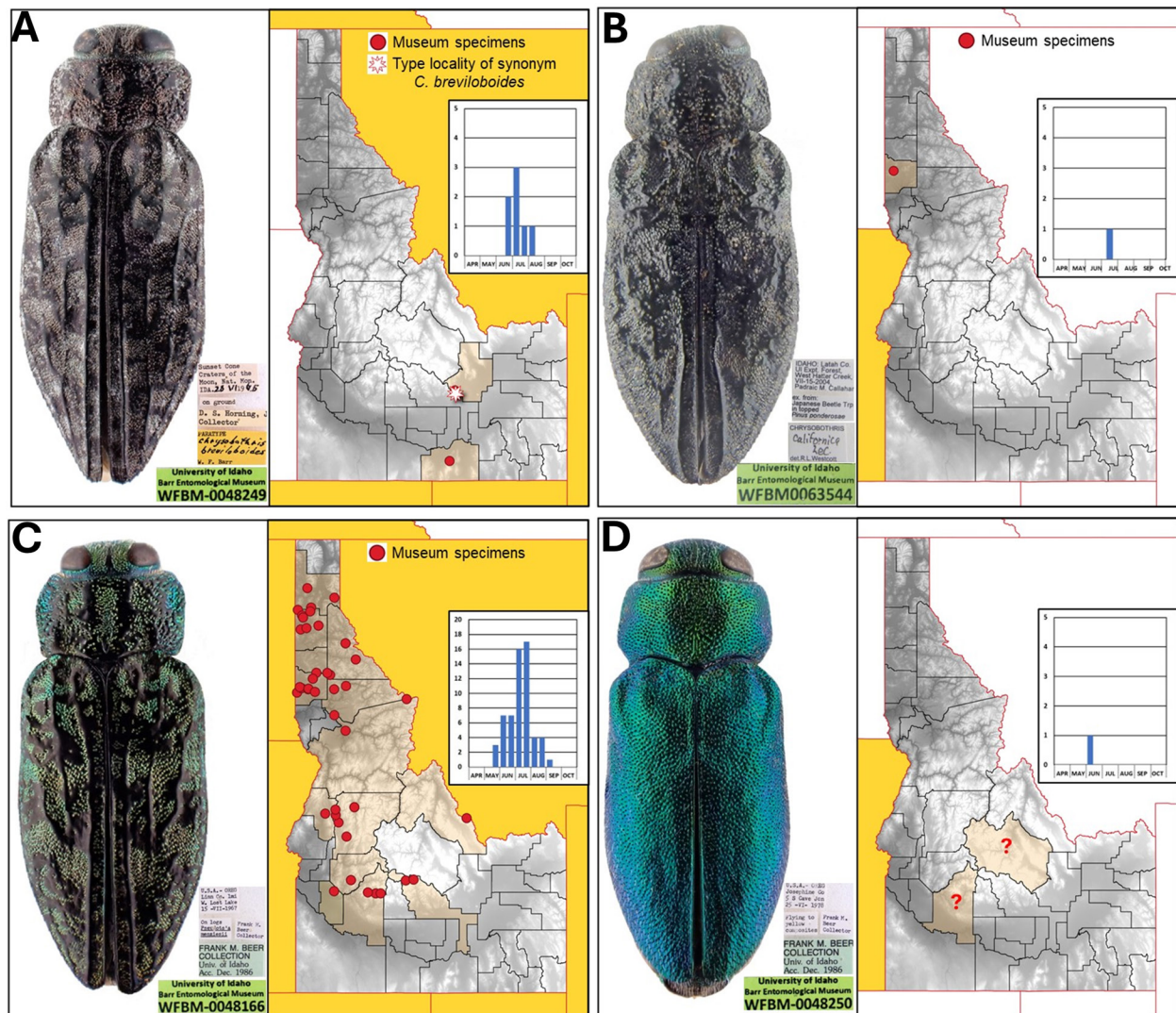


Figure 21. Photographs, distribution, and seasonal phenology of *Chrysobothris* spp. in Idaho. **A)** *C. breviloba*. **B)** *C. californica*. **C)** *C. carinipennis*. **D)** *C. cyanella*.

unlikely and suspected to be erroneous, according to MacRae (2006). Several rearing records from dead branches of hosts are cited in MacRae (2006).

Chrysobothris breviloba Fall, 1910 (Fig. 21A)

First state record in Barr (1969b) (as synonym *C. breviloboides* Barr, 1969). Synonymy was designated by Westcott (2023). Type locality of *C. breviloboides*: Idaho, Butte County, Craters of the Moon National Monument (WFBM type, on long-term loan to California Academy of Sciences, Type # 10214). Records from three localities, eight occurrences, and 12 specimens in Butte and Cassia counties. Larvae feed in *P. flexilis*, *P. ponderosa*, and *P. menziesii* (Nelson et al. 2008). One rearing record from dead branches of *Pinus remota* (Little) D. K. Bailey & F. G. Hawksworth in Texas (MacRae 2006).

Chrysobothris californica LeConte, 1860 (Fig. 21B)

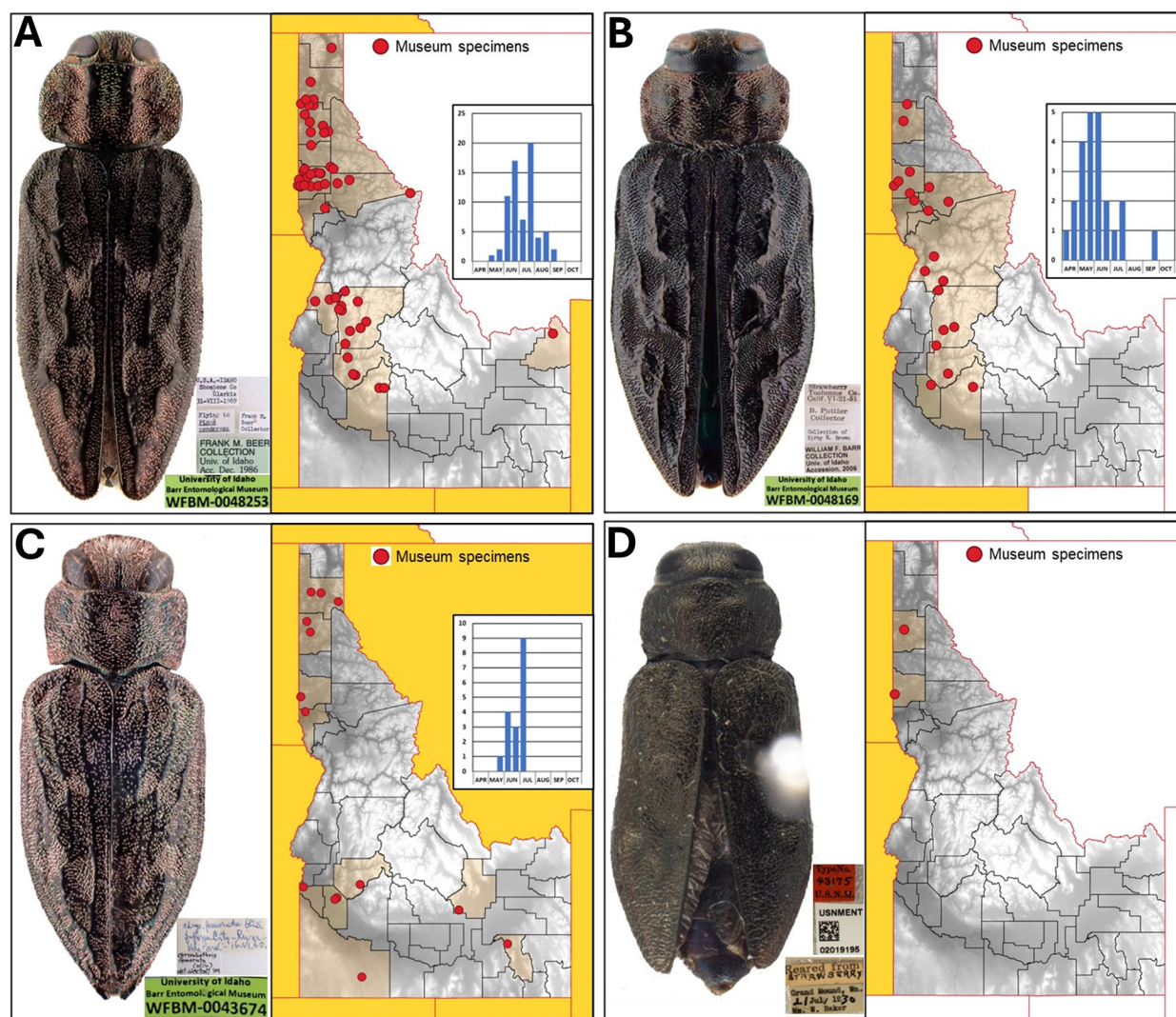


Figure 22. Photographs, distribution, and seasonal phenology of *Chrysobothris* spp. in Idaho. **A)** *C. dentipes*. **B)** *C. dolata*. **C)** *C. femorata*. **D)** *C. fragariae* (Holotype) (photo from United States National Museum).

First state record in Callahan et al. (2008). Record from one locality, one occurrence, and two specimens in Latah County. Larvae feed in *P. ponderosa* (Nelson et al. 2008).

***Chrysobothris carinipennis* LeConte, 1878 (Fig. 21C)**

First state record in Chamberlin (1926). Records from 47 localities, 64 occurrences, and 133 specimens in Ada, Adams, Benewah, Blaine, Boise, Bonner, Clearwater, Elmore, Idaho, Kootenai, Latah, Lemhi, Shoshone, and Valley counties. Larvae feed in *P. menziesii* (Nelson et al. 2008). Past Idaho records of *C. pseudotsugae* Van Dyke, 1916 by Fisher (1942) undoubtedly referred to *C. carinipennis* (Barr 1971).

***Chrysobothris cyanella* Horn, 1886 (Fig. 21D)**

First state record in Westcott (2005). Label on examined specimen indicates Lincoln Creek, with no county provided. Westcott (2005) noted that it could either be Custer or Elmore or, less likely, Bingham, as all three include a Lincoln Creek toponym. Custer and Elmore counties are shaded on the distribution map (Fig. 21C),

with question marks on overlay. Larvae feed in roots of *Eriogonum nudum* Benth (Polygonaceae) (Beer 1940; Nelson et al. 2008).

***Chrysobothris dentipes* (Germar, 1824) (as *Buprestis*) (Fig. 22A)**

First state record in Chamberlin (1926). Records from 59 localities, 74 occurrences, and 178 specimens in Adams, Benewah, Boise, Bonner, Boundary, Clearwater, Elmore, Fremont, Kootenai, Latah, Nez Perce, Shoshone, and Valley counties. Larvae feed in *P. ponderosa*; outside of Idaho also in *Abies* and *Larix* Mill. (Nelson et al. 2008).

