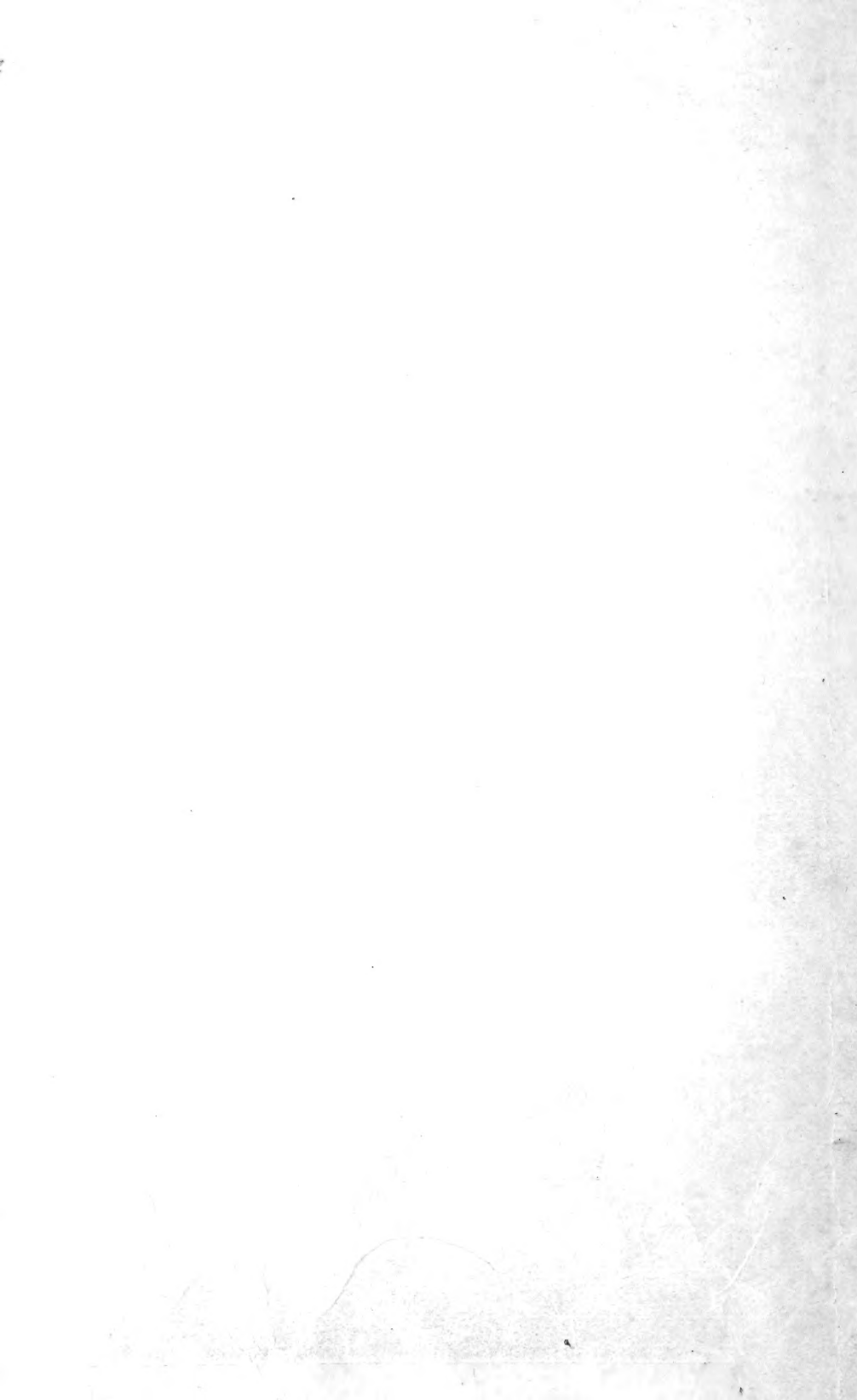


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# FOREST RANGERS' CATECHISM



**QUESTIONS AND ANSWERS  
ON THE NATIONAL FORESTS  
OF THE CALIFORNIA REGION**

**U.S. DEPARTMENT OF AGRICULTURE  
MISCELLANEOUS PUBLICATION NO. 109**

## GOOD MANNERS IN THE FOREST

You may be reasonably "wild and woolly" when you go camping in the national forests of the California region, but don't leave your good manners at home. Take them with you. You need them more on your vacation than when you are at home. The rules for good manners as given by the United States Forest Service are easy to learn and are followed by all good sportsmen, good campers, and good tourists. They are:

Obtain a camp-fire permit.

Carry a shovel and an ax.

Smoke only in camp.

Drown your fire dead out with water.

Leave a clean and sanitary camp.

Observe the State fish and game laws.

Cooperate with the forest rangers and State fire wardens in reporting and suppressing forest fires.

Practice these rules and preach them, too.

UNITED STATES  
DEPARTMENT OF AGRICULTURE

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*Miscellaneous Publication No. 109*

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# FOREST RANGERS' CATECHISM

*Questions and Answers on the National Forests  
of the California Region*

BY

R. W. AYRES, Senior Administrative Assistant

and

WALLACE I. HUTCHINSON, Assistant Regional Forester  
Region 5, Forest Service

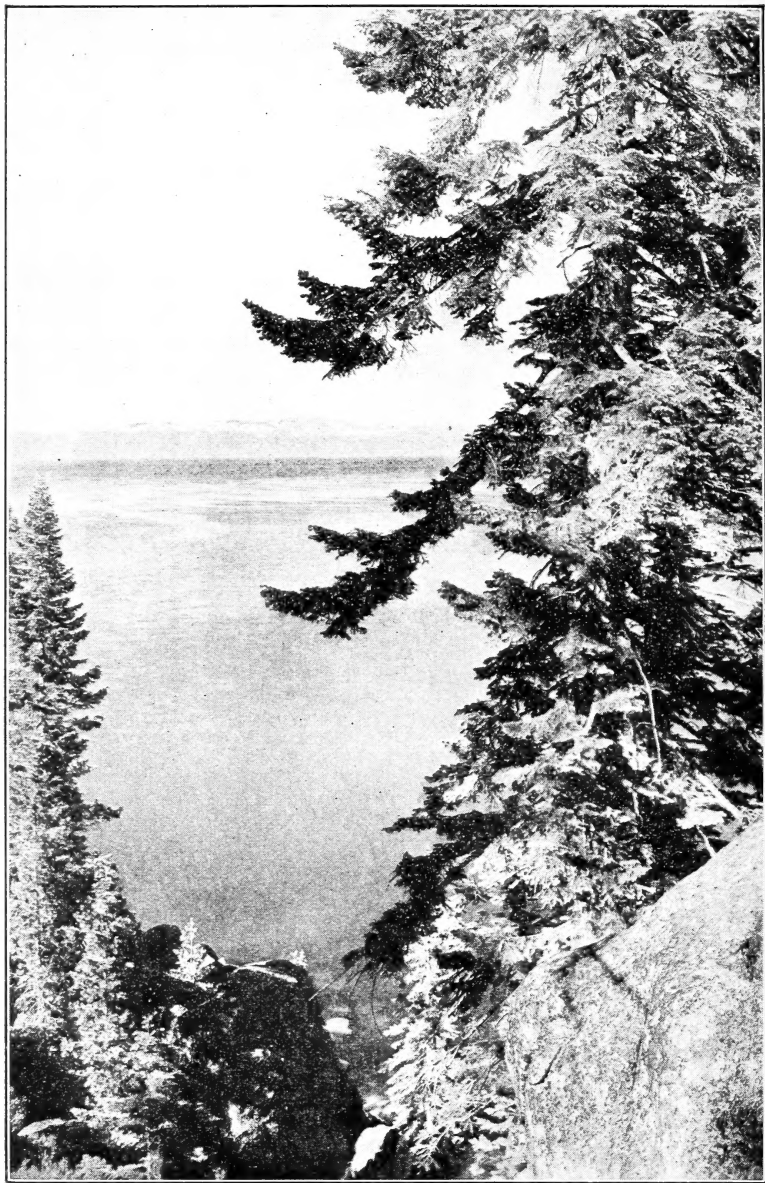
This publication was compiled in cooperation with officers of the California National Forest Region, California Forest Experiment Station, and the Bureaus of Plant Industry, Biological Survey, and Entomology. The idea of this publication originated with Frank M. Sweeley, forest ranger, Sierra National Forest

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*Issued June, 1931*



UNITED STATES  
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Lake Tahoe, the "Gem of the Sierra," Eldorado-Tahoe National Forests

## FOREWORD

This publication is written for the purpose of supplying answers to the usual questions asked forest officers by tourists and others interested in the work of the Forest Service in California.

The average citizen has no conception of some of the technical terms or trade names used by forest officers in their everyday work. Such terms as grazing allotments, improvements, timber appraisals, special use, and the like, either mean nothing to the average inquirer or at least may convey only a hazy or distorted idea of what one is talking about. Regulation of grazing, which assures forage for livestock and the stabilization of the stock-raising industry; regulation of timber cutting, which provides for an unailing future supply of timber; forest protection, which aids in the regulation of water flow and the prevention of erosion, all mean a great deal if rightly understood. The fact that public resources are being so managed that they supply a demand and bring in a revenue, and yet are not being injured by use, should interest the citizen, who is a part owner and shareholder in the national forests.

The Forest Service is a decentralized Federal agency, and the idea of bureaucracy is often corrected when it is seen how many important questions are settled on the ground and how few are referred for decision to the Forester at Washington, or even to the regional forester at San Francisco.

The district ranger has his place in the national-forest community and is closely identified with its civic affairs, because he is the representative of a Federal service whose business of producing timber for the sawmills, protecting grazing ranges, suppressing fires, building roads, trails, telephone lines, and other forest improvements, preserving wild life and forest scenery, is all important to community prosperity.

This publication, which is issued for general distribution as well as for official use, should be an important medium of public service and education to acquaint forest users and visitors with the problems of administration in the national forests and the work of the Forest Service.

S. B. SHOW,

*Regional Forester, Region 5.*

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# FOREST RANGERS' CATECHISM

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## WHAT ARE NATIONAL FORESTS?

### 1. What are national forests?

National forests are areas of Government land set aside to protect and maintain in a permanently productive and useful condition lands unsuited to agriculture but capable of yielding timber and other forest benefits, such as forage for livestock and water for irrigation, domestic use, and power.

### 2. To whom do the national forests belong?

To the people of the United States.

### 3. How are national forests created?

Congress, in 1891, authorized the President to set aside forest reserves, as national forests were for some years called, from public lands covered wholly or in part with timber or undergrowth, in order to protect the remaining timber on the public domain from destruction and to insure a regular flow of water in the streams. Later laws have prohibited the enlargement of the forests or the creation of new forests in Colorado, Wyoming, Montana, Idaho, Washington, Oregon, California, Arizona, and New Mexico, through additions from the public lands, except by act of Congress.

Under provisions of an act of Congress, of March 1, 1911, called the Weeks law, and an act of June 7, 1924, the Clarke-McNary law, lands valuable for the protection of the headwaters of navigable streams and for timber growing are purchased by the Government for national-forest purposes.

### 4. When was the first national forest in the United States created?

The first forest reserve—the Yellowstone Park Timberland Reserve—was created by President Harrison on September 16, 1891. The land included within this reserve now forms parts of several national forests in Montana, Idaho, and Wyoming, adjacent to the Yellowstone National Park.

### 5. When and why was the name national forests adopted?

On March 4, 1907, the name "forest reserves" was changed to "national forests" to indicate that the forests and their resources were not reserved or locked up, but were for present as well as future use.

### 6. Who administers the national forests?

The Forest Service, a bureau of the United States Department of Agriculture, created February 1, 1905, by the merging of the former Division of Forestry of the General Land Office, Department

of the Interior, and the Bureau of Forestry of the Department of Agriculture.

**7. Why are the national forests under the Department of Agriculture?**

Because the problems involved in the administration of the national forests are fundamentally agricultural. When forestry is practiced, timber becomes a crop produced from the soil under methods which must be developed scientifically, as other branches of agriculture are developed. Right handling of the forest ranges is a problem of animal husbandry. Water conservation has in view the interest of irrigation farmers.

**8. Under what authority are the rules and regulations of the national forests made and enforced?**

The act of June 4, 1897 (30 Stat. 35), as amended, authorizes the Secretary of Agriculture to make rules and regulations for the occupancy, use, and protection of the national forests, and provides that any violation of such rules and regulations shall be punishable by a fine of not more than \$500, or imprisonment for not more than 12 months, or both.

**9. How many national forests are there in the United States and what is their area?**

On June 30, 1930, there were 149 national forests, including 2 in Alaska and 1 in Porto Rico, with a total net area of 160,090,817 acres of Government land.

**10. What is the keynote of national forest administration?**

Service in behalf of public welfare in the best use of the resources of wood, water, land, and forage contained in the national forests. The motto of the Forest Service is "The greatest good to the greatest number in the long run."

## NATIONAL FORESTS OF THE CALIFORNIA REGION

**1. What does the California region include?<sup>1</sup>**

The California region includes all national forest land in California and southwestern Nevada, except 329,384 acres of the Siskiyou National Forest of Oregon, located in Del Norte County, Calif., and 48,218 acres of the Crater National Forest of Oregon, extending into Siskiyou County, Calif. These two forests are part of the North Pacific region, with headquarters in Portland, Oreg. The Klamath National Forest, in northern California, also extends across the State line and has 8,723 acres of its net area located in Oregon. This entire forest is included in the California region.

