Emerald Ash Borer: A Threat to Texas' Forests
First of the "Dirty Dozen"

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An introductory article discussing exotic invasive pests that could threaten forest resources in Texas was included in the June 2005 issue of *Texas Forestry*. As a follow-up to that article, a series of 12 short articles about specific exotic pests that are either present in Texas or are at our doorstep is planned. The authors (Joe Pase, Ron Billings, and Kim Camilli) are calling this series the "Dirty Dozen," and this is the first article in the series. Exotic pests covered will include insects, invasive plants, and one disease.

As stated in the introductory article, human actions are the primary means of invasive species introductions. The negative aspects of non-native introductions have been emphasized, but there is also an upside to exotic organisms that have been introduced and established in the United States. Can you imagine what life would be like without wheat, cattle, and poultry, to name a few? Importing new plants and animals to the United States in the 1800s was a very common event. However, with present day global economies, many unwanted pests have arrived and will continue to arrive at our shores and borders. In other cases, various non-native plants were initially introduced as ornamentals, but have escaped and become invasive pests.

EMERALD ASH BORER is the first exotic pest to be presented. Although not presently known to exist in Texas, this small beetle is a potential forest pest in our state. Following is an overview of the havoc currently being caused by the emerald ash borer in the Lake States and Canada.

An exotic beetle from Asia was discovered in July 2002 feeding on ash (*Fraxinus* spp.) trees in southeastern Michigan. It was identified as *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae), and given the common name of emerald ash borer (EAB). Since then this borer has been found in Ohio, Indiana, and adjacent Canadian provinces, and has killed over 10 million trees in these three states alone. Ash trees shipped from Michigan to a Maryland nursery were found to harbor EAB in 2003. Intensive efforts to destroy ash trees suspected to be infested with EAB have been carried out. The final verdict on eradication of this beetle from Maryland remains unclear. Across its known U.S. range, this beetle has cost states, municipalities, property owners, nursery operators and forest products industries tens of millions of dollars. Evidence suggests that EABs have been established in Michigan for at least six to ten years.

The EAB is a bullet-shaped, glossy green metallic wood boring beetle about ⅓ – ½ inch (7 – 15 mm) long in the adult stage (see photo). Larvae of this beetle feed in the cambium between the bark and wood, producing galleries that eventually girdle and kill branches and entire trees. In North America, this borer has only been known to attack ash trees. Adults leave a D-shaped exit hole when they emerge from trees in the spring (see photo). Woodpeckers often feed on EAB larvae and heavy woodpecker damage on ash

trees may be a sign of EAB infestation. Larvae have developed in branches as small as 1 inch in diameter and in the trunks of trees as large as 55 inches in diameter.

Environmental stress (weather, for example) and human activities (disturbances to the soil) likely contribute to the vulnerability and rapid decline of infested ash trees. However, EAB has killed apparently vigorous trees in woodlots and urban trees under regular irrigation and fertilization regimes.

A concerted effort to stop EAB has been launched by state and federal officials. **Research** is being conducted at universities to better understand this pest and find ways to detect new infestations, control EAB adults and larvae, and contain the infestation. **Eradication** efforts by state and federal agencies in Michigan, Ohio, Indiana and Canada are under way to prevent small infestations from growing large. Finally, **quarantines** are in place to prevent infested ash firewood, logs or nursery trees from being transported to uninfested areas and starting new infestations.

The emerald ash borer is an exotic forest pest we definitely do not need or want in Texas. If you detect an insect resembling EAB in Texas, contact TFS Forest Pest Management in Lufkin (Phone: 936-639-8170) or e-mail jpase@tfs.tamu.edu.

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Emerald ash borer adult beetles are metallic green, about ½-inch long, and have a bullet-shaped body. (Photo credit: Ed Czerwinski, Ontario Ministry of Natural Resources, www.forestryimages.org)

UGA 1439002

When adult emerald ash borer beetles emerge from a tree, they chew a distinct D-shaped exit hole in the bark. (Photo credit: David R. McKay, USDA APHIS PPQ, www.forestryimages.org)