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Annotated List of the Leaf Beetles (Coleoptera: Chrysomelidae) of Kentucky: Subfamily Cassidinae

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ABSTRACT

An examination of leaf beetle specimens (Coleoptera: Chrysomelidae) in the five largest beetle collections in Kentucky and from recent inventory work in state nature preserves revealed 31 species of the subfamily Cassidinae present in Kentucky, 13 of which are previously unreported for the state. Distribution maps and label data are presented for the 31 Kentucky species of the subfamily Cassidinae including spatial (state and Kentucky county records), temporal (years and months of collection in Kentucky), and plant association information. The following species are reported from Kentucky for the first time: *Anisostena ariadne* (Newman), *Anisostena nigrita* (Olivier), *Microrhopala excavata excavata* (Olivier), *Microrhopala rileyi* S. Clark, *Odontota horni* J. Smith, *Sumitrosis ancoroides* (Schaeffer), *Physonota unipunctata* (Say), *Cassida rubignosa* Müller, *Gratiana pallidula* (Boheman), *Erepsocassis rubella* (Boheman), *Jonthonota nigripes* (Olivier), *Opacinota bisignata* (Boheman), and *Strongylocassis atripes* (LeConte).

KEY WORDS: Kentucky, leaf beetles, Chrysomelidae, biodiversity, new state records

INTRODUCTION

To better understand, appreciate, document, and, we hope, conserve the fauna of Kentucky, an inventory of the leaf beetles (Coleoptera: Chrysomelidae) was initiated in 2004. Chrysomelids, which are almost exclusively plant feeders, are one of the largest insect families (~40,000 species worldwide, Jolivet and Verma 2002). The evolution of leaf beetles is believed to be linked with the evolution of flowering plants (angiosperms) (Farrell 1998). Many leaf beetles are plant-genus or plant-family specific in their food choice, and many have become agricultural pests, while others are remnant-dependent species found only on rare occasions (Panzer et. al. 1995). The diversity of chrysomelids in an area or region should be related to the diversity of its plant community. Leaf beetles, many of which are easily collected, can be used as indicator species for biodiversity studies. This paper is the first of a series that will present a synopsis of the historical collection data from the major Coleoptera collections in Kentucky and augment these data with new information gained from recent and ongoing intensive monitoring at state preserves. Following in the tradition of the Society of Kentucky Lepidopterists (Gibson and Covell 2006), the inventory will be periodically updated as new records become available.

The subfamily Cassidinae now includes two formerly recognized subfamilies: Hispinae, the leaf-mining 'hispines', and Cassidinae, the tortoise beetles. Staines (2006) recently published a species level review of the leaf mining tribes, and Riley (1986) provided a genus level review of the tribe Cassidini that includes most of the tortoise beetle genera found in the United States. The purpose of the present study is to present data from the labels of cassidine leaf beetle specimens known from Kentucky, specifically spatial information (state and county records),

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temporal information (years and months of collection in Kentucky), plant associations, and collection methods. Comments are provided for most species and include information on abundance and known and probable host plants.

MATERIALS AND METHODS

To establish a historical perspective, leaf beetle specimens from the major insect collections in Kentucky (and from collections located in other states, but known to contain Kentucky specimens) were examined, reidentified, and their label data recorded. The following collections were studied: the University of Kentucky Insect Collection (UKIC) that contains the Charles V. Covell, Jr. Collection (emeritus professor of the University of Louisville); the private collection of Robert J. Barney (RJBC) that comprises two time periods of collecting in Kentucky, 1976–1984 and 2004–2006; the private collection of Charles Wright, the Kentucky Beetles Project Collection (CWC) that was established in 1991 in an effort to document Coleoptera within the state; the Western Kentucky University Collection (WKUC); the Brigham Young University Collection (BYUC); the Colorado State University Collection (CSUC); and the Kentucky State University Insect Collection (KSUC) that houses the specimens generated by the Kentucky Leaf Beetle Biodiversity Project. In this project we are currently conducting extensive collecting in many grassland-dominated barrens and rock outcrop (glade) communities that are known for possessing uncommon plants and plant associations (Jones 2005). These sites are primarily in state nature preserves that have never been surveyed for plant-feeding beetles. Most specimens were collected by the senior author within five state nature preserves in 2004–2006: Crooked Creek Barrens (Lewis County) and Blue Licks Battlefield (Robertson County) in northeastern Kentucky, Eastview Barrens (Hardin County) and Thompson Creek Glades (LaRue County) in central Kentucky, and Raymond Athey Barrens (Logan County) in western Kentucky.

For each cassidine species here documented for Kentucky, the following data are presented: state-level distribution in the United States (from Riley et al. 2003), Kentucky county records, abundance by year and month in Kentucky, and specimens per collection. Other pertinent information from specimen labels, such as the method of collection and plant association information, is presented in the "Comments" section for each species. This information provides the opportunity to determine abundance, seasonality, and distribution from a historical perspective. Relative abundance and rare species status are subjective judgments based on frequency of occurrence and intensity of collecting efforts and follow Jones (2005). Plant collection records taken from specimen labels are notoriously inaccurate in many cases and may not reflect true host plants (Clark et al. 2004).

RESULTS

According to the "Catalog of Leaf Beetles of America North of Mexico" (Riley et al. 2003), there are 47 species of Cassidinae recorded in at least one of the seven states contiguous to Kentucky, thus establishing this number as a "ballpark" estimate for the state. However, in that work only 19 species were listed from Kentucky. An examination of 1,203 cassidine leaf beetle specimens from the major collections in the state (and from collections located outside the state, but known to contain Kentucky specimens) revealed 31 species, including 18 of the 19 recorded in Riley et al. (2003) plus 13 new state records (Table 1).

The state collection at the University of Kentucky (UKIC) contains a total of 458 cassidine leaf beetles representing 19 species, including two of the new state records reported herein. This collection contains the oldest in-state specimen records for Kentucky leaf beetles, with collection dates as early as 1889. The CWC collection has 65 specimens representing 14 species including one of the new state records reported herein. The collection at WKUC has 12 specimens of three species. Recent collecting in state nature preserves (the KSUC collection) has produced 482 specimens of 22 species including four of the new state records reported herein. The RJBC collection contains 130 specimens of 20 species from Kentucky, including five of the new state records reported herein. While examining the RJBC Cassidinae, four addi-

Table 1. List of cassidine leaf beetles (Coleoptera: Chrysomelidae) recorded from Kentucky with indications of number of specimens examined, number of Kentucky county records, years of collection, and new state records indicated.