The four national forests of the California region having a portion of their area in southwestern Nevada are the Eldorado, Inyo, Mono, and Tahoe. The total net area of these forests in southwestern Nevada is 541,691 acres.

<sup>1</sup>All facts and figures given in this publication concerning the national forests of California refer only to the 18 national forests composing the California region. (See map.)

2. How many national forests are there in the California region, and what is their area?

There are 18 national forests in the California region, with a net area of 19,216,332 acres of Government land (June 30, 1930).

3. When was the first national forest created in California?

The San Gabriel Timberland Reserve, in southern California, containing 555,520 acres, was proclaimed by President Harrison on December 20, 1892.

## ADMINISTRATION AND PERSONNEL

1. Who have supervision over the national forests of the California region?

The regional forester, chief of the California region, whose headquarters are in the Ferry Building at San Francisco, and the forest supervisors who are under the regional forester and have charge of the individual national forests. These forests and their headquarters are as follows:

Angeles.....	Brownstein-Louis Building, Los Angeles, Calif.
California.....	Willows, Calif.
Cleveland.....	Federal Building, San Diego, Calif.
Eldorado.....	Placerville, Calif.
Inyo.....	Bishop, Calif.
Klamath.....	Yreka, Calif.
Lassen.....	Susanville, Calif.
Modoc.....	Alturas, Calif.
Mono.....	Minden, Nev.
Plumas.....	Quincy, Calif.
San Bernardino.....	Federal Building, San Bernardino, Calif.
Santa Barbara.....	Federal Building, Santa Barbara, Calif.
Sequoia.....	Porterville, Calif.
Shasta.....	Mount Shasta, Calif.
Sierra.....	North Fork, Calif.
Stanislaus.....	Sonora, Calif.
Tahoe.....	Nevada City, Calif.
Trinity.....	Weaverville, Calif.

2. How many yearlong Forest Service officers are there in the California region?

Including the regional forester, his staff, and clerical assistants, there are about 315. The average force of yearlong employees on the 18 national forests include 18 forest supervisors, 16 assistant supervisors, 50 clerks and stenographers, 40 field assistants on the supervisors' staffs assigned to special forest activities, construction work, and fire protection, and 95 district rangers, including men in charge of timber sales, and 20 assistant rangers. The force is increased in summer by some 475 protective assistants and forest guards, 110 lookout men, 45 scalers, and 85 registrars, making a grand total of 1,030 employees in the California region, exclusive of men on construction work.

3. How can I identify a Forest Service officer?

Regular officers wear the Forest Service badge which is a bronze shield bearing a pine tree flanked by the letters "U. S." and the

words "Forest Service, Department of Agriculture." This shield is worn on the left breast of the forest-green uniform.

Temporary Forest Service employæes wear a nickle badge bearing a pine tree, the words, "Forest Guard," and the letters "U. S. F. S."

#### 4. What is the function of the regional forester?

The California region is one of nine national-forest regions in various parts of the United States. Each of these has an executive head known as a regional forester. All the work incident to the administration and protection of the national forests in his region, and other work on connection with the dissemination of information regarding all phases of forestry work and the practice of forestry throughout the region are under the direction of the regional forester.



United States forest ranger

#### 5. What are the duties of a forest supervisor?

A forest supervisor is primarily a business manager in charge of the production of crops of timber and forage on areas averaging 1,000,000 or more acres of Government land. He must be able to handle funds and the time of men economically, he must maintain good business relations with large numbers of people and organizations, and he must succeed in keeping the results produced in right relation to the cost of the work. He must maintain discipline which will insure high standards of performance on the part of the men under his direction. He must have an intimate knowledge of his forest and of every line of work conducted thereon.

#### 6. What are the duties of a forest ranger?

Every national forest is divided into ranger districts. A forest ranger is in charge of each district, sometimes assisted by an assistant ranger. A ranger district is the smallest administrative unit

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of the national forests, and its size varies from 400,000 to 100,000 acres. Rangers perform routine work involved in the supervision of timber sales, grazing, free use, and special use. They help to build roads, trails, bridges, telephone lines, and other permanent improvements on the forests. They must train and inspect forest guards and others temporarily employed. They must know their district well enough to be able to conduct Forest Service business in any part of it, and they must know how to fight fire. They have routine reports to make, but are primarily field men rather than office workers.

**7. How can I identify a Forest Service ranger station?**

A ranger station is painted gray with white trim, has a green roof, and is marked by a sign bearing the name of the station. The American flag is always flown from a flagpole in front of the station when the ranger is at home.

**8. Are all Forest Service positions under civil service?**

All permanent positions are under the classified civil service; temporary jobs are not.

**9. What are the qualifications of a forest ranger's job?**

Applicants for a ranger's job must be young (21 to 35 years), mentally alert, and physically rugged. A high-school education or an equivalent amount of education is needed. They must also have three years' field experience in forestry, including such activities as lumbering, grazing, surveying, and fire fighting, of which period at least six months must have been as foreman over at least three men. School work in a forest school of recognized standing will be accepted in lieu of experience, other than foremanship, up to 27 months. A period of training as an assistant to a district ranger and in a training camp of the Forest Service is necessary to qualify for the position of district ranger. Other things being equal, the man with a technical forestry training will be most successful in dealing with problems which confront a ranger.

**10. To whom must I apply to obtain information in regard to the civil-service examination for forest ranger?**

To the nearest forest supervisor or the regional forester. Permission to take the examination must be secured by written application to the United States Civil Service Commission, Washington, D. C.

**11. Can a woman become a forest ranger?**

No. Women are not appointed by the Forest Service as members of the field force even if they pass the civil-service examination.

**12. What are the temporary jobs in the Forest Service?**

Temporary jobs are forest guard, lookout man, field assistant in timber-sale work, scaler on timber sales, manual laborers on road, trail, or other construction work, truck or tractor drivers.

**13. How can I get a temporary job?**

By application either in person or by letter to the forest supervisor of the individual national forest (see list p. 4), who does

the hiring. Applications for temporary work should not be made to the regional forester's office in San Francisco.

## REVENUES AND EXPENDITURES

1. Where does the Forest Service obtain funds for managing and protecting the national forests?

From appropriations authorized annually by Congress.

2. Are the national forests of the California region self-supporting?

No. For the fiscal year ending June 30, 1930, the receipts from the national forests of the California region totaled \$1,637,340, while the operating expenditures were \$1,941,504. Moreover, the expenditure figures given do not include money spent for the construction of roads and trails and for forest-fire and other forms of cooperation, which in the fiscal year 1930 amounted to \$2,186,172. The actual difference between receipts and expenditures for the fiscal year mentioned was therefore \$2,490,336.

3. From what resources of the national forests are revenues derived?

From sales of mature timber, fees for stock grazing on national-forest lands, rentals of land for various purposes—such as summer homes, resorts, pastures, etc., and water power.

4. What becomes of the money received from the sale and use of national-forest resources?

All receipts from the national forests are deposited in the United States Treasury. Under Federal law, 25 per cent of these receipts is turned over to the States in which the national forests are located. The State in turn apportions this fund to the counties, each county receiving as its share a proportion of the receipts from the national forest or forests located within the county, based on the acreage of the national-forest land within the county. This fund is used by the county for school and road purposes.

The Federal law also requires that an additional 10 per cent of all receipts from the national forests be expended by the Forest Service for trails and roads located entirely within the forests in the States from which the receipts are obtained.

5. How much money has California received from the national forests under the 25 per cent and the 10 per cent funds?

To June 30, 1930, California had received \$4,030,618 from the 25 per cent fund, for redistribution to counties containing national forests, and, in addition, the Forest Service had allotted under the 10 per cent fund, \$1,513,061 on roads and trails within these counties—a grand total of \$5,543,679.

6. Why is this money returned by the Forest Service to the State?

To compensate the State and counties for the withdrawal of public lands within the national forests from private ownership and taxation.

7. Are there any other benefits received by the State and counties from the national forests?

Yes. There are direct benefits consisting of annual appropriations for road and trail work. These are made for two purposes, one for the construction of roads and trails of primary importance to the States, counties, and communities, and the other for the construction of roads and trails required primarily for the administrative development, protection, and utilization of the national forests. To June 30, 1930, the amount spent in the California region under section 8, Federal forest road construction, forest highway, and forest road development appropriations totaled \$10,886,939.

Indirect benefits consist of grants of free timber for home use by settlers and prospectors; sales of timber at cost to farmers and settlers for improvements on their farms; free grazing permits for milk and work stock up to 10 head for each resident rancher living in or adjacent to a national forest; cooperation with the State in protection of fish and game; and the construction and maintenance of free camp grounds. The annual cash value of these benefits is more than \$12,000.

**8. Are the national forests a financial burden on the State and counties?**

No. A detailed study of the effects of national forests on State and county revenues, conducted by the Forest Service during the years 1927 and 1928, showed that the national forests under the present form of administration are contributing to the State and counties \$346,000 more per year than would be received if the potentially taxable Government land in the forests were in private ownership. This yearly contribution will steadily increase as the national-forest resources come to be more fully utilized under an economic process of development.

## FOREST INFLUENCES

### 1. Do forests influence climate?

Within a forest it is both cooler in summer and warmer in winter than it is in the open. The same holds true of daily extremes. This effect is due, among other things, to the shade from the direct heat of the sun on the one hand and the breaking of the velocity of winds on the other. As a result, largely of both of these, drying out of the soil is reduced under the forest canopy, and more even humidity and air temperatures are maintained.

Climate in the larger sense (temperature movements, precipitation, occurrence of storms, etc.) is controlled by the major factors of latitude, altitude, and the relation of a given locality to oceans and land masses, such as the direction, distance, height, and character of mountain ranges. It is evident that forests are the result rather than the cause of climate in this sense.

### 2. How do trees, forests, and brush cover affect water supply?

Under ordinary conditions, forest soils absorb from 20 to 50 per cent of light or moderate rains. During a rain the free flow of surface water is obstructed by the spongy litter of the forest floor so that more of it sinks down into the absorptive leaf litter, down

farther into the decayed leaf mold, and so on down into the mineral soil and the fissures of the rocks. There it becomes tributary to the great reservoir of underground water that feeds springs, creeks, and rivers with a steady flow of water.

The advantage of increasing the proportion of the rainfall which is absorbed into the earth and decreasing that which runs off on the surface is that the surface run-off, unless it is caught in reservoirs, ultimately goes to the ocean and is permanently lost. Also, it is difficult, often impossible, to impound or control the surface run-off when suddenly increased by heavy storms, and its power of erosion is increased out of all proportion to the increase in the volume of water.

The forest-controlled water supply, of course, does not all go into springs. Some of it is absorbed by roots and carries up to the leaves of plants and trees the dissolved mineral substances which they need for growth. A part of the water is then used in producing the increasing substance of the tree, but much of it is given off by the tree again into the atmosphere.

Some people believe we could save these water losses by burning or otherwise destroying the vegetation, especially chaparral. They forget the tremendous damage and losses which would certainly follow that destruction, due to increased erosion and silting and other disturbance of stream flow. This could well make a large part of the land useless and uninhabitable in the course of time. The service which the forest or brush renders to man in these directions is so much greater than the loss due to the water which they use that such a remedy would be disastrous.

### 3. How do forests regulate stream flow?

The forest acts in two ways to regulate stream flow. First the canopy of leaves and branches breaks the impact of rain falling upon the earth. Even during a heavy rain one has the sense of the dripping of water from the tree tops rather than a deluge from the sky. The second is in the effect of the layer of ground litter which acts as a sponge to absorb the water and reduce surface run-off. Much more significant than its spongelike absorption of water, however, is the action of the litter in keeping the soil mellow, porous, and more permeable, and preventing the sealing up of the seepage channels into the substratum where the great supply of earth water is stored, to appear again at the surface through springs.

This action is effective and continues, regardless of the intensity or duration of the precipitation received, although it can not entirely prevent floods when the rate of rainfall exceeds greatly the rate at which the soil can absorb the water. The sponge action ceases as soon as the litter reaches its saturation point, and would not therefore continue to operate far beyond a certain period in long-continued storms such as are responsible for floods.

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**4. Does the forest influence the melting of snow as well as the distribution of rainfall?**

Yes. In sections of the country where there is much snow, the influence of forests in retarding snow melting is more important than its effect on the disposition of rainfall. Snow melting may begin earlier in the woods, but it usually lasts from four to eight times longer than on open ground. Moreover, as the forest soil is likely to freeze less deeply than soil in the open, it absorbs more of the snow water. Spring freshets from melting snow on bare slopes are an important source of river floods. By delaying the melting of snow and feeding part of the snow water into the soil, forests prolong the period of run-off, reduce flood crests to that extent, and equalize stream flow in the rivers so fed.

**5. What is the most favorable condition of water conservation in California?**

Where precipitation comes in the winter, as in California, storage of water for use during the dry growing season is necessary. Surface storage in reservoirs is desirable but is limited in some localities by scarcity of sufficient desirable reservoir sites. California, however, is uniquely favored by having beneath its great valleys, porous soil formations which constitute great underground storage reservoirs, into which the water from the streams is sunk by being spread upon the gravelly outwash fans at the mouths of the streams.

The maximum storage of run-off water in these underground basins depends upon (1) regularity of flow and (2) the clearness of the water. Water coming in sudden floods escapes largely to the sea as waste, defying storage in reservoirs, while the mud which it carries clogs up spreading grounds and thus prevents the water from finding underground storage. The maintenance upon watersheds of a vegetative cover, with its accumulation of dead-leaf mulch is the only feasible means of human control of these factors. While a forest is perhaps the most effective cover, any other vegetation, such as chaparral, which will deposit a good mulch, is valuable. Whether fire destroys the forest or not, it always burns up this mulch and bares the soil; and before a new cover can grow and another mulch be established, erosion has started its deadly work of removing fertile soil and sealing the channels of underground water.

