DESIGNATION ORDER

BACKBONE CREEK RESEARCH NATURAL AREA

By virtue of the authority vested in me by the Secretary of Agriculture under Title 36, Section 251.23, of the Code of Federal Regulations, I hereby designate as the Backbone Creek Research Natural Area the lands described in the attached report by Norden H. Cheatham dated October 21, 1970; said lands shall hereafter be administered as a research natural area subject to the said regulations and instructions thereunder.

March 25, 1971 (Date)

Edward P. Cliff Chief

Carpenteria californica Torr.

Establishment Report

BACKBONE CREEK RESEARCH NATURAL AREA

within the Sierra National Forest
Fresno County, California

I. INTRODUCTION

Carpenteria californica Torr. is a native California shrub with a natural range limited to about a 50-square-mile area centered on the town of Tollhouse and extending roughly 7 to 8 miles in each direction northwest and southeast and ranging from 2 to 5 miles wide. It occurs nowhere else in the world except as an introduced ornamental. A major portion of the natural range of this plant is on National Forest land. During May and June the Carpenteria is covered with large white flowers. This area also is noted for other showy shrubs such as Aesculus californica (Spach) Nutt. (buckeye), Cercis occidentalis Torr. (redbud), Dendromecon rigida Benth. (bush poppy), and Fremontia californica Torr. (flannel bush).

Very little ecological information is available about Carpenteria. Establishment of this research natural area will not only protect the unusual scientific values that are associated with this unique plant, but it will also provide protected status to many other native California Sierra Nevada foothill species not presently protected by research natural reserve status. There is a proposal to create a botanical area along nearby Highway 168.

II. GENERAL DATA

A. Name. Backbone Creek Research Natural Area.

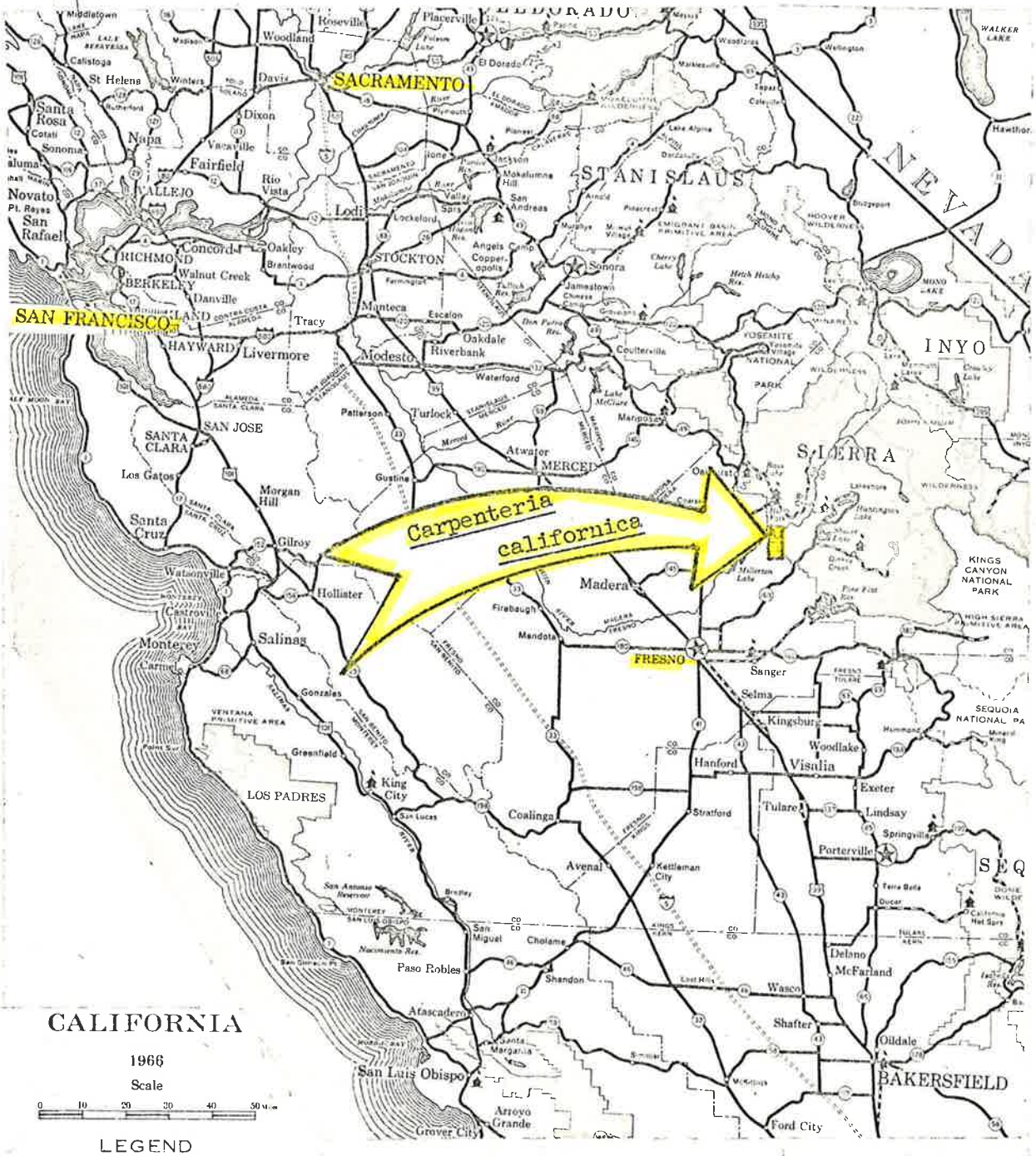
B. Location. Pine Ridge District, Sierra National Forest, Fresno County, California.

