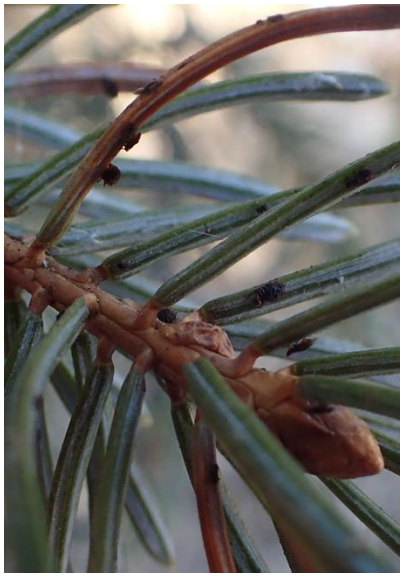
Site Name		Date		Data Collectors		
GPS Coordinates						
Spruce Tree Number	Spruce Diameter in inches (circle one)	Amount of Defoliation Damage (%) (circle one)		Number of live spruce aphids	Number of dead aphids	Other Notes
	<2” 2”-4” 4”-10” 10”-15” >15”	0-50% 51-75% >75%	Branch 1			
			Branch 2			
			Branch 3			
	<2” 2”-4” 4”-10” 10”-15” >15”	0-50% 51-75% >75%	Branch 1			
			Branch 2			
			Branch 3			
	<2” 2”-4” 4”-10” 10”-15” >15”	0-50% 51-75% >75%	Branch 1			
			Branch 2			
			Branch 3			



Percent Crown Defoliation Examples

0-50% defoliated	51-75% defoliated	>75% defoliated
		

U.S. Forest Service, Alaska Region, Forest Health Protection
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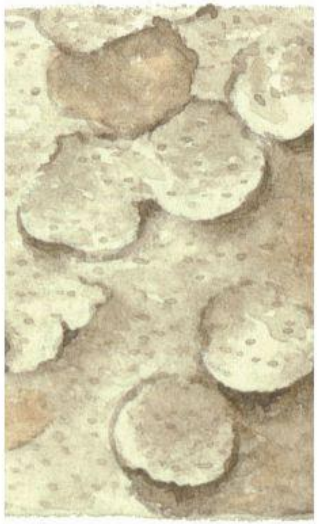
Tree Species Identification & Crown Assessments

western hemlock (*Tsuga heterophyla*)- “handshake hemlock”

Sitka spruce (*Picea sitchensis*)- “spikey spruce”, Alaska’s state tree!



Discuss similarities and differences between western hemlock and Sitka spruce (cone size, needle size, needle texture, bark, etc.).

Crowns assessments are a common measurement taken during forest health surveys. The fullness of the tree crown is useful for describing the health and vigor of a tree. Environmental stress, insect defoliators, and root or foliage diseases can all cause a reduction in the fullness of the tree crown.

Crown assessments compare the fullness of a tree to a healthy tree of the same size. It is a volume comparison, since the tree crown is three-dimensional, but the pictures below show two-dimensional examples. It can be helpful to have two observers rate the tree crown separately, then come to consensus.

What are some ways a team of assessors can ensure that they are measuring percent defoliation in the same way before they start collected real data?

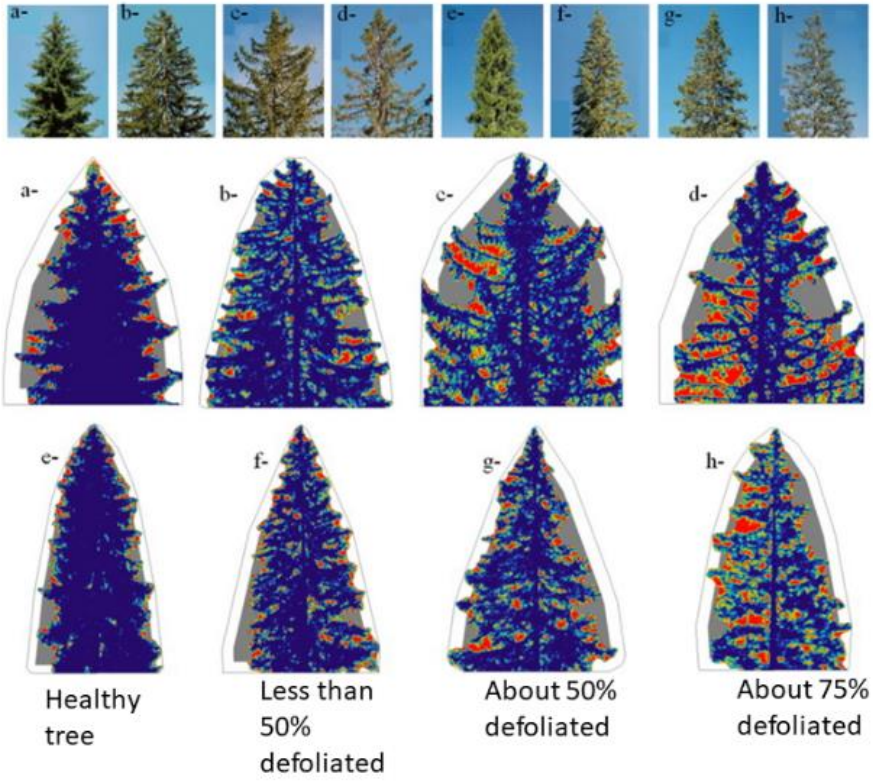


Figure from: Borianne et al. 2017. Automated efficient computation of crown transparency from tree silhouette images. Computers and Electronics in Agriculture 133: 108-118.