Tribe Cephaloleiini	
Stenispa metallica (F.)	27 specimens: 8 counties, 1981–2006
Tribe Chalepini	
Anisostena ariadne (Newman)	39 specimens: 1 county, 2005–2006 (new state record)
Anisostena nigrita (Olivier)	77 specimens: 4 counties, 1983–2006 (new state record)
Baliosus nervosus (Panzer)	6 specimens: 5 counties, 1892–1995
Chalepus bicolor (Olivier)	17 specimens: 9 counties, 1968–2006
Glyphuroplata pluto (Newman)	4 specimens: 4 counties, 1942–1987
Microrhopala excavata excavata (Olivier)	6 specimens: 3 counties, 1983–2006 (new state record)
Microrhopala hectate (Newman)	1 specimen: 1 county, 1975
Microrhopala rileyi S. Clark	22 specimens: 1 county, 2005–2006 (new state record)
Microrhopala vittata (F.)	31 specimens: 9 counties, 1938–2006
Microrhopala xerene (Newman)	6 specimens: 3 counties, 1994–2005
Octotoma plicatula (F.)	34 specimens: 5 counties, 1909–2006
Odontota dorsalis Thunberg	263 specimens: 31 counties, 1889–2006
Odontota horni J. Smith	40 specimens: 5 counties, 1983–2006 (new state record)
Odontota scapularis (Olivier)	17 specimens: 10 counties, 1947–2005
Sumitrosis ancoroides (Schaeffer)	3 specimens: 2 counties, 2005–2006 (new state record)
Sumitrosis inaequalis (Weber)	69 specimens: 19 counties, 1951–2006
Sumitrosis rosea (Weber)	13 specimens: 3 counties, 1981–2005
Tribe Mesomphaliini	
Chelymorpha cassidea (F.)	43 specimens: 11 counties, 1890–2006
Tribe Ischyrosonychini	
Physonota unipunctata (Say)	1 specimen: 1 county, 1996 (new state record)
Tribe Cassidini	
Agroiconota bivittata (Say)	90 specimens: 16 counties, 1891–2006
Cassida rubiginosa Müller	4 specimens: 3 counties, 1994–2004 (new state record)
Deloyala guttata (Olivier)	120 specimens: 25 counties, 1891–2006
Gratiana pallidula (Boheman)	2 specimens: 2 counties, 1895–1993 (new state record)
Plagiometriona clavata clavata (F.)	9 specimens: 4 counties, 1892–2006
Charidotella purpurata (Boheman)	23 specimens: 8 counties, 1971–2006
Charidotella sexpunctata bicolor (F.)	145 specimens: 28 counties, 1891–2006
Erepsocassis rubella (Boheman)	16 specimens: 1 county, 2005–2006 (new state record)
Jonthonota nigripes (Olivier)	5 specimens: 3 counties, 1966–2006 (new state record)
Opacinota bisignata (Boheman)	29 specimens: 4 counties, 1912–2006 (new state record)
Strongylocassis atripes (LeConte)	42 specimens: 4 counties, 1985–2006 (new state record)

tional new state records for states other than Kentucky were found. These have been added to the distribution maps and are cited in the "Comments" section for those species. An examination of the BYUC revealed 54 specimens in 14 species. The authors were aware also of two leaf beetles in CSUC collected in Kentucky, one of which is a state record for Kentucky reported herein.

Stenispa metallica (F.) (Figure 1A)

Kentucky Counties: Fayette, Grayson, Hardin, Jefferson, LaRue, Lewis, Lincoln, Logan

Years: 1981 (4), 1983 (2), 2004 (1), 2005 (15), 2006 (5)

Months: April (3), May (17), June (5), July (2)

Abundance: 27 specimens: 21-KSUC, 5-RJBC, 1-UKIC

Comments: This species occurs in wetlands, where it may be associated with sedges. A new state record was found for Illinois in the RJBC (7 specimens from Grundy, Pulaski and Will Counties) (Figure 1A).

Baliosus nervosus (Panzer) (Figure 1B)

Kentucky Counties: Breathitt, Fayette, Jefferson, Rowan, Whitley

Years: 1892 (1), 1956 (1), 1975 (1), 1984 (1), 1994 (1), 1995 (1)

Months: April (1), May (2), June (2), July (1)