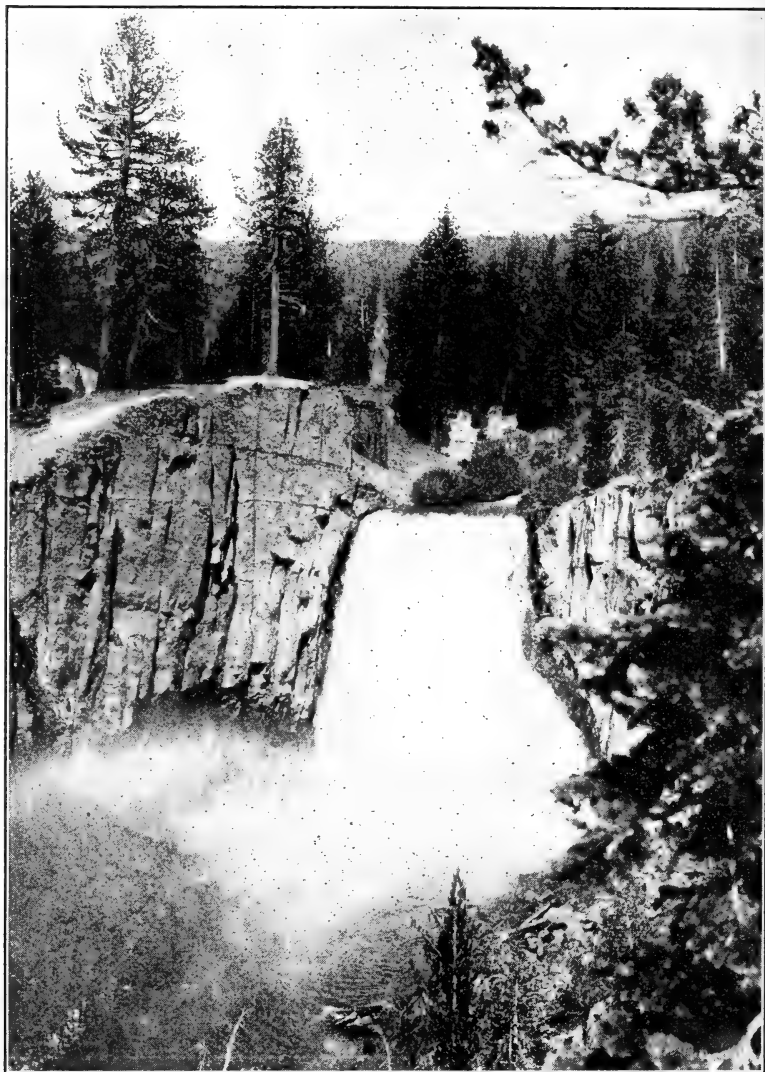
**6. How does the removal of forest cover by fire or destructive logging affect the water supply?**

By the removal of the forest cover its water-absorbent qualities are lost. The result is increased surface run-off and accelerated erosion. Erosion loads the water with sediments, which, in turn, fill surface reservoirs and destroy their storage capacity and prevent the sinking of run-off flow into underground storage basins. Muddy water seals up the percolating channels.

**7. What is the meaning and significance of "accelerated erosion" ?**

"Accelerated erosion" is erosion of soil increased above the rate which existed before land was cleared or burned over. Increased silt and sediment in streams are direct evidence of increased super-

ficial run-off of rain from a slope, which means that conditions have been brought about that have diminished the absorption rate



Rainbow Falls, Sierra National Forest. California's water supply for irrigation, power, and domestic use comes largely from the national forests

of the soil on a watershed. Such accelerated erosion, with the resulting increase in amount of débris carried by the waters, means not

only the rapid ruin for human use of the land eroded but also that the rate of silting up of artificial reservoirs will be much more rapid. Shortening the life of reservoirs will mean that their annual cost will be increased, and financial hardship, or even bankruptcy, possibly brought upon irrigation districts or other agencies paying for them.

## WATER RESOURCES

1. Why is water so important to the social and industrial welfare of California?

In California, water is the "white coal" of industry and the "gold" of agricultural prosperity. During 1930 the electric production from the State's hydroelectric plants reached the record total of 6,803,479 kilowatt-hours, or 76 per cent of the total electrical energy generated in the State and 20 per cent of the hydrogenerated energy of the entire United States. Nearly 5,000,000 acres is under irrigation in the State and the potential irrigable area is estimated to be about four times that amount. The value of the fruit crop on irrigated lands amounts to about \$200,000,000 annually.

2. What part do national forests play in the water supply of California?

The principal national-forest areas of California are practically coincident with the areas embracing the valuable water powers. The ultimate capacity of these resources in the State is over 6,000,000 horsepower, of which about 20 per cent is developed at the present time. Of the total acreage under irrigation in the State at the present time, it is estimated that more than two-thirds is directly dependent on the national forests for its water supply. More than 120 cities, towns, and settlements of California, including Los Angeles, San Diego, Santa Barbara, Oakland, and Berkeley, with a total population of over 3,000,000 people, draw their water supply from the national forests, and in addition Pasadena and Sacramento are looking to national-forest streams for enlargement of their present supply.

3. How does the Federal administration of forest lands affect the development of the water resources of the State?

The Forest Service and Federal Power Commission, which have jurisdiction within the national forests, control development so that the full, advantageous, and economical use of the water resources of any stream may be achieved. In accomplishing this, these Federal agencies cooperate with the State engineer.

4. Does a State permit for a water right allow diversion of water on national-forest land?

The State will not issue a permit for a water right on national-forest land until a permit for the use of the land involved is issued by the forest supervisor, or by the Federal Power Commission where power development is involved.

### 5. To whom do I apply for a water right?

To the division of water rights, State Department of Public Works, Sacramento, Calif.

Permits involving the use of Government land for water power projects or for lines transmitting electric energy generated by water power should be filed with the Federal Power Commission, Washington, D. C., either directly or through the regional forester of the California region, United States Forest Service, San Francisco.

## TIMBER RESOURCES

### 1. Where do the forest areas of California occur?

The forests of California follow the mountain ranges which surround the large central valleys. This forest region is roughly



Virgin forest. National forests are created to protect and maintain a perpetual supply of timber for the use of all citizens

shaped like a horseshoe with the toe of the shoe at Mount Shasta. The east side extends down the Cascades and the Sierra Nevada to the southern boundary of Tulare County, and the west side down the Coast Range to the southern boundary of Monterey County. Portions of the Coast Range of southern California, below Monterey County, contain, at high elevations, irregular and scattering tree growth, but over 99 per cent of the mountain land which bears forests lies north of a line running east and west through Bakersfield.

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**2. What is the total forest land area of California?**

The total forest land area capable of growing commercial timber stands is estimated at 19,195,000 acres, or nearly one-fifth of the land area of the State. Of this total, approximately 14,500,000 acres is virgin timberland and the remainder cut-over and burned land and brush fields.

**3. How much of the total virgin timber land of the State is within the national forests of the California region?**

About 9,564,000 acres.

**4. Who owns the remaining virgin timber lands in the State?**

About 100,000 acres are owned by the State and municipalities, and 3,996,000 acres are owned by individuals and companies, and 840,000 acres are in the national parks.

**5. How much timber is there in the national forests of the California region?**

The national forests contain approximately 100,000,000,000 board feet of saw timber and 26,000,000 cords of fuel wood. A board foot is the unit of lumber measure, being 1 by 12 by 12 inches in size. A cord contains 128 cubic feet (8 by 4 by 4 feet).

**6. How much timber is there in private ownership in California?**

There are approximately 188,000,000,000 board feet of timber in private ownership.

**7. What is the average annual cut of the California sawmills?**

California cuts from its forests about 2,000,000,000 board feet of lumber annually.

**8. How much of the annual cut of lumber comes from the national forests of the California region?**

The annual cut from the national forests has been ranging between 350,000,000 and 400,000,000 board feet.

**9. What is the average annual consumption of lumber in California?**

Three and one-half billion board feet.

**10. How much lumber does California export and import?**

California exports approximately 1,000,000,000 board feet of lumber, and imports about 2,500,000,000 board feet annually, which comes mainly from the Pacific Northwest.

**11. What are the principal commercial timber trees of the State?**

Western yellow pine, Jeffrey pine, sugar pine, redwood, white fir, Douglas fir, red fir, and incense cedar.

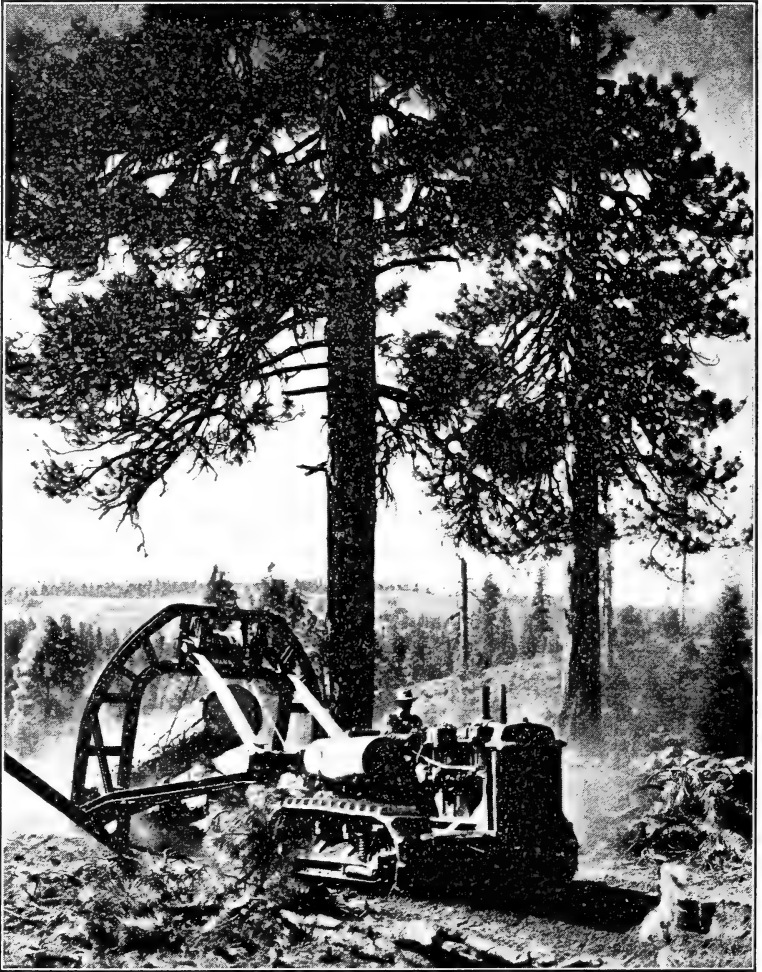
**12. Can national-forest timber be obtained free of cost?**

Free use of timber may be granted to bona fide settlers, miners, rural residents, and prospectors for firewood, fencing, building, other domestic purposes, mining, and prospecting. Usually not more than \$20 worth of timber is granted to any one person annually. The regulations provide that transients may take dead timber for camp fires and similar uses without written permits.

**13. How is national-forest timber sold?**

Ripe, standing timber on the national forests is offered for sale in regulated amounts to improve growing conditions and maintain

local lumber industries. Stumpage prices allow sufficient margin between operating cost and lumber selling price to enable efficient timber operators to secure a fair return on their investment in logging equipment and milling plant. All sales amounting to over



Logging. The national forests of California furnish about 400,000,000 board feet of lumber each year

\$500 in value are advertised, and anyone may bid who can deposit the required amount of money with the designated depository to guarantee good faith. Timber-sale contracts contain only such requirements as are necessary to secure complete utilization of felled

trees, complete fire protection, and satisfactory growing conditions on cut-over areas.

**14. Why are trees marked for cutting on a timber sale?**

The marking of each tree to be cut insures the removal of all diseased, defective, or otherwise undesirable trees and the leaving of the thrifty timber of the best species which will produce the maximum amount of the best wood for future cutting. The purchasers are guaranteed a sufficient percentage of the total volume of the standing timber to render logging practicable, but the improvement of the forest is the first consideration.

**15. What are the principal requirements of a Forest Service timber-sale contract?**

(a) All timber shall be paid for in advance of cutting, and shall be scaled or measured by a Forest Service officer.

(b) The logging or removal of the logs from the woods to the road or railroad shall be done with the least practicable damage to the remaining trees and young growth.

(c) All slash and debris resulting from the logging operation shall be piled and burned under the direction of a forest officer.

(d) All possible precautions shall be taken to prevent the starting and spread of forest fires as a result of logging operations; all steam equipment operated on railroad tracks shall burn oil and each operator must furnish adequate fire-fighting tools and equipment and labor for fire fighting.

**16. What is the idea back of these requirements?**

To keep the public forests in productive condition and thus insure continuous wood production.

**17. What is the difference between a big tree and a redwood?**

These trees are different species of the same family and genus. Botanically the big tree is known as *Sequoia washingtoniana*, and the redwood is known as *Sequoia sempervirens*. Because of their location they need never be confused. The big tree is found only on the middle slopes of the Sierra Nevada and the redwood only along the Pacific coast, within reach of the ocean fogs, from Monterey County northward to the Oregon line.

