Appendix 7

Extension Bulletin E-2938 Reprinted December 2005

# Signs and Symptoms of the Emerald Ash Borer

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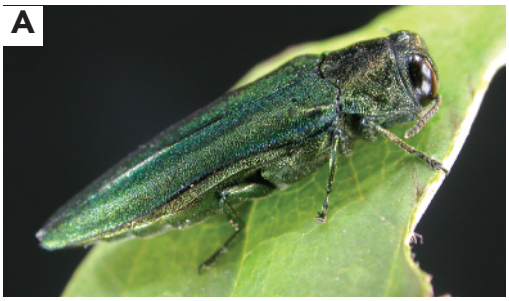
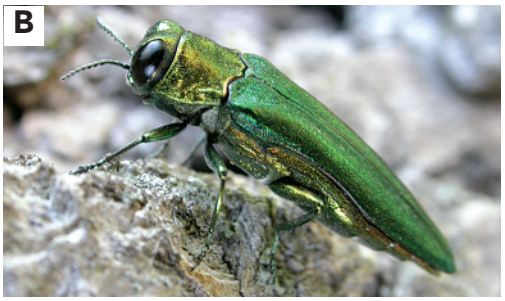
## Adult



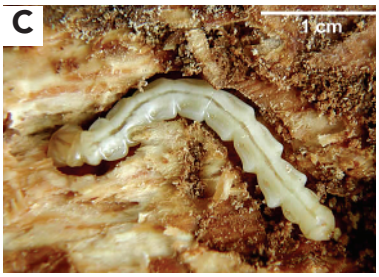

Michigan State University




Michigan State University

- Bright, metallic green (Figs. A, B).
- 1/2 inch long, flattened back (Figs. A, B).
- Purple abdominal segments beneath wing covers.

## Larva

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- Creamy white, legless (Fig. C).
- Flattened, bell-shaped body segments (Fig. C).
- Terminal segment bears a pair of small appendages.

## Canopy Dieback

E. Rebek, MSU

E. Rebek, MSU

- Begins in top one-third of canopy (Fig. D).
- Progresses until tree is bare (Fig. E).

## Epicormic Shoots

J. Smith, USDA APHIS PPQ

J. Smith, USDA APHIS PPQ

- Sprouts grow from roots and trunk (Figs. F, G).
- Leaves often larger than normal.

Emerald Ash Borer

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## Bark Splitting

H

J. Smith, USDA APHIS PPQ

I

A. Storer, Mich. Tech. Univ.

- Vertical fissures on bark (Fig. H) due to callous tissue formation (Fig. I).
- Galleries exposed under bark split.

## Serpentine Galleries and D-shaped Exit Holes

J

D. Cappaert, MSU

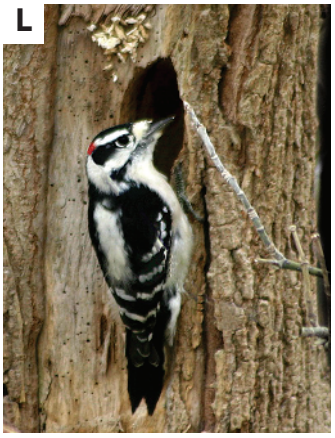
K

D. Cappaert, MSU

- Larval feeding galleries typically serpentine (Fig. J).
- Galleries weave back and forth across the woodgrain.
- Packed with frass (mix of sawdust and excrement).
- Adults form D-shaped holes upon emergence (Fig. K).

## Increased Woodpecker Activity/Damage

L



D. Cappaert, MSU

M

Karen D'Angelo, MSUE

- Several woodpecker species (Fig. L) feed on EAB larvae/pupae.
- Peck outer bark while foraging (Fig. M).
- Create large holes when extracting insects (Fig. M).

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*Revised - 12:05 - 5M - KMF/LB*

**Appendix 6**

## Ash Crown Dieback

0%

10%

20%

30%

40%

50%

60%

70%

80%

90%

100%