

Figure S1. The 1909 class tree, a pin oak (*Quercus palustris*), in the Waugh Arboretum at the University of Massachusetts, Amherst. The historical image in the upper left shows the tree being hauled to the planting site. The sonic tomograms (**middle**) depict decay in the heartwood with a significant decrease in the area of decay from the lower to the upper sampling heights. The electrical resistance tomograms (**right**) indicate low electrical resistance (high conductivity) throughout most of the heartwood. (University Photograph Collection [RG 130]. Special Collections and University Archives, University of Massachusetts Amherst Libraries).

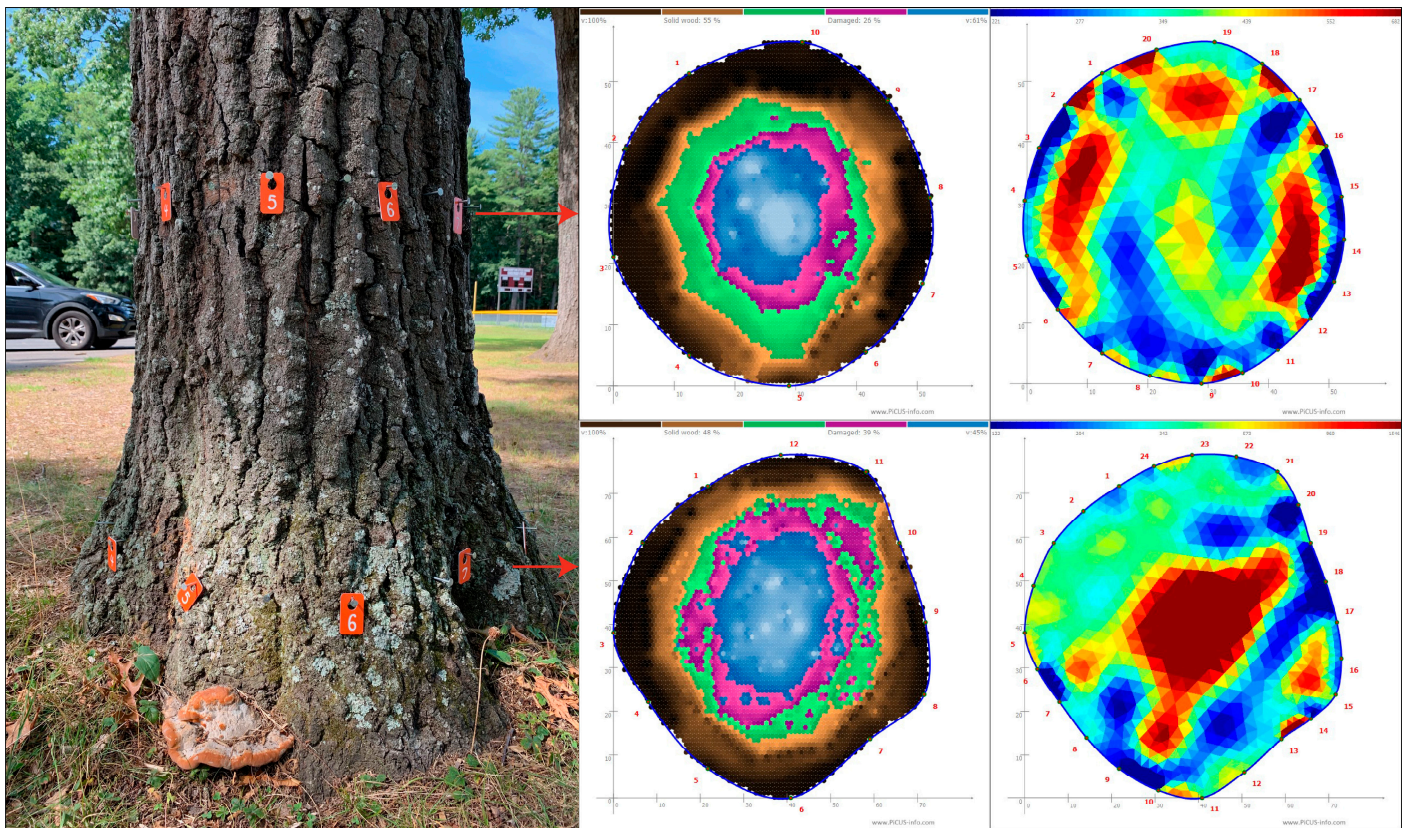


Figure S2. A black oak (*Quercus velutina*) with root and butt rot from *Niveoporofomes spraguei*. The sonic tomograms (**middle**) depict decay in the heartwood while the electrical resistance tomograms (**right**) show high electrical resistance (low conductivity) in the heartwood, indicating a cavity has developed.