***Chrysobothris dolata* Horn, 1886 (Fig. 22B)**

First state record in Fisher (1942). Records from 21 localities, 23 occurrences, and 36 specimens in Ada, Boise, Clearwater, Elmore, Idaho, Kootenai, Latah, Nez Perce, and Valley counties. Larvae feed in *A. concolor*, *P. ponderosa*, and *P. menziesii* (Nelson et al. 2008).

***Chrysobothris femorata* (Olivier, 1790) (as *Buprestis*) (Fig. 22C) – flatheaded appletree borer**

First state record in Chamberlin (1926), cited as present in every state in the U.S.A. Wellso and Manley (2007) however warned that Chamberlin's (1926) and Fisher's (1942) treatment of *C. femorata* included *C. quadriimpressa* and several other subsequently described species. Records from 14 localities, 24 occurrences, and 42 specimens in Ada, Bannock, Boise, Bonner, Butte, Canyon, Kootenai, Latah, Nez Perce, and Owyhee counties. Larvae feed in *Acer negundo* L., *Acer saccharinum* L., *Alnus rubra* Nutt., *B. occidentalis*, *Fraxinus pennsylvanica* Marsh. (Oleaceae), *Juglans cinerea* L., *J. nigra*, *Malus domestica* Borkh., *Populus fremontii* Wats., *P. tremuloides*, *Prunus armeniaca* L., *P. domestica*, *Prunus persica* (L.) Batsch., *Salix lasiolepis* Benth., and *Ulmus americana* L. (Ulmaceae); outside of Idaho also in *Amelanchier*, *Celtis*, *Crataegus*, *Quercus*, and *Sorbus* L. (Rosaceae) (Nelson et al. 2008; Rudolph and Wiman 2023). An important pest of tree crops, chewing galleries through the cambium and phloem of host trees (Solomon 1995; Rudolph and Wiman 2023).

***Chrysobothris fragariae* Fisher, 1930 (Fig. 22D)**

First state record in Fisher (1930). Records from two localities in Kootenai and Latah counties (Fisher 1930). Larvae feed in *Eriogonum compositum* Benth and *Fragaria* spp. L. (Rosaceae), including cultivated strawberries (Bright 1987; Nelson et al. 2008). No museum specimens collected in Idaho were available to further confirm Fisher's record. This species and the two following belong to a very difficult group that is in great need of study (R. L. Westcott, pers. comm.).

***Chrysobothris horningi* Barr, 1969 (Fig. 23A)**

First state record in Barr (1969b). Type locality: Idaho, Butte County, Craters of the Moon National Monument (WFBM type, on long-term loan to California Academy of Sciences, Type # 10211). Records from three localities, five occurrences, and six specimens in Butte and Jefferson counties. Larval host unknown, but adults have been collected on *Eriogonum depressum* Rydb. (Barr 1969b).

***Chrysobothris idahoensis* Barr, 1969 (Fig. 23B)**

First state record in Barr (1969b). Type locality: Idaho, Blaine County, Alturas Lake (WFBM type, on long-term loan to California Academy of Sciences, Type # 10213). Records from seven localities, eight occurrences, and 15 specimens in Blaine, Boise, Butte, Custer, and Washington counties. Larvae feed in *Eriogonum* sp.; outside of Idaho on *E. marifolium* A. Gray (Westcott 2023).

***Chrysobothris ignicollis* Horn, 1885 (Fig. 23C)**

First state record in Fisher (1942). Record from one locality in Bannock County (Fisher 1942). Larvae feed in *Juniperus osteosperma* (Torr.) Little and *Juniperus scopulorum* Sarg. (Cupressaceae) (Nelson et al. 2008). Records from dead branches of hosts are in Powell (1965) and MacRae (2006).

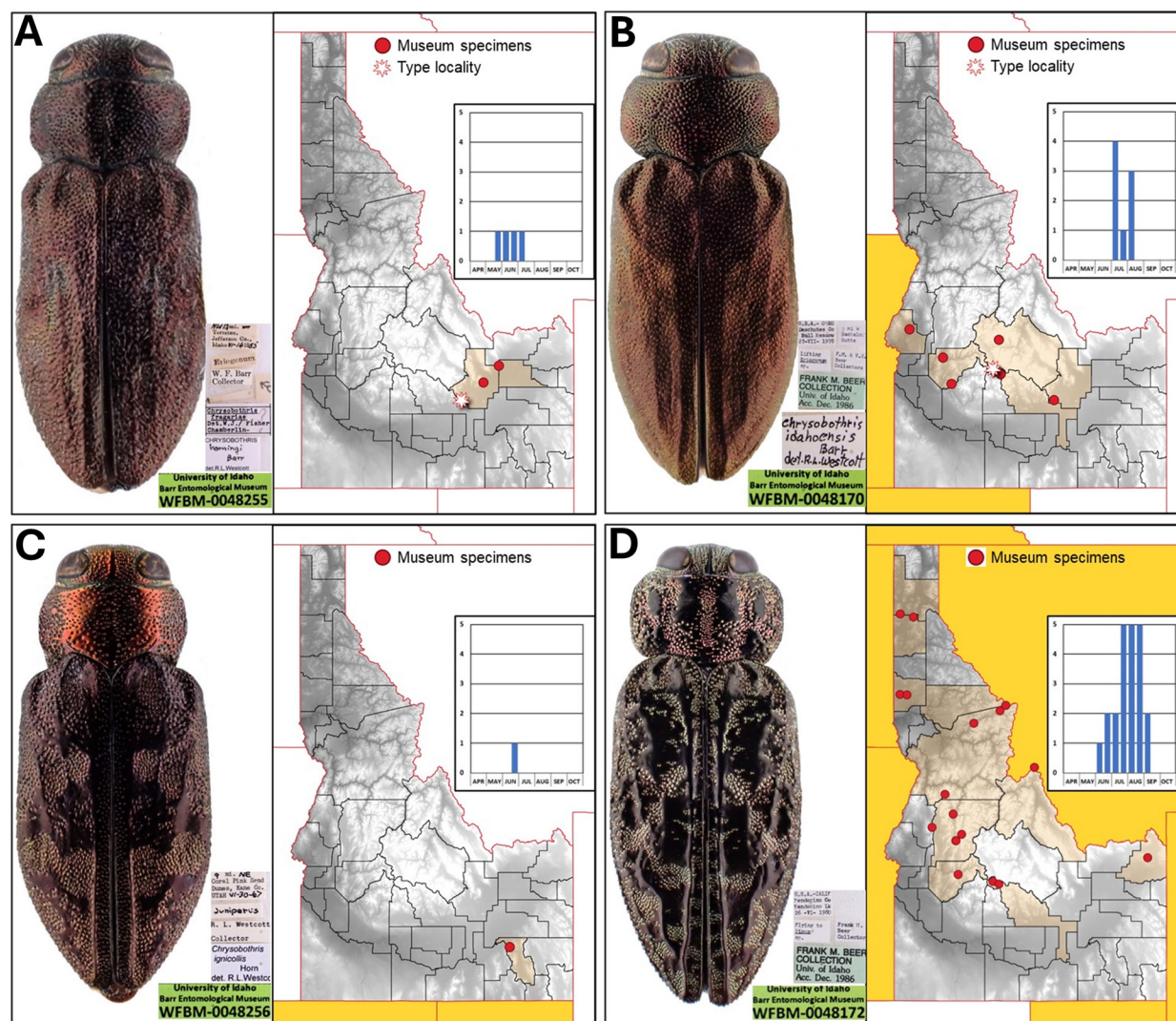


Figure 23. Photographs, distribution, and seasonal phenology of *Chrysobothris* spp. in Idaho. A) *C. horningi*. B) *C. idahoensis*. C) *C. ignicollis*. D) *C. laricis*.

Chrysobothris laricis Van Dyke, 1916 (Fig. 23D)

First state record in Chamberlin (1926). Records from 17 localities, 23 occurrences, and 53 specimens in Blaine, Boise, Bonner, Clearwater, Fremont, Idaho, Kootenai, Latah, Lemhi, and Valley counties. Larval host unknown, but adults have been collected on *Abies*, *Larix*, *Picea*, *Pinus*, and *Pseudotsuga* (Nelson et al. 2008).

Chrysobothris leechi Barr, 1974 (Fig. 24A)

First state record in Barr (1974). Records from 37 localities, 47 occurrences, and 121 specimens in Adams, Benewah, Boise, Bonner, Butte, Elmore, Idaho, Kootenai, Latah, Nez Perce, Shoshone, and Valley counties. Larvae feed in fallen dead branches of *P. ponderosa* (MacRae 2006). The previously published record of *Chrysobothris caurina* Horn, 1886 in Idaho by Fisher (1942), also cited by Bellamy (2008) was actually of *C. leechi*. *Chrysobothris caurina* is not present in Idaho (R. L. Westcott, pers. comm.).

Chrysobothris lilaceous Chamberlin, 1925 (Fig. 24B)