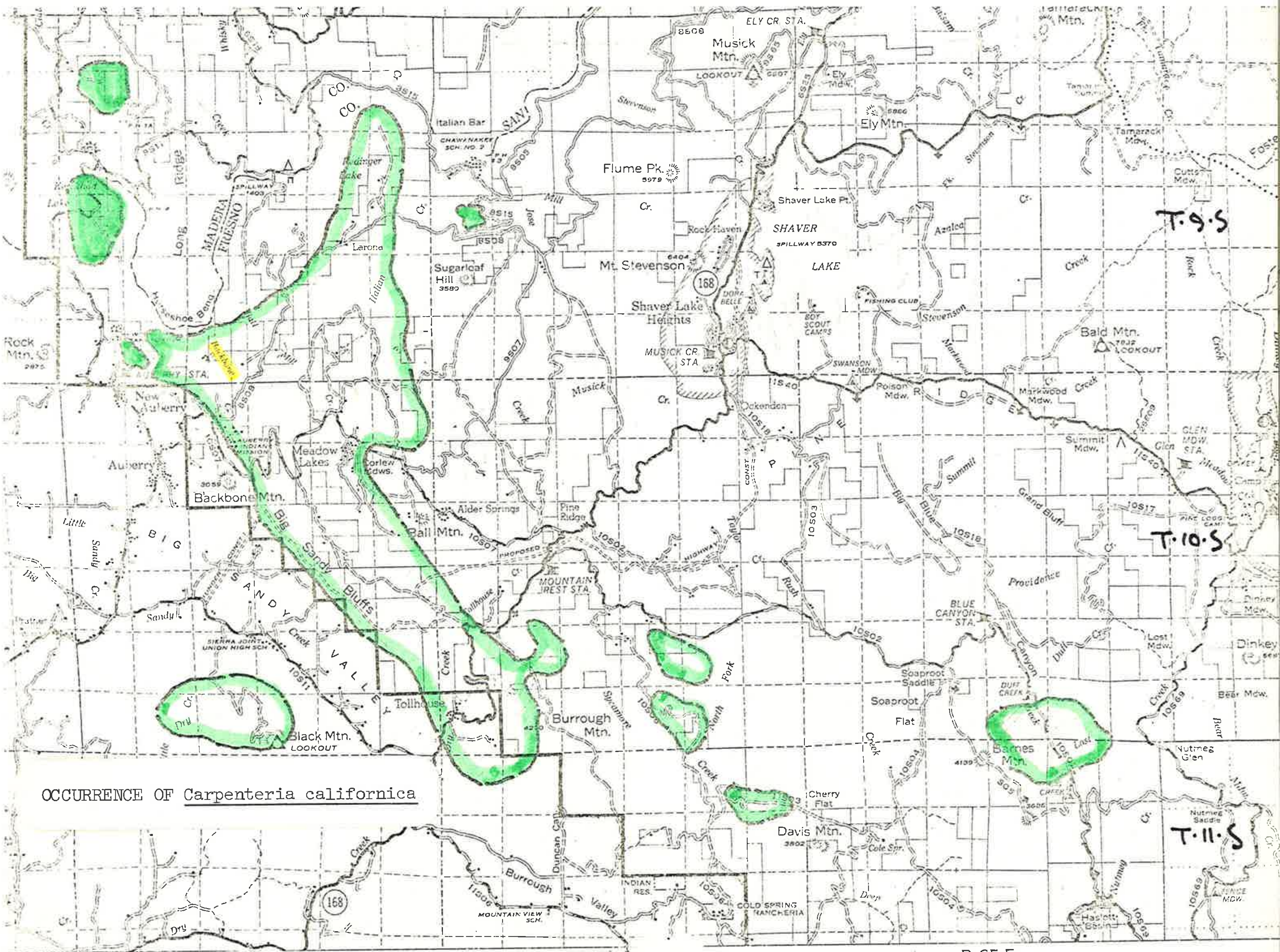
C. Description of the Area. The area is shown on the USGS Shaver Lake Quadrangle and is located in T9S, R23E, Sec. 32, 33. The research area consists of the National Forest land covering most of the west half of Section 33 and the east half of Section 32. It contains a small tributary to Backbone Creek. The area covers approximately 262 acres of dense brush. There are thick stands of Carpenteria as well as an abundance of associated species common to the area. The elevation runs from about 1,250 feet to 2,400 feet. The average annual precipitation is 25 inches. The soil type is the Tollhouse series.

