

Colorado Insects of Interest

Booklice

Order: Psocoptera (Booklice, Psocids, Trogiids)

Families: Liposcelididae (primarily), Trogiidae

Identification and Descriptive Features: The “booklice” are generally recognized as those members of the insect order Psocoptera that may be found indoors. All are small insects, typically only 1-2 mm, wingless and pale colored. Superficially they somewhat resemble miniature termites but can be easily distinguished by the long filament antennae, which are beaded among termites. Other physical features include a prominent head, well developed eyes and a constriction behind the head. They feed by scraping using mouthparts of a very simple design, resembling those of some of the most primitive insects.



Figure 1. Booklice. Photograph courtesy David Shetlar, The Ohio State University.

An identification key to the booklice associated with stored products is available through the USDA-ARS web site: <http://www.ars.usda.gov/Services/docs.htm?docid=16769>

Distribution in Colorado: Several species of booklice are common associates of dried plant matter and have been moved widely in human commerce. Others appear to be native species associated with bark or foliage of trees, animal nests (including field ants of the genus *Formica*), and animal manure. Some of the common species known to occur in Colorado are listed in Table 1.

Life History and Habits: Within a home booklice are almost always found in damp areas that support the molds on which they feed. Bathrooms are common areas where they are encountered. Occasionally they may build in large numbers on grain products that have been stored poorly. The common name relates to their occasional association with books, papers and fabrics where they feed on the starchy materials (e.g., glues, fillers). Booklice are considered to be very minor household pests and the arid climate of Colorado suppresses the occurrence of many species. Booklice cannot bite humans.



Figure 2. Mass of barklice on tree trunk. Photograph courtesy Joe Pase/BugWood Images.

Eggs are laid in small clusters and the insects develop in the simple metamorphosis pattern so young stages resemble miniature adults. Typically

they molt 4 to 6 times before reaching maturity and under warm conditions indoors some species may complete a generation in about two months. Species that normally spend their life outdoors likely produce one generation per year.

Related Species: The “barklice” include various species of Psocoptera that are only found outdoors. They tend to be more pigmented than the booklice and most develop wings. The barklice are scavengers that feed by scraping algae, lichens or molds and they can be common on bark or under stones and dropped leaves. Barklice can produce silk from labial glands and some aggregate to produce large silk webs that may extensively cover trunks and branches, protecting eggs and immature stages. The winged adults apparently can disperse well as barklice are often among the very first insects found colonizing newly formed islands.

Table 1. Some of the more common “booklice” known to occur in Colorado.

Family	Species	Some known habitats
Liposcelididae	<i>Liposcelis brunnea</i> Motschulsky	Branches of conifers and oaks, ground litter, bird nest, indoors
	<i>Liposcelis villosa</i> Mockford	Conifer foliage, pack rat nests
	<i>Liposcelis decolor</i> (Pearman)	Stored grains, tree bark, cow dung, <i>Formica</i> ant mounds
	<i>Liposcelis nigra</i> (Banks)	Tree bark
	<i>Liposcelis formicaria</i> (Hagen)	<i>Formica</i> ant mounds
	<i>Liposcelis mendax</i> Pearman	
	<i>Liposcelis rufa</i> Broadhead	
Trogiidae	<i>Lepinotus reticulatus</i> Enderlein	Indoors

Other *Leptinotus* species and some *Dorypteryx* species are cosmopolitan species that may have become established in some indoor settings within Colorado.