# Pine shoot beetle, *Tomicus piniperda* (Linnaeus):
A potential threat to Florida pines
(Coleoptera: Scolytidae)[1]

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INTRODUCTION: *Tomicus piniperda* (Linnaeus), a pine shoot beetle native to Europe, was first discovered in the United States in July of this year in a Christmas tree plantation in Ohio. Since then, intensive surveying by the U.S. Department of Agriculture and state departments of agriculture has revealed its presence in six northern states: Ohio, Pennsylvania, New York, Michigan, Indiana, and Illinois. Because *T. piniperda* occurs about as far south in the Old World as the latitude of Florida, it is considered to be a potential threat to at least some of the pine species intensively cultivated in the state.
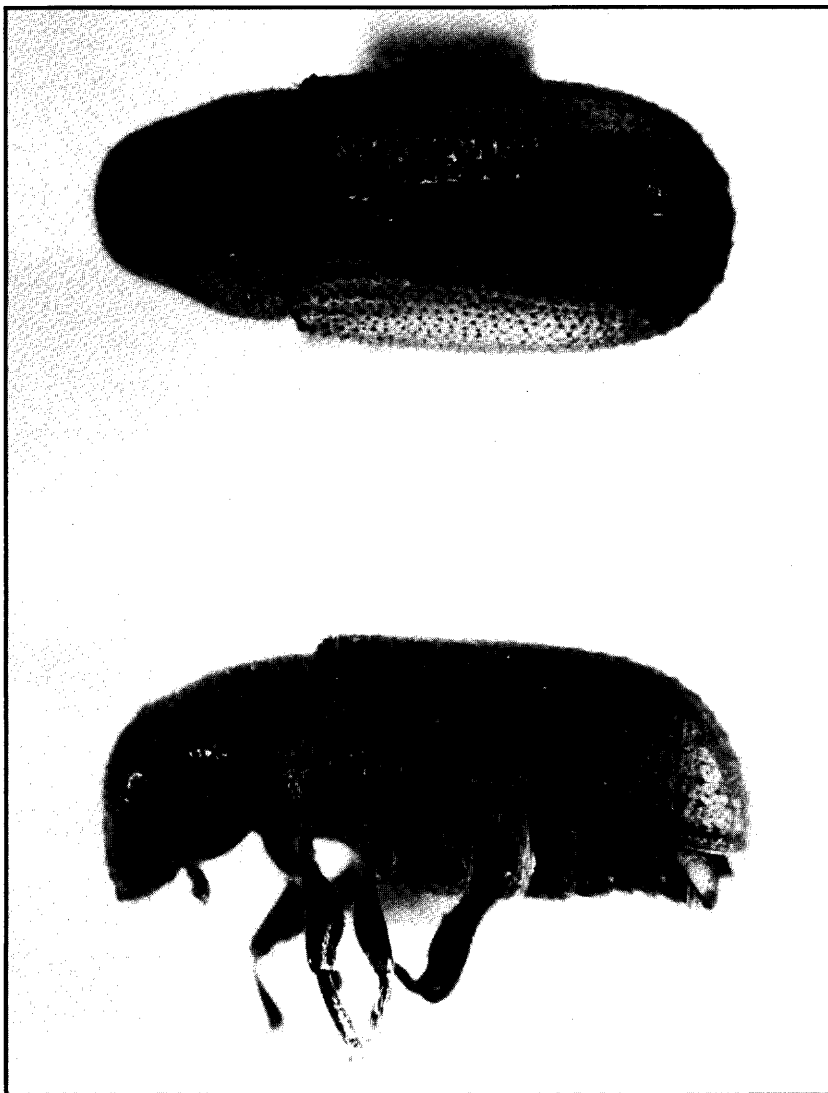
Figures 1-2. *Tomicus piniperda* (Linnaeus), adult. 1) Dorsal view; 2) lateral view.
DPI photo by Jeffrey Lotz.

