

Ticks and Lice of the Black Bear, *Ursus americanus* Pallas, in Northern Georgia, USA, Including a New State Record for the Chewing Louse, *Trichodectes euarctidos* (Phthiraptera: Trichodectidae)¹

Todd N. Nims² and Lance A. Durden³

Science Department, Georgia Perimeter College, 239 Cedar Lane, Covington, Georgia 30014-1603, USA

J. Entomol. Sci. 46(4): 345-347 (October 2011)

Key Words ticks, lice, black bear, Georgia, *Trichodectes euarctidos*, *Ursus americanus*, new state record

Ticks have previously been reported from the black bear, *Ursus americanus* Pallas, from California, Colorado, Florida, Georgia, Michigan, Minnesota, Montana, New York, Wisconsin and Nova Scotia [Taylor 1951, The distribution of ticks in Florida, M.S. Thesis, Univ. Florida, Gainesville; Rogers 1953, A study of the ixodid ticks of northern Florida, including the biology and life history of *Ixodes scapularis* Say (Ixodidae: Acarina), Ph.D. Diss., Univ. Maryland, College Park; King et al. 1960, New York Fish and Game J. 7: 99 - 111; Dodds et al. 1969, Can. J. Zool. 47: 171 - 181; Jonkel and Cowan 1971, Wildl. Monogr. 27: 1 - 57; Rogers 1975, J. Wildl. Dis. 11: 189 - 192; Rogers and Rogers 1976, Intl. Conf. on Bear Res. and Management 3: 411 - 430; Crum 1977, Some parasites of black bears (*Ursus americanus*) in the southeastern United States, M.S. Thesis, Univ. Georgia, Athens; Manville 1978, J. Wildl. Dis. 14: 97 - 101; Furman and Loomis 1984, Bull. Calif. Insect Surv. 25: 1 - 239; Forrester 1992, Parasites and diseases of wild mammals in Florida, Univ. Press of Florida, Gainesville, 459 p.; Yabsley et al. 2009, J. Parasitol. 95: 1125 - 1128]. In a survey of hunter-killed and road-killed black bears in northern Florida and southern Georgia, USA, Yabsley et al. (2009) reported 4 species of ixodid ticks from black bears in Georgia [*Amblyomma americanum* (L.) (lone star tick), *Amblyomma maculatum* Koch (Gulf Coast tick), *Dermacentor variabilis* (Say) (American dog tick) and *Ixodes scapularis* Say (blacklegged tick)] and 5 species in Florida [the same 4 species listed for Georgia plus *Ixodes affinis* Neumann (no common name)]. There are no previous reports of ticks associated with black bears in northern Georgia, USA.

The trichodectid chewing louse, *Trichodectes euarctidos* Hopkins, is a host-specific ectoparasite of the black bear (Price et al. (eds.) 2003, The chewing lice: world checklist

¹Received 14 April 2011; accepted for publication 11 May 2011.

²Corresponding author (email: todd.nims@gpc.edu).

³Department of Biology, P. O. Box 8042, Georgia Southern University, Statesboro, Georgia 30460, USA

and biological overview, Illinois Natural History Survey Special Pub. No. 24) and has been reported as *Trichodectes pinguis euarctidos* in most previous studies. This louse has been recorded from black bears in Florida, Idaho, Michigan, Minnesota, Montana, North Carolina, New York, Tennessee, Wisconsin, Ontario and British Columbia (Hopkins 1954, The Entomologist 87: 140 - 146; King et al. 1960; Jonkel and Cowan 1971; Rogers 1975; Rogers and Rogers 1976; Crum 1977; Worley et al. 1976, Intl. Conf. on Bear Res. and Management. 3: 455 - 464; Addison et al. 1978, Can. J. Zool. 56: 2122 - 2126; Manville 1978; Yunker et al. 1980, J. Wildl. Dis. 16: 347 - 356; Foster and Cames 1995, Florida Field Nat. 23: 17 - 18; Reeves et al. 2007, Zootaxa 1392: 31 - 68). We present herein the first record of this louse from Georgia.

Four black bears were examined for ectoparasites in northern Georgia from 2007 - 2009. Collection details for the 4 bears and their associated ectoparasites were as follows: (1) Adult male, Towns Co., nuisance relocation, 11 July 2007. Ectoparasites: *D. variabilis* (3 females); (2) Adult male, Dawson Co., legally harvested, September 2007. Ectoparasite: *A. maculatum* (1 female); (3) Adult female, Forsyth Co., roadkilled, 27 June 2008. Ectoparasites: *D. variabilis* (11 males, 6 females), and; (4) Subadult male, Gwinnett Co., roadkilled, 2 June 2009. Ectoparasites: *A. americanum* (11 males, 23 females, 9 nymphs), *A. maculatum* (3 males, 1 female), *D. variabilis* (6 males, 5 females), *T. euarctidos* (1 male, 3 females, 10 nymphs).

The latter bear was collected by Georgia Department of Natural Resources personnel and examined by TNN later that day. The lice were collected from the chest, upper front legs, and neck of the bear.

Both the eastern black bear (*U. a. americanus* Pallas) and the Florida black bear (*U. a. floridanus* Merriam) occur in Georgia. Due to their location in the state, the above 4 individuals were likely the nominate subspecies, *U. a. americanus*.