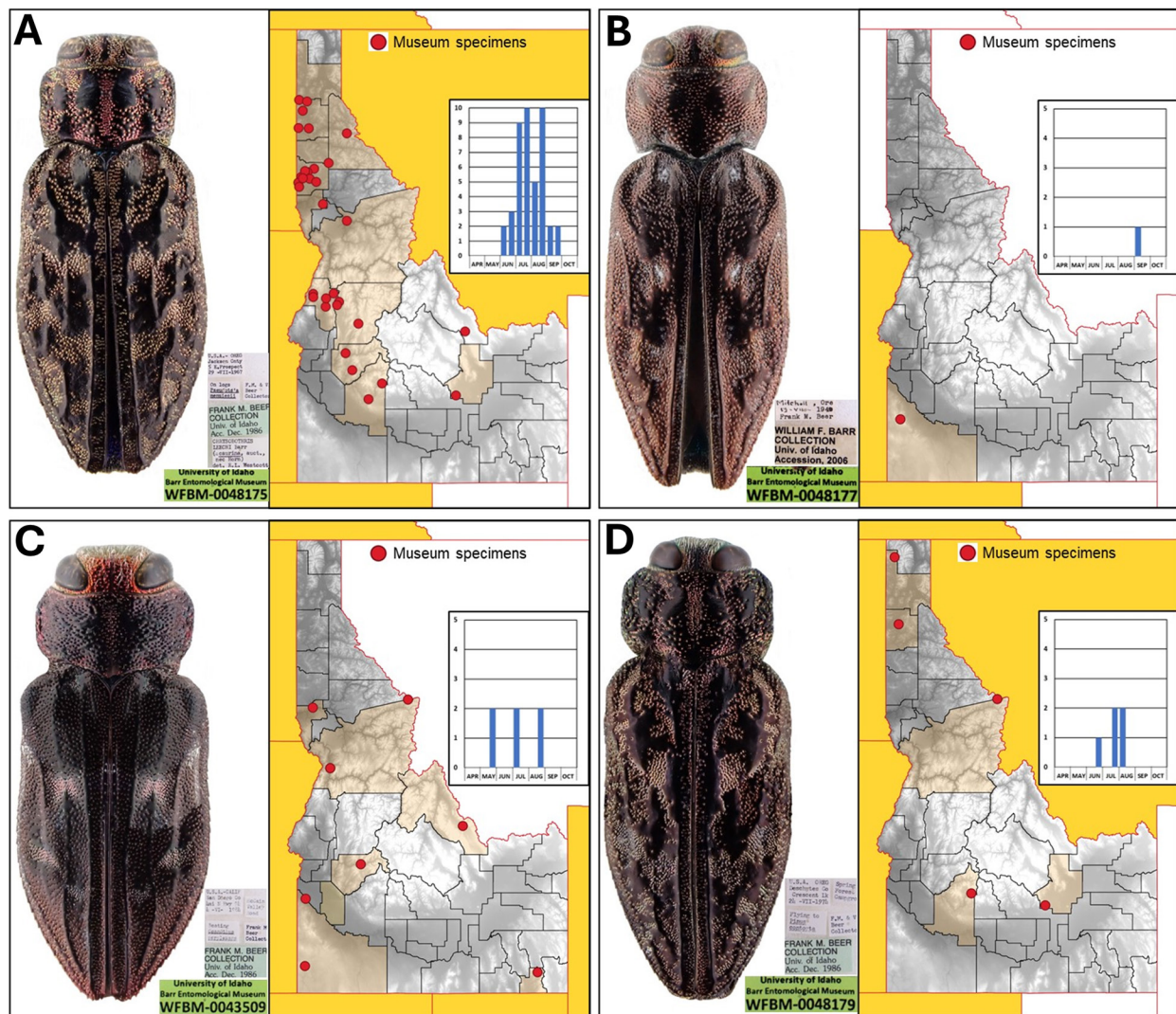


Figure 24. Photographs, distribution, and seasonal phenology of *Chrysobothris* spp. in Idaho. A) *C. leechi*. B) *C. lilaceus*. C) *C. mali*. D) *C. monticola*.

First state record in Barr (1971). Record from one locality and one specimen in Owyhee County. Larvae feed in *J. occidentalis* (Westcott 2023).

***Chrysobothris mali* Horn, 1886 (Fig. 24C) – Pacific flatheaded borer**

First state record in Barr (1971). Records from nine localities, nine occurrences, and 12 specimens in Ada, Boise, Franklin, Idaho, Lemhi, Nez Perce, and Owyhee counties. Larvae feed in *Acer macrophyllum* Pursh, *A. negundo*, *A. pseudoplatanus* L., *A. saccharinum*, *Aesculus hippocastanum* L. (Sapindaceae), *Alnus rhombifolia*, *Amelanchier arborea* (Michx.) Fernald, *Betula* sp., *Ceanothus cuneatus* (Hook.) Nutt., *Cercocarpus ledifolius*, *Corylus* sp. L. (Betulaceae), *Frangula purshiana* (DC.) A.Gray ex J.G.Cooper (Rhamnaceae), *J. regia*, *Malus* sp., *Platanus racemosa* Nutt. (Platanaceae), *P. deltoides*, *Prunus americana* Marsh., *P. armeniaca*, *Prunus avium* (L.) L., *Prunus cerasifera* Ehrh., *Prunus cerasus* L., *P. domestica*, *P. persica*, *Pyracantha coccinea* Roemer (Rosaceae), *Pyrus communis* L. (Rosaceae), *Ribes erythrocarpum* Coville & Leiberg (Rosaceae), *Ribes rubrum* L., *Rosa* spp., *Rubus loganobaccus* Bailey (Rosaceae), *S. lasiolepis*, *Sorbus aucuparia* L. (Rosaceae), and *U. americana*; outside of Idaho also in *Arctostaphylos* Adanson (Ericaceae), *Cotoneaster* Medik. (Rosaceae), *Crataegus*, and *Quercus* (Nelson et

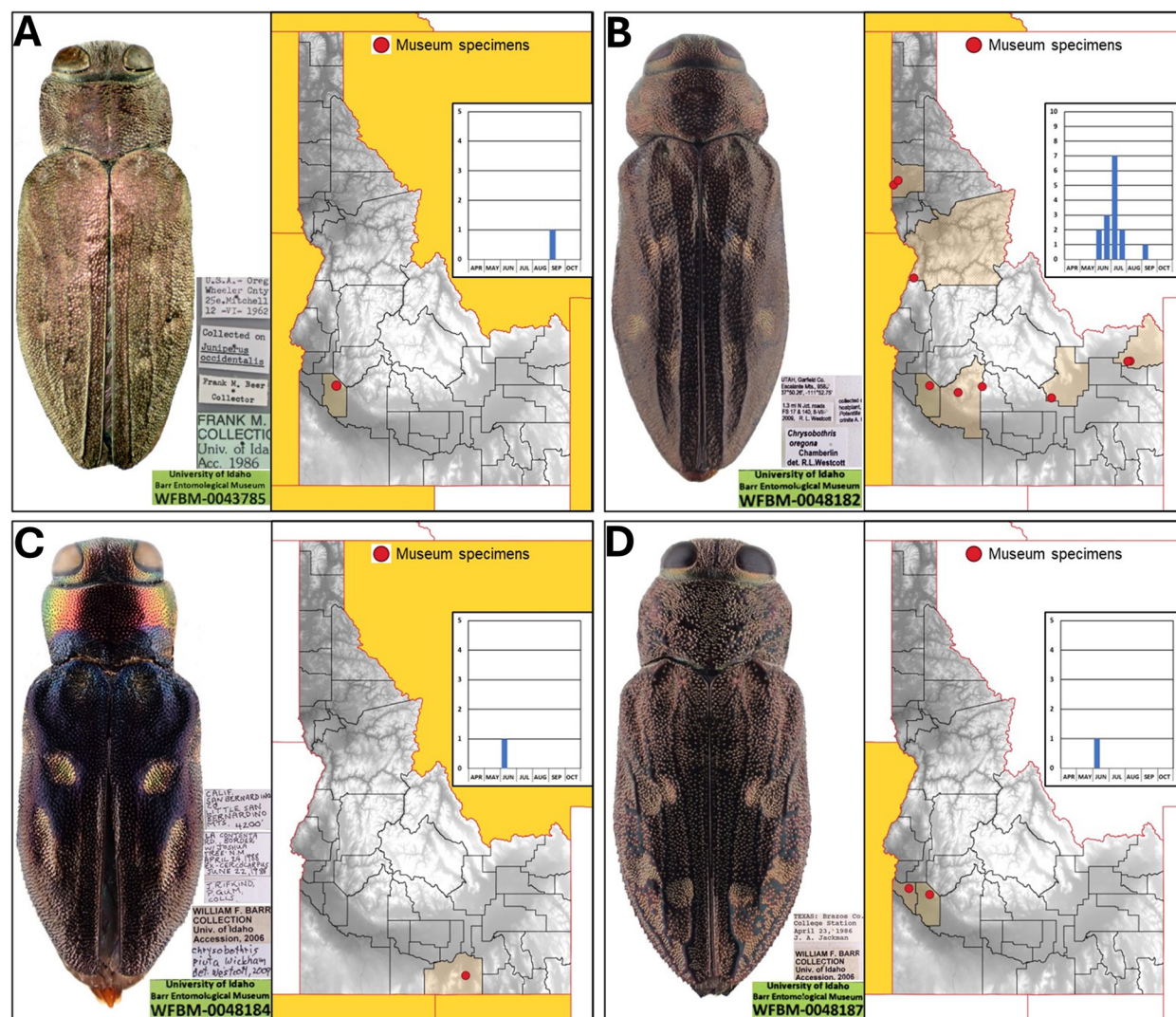


Figure 25. Photographs, distribution, and seasonal phenology of *Chrysobothris* spp. in Idaho. A) *C. nixa*. B) *C. oregona*. C) *C. piuta*. D) *C. quadriimpressa*.

al. 2008; Rudolph and Wiman 2023; Westcott 2023). Important pest of tree crops, chewing galleries through the cambium and phloem of host trees (Solomon 1995; Rudolph and Wiman 2023).

Chrysobothris monticola Fall, 1910 (Fig. 24D)

First state record in Fisher (1942). Referred to as synonym *Chrysobothris grandis* Chamberlin, 1938 in Barr (1971) and Bright (1987). Records from five localities, five occurrences, and five specimens in Bonner, Butte, Elmore, Idaho, and Kootenai counties. Larvae feed in *Picea abies* (L.) H. Karst, *P. contorta*, *P. monticola*, and *P. ponderosa* (Nelson et al. 2008; Westcott 2023).

Chrysobothris nixa Horn, 1886 (Fig. 25A)

First state record in Westcott (2023). Record from one locality, one occurrence, and one specimen in Ada County. Larvae feed in *T. plicata*; outside of Idaho, larvae also in *Cupressus* L. and *Juniperus* L. (Nelson et al. 2008; Westcott 2023).