**18. Are there any big trees or redwoods in the national forests?**

Yes. There are a number of small tracts of big trees in the Sequoia, Sierra, and Stanislaus National Forests, but several of the best groves are in private ownership. The northernmost grove of big trees, consisting of five standing and two down trees, is found on the Foresthill Divide in the Tahoe National Forest east of Auburn. Some of the largest known groves of big trees, such as Giant Forest and Mariposa Grove, are Government owned and are included in the Sequoia, General Grant, and Yosemite National Parks.

Scattered tracts of redwoods are found in the Monterey division of the Santa Barbara National Forest, but the greater part of the redwood belt is in private ownership. More than 13,000 acres of redwoods are owned by the State and are included within State parks in Santa Cruz, Humboldt, and Del Norte Counties.

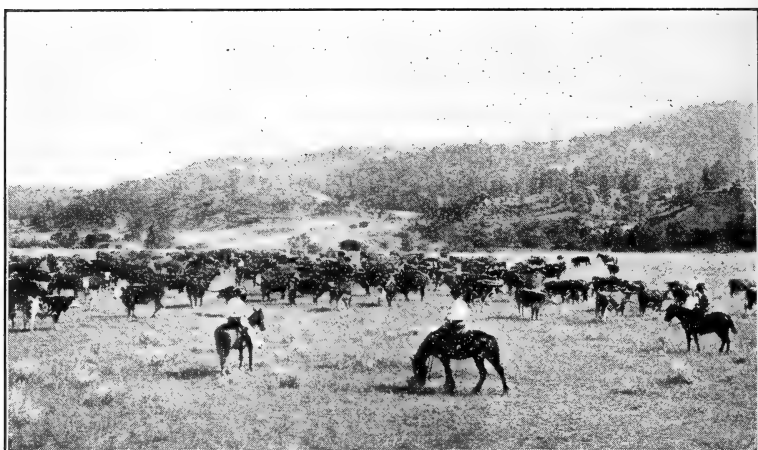
## FORAGE RESOURCES

### 1. Why is livestock grazed in the national forests?

To utilize the forage crop as fully as the proper care and protection of the forests and watersheds will permit. The utilization of the forage grasses and plants also reduces the fire hazard and helps protect the forest.

### 2. How much land in the national forests of the California region is suitable for the grazing of livestock?

Of the 19,216,332 acres of national forests in the California region, about 10,500,000 acres support forage grazed by livestock. In addition, there are some 1,400,000 acres of private land within the national forests that is used for grazing purposes.



The national forests of California furnish summer grazing for 190,000 cattle and 560,000 sheep

### 3. How many cattle and sheep are grazed in the national forests of the California region?

Approximately 190,000 head of cattle and horses and 560,000 sheep and goats graze annually within the 18 national forests.

### 4. What is the average length of the grazing season?

Five months for cattle, and three and one-half months for sheep.

### 5. Who authorizes the grazing of livestock in the national forests?

The Secretary of Agriculture.

### 6. Who prescribes the number and class of stock to be grazed in the national forests?

The Forester, Chief of the United States Forest Service.

### 7. What are the grazing fees for cattle and sheep in the national forests of the California region?

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The fees vary from 15 to 19 cents per head per month for cattle and from 4½ to 6 cents per head per month for sheep.

**8. What class of applicants are given first consideration in the use of the national-forest range?**

Citizens owning and residing upon improved ranch property who are dependent upon the use of the national-forest range.

**9. How is a grazing preference acquired?**

(a) By prior use and occupancy of land included in a national forest.

(b) By local residence and ownership of commensurate ranch property dependent on the range.

(c) By renewal of a permit formerly held by a copartnership or corporation.

(d) By the purchase of a permittee's stock or ranches, or both, and waiving of grazing preference.

**10. Can stock be grazed on unfenced private lands within a national forest?**

Persons who own or have leased private, unfenced lands within a national forest and who agree that the United States shall have control of such lands, may secure permits allowing them to graze, free of charge, upon national-forest lands the number of stock which the private lands will support, provided such exchange is not disadvantageous to the Government.

**11. Can stock be driven across national-forest lands without permit?**

No. Persons wishing to drive stock across any portion of a national forest are required to secure a crossing permit from the ranger or forest supervisor.

**12. How should stock be handled on national-forest range?**

Sheep and goats should be open-herded and must not be bedded in the same place more than three nights in one season, nor within 300 yards of a stream or living spring, except where these restrictions are clearly impracticable. It is much better for both the sheep and the range if a different bed ground is used each night. The trailing of sheep should be reduced to a minimum and the least possible use made of dogs.

Cattle should not be allowed to congregate on any part of the range, but should be well distributed by proper salting, water development, and herding. All livestock quarantine regulations and other sanitary restrictions must be complied with. Care with fire by herders and camp tenders is imperative.

**13. To whom are grazing applications submitted?**

To the forest supervisor of the national forest where grazing is desired.

**14. Does a grazing permit give any legal right in a national forest?**

No. Legal rights do not accrue in the use of national-forest range.

**15. How is the number of stock to be allowed on a given range determined?**

By a study of the forage plants and the available water supply, together with any other factors that may affect the number of stock that can be grazed. The carrying capacity of a range is the number

of animal-months of feed available during a normal season when utilized to the extent that from 10 to 25 per cent of the palatable vegetation is left at the end of the season.

**16. Is allowance made for feed for deer in determining the carrying capacity of national-forest ranges?**

Yes. The Forest Service has greatly reduced the number of stock on over 2,000,000 acres of national-forest land in game refuges and elsewhere in order to provide feed for deer.

**17. Why are stock salted?**

To satisfy the natural desire that cattle have for salt, and to insure their proper distribution on the range in order to utilize all of the available feed, and to aid in controlling the stock on the range allotted.

Sheep are salted to prevent range injury and to make them easier to control by satisfying their natural craving for salt.

**18. How do owners identify their stock?**

By brands, earmarks, and dewlaps on cattle, and by paint brands on the wool of sheep.

**19. Are stock injurious to young tree seedlings?**

Cattle do little or no injury under normal conditions. Sheep injure reproduction if herded too closely, if bedded in the same place too long, or if driven too far without feed and water.

**20. What are the principal plants poisonous to livestock found on national-forest ranges?**

Larkspur, waterhemlock, and black laurel, poisonous to cattle; death camas, azalea, and lupine, poisonous to sheep.

**21. Does the Forest Service construct needed range improvements on the national forests?**

Yes. The Forest Service spends thousands of dollars annually in constructing range improvements, such as drift and division fences, watering places, bridges, and trails.

**22. What are the main objectives in range management on the national forests?**

(a) The protection and conservative use of all forest lands adapted to grazing, under principles conforming to the natural conditions surrounding the forage resources.

(b) The permanent good of the livestock industry through proper care and improvement of the grazing lands, under principles conforming to the requirements of practical operation.

(c) The protection of the settler and the established ranch owner against unfair competition in the use of the range.

## AGRICULTURAL LAND

**1. How was the private land within the national forests of the California region acquired?**

The bulk of it was acquired under the various public land laws prior to the creation of the national forests. A little has since been acquired under the mining laws and the forest homestead act—the only laws now applicable to national-forest land.

2. Under what act of Congress can agricultural land in the national forests be secured?

Act of June 11, 1906.

3. Is there any vacant agricultural land in the national forests of the California region on which I can file?

No. All of the national-forest land has been classified, and such tracts as were found to be chiefly valuable for agriculture have been restored to entry and all lands of value filed on.

4. How much of the land listed for entry under the forest home-  
stead law is unoccupied?

Over 75 per cent of the tracts filed on have been abandoned for agricultural use. This applies to some 7,000 tracts embracing 328,000 acres.

5. What is the reason for this abandonment?

The entrymen could not compete in farming with agriculturists on the more accessible valley lands, where the conditions of climate, soil, irrigation, and transportation are more favorable.

### SPECIAL LAND USES

1. What is a special-use permit?

All uses of national-forest lands and resources, except those provided for in regulations governing the disposal of timber and the grazing of livestock, are designated as special uses. The right to use national-forest land or resources is granted by the Forest Service under a special-use permit.

2. For what class of uses are such permits issued?

For the occupancy of land for various purposes, both commercial and noncommercial, and for rights of way.

3. To whom should I apply for a special-use permit?

To the forest supervisor of the national forest in which the land is located.

4. Does the Forest Service rent sites in the national forests for summer homes?

Yes. Sites for summer homes may be rented from the Forest Service in all national forests of the California region. Information regarding available summer-home tracts may be secured from the forest supervisor of the national forest concerned.

5. How many summer homes are there in the national forests of the California region?

Approximately 6,000.

6. How can I secure a site for a summer home?

See the district ranger for the location of surveyed summer-home tracts on his district and the numbers of lots not yet taken. Then visit the tract and select a suitable location by lot number—found on the corner stakes of all surveyed lots. Make application for the lot selected direct to the forest supervisor of the national forest.

7. What is the average size of a summer-home lot?

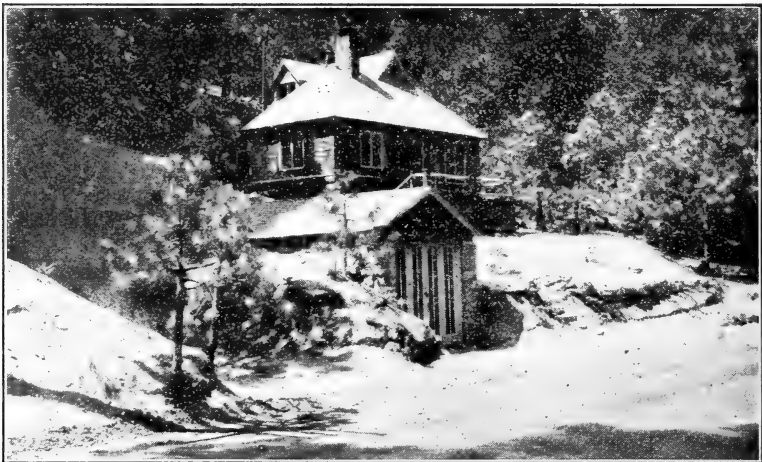
From one-fourth to one-half acre, depending on the location and topography.

**8. What is the annual charge for a summer-home lot?**

For a terminable permit the average charge is \$15 a year, unless some exceptionally desirable or large site is desired, in which case the rental will be increased. The charge for term permits depends on the value of the site, the minimum charge being \$25 a year.

**9. For how long a period can a summer-home permit be secured?**

Residence (term) permits are issued for a 10-year period when the expenditure for improvements is \$2,500 or over. The permittee has the first right of renewal at the end of the term. Terminable permits are issued for indeterminate periods and give the same protection. These continue as long as the permittee desires the permit and complies with its terms.



Attractive summer homes are the pride of many vacationists in the national forests

**10. Are there any special regulations concerning the construction and maintenance of a summer home in a national forest?**

Summer homes built on national-forest land in the California region must cost not less than \$250 and, if built of lumber, must be painted or stained on the outside, so as to harmonize with their environment. Other requirements are: A substantial chimney equipped with a spark arrester; covered garbage pits or removal of garbage; fly-proof, chemical, or flush toilets; location of all structures and improvements so as not to contaminate any water supply; and the annual clearing of inflammable material from around all structures to reduce the fire hazard. Only one residence building is allowed on a lot.

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**11. Can timber be secured for summer-home construction?**

In localities where the cutting of timber will be a benefit to the national forest, timber can be purchased on application to the district ranger.

**12. Can a summer-home permittee obtain wood for fuel?**

Permittees are allowed to take dead wood only, free of charge, for fuel. Green timber for any purpose must be purchased.

**13. Can national-forest land be rented and fenced for pasture purposes?**

Yes. But only in connection with paid or free-grazing permits.

**14. Can sites be rented in the national forests for commercial purposes, and what is the annual charge?**

Sites for a large variety of commercial uses may be secured under permit from the Forest Service. Rental charges for such sites vary from \$25 up, depending on the class of use and amount of land desired. Apply to the forest supervisor for further information.

**15. Is there any charge for sites desired by municipalities and organizations for recreational or semipublic purposes?**

No; provided the area is open to public use and is operated on a nonprofit basis.

## MINING

**1. Are the national forests of the California region open to prospecting and mining?**

Yes; except for certain portions of the Angeles National Forest, withdrawn from mineral location and entry by act of Congress.

**2. Do the mining laws in the national forests differ from those on the public domain?**

No. Prospecting may be carried on, and mineral locations may be made within the national forests as on lands outside their boundaries.

**3. Can a mining claim in the national forests be used for any purpose other than mining?**

No. The use of a mining claim for a residence, resort, or other commercial purposes is not permitted, except under special-use permit from the Forest Service.

**4. Can a prospector or miner obtain free timber for the development of his claim?**

A prospector or miner who has filed on a bona fide mining claim is entitled to the free use of dead or green timber necessary for the development of the claim, but such timber can not be sold or disposed of commercially.

**5. Can a miner secure a free-use permit for a cabin site where no suitable site exists on his claim?**

Yes; provided the site is used solely in connection with the development of his claim.

**6. Can bona fide mining claims within national forests be patented?**

Yes; provided the claimant has complied with the mining laws regarding the development work and improvements and has demon-

strated the mineral value of the land. Before patent is issued, all claims in national forests are passed on by a qualified mining engineer of the Forest Service.

**7. Where should I apply for a permit to prospect for and develop deposits of oil and gas in the national forests?**

Permits to prospect for oil and gas must be obtained from the Department of the Interior. Information concerning applications can be obtained from any United States land office.

