VERY GOOD - T.L.B

To: LRB

1650 (5100)

A HISTORY OF FOREST FIRE CONTROL IN SOUTHERN CALIFORNIA*

By
Don R. Bauer, Forest Supervisor
San Bernardino National Forest

Forests mean different things to different people at different times. Especially is this true in a dynamic changing society such as has been evolving here in Southern California over the past 200 years since the founding of San Diego Mission in 1769 and the Anza expeditions of 1774 and 1775.

To the first overland Spanish explorers the mountain forests of chaparral and pine were viewed as a source of game and timber to complement the abundant, well-watered valley grasslands for settlement. The chaparral foothills of the lower slopes of the Sierra Madre formed logical and proper boundaries for the Spanish land grants which formed the basis of the early California Rancho economy based on livestock grazing and Mission agriculture. To the Mormon pioneers of 1851, the mountains promised a rich source fuelwood and timber for construction and commerce, along with falling streams to power grist and sawmills and water for irrigation. To the miners and prospectors of the 1850's the chaparral, while providing a handy source of fuel for charcoal and ore processing, was regarded as a thorny barrier to easy prospecting and cross-country travel. To the sheep grazier, steep brush covered slopes were a hindrance and considered unusable unless cleared by fire to facilitate herding. As grazing and dry farming in the valleys shifted to more intensive irrigation agriculture, with the fruit and citrus growers of the 1880's, it was the water coming from the chaparral-forest watersheds that was truly the life blood of the land. Dams were built at Big Bear in 1883, above Hemet in the San Jacinto Mountains in 1897, and elsewhere in Southern California to help store and regulate the stream flow for summer usage. The age of hydro-power was born with the San Antonio and Mill Creek power houses of 1892 and 1893; to be followed in 1908, by what was then the largest hydro-complex in the world, with the completion of the Upper Santa Ana River power plants to provide electricity for a rapidly growing Los Angeles, 83 miles to the west.

With the horseless carriage of the 1900's, the age of scenic driving for pleasure was ushered in along with forest recreation in its evolving varied uses of camping, picnicking, fishing, hunting, hiking, snow play, skiing and wilderness solitude and enjoyment. As downstream communities grew, the needs for watershed management both for domestic and agricultural use and the control of floods, especially following destruction of the chaparral cover by fire, also grew. Protection of the soil and cover of the steep upstream watersheds from destructive fires was recognized as the first and most important step towards management.

---

* Presented at the Symposium on Living with the Chaparral on March 30, 1973 at the University of California, Riverside.

In brief, the history of fire control in Southern California is totally intertwined and closely parallels the changing patterns of land use. This in turn cannot be divorced or separated from the total Statewide California and National situation of which we are but a part. As the needs of a growing public increased, so also did the needs for more intensive forest and watershed management increase. Nowhere in the nation is the need for good soil and water conservation greater, or more closely linked with the adequate protection of mountain watersheds from wildfire, than here in Southern California.

Since it is known that the character and quality of stream flow originating in steep mountain watersheds is a reliable index to upstream watershed conditions, especially under peak flow conditions, an assessment of the character of the Santa Ana River at the time of the first Spanish explorers, serves as a useful starting point or bench mark in the history of fire control in Southern California. Here, we are fortunate in having access to the detailed and well written diary of Padre Fray Pedro Font, Chaplain with the Anza expedition, who made camp here on the banks of the Santa Ana River just north of Mount Rubidoux, here in Riverside on December 31, 1775. Recent winter storms made the river difficult to ford and several pack animals were lost in the process. Following the crossing, Padre Font described the Santa Ana River as being "deep, swift-flowing, and crystalline clear". These adjectives when applied to a stream flowing under winter conditions clearly indicate the upstream mountain watersheds were well vegetated, and free of large burned or recently denuded slopes. These would include the entire Upper Santa Ana River watershed from Lytle Creek and Cajon Wash easterly to Mill Creek, and San Timoteo Canyons. If this condition was common elsewhere in the chaparral forest regions of Southern California, it was not long before evidence of the need to inaugurate strong measures for fire control appeared. It was in 1793 that the first fire control regulations in California were proclaimed by the Spanish Crown Governor Jose Joaquin deArrillaga.

