



## Research Brief for Resource Managers

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# 12,000 Years of Chaparral Management by California Native People

Anderson, M.K., and J.E. Keeley. 2018. Native peoples' relationship to the California chaparral. Pp. 79-121 in, E.C. Underwood, H. Safford, N. Molinari, and J. Keeley, editors. *Valuing Chaparral. Springer Series on Environmental Management, Springer.* [https://doi.org/10.1007/978-3-319-68303-4\\_4](https://doi.org/10.1007/978-3-319-68303-4_4)

Until Europeans arrived 200 years ago, the native California people carefully managed chaparral with fire. The result was a productive patchwork of vegetation age classes where a multitude of important local products were produced, right down to a variety of species-specific manzanita ciders (Fig.1). This book chapter describes this artisanry in detail, dependent on chaparral ecosystems that were veritable grocery stores, pharmacies, hardware stores, homebuilding centers, tobacco shops, and craft supply stores, all in one. The authors elaborate on the variety of products with an extraordinary number of well-documented examples, including plant and animal species examples that have common uses across the region, converged upon by disparate tribes.

Before Europeans arrived, the art of chaparral management was sustainable and productive, until roughly 1600 to late 1700 for the coastal Indians, and until the mid-1900s (i.e., the Gold Rush) for the Sierra Nevada and northern California Indians. By using locally refined

### Management Implications

- By mastering the art of prescription burning over thousands of years, native California tribes sustainably maximized chaparral ecosystem services like food, medicine, and building materials.
- This long-term management altered the evolution and ecology of chaparral for about 12,000 years, creating an accessible, type-converted, vegetation age class mosaic that was immediately inviting to Europeans upon discovery.
- Now in northern CA there is less chaparral plant diversity, partly due to reduced burning. This is partially being amended by modern native tribes in partnership with land trusts and government agencies.
- Now in southern CA there is also reduced chaparral plant diversity, but here it is partly the result of increased anthropogenic burning (aka over-burning) resulting from a dramatically increased population compared to prehistoric human populations.

fire, digging, and replanting techniques that were tailored to location specific plant community/species compositions, the native California people mastered their environment

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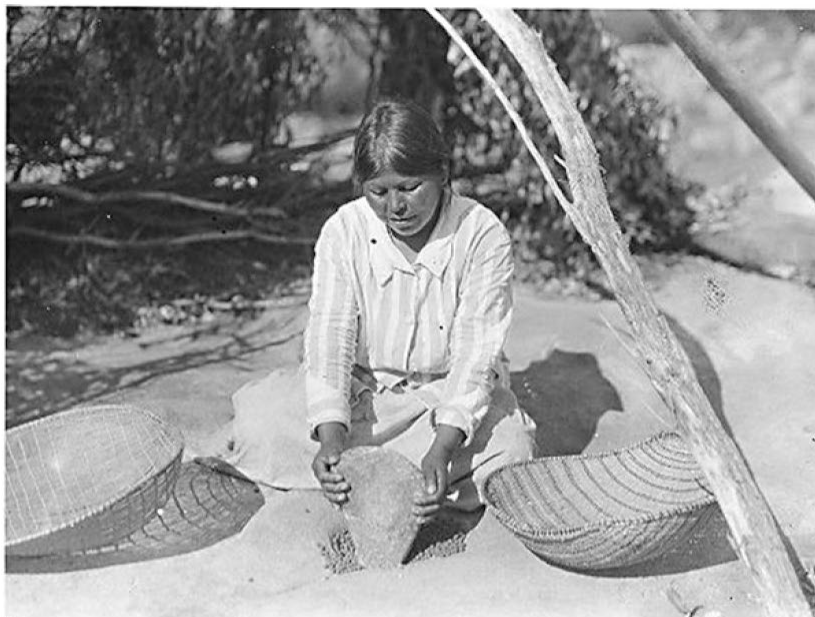
to produce food, medicines, and material needs.

The evidence supporting this rough picture comes from an assortment of ethnographic interviews with modern native people, as well as from historical records by anthropologists, ethnographers, and naturalists of the past. Tree growth rings, pollen deposits, and soil charcoal deposits also lend credibility to this history.

What is most interesting about this history is it shows how Indian fire management altered the evolution and ecology of chaparral. By carefully managing chaparral with fire, native California Indians essentially type-converted what would have been a mature and impenetrable shrubland into a navigable patchwork of grasslands and post-fire shrubland mosaics. These relatively inviting mosaics were filled with early succession flowers and other native, new-world plants, many of which were useful for food, medicine, and technologies. These strategically type-

converted areas were also more vulnerable to the invasive exotics that came with Europeans and their old-world livestock.

Today, chaparral plant diversity has declined significantly compared to pre-European times, but the causes are locally and regionally specific. For example, in northern California where modern human populations are still fairly sparse, lowered chaparral diversity is largely due to European-imposed fire suppression. California Indian fire management was abandoned and further, wildfires were routinely suppressed. In contrast, densely populated southern California chaparral burns too often. This over-frequent burning stems directly from increased ignitions associated with relentless human contact. This intense exposure to humans is mostly the result of risky development and the unabated housing sprawl.



**Figure 1.** Mollie Cheepo, North Fork Mono, pounding the berries of manzanita (*Arctostaphylos* sp.) in a bedrock mortar, a major step in processing the fruits for cider. Tasineu Village, North Fork. Museum Number 15-6227, courtesy of the Phoebe A. Hearst Museum of Anthropology and the Regents of the University of California.