The 3 species of ticks we recorded from black bears in northern Georgia are all fairly common ectoparasites of carnivores or other medium or large-sized mammals in the southeastern United States (Forrester 1992; Pung et al. 1994, J. Med. Entomol. 31: 915 - 919; Wells et al. 2004, J. Entomol. Sci. 39: 426 - 432) especially during the summer/early fall when our collections were made. If black bears had been examined during winter or early spring, the blacklegged tick, *I. scapularis*, would have likely also been recorded. In fact, Yabsley et al. (2009) recorded these 4 species of ticks from black bears in southern Georgia. All 3 tick species we recorded from black bears in northern Georgia are known to be vectors of zoonotic pathogens, and Yabsley et al. (2009) molecularly detected *Rickettsia* sp. TR39 from *A. americanum*, *Rickettsia parkeri* from *A. maculatum* and *R. montanensis* from *D. variabilis* recovered from black bears in southern Georgia. Of these 3 rickettsiae, *R. parkeri* is known to be a zoonotic pathogen of humans (Sumner et al. 2007, Emerg. Inf. Dis. 13: 751 - 753). In addition to these pathogens/symbiotes, *A. americanum* is known to be a vector of *Ehrlichia chaffeensis*, the causative agent of human monocytic ehrlichiosis, and of both *Borrelia lonestari* and *Rickettsia amblyommii*, which are putative agents of Southern Tick Associated Rash Illness (STARI) (Childs and Paddock 2003, Annu. Rev. Entomol. 48: 307 - 337; Billeter et al. 2007, Vector-Borne Zoonotic Dis. 7: 607 - 610). Further, in eastern North America, *D. variabilis* is the principal vector of *Rickettsia rickettsii* the causative agent of Rocky Mountain spotted fever (Wells et al. 2004).

Although *T. euarctidos* has previously been reported from black bears in 9 U.S. states and 2 Canadian provinces, our records are the first from the state of Georgia. Based on previous records from the adjoining states of Florida, North Carolina, and Tennessee, the collection of this louse from Georgia is not surprising. In fact, it is likely

that *T. euarctidos* parasitizes the black bear throughout most or all of its range. *Trichodectes euarctidos* is not known to transmit any pathogens or parasites to black bears.

Voucher specimens of ticks and lice are deposited in the Ectoparasite Collections of the Department of Biology, Georgia Southern University (accession numbers L-3423 through L-3426).

Acknowledgments

The authors thank the Georgia Department of Natural Resources (DNR), Wildlife Resources Division and the Department of Biology at Georgia Southern University for financial and material support. The authors thank Scott Frazier and Don McGowan with Georgia DNR for retrieving some of the samples or making the carcasses available for examination. This study was also supported in part by NSF grants DEB-0717165 and DEB-1026146.

AUTHOR GUIDELINES

The *Journal of Entomological Science* (JES), published quarterly by the Georgia Entomological Society, invites submission of manuscripts reporting original research with insects and related arthropods or literature reviews offering foundations to innovative directions in entomological research.

Submission and Review. Three (3) copies of all manuscripts to be submitted for consideration for publication in JES should be sent to **Wayne Gardner, Editor, Journal of Entomological Science, 1109 Experiment Street, UGA Griffin Campus, Griffin, GA 30223-1797 USA.** Manuscripts judged as suitable for JES will be peer reviewed by scientists qualified to assess the scientific merit of the content. The Editor has the final decision in the acceptance, rejection, or revision of submitted/reviewed manuscripts.

Publication Charges. Authors will be charged US\$55 per published page. Pages containing figures will be subject to a US\$20 surcharge. Additional costs incurred in publishing color figures or photos must be passed onto the author. These costs vary with several factors, and every effort will be made to reduce these costs. Page charges will be reduced US\$15 per page for those articles with senior authors who are members in good standing with the Georgia Entomological Society. All fees are subject to change without notice.

Style and Format. Full guidelines for manuscripts can be found at www.ent.uga.edu/ges. Lines within text and tables of manuscripts should be double-spaced. A **title page** must contain the name, address, telephone number and email address of the corresponding author in the upper right. The running head, title, author(s), institutional affiliation where the research was conducted, and any footnotes should be left justified on the remainder of the title page. An **Abstract** followed by **key words** must follow on a separate page. The **text** should be divided into an introduction (no heading), Materials and Methods, Results and Discussion (together or separate), and an Acknowledgment(s) (optional). The **References Cited** must begin on a new page, and the **figure captions** and individual **tables** and **figures** must be placed on separate pages at the end of the text. All headings, subheadings, and table and figure captions should be in boldface font.

Figure Preparation. For review purposes, figures may be black and white or color with each figure on a separate page. However, figures in final revised typescripts must be in one of the following formats: TIFF, EPS, WMF, JPEG, or PowerPoint. (GIF formats are unacceptable as they produce poor quality images.) Although figures of any size can be submitted, those that fit the width of the printed page (118 mm) expedite the publication process. In choosing font size of labels and legends, insure that these are sufficiently large so that in reducing figures to fit the printed page (118 × 188 mm), lettering will not be difficult to read. Photographs should be submitted in TIFF format. Black and white photos should be in grayscale, not color. The CMYK color mode—not RGB—must be used for color photos.

Notes. JES also publishes Notes of original research and observations that may not be sufficiently replicated for acceptance as Scientific Papers but have merit in terms of sharing with the scientific community. These are designed to be short and rapid communications with none to few tables or figures. Notes do not contain an abstract or separate text sections (e.g., introduction, materials and methods, results and discussion). References are cited within the text by placement of authors' last names, date, and journal or book citation within parentheses.