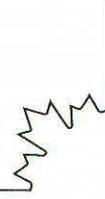


## *Agrilus biguttatus* (Fabricius)

Two spotted oak borer



### IDENTIFICATION

Adults are cylindrical, metallic beetles, 8 to 13 mm long, ranging in colour from golden-green, green, blue-green, blue to violet.<sup>42, 129</sup> The elytra are slender and have two white spots near the posterior end of the elytral suture.<sup>42, 129</sup> The frons is wide and flat, with a shallow depression.<sup>129</sup> The length of the pronotum is one and a half times the width.<sup>129</sup>

### HOST TREES

*Quercus* (main host), *Fagus* and *Castanea*.<sup>98, 130</sup> *Quercus rubra* is a known host tree occurring within Canada.<sup>98</sup>

### LOCATION OF INFESTATION WITHIN THE TREE

Larvae feed on the inner bark and sapwood along the entire bole (including stumps) and larger diameter branches.<sup>120, 129, 130</sup> Immature beetles maturation feed on host tree leaves.<sup>42, 98, 120</sup>

### HOST CONDITION

Standing trees (especially if weakened by defoliation, frost damage or water stress) or recently downed trees and stumps.<sup>98, 120, 129, 130</sup> In its native range, larvae will not develop in dried dead trees.<sup>120</sup> Healthy trees are also susceptible to attack.<sup>98, 120</sup> Although beetles prefer larger diameter (i.e. greater than 30 cm) and older (i.e. 50 to 120 years) trees, attacks have also been recorded on 20 year old hosts.<sup>98, 120</sup>

### DISTRIBUTION

Europe, Middle East, Siberia and northern Africa.<sup>42, 98, 120</sup>

### SIGNS AND SYMPTOMS

Females oviposit clusters of 5 to 6 eggs on the bark of host trees.<sup>42, 120, 129</sup> Larvae bore through the bark and excavate frass-filled, zig-zagging galleries which can reach lengths of 155 cm.<sup>42, 98, 120</sup> Early instar larvae generally make their galleries along the wood grain while older instars produce galleries in irregular twisting transverse directions.<sup>42, 98, 120</sup> These galleries are not as distinctly “S-shaped” as those created by the emerald ash borer, *Agrilus planipennis*. Dark cracks and discolouration of the bark and cambial tissue may occur over the galleries as the tree tries to defend itself from the invasion.<sup>98, 120</sup>

Larvae overwinter in 10 to 14.8 mm by 3 to 4.5 mm chambers within the inner bark.<sup>42, 120</sup> Woodpecker activity on living trees may indicate overwintering larvae.<sup>120</sup> Beetles emerge from “D-shaped” exit holes that are about 2.5 by 3.0 mm and are found from ground level up to a height of 10 m (i.e. lower portion of the crown).<sup>42, 98, 120</sup>

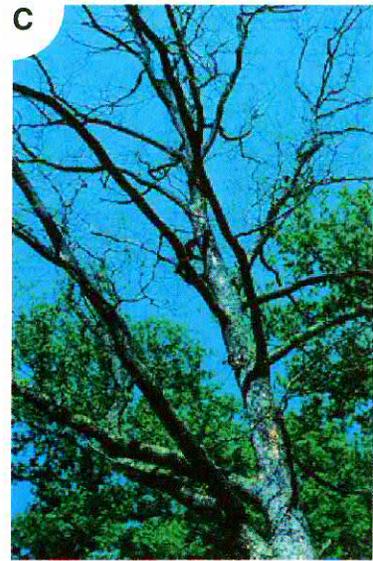
Larval galleries can girdle the host tree resulting in twig and branch die-back, changes in foliage colour from green to brown, thinning of foliage within the crown, development of epicormic shoots along the stem and tree mortality in heavily infested trees.<sup>42, 98, 120</sup>



Adult *A. biguttatus* (8-13 mm long). Note white spots near elytral suture.



Zig-zag shaped larval galleries (up to 155 cm long).



Branch and twig dieback caused by *A. biguttatus*.



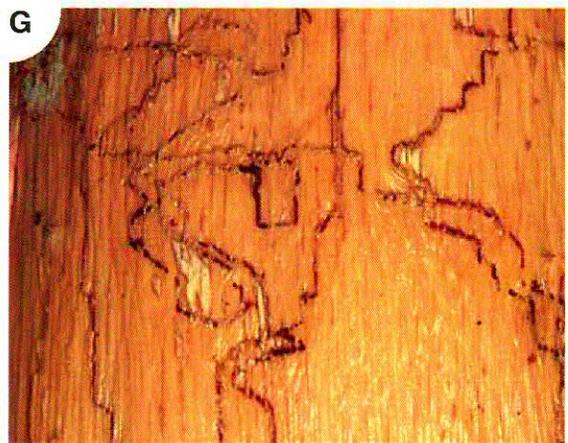
*A. biguttatus* larva just prior to pupation.



Mature *A. biguttatus* larva.



D-shaped exit hole (2.5 by 3.0 mm) of *A. biguttatus*.



Early instar larval galleries. Note zig-zag shape.