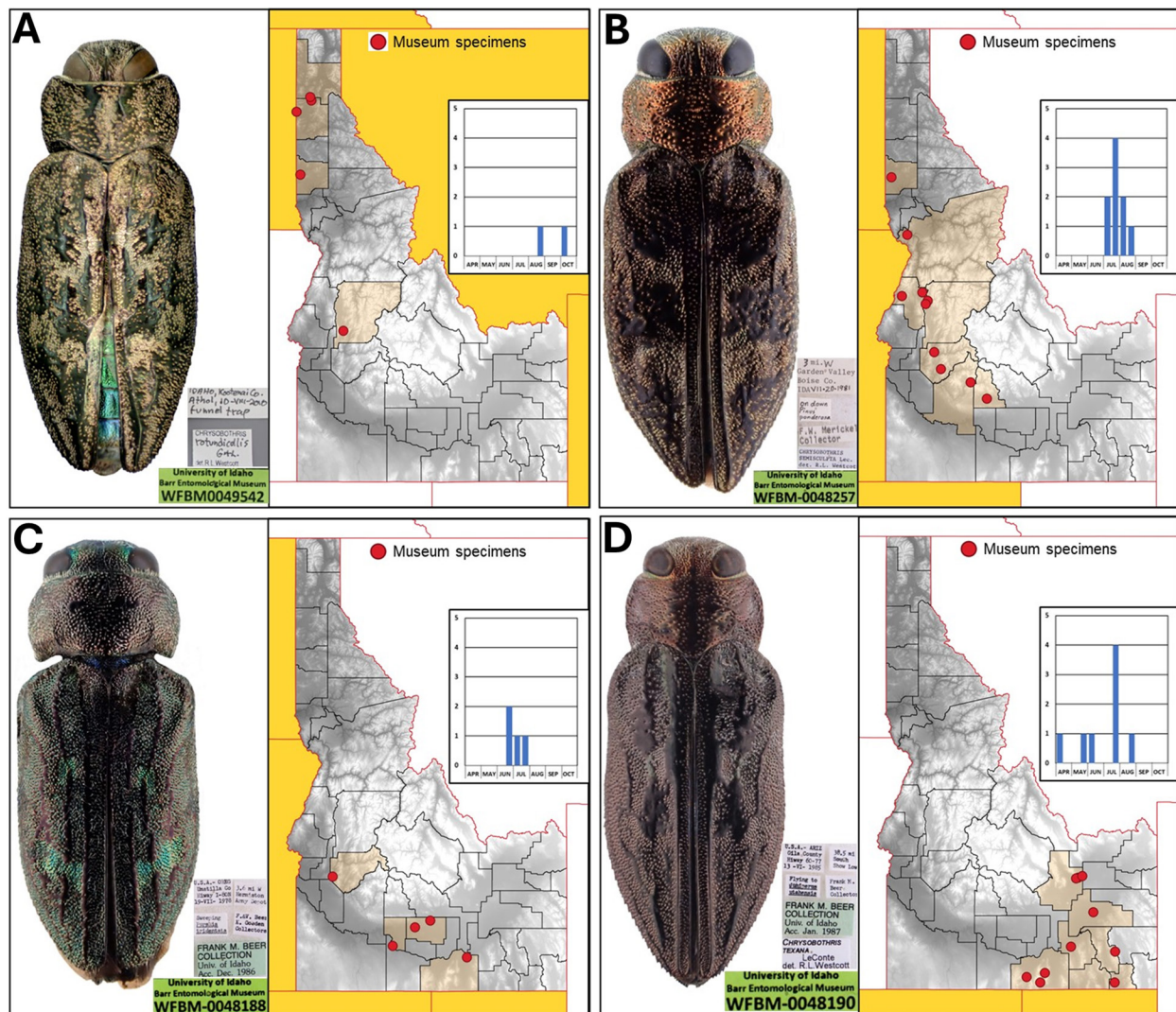


Figure 26. Photographs, distribution, and seasonal phenology of *Chrysobothris* spp. in Idaho. A) *C. rotundicollis*. B) *C. semisculpta*. C) *C. subcylindrica*. D) *C. texana*.

***Chrysobothris oregona* Chamberlin, 1934 (Fig. 25B)**

First state record in Barr (1971). Records from nine localities, 15 occurrences, and 25 specimens in Ada, Butte, Elmore, Fremont, Idaho, and Latah counties. Larvae feed in *Geranium* L. sp. (Geraniaceae) (Nelson et al. 2008).

***Chrysobothris piuta* Wickham, 1903 (Fig. 25C)**

First state record in Westcott (2023). Record from one locality, one occurrence, and one specimen in Cassia County. Larvae feed in dead branches of *Cercocarpus montanus* Raf. (MacRae and Nelson 2003).

***Chrysobothris quadriimpressa* Gory and Laporte, 1837 (Fig. 25D)**

First state record in Westcott (2005). Likely introduced to Idaho through rootstock or firewood (Westcott 2005). Records from two localities, two occurrences, and 20 specimens in Ada and Canyon counties. Larvae feed in *Juglans nigra* and *Quercus* spp., both present in but not native to Idaho (Nelson et al. 2008).

***Chrysobothris rotundicollis* Gory and Laporte, 1837 (Fig. 26A)**

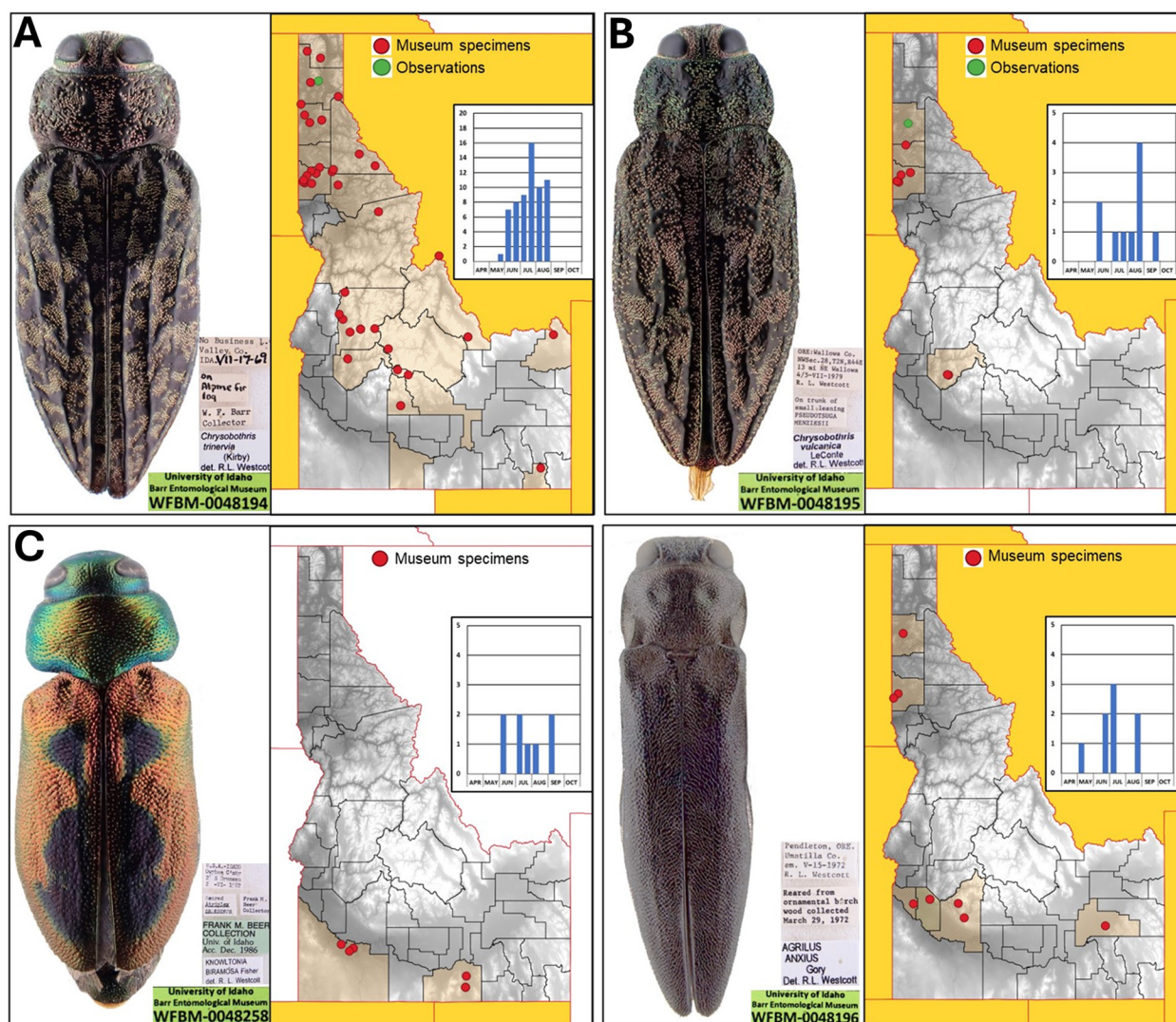


Figure 27. Photographs, distribution, and seasonal phenology of *Chrysobothris*, *Knowltonia*, and *Agrilus* in Idaho. A) *C. trinnervia*. B) *C. vulcanica*. C) *K. biramosa*. D) *A. anxius*.

First state record in Westcott (2023). Referred to as synonym *Chrysobothris columbiana* Barr, 1969 in Barr (1971) and Bright (1987). Records from five localities, five occurrences, and seven specimens in Bonner, Kootenai, Latah, and Valley counties. Outside of Idaho, Larvae feed in *Larix* and *Pinus* (Nelson et al. 2008).

***Chrysobothris semisculpta* LeConte, 1860 (Fig. 26B)**

First state record in Chamberlin (1926) (as synonym *Chrysobothris contigua* LeConte, 1860). Records from 11 localities, 10 occurrences, and 117 specimens in Adams, Boise, Camas, Elmore, Idaho, Latah, and Valley counties. Larvae feed in *P. contorta*, *P. monophylla*, *P. ponderosa*, and *P. menziesii*; outside of Idaho also reared from *Thuja* (Cupressaceae) (Nelson et al. 2008; Westcott 2023). Most commonly associated with *Pinus* spp. (Nelson et al. 1981).

***Chrysobothris subcylindrica* Ménétries, 1859 (Fig. 26C)**

First state record in Fisher (1942) (as synonym *Chrysobothris deleta* LeConte, 1860). Also referred to as *C. deleta* in Barr (1971). Records from five localities, five occurrences, and five specimens in Boise, Cassia, Gooding, and Lincoln counties. Larvae feed in *Artemisia tridentata* Nutt., *Chrysopsis villosa* (Pursh) Nutt. ex DC (as

Heterotheca Cass.), *Gutierrezia sarothrae* (Pursh) Britt. & Rusby and, outside of Idaho in *E. nauseosa* (as *Chrysanthamnus* Nutt.) (all Asteraceae) (Nelson et al. 2008). Larvae observed as root borers in *Artemisia tripartata* Rydb., and adults (as *C. deleta*) taken on *Purshia tridentata* (Pursh) DC (Barr 1971). Also bred from the upper root crown of *G. sarothrae* (Barr and Westcott 1976).

***Chrysobothris texana* LeConte, 1860 (Fig. 26D)**

First state record in Barr (1971). Records from 12 localities, 11 occurrences, and 90 specimens in Bannock, Bingham, Butte, Cassia, Franklin, Oneida, and Power counties. Larvae feed in *J. occidentalis*, *J. osteosperma*, and *J. scopulorum* (Nelson et al. 2008). Several rearing records from dead branches of hosts (MacRae 2006).

***Chrysobothris trinervia* Kirby, 1837 (Fig. 27A)**

First state record in Fisher (1942). Records from 38 localities, 61 occurrences, and 105 specimens in Benewah, Blaine, Boise, Bonner, Boundary, Camas, Clearwater, Custer, Franklin, Fremont, Idaho, Kootenai, Latah, Lemhi, Shoshone, Twin Falls, and Valley counties. Larvae feed in *Picea* sp., *P. flexilis*, *P. ponderosa*, and *P. menziesii*; outside of Idaho also on *Larix* (Nelson et al. 2008).