## ROADS, TRAILS, AND TELEPHONE LINES

**1. Who builds the roads and trails in the national forests?**

Roads and trails in the national forests may be built by the Federal Government, the State, counties, associations and corporations, and



The latest type of machinery is used in building national-forest roads and trails

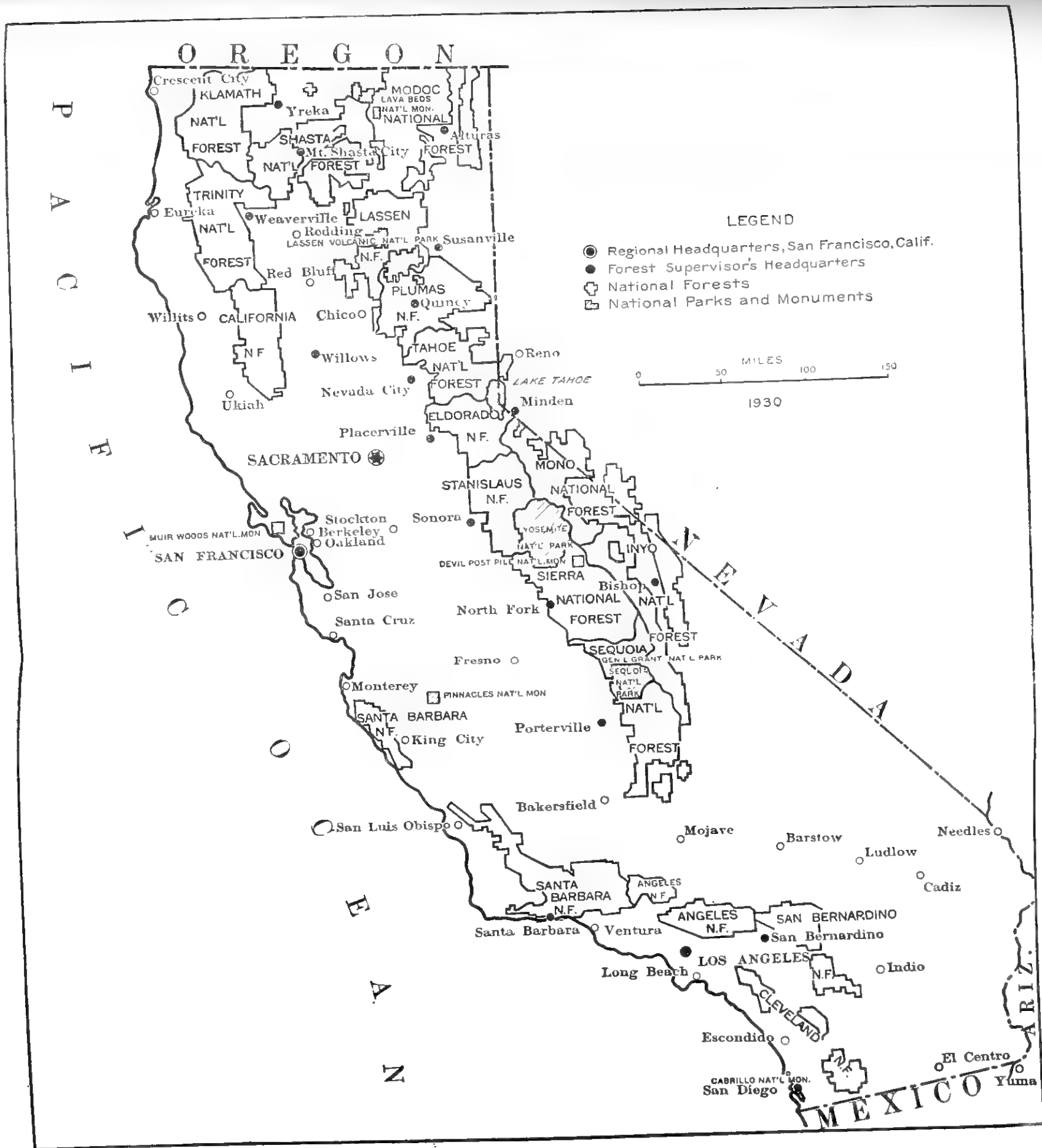
private individuals. Trail building and maintenance is now carried on mainly by the Forest Service. The Bureau of Public Roads is charged with the construction of all roads in the forest highway system and also of forest development roads where the estimated cost is \$5,000 or more per mile or the services of an engineering organization are required.

When the Forest Service assumed control of the national forests in 1905 there were no special appropriations for road and trail work. In March, 1912, Congress passed an act which appropriated 10 per cent of the receipts from the national forests in any State for road and trail construction within the national forests of that State. The Federal aid road acts of July 11, 1916, and February 28, 1919, made appropriations for construction of roads and trails needed in the administration, protection, and development of national-forest

O R E G O N







National forests of the California Region



properties and resources and in their use by communities and the Nation. The Federal highway act of November 9, 1921, made it possible for the the Forest Service to cooperate in the building of State or county roads traversing national forests which form a link in State or county highway systems.

**2. What is the forest-highway system?**

A system selected by the highway department of the State in which the national forests are located, in cooperation with the Bureau of Public Roads and the Forest Service, and approved by the Secretary of Agriculture. This system includes portions of the United States highway system and Federal-aid system and is of great importance both to the traffic on these systems and in making the national forests accessible. The forest-highway system of California now consists of 2,546 miles.

**3. What is the forest-development roads and trails system?**

A system of roads and trails required for the administration, protection, utilization, and development of the national forests, as designated by the Forester. There are 15,133 miles of development roads and 20,102 miles of development trails in the California national forests.

**4. How much money is spent each year on roads and trails in the national forests of the California region?**

The average for eight years, 1923 to 1930, inclusive, including the 16 per cent fund, was approximately \$1,500,000. Funds expended directly by the Forest Service are spent on the less expensive projects for administration and protection of the national forests and come from the forest-development fund. Aid to the State and counties on essential links in the highways systems comes from forest-highway funds, the engineering work being done by the Bureau of Public Roads.

**5. Are advertising signs and billboards permitted on Forest Service roads and trails?**

No; except when authorized by permit, which will be issued only when the proposed sign contains distance, directional, or informational data of value to the traveling public which can not otherwise be supplied, and does not impair or detract from the scenic beauty of forest lands.

**6. What is a motor way?**

A motor way is an inexpensive road opening up to motor transportation an area or section of the national forest where fire hazard exists. It is a means of getting quicker action on fires in isolated localities, and also acts as a firebreak.

**7. Why are motor ways and other national-forest roads often closed to public travel?**

Forest Service roads may be closed, in times of unusual weather conditions which create a high fire hazard, and during the winter months to prevent the surface of the road from being torn up by traffic when the roadbed is soft.

**8. Why are telephone lines built in the national forests?**

Telephone lines are built to aid in carrying on the business of the Forest Service and in the protection of the national forests against fire.

**9. Can local residents in the national forests secure connections on Government telephone lines?**

Yes; provided there is no danger of overloading the line and the connection will be of mutual advantage.

**RECREATION****1. What do the national forests of the California region offer to the recreationist?**

Scenic beauty, scientific and historic interest, and natural advantages and attractions for the tourist and camper are found in abundance in the national forests of California. The Forest Service is facilitating the enjoyment of these resources by the public by building roads and trails, establishing camp grounds, issuing map folders, and giving advice and assistance to travelers and visitors to the national forests.

**2. Are there any improved camp grounds in the national forests of the California region?**

Yes. There are 330 improved camp grounds in the national forests, and the Forest Service is spending about \$20,000 annually in maintaining existing camp grounds and opening up new ones. If all these attractive camping places were privately owned instead of belonging to the Government it is estimated that visitors to the mountains would pay several million dollars for the privilege of using these lands for camping.

**3. Are the municipal and organization camps located in the national forests open to the general public?**

As a rule, such camps are only open to members of their own organization or municipality, although some camps occasionally accommodate public travelers.

**4. Are there any special regulations concerning the use of the national forests of the California region for recreation?**

Yes. Visitors to the national forests of the California region are required to observe the following rules:

(a) A camp-fire permit must be secured during the fire season before lighting any fire on national-forest land.

(b) Every automobile and pack-train party camping in a national forest must be equipped with a shovel and an ax suitable for fire-fighting purposes. You can not secure a camp-fire permit unless you are so equipped.

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(c) In certain national forests, particularly in southern California, camping and camp or picnic fires are restricted to posted camp grounds.

(d) During the fire season smoking in the national forests is prohibited, except in camps, at places of habitation, and in special posted areas. In some of the Sierra Nevada forests smoking is permitted above a certain elevation where the fire danger is low.

(e) Camp fires should never be left unattended and must be totally extinguished before leaving.

(f) Camps must be kept neat and sanitary.



Vacation land. More than 3,000,000 people each year visit the national forests of California for sport and recreation

(g) The pollution of springs, streams, and lakes by insanitary acts is prohibited.

(h) Burning matches and tobacco must not be thrown from automobiles or other vehicles.

(i) The mutilation of trees, signs, or improvements in the national forests is forbidden.

(j) Fireworks are prohibited in all national forests.

(k) Visitors must observe the State fish and game laws.

##### **5. Where can I get a camp-fire permit?**

From any Forest Service officer or State ranger, and from automobile clubs and other authorized agents located in towns and cities.

**6. Is a camp-fire permit required for a stove burning gasoline, kerosene, or wood?**

Yes.

**7. What size shovel and ax must I carry?**

The shovel must have a blade 8 inches wide and a handle 36 inches long; the ax must have a handle 26 inches long and a head weighing 2 to 2½ pounds.

**8. What is the safest way to build a fire?**

Scrape away all inflammable material down to mineral soil from an area 10 feet in diameter. Dig a hole in the center, line it with rock, and in it build the camp fire. Keep your fire small. Never build it against trees or logs or near brush. Stoves burning gasoline or kerosene are much safer and more convenient for cooking than an open fire.

**9. How can I be sure that my fire is out?**

Stir the coals while soaking them with water. Turn small sticks and drench both sides. Wet the ground around the fire. If you can not get water stir in mineral earth and tread it down until packed tightly around the fire. Be sure the last spark is dead.

**10. How can I tell the location of special smoking areas and elevations in the mountains above which smoking is permitted?**

Special smoking areas in the national forests are posted with a sign reading "Smoke here," and the limits of the area with a sign reading "No smoking beyond this sign." The lower limits of elevations above which smoking is permitted are marked on roads and trails with signs reading "Smoking permitted above this elevation."

**11. What is the best way to dispose of burning matches and tobacco?**

Break your match in two and hold it in your hand until you are sure it is out. Put the burned end back in the box or in your pocket.

Cigarettes and cigars should be extinguished by wetting the end with saliva, throwing them in water or clearing a spot of inflammable material, down to mineral soil, and grinding the fire out with the foot. Pipe heels should be ground out in mineral soil, as they are a particularly dangerous source of fire.

Mechanical lighters for the pocket and ash containers for automobiles are recommended for all forest travelers.

**12. Are national forests sometimes closed to use and travel?**

Yes. During periods of high fire hazard due to continued dry weather, high winds, low humidity, and high temperatures, part or all of the national forests may be posted and closed to public use and travel, except under special permit from the Forest Service, but no permit shall be required of any settler going to or from his home.

**13. What are the rules for keeping a camp ground clean and sanitary?**

Burn or bury all garbage, refuse, and cans. Use camp toilets where provided and help keep them clean. If none are available, dig a trench at least 100 yards from camp and the nearest stream, lake, or living spring, heap the earth to one side and fill trench as used. Leave the camp neat and clean for the next party. They will appreciate it.

**14. What is the penalty for shooting at or defacing a Forest Service or a State highway sign or notice?**

Tearing down or defacing a Forest Service sign is a trespass against the United States. Section 616 of the California State Penal Code provides a fine of from \$20 to \$100, or imprisonment in the county jail for not over one month for such malicious mischief.

15. Where can I go in the national forests to get away from civilization and "rough it"?

To a primitive area or a recreation area.

16. What do you mean by primitive and recreation areas?

Primitive areas, designated by the Chief of the Forest Service, include tracts largely located in the rougher and more inaccessible parts of the mountains that will be preserved in a "wild" state in the sense that they will not be developed by road building or other forms of permanent recreational occupancy. There are 16 primitive areas in the California region, for the most part in the high mountainous country, which embrace a total area of 1,814,448 acres.

Recreation areas are dedicated to public recreational use by the Secretary of Agriculture, and may be developed by existing or proposed roads, resorts, summer homes, or other forms of recreational occupancy under permit. So far four recreation areas in the national forests of the California region covering a total area of approximately 72,000 acres have been designated.

The grazing of livestock may be permitted in these areas, except where cattle and sheep unduly interfere with recreational use. When economic conditions warrant, the orderly utilization of timber, water power, and other resources may be allowed, but not in such manner as to impair the attractiveness or value of the area for outdoor sport and enjoyment.

17. Where can I get an accredited list of guides and packers for a pack trip into the national forests?

From the forest supervisor or the nearest district ranger of the national forest concerned.

18. Are pastures provided in the high-mountain country for tourists' saddle and pack animals?

Yes. They are being established as rapidly as the need for them arises and funds permit. Information concerning the location of such pastures can be obtained from the forest supervisor or the district ranger.

## FISH AND GAME

1. What relation have the national forests to fish and game?

Fish and game are products of forests and mountain streams. They add materially to the enjoyment of the national forests by the public as well as to their economic value. The preservation of game animals, birds, and fish, and the elimination of game violations are important duties of forest officers. This is made incumbent upon the Forest Service by the act of May 23, 1908, which provides that all reasonable assistance in the protection of game within the national forests be given the State authorities.

