INCIDENCE OF *LYTTA UNGUICULARIS* (COLEOPTERA: MELOIDAE) ON HYBRID AZALEAS, *RHODODENDRON* SPP., IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK

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The genus *Lytta* (Coleoptera: Meloidae) contains approximately 69 species found in the Nearctic (Pinto & Bologna 2002), primarily in the United States and Mexico. Although this genus contains approximately 17% of all known species of meloids in the Nearctic (n = 410) (Pinto & Bologna 2002), little is known about many of these species of blister beetles. Several *Lytta* species are extremely uncommon in collections and have not been seen in decades (Pinto & Bologna 1999). One colorful species, *Lytta unguicularis* (LeConte, 1866), has a metallic green or blue body and orange legs and has been documented in Illinois (type locality), Alabama, North Carolina, and Tennessee (Downie & Arnett 1996; Selander 1960). More specifically, its known distribution ranges from eastern Alabama to Illinois and northeast to the Smoky Mountains in eastern Tennessee and western North Carolina. This large beetle, with a maximum length of 25 mm, is uncommon in museum collections and is known from fewer than 70 specimens from 9 documented locations (Selander 1960). The larval hosts of *L. unguicularis* are unknown; however, other species of *Lytta* are known to parasitize the nests of native bees, where larvae feed on provisions and possibly on immature bees. Larval hosts include immatures of Apoidea, particularly Anthophoridae, Megachilidae, Halictidae, and Colletidae (Pinto & Bologna 1999; Bologna & Pinto 2002). Adults reportedly feed on the flowers and foliage of Rosaceae and Ericaceae, including peach, rose, and mountain laurel, and have been collected on azalea (Selander 1960).

During a study to identify pollinators of a hybrid swarm of azalea, *Rhododendron arborescens* (Pursh) Torrey, *R. viscosum* (L.) Torrey, and *R. cumberlandense* Braun, in the Great Smoky Mountains National Park, a small population (<50) of adult *L. unguicularis* was observed on flowers and foliage of hybrid azaleas. This report is the first documentation of this species in the Great Smoky Mountains National Park since the 1950s and early 1960s based on museum and park collections and other records (Selander 1960). In 1958, adult *L. unguicularis* were collected previously on azalea in the Park (Selander 1960). Sherman (1913) reported thousands of beetles on peach, rose, and mountain laurel at a site in Blowing Rock, North Carolina, from 8 to 25 Jun 1901. He stated that they consumed the blossoms of the mountain laurel and leaves of peach. Selander (1960) suggested that the somewhat gregarious nature of Meloidae, including *Lytta* species, serves to maintain the adult beetles near nesting sites of host bees.

In our study, *L. unguicularis* was found on azalea plants growing along the northern margin of one of the balds in the Great Smoky Mountains National Park. The origin of the grassy balds may have been natural; however, their present flora is partially an artifact of human interference, such as animal grazing, lumber harvesting, and fire prevention (Lindsay 1977; Lindsay & Bratton 1979). The specific identity and location of this bald cannot be provided because of low numbers of individuals and the sensitivity of the site, but interested persons can contact the Inventory and Monitoring Coordinator of the Great Smoky Mountains National Park for additional information. This bald, similar to one of the many grassy balds that occur only in the Southern Appalachian Mountains, is currently maintained by personnel with the Great Smoky Mountains National Park. The bald is home to a hybrid swarm of multicolored azaleas, with flowers ranging in color from red, orange, pink, yellow, to white, and many of these flower colors and forms are not found on other balds. Most of the insects visiting flowers of these hybrid azaleas were bees in the families Andrendidae, Halictidae, and Apidae. The nests of some of these families of Hymenoptera are hosts of larvae of other species of *Lytta* (Pinto & Bologna 1999).

Adult beetle activity was observed on only 5 or 6 azaleas located on the north side of the bald on 15 and 18 Jun 2000 between 10 AM and 3 PM. This observed activity coincides with Selander (1960), who reported that the seasonal incidence of this species was from 2 May to 4 Jul. Adults were observed to feed on the blossoms and foliage of azalea on each sampling date, but the extent of this feeding was not quantified. Mating also was observed on each date. Representative male and female specimens were collected into individual 3½ dram vials and taken to the laboratory, where they were sexed, pinned, labeled and identified. Specimens included 1 ♂ and 1 ♀ collected on 15 Jun 2000 and 11 ♂ and 6 ♀ collected on 18 Jun 2000. Voucher specimens were deposited in the

University of Tennessee Insect Museum, the University of California Riverside Museum, the Florida State Collection of Arthropods (Gainesville), the Museum of the Great Smoky Mountains National Park, and with the Coleoptera Taxonomic Working Group at the Louisiana State Arthropod Museum.

Only 15 species of meloids including two species of *Lytta* (*L. unguicularis* and *L. aenea* Say) are recorded in the Checklist of Coleoptera Known from Great Smoky Mountains National Park (http://www.lsuagcenter.com/Inst/research/departments/arthropodmuseum/smokieschecklist.htm, 25 Jan 2006); this database is maintained in support of the ATBI (All Taxa Biological Inventory) Project in the Great Smoky Mountains National Park. Although *L. unguicularis* is listed as previously found in the Park, no detailed source collection information was provided (Selander 1960). Thus, this research contributes to the known distribution and host records of this uncommonly collected species and may encourage researchers to learn more about the biology and life history of this little known species.

Summary

This report documents the occurrence of *L. unguicularis* on hybrid azaleas in the Great Smoky Mountains National Park, representing the first time it has been recorded in the Park since the late 1950s and early 1960s. The infrequent collections of a relatively large and conspicuous beetle in a reasonably well-known and visited area suggests that its populations may be limited. Certain other species of *Lytta* in the western U.S. have been identified as 'species of concern' by the U.S. Fish and Wildlife Service (Halstead & Haines 1992), and *L. unguicularis* in the Great Smoky Mountains National Park may represent a similar case. Additional research is necessary to more fully define the population density, dynamics, and status of *L. unguicularis* in this geographical area.

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