***Chrysobothris vulcanica* LeConte, 1861 (Fig. 27B)**

First state record in Barr (1971). Records from 10 localities, 11 occurrences, and 11 specimens in Benewah, Boise, Kootenai, and Latah counties. Larvae feed in *P. menziesii* (Westcott 1990).

***Knowltonia biramosa* Fisher, 1935 (Fig. 27C)**

First state record in Barr (1971), as *Chrysobothris biramosa*. Records from six localities, 10 occurrences, and 15 specimens in Cassia and Owyhee counties. Larvae feed in roots of *A. canescens* (Nelson et al. 2008). The presence of *Knowltonia calida* (Knull, 1958) in Idaho, reported in Barr and Westcott (1976), was based on a misidentification of *K. biramosa* (Westcott and Barr 2007). *Knowltonia calida* is not present in Idaho.

Subfamily AGRILINAE, Tribe AGRILINI

***Agrilus anxius* Gory, 1841 (Fig. 27D) – bronze birch borer**

First state record in Chamberlin (1925a). Records from eight localities, nine occurrences, and 89 specimens in Ada, Bingham, Canyon, Elmore, Kootenai, and Latah counties. Larvae feed in *B. occidentalis*, *Betula papyrifera* Marsh., *Betula pendula* Roth., and *Betula pubescens* Ehrh. (Nelson et al. 2008). Previously published records of larvae feeding in *Populus* spp. were actually of *Agrilus liragus* Barter and Brown, 1949 (Jendek and Poláková 2014). Larvae tunnel between the bark and wood of host trees, with only short trips into the xylem (Carlson and Knight 1969; Solomon 1995). It is mainly a pest of ornamental birch in Western U.S.A. (Furniss and Carolin 1977).

***Agrilus burkei* Fisher, 1917 (Fig. 28A)**

First state record in Barr (1971). Records from six localities, 10 occurrences, and 11 specimens in Bonner, Canyon, Custer, Latah, Owyhee, and Valley counties. Larvae feed in *A. rhombifolia* and *Alnus incana* (L.) Moench ssp. *tenuifolia* (Nutt.) Breitung (Nelson et al. 2008), mining through cambium, beneath the bark of stressed trees (Solomon 1995).

***Agrilus crataegi* Frost, 1912 (Fig. 28B)**

First state record in Westcott (2005). Records from two localities, two occurrences and five specimens in Latah and Nez Perce counties. Larvae feed in *Amelanchier alnifolia* (Nutt.) Nutt. and *Crataegus* sp. (Nelson et al. 2008), mining through the host cambium (Solomon 1995).

***Agrilus cuprescens* (Ménétries, 1832) (as *Buprestis*) (Fig. 28C) – rose stem girdler**

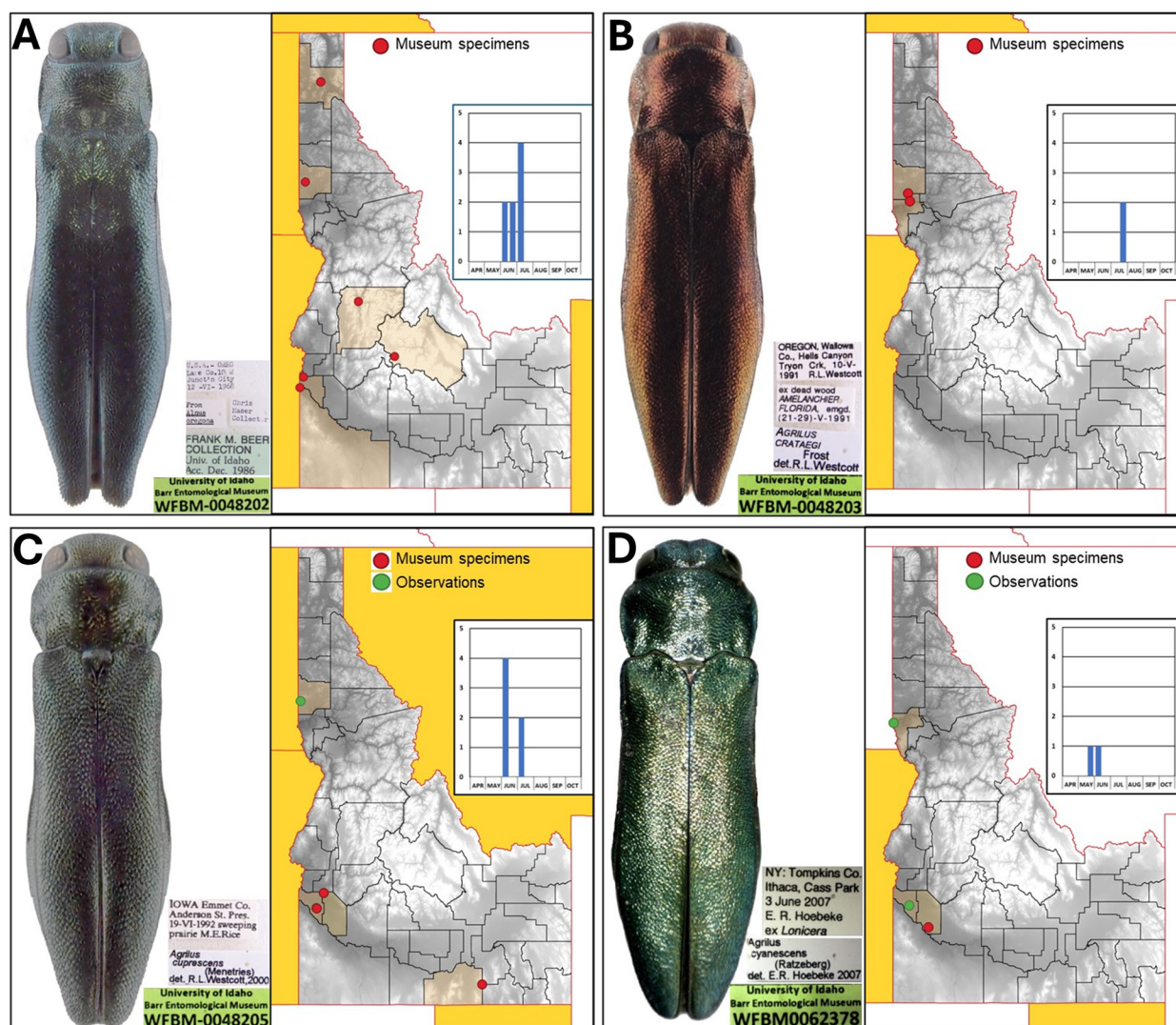


Figure 28. Photographs, distribution, and seasonal phenology of *Agrilus* spp. in Idaho. A) *A. burkei*. B) *A. crataegi*. C) *A. cuprescens*. D) *A. cyaneus*.

First state detection in 1973 (Anonymous 1975). Records from five localities, five occurrences, and 15 specimens in Ada, Canyon, Cassia, and Latah counties. Larvae feed in numerous species of *Rosa* and *Rubus* (Westcott et al. 2015). Young larvae produce spiral galleries close together beneath bark, resulting in swellings or galls, and older larvae produce zigzag galleries beneath the bark or in the pith (Solomon 1995). This Palearctic species was introduced to North America prior to 1878 and is a serious pest of cultivated and wild roses and of raspberries (Westcott et al. 2015).

Agrilus cyaneus Ratzeburg, 1837 (Fig. 28D)

First state record in Westcott (2024). Native to Eurasia, it was first reported in Wisconsin by Frost (1922). Records from two localities, two occurrences, and two specimens in Ada and Canyon counties. Larvae feed in stems of *Lonicera involucrata* (Richardson) Banks ex Spreng. (Caprifoliaceae) (Westcott et al. 2019).

Agrilus difficilis Gory, 1841 (Fig. 29A)

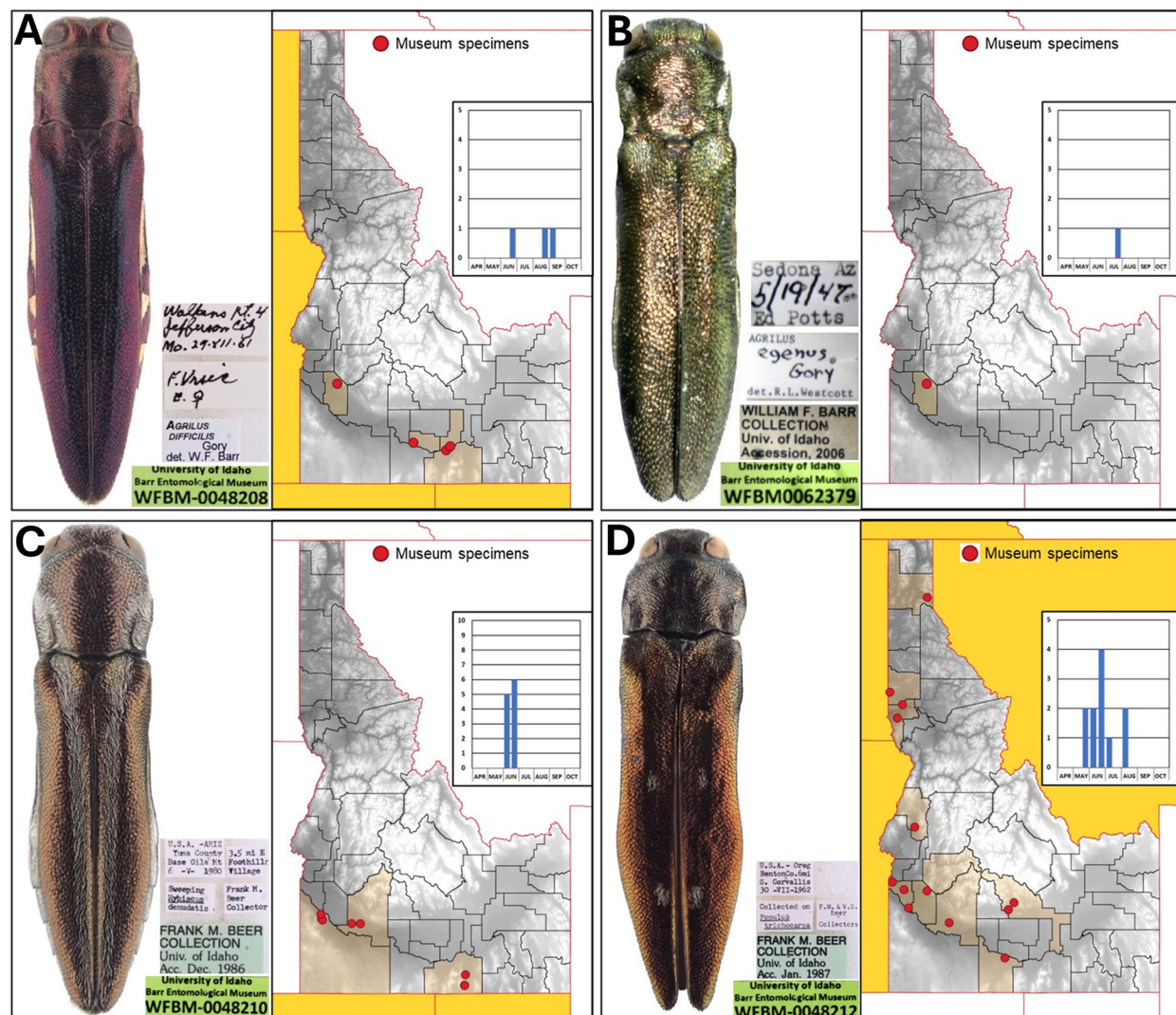


Figure 29. Photographs, distribution, and seasonal phenology of *Agrilus* spp. in Idaho. A) *A. difficilis*. B) *A. egenus*. C) *A. felix*. D) *A. granulatus populi*.