2. Are hunting and fishing licenses required in the national forests of the California region?

Yes. The State fish and game laws apply to national-forest lands as elsewhere in the State.

3. What are the most important game animals and game birds in the national forests of the California region?

Deer, bear, mountain sheep, antelope, and elk are the most important game animals. Mountain sheep, antelope, and elk are very few in number and are fully protected by a closed season. The most important game birds are quail (mountain and valley), grouse, and sage hen.



Deer and other game animals and game birds have their home in the national forests of California

4. What are the most important fur-bearing animals in the national forests?

Skunk, fox, marten, badger, mink, raccoon, weasel, and ringtail cat.

5. What predatory animals inhabit the national forests?

Coyote, lynx, wild cat, and mountain lion.

6. Does the Forest Service take a census of the wild life of the national forests in the California region?

Yes. An annual estimate of wild life is made by forest officers. The 1929 census figures, based on field observations and estimates, are: Game animals: Deer, 255,000; bear, 11,000; antelope, 900; mountain sheep, 700; elk, 200. Predatory animals: Coyote, 53,000; lynx and wild cat, 24,000; mountain lion, 2,000. Fur-bearing ani-

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mals: Skunk, 43,000; fox, 40,000; marten, 16,000; badger, 13,500; mink, 12,000; raccoon, 9,500; weasel, 7,000; ringtail cat, 2,500; fisher, 1,600.

7. What species of deer are found in the national forests of California?

The Columbian blacktail, southern blacktail, Rocky Mountain mule deer, and the California mule deer. The Columbian blacktail is found in the northwestern part of the State; the southern blacktail in the Santa Barbara region; the Rocky Mountain mule deer in the eastern and northeastern part, and the California mule deer in the southern part of the State.



The streams and lakes in the national forests of California offer keen sport to the angler

8. What are the important species of trout found in national-forest streams and lakes?

Steelhead, rainbow, cutthroat, Dolly Varden, golden, and eastern brook.

9. How are the streams and lakes of the national forests stocked?

By the division of fish and game, State department of natural resources, in cooperation with the Forest Service, game associations, and private individuals. All the fry are raised in State hatcheries.

10. How many State game refuges are there within the national forests of the California region?

Thirty-two, covering an area of 1,957,000 acres.

### 11. Are hunting and fishing permitted in a State game refuge?

Fishing is permitted, but the following acts are prohibited: Hunting, trapping, catching, disturbing, or killing any kind of game or nongame animal, or game or nongame bird, or taking the eggs of any bird; carrying or having possession of firearms, except when authorized by permit issued by the State division of fish and game.

### 12. Why are forest fires destructive to game animals, birds, and fish?

Fire destroys the natural feeding and breeding grounds of the wild animals, and severe fires also kill deer and the smaller animals. The nests and young of game and nongame birds are destroyed by fire, and streams are filled with silt and ashes which are very injurious to fish.

### 13. Do Forest Service officers enforce the fish and game laws?

Yes. All forest officers under regular appointment are deputy State fish and game wardens, which service is rendered without compensation.

## FOREST FIRES

1. How many forest, brush, grain, and grass fires occur each year in California? What area is burned over, and how much damage is done? What is the cost of fire prevention and suppression?

The fire record for the national forests of the California region, and for the State of California as a whole, based on 10-year averages from 1920-1929, inclusive, are as follows:

	National forests, Cali- fornia region	California, State
Fires.....number.....	1, 465	2, 892
Man-caused fires.....do.....	898	2, 282
Area burned.....acres.....	297, 394	840, 944
National-forest land.....acres.....	179, 943	
Private land inside national forests.....acres.....	43, 788	
Private land adjoining national forests.....acres.....	73, 663	
Damage.....	\$451, 843	\$1, 414, 412
To national-forest timber.....	\$200, 565	
To other resources.....	123, 527	
To private land inside (timber damage).....	102, 802	
To private land adjoining national forests.....	24, 949	
Cost of fire prevention and suppression.....	722, 784	931, 212

2. What are the principal fire-prevention and suppression agencies in California?

The United States Forest Service, State division of forestry, county forestry and fire organizations, lumber companies, and other private companies and associations.

3. Does the Forest Service protect and fight fire on lands other than the national forests?

The Forest Service extends the same measure of protection to private lands within or adjacent to the national forests as is given to Government land upon payment by the owners of the propor-

tionate cost of about 2 cents per acre per year. The Forest Service also cooperates with the State in protecting public and private lands outside the national-forest boundaries where natural conditions make it advisable to coordinate the work of protection.

**4. Does the Federal Government aid the State in its fire-prevention and forestry work?**

The Clarke-McNary law of June 7, 1924, authorizes an annual appropriation to States for the prevention and suppression of forest fires, distribution of planting stock to owners of farms, and for assistance to farmers in managing their forest lands. Within the limits of the annual Federal appropriations the Government is authorized to contribute an amount equal to that appropriated by the State for these purposes. The Federal allotment to California under this law, for the fiscal year 1931, was \$147,000.

**5. What are the main causes of forest fires?**

The fire record for California, based on a 10-year average, from 1920 to 1929, inclusive, shows the following causes of fires:

	Number	Per cent
Lightning.....	610	21.1
Smokers.....	728	25.2
Incendiaries.....	299	10.3
Campers.....	291	10.1
Débris burners.....	288	9.9
Railroads.....	135	4.6
Lumbering operations.....	94	3.3
Miscellaneous.....	291	10.1
Unknown.....	156	5.4
<b>Total.....</b>	<b>2,892</b>	<b>100.0</b>

Man-caused fires, 78.9 per cent of total.

**6. Why are man-caused fires usually more destructive than lightning fires?**

Lightning usually strikes on the tops of ridges and starts a small fire which spreads slowly, especially if the lightning storm is accompanied by rain.

Man-caused fires most frequently start along roads, trails, and streams, in canyons, or on the lower slopes of the hills, spread rapidly uphill and often become conflagrations. Fires intentionally set (incendiary fires) nearly always occur during periods of high-fire hazard and in more or less remote localities.

**7. Do fires ever start from bottles, glass, or other freak causes?**

Under exactly the right combination of factors, fires may originate from freak causes, but authentic cases are so very infrequent that such causes may be excluded as practical agencies of fire.

**8. Will burning cigars and cigarettes thrown from airplanes in flight start fires?**

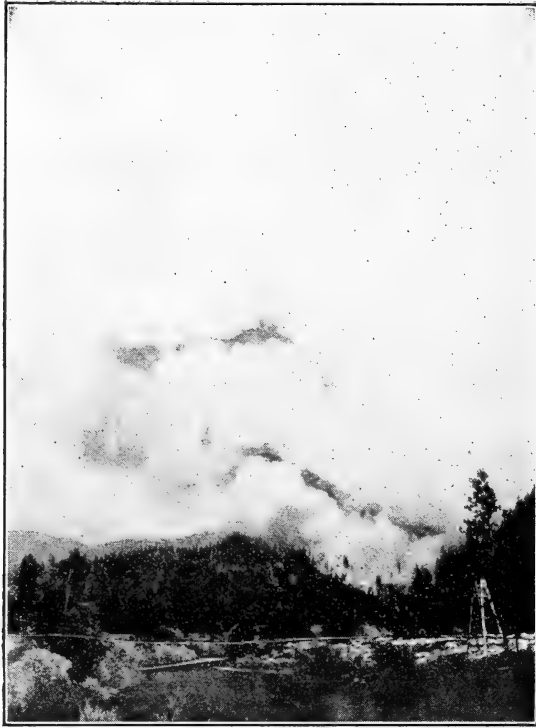
Yes. Tests made by the Forest Service have proved that fires may be started in this manner.

**9. What are the natural factors that determine the rate of spread of fires?**

Humidity, temperature, velocity of wind, character of forest cover and slope, time of day, and season of year.

10. What is meant by "humidity?"

Humidity, usually spoken of as "relative humidity," is the ratio between the amount of moisture in the atmosphere and the amount which could be present at the same temperature and under the same pressure. When the air has taken up all the moisture in the form of water vapor that it can contain at a given temperature it is said to be "saturated," or to have a relative humidity of 100 per cent.



Carelessness is the cause of over 75 per cent of all fires in California

Low relative humidity, or the dry condition of the air, affects the forest cover and renders the leaves, needles, dry wood, and ground litter more inflammable and so creates increased fire hazard. Hot days are not necessarily dry because the air may contain sufficient moisture to raise the relative humidity and render the weather sultry and oppressive. On the other hand, a cold day may be caused

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by a dry north wind that contains little moisture, which will lower the relative humidity and cause dangerous fire conditions.

Forest Service officers are equipped with sling-psychrometers with which they are able to determine the relative humidity during the fire season at any time or place.

**11. What are the principal classes of forest fires?**

Fires are of three classes: (1) Ground fires, which burn the materials composing the forest floor or beneath the surface; (2) surface fires, which run over the surface of the forest floor burning the brush and smaller trees; and (3) crown fires, which run in the tree tops consuming the foliage and branches. Crown fires occur where there is heavy undergrowth in the forest and the wind is strong enough to carry the surface fire into the tops of the trees. In times of heavy wind a crown fire may run in the tree tops ahead of the surface fire.

**12. How does the Forest Service fight fire?**

Ground fires are controlled by "trenching," which is digging a deep trench around the fire down to mineral soil.

Surface fires, which are the most common kind, are controlled by clearing a narrow line of all inflammable material around the fire and from this line fighting back the flames with earth, water, or sometimes with back fire. The width and position of this fire line depends on such conditions as strength of wind, time of day, steepness of slope, and character of ground cover. These conditions vary with every fire and must be given due weight in conducting fire-suppression work. The successful fire fighter is the one whose judgment on all these points is accurate.

Crown fires in timber can not be successfully combated. It is necessary to wait until the flames cease to spread through the crowns and then surround the fire with a line and fight it in the same way as a surface fire. Crown fires in heavy brush or chaparral are fought by back-firing from a cleared line or firebreak.

Forest fires are not put out in the sense that every spark is extinguished immediately. A fire is considered under control when surrounded by a fire line adequate to prevent its spread, and all dead snags, logs, and other possible hazards have been removed from near the fire line. The burned area is then patrolled to prevent any new outbreak until the fire dies out or is quenched by rain.

**13. What tools and special equipment are used by the Forest Service in fighting fires?**

The main fire-fighting tools in use by the Forest Service for many years are shovel, ax, saw, rake, hoe, mattock, and brush hook.

Because of the close relationship between fire hazard and weather conditions, most of the forest supervisors' headquarters and primary lookouts and some ranger stations are equipped with meteorological instruments for reporting the temperature, humidity, wind velocity, and precipitation. Special reports are also received from the United States Weather Bureau giving forecasts for the ensuing

two or three days so that protection forces may be prepared for emergency fire conditions of low humidity and high winds.

The Forest Service, in cooperation with the State division of forestry and the Weather Bureau, has a special truck, equipped with meteorological and radio instruments, which can be taken to large fires and kept in touch with the central Weather Bureau forecasting office at San Francisco. By checking these regional forecasts with local weather conditions, the Weather Bureau officer in charge of the truck is able to accurately forecast the kind of weather that may be expected during the progress of the fire.

Along mechanical lines the Forest Service has adapted tractors, graders, and rippers to fire-line and firebreak construction. Specially built trucks similar to a municipal fire truck, carrying fire-fighting equipment and supplies, are stationed on many of the national forests. Tank trucks having a gasoline power pump, hose, and a large water tank are used to put out fires starting within a short distance of a road or highway. Portable gasoline pumps and hose to be used whenever water is available are a regular part of the fire-fighting equipment on every national forest. Portable power tool grinders for sharpening cutting tools are being introduced, and experiments are being carried on to determine the best type of back pumps, hand tools, and other equipment for the varying conditions met with in fighting fires in the State.

**14. Of what does the fire-fighting organization of a national forest consist?**

It consists of district rangers and fire chiefs, fire lookout men, guards, dispatchers, telephone operators, assisted in cases of emergency by settlers and local organizations in towns and villages.

The fire chief is a member of the forest supervisor's staff who is responsible for the efficient conduct of the fire prevention and suppression organization and activities on a national forest.

The district ranger is the manager on the ground of all fire prevention and suppression activities in his district. He goes to and takes charge of all fires in his district and is responsible for their proper handling. He also supervises the work of all guards, lookout men, and other employees under him in the district.

Fire lookouts are classed as primary or secondary. Primary lookout men are located on peaks which command a view of large stretches of country. They live in the lookout houses on the peaks, and are on duty practically all the time.

Secondary lookout men keep watch over small areas which are not plainly visible to the primary lookouts, such as river canyons or blind areas hidden from the primary peaks by intervening hills. Such lookout officers are often required to go to fires within their territories and must be equipped with a horse, or an auto, or both.

Guards or forest firemen are located with regard to roads and trails so as to enable them to reach all parts of their territory as quickly as possible. Where there is danger of fires starting along a road or trail by reason of heavy travel or other causes, guards may have a definite patrol route to cover, or they may be stationed at

some point to await the discovery and report of fires by the lookout men. Guards must have a horse or an auto, and sometimes both.

Dispatchers may be located either in the supervisor's headquarters or at district ranger stations. They receive all fire reports from lookout men and notify the proper ranger or guard of the location and extent of the fire, dispatching additional men to the fire when necessary. During the progress of large fires they keep in constant touch with lookouts and fire camps, report progress of fires and control measures, and supervise the shipment of men, supplies, and fire equipment.