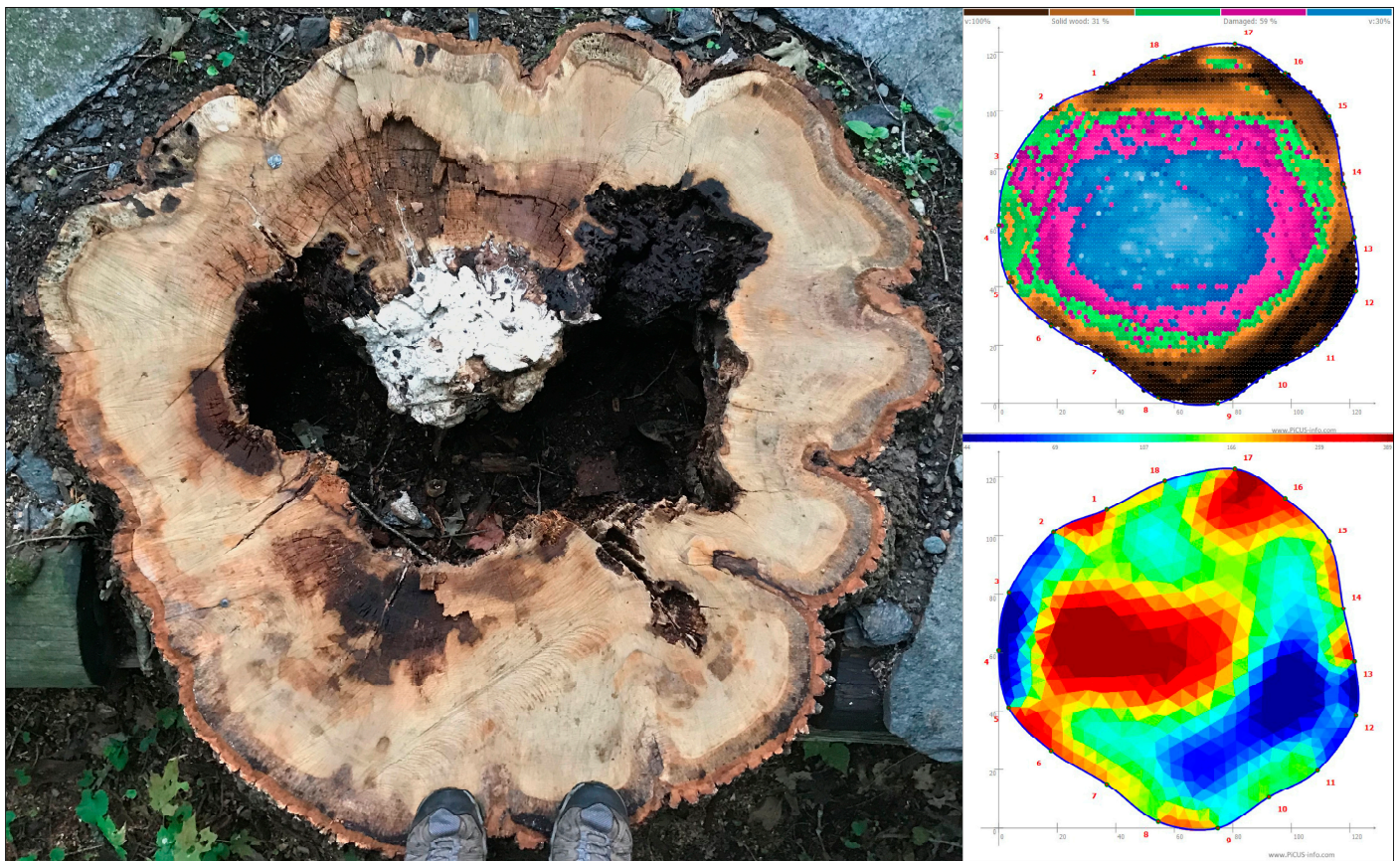


Figure S3 Overhead view showing the stump of a white oak (*Quercus alba*) that suffered root and butt rot from *Laetiporus* (white-colored fungal mycelia, brown rot and cavity in center) and *Armillaria* (white rot of cambium and sapwood in upper left). The sonic tomogram (**upper right**), captured at a height of 20 cm above the soil line, depicted decay within the heartwood that had advanced into the outer sapwood. The electrical resistance tomogram (**bottom right**) depicted high electrical resistance (low conductivity) within the decaying heartwood. When interpreted together, they indicate a cavity had developed, which was corroborated when the tree was removed.