There is limited grazing in the vicinity but no grazing on the proposed research natural area. Occasionally a steer does get into the area, but the brush is so thick that any effects are limited to the fringes of the area.

MAP SHOWING NATURAL RANGE OF

Carpenteria californica





OCCURRENCE OF Carpenteria californica

Figure 1.--*Fremontia californica* (flannel bush). This shrub, and the ones in the next two photographs, grows in among the *Carpenteria*.

Figure 2.--*Aesculus californica* (buckeye) with *Fremontia californica* (flannel bush) in the background.

III. LAND OWNERSHIP AND PROJECT BOUNDARY

A. Ownership. The entire reserve area is on land administered by the Forest Service. There are private holdings in the vicinity, some of which share a boundary with the reserve area.

B. Research Natural Area Boundary. See attached map.

IV. RESOURCE INVENTORY AND APPRAISAL

A. Research Importance

1. Carpenteria californica Torr. This rare native California shrub is the primary reason for establishing this research natural area. This species is of interest not only in terms of its limited natural range (see I. INTRODUCTION) but also in terms of its taxonomy. Carpenteria evolved in this region of the Sierra National Forest and is taxonomically unique; only one species is in this genus. It has no close relatives and is considered the most primitive living representative of the family Hydrangeaceae. Some scientists consider it a primitive link between two main orders of flowering plants: the Rosales and Violales. Since it has survived over the geologic ages, it is a relict species.

The occurrence of Carpenteria seems to be closely related to the occurrence of the Tollhouse soil series. NOT NECESSARILY SO. THE SOIL ON THE R.N.A. IS THE AHWERRY SERIES N.H.C. JUN 71

Very little is known about the ecology of this species. Local observation indicates that it is a fire sprouting species. No data are available to indicate whether this plant is increasing or declining in numbers.

2. Other native shrubs. Included in this Research Natural Area are numerous other native California shrubs (see I. INTRODUCTION). Presently no examples of the California Sierra Nevada foothills vegetation type are protected as a research natural area either by the Forest Service or by other agencies.

B. Wildlife

Both deer and quail are present, but hunting pressure in this area is not significant and is not considered sufficient to affect the biotic communities (FSM 4063.46). There is no conflict anticipated.

C. Timber

This brushland type has no timber value.

D. Recreation

This site was chosen because it is remote from any developments or recreational areas. No conflict is foreseen.

Figure 3.--Dendromecon rigida (bush poppy) growing within the Backbone Ridge Research Natural Area.

E. Forage

The reserve area has dense stands of shrubs and offers little forage value. There is limited grazing on nearby private land, but there has been no recent effort by the landowners to develop the grazing resource of their land. Occasionally a steer gets into the proposed research natural area, but the brush is so thick that any disturbance is limited to the fringes of the area and is minimal.

