

## SEXING AND RECLAIMING DRIED SPECIMENS OF *DENDROCTONUS ENGELMANNI* HOPK.\*

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Two techniques which may not be widely known were recently brought to the attention of the writer. One, which does not destroy the living beetles or specimens, is a rapid method for determining the sex of adults of some species of *Dendroctonus*. The other is a method for reclaiming dried or pinned specimens for histological study. The use of these techniques on adults of *Dendroctonus engelmanni* Hopk. is reported in this paper.

Several years ago it was necessary to determine the sex of a number of Engelmann spruce beetle adults. At that time a description of the external characteristics which satisfactorily separated the sexes could not be located, and it was necessary to dissect the specimens. The presence or absence of the dark-brown forked spicule of the male provided the most rapid method of confirming the sex.

Recently, Mr. V. McCowan, entomologist for Weyerhaeuser Timber Company, was able by touch to determine accurately the sex of over 400 adults of *Dendroctonus pseudotsugae* Hopk. This technique can be used successfully with *D. engelmanni*. To establish the point, a collection was used of 105 specimens from Bolean Lake, pinned in 1950. These specimens were examined first by touch, then externally under the microscope, and, finally, internally.

Irregularly scattered over the interstrial spaces of the elytral declivity of the female are a number of tubercules. These are most numerous adjacent to the elytral suture and can be felt readily. The tubercules were rarely present on the elytral declivity of the male.

To determine the sex of a specimen, a finger is run backward and downward over the caudal portion of the elytra so that the feel of the tubercules is not confused with that of the hairs and bristles. The elytral declivity of the female feels like fine emery paper, whereas that of the male feels like talc.

After determining the sex of each specimen as described above, the presence of tubercules was noted. The sex was confirmed by dissection. Sixty-eight of the specimens were female. Two of the specimens were incorrectly sexed by touch; both were males and both had prominent tubercules.

Before dissection, the specimens were first soaked for two hours in a 0.5-per-cent solution of tri-sodium phosphate. The writer is indebted to Dr. J. A. Chapman for drawing his attention to this technique of van Cleave and Ross for reclaiming dried specimens for histological purposes. These authors report that the solution restores the normal appearance of small invertebrates, making them relatively soft and pliable without showing any dissociation of tissue. This was borne out in the present investigation. After treatment it was possible to examine the gut for food content, to determine the number of eggs present, and to identify the various reproductive structures. The tissues were pliable but not fragile.

One of the interesting sidelights of the examination was the discovery of nematodes in a large number of the specimens. Where present they were usually very numerous and densely packed ventrally in the abdominal cavity and in the vicinity of the proctodæum. The adults of 43 per cent of the seventy-five galleries represented by the collection were infested.

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### Reference

- van Cleave, H. J., and J. A. Ross. A method for reclaiming dried zoological specimens. *Sci.* 105 (2725):318. 1947.

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