RESTORATION OF THE CALAVERAS NORTH GROVE

CALAVERAS NORTH GROVE RESTORATION

The California Department of Parks and Recreation has begun a major project to restore the health of the North Grove forest ecosystem – a project that will take several years to complete.
Funding for this project has been provided by the Sierra Nevada Conservancy, an agency of the State of California.

Crews will be thinning the forest of small and medium sized trees, creating a forest that we believe will reflect the species composition and stand density of a natural ecosystem. These actions in turn will reduce two major threats common to many forests in the Sierra Nevada: fire and insect attack.

WHY IS THE FOREST IN NEED OF RESTORATION?
Prior to the 1860s, the forests of the Sierra Nevada existed in a natural state, with the various species of trees controlled by the processes of nature. Some species, such as ponderosa pine, were found in open, sunny stands on ridge tops and south facing slopes. Shade tolerant species, such as white fir, were concentrated in somewhat denser stands on the cooler north facing slopes and within the well-shaded grove of mature giant sequoias. These relationships were maintained by exposure to frequent, low intensity, unregulated fires.

Scientists have determined that fires occurred in the landscape about every ten years - so frequently, in fact, that fuels did not have much of a chance to build up, and each subsequent fire would usually be patchy and of low intensity. Such fires did little damage to the large, old growth trees that dominated the forest, but did make life difficult for young trees, few of which could survive to maturity. This may sound like a bad thing, but limiting the reproduction of the forest was essential to keeping it healthy and intact.

When humans began actively managing the forest one of the first things done was to prevent these periodic fires, which was thought at the time to be a good thing. Tree reproduction flourished and the forest became more and more dense, while at the same time the fuels that could feed a fire became heavier and more continuous over the landscape. Three things happened, as a result:

1) The species that did well in a shaded forest were very successful at creating new trees, while those whose seedlings needed lots of sunlight produced fewer and fewer offspring as the forest became darker, and – in the case of ponderosa pine – essentially stopped reproducing.
2) The increased density of trees was trying to compete in an ecosystem that did not also have corresponding increase in the vital

resources needed for growth, especially soil moisture. The trees withdrew water from the ground at a growing rate while the average amount of water (from annual rain and snowfall) remained the same. As this problem grew, trees essentially experienced many artificially induced drought years.

3) The long period between fires, coupled with the immensely increased amount of fuel, guaranteed that future fires would be very, very, destructive to the trees, wildlife, and watersheds.

WHAT ARE WE TRYING TO DO?

Ecologists feel that the primeval forests of the park averaged about 60 to 80 large, mature trees per acre, with reproduction limited to small patches scattered throughout the stand. Today, we have many parts of the forest that have 300 to 400 trees per acre, and sometimes many more!
Reproduction is now evenly distributed throughout the forest, but mostly consists of shade loving species, especially white fir and incense cedar even underneath the majestic ponderosa pines. Our goals are to restore normal densities and distributions of all species, and to allow fire to play its historical role in the forest ecology.

WHAT ABOUT THE GIANT SEQUOIAS?

Fire played an important role in the ancient forest, and it was a critical factor in the ecology of giant sequoias; in the absence of frequent fire, there has been a failure of the species to reproduce and the old-growth trees that have naturally toppled and died have not been replaced. The grove is now disappearing – very, very slowly, of course, but if left unchecked, disappearance will be the ultimate and tragic result.

The frequent fires that naturally occurred in sequoia groves before man-made suppression caused the massive release of seeds from the canopy of the big trees – perhaps as many as 200,000 seeds PER TREE! If this rain of seeds occurred under suitable conditions it could result in a carpet of seedlings across the forest floor providing a suitable bank of young trees, some of which would survive to become saplings, some of which would survive to become pole sized trees, until finally one eventually survives to replace the parent tree.

We will be using fire to burn much of the biomass generated by this thinning project; when we start working within the grove itself, we will strategically place the fires in such a way so as to stimulate seed release and (hopefully) successful reproduction.

WHAT HAPPENS NEXT?

Once the structure of the forest has been restored, we intend to maintain the work by putting fire back into its natural role. Deliberately ignited and closely controlled small fires will be set when it can be done safely. Hopefully, in your future visits to the forest you will see a healthy, vibrant, and productive North Grove.

SIERRA NEVADA CONSERVANCY

CALIFORNIA STATE PARKS SINCE 1864

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