Abundance: 6 specimens: 2-BYUC, 1-CWC, 1-RJBC, 2-UKIC

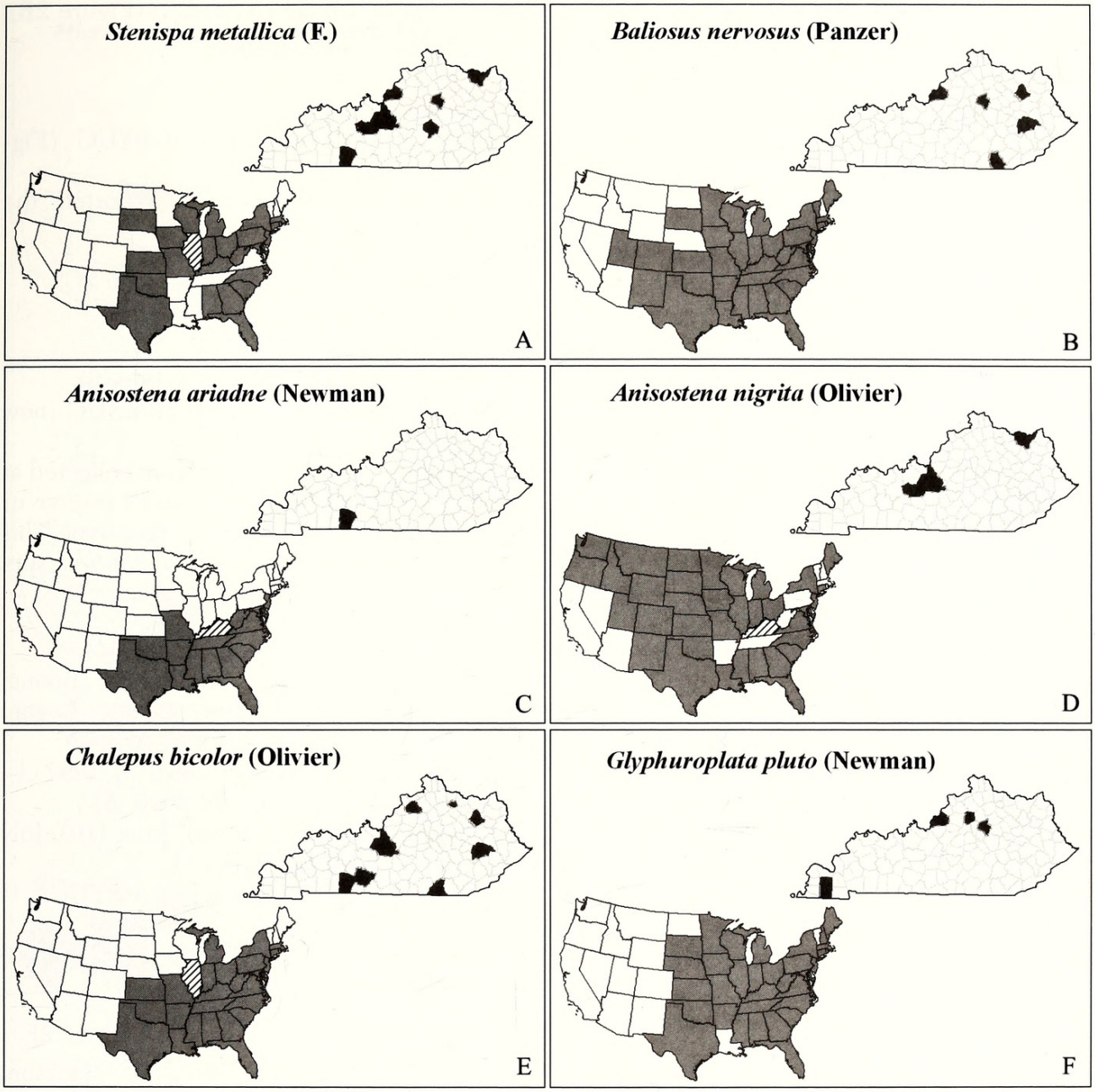

Figure 1. The known distribution of Cassidinae leaf beetles (Coleoptera: Chrysomelidae) is illustrated in grey shading in Kentucky counties and the United States. New state records reported herein are shown in cross-hatch.

Comments: Although commonly called the basswood leafminer, these beetles can be also found on many other plants.

Anisostena ariadne (Newman) (Figure 1C)

Kentucky Counties: Logan

Years: 2005 (12), 2006 (27)

Months: May (14), June (12), July (11), August (2)

Abundance: 39 specimens: 39-KSUC (new state record) (Figure 1C)

Comments: All specimens examined were from the Raymond Athey Barrens State Nature Preserve. Ford and Cavey (1982) reported *Panicum virgatum* L. (switch grass) as a host plant.

Anisostena nigrita (Olivier) (Figure 1D)

Kentucky Counties: Grayson, Hardin, LaRue, Lewis

Years: 1983 (3), 2004 (36), 2005 (27), 2006 (11)

Months: April (2), May (17), June (29), July (22), August (3), September (4)

Abundance: 77 specimens: 74-KSUC, 3-RJBC (new state record) (Figure 1D)

Comments: All specimens examined were recently collected in prairie-type habitats in

nature preserves. This species mines leaves of *Schizachyrium scoparium* (Michx.) Nash (Clark 2000).

Chalepus bicolor (Olivier) (Figure 1E)

Kentucky Counties: Breathitt, Hardin, Henry, LaRue, Logan, McCreary, Robertson, Rowan, Warren

Years: 1968 (1), 1972 (1), 1983 (1), 1990 (1), 2004 (1), 2005 (8), 2006 (4)

Months: May (8), June (5), July (4)

Abundance: 17 specimens: 1-BYUC, 13-KSUC, 1-RJBC, 1-UKIC, 1-WKUC

Comments: One label reported collection by Malaise trap. This species is associated with *Dichanthelium* (Poaceae) (Clark et al. 2004). A new state record was found for Illinois in the RJBC (4 specimens from Jackson, Mason and Schuyler Counties) (Figure 1E). Staines (1995) reported *Chalepus bacchus* (Newman) from Henderson County, Kentucky. We have some reservations about the status of *C. bacchus* as presently defined because the diagnostic character proposed to separate this species from *C. bicolor* does not hold true upon examination of many specimens. All specimens of the genus *Chalepus* that we examined from Kentucky appear to represent a single species, *C. bicolor*.

Glyphuroplata pluto (Newman) (Figure 1F)

Kentucky Counties: Fayette, Franklin, Graves, Jefferson

Years: 1942 (1), 1971 (1), 1987 (1)

Months: May (2), July (1)

Abundance: 3 specimens: 1-RJBC, 2-UKIC

Comments: The Jefferson County record was reported by Riley (1985b) from Louisville. This species is associated with grasses.

Microrhopala excavata excavata (Olivier) (Figure 2A)

Kentucky Counties: Grayson, LaRue, Whitley

Years: 1983 (1), 2005 (3), 2006 (2)

Months: April (1), May (4), July (1)

Abundance: 6 specimens: 5-KSUC, 1-RJBC (new state record) (Figure 2A)

Comments: This subspecies was first found in Kentucky in a small railroad prairie near Leitchfield, Grayson County. This subspecies feeds on *Doellingeria umbellata* (Mill.) Nees (flat-topped white aster) and *Solidago* sp. (goldenrod) (Clark 1983).

Microrhopala hectate (Newman) (Figure 2B)

Kentucky Counties: Rowan

Years: 1975 (1)

Months: May (1)

Abundance: 1 specimen: 1-BYUC (Figure 2B)

Comments: Staines (2006) reported the larval host plant as unknown.

Microrhopala rileyi S. Clark (Figure 2C)

Kentucky Counties: Logan

Years: 2005 (5), 2006 (17)

Months: May (13), June (6), July (3)

Abundance: 22 specimens: 22-KSUC (new state record) (Figure 2C)

Comments: All specimens were collected at the Raymond Athey State Nature Preserve or Logan County State Nature Preserve. This species is reported to feed on *Helianthus* spp. (sunflower) (Clark 1983).

Microrhopala vittata (F.) (Figure 2D)

Kentucky Counties: Anderson, Boone, Hardin, Jefferson, LaRue, Lewis, Logan, Madison, Scott

Years: 1938 (1), 1971 (3), 1981 (3), 1992 (1), 1993 (4), 2004 (6), 2005 (5), 2006 (8)

Months: April (4), May (4), June (10), July (10), August (2), September (1)

Abundance: 31 specimens: 4-BYUC, 1-CWC, 19-KSUC, 2-RJBC, 5-UKIC

Comments: Species of *Solidago* (goldenrod) are the preferred hosts (Clark 1983).

Microrhopala xerene (Newman) (Figure 2E)

Kentucky Counties: Hardin, Jackson, LaRue

Years: 1994 (1), 2000 (1), 2004 (1), 2005 (3)

Months: April (1), May (3), June (1), July (1)

Abundance: 6 specimens: 1-BYUC, 1-CWC, 4-KSUC

Comments: Species of *Aster* are preferred to other hosts (Clark 1983).