IDENTIFICATION: Adults (Figs. 1-2) are brown to black, 3.5-4.8mm long, and somewhat resemble individuals of *Dendroctonus* in general appearance, but the funicle of the antenna is composed of six antennomeres. *Tomicus piniperda* can be distinguished from other members of the genus by the smooth second elytral interval on the declivity.

DISTRIBUTION: Algeria, Austria, Belgium, Bulgaria, Canary Islands, Cyprus, Czechoslovakia, Finland, France, Germany, Great Britain, Greece, Hungary, Italy, Japan, Korea, Madeira, Netherlands, Norway, Poland, Portugal, Rumania, Russia, Spain, Sweden, Switzerland, and Turkey (Anonymous 1972). It has recently been reported as a serious forest pest in China (Hui 1991). In the United States, it has been found thus far in six northeastern and north central states.

BIOLOGY: The following information is derived from Hanson (1940), who studied the life-cycle of *Tomicus piniperda* in Great Britain. This species overwinters as an adult, either in hollowed twigs or in galleries at the base of the tree, emerging as early as February in warm localities to construct brood galleries at the base of the tree trunk. Development from egg to adult requires about three months, with adults of the new generation beginning to emerge in June. The new adults are sexually immature and move into the tree crown to feed on the growing tips throughout the summer. The adults which overwintered also move into the crowns for what is known as "regeneration

feeding." These individuals then move back into the trunks to construct new galleries and to lay a second batch of eggs. The adults of this second brood usually emerge late in the summer. In Great Britain there is usually only one generation per year; in warmer countries there may be two generations annually.

ECONOMIC IMPORTANCE: This species is considered the most serious scolytid pest of pines in Europe. It attacks both the trunks and growing shoots of pines, especially Scotch pine, *Pinus sylvestris* L. In Europe, it occasionally attacks spruce (*Abies* sp.) and larch (*Larix* sp.). It especially attacks weakened, stressed, or dying trees, but will also attack and kill apparently healthy trees. In the United States, it has been found most commonly in *P. sylvestris*, but also in Austrian pine, *P. nigra*, and eastern white pine, *P. strobus*. According to Hanson (1940), the worst damage caused by the beetle is the tip feeding: "This destruction of the growing points causes various forms of malformation...and results in great reduction of the value of the crop." Trees may be destroyed by the tip feeding, or by the feeding in the trunk, or by attack of other insects caused by the stress. This kind of damage would be especially severe in Christmas tree plantations, where tree form is the primary consideration, as "...the injuries caused by [*Tomicus*] are of a permanent character and the record of the insect's attack is indelibly stamped on the tree..." (Hanson 1937). It has recently been reported by Hui (1991) as a severe pest of *Pinus yunnanensis* L. in the Kunming Region of China, where it killed many apparently healthy trees and "...caused great economic losses."

It is felt that four species of pines native to Florida might be susceptible to attack by *Tomicus piniperda*, based primarily on resin flow and bark characteristics: sand pine, *Pinus clausa* (Chapm. ex Engelm.) Vasey ex Sarg.; spruce pine, *P. glabra* Walt.; pond pine, *P. serotina* Michx.; and loblolly pine, *P. taeda* L. Forest resources that may be threatened include Christmas trees, pine landscape/nursery products, and pine timber. Loblolly pine is the most important commercial species with a growing volume in Florida of almost 675 million cubic feet. Sand pine is the primary Christmas tree crop and annual retail sales of Florida Christmas trees amount to about $3 million. Figures were gathered from federal, state, and industry sources.

SURVEY: Symptoms of attack include dieback, yellowing, and especially dead, bored-out shoots littering the ground under infested trees (Anonymous 1972). Damage may resemble that sometimes caused by *Ips* spp. or by pine tip moths (*Rhyacionia* spp.) and any shoot damage should be carefully examined.

CONTROL: There apparently is no practical chemical control for this pest. Cultural practices used in Europe include precise timing of cutting operations and the debarking of cut timber.

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