This proclamation, which is published in its full text in Ray Clar's book "California Government and Forestry," recites the governor's deep concern with the "wide spread damage which results to the public from the burning of the fields." All kinds of burning were prohibited, not only in the vicinity of towns but even at the most remote distances. It also called upon the commandants of the Presidios to do all in their power and take whatever measures were necessary to prevent such fires, and in case such fires did occur, to take immediate and appropriate steps to control the fire and to punish the offenders. He also requested the assistance of the Mission Fathers to instruct the Christian Indians and others not to set or allow fires to escape. The proclamation was well received and endorsed by the Mission Fathers. This order was an extension of and in accord with the Roman Law developed in the dry Mediterranean basin, that held that the Crown reserved and owned the forests and mountain watersheds and that it was a proper function of government to direct the manner in which they should be protected and managed for the public good. A re-tracement of the Spanish and later Mexican land grant boundaries shows that this principle of separating the mountain Forest and watershed lands from the flat or tillable lands granted to private ownership, was respected and in its way constituted an "advanced" form of thinking in land use planning.

This Roman Law Principle that the governing authority was responsible for fire control in forest and watershed areas was destined to come into conflict later, when in 1850 California was admitted to the Union largely as a result of the miners in Northern California who had brought from the eastern seaboard the English Common Law Principle that fire control was the responsibility of the individual landowner rather than the State or public governing authority. In this regard it is well to recall that the fire laws of England and Normandy evolved over the centuries in the mists and high moisture conditions of the North Atlantic where uncontrolled fire was often more of a nuisance than a threat to the public good. These two legal systems met in Southern California and complicated progress in effective mountain fire control, until as a result of the petitions of local citizens, the Congress authorized the creation of the San Gabriel, San Bernardino and Trabucco Forest Reserves in 1892 and 1893, just 100 years after Spanish Governor Arrillaga's historic proclamation!

This should not be interpreted to mean there was no concern or action to secure protection of the forest and watersheds from fire during this first 100 years. Although the effectiveness and enforceablity of the Spanish fire plan of 1793 must have diminished with the Mexican revolution and the Secularization Act of 1833 which dismembered the Mission system and properties, along with the previously strong Presidios which left fire control adrift and pretty much up to the will and whim of the local rancheros until California Statehood in 1850.

The wildland fire problem was not long in being recognized by the early State Legislators for we see in 1869 an Assembly Bill 184 entitled "An Act to Prevent Forest and Field Conflagrations," proposing that it should be a misdemeanor for anyone between June 15 and November 1 to build a fire upon the land of another without first having obtained written consent from the owner to do so. It would also be unlawful to carelessly or willfully allow fire to spread to "land belonging or claimed or occupied by another person." This Bill cleared its first few committee hearings and then died. In 1872 the State Legislators did make it a crime to set fires on State or U. S. land, or "fail to use every effort to prevent spread of a fire caused accidently or through carelessness or neglect, or to permit a fire to burn through wooded country or forest..." Also in 1872, a bill empowering any Justice of the Peace or Constable to order and impress able bodied men to fight fires became law.

An even more far reaching development in the awakening of a public conservation conscience was occurring in California during the 1880's. The First State Board of Forestry in the west was created by law on March 3, 1885 with strong support from the advocates of good forestry practices and watershed protection. Among the strongest supporters were Abbot Kinney, orange grower of San Gabriel; Dr. Albert Kellogg, botanist, physician and charter member of the Academy of Sciences from San Francisco; John D. Spreckels of sugar and shipping fame from San Diego and San Francisco, John Muir, sawmill expert, naturalist and writer who in 1880 was a prosperous grower of Tokay grapes in the Alhambra Valley; and James Bettner, pioneer civic leader of Riverside and San Bernardino. All were knowledgeable from first hand experience of the close relationship between good forest protection from fire and watershed management.

Two years later, in 1887, by act of the State Legislature, the "Board of Forestry ... and all assistants employed by said Board ..." were authorized as peace officers "to enforce the laws protecting the forest and brushlands within the State." This important law marked a major step forward in the history of fire control in California. Although modest by present-day standards this Law expressed as public policy the determination to take positive action in protecting the public's interest in forest and watersheds.

March 2, 1891 marked the passage of the Forest Reserve Act by Congress, providing for the creation of Forest Reserves from the public domain of areas "... covered wholly or in part by timber or undergrowth, whether of commercial value or not." It is clear from the interest of the Board of Forestry at the time and the growing agricultural dependency on water for irrigation that the term "undergrowth" as used in the Act included much of the chaparral forest type in California. With the creation of the San Gabriel, San Bernardino and Trabucco Forest Reserves in 1892 and 1893, one of the most important conservation measures in the history of the nation was placed into effect, all within sight of where we are here in Riverside today!

It is also a point of note that John Muir, a delegate to the Forest Congress in Springfield, Illinois in 1887, along with State Board of Forestry members James Bettner and Joaquin Miller, was instrumental in founding the Sierra Club at this same time in 1892.

