1,000 YEARS OF PALEOECOLOGY & ENVIRONMENTAL ARCHAEOLOGY AT HOLEY MEADOW, SEQUOIA NATIONAL MONUMENT, CALIFORNIA (8A) Anna Klimaszewski-Patterson¹, Scott A. Mensing¹, and Linn Gassaway² ¹University of Nevada, Reno ²US Forget Service, Security National Forget/Cient Security National Monument

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Ethnographic studies in California indicate Native Americans, including the Tübatulabal and Yokut in the far southern Sierra Nevada, used fire to tend the landscape. Fire was used to facilitate acorn gathering, especially of California black oak (Quercus kelloggii), and to manipulate plants for basketry materials. Native American fire use likely affected forest composition, potentially resulting in an anthropogenicallyinfluenced landscape long before European contact. We use archaeological and palynological evidence to address whether Native Americans had an impact on forest composition. Site selection for paleoecologic reconstruction followed three criteria: deep sediments for palynological recovery, proximity to ecotone, and proximity to archaeological sites. We used wet meadows because no natural lakes occur below the subalpine zone in the southern Sierra Nevada. Holey Meadow (HLY; elevation 1,945 meters) was selected at the upper ecotone of Quercus kelloggii because previous studies have found this ecotone sensitive to climate change. The meadow is near known archaeological sites to better capture potential human influence. Radiocarbon ages indicate that sediment cores recovered from HLY (5.05 meters) span the full Holocene. An archaeological site five miles east of HLY dates to ~4500 B.P. and appears to be an autumn high-elevation Tübatulabal camp used during four southern Sierra Nevada cultural phases (Lamont, Canebrake, Sawtooth, and Chimney). Preliminary results show that vegetation responses are not always consistent with a climate-driven regime. Forest canopies are open during the warm Medieval Climate Anomaly (MCA; A.D. 975-1450) and close at the beginning of the Little Ice Age (LIA; A.D. 1350-1850) as expected by climate. Forest canopies begin reopening around A.D. 1450, with the most open forest conditions occurring near the same time (A.D. 1780) as the glacial maxima in the southern Sierra Nevada. This reconstruction occurs during two pre-historic cultural phases in the Kern Plateau: Sawtooth (A.D. 550 - 1250) and Chimney (A.D. 1250 - historic). Both phases record intensification of Native American use and exploitation of Sierran resources - such as more acorn collecting and processing, more hunting, and more basketry-making. Deliberate firing would have increased these resources. These fires could explain both the relatively high levels of Ouercus and shrubs, and the openness of forest canopies during a cooler climate. A pollen signal consistent with open forest canopies is also observed by a similar study performed at two lake sites in Klamath National Forest. Both of these studies provide examples where Native Americans may have maintained open canopy forests under cooler conditions.

Key words: paleoenvironment, environmental archaeology, Sierra Nevada, pollen analysis, Sequoia