

Analysis of USFWS eDNA analysis of Tiehm's buckwheat from Naomi Fraga director of conservation programs for the California Botanic Garden

Analysis

Roots

11/22 samples had something (squirrel, deer, human, unidentified)

Ground squirrel DNA was found on 2/22 root samples from subpopulation 1 (9%)

Deer DNA was found on 3/22 root samples from subpopulation 1, 4 and 6 (this one was a control root); 13.6%

Human DNA found on a root at subpopulation 6 (4%)

5/22 samples had unidentified DNA (22.7%)

Soil

11/24 samples yielded some kind of DNA

Ground squirrel DNA was found on 2/24 soil samples from subpopulation 6 (8%)

Deer DNA was found on 2/24 soil samples from subpopulation 1 (8%)

No human DNA on soil

The evidence provided for ground squirrel herbivory includes 2 DNA samples on damaged roots at subpopulation 1 out of 22 samples at four sites, and two soil samples from subpopulation 6 out of 24 samples from four sites. Deer DNA was found at similar frequencies, but deer are not considered a possible cause. Human DNA was determined to be contamination.

Questions:

I need to know more about why human DNA is attributed to contamination. The controls do not have human DNA and there was only one sample with human DNA. I need to know if the study has a decontamination protocol.

Patrick and I observed increased human activity at the site since the wide scale damage occurred, so I don't think the human sample should be discounted.

The conclusions in the report seems to conflict with the NDOW report that rules out antelope ground squirrel as a possible culprit due to knowledge of life history characteristics (they typically do not eat roots), and the fact that ground squirrels were not in great abundance to cause such wide scale damage. I am curious what Dr. Jackie Grant thinks about this.

Overall I feel very cautious about putting much weight on these results given the few samples with positive identifiable hits and the deer DNA in the control root. I do not feel this report is definitive as currently presented.