

Middle Elevation Forest: Chinquapin Band

Black Oak / Xánthiip / *Quercus kelloggii*



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Cultural Importance

While tanoak acorns are the most prized among Karuk people, black oak acorns are also an important traditional food. Having various acorn sources in the forest ensures dietary diversity and resilience in the event of impacts to any one species. Black oak dominated habitat includes many culturally valued species (Anderson 2007, Long et al. 2016).

Life Cycle & Habitat

Xánthiip occurs in mixed-conifer forests as well as in mixed hardwood forests (Long et al. 2016, McDonald 1990). In the highly diverse Klamath-Siskiyou area, black oak has many overstory plant associates. It is a highly drought tolerant species that reproduces primarily by sprouting from the root crown, but also by acorns (Fryer 2007, Lininger 2004, Long et al. 2016)

Xánthiip and Fire

Xánthiip is a fire adapted species with thick protective bark, and can sprout from the root crown following fire. Without fire, coniferous saplings growing beneath adult oaks are able to grow undisturbed and eventually outcompete black oaks for light (Cocking et al. 2012, Long et al. 2016). Cultural burning has historically been critical to maintain black oak stands. Aside burning off competing species, cultural burning also reduces insect pests that can affect both the trees and acorns (Long et al. 2016). Black oak numbers have declined as a result of fire suppression regimes in the last several decades (Anderson 2007, Fryer 2007, Long et al. 2016).

Effects of High Severity Fire Across Time

Immediate	2-Year	Long-Term
<ul style="list-style-type: none"> May destroy acorn bearing stands that are culturally vital 	<ul style="list-style-type: none"> Black oaks may retain post-fire dominance over non-sprouting conifers in high severity burn patches or areas of the landscape 	<ul style="list-style-type: none"> Black oaks may be retained as shrubby, multi-stemmed, low height, growth form.
Sources: Long et al. 2016	Sources: Cocking in Long et al. 2016	Sources: Cocking, Long et al. 2016

Effects of Karuk Cultural Burning Across Time

Immediate	2-Year	Long-Term
<ul style="list-style-type: none"> Pests that could affect both tree health and acorn quality are eliminated via low intensity burns that protect acorn-bearing adults 	<ul style="list-style-type: none"> Promotes black oak reproduction either via root crown sprouting or acorn seeding, both processes which benefit from fire 	<ul style="list-style-type: none"> Competition from shade tolerant saplings is eliminated via routine burning, allowing oak stands to persist
Sources: Anderson 2007, Long et al. 2016	Sources: Long et al. 2016	Sources: Anderson 2007, Long et al. 2016

Effects of Federal Fire Management Strategies on Species' Climate Change and Fire Resilience

Prior to Fire	During Fire	After Fire
<ul style="list-style-type: none"> Fire suppression promotes shade tolerant species that are able to outcompete black oaks High tree density and fuel loads threaten acorn-producing oaks that are drought and competition stressed. 	<ul style="list-style-type: none"> Intense burning in dense forests top kill larger, older, acorn producing black oaks. Fire suppression activities, such as fire line tree felling or burnouts remove mature acorn bearing trees. 	<ul style="list-style-type: none"> Repeated higher severity burns will reduce the abundance of mature acorn producing trees or induce a greater proportion of shrubby growth structural form
Sources: Cocking in Long et al. 2016	Sources: Kauffman and Martin 1987, Cocking et al. 2012, Long et al. 2016	Sources: Cocking et al. 2012, Long et al. 2016