

Investigation of the Disparity between the Abundance of *Tamalia* spp. Galls on *Arbutus unedo* and *Arctostaphylos* spp.

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The purpose of this project was to investigate the disparity between the abundance of *Tamalia* spp. galls on non-native *Arbutus unedo* and native *Arctostaphylos* spp. It was hypothesized that this disparity was caused by *A. unedo*'s susceptibility to different pests and diseases that are not found in its native habitat of the Mediterranean. The occurrence of *Tamalia* spp. galls on *A. unedo* has not been recorded in any scientific literature, and is the first occurrence of *Tamalia* on this branch of *Arbutoideae*'s taxonomic tree. One population consisted of ten *A. unedo* shrubs which was compared to 74 *Arctostaphylos* spp. individuals, with data regarding species, crown volume, branch divisions, number of galls on three outermost branch divisions, pathogenic status, and gall contents. The most likely pathogenic explanation for the difference in galls per cubic meter between *A. unedo* and *Arctostaphylos* spp. is that all of the *A. unedo* individuals exhibited extensive *Heliethrips haemorrhoidalis* infestations while only around three percent of *Arctostaphylos* spp. sample were found to harbor any thrips. Thrip bites and frass encourage the growth of *Capnodium* on the leaves, and all *A. unedo* individuals were found to have *Capnodium* on the leaves while only five percent of *Arctostaphylos* spp. individuals were found with *Capnodium* on their leaves. When *Capnodium* appeared on *Arctostaphylos* spp. individuals, it was also associated with a lower number of galls per cubic meter. The presence of *H. haemorrhoidalis* and the accompanying *Capnodium* on the *A. unedo* individuals are associated with the much lower number of galls per cubic meter. The far lower number of galls per cubic meter on *A. unedo* is related to its susceptibility to at least one New World vector and resulting fungal infection.

Awards Won:

Third Award of \$1,000