Odontota dorsalis Thunberg (Figure 2F)

Kentucky Counties: Anderson, Boyd, Boyle, Bracken, Breckinridge, Bullitt, Estill, Fayette, Franklin, Grant, Grayson, Hardin, Jackson, Jefferson, Kenton, Knott, Knox, Lewis, Logan, Madison, Meade, Mercer, Oldham, Owen, Pendleton, Perry, Powell, Pulaski, Robertson, Shelby, Whitley

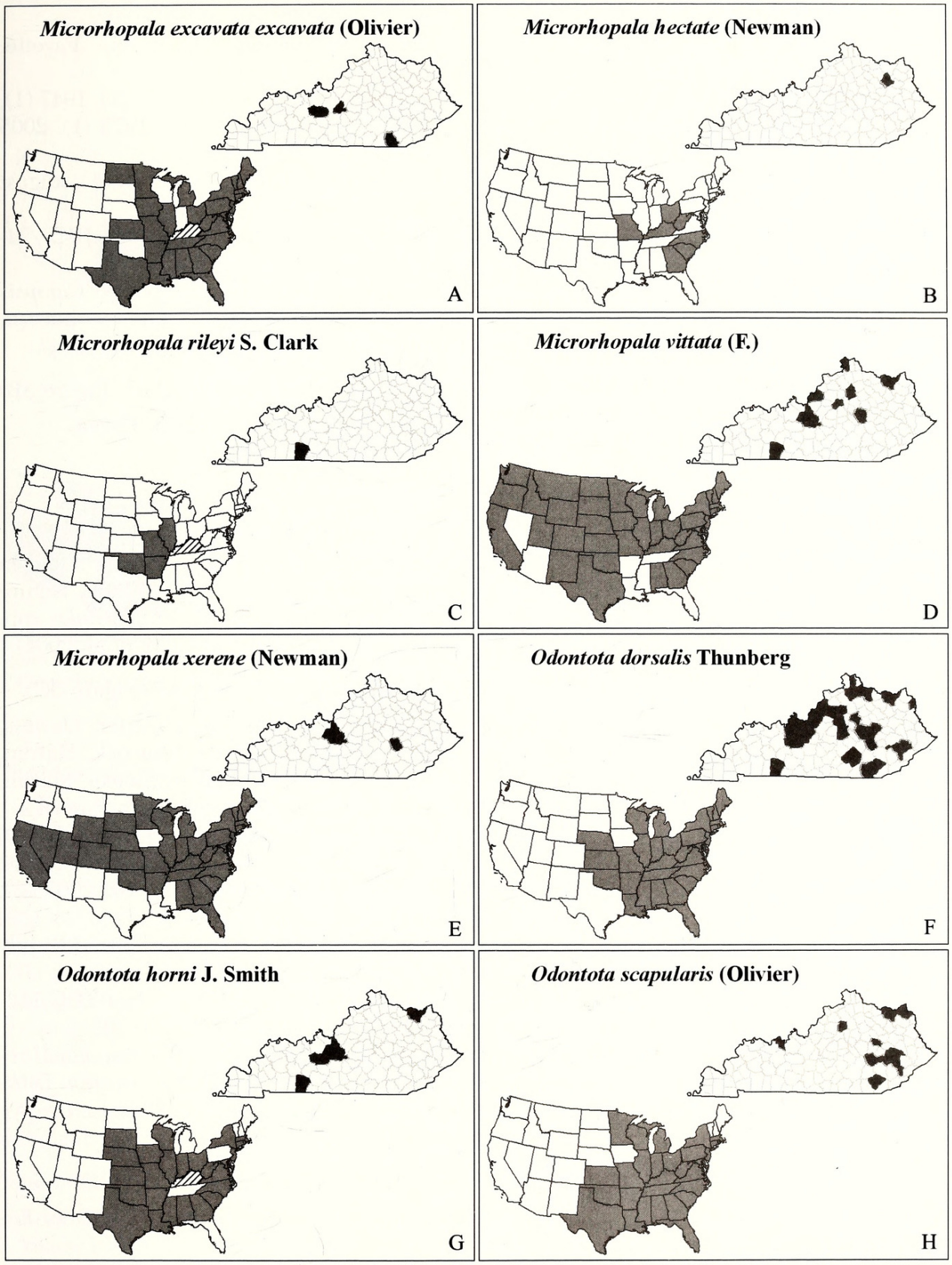

Figure 2. The known distribution of Cassidinae leaf beetles (Coleoptera: Chrysomelidae) is illustrated in grey shading in Kentucky counties and the United States. New state records reported herein are shown in cross-hatch.

Years: 1889 (10), 1891 (14), 1894 (6), 1895 (3), 1912 (1), 1916 (4), 1923 (12), 1938 (23), 1939 (12), 1943 (1), 1944 (1), 1946 (7), 1947 (23), 1948 (30), 1950 (1), 1959 (2), 1966 (2), 1967 (6), 1968 (2), 1970 (3), 1971 (6), 1972 (21), 1974 (8), 1975 (6), 1976 (5), 1979 (2), 1981 (14), 1984 (2), 1985 (1), 1988 (3), 1990 (3), 1992 (1), 1994 (2), 1995 (5), 1996 (1), 1997 (2), 1998 (7), 2001 (3), 2003 (3), 2004 (2), 2005 (1), 2006 (2)

Months: February (3), March (6), April (24), May (93), June (31), July (96), August (7), December (3)

Abundance: 263 specimens: 6-BYUC, 12-CWC, 5-KSUC, 20-RJBC, 220-UKIC

Comments: This species is very common and sometimes called the leaf-mining locust beetle. Butte (1968) reported four specimens from Kentucky in Harvard MCZ with no further data. Label data in UKIC reported associations with black locust, *Robinia pseudoacacia* L. and soybean, and collection by light trap and Malaise trap.

Odontota horni J. Smith (Figure 2G)

Kentucky Counties: Grayson, Hardin, LaRue, Lewis, Logan

Years: 1983 (1), 1985 (2), 2004 (8), 2005 (17), 2006 (12)

Months: May (16), June (14), July (9), August (1)

Abundance: 40 specimens: 37-KSUC, 3-RJBC (new state record) (Figure 2G)

Comments: This species was first found in Kentucky in a small railroad prairie near Leitchfield, Grayson County. This species is normally associated with Fabaceae (Clark et al. 2004).

