

RECEIVED

MAR 06 1985

RESOURCE

# MOUNTAIN HOME DEMONSTRATION STATE FOREST NEWSLETTER

STATE OF CALIFORNIA  
DEPARTMENT OF FORESTRY  
MOUNTAIN HOME DEMONSTRATION STATE FOREST  
P. O. Box 517 Springville, CA. 93285



Number 6

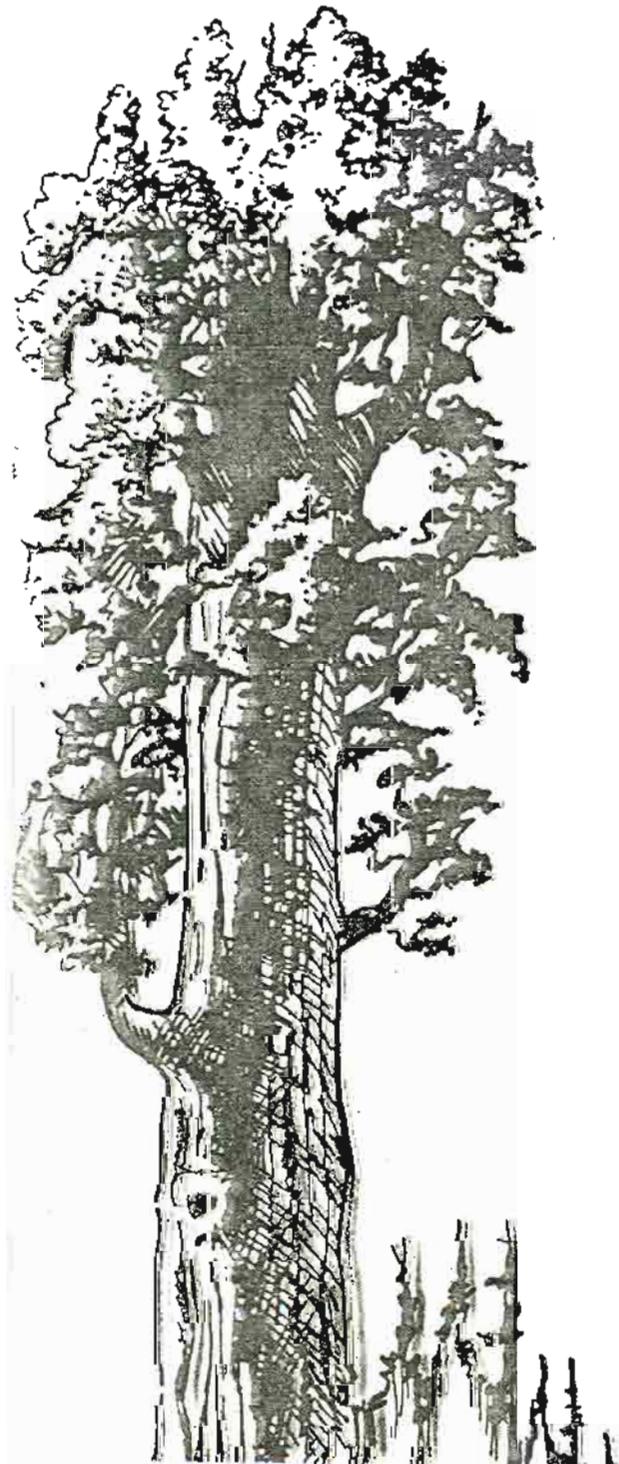
March 1985

## SIERRA REDWOOD DENDROCHRONOLOGY

In our last newsletter we talked about some of Mountain Home's oldest trees. Trees in excess of 3000 years old were discovered by world renown dendrochronologists A. E. Douglass and Ellsworth Huntington in the early 1900's. Dendrochronology is defined as the science of dating past events or climatic changes by a comparative study of growth rings in tree trunks. Dendrochronologists have long been interested in Sierra redwood because of the old growth ring patterns which can be studied.

In most trees, size of growth rings is very dependent upon climatic conditions, especially rainfall. Early studies with Sierra redwood, however, revealed some interesting facts. Douglass found that not all Sierra redwoods will exhibit a strong correlation between climate and ring width. He found that most trees growing on good sites had adequate water supplies from roots tapping streams, springs, or constant underground sources. These trees, which Douglass called "complacent", show very little ring width variation due to rainfall patterns and are, therefore, of little value in historical climatic studies. Redwoods growing on drier, upland sites have proven to be very responsive to yearly climatic changes and are very valuable in tree ring studies. By studying these trees, climatic cycles have been plotted for periods long before recorded weather information.