Another major step was taken with the enactment of a State Senate Resolution in 1895 urging Congress to enact legislation that would "protect the forest reservations and secure favorable conditions of water flow." This legislation called for a system of management and use of forest reserves rather than simply of protection which was often presented as a separate matter. This led to the Act of June 4, 1897 which set forth the manner in which the Forest Reserves were to be managed and administered.

The early 1900's were marked with a strong upsurge in conservation interest, both locally with the election of George Pardee as Governor of California in 1902, and nationally with Theodore Roosevelt who had come into the Presidency in 1901. It is apparent that these two leaders had much in common when it came to the conservation of the forest and watershed resources of the nation. In Governor Pardee's inaugural address, he emphasized the "pressing need of protecting the streams and forests of California from destruction."

This same era witnessed the formation of a number of citizen's groups to further the cause of conservation and watershed protection. Among these, the Tri-Counties Reforestation Committee of 1906, representing the counties of San Bernardino, Riverside and Orange and affiliated with the larger Statewide California Water and Forest Association. This local group was headed by Mr. Francis Cuttle of Riverside who worked closely with Governor Pardee and Gifford Pinchot towards replanting the denuded areas in the nead waters of the Santa Ana River. Among the other accomplishments of this group of concerned citizens representing the three counties was legislation sponsored by Senator Estudillo of Riverside and signed into law March 11, 1907 providing that State matching funds be appropriated with the Federal Government for the construction of "fire lanes" on the south slopes of San Bernardino Mountains. A state appropriation of $5,000 was made for this purpose.

E. T. Allen, first State Forester was appointed in July 1905 following the enactment of the Forest Protection Act or Fire Protection Law of March 19, 1905. This law was to serve as a corner stone for a much strengthened State Board of Forestry. This set the stage for developing a more effective cooperative approach between the State and Counties towards meeting the needs of wildland fire protection. Progress followed, for in 1907 the State Forester reported that Fire Warden appointments had been increased to 721 state-wide and that the counties of Los Angeles, Santa Cruz and Madera had each hired a "full-time fire warden during the summer."

The needs for a more systematic and better organized approach to fire control was being recognized elsewhere in the State at this time for in 1907 the Forest Service built its first fire lookout on Shuteye Mountain in the Sierra National Forest. Other systems of forest protection through the use of fire such as "light-burning" through the use of repeated ground fires, more or less under control, to reduce the fuel volume on the floor of the high forest and "controlled burning" to effect a change or actual conversion of the vegetative type from one dominant species to another were being explored, tried out and evaluated.

In 1908 the Angeles National Forest was created by combining the San Gabriel and San Bernardino Forests; at the same time the Trabuco and San Jacinto National Forests were combined to form the Cleveland National Forest. It was also at this time that the impact of the new horseless carriage was beginning to be felt in the mountain areas of Southern California. Increasing recreational use of the forest-watershed areas led to a sharp increase in fires caused by escaped campfires. This was to lead to later recognition of Forest Recreation as one of the major Forest resources and the first improved public campgrounds designed primarily to meet the needs of fire prevention. It was recognized by the early Forest Rangers that the most effective way to prevent escaped campfires was to develop safe, fireproof campgrounds with stoves in the more attractive sites and encourage forest visitors to confine their campfires to these designated safe areas.

While progress, although slow, was being made towards reducing fire losses during this period, occasional major fires still occurred and served to focus attention on the job yet to be done if Southern California forest-watersheds were to be protected. Among these was the Waterman Canyon Fire in the San Bernardino Mountains which burned from July 25 to August 4, 1911 and consummed 13,000 acres of valuable chaparral watershed and timber. Out of the public hearings and studied reviews of this fire, conducted by Coert duBois, California Regional Forester, were developed the beginnings of the organizational requirements of preparing for and meeting the massive requirements of large fire suppression action. Through these critiques, a body of knowledge based on field experience and testing was beginning to build. It became standard practice to review every large fire to determine opportunities for improved efficiency and effectiveness. This led to the publication in 1914 of a 250-page treatise by duBois entitled; "Systematic Fire Protection in California Forests." This monumental work, the first of its kind, introduced the scientific approach, based on sound economics, to the problems of fire protection throughout California and the west.