Telephone operators are employed during the fire season to handle switchboards and fire calls in the supervisor's office or at centrally located ranger stations. All lookouts and guard and ranger stations on a national forest are connected by telephone with the supervisor's headquarters.

**15. How many fire lookout stations are there in the national forests of the California region?**

There are 125 primary lookout stations in the California region.

**16. Are women ever employed by the Forest Service as lookouts?**

No. They were employed at one time, but this practice has been discontinued.

**17. How are airplanes used in fire fighting?**

Airplanes are no longer used on regular forest patrols because the ground lookout system is being expanded to take care of the work of fire discovery. After severe thunderstorms, and during periods of heavy fog or smoke, when ground lookouts are unable to see for any great distance, airplanes are used for scout duty. The greatest service they render is in the reconnaissance of large going fires, where they are used to determine the direction and rate of spread of the flames, thus enabling the observer in the plane to direct effectively the efforts of the fire fighters by advising them through messages dropped with miniature parachutes, as to where best to attack the fire. Airplanes are also used in emergencies to transport special officers, provisions, and equipment to fires, landing being made at the nearest available air field to the fire.

Airplanes are used in fire-prevention work under a special appropriation by Congress. The Forest Service hires all planes under Government contract from commercial air-transport companies, forest officers usually acting as observers. In California, the Forest Service maintains contracts with commercial aviation companies operating out of fields in the San Francisco Bay region and Los Angeles.

**18. What is the purpose of a firebreak?**

A firebreak is a strip from 10 to 100 feet wide, cleared of all inflammable material, built usually along a ridge or along the base of a hill. It is designed to provide a means of ingress to high fire-hazard areas and serve as an artificial break in dense forest or brush cover. It is valuable as a line from which to start back-firing during large fires, and as a means of communication. Firebreaks are only

partially effective in stopping the spread of fires and are not constructed primarily for that purpose.

**19. What is a fire road?**

A fire road or motor way is an inexpensive road of narrow width and often heavy grades, cleared of all inflammable material, which opens up to motor transportation an area or section of a national forest where fire hazard exists. It provides a means of getting quicker action on fires in isolated localities and in addition serves as a firebreak.

**20. What is a fire line?**

A fire line is a trail or cleared line built during the progress of a fire, from which all inflammable material is removed down to mineral soil. When the fire reaches the line lack of fuel causes it to die down and permits of effective control measures being taken. The width of a fire line depends on such conditions as velocity of wind, slope, and character and height of the ground cover.

**21. Under what authority can Forest Service officers conscript citizens and travelers to fight fires?**

Section 384 (amended April 22, 1927) of the Penal Code of California makes it a misdemeanor for any able-bodied person to refuse to render assistance in combating a forest fire at the summons of a State fire warden. All Forest Service officers hold appointments as State fire wardens.

**22. Under what conditions is this authority used?**

Only in cases of emergency. Persons conscripted are released as soon as possible.

**23. What shall I do if I discover a fire?**

Try to extinguish it at once, or, if this is not possible, report it by telephone or in person to the nearest Federal or State ranger, ranger station, or forest officer. Remember "minutes count in reporting fires."

**24. Is there any law against throwing burning matches and tobacco from an automobile?**

Section 384, subsection 6 of the State Penal Code, makes this a misdemeanor, and section (M), regulation T-1 of the Secretary of Agriculture, makes this act on national-forest land a trespass.

**25. What are the penalties for carelessness with fire in the national forest?**

Under the acts of June 4, 1897 (30 Stat. 11) and February 1, 1905 (33 Stat. 628), any violation of the regulations of the Secretary of Agriculture concerning the national forests is punishable by a fine or not more than \$500, or imprisonment for not more than 12 months, or both, as provided for in the act of June 4, 1888 (25 Stat. 166). Carelessness with fire is a violation of regulation T-1 of the Secretary. The State law, under section 384 of the Penal Code, also provides a fine of not more than \$500, or imprisonment in the county jail for six months, or both.

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26. Is there any restriction against dropping lighted cigarettes or cigars from aircraft?

There is a provision in the air commerce regulations against dropping or releasing any objects from aircraft, which would endanger life or damage property. The Department of Commerce has called this provision to the attention of all pilots of whom the department has record and has advised them that the penalties which are provided for violations will be rigidly enforced.

27. How does everyone lose when forests burn?

Cities, towns, and farms lose water for domestic use and irrigation. Water and power companies and ranchers lose through soil erosion and the silting of reservoirs and canals. Livestock owners lose forage for their stock, lumber companies lose timber, logging camps, and machinery, together with loss of time of their employees and reduced output. Woods workers lose wages, sportsmen lose their hunting grounds, and game and fish are killed or driven away. Recreationists lose the beauty spots which are destroyed and camp grounds that are laid waste by fire. Hotels and resorts lose by reduced vacation travel, and merchants lose by lessened demands for goods by traders and local unemployed residents. Taxpayers lose by increased taxes levied to pay the cost of fire fighting.

### “LIGHT BURNING”

1. What do you mean by “light burning?”

Theoretically, light burning means the burning of the surface of the ground to rid the forest floor of litter and thereby reduce the fire hazard. In actual practice, however, when the ground litter is damp enough to allow the fire to burn the surface only lightly, fires will run very slowly or not at all. To secure the results which the “light burners” desire, that is, a “clean burn,” the forest cover and ground litter must be so dry that any fire set will destroy not only the ground litter but all of the small trees and reproduction which forms the basis of the future forest.

2. Why did Indians start fires in the forest?

Tradition says that they did so to drive out game, but no positive proof can be found that they did this as a regular custom over any large areas. The probabilities are that Indians set very few fires. With the coming of the white man, and the discovery of gold, fires became more numerous and spread year after year, largely unchecked.

3. Were there any big fires in the forests of California in the early days?

Yes. Records prove that the forests of California were swept by many large early day fires. Great conflagrations burned both in the northern and southern parts of the State from four to six months and frequently covered more than 100,000 acres of forest and even major watersheds before being extinguished by rain. On the burned-over areas of the State, such fires have reduced the forest capital more

than 50 per cent and have changed 2,000,000 acres of valuable timber-bearing land into worthless brush wastes.

#### 4. Why does not the Forest Service "light burn" the national forests?

The policy under which national forests are administered by the Forest Service is to protect and wisely use the water, wood, and forage resources of the forests in such a manner as to insure the permanence of these resources. With this idea in mind, backed by 25 years of field experience in fire fighting in California, the Forest Service has proved that in the long run fire prevention and not "light burning" is the best system for protecting and conserving our rapidly disappearing forest resources.

Repeated experiments have shown that it is both impracticable and expensive to light burn large areas of forest land. For example, to light burn the 12,000,000 acres of timber and brush land in the national forests of the California region would cost, even at the low figure of 50 cents an acre, \$6,000,000 annually—an amount six times as great as the present yearly expenditures by all Federal, State, and private individuals for fire prevention and suppression in all forest, brush, and range lands in California.

#### 5. How does light burning injure the forests?

Light burning causes serious damage to the most valuable veterans of the forest stand by burning them at the base and causing "cat faces"—a loss that amounts to several dollars per acre in merchantable timber every time a fire runs through the forest. In addition, the little trees and saplings which are the basis of the next forest crop are killed outright, and after the burning of the top soil and humus, the land is invaded by worthless brush which makes the reestablishment of the forest more difficult. The brush is never entirely killed by these fires, and each light burn makes more fuel for a later and more destructive fire.

#### 6. Will light burning the forests keep down pine-beetle infestations?

No. Entomologists have proved that the pine beetles and other destructive insects, which live in green, not dead trees, are increasingly attracted to burned areas and readily attack and destroy trees weakened by repeated fires. Experiments have shown that when an area has been burned over, the volume of merchantable timber destroyed by insect attack increases 250 per cent the first season following the fire, also that the wood beetles of which the old-timers talk so much are in reality not destructive to green timber but live in dead and fallen trees and logs.

#### 7. Will light burning improve grazing?

Periodic burning at first increases the stand of forage plants, but extensive experiments have shown that if this practice is continued, the noxious weeds and shrubs, which are more hardy than the forage plants, will soon take possession of the range and turn it into a weed and brush patch. Repeated fires eventually destroy or seriously reduce the productivity of valuable range lands, as is

well illustrated by the hundreds of thousands of acres of worthless brush range along the borders of the great interior valleys.

**8. What effect has light burning on the productivity of the soil?**

The humus or vegetable litter is destroyed, the soil is left exposed to rain, erosion follows, and the mineral salts necessary for plant growth are washed away.

**9. Does the Forest Service ever use fire to reduce the hazard in the forests?**

Yes. On timber-sale areas, all of the litter and slash resulting from logging is piled and burned after rains or snow. Snags and accumulations of inflammable litter of all kinds are being burned to reduce the hazard from fires along highways, roads, and trails, or wherever there is a danger of fires starting.

### NATURAL ENEMIES OF THE FOREST

**1. What are the principal natural enemies, other than fire, of the forests of California?**

Insects, animals, tree diseases, and drought.

**2. How serious are insect infestations?**

All of the important forest insects of California are native to the national forests. They have been killing trees for centuries. Every year a certain percentage of the forest stand succumbs to insects. Estimates indicate that in the West the annual loss of western yellow pine from insects, principally the western pine beetle, exceeds 300,000,000 board feet, or enough timber to keep several modern sawmills in continuous operation.

Periodically conditions become particularly favorable for insects. Their enemies are reduced in number; the resistance of the trees is lowered by drought; or a large quantity of favorable breeding material is available for them, and they become very abundant and for several years kill more timber than will be replaced by normal growth in many years. Such a condition is termed an epidemic infestation, and in western yellow pine forests, over limited areas, as much as 10 per cent of the stand may be killed in a single year, and 50 per cent of the stand during the course of the epidemic.

**3. How are insect infestations controlled?**

The methods of control which have been successfully used in destroying the pine bark beetle are as follows:

(a) Felling the trees and burning the infested bark. (b) Peeling the infested bark from the trees either with or without felling the trees. (c) Felling the trees and placing the bark so that it will be exposed to the direct rays of the sun, either with or without peeling it from the tree. (d) Felling the trees and submerging the infested logs in water. (e) Preparing trap trees to attract the beetle broods and later destroying them by one of the above-mentioned methods. (f) Logging the infested area and removing the beetles either in the logs or destroying them in the freshly cut limbs and tops.

**4. What animals injure tree seedlings in the California forests?**

Sheep, deer, rabbits, and squirrels. Animals usually injure seedlings by feeding on them in the absence of other tender green forage plants.

**5. Are porcupines injurious to forests?**

Yes. They kill small trees by chewing off the bark and thus girdling them, or kill the tops of saplings by girdling the terminal shoots of the main stem or trunk. Porcupines are not protected by law in California.

**6. What is the white-pine blister rust?**

A disease of white or 5-needle pines which girdles and kills the affected part of the tree. It can not spread directly from pine to pine, but must go from pines to currants or gooseberries and then back to pines.

**7. Is white-pine blister rust a menace to California's forests?**

Yes. Sugar pines and several other important species of pines in the State are susceptible. The disease is in Oregon and may soon reach California. It has been intensively studied, quarantines are in effect, and local control measures are being worked out.

**8. What causes rot in trees?**

Rot or decay, sometimes termed dote or peckiness, is caused by the action on the wood by fungi, low forms of plant life related to the mushrooms. The fungus threads penetrate the wood and break it down.

**9. What are the black "conks" often seen on white firs, and do they do any harm?**

"Conks" are the fruiting bodies of a wood-decay fungus which rots the heartwood. Their presence always indicates considerable rot in the tree. They are harmful because they produce the fine spores, corresponding to seeds of higher plants, by which the fungus is spread to other trees.

**10. How does a wood-rotting fungus get into a tree?**

The spores of the fungus, like extremely fine seeds, lodge on wood exposed in fire scars, wounds, or knots and when conditions are right start growing into the wood.

**11. How do dry years affect the forests?**

Springs and streams dry up or become very low, seedling trees and many older ones die from want of water, growth is reduced in those that survive, and resistance to insect attacks is lessened. Also fires are more destructive in dry years, and feed for grazing animals is scanty.

## REFORESTATION

**1. Is the Forest Service planting any trees on denuded areas in the national forests of the California region?**

Yes. Coniferous planting stock is being grown in Forest Service nurseries and planting commenced on large burned areas in several

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of the national forests. Present plans call for the planting of about 500 acres annually, which will be gradually increased as more stock is grown in the Government nurseries.

**2. Why does not the Forest Service plant more extensively?**

Planting is expensive, appropriations for the work limited, and long periods of summer drought make the results uncertain. Consequently the Forest Service depends on natural reseeding wherever possible. In the pine region of California experience has shown that natural reproduction can be secured wherever there are at least three or four thrifty pine trees of seed-bearing age per acre. Most partially stocked forest areas will restock naturally if fire is kept out.

**3. How many forest nurseries are there in the national forests of California, where are they located, and what is their capacity?**

The Susanville nursery at Susanville in the Lassen National Forest, with a capacity of 1,000,000 trees per year; the Devil's Canyon nursery near San Bernardino in the San Bernardino National Forest, with a capacity of 50,000, and the Feather River nursery near Quincy in the Plumas National Forest, with a capacity of 50,000 seedlings per year.

**4. Can nursery stock for private planting be purchased from the Government nurseries?**

Not at present. Nursery capacity is still so limited that all stock raised is needed for the planting of denuded areas within national forests.