Patterns of tree ring growth of trees of known ages can be valuable in determining the age of undated wood material. The historical climatic cycles impart a cyclic pattern to tree ring width which is unique to a given time period. If the tree ring pattern of wood of an unknown age can be matched to a known pattern, then its age can be determined. This method has been used in dating archeological sites where preserved wood has been found. Examples include Pueblo and Aztec ruins where



pieces of wood have been found that have intact growth ring patterns. Sierra redwood ring patterns have been established back as far as 1000 B.C. from samples taken from the State Forest area. These patterns have proven invaluable in this dating process.

Very old Sierra redwood tree ring material has also been used in studies to verify the carbon 14 dating process. Carbon 14 is an unstable isotope of carbon which occurs in very small amounts naturally in the atmosphere. Carbon 14 is constantly breaking itself down into more stable forms of carbon. The half life of carbon 14 is 5,830 years. In other words, half of the carbon 14 formed today will not be here 5,830 years from now, because it will break itself down into different more stable forms of carbon. Carbon 14 is utilized by all plants in trace amounts to form the woody structure of the plant material. Scientists can measure the amount of carbon 14 in a sample of plant material of unknown age (for example, an ancient Indian basket) and compare that with how much carbon 14 there was when the plant material grew. Using the half life of carbon 14, he can then estimate the age of the sample. The problem with all of this is that the amount of carbon 14 available to the plant is not the same each year, but varies due to climatic conditions and especially sunspot activity. This is where our Sierra redwood tree rings come into play. By knowing the exact age of the tree ring and the amount of carbon 14 present in the ring today, the amount of carbon 14 present in the atmosphere when the ring was formed can be determined. This information has been useful in refining and calibration of the carbon 14 dating method.

The latest tree ring work done at Mountain Home was by John McCracken of the University of Washington in 1978 and 1980. Cross sections from Sierra redwood stumps and windfalls were collected for further study at the University. The aim of the project is to determine historical solar radiation and carbon dioxide levels from growth rings of a known age. Some of the samples taken from Mountain Home are believed to be in excess of three thousand years old.

The Sierra redwood will continue to be very important sources of data in tree ring studies. These trees hold the secrets of our unwritten history of more than three thousand years ago.

#### EXTENSIVE LAND SURVEY PROJECT UNDERTAKEN

Approximately one half of the property boundaries of Mountain Home Demonstration State Forest have never been legally surveyed and posted. The majority of this unsurveyed land lies in the western portion of Township 19 South, Range 30 East. This township was originally surveyed in 1882 by George Collins under contract with the General Land Office. The corners which were set at that time are the legally binding corners that must be used today.

According to the original 1882 maps and records the entire township was surveyed and all of the corners set. Unfortunately, we know that Mr. Collins did an incomplete job and that parts of the survey were fraudulently made. For example, the township is actually over 1000 feet wider than shown in the original survey. Also, much of the topography described in the original survey notes does not fit the location of the topographic features as they exist on the ground.

In order to resolve the survey problems within this township, the State Forest is undertaking a major engineering project to find or to relocate the original property corners. The key to this project is the expertise of CDF Forester and land surveyor, Dan Seamount, from our Fresno Region Office. Dan is coordinating and supervising the entire survey project.

The first step in this effort is an extensive search for the original corners set by Collins in 1882. This corner search phase was started in the summer of 1984. Probable corner locations are plotted on topographic maps and then transferred to aerial photographs. These locations are then thoroughly searched on the ground for any evidence of the original corner. Often only a mound of rocks marked the original corner. Much of this work requires extended back pack trips because of the roadless character of the country. Elevation differences of 5500 feet occur within the search area. This type of topography severely hampers corner searching and undoubtedly accounts for the incomplete survey done in 1882. At this time, the corner search phase of the project is approximately 90% complete. Only one interior corner has been found in the entire western half of the township. This means that the majority of the State boundaries will have to be completely resurveyed.

Once the corner search phase is complete, the actual survey work will begin. At that time new corners will be set based on lines run between the closest known original corners. All of the State Forest corners will then be set, boundary lines posted, and the survey information will be properly recorded. Only then will the land survey be completed, more than 100 years after the original work of George Collins.