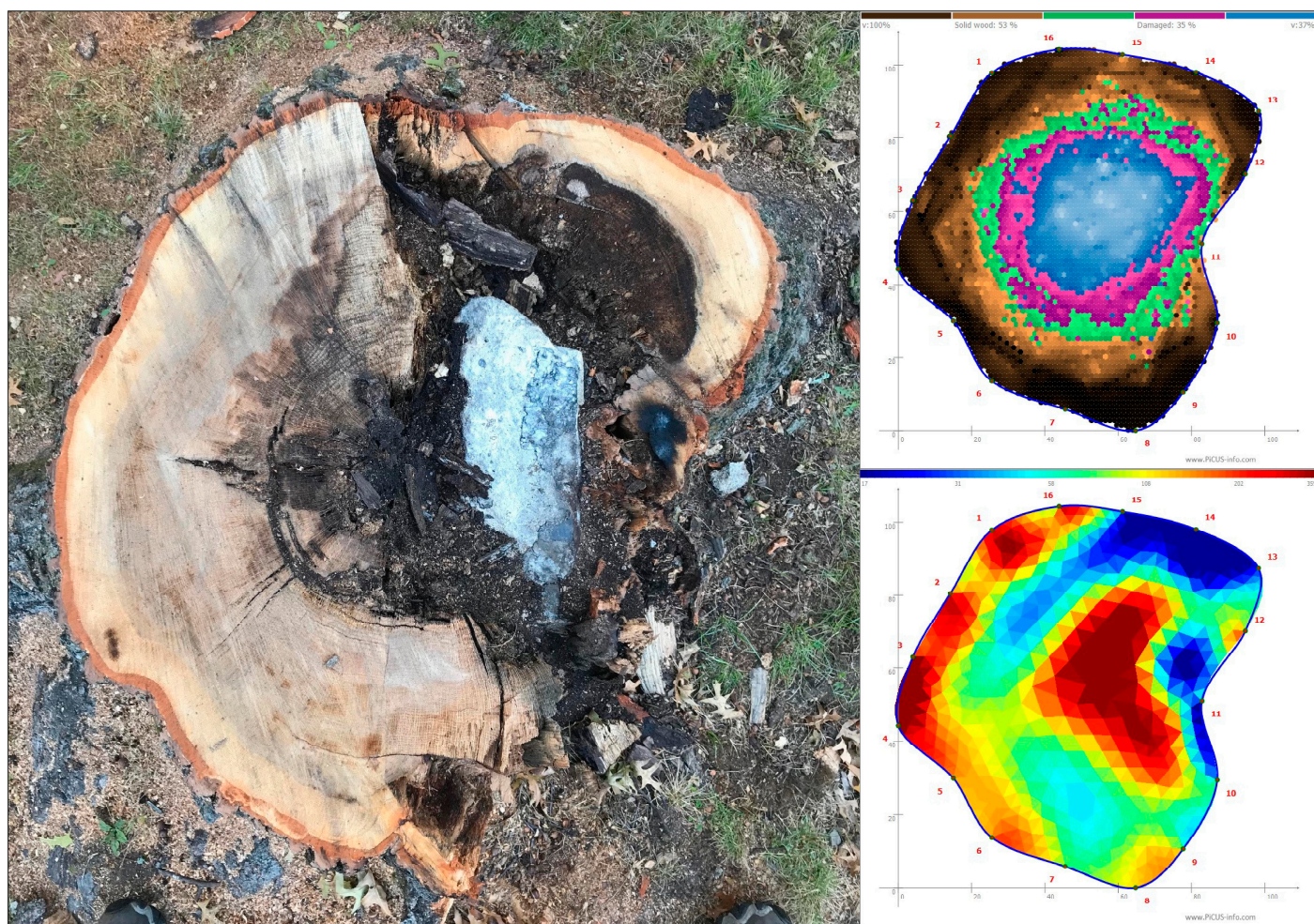


Figure S4. Overhead view showing the stump of a pin oak (*Quercus palustris*) planted in 1894 that suffered root and butt rot from *Armillaria*. The sonic tomogram (**upper right**), captured at a height of 30 cm above the soil line, depicted decay that had advanced into the outer sapwood. The electrical resistance tomogram (**bottom right**) depicted high electrical resistance (low conductivity) within the decayed heartwood. When interpreted together, they indicate a cavity had developed, which was corroborated when the tree was removed. The trunk cavity was filled with cement at an unknown time and the wound had completely healed over, obscuring its presence until the tree was removed.

Table S1. The mean area of decay (A_D) and mean maximum Z_{Loss} by oak species and group for all sonic tomograms with decay.

Oak Species	n	Mean A_D (%)		Mean Maximum Z_{Loss} (%)	
		GVB	VB	GVB	VB
<i>Q. rubra</i>	65	42 (23)	33 (22)	36 (24)	24 (20)
<i>Q. palustris</i>	38	33 (18)	24 (17)	26 (18)	16 (13)
<i>Q. velutina</i>	59	41 (21)	32 (21)	34 (19)	21 (16)
<i>Q. alba</i>	47	47 (21)	37 (21)	40 (24)	26 (19)
<i>Q. bicolor</i>	20	35 (23)	22 (22)	34 (25)	18 (19)
Oak Group					
Red Oak	162	40 (21)	30 (21)	33 (21)	22 (17)
White Oak	67	43 (22)	33 (22)	38 (24)	24 (19)
Total	229	41 (22)	31 (21)	35 (22)	22 (18)

Standard deviations in parenthesis.