Odontota scapularis (Olivier) (Figure 2H)

Kentucky Counties: Breathitt, Franklin, Greenup, Hancock, Jackson, Knox, Lewis, Owsley, Perry, Powell

Years: 1947 (3), 1984 (3), 1987 (1), 1992 (1), 1992 (1), 1994 (2), 1997 (2), 1998 (1), 2004 (2), 2005 (1)

Months: May (7), June (6), July (4)

Abundance: 17 specimens: 4-BYUC, 6-CWC, 4-RJBC, 3-UKIC

Comments: Clark et al. (2004) reported the normal host as *Apios americana* Medik., but many other associations have been cited.

Octotoma plicatula (F.) (Figure 3A)

Kentucky Counties: Caldwell, Fayette, Franklin, Fulton, Powell

Years: 1909 (4), 1910 (3), 1913 (1), 1947 (1), 1969 (10), 1971 (3), 1973 (1), 1975 (1), 2005 (6), 2006 (4)

Months: May (16), June (6), July (1), August (6), September (3), October (2)

Abundance: 34 specimens: 10-RJBC, 24-UKIC

Comments: Many labels reported *Campsis (Tecoma) radiacans* (L.) Seem. ex Bureau, trumpet creeper, as host.

Sumitrosis ancoroides (Schaeffer) (Figure 3B)

Kentucky Counties: Lincoln, Logan

Years: 2005 (1), 2006 (2)

Months: May (2), June (1)

Abundance: 3 specimens: 3-KSUC (new state record) (Figure 3B)

Comments: This species was first found in Kentucky at Bouteloua Barrens State Nature Preserve, Lincoln County. *Strophostyles* spp. are known as host plants (Clark et al. 2004).

Sumitrosis inaequalis (Weber) (Figure 3C)

Kentucky Counties: Boyd, Carter, Daviess, Estill, Franklin, Greenup, Hancock, Hardin, Jefferson, LaRue, Lee, Lewis, Logan, Martin, Meade, Menifee, Owsley, Rowan, Russell

Years: 1951 (1), 1952 (1), 1954 (3), 1981 (8), 1983 (11), 1984 (3), 1990 (4), 1992 (1), 1994 (5), 1995 (1), 1998 (2), 2002 (3), 2003 (3), 2004 (4), 2005 (6), 2006 (13)

Months: April (6), May (46), June (12), July (5)

Abundance: 69 specimens: 11-BYUC, 12-CWC, 19-KSUC, 22-RJBC, 5-UKIC

Comments: A UKIC specimen label reported an association with *Eupatorium fistulosum* Barratt (hollow-stemmed joe-pye weed).

Sumitrosis rosea (Weber) (Figure 3D)

Kentucky Counties: Jefferson, LaRue, Lewis

Years: 1981 (11), 1998 (1), 2005 (1)

Months: May (11), July (2)

Abundance: 13 specimens: 1-BYUC, 1-KSUC, 10-RJBC, 1-UKIC

Comments: This species is normally associated with Fabaceae (Clark et al. 2004).

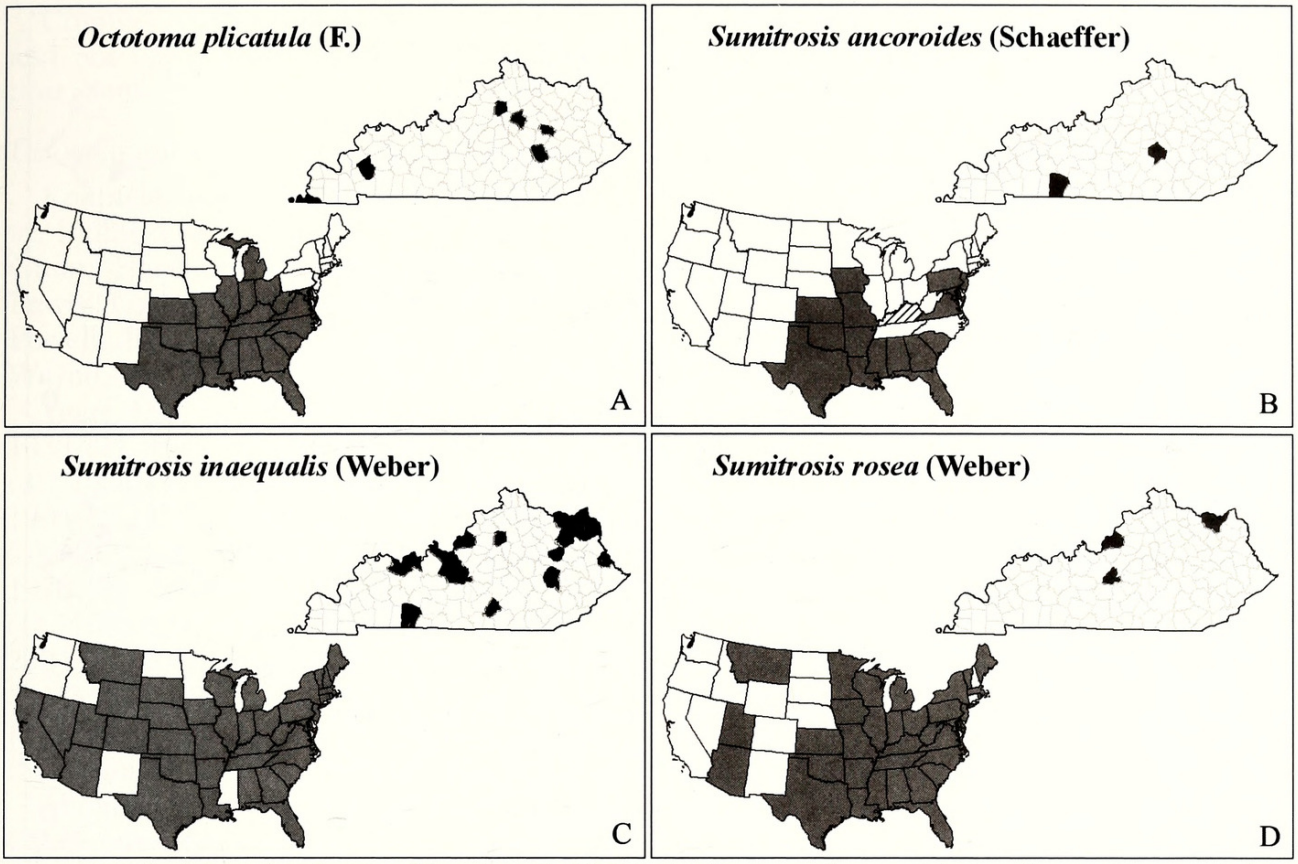

Figure 3. The known distribution of Cassidinae leaf beetles (Coleoptera: Chrysomelidae) is illustrated in grey shading in Kentucky counties and the United States. New state records reported herein are shown in cross-hatch.