First state record in Westcott and Adams (2022). Records from four localities, six occurrences, and six specimens in Ada, Cassia, Jerome, and Minidoka counties. A pest of honeylocust (*Gleditsia triacanthos* L.) (Fabaceae) (Akers et al. 1986), with larvae mining galleries in the cambium (Solomon 1995).

***Agrilus egenus* Gory, 1841 (Fig. 29B)**

First state record in Westcott (2024). Record from one locality in Ada County. Larvae feed in *R. pseudoacacia* (Nelson et al. 2008).

***Agrilus felix* Horn, 1891 (Fig. 29C)**

First state record in Barr (1971). Records from 10 localities, 12 occurrences, and 43 specimens in Cassia, Elmore, and Owyhee counties. Larvae feed in roots and stems of *A. confertifolia* and *Grayia spinosa* (Hook.) Moq (Amaranthaceae) (Barr 1971; Nelson et al. 2008).

***Agrilus granulatus populi* Fisher, 1928 (Fig. 29D)**

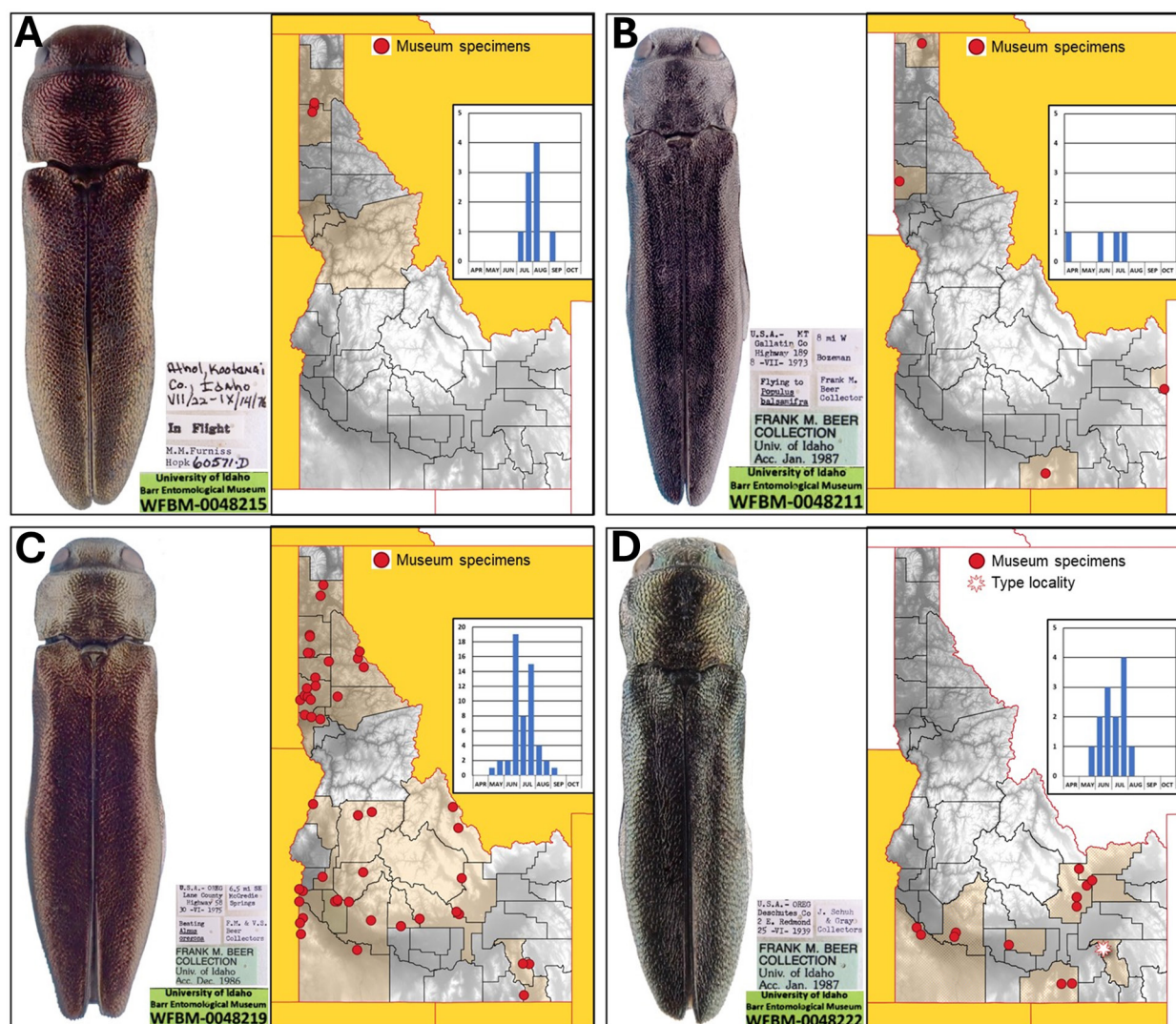


Figure 30. Photographs, distribution, and seasonal phenology of *Agrilus* spp. in Idaho. A) *A. hyperici*. B) *A. liragus*. C) *A. politus*. D) *A. pubifrons*.

First state record in Barr (1971), as *Agrilus populi*. Records from 14 localities, 14 occurrences, and 16 specimens in Ada, Adams, Blaine, Bonner, Canyon, Elmore, Latah, Nez Perce, and Twin Falls counties. Larvae burrow beneath the bark of *Populus trichocarpa* Torr. & A.Gray ex. Hook (Solomon 1995; Nelson et al. 2008).

***Agrilus hyperici* Creutzer, 1799 (Fig. 30A)**

Released in Idaho in 1953 and 1981 to control St. John's wort, and presence in the state confirmed in the mid 1980's (Campbell et al. 1987). Records from four localities, eight occurrences, and 27 specimens in Bonner, Idaho, Kootenai, Lewis, and Nez Perce counties. Campbell et al. (1987) also note its presence in Idaho, Lewis, and Nez Perce counties without citing specific localities. Larvae feed in roots of *Hypericum perforatum* L. (Hypericaceae) (Campbell et al. 1987; Nelson et al. 2008).

***Agrilus liragus* Barter and Brown, 1949 (Fig. 30B) – bronze poplar borer**

First state record in Westcott (2024). Records from four localities, four occurrences, and 11 specimens in Boundary, Cassia, Latah, and Teton counties. Larvae feed in *Populus balsamifera* L., *P. balsamifera* ssp. *trichocarpa*,

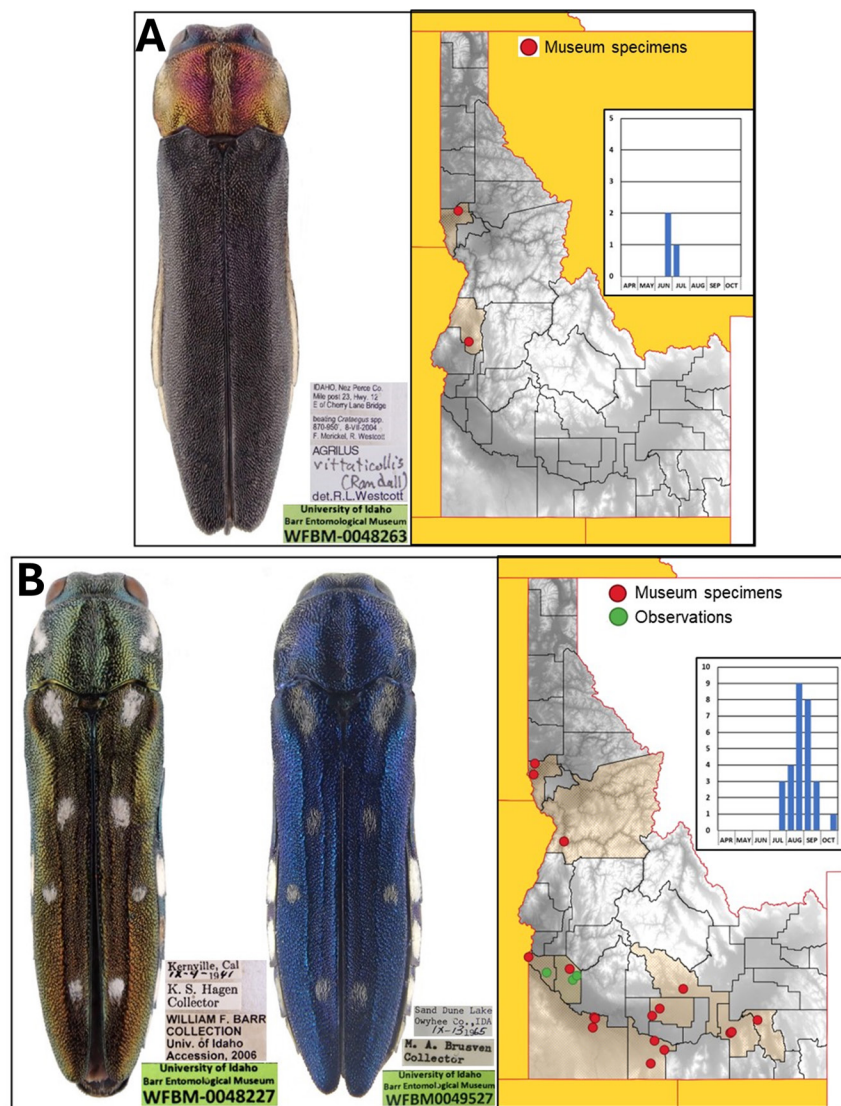


Figure 31. Photographs, distribution, and seasonal phenology of *Agrilus* spp. in Idaho. **A)** *A. vittaticollis*. **B)** *A. walsinghami* (left male, right female).

