

**Stop 8.** A large ponderosa pine tree with a rotten fire scar. Most likely the tree last burned over 100 years ago and formed scar tissue over the exposed wood. Estimated age is 500 years old. The pile of bark at the base of the tree is an accumulation of bark flakes which dropped off the bole every year and is called a tree donut. If it catches on fire, often times it will kill the tree because it will burn at high temperatures for a long time, “cooking” the tree. Historical photographs taken on CAF in 1924 show that tree donuts did not occur because of frequent fire, which regularly burned the light accumulations without killing the tree. However, the fires often burned hotter on one side of the tree which explains the noticeable fire scar.

**Stop 9.** Permanent growth plot marked by a blue cedar post in a mechanically thinned area. Plot size is 1/4 acre or 10,890 ft<sup>2</sup>. Plot radius is 58.88 feet. On CAF, we have 565 plots that are one acre in size, most of which were established around 1945. The trees are each numbered with an aluminum tag and the diameter measurement locations are indicated by the paint band around each tree. Growth measurements are taken every 10 years and the information gathered over that time is used to determine the stand’s periodic growth. Annual growth estimates ensure that CAF does not harvest more timber than the land produces which is the foundation for sustainable forest management and production.

**Stop 10.** These two over-mature sugar pine trees are of similar size but much different in age. The tree to the west is 49.5” in diameter and 200+ years old. The tree to the east is 48” in diameter and approximately 400 years old. The disparity between the ages of the two trees can be attributed to the younger tree having access to more sunlight and nutrients, allowing it to grow much faster than its neighbor, which may actually be its parent! The size, number and distribution of the limbs, the color and texture of the bark layer, and the shape and color of the crown are all characteristics that can help to identify an age difference.

The western tree receives much more sunlight and has more open ground with less root competition from neighboring trees.

The eastern tree was open grown early in its life as indicated by the large limbs lower on the bole. However, the tree to the west grew quickly at one point in its development due to its more southern exposure. This allowed it to receive much more sunlight which is one reason why it has overtopped and shaded its neighbor. The older tree on the east side has much smoother bark indicating slower growth due to the strong competition of the younger tree on the west side. The younger tree has rough bark with deep cracks, indicating that it is growing faster as a result of more sunlight and nutrients.

**Stop 11.** A natural clump of sugar pines, between 90 and 120 years old. Some of these trees are already losing the “battle for life” as the larger trees with more of their crowns in the sunlight are growing over and shading the smaller, less dominant trees. More sunlight leads to more food production which translates into an increase in the growth of the crown, bole, and root system. Suppressed trees, due to their shaded position in the canopy, produce less food and subsequently experience slower growth and poorer health. Eventually disease and/or insect attacks will most likely remove them from the stand.

Provided by:  
Collins Pine Company  
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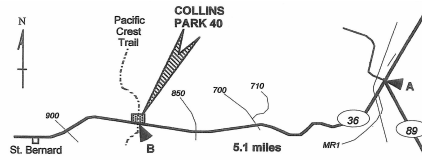


Figure 4-1. The Road to the Park 40

Drivers heading for the Park 40 can set their trip odometers to zero at the intersection of Highways 36 and 89 (Point A on the map), a bit southwest of Chester. Proceed west on Hwy 36 for 5.1 miles to the roadway summit, and then turn into the small, unpaved parking area on the north side of the road (Point B). For those using GPS receivers, the parking lot is at latitude 40°-15.69' North, longitude 121°-20.33' West, at an elevation of about 5,000 feet.



## COLLINS ALMANOR FOREST

# “PARK 40” SELF-GUIDED INTERPRETIVE TRAIL

The 40 acres of the Park 40 most likely resembled the forest stand seen in this 1924 photograph.



## POINTS OF INTEREST

**Stop 1.** Looking up at the crowns of the larger trees, one notices many rounded, flattened, or dead tops and large “spider leg” limbs of these “senior citizens” in the Park 40. These are considered over-mature trees of ponderosa pine and sugar pine, white fir and incense cedar.

Sign #1 is located at the junction of the three different forest management treatments in the Park 40. The area to the northeast has not experienced any disturbance from wildland fires for over 100 years. As a result, a thick understory comprised mainly of white fir has become established which increases the risk of future high-severity fire events.