Chelymorpha cassidea (F.) (Figure 4A)

Kentucky Counties: Boone, Fayette, Grant, Hardin, Henry, Jefferson, Lewis, Logan, Owen, Pendleton, Washington

Years: 1890 (1), 1941 (2), 1944 (1), 1948 (3), 1951 (1), 1952 (1), 1955 (1), 1966 (2), 1967 (1), 1971 (6), 1980 (1), 1981 (3), 1998 (1), 2003 (1), 2004 (1), 2005 (4), 2006 (13)

Months: April (1), May (7), June (23), July (9), August (1), September (2)

Abundance: 43 specimens: 1-BYUC, 2-CWC, 17-KSUC, 23-UKIC

Comments: The common name for this abundant species is the argus tortoise beetle.

Physonota unipunctata (Say) (Figure 4B)

Kentucky Counties: Clay

Years: 1996 (1)

Month: April (1)

Abundance: 1 specimen: 1-CWC (new state record) (Figure 4B)

Comments: This species is rare in Kentucky and has been cited as feeding on *Monarda* (Laminiaceae) (Clark et al. 2004).

Agroiconota bivittata (Say) (Figure 4C)

Kentucky Counties: Bath, Carroll, Fayette, Franklin, Grayson, Hardin, Harrison, Jefferson, LaRue, Lewis, Logan, Monroe, Nicholas, Owen, Washington, Wolfe

Years: 1891 (4), 1927 (1), 1938 (1), 1941 (3), 1947 (1), 1965 (1), 1971 (4), 1981 (3), 1983 (1), 1994 (1), 1995 (1), 1998 (3), 2003 (3), 2004 (9), 2005 (22), 2006 (32)

Months: March (1), May (18), June (47), July (21), August (2), September (1)

Abundance: 90 specimens: 4-BYUC, 6-CWC, 59-KSUC, 6-RJBC, 15-UKIC

Comments: The common name of this frequently collected species is the striped tortoise beetle. A UKIC specimen label reported occurrence on leaves of sweet potato.

Cassida rubiginosa Müller (Figure 4D)

Kentucky Counties: Hart, Martin, Rowan

Years: 1994 (1), 2003 (2), 2004 (1)

Months: April (1), May (1), June (2)

Abundance: 4 specimens: 1-CSUC, 3-CWC (new state record) (Figure 4D)

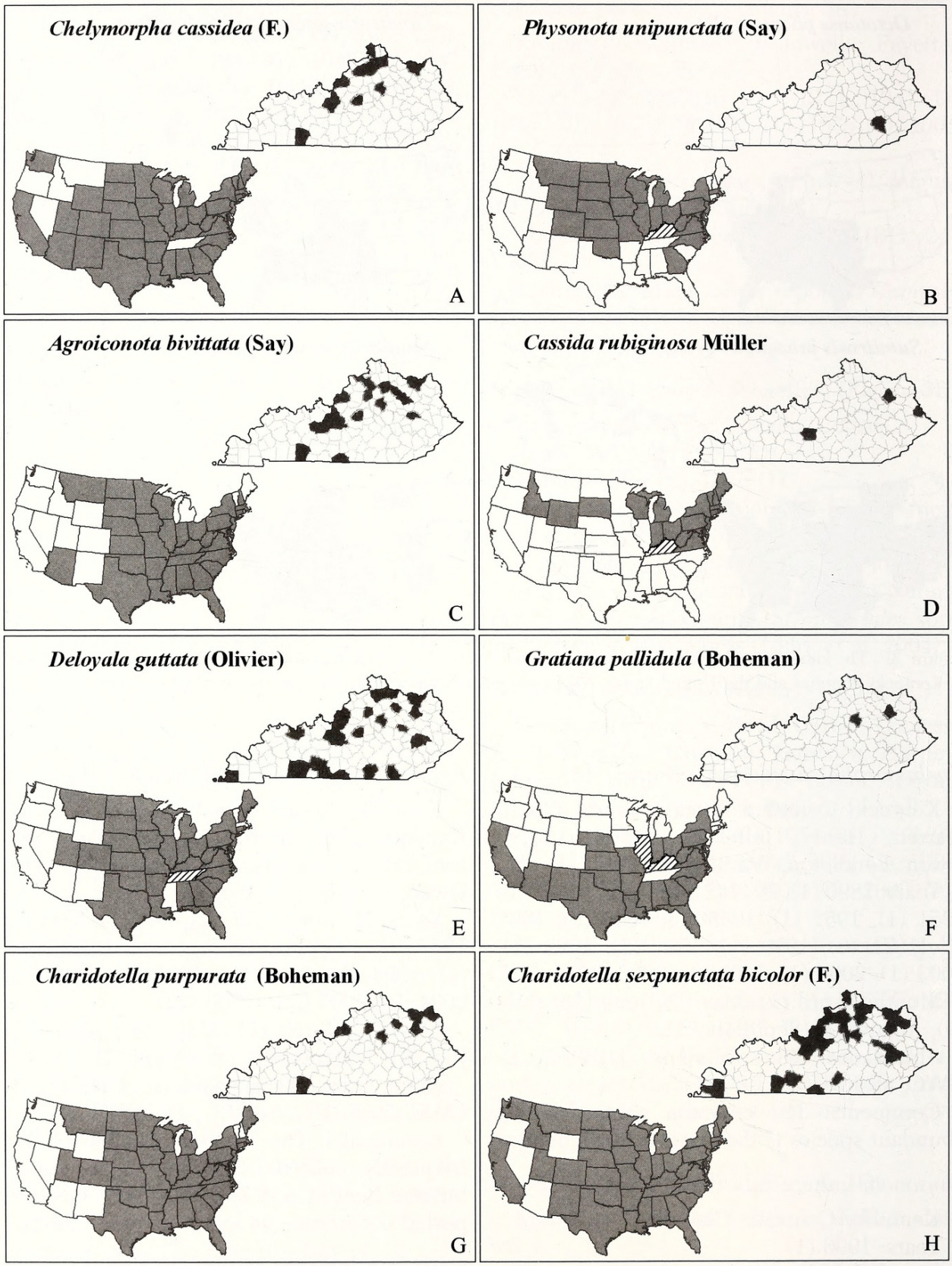

Figure 4. The known distribution of Cassidinae leaf beetles (Coleoptera: Chrysomelidae) is illustrated in grey shading in Kentucky counties and the United States. New state records reported herein are shown in cross-hatch.