P. deltooides, and *P. tremuloides* (Jendek and Poláková 2014), mining galleries in the cambium, moving occasionally into the phloem and cortex (Carlson and Knight 1969; Solomon 1995). This species was designated as a subspecies of *A. granulatus* by Carlson and Knight (1969) and treated variously as subspecies or separate species in subsequent literature. Its status was restored as a full species by Westcott (2024).

Agrilus politus (Say, 1825) (as *Buprestis*) (Fig. 30C)

First state record in Chamberlin (1926). Records from 49 localities, 62 occurrences, and 198 specimens in Ada, Adams, Bannock, Benewah, Blaine, Boise, Bonner, Butte, Camas, Canyon, Clearwater, Custer, Elmore, Franklin, Gem, Kootenai, Latah, Lemhi, Nez Perce, Owyhee, Shoshone, and Valley counties, and undoubtedly all counties in the state. Larvae feed in *Acer glabrum* Torr., *Salix lasiandra* Benth., *S. lasiolepis*, and *S. scouleriana* Hook (Nelson et al. 2008). According to Fisher (1928), this species “probably will attack all species of willow.” Larvae bore galleries in branches, causing severe girdling (Solomon 1995).

Agrilus pubifrons Fisher, 1928 (Fig. 30D)

First state record in Fisher (1928). Type locality: Idaho, Pocatello (United States National Museum, type # 41004). Records from 13 localities, 15 occurrences, and 76 specimens in Bannock, Butte, Cassia, Clark, Elmore, Jefferson, Lincoln, and Owyhee counties. Larvae feed in roots of *Chrysothamnus viscidiflorus* (Hook.) Nutt (Barr 1971; Nelson et al. 2008).

***Agrilus vittaticollis* (Randall, 1838) (as *Buprestis*) (Fig. 31A)**

First state record in Barr (1971). Records from three localities, three occurrences, and 13 specimens in Adams and Nez Perce counties. Larvae feed in *Crataegus* sp., *Malus* spp., and *Pyrus* spp. L.; outside of Idaho also in *Amelanchier* (Nelson et al. 2008). Larvae tunnel downward in the host cambium, reaching and burrowing galleries in the roots (Solomon 1995).

***Agrilus walsinghami* Crotch, 1873 (Fig. 31B)**

First state record in Chamberlin (1926). Records from 17 localities, 25 occurrences, and 39 specimens in Ada, Bannock, Blaine, Canyon, Idaho, Lincoln, Nez Perce, Owyhee, Power, and Twin Falls counties. Larval host unknown, but adults are almost always collected on *E. nauseosa*, which undoubtedly serves as its host (R. L. Westcott, pers. comm.). This species is sexually dimorphic in color pattern (Fig. 31B).

Acknowledgments

We are greatly indebted to experienced buprestid taxonomists Richard L. Westcott, Joshua P. Basham, and Jason A. Hansen for their friendship and professional guidance throughout the compilation of this project. The first two are also acknowledged for thoroughly reviewing the manuscript. We also warmly thank Lukáš Sekerka, who located, packed, and returned a large lot of *Anthaxia* spp. specimens loaned in 1989 to Svatopluk Bílý (National Museum, Prague), who was unable to complete his revision of the genus but managed to identify the loaned specimens to species level.

Literature Cited

- Akers RC, Herms DA, Nielsen DG. 1986. Emergence and biology of *Agrilus difficilis* (Coleoptera: Buprestidae), a pest of honeylocust, *Gleditsia triacanthos*. The Great Lakes Entomologist 19: 27–30.
- Anonymous. 1975. Cooperative Economic Insect Report 25(21): 403–432. Available at <https://uidaho.on.worldcat.org/oclc/1565049> (Last accessed March 2025.)
- Aryal S. 2023. Abundance and distribution of two unevenly managed root-mining insects for the biological control of spotted knapweed in Idaho. Master's Thesis. University of Idaho. Department of Entomology, Plant Pathology and Nematology. xi + 160 p.
- Barr WF. 1969a. The Buprestidae and Cleridae of the Nevada test site (Coleoptera). Great Basin Naturalist 29: 11–19.
- Barr WF. 1969b. New species of *Chrysobothris* from the Pacific Northwest (Coleoptera: Buprestidae). Proceedings of the Entomological Society of Washington 71: 117–132.
- Barr WF. 1969c. New species of *Hippomelas* and *Acmaeodera* from Western North America (Coleoptera: Buprestidae). Journal of the Kansas Entomological Society 42: 321–335.
- Barr WF. 1971. Family Buprestidae. p. 55–89. In: Hatch MH. Beetles of the Pacific Northwest, Part V. University of Washington Press; Seattle, WA. 662 p.
- Barr WF. 1972. New synonymy and a change of name in North American *Buprestis* (Coleoptera: Buprestidae). Proceedings of the Entomological Society of Washington 74: 343.
- Barr WF. 1974. New genera and species of North American Buprestidae (Coleoptera). Occasional Papers. Biological Society of Nevada 39: 1–13.
- Barr WF, Westcott RL. 1976. Taxonomic, biological and distributional notes of North American *Chrysobothris*, with the description of a new species from California (Coleoptera: Buprestidae). The Pan-Pacific Entomologist 52: 138–153.
- Barter GW, Brown WJ. 1949. On the identity of *Agrilus anxius* Gory and some allied species (Coleoptera: Buprestidae). The Canadian Entomologist 81: 245–249.
- Beer FM. 1940. Notes on some Buprestidae of Southwestern Oregon (Coleoptera). The Pan-Pacific Entomologist 16: 13–16.

- Beer FM. 1949.** The rearing of Buprestidae and delayed emergence of their larvae. *The Coleopterists Bulletin* 3: 81–84.
- Beer FM. 1970.** Notes and observations on the Buprestidae (Coleoptera). *The Coleopterists Bulletin* 24: 39–41.
- Bellamy CL. 1987.** A revision of the genera *Nanularia* and *Ampheremus* (Coleoptera, Buprestidae). *Contributions in Science, Los Angeles County Museum of Natural History* 387: 1–20.
- Bellamy CL. 2008.** A world catalogue and bibliography of the jewel beetles (Coleoptera: Buprestoidea). *Pensoft Series Faunistica* No. 78. Pensoft Publishers; Sofia-Moscow. 3125 p (in five volumes).
- Bílý S. 1997.** World Catalogue of the Genus *Anthaxia* Eschscholtz, 1829 (Coleoptera: Buprestidae). *Folia Heyrovskyana. Supplement* 2: 3–190.
- Bílý S. 2022.** World Catalogue of the tribe Anthaxiini (Coleoptera: Buprestidae). Jan Farkač; Prague. 260 p.
- Bonap. 2025.** The Biota of North America Program. North American Vascular Flora. Available at <http://www.bonap.org/> (Last accessed March 2025.)
- Bright D. 1987.** The metallic wood-boring beetles of Canada and Alaska. Coleoptera. Buprestidae. *The Insects and Arachnids of Canada Part 15*: 1–335.
- Burke HE. 1917.** Notes on some western Buprestidae. *Journal of Economic Entomology* 10: 325–332.
- Burke HE. 1918.** Biological notes on some flatheaded woodborers of the genus *Buprestis*. *Journal of Economic Entomology* 11: 334–338.
- Burke HE. 1919.** Biological notes on some flatheaded barkborers of the genus *Melanophila*. *Journal of Economic Entomology* 12: 105–108.
- Callahan PM, Merickel FW, Cook SP, Fins L. 2008.** First report of four beetle species (Coleoptera) (*Podapion aallicola* Riley (Brentidae), *Cimberis turbans* Hustache (Nemonychidae), *Chrysobothris californica* LeConte (Buprestidae) and *Laricobius nigrinus* Fender (Derodontidae)) in Idaho. *The Pan-Pacific Entomologist* 84: 117–120.
- Campbell CL, McAffrey JP, Homan HW. 1987.** Collection and redistribution of biological control agents of St. Johnswort. University of Idaho. College of Agriculture. Cooperative Extension Service. Current Information Series 798: 4 p. Available at <https://objects.lib.uidaho.edu/uiext/uiext29919.pdf> (Last accessed March 2025.)
- Carlson RW, Knight FB. 1969.** Biology, taxonomy, and evolution of four sympatric *Agrilus* beetles (Coleoptera: Buprestidae). *Contributions of the American Entomological Institute* 4(3): iv + 105 p.
- Casey TL. 1909.** Studies in the American Buprestidae. *Proceedings of the Washington Academy of Science* 11: 47–178.
- Chamberlin WJ. 1922.** A review of the genus *Poecilonota* as found in America north of Mexico (Coleoptera, family Buprestidae) with descriptions of new species. *Journal of the New York Entomological Society* 30: 2–66.
- Chamberlin WJ. 1925a.** Notes on the Buprestidae of Oregon with descriptions of new species. *Journal of the New York Entomological Society* 32: 185–194.
- Chamberlin WJ. 1925b.** A new species of *Poecilonota* from California Coleoptera Family Buprestidae. *The Pan-Pacific Entomologist* 1: 186–187.
- Chamberlin WJ. 1926.** Catalogue of the Buprestidae of North America north of Mexico. W.J. Chamberlin; Corvallis, Oregon. 289 p.
- Cobos A. 1958.** Ensayo monográfico sobre las *Anthaxia* Eschs. (Coleoptera, Buprestidae) de América. Segunda parte: Subgénero *Haplanthaxia* Reitter y *Anthaxia* s. str. *Archivos de Instituto del Aclimatación* 7: 69–126.
- Crawford R. 2025.** Melville Harrison Hatch. The Pacific Northwest's greatest coleopterist. 1898 - 1988. Available at <https://crawford.tardigrade.net/hatch/bio.html> (Last accessed March 2025.)
- Ecdysis. 2025.** Ecdysis. A portal for live-data arthropod collections. Available at <https://ecdysis.org/> (Last accessed March 2025.)
- ESA 2025.** Entomological Society of America. Common Names of Insects Database. Available at <https://www.entsoc.org/publications/common-names> (Last accessed March 2025.)
- Evans D. 1957.** Revision of the genus *Poecilonota* of America North of Mexico (Coleoptera: Buprestidae). *Annals of the Entomological Society of America* 50: 21–37.
- Fisher WS. 1928.** A revision of the North American species of buprestid beetles belonging to the genus *Agrilus*. *United States National Museum Bulletin* 145: 1–347.
- Fisher WS. 1930.** A new species of *Chrysobothris* infesting strawberry plants. *Proceedings of the Entomological Society of Washington* 32: 149–152.
- Fisher WS. 1942.** A revision of the North American species of buprestid beetles belonging to the tribe Chrysobothrini. *United States Department of Agriculture, Miscellaneous Publications*. No. 470: 1–275.
- Frost CA. 1922.** Occurrence of *Agrilus coeruleus* Rossi in America. *The Canadian Entomologist* 54: 96.
- Furniss RL, Carolin VM. 1977.** Western Forest Insects. *United States Department of Agriculture, Forest Service, Miscellaneous Publication* 1339: 1–654.
- Furniss MM, Barr WF. 1967.** Bionomics of *Anacamptodes clivinaria profanata* (Lepidoptera: Geometridae) on mountain mahogany in Idaho. *Idaho Agricultural Experiment Station Research. Bulletin* 73. 24 p.