F. Minerals

There is no known mineral value on the reserve area.

G. Water

This area drains directly into the main channel of the San Joaquin River. The flow of the river at this point is regulated by dams and powerhouses upstream. Runoff from the reserve area is relatively minor and has no significant influence on the water values of the area.

H. Effect on Local Communities and Individuals

The site was chosen because it is removed from centers of activity. With the exception of nearby Auberry Indian Mission, the general vicinity is undeveloped and idle. There will be no conflict with existing or planned land uses in the area. The scientific values being protected are considerable. The unique values of Carpenteria are known to local civic groups, and efforts to protect these values have their approval.

V. ADMINISTRATION AND PROTECTION CONSIDERATIONS

A. Classification as a research natural area is entirely compatible with the multiple use plan for the Sierra National Forest. The scientific importance of Carpenteria is recognized by the Forest Supervisor and his staff, and this proposal is a result of a great deal of thought and planning from the District level on up.

B. Administrative Sites and Improvements

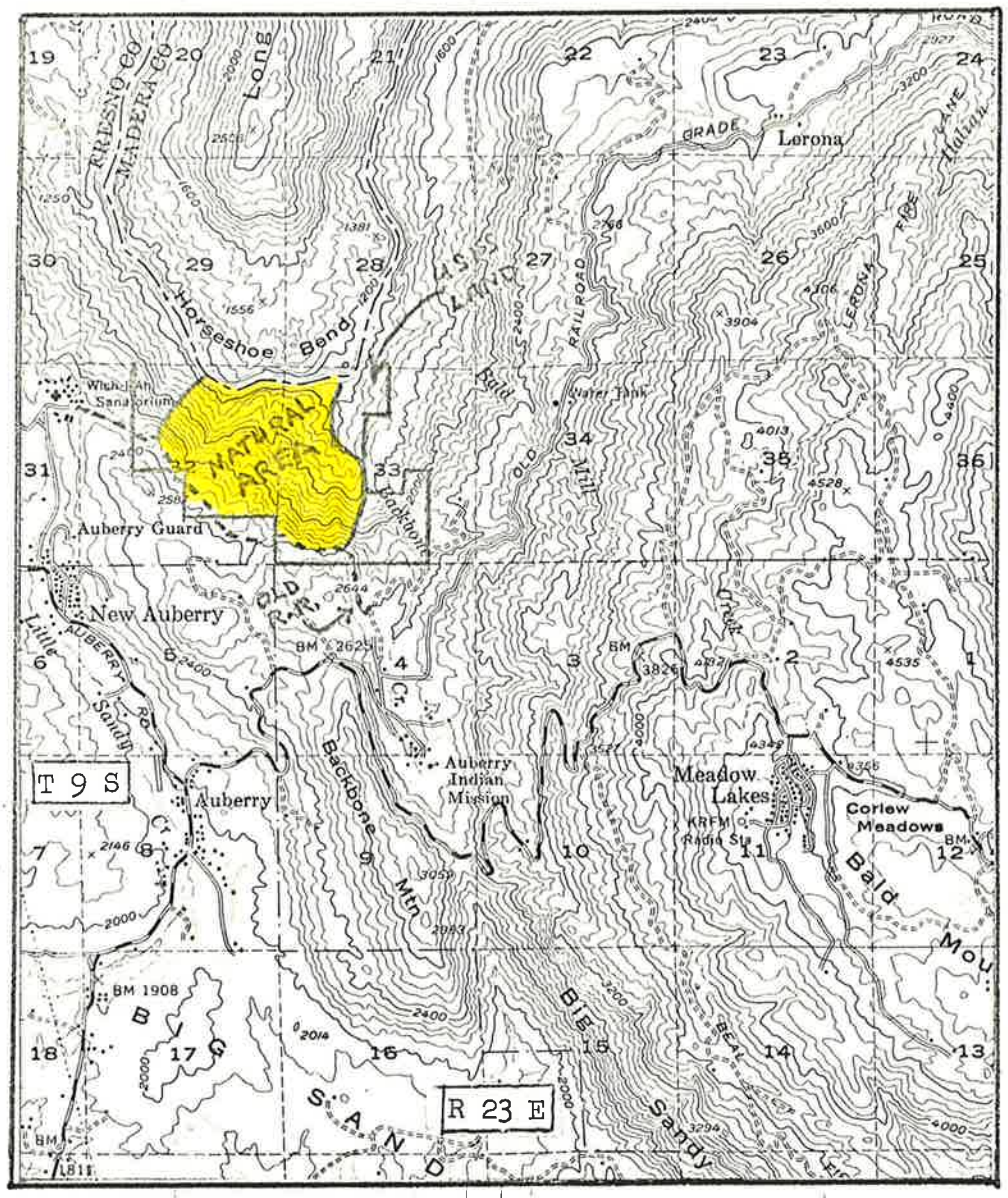
There are no administrative sites existing or planned.

