

Large Mammal Advisory Committee

Approved Project

QUARTERLY PROGRESS REPORT

Project Name: Estimation of Abundance of the Pacific Deer Herd Using Fecal DNA

Quarter: 2<sup>nd</sup>: October through December 2014/ FY 14/15 (months/FY)

**Summary of cumulative 2014 Field Work**

Start Date: field work started on June 23,2014.

Total # of Samples Collected: 629 (includes 415 samples for this study and 214 post-fire samples archived for future analysis)

**Summary of cumulative 2013—2014 Lab Work**

Total # 2013 DNA Samples collected: 480

Total # 2014 DNA Samples collected: 415\*

Total project samples collected: 895

No. of samples fully processed\*\* to date: 484 samples

No. of samples pending processing until funding becomes available in FY 2015/2016: 411

\*A subset of 97 of these samples was processed additionally using an experimental protocol for comparison to evaluate an alternative storage procedure. The original protocol proved superior and the alternative storage protocol will not be used in the future.

\*\*Full processing of a fecal sample involves DNA extraction, followed by duplicate attempts at polymerase chain reaction (PCR), electrophoresis, and fragment analysis, and, lastly, comparison of duplicate allele calls and formation of a consensus genotype.

**Progress and preliminary results**

Based on the 484 samples fully processed thus far, we experienced a success rate of 57%. In general, the success rate was substantially higher in the second year. Therefore, we are investigating causes for the poor DNA yield in extractions of year 1 samples and, depending on what we find, may attempt re-processing for a portion of the 2013 samples.

**Proposed Post-Fire Study**

On September 13, the King fire erupted near the project area (Fig. 1). The fire reached the western boundary of the study area and burned over 97,000 acres. The area burned is designated a Pacific Deer Herd holding area and winter range. All pre-fire samples (n=895) have been collected, processing is in progress, and data analysis is pending. From October to November 2014, we

collected samples (n = 214) from three post-fire runs on 13 transects in the Ice House, Van Vleck and Loon Lake sampling areas. The Union Valley area was closed to the public in the wake of the King Fire, so we were unable to sample in that area. Additional funding will be sought to process these samples and to continue the project for up to two post-fire years.

**Work Anticipated for Next Quarter:**

Complete preliminary analysis of samples already processed, and write a draft report on the results.

Additional funding to extend this study will be requested via a grant proposal in early 2015 to evaluate the effects of the King Fire on abundance of the Pacific Deer Herd. We will propose to analyze the additional pellets collected this quarter to evaluate immediate post fire effects as well as to extend the pellet collection for a minimum of one more year (preferably two) to determine how the King Fire affected immigration and reproduction of this deer herd.

**Funds Expended:**

	<u>This quarter</u>	<u>Total to date</u>
Personnel:	\$9,334.00	\$33050.44
Operating Expense:	\$14,219.42	\$37,289.65
Total:	\$23,553.42	\$70,340.09

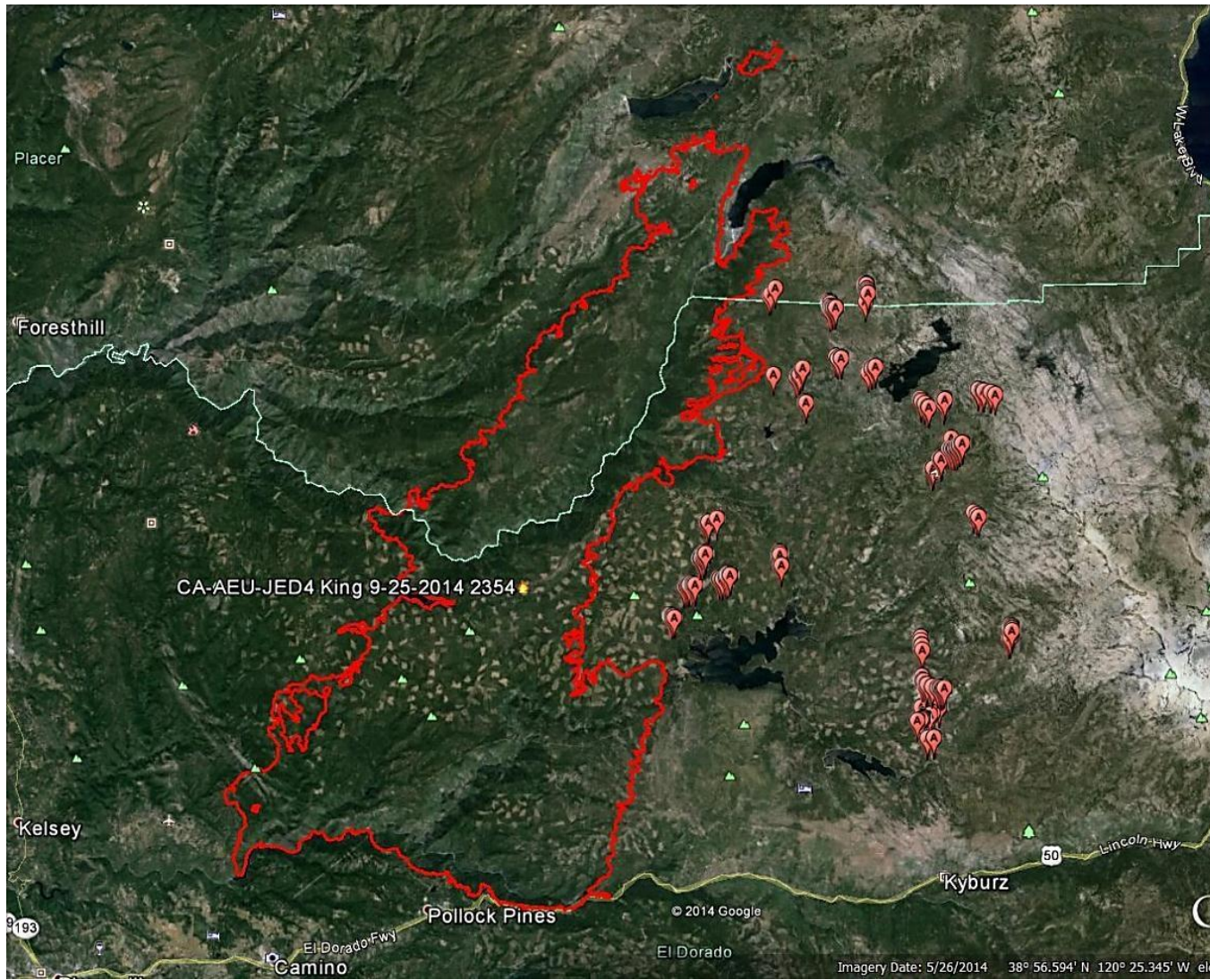


Fig. 1. Boundary of the 97,000 acre King Fire (red line) in El Dorado County and its proximity to the fecal DNA deer study.