- GBIF. 2025.** GBIF. Global Biodiversity Information Facility. Available at <https://www.gbif.org/> (Last accessed March 2025.)
- Google. 2025.** Google Earth. Available at <https://earth.google.com/web/> (Last accessed March 2025.)
- Horning DS, Barr WF. 1970.** Insects of Craters of the Moon National Monument, Idaho. University of Idaho, College of Agriculture. Miscellaneous Series 8: 118 p.
- iNaturalist. 2025.** A Community for Naturalists · iNaturalist. Available at <https://www.inaturalist.org> (Last accessed March 2025.)
- Jendek E, Poláková J. 2014.** Host plants of World *Agrilus* (Coleoptera, Buprestidae). A critical review. Springer. 769 p.
- Keen FP. 1938.** Insect enemies of western forests. United States Department of Agriculture. Miscellaneous Publication 273. 210 p.
- Keen FP. 1952.** Insect enemies of western forests. United States Department of Agriculture. Miscellaneous Publication 273 (revised edition). 280 p.
- Lang RF, Richard RD, Parker PE, Wendel L. 2000.** Release and establishment of diffuse and spotted knapweed biocontrol agents by USDA, APHIS, PPQW, in the United States. The Pan-Pacific Entomologist 76: 197–218.
- LeConte JL. 1878.** The Coleoptera of the alpine regions of the Rocky Mountains. Bulletin of the United States Department of Geological and Geographical Survey 4: 447–480.
- MacRae TC. 2006.** Distributional and biological notes on North American Buprestidae (Coleoptera), with comments on variation in *Anthaxia* (*Haplanthaxia*) *cyarella* Gory and *A. (H.) viridifrons* Gory. The Pan-Pacific Entomologist 82: 166–199.
- MacRae TC, Basham JP. 2024.** Further distributional and biological notes on Buprestidae (Coleoptera) in Canada and the United States, with exclusion of two species previously reported in North America. The Pan-Pacific Entomologist 100: 217–245.
- MacRae TC, Nelson GH. 2003.** Distributional and biological notes on Buprestidae (Coleoptera) in North and Central America and the West Indies, with validation of one species. The Coleopterists Bulletin 57: 57–70.
- MacRae TC, Westcott RL. 2012.** Nomenclatural history of *Melanophila drummondi* ab. *nicolayi* Obenberger, 1944 (Coleoptera: Buprestidae), a change of authorship and synonymy under *Phaenops drummondi* (Kirby 1837), and a new distribution record and summary of larval hosts for the species. The Pan-Pacific Entomologist 88: 87–91.
- Maier CA, Ivie MA. 2013.** Reevaluation of *Chalcophora angulicollis* (LeConte) and *Chalcophora virginienensis* (Drury) with a review and key to the North American species of *Chalcophora* Dejean (Coleoptera: Buprestidae). The Coleopterists Bulletin 47: 457–469.
- Nelson GH. 1963.** A new species in the genus *Dicerca* (Coleoptera: Buprestidae). The Coleopterists Bulletin 17: 65–69.
- Nelson GH. 1987.** Additional notes on the biology and distribution of Buprestidae in North America, II. The Coleopterists Bulletin 41: 57–65.
- Nelson GH, Verity DS, Westcott RL. 1981.** Additional notes on the biology and distribution of Buprestidae (Coleoptera) of North America. The Coleopterists Bulletin 35: 129–151.
- Nelson GH, Walters GC Jr., Haines RD, Bellamy CL. 2008.** A catalog and bibliography of the Buprestoidea of America North of Mexico. The Coleopterists Society, Special Publication No. 4; Potomac, Maryland. 274 p.
- Nelson GH, Westcott RL. 1976.** Notes on the distribution, synonymy, and biology of Buprestidae (Coleoptera) of North America. The Coleopterists Bulletin 30: 273–284.
- Nicolay AS, Weiss HB. 1918.** A review of the genus *Buprestis* in North America. Journal of the New York Entomological Society 26: 75–109.
- PNW Herbaria. 2025.** Consortium of Pacific Northwest Herbaria. *Quercus gambelii* records. Available at <https://www.pnwherbaria.org/m/datasets/vascular-plants/pages/fagaceae/quercus-gambelii.htm> (Last accessed March 2025.)
- Powell JA. 1965.** Rearing records for five conifer feeding buprestids in California (Coleoptera: Buprestidae). The Pan-Pacific Entomologist 41: 133–138.
- QGIS Development team. 2025.** QGIS Geographic Information System. Open Source Geospatial Foundation Project. Available at <http://qgis.osgeo.org> (Last accessed March 2025).
- Rudolph EA, Wiman NG. 2023.** Insights from specimen data for two economic *Chrysobothris* species (Coleoptera: Buprestidae) in the western United States. Annals of the Entomological Society of America 116: 195–206.
- Ruzzier E, Haack RA, Curletti G, Roques A, Volkovitch MG, Battisti A. 2024.** Jewels on the go: exotic buprestids around the world (Coleoptera, Buprestidae). NeoBiota 84: 107–135.
- Scan-bugs. 2025.** SCAN. Symbiota Collections of Arthropods Network. Available at <https://scan-bugs.org/> (Last accessed March 2025.)
- Smith DN. 1962.** Prolonged larval development in *Buprestis aurulenta* L. (Coleoptera: Buprestidae). A review with new cases. The Canadian Entomologist 94: 586–593.
- Solomon JD. 1995.** Guide to insect borers of North American broadleaf trees and shrubs. Agriculture Handbook 706, United States Department of Agriculture, Forest Service; Washington, D.C. 735 p.

- VanDyk J. 2025.** BugGuide.Net: Identification, images, and information for insects, spiders and their kin for the United States and Canada. Iowa State University. Available at <https://bugguide.net/> (Last accessed March 2025.)
- Wellso SG. 2014.** A new species of *Agrilus* and a new subspecies of *Anthaxia* (*Haplanthaxia*) *caseyi* Obenberger from Texas, with new larval host, country and state records for other species (Coleoptera: Buprestidae). *Giornale Italiano di Entomologia* 59: 447–454.
- Wellso SG, Manley GV. 2007.** A revision of the *Chrysobothris femorata* (Olivier, 1790) species group from North America, north of Mexico (Coleoptera: Buprestidae). *Zootaxa* 1652: 1–26.
- Westcott RL. 1990.** Notes on taxonomy, ecology and distribution for some species of *Chrysobothris* Eschscholtz (Coleoptera: Buprestidae) occurring in the United States (including Hawaii) and Canada. *The Coleopterist Bulletin* 44: 323–343.
- Westcott RL. 1995.** Frank M. Beer (1903–1991). *The Coleopterists Bulletin* 49: 96–97.
- Westcott RL. 2005.** A new species of *Chrysobothris* Eschscholtz from Oregon and Washington, with notes on other Buprestidae (Coleoptera) occurring in the United States and Canada. *Zootaxa* 1044: 1–15.
- Westcott RL. 2007.** A new species of *Chrysobothris* Eschscholtz feeding on *Dudleya* spp. (Crassulaceae) from California and Baja California, with biological, distributional and taxonomic notes on other North American Buprestidae (Coleoptera). *Zootaxa* 1630: 23–37.
- Westcott RL, LaRue DA. 2017.** New anthophilous host associations for adult *Acmaeodera* Eschscholtz, 1829 (Coleoptera: Buprestidae) species from the western United States and Texas. *Insecta Mundi* 564: 1–8.
- Westcott RL. 2023.** New host and distribution records plus additional notes for North American species of *Chrysobothris* Eschscholtz (Coleoptera: Buprestidae), with designation of a lectotype for *Chrysobothris vulcanica* LeConte, 1861. *Insecta Mundi* 967: 1–10.
- Westcott RL. 2024.** New state records of Buprestidae (Coleoptera) for Idaho, USA. *Insecta Mundi* 1029: 1–3.
- Westcott RL, Adams TB. 2022.** First records for *Agrilus difficilis* Gory, 1841 (Coleoptera: Buprestidae) in four of the Western United States. *The Pan-pacific Entomologist* 98: 169–171.
- Westcott RL, Barr WF. 2007.** Resurrection and review of the genus *Knowltonia* Fisher, with description of a new subspecies of *Chrysobothris* Eschscholtz and new species of *Acmaeodera* Eschscholtz from North America (Coleoptera: Buprestidae). *Zootaxa* 1481: 49–58.
- Westcott RL, Barr WF, Nelson GH, Verity DS. 1979.** Distributional and biological notes on North and Central American species of *Acmaeodera* (Coleoptera: Buprestidae). *The Coleopterists Bulletin* 33: 169–181.
- Westcott RL, Biggam RC, Bílý S, Clark WM, Horning DS, Johnson JB, Morel RE, Nowierski R, Rifkind J, Roberts D, Roberts J, Volkovitsh MG. 2014.** In memory of William Frederick Barr (1920–2011). *Giornale Italiano Di Entomologia* 13: 381–400.
- Westcott RL, La Rue DA. 2017.** New anthophilous host associations for adult *Acmaeodera* Eschscholtz, 1829 (Coleoptera: Buprestidae) species from the western United States and Texas. *Insecta Mundi* 0564: 1–8.
- Westcott RL, Leblanc L. 2025.** New state and adult host records for species of *Anthaxia* DeGeer and *Melanophila* Eschscholtz (Coleoptera: Buprestidae) in the Western United States. *Insecta Mundi* 1029: 1–3.
- Westcott RL, Looney C, Asche M. 2015.** *Agrilus cuprescens* (Ménétries) (Coleoptera: Buprestidae), the rose stem girdler, discovered in the state of Washington, with comments on host plant associations. *The Coleopterist Bulletin* 69: 275–279.
- Westcott RL, Merickel FW. 2012.** In Memoriam. William Frederick Barr (1920–2011). *The Coleopterists Bulletin* 66: 100–104.
- Westcott RL, Williams W, Grotta A. 2019.** The exotic *Agrilus cyanescens* (Ratzeburg) (Coleoptera: Buprestidae) is discovered in Oregon. *Insecta Mundi* 724: 1–5.
- World Flora Online. 2025.** The World Flora Online. An Online Flora of All Known Plants. Available at <https://worldfloraonline.org/> (Last accessed March 2025.)

Received April 25, 2025; accepted May 31, 2025.

Review editor Kevin R. Hinson.