The area to the southeast similarly has not experienced a fire for over 100 years, but the understory trees were spaced to approximately 15’ intervals by mechanical logging equipment in 2001. Ground burning did not occur after logging activities took place. This is the current practice of understory forest management on much of the Collins Almanor Forest (CAF) which aims to achieve the goals of (1) reducing fire damage to the remaining trees if a wildfire should occur, (2) to improve the health of the residual trees, and (3) to provide for more diverse wildlife opportunities by opening up the forest floor to more sunlight.

The area to the west has not experienced a natural fire for over 100 years but the understory was also spaced by mechanical logging equipment in 2001. CAF foresters then used controlled ground fires in 2002 and 2003 as a means to consume most of the litter and debris that accumulated on the forest floor.

These forest management treatments have resulted in this area looking similar in appearance to what the forest would have looked like in pre-settlement times. Unfortunately, these types of forest management treatments can be very labor intensive and cost prohibitive to do over a large area on CAF, and are therefore limited to smaller areas such as these.

**Stop 2.** A wind-fallen sugar pine, on the ground at least 90 years, with white firs approximately 80 years old growing next to the bole. The limbs have remained intact as they are much more dense and resistant to decay than the bole. Many bird species take advantage of the diverse forest types in the Park 40 and include the pileated and whiteheaded woodpeckers, northern flicker, hermit thrush, redbreasted nuthatch, mountain chickadee, dark-eyed junco, robin, and olive-sided flycatcher.

**Stop 3.** This area has a noticeably high density of white fir in the understory resulting from the fire suppression efforts of the past 100 years. We have not mechanically treated this area in order to demonstrate the type of forest structure this management regime creates. Various studies estimate the wildfire interval in this region to be approximately 10 to 25 years and that pre-settlement forests with fire intervals such as that described above would contain 20 to 30 trees per acre (tpa) in the understory between 1” and 12” in diameter. Seventy percent of the trees were sugar pine and ponderosa pine, while white fir, grasses and other forest floor plants comprised the remaining vegetation

After 100 years without fire in this area, measurement plots taken in 2001 indicated 676 tpa between 1” and 12” in diameter, with white fir comprising 84% of the trees and no ground plants. The vegetation in this area has definitely changed over the last 100 years. As wildfire depends upon and affects the type of plant species and density present, the lack of fires has also changed the composition of wildlife using this area.

**Stop 4.** U.S. Government Land Office ¼ corner for Section 20 and 29, Township 28 North, Range 6 East, Mount Diablo Base and Meridian. This corner was originally established on July 18, 1871. The iron pipe and brass cap were set by the U.S. Cadastral Surveyors on September 4, 1974.

**Stop 5.** A group of dead white fir trees has formed a natural opening in the canopy. This allows small seedlings and saplings of white fir, ponderosa pine, and incense cedar to establish and grow. In forest management, similar openings, called “group selection” units, are created during timber harvesting which range from .5 acre to 2.5 acres in size. These trees probably all died around 1980. The cause of death was most likely due to a combination of biotic factors, including disease and insect attack. Annosus Root Disease (*Heterobasidion annosum*) and the Fir Engraver beetle (*Scolytus ventralis*) are two common forest pests that lead to various levels of tree mortality. Snag stubs present at this site are all white fir and range from 26” to 39” in diameter at breast height (DBH). The tops of these trees have contributed to the large woody material seen on the forest floor and are in various stages of decay.

**Stop 6.** A large ponderosa pine log roughly 48” in diameter, 10 feet long, and about 450 years old. This log has been on the forest floor for about 40 years. This dead tree was felled to “salvage” any 16-foot merchantable logs (greater than 25% sound wood). West of the log is the stump from which it came.

**Stop 7.** A very large sugar pine stump about 85” in diameter and 580 years old. The tree died in 1999 and was cut down to salvage the merchantable bole. The logs were processed into lumber by the Collins Pine Co. mill in Chester. The sloping ramp area on the stump shows what direction the tree was felled. The larger cut stumps outside the Park 40 boundary were cut sometime in the 1920’s and/or 1930’s by the Red River Lumber Company who owned the property at that time. The road in the Park 40 was originally the railroad grade used by Red River to log the area around the Park 40. When the rails and ties were removed after logging, it was converted to a logging road. The rounded rocks in the road were originally ballast material from the railroad and probably came from the gravel pits near Chester.