Comments: This species is rare in Kentucky and not native to North America. Preferred host plants are Asteraceae (Clark et al. 2004).

Deloyala guttata (Olivier) (Figure 4E)

Kentucky Counties: Allen, Bracken, Breathitt, Bullitt, Daviess, Fayette, Franklin, Fulton, Grant, Hardin, Hickman, Jefferson, LaRue, Lewis, Logan, Monroe, Nicholas, Pendleton, Powell, Rowan, Todd, Warren, Washington, Wayne, Whitley

Years: 1891 (5), 1896 (1), 1900 (1), 1913 (1), 1933 (1), 1947 (2), 1948 (3), 1952 (1), 1955 (3), 1956 (1), 1957 (1), 1958 (3), 1960 (3), 1964 (1), 1965 (2), 1967 (2), 1968 (2), 1969 (1), 1971 (3), 1972 (2), 1974 (5), 1975 (2), 1976 (3), 1978 (1), 1980 (1), 1981 (10), 1983 (1), 1985 (1), 1995 (3), 1998 (4), 2003 (1), 2004 (9), 2005 (26), 2006 (14)

Months: March (2), April (3), May (31), June (40), July (23), August (6), September (8), October (5), November (2)

Abundance: 120 specimens: 6-BYUC, 4-CWC, 41-KSUC, 14-RJBC, 49-UKIC, 6-WKUC

Comments: The common name for this abundant species is the mottled tortoise beetle. UKIC label data reported collection by Malaise trap and association with sweet potato, *Ipomoea batatas*. A new state record was found for Tennessee in the RJBC (1 specimen from Sevier County) (Figure 4E).

Gratiana pallidula (Boheman) (Figure 4F)

Kentucky Counties: Fayette, Rowan

Years: 1895 (1), 1993 (1)

Months: May (1), July (1)

Abundance: 2 specimens: 1-CSUC, 1-UKIC (new state record)

Comments: This species is rare in Kentucky and known food plants belong to Solanaceae (Riley 1986). A UKIC label records an association with eggplant. A new state record was found for Illinois in the RJBC (1 specimen from St. Clair County) (Figure 4F).

Charidotella purpurata (Boheman) (Figure 4G)

Kentucky Counties: Fayette, Franklin, Greenup, Jefferson, Lewis, Logan, Nicholas, Rowan

Years: 1971 (1), 1976 (4), 1983 (1), 1987 (6), 1990 (3), 1992 (1), 1995 (3), 1998 (1), 2005 (1), 2006 (2)

Months: March (4), May (15), June (2), July (1), August (1)

Abundance: 23 specimens: 5-BYUC, 3-CWC, 2-KSUC, 12-RJBC, 1-UKIC

Comments: Host plants for this species are members of Convolvulaceae (Riley 1986). UKIC label data reported collection by Malaise trap.

Charidotella sexpunctata bicolor (F.) (Figure 4H)

Kentucky Counties: Boone, Bracken, Breathitt, Bullitt, Carter, Fayette, Franklin, Graves, Hardin, Harrison, Henry, Hickman, Jefferson, Lewis, Logan, Meade, Monroe, Nelson, Oldham, Owen, Pendleton, Powell, Rowan, Russell, Trimble, Warren, Wolfe, Woodford

Years: 1891 (6), 1892 (1), 1896 (1), 1897 (9), 1901 (1), 1910 (1), 1916 (1), 1934 (1), 1935 (1), 1937 (1), 1944 (5), 1946 (4), 1947 (3), 1948 (14), 1951 (7), 1953 (1), 1954 (1), 1955 (1), 1957 (4), 1958 (1), 1960 (2), 1961 (1), 1963 (1), 1965 (2), 1966 (2), 1968 (3), 1970 (2), 1971 (3), 1972 (3), 1974 (3), 1975 (6), 1976 (5), 1979 (1), 1981 (6), 1983 (5), 1984 (2), 1992 (1), 1995 (4), 1998 (2), 2003 (5), 2004 (4), 2005 (12), 2006 (6)

Months: March (1), April (1), May (47), June (55), July (20), August (6), September (6), October (8), November (1)

Abundance: 145 specimens: 7-BYUC, 10-CWC, 17-KSUC, 9-RJBC, 97-UKIC, 5-WKUC

Comments: The common name for this abundant species is the golden tortoise beetle and host plants are members of Convolvulaceae (Riley 1986). UKIC labels record associations with sweet potato, morning glory, and sassafras, but the occurrence on sassafras was almost certainly incidental. Collection by Malaise trap was also documented.

Plagiometriona clavata clavata (F.) (Figure 5A)

Kentucky Counties: Franklin, LaRue, Meade, Wolfe

Years: 1892 (1), 1935 (1), 1976 (1), 1987 (1), 1993 (1), 2000 (1), 2003 (1), 2005 (1), 2006 (1)

Months: May (2), June (1), July (3), August (2), October (1)