#### WHAT'S A TOWNSHIP

In 1784, the Public Land Survey system was started. Its purpose was to place all remaining "territories" into a grid system. The grid system would allow the federal government to sell or deed the land for revenue and purposes in the national interest. All the western states except Texas eventually were surveyed using the Public Land Survey System.

The system provided that rectangular tracts were to be formed by the north-south running meridian lines and lines run at right angles to form square "townships". A township was to have six miles per side. Townships are numbered progressively from an initial point. There are three initial, or base and meridian points, in California; one at Mt. Pierce in Humboldt County, one at Mt. Diablo near San Francisco, and one in San Bernardino. Hence, Township 19 South, Range 31 East, MDBX is 19 townships south and 31 townships east of the initial point of the Mt. Diablo Base and Meridian.

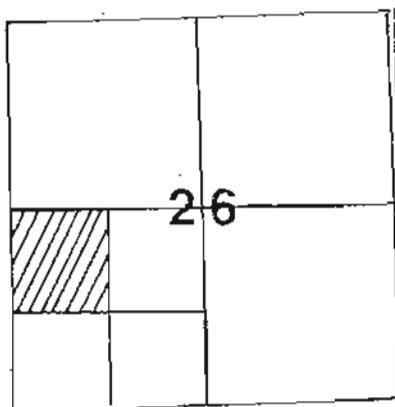
Townships are supposed to be divided into 36 "sections". Each section is supposed to be one square mile or 640 acres.

Until 1910, the Public Land Survey was performed by private contractors. Surveyors were paid for each mile surveyed. While there were rules and methods that were supposed to be followed, these rules were often broken and fraudulent surveys abound in the west. Yet the original survey is legally binding. New corners may not be set until it can be proven that the original corners were never set or are

lost. Except for Spanish land grants, deeds in the west use legal descriptions based on the original surveys. Knowledge of the original surveyor and his methods are very important in piecing together his original work and finding the old corners.

#### LEGAL DESCRIPTIONS

Deeds often use "legal descriptions" for property boundaries. A legal description gives the exact location of a piece of land. In legal descriptions you work from the smallest to the largest. An example would be a 40 acre parcel described as the NW  $\frac{1}{4}$ , SW  $\frac{1}{4}$ , Sec. 26, T19S, R31E, MDBM (see example). This means it is in the northeast one-quarter of the southwest one-quarter of Section 26, Township 19 South, and Range 31 East of Mt. Diablo Base and Meridian.



#### RENOVATED FORESTRY INFORMATION TRAIL TO REOPEN THIS SPRING

The State Forest's Forestry Information Trail will once again be open to visitors in the spring of 1985. The self-guided nature trail was partially closed last year because of logging activity in the area. The trail has now been rehabilitated and the trail guide almost completely rewritten and updated. The one mile trail begins and ends at the Tulare County Balch Park Campground entrance where a self-guided trail brochure is available. The trail describes the history and management of the area with descriptions of the most common trees and plants found along the trail. Reconstruction of the trail was accomplished by a crew from the Mountain Home Conservation Camp.

#### SIERRA REDWOOD SEMINAR PLANNED

On May 24th and 25th the State Forest staff will participate in a training seminar held at Kings River Community College sponsored by the Southern San Joaquin and High Sierra chapters of the Society of American Foresters and the University of California Co-op Extension. The seminar will be on the management of Giant Sequoia and is open to all interested persons. David Dulitz will be speaking on Growth and Yield of Giant Sequoia and Norm Benson will speak on the California

Department of Forestry's management of Giant Sequoia. Other topics will be on the management of giant sequoia by other agencies, sequoia's wood properties, historical overview, and disease and insect relationships. On Saturday the 25th there will be a field trip to Sequoia National Forest and National Park groves leaving at 8:00 a.m. and returning at 4:00 p.m. The total cost for the two day session, including meals and lodging is expected to be around \$50.00. For further information contact: Rob Iwamoto (619) 376-3781, Doug Piirto (209) 855-8321 or David Dulitz (209) 539-2855.

\*\*\*\*\*

Do you know of someone who would like to be on our mailing list for this newsletter? If so, fill out this form, send it in, and they will receive our next publication.

-----  
Detach Here  
-----

Please add my name to the mailing list for the Mountain Home Demonstration State Forest Newsletter.

_____		_____	
Name		Address	
_____		_____	
City	State	Zip Code	

Send to: Mountain Home Demonstration State Forest  
P.O. Box 517  
Springville, CA 93265