**5. Are any other agencies in California doing reforestation work?**

In the redwood region the owners of private land are doing extensive planting. One of the private owners in the pine region of the Sierra Nevada is cooperating with the Forest Service in planting work, and the Los Angeles County forestry department does considerable planting on the denuded or chaparral-covered hills of the Sierra Madre which are valuable for watershed protection.

**6. How long will it take to grow a timber crop on an area artificially reforested?**

From 80 to 130 years, depending on the locality. In the redwood region it will take probably less than 80 years. In the dry country on the eastern slope of the Sierra it will require the longest time, while on the slopes of the Sierra and Coast Range bordering the valleys it will require from 90 to 120 years.

## FOREST RESEARCH

**1. What is the function of research in forestry?**

To acquire and make available knowledge necessary for securing the best growth and utilization of forests and use of forest lands.

**2. What is the scope of forest research?**

Studies involving the knowledge needed to grow timber, to protect forests from fire, overgrazing, erosion, insects, and disease, and economic studies involving forest products, supply and demand, lumber prices, transportation, and utilization of forest land.

### 3. Is forest research confined to the national forests?

No. National forests are only part of the problem. Research must extend beyond them into the State, county, municipal, and private forests and into the whole field of forest products.

### 4. What are the important lines of study now being conducted?

(a) Best conditions for growing forest seedlings in the nursery and for the most rapid growth of timber on cut-over lands.

(b) How the brush fields and forests affect the conservation and flow of water.

(c) Best methods of stocking devastated and waste lands with forests or brush.

(d) Relative values of different sizes and species of trees.

(e) The best methods of seasoning timber to avoid heavy losses incurred from stain, warping, and checking.

(f) Present and future lumber needs in California, and the localities where national forest timber should be reserved to meet local needs.

(g) How to improve national-forest grazing lands and make them of the greatest service in supplying the needs of California for meat and other commodities.

### 5. Who carries on Forest Service research work in California?

The California Forest Experiment Station of the United States Forest Service, which has its headquarters at the University of California in Berkeley.

## PUBLIC RELATIONS

1. Where can I get bulletins, circulars, and maps describing the national forests of the California region and the work of the Forest Service?

From the forest supervisors' headquarters (see p. 3), at ranger stations, and from the United States Forest Service, Ferry Building, San Francisco, Calif.

2. Can lantern slides and lecture outlines on forestry work be obtained from the Forest Service?

Yes. Sets of colored lantern slides on forestry subjects, accompanied by lecture outline, are loaned for short periods, free of charge, to schools, clubs, associations, etc. The applicant is required to pay transportation charges, both ways, from point of shipment. Address requests to the United States Forest Service, Ferry Building, San Francisco, Calif.

3. Has the Forest Service any motion pictures of national-forest resources and activities, and how can they be secured?

Yes. Motion pictures on forestry subjects may be secured free of charge by responsible parties on application to the United States Forest Service, Ferry Building, San Francisco, Calif. In most cases, however, the reels must be ordered from the Office of Motion Pictures, Department of Agriculture, Washington, D. C., and the applicant is required to pay transportation charges from point of

shipment and return. Requests for motion pictures should state the subject desired and the period of use. From three to four weeks should be allowed for the delivery of the reels from Washington.

**4. Does the Forest Service have any exhibit material for display at fairs?**

The California region does not at present have exhibit material available for use at fairs.

Forest Service exhibits for display at State, interstate, or district fairs may be obtained by applying to the Office of Exhibits, Department of Agriculture, Washington, D. C. Applicants are required to pay transportation and drayage charges on the exhibit and to furnish free electricity and watchman service, etc.

**5. Does the Forest Service issue news items concerning its work?**

Yes. Press information on national forest resources and activities is issued periodically to all newspapers and magazines in the State from the headquarters of the California region in San Francisco. Supervisors of the 18 national forests also issue items of interest on the activities of their forest to local newspapers.

**6. Why does the Forest Service give out educational and news information?**

The Forest Service is a public agency accountable to the people. Intelligent public judgment of Forest Service policies and performances is made possible by information which tells the public how the Forest Service is meeting its responsibilities.

## NATIONAL PARKS AND MONUMENTS

**1. What is the difference between a national forest, a national park, and a national monument?**

These are all Federal areas, but the principle of use of resources is the vital distinction between national forests on the one hand, and national parks and national monuments on the other.

National forests are created to protect and maintain in a permanently productive and useful condition lands unsuited to agriculture but capable of yielding timber or other general benefits, such as forage for livestock, water for irrigation and domestic use, and power. Camping and hunting in season are permitted in the national forests of California, but all recreationists must observe the rules and regulations governing travel and camping. National forests are administered by the Forest Service, a bureau of the United States Department of Agriculture.

National parks are created primarily to preserve objects of outstanding scenic, geologic, or historic interest and the plant and wild life under nature's chosen conditions. All national parks are game sanctuaries, and are protected completely from all utilitarian and commercial enterprises save those necessary for and subservient to legitimate park uses.

National monuments, although of smaller size and less importance than the national parks are created for the same basic purposes.

**2. Who administers the national parks?**

The National Park Service of the Department of the Interior.

**3. How many national parks are there in California?**

There are four national parks in California—Yosemite, Sequoia, General Grant, and Lassen Volcanic.

**4. How many national monuments are there in California, and who administers them?**

The names, locations, and supervising agencies of the five national monuments in California, are as follows:

Name	Location	Administered by—
Cabrillo.....	San Diego County.....	War Department.
Devil Post Pile.....	Sierra National Forest.....	Forest Service.
Lava Beds.....	Modoc National Forest.....	Do.
Muir Woods.....	Marin County.....	National Park Service.
Pinnacles.....	San Benito County.....	Do.

**STATE PARKS AND FORESTS**

**1. How many State parks are there in California and who administers them?**

In 1930 California had 35 State parks covering 26,500 acres and also 9 State monuments. They are administered by the division of parks of the State department of natural resources.

**2. Has California any State forests?**

No; but plans to acquire one are now being made by the division of forestry, State department of natural resources.

**MISCELLANEOUS**

**1. What is the highest mountain peak in the national forests of the California region?**

Mount Whitney, on the boundary between the Inyo National Forest and Sequoia National Park, elevation 14,496 feet (U. S. Coast and Geodetic Survey). This is also the highest mountain in continental United States.

**2. What is the largest natural lake in the national forests of the California region?**

Lake Tahoe, which lies on the Sierra divide at an elevation of 6,225 feet, partly surrounded by the Tahoe and Eldorado National Forests. It is 23 miles long and about 13 miles wide.

**3. What is the largest artificial reservoir in the national forests of the California region?**

Lake Almanor, in the Lassen and Plumas National Forests, which has a capacity of 1,300,000 acre-feet.

**4. How can I get a Christmas tree from the national forests?**

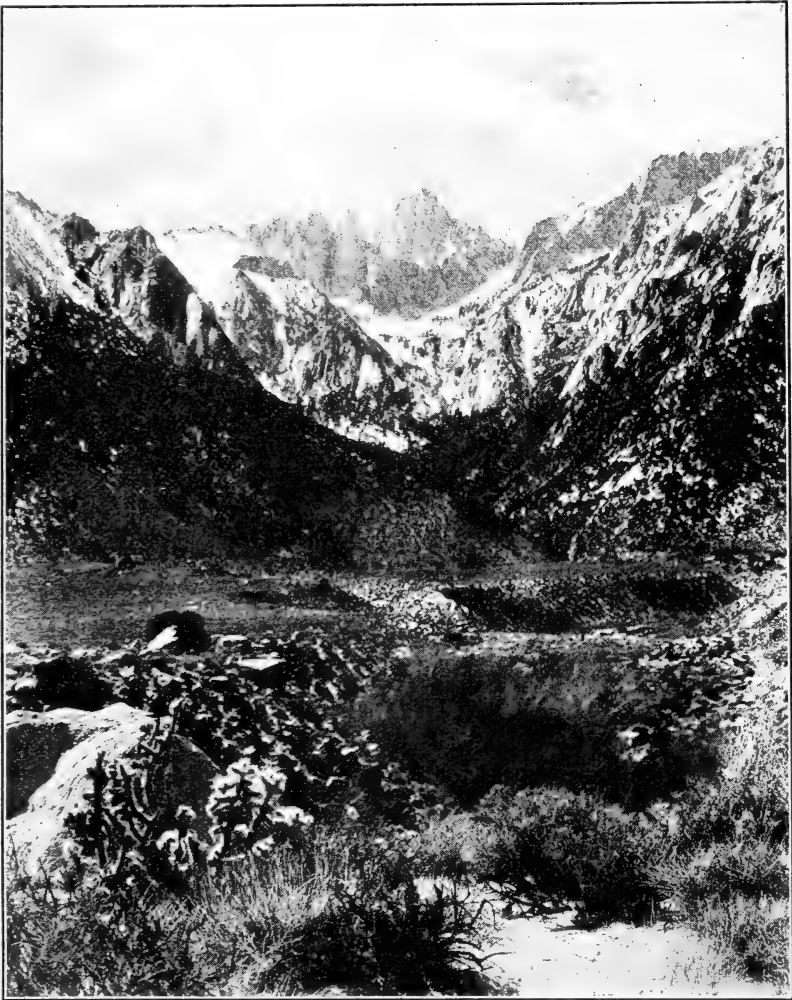
Christmas trees are sold by the Forest Service as a method of thinning the dense groves of young trees and so improving the silvi-

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**IF YOU DON'T KNOW, ASK A UNITED STATES FOREST RANGER**

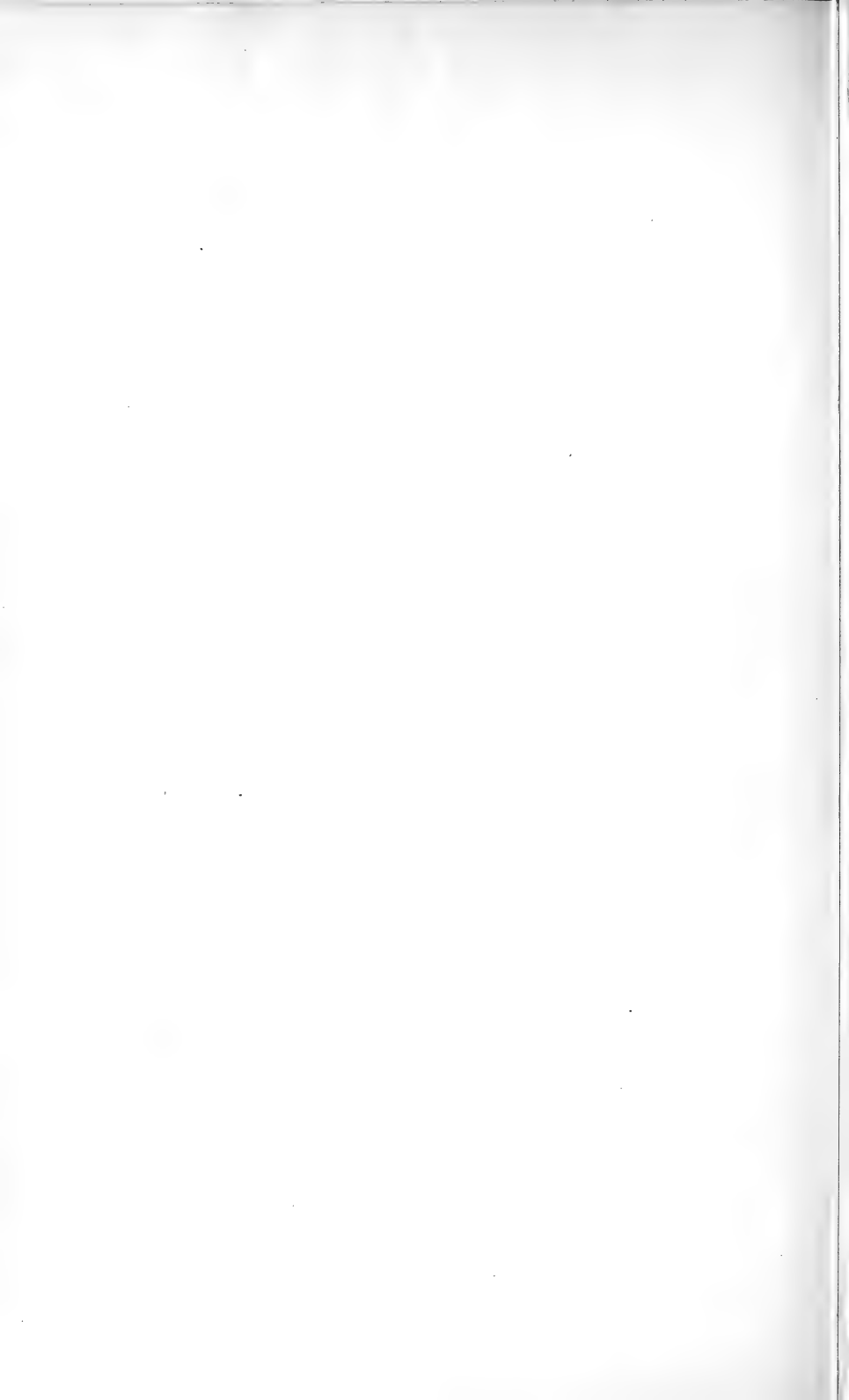


cultural condition of the forest. In 1930, 28,400 trees, valued at \$3,450, were sold, most of them from the Eldorado, Stanislaus, and



East slope of Mount Whitney (14,496 feet) in the Inyo National Forest

Tahoe National Forests. The species were red fir and white fir, commonly called "silver fir." Application for the purchase of Christmas trees should be made to the nearest district ranger.



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