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The mountain oak longhorned beetle (*Massicus raddei*) (Figs. 1-2) is a serious pest of oaks in China and has recently received widespread attention as a potentially invasive pest in other parts of the world. The beetle feeds primarily on oaks (*Quercus*) and chestnuts (*Castanea*) but has also been associated with a variety of other trees. Larvae of *Massicus* are wood borers which feed on the phloem of the tree, and the adults feed on the sap bleeding from wounds they inflict on branches. While feeding causes heavy crown dieback, no actual tree mortality has been reported. This species is not associated with any phytoparasites.

Massicus belongs to the family Cerambycidae which is comprised of the longhorned beetles. Members of this family are recognized by their highly elongate antennae, sometimes reaching several times the length of the body. This beetle belongs to the subfamily Cerambycinae, typified by a large, undivided, stridulatory plate on the mesonotum.

Massicus is a member of the tribe Cerambycini: a group of 30 genera mostly confined to the tropics and distinguished by a rounded pronotum. The genus *Massicus* contains 14 species found mostly in the tropical regions of Asia. No species of *Massicus* occur within the U.S. and *M. raddei* has not been detected in the U.S.

This aid is designed to assist in the screening of *M. raddei* collected by visual surveys in the continental United States. It covers screening based on morphological characters. Basic knowledge of Coleoptera morphology is necessary to screen for *M. raddei* suspects.



Fig. 1: *Massicus raddei* (actual size) (photo by Robert Parks).



Fig. 2: *Massicus raddei* head.

Screening for *Massicus raddei* is simplified by the large size of the beetle (Figs. 1 & 8). Adults are three to five centimeters (1.5-2.5 inches) in length, which is larger than most native longhorn beetles (Figs. 9-12). Screening is based on features of the pronotum, antennae, and elytral apex.

Antennae

Like other cerambycids *M. raddei* bears long antennae that arise from the center of the deeply emarginate eyes. *Massicus raddei* antennae range in length from 0.75 to 1.5 times the length of the specimen. In *M. raddei* each antennomere, except for the last, is noticeably clavate with a large protuberance at the apex (Fig. 3).

Pronotum

The pronotum of *M. raddei* lacks the large lateral spines found in many other cerambycids (Fig. 5). Instead, the entire pronotum is covered in a complex pattern of longitudinal ridges (Fig. 4), a feature not found among similarly sized native species. The entire body of *M. raddei* is covered with scattered short yellow setae, giving the beetle a mustard brown color. These setae are most dense on the sides, head, and pronotum.

Elytral Apex

Each elytron of *M. raddei* bears a single small spine at the apex (Fig. 6). Most native cerambycids have an unarmed apex or one armed with a pair of longer spines (Fig. 7).

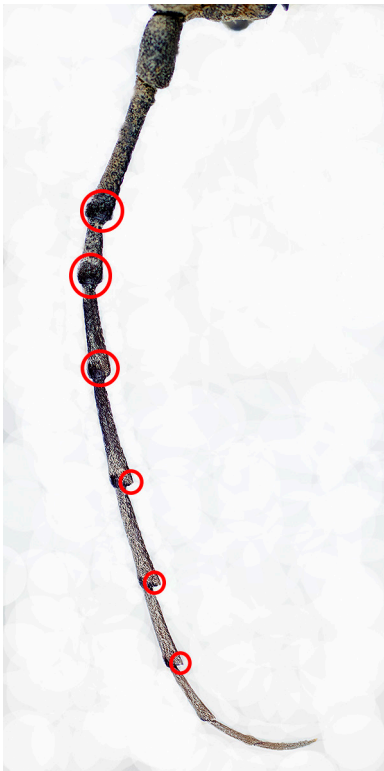


Fig. 3: Antenna of *Massicus raddei*. Note the large protuberance at the end of each antennomere (circled).



Fig. 4: *Massicus raddei* (target).



Fig. 5: *Plinthocoelium* sp.

Figs. 4-5: Pronotum of *Massicus raddei* (top) and *Plinthocoelium* sp. (bottom). Note the series of ridges and lack of lateral spines on *M. raddei*.



Fig. 6: *Massicus raddei* (target).



Fig. 7: *Gnapholodes* sp.

Figs. 6-7: Elytral apex of *M. raddei* (top) and *Gnapholodes* (bottom). Note the single small spine on the apex of *M. raddei* (circled).



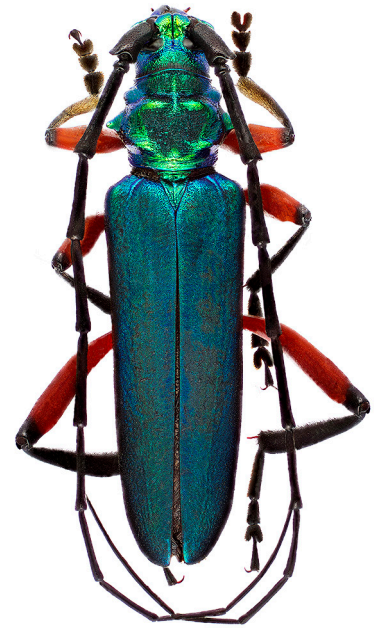
10 mm

Fig. 8: *Massicus raddei* (target).



10 mm

Fig. 9: *Enaphlodes* sp.



10 mm

Fig. 10: *Plinthocoelium* sp.



10 mm

Fig. 11: *Gnapholodes* sp.



10 mm

Fig. 12: *Stenaspis* sp.

Suspect *Massicus raddei* specimens (cerambycids over 3-5 cm in length with clavate antennomeres, ridged pronotums without lateral spines, and a single spine on the apex of each elytron) should be sent forward for identification. Specimens must be labeled and carefully packed to avoid damage during shipping.

Key to Screen *M. raddei* Suspects in the United States

1. Beetle 3-5 cm long; antennae substantially longer than body 2
- 1'. Beetle smaller than 3 cm; antennae not substantially longer than body..... Not suspect

2. Antennae with each antennomere except for the last armed clavate (Fig. 3); pronotum bearing series of longitudinal ridges and unarmed with lateral spines (Fig. 4); each elytron armed with a single small conical spine at apex (Fig. 6)..... ***M. raddei suspect***
- 2'. Antennomeres unarmed by bulb at apical end; pronotum either with lateral spines or smooth and without ridges (Fig. 5); elytra without spines on apex or each elytron armed with multiple longer spines on apex (Fig. 7) Not suspect

Citation

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References for more information on *Massicus raddei*

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