Abundance: 9 specimens: 3-CWC, 2-RJBC, 4-UKIC

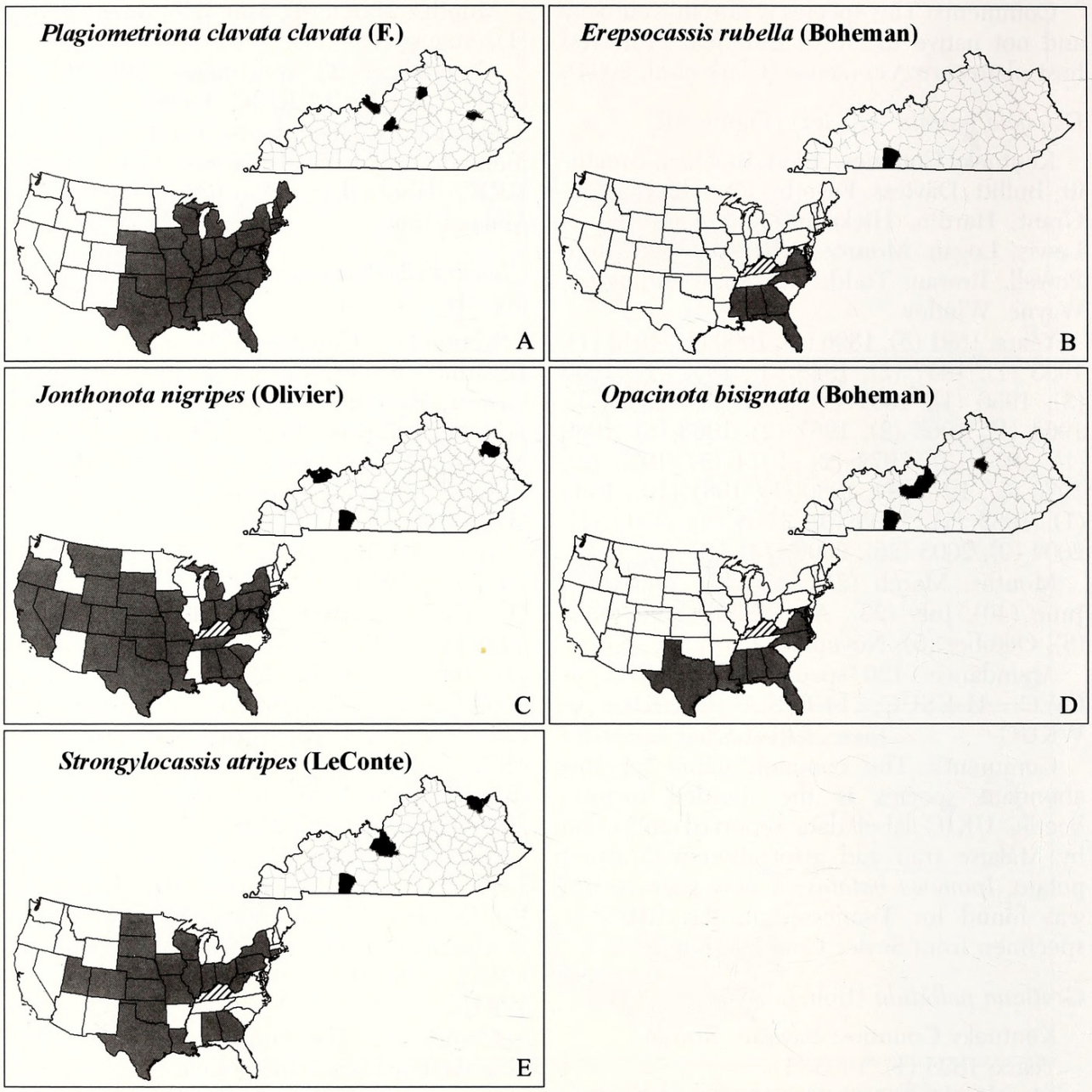

Figure 5. The known distribution of Cassidinae leaf beetles (Coleoptera: Chrysomelidae) is illustrated in grey shading in Kentucky counties and the United States. New state records reported herein are shown in cross-hatch.

Comments: This species is rarely collected in Kentucky and known food plants belong to Solanaceae (Riley 1986). UKIC label data reported collection by Malaise trap.

Erepsocassis rubella (Boheman) (Figure 5B)

Kentucky Counties: Logan

Years: 2005 (2), 2006 (14)

Months: May (1), June (8), July (6), August (1)

Abundance: 16 specimens: 16-KSUC (new state record) (Figure 5B)

Comments: All specimens from Kentucky were found at the Raymond Athey Barrens State Nature Preserve. Riley (1982) reported this species to be rare in collections. Its food plant is unknown; however, like some of the other uncommonly collected tortoise beetle species, it may utilize a relatively uncommon species of Convolvulaceae.

Jonthonota nigripes (Olivier) (Figure 5C)

Kentucky Counties: Carter, Henderson, Logan

Years: 1966 (1), 1971 (1), 2005 (2), 2006 (1)

Months: June (3), July (1), August (1)

Abundance: 5 specimens: 3-KSUC, 2-UKIC (new state record) (Figure 5C)

Comments: The common name of this species is the black-legged tortoise beetle. This species is rare in Kentucky and host plants are members of Convolvulaceae (Riley 1986). In Missouri, Louisiana and Texas the most-commonly encountered food plant is *Ipomoea pandurata* (L.) Lam.

Opacinota bisignata (Boheman) (Figure 5D)

Kentucky Counties: Fayette, Grayson, Hardin, Logan

Years: 1912 (1), 1965 (1), 1983 (1), 2004 (1), 2005 (8), 2006 (17)

Months: May (2), June (19), July (7), August (1)

Abundance: 29 specimens: 26-KSUC, 1-RJBC, 2-UKIC (new state record) (Figure 5D)

Comments: Host plants for this species are members of Convolvulaceae (Riley 1986). In Louisiana and Texas the most-commonly encountered food plant is *Ipomoea pandurata* (L.) Lam.

Strongylocassis atripes (LeConte) (Figure 5E)

Kentucky Counties: Hardin, LaRue, Lewis, Logan

Years: 1985 (1), 2004 (8), 2005 (16), 2006 (17)

Months: May (3), June (25), July (14)

Abundance: 42 specimens: 39-KSUC, 3-RJBC (new state record) (Figure 5E)

Comments: In Kentucky this species has only been found in endangered barrens. This species feeds on plants of morning glory family (Convolvulaceae) (Riley 1985a).

DISCUSSION

We believe the data presented here represent the first accurate representation of the cassidine leaf beetles known from Kentucky. The large number of new state records documented here (13 of 31, or 42% of known Kentucky Cassidinae) reflects a historical lack of leaf beetle collecting in Kentucky. Many of the early (pre-1950) specimens in the flagship collection at UKIC were collected by agricultural workers at the land-grant experiment station farm or near campus (Fayette County). This presentation of label data also permits the reader to make assessments and comparisons between species. For example, *Charidotella sexpunctata bicolor* (F.) is found in all adjacent states, 28 Kentucky counties, from 1891 to 2006, March to October, and with peak activity in May–June, and 145 specimens were recovered from all collections. This is obviously a common species. At the other end of the spectrum is *Erepsocassis rubella* (Boheman) is a new state record for Kentucky, previously known from only one adjacent state, found only at one nature preserve in 2005–2006, and active in June–July. These data imply that this is a relatively rare species, and its host plant or general habitat requirements may be met only in protected areas. Data such as these, obtained from historical and recent collections, should be of interest to the agencies that are charged with the preservation and management of natural areas.

The importance of conducting bioinventories such as this and documenting the abundance and distribution of both common and rare species can be demonstrated by another example. Three new state records were collected in 1983 by the senior author from a remnant patch of prairie along railroad tracks near Leitchfield in Grayson County, described as a 0.3 mile long patch of tallgrass prairie in the Big Barrens Region of the Mississippian Plateau (Baskin and Baskin 1977). The senior author revisited the site in 1985 and then returned 20 years later to find it mowed but still supporting some interesting chrysomelids. However, a subsequent visit in 2006 found it covered in orange traffic cones and transportation workers as part of a highway widening project - another priceless remnant of biodiversity now gone forever.

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