C. Management Direction

The Forest Service recognizes the rare nature of Carpenteria and accepts its responsibility to manage a suitable portion of land as a research natural reserve for the purpose of studying and protecting this species.

BACKBONE CREEK
RESEARCH NATURAL AREA

Sierra National Forest

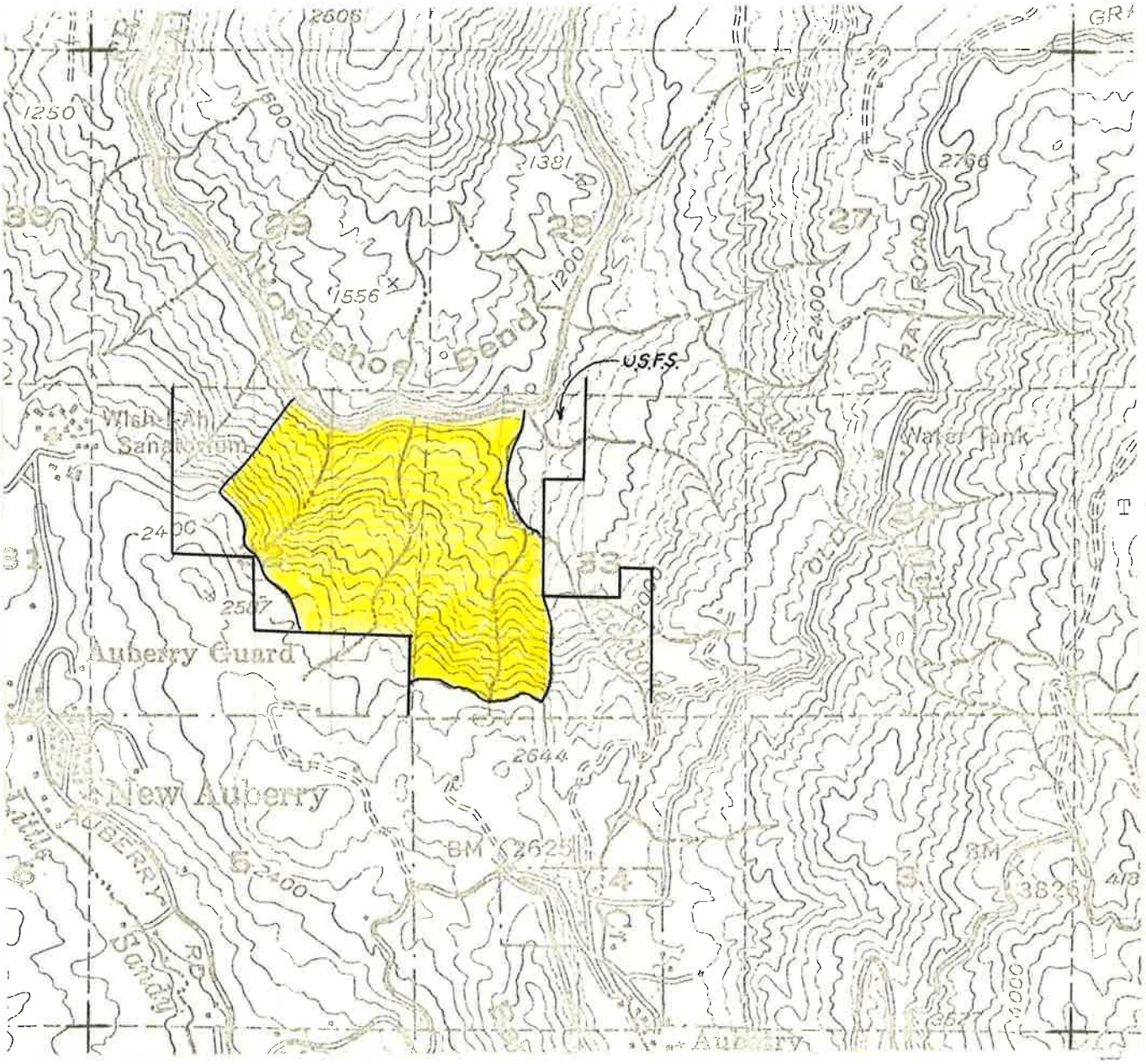


SHAVER LAKE QUADRANGLE
CALIFORNIA
15 MINUTE SERIES (TOPOGRAPHIC)