LYMAN
X YOUR GRANDFATHER HAD A MODEL T. TOURING CAR TO PATROL WITH WHEN HIS HORSE BECAME TO SLOW T.L.B
XX I KNEW HIM WELL

Following World War I, airplanes were first used to assist in forest fire detection and scouting large fires. This was a cooperative effort using U. S. Army aircraft with Forest Rangers serving as observers in 1919. This year also saw the first State Rangers, cooperatively financed with State and Federal funds under the "Week's Law." Also, four Ford Model-T touring cars were purchased by the State for the Rangers use in fire fighting. Into these open vehicles were piled fire tools, gunny sacks and water buckets. This was to be the first "Forestry motorized fire vehicle fleet."

Important advances were also being made in fire control by the counties with the appropriation by Los Angeles County in 1920 of $14,500 for the use of County Forester and Fire Warden Stuart J. Flintham. He had two regular assistants and 100 listed deputies who could be paid when they were called to fire duty. This was followed in 1921 and 1922 by Riverside and San Bernardino Counties entering into Cooperative Agreements with the State for watershed protection from fire.

On September 17, 1923 an event occurred in Northern California which shocked the entire State into an awareness of the disastrous potential of forest fire. This was the Berkeley Fire which swept out of Wildcat Canyon into Berkeley and consummed $10,000,000 in property losses in the course of about 3 hours. The following year, 1924, the San Gabriel Canyon Fire burned 50,000 acres of vital watershed. This disaster and others in Southern California led to the Amendment of the Clarke-McNary Act of 1925 by the Congress to provide for the protection of non-timbered, i.e. chaparral watersheds supplying water for domestic use and irrigation. The San Bernardino National Forest was re-established by Proclamation of President Calvin Coolidge on September 30, 1925.

The decade of the 1920's closed as one of the most severe fire loss periods in Southern California's history. The burned area records for the four National Forests in Southern California totaled some 913,700 acres burned during this period. This figure does not include the other extensive burned areas occurring outside the National Forests.

At the very close of the 1920's, in 1929, three significant events occurred which were to shape the course of fire control in Southern California, and much of the Nation for years to come. These were: (1) the development by the California Division of Forestry of the first mountain type Forest Fire Trucks specifically designed for fighting wildland fires; (2) Clarke-McNary Area Cost study of 1929; and (3) "The Black Friday" in October 1929 when the New York Stock Market crashed ushering in the era of economic distress, bankruptcy and unemployment to be known as the "Great Depression."

Although different types of automotive and farm equipment, adapted to carrying fire tools and water, had been in use for some years, it was not until 1929 that the first fire trucks to be built for mountain fire fighting were placed into service. These four "Moreland" trucks were built up in the State Highway Shops in Sacramento with close supervision and advice from the State Forest Rangers. Each of these trucks cost $4,200, a tremendous sum

for that time. Before the end of the 1929 fire season these excellent new fire fighting weapons paid for themselves many times over and introduced a new technology and capability in combating wildland fires throughout California. The worth of developing specialized fire fighting equipment, operated by trained professional fire fighters, was demonstrated and served as a major fire control advancement.

Although the respective responsibilities of the individual citizen, landowner, county, state and federal governments had been evolving since Statehood in 1850, it was not until 1929 when for the first time the actual areas of State Fire responsibility were carefully mapped and delineated in the Clarke-McNary Area and Cost study of 1929. With this action was made possible the development of specific fire prevention and control plans for most of California.

The Stock-Market Crash of 1929 and the Depression Years of the 1930's focused National interest on unemployment relief for the millions of citizens who were thrown out of work as the result of economic collapse. A vast program of public works was inaugurated. These influenced forestry especially in California through the creation of State Labor Camps. To Francis Cuttle of Riverside, State Board of Forestry leader, it appeared logical and timely that forest improvements and especially the cutting of firebreaks and trails in Southern California would provide much needed and constructive work for the unemployed. Although Cuttle's proposal of 1930 which called for State funds to finance this work failed to pass, the seed of what was to become the Civilian Conservation Corps was planted.

On March 21, 1933 the President called upon the Congress to enact Legislation "to relieve distress, build men, and build up the Nation's Forest resources." Although opposed by organized labor, the Emergency Conservation Work Act of 1933 became Law on March 31. The first CCC camp was opened with enrollees on April 17, 1933 in Virginia. By July 1, 1933, 275,000 young men were working in 1,300 CCC camps across the Nation. Due to California's long recognition of forestry needs and careful planning, more than 200 CCC camps were assigned to California during the course of the program. These young men, enrolled from all parts of the Nation, went to work on forestry projects throughout the State, building firebreaks and fire trails, telephone lines, lookouts, reforestation of burned over areas, construction of forest campgrounds, ranger's stations, range and wildlife improvements, soil erosion control works and other conservation projects. In addition the CCC's were trained and organized into effective fire fighting crews. Their magnificant contribution to fire prevention and control in Southern California can in part measured by the reduction in area burned within the National Forests in Southern California from 913,700 in the 1920's to 395,700 acres in the decade of the 1930's. Although the CCC program ended in 1941 with the advent of World War II, the effects of their firebreaks and fire trails continued through the 1940's and helped to further reduce the area burned within the four National Forests in Southern California to 322,910 acres for the period 1941 - 1950. By this time the firebreaks and trails were starting to grow over and for lack of maintenance were no longer as effective as when first built. The decade of the 1950's was to experience a sharp upturn in fire losses in Southern California.

The last years of the 1940's did witness new developments, especially in the use of aircraft. The helicopter developed as part of the World War II effort came into its own for scouting and crew transport in 1947 on the Angeles Forest. Aerial backfiring using the speed and mobility of the helicopter was first used on the Gaston Fire on the San Bernardino in 1951. Water drops from helicopters and fixed-winged aircraft were pioneered in this period. Noteworthy was the contribution of Donald Douglas of Douglas Aircraft Corporation in furtherance of this work.

Another effect of W. W. II was the doubling of Southern California's population from 1940 to 1950 to more than 5,000,000 with increased demands for water, flood protection, and forest recreation. Public use of forest areas more than doubled. Sub-normal rainfall prevailed. Fire occurrence increased. Public concern with the massive soil erosion, increased flood runoff and water losses following chaparral fires mounted. Local, State and Congressional studies and hearings were conducted. Citizens groups from San Diego to Santa Barbara called for action to bring an end to the continuing watershed fire losses. The Watershed Fire Council of Southern California was formed in 1953, combining local citizen group interests with the growing alarm of the Southern California Counties. Primary objectives were for improved watershed protection from fire, flood control and forest conservation; objectives almost identical with those of the earlier citizen's groups whose actions led to the creation of the State Board of Forestry in 1885, the California Water Forest Association in 1899 and the Tri-Counties Reforestation Committee in 1906.

Operation "Fire Stop", born of desperation as a "Bootstrap" cooperative fire research effort spearheaded by Los Angeles County Fire Department, California Division of Forestry, U. S. Forest Service and the University of California formed in 1954 to get new facts through field research into the chaparral fire problem. From these findings, a National Fire Research program resulted with "Fire Labs" being centered at Macon, Missoula and Riverside to expedite much needed research into all aspects of forest fire prevention and control on a nation wide basis.

The "Fuel Break" concept developed and was high on the priority list for investigative effort with pilot testing started under the Fire Stop Project. By 1960, this concept had proved to be feasible and was being extended into selected critical fire areas in Southern California as a key part of overall fire control planning.

The 1960's saw another doubling of Southern Califronia population to more than 12,000,000 in 1970. Most of this growth was occurring in the valley and foothill areas below the mountain watersheds. The disastrous Bel-Aire Fire losses of 1961, exceeding $7,000,000 in insured property losses alone, demonstrated again the importance of proper land use planning and vegetative treatment with emphasis on fire control in forest areas. On March 5, 1965 the County Supervisor's Association of California, with a committee headed by Supervisor Paul Anderson of Riverside County developed and published "Fire Safety Guides" with recommended safety practices to be followed in planning residential development in high fire hazard areas.

Evidence of the timely importance of the recommendations set forth in the "Fire Safe" program was not long in coming, for on September 22, 1970, under Santa Ana wind conditions, began one of the most devastating periods in California's fire history since the 1920's. During this 13-day period a total of 773 wildland fires occurred in California consumming a total of 576,508 acres. Of these 773 fires, 32, or 4.1% were large fires more than 300 acres in size. These 32 fires burned some 540,000 acres or more than 93% of the total area burned! The remaining 96% or 741 other fires that started within this period, even under the high fire danger that prevailed, were controlled at size classes of less than 300 acres. The losses and experiences of this brief disaster period are carefully summarized in the well prepared report entitled "California Aflame!" compiled by the California Division of Forestry and published November 1971.

It is not within the realm of a paper of this scope to more than briefly highlight a few of the many significant events and facts, as bench marks, in the evolution of man's efforts to protect and manage the forest-watersheds of Southern California. Adequate protection from wildfire is but one of the many complex challenges that must be met if the basic forest resources of soil, vegetation and water are to be treated with the reverence and the stewardship that is their due. These wildland areas are limited. There is no margin for waste. They must be more intensively managed and better protected, now and in the future if they are to contribute their maximum to the lasting good of both present and future generations!

- - - - - -