Map Showing Boundaries of

BACKBONE CREEK RESEARCH NATURAL AREA

R 23 E



T 9 S

SHAVER LAKE QUADRANGLE

Scale in miles

1 ½ 0 1

QUADRANGLE LOCATION

Contour Interval 80 Feet

D. Management Decisions

1. Management activities will be directed toward preserving the area in as near a natural state as possible for the purpose of scientific observation and study. Although Carpenteria is of special scientific interest, this is not intended to downgrade the importance of preserving and studying all the ecological processes acting on this preserve.

2. Scientific activity will be in accordance with the provisions outlined in the Forest Service Manual, Section 4063, or other appropriate policy directives.

3. Fires within this research natural area should be extinguished as quickly as possible, but no cleanup, fire hazard reduction, or reforestation should be undertaken (FSM 4063.45). Suppression and presupression plans will be coordinated with the California Division of Forestry.

E. Administrative Responsibilities

The scientific and educational uses made of this research natural area by the Forest Service and other scientists is a research responsibility administered by the Director of the Pacific Southwest Forest and Range Experiment Station. Protection is a Forest Supervisor and District Ranger responsibility (FSM 4063.2).

VI. RECOMMENDATION

We recommend that the Backbone Creek Research Natural Area be established on the lands described in this report.

Submitted:

Assistant Director's Staff, Pacific Southwest Experiment Station — 21 OCT 70 (Date)

Recommended:

Forest Supervisor, Sierra National Forest — 11/13/70 (Date)

Director, Pacific Southwest Experiment Station — 1/5/71 (Date)

Regional Forester, Region 5 — 2/1/71 (Date)

Approved:

Director, Division of Recreation — 3-16-71 (Date)

Deputy Chief, Research — 3-23-71 (Date)

UNIVERSITY OF CALIFORNIA, DAVIS

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COLLEGE OF AGRICULTURAL AND
ENVIRONMENTAL SCIENCES
AGRICULTURAL EXPERIMENT STATION
DEPARTMENT OF GENETICS

DAVIS, CALIFORNIA 95616

June 19, 1970

The Director
United States Department of Agriculture
Pacific Southwest Forest
& Range Experiment Station
P.O. Box 245
Berkeley, California 94701

Dear Sir:

I have heard from Dr. D. W. Lynch that an establishment report is being filed giving evidence in favor of setting aside a research natural area and botanical area for Carpenteria californica on Big Sandy Bluffs (T10S R23E, secs. 23 and 24. M.D.M.), and Backbone Creek (sec. 33, next township north). I should like to express my strong support of this project, as both a botanist and conservationist. Carpenteria californica is truly an unusual shrub. It is the only species in its genus, and is definitely the most primitive living representative of the family Hydrangeaceae. Furthermore, recent studies of Carpenteria by German botanists have led to the suggestion that it may be a primitive link between two major orders of flowering plants: the Rosales and Violales. Consequently, permanent preservation of some of the very few localities where it grows naturally would have great scientific value.

As a conservationist, I am impressed with the great beauty of the hillsides covered with Carpenteria, when the shrub is in bloom. It is truly one of the most beautiful in our state. It is destined to be cultivated to an increasing degree as its fine qualities become better known. Consequently, preservation of its natural stands have a high priority for the California Native Plant Society, of which I am President. I hope, therefore, that the Station and the Forest Service will act favorably and vigorously on this proposal.

Yours very sincerely,

G. Ledyard Stebbins

G. Ledyard Stebbins
Professor of Genetics

GLS:lhr

cc: Donald W. Lynch

CALIFORNIA ACADEMY OF SCIENCES

GOLDEN GATE PARK SAN FRANCISCO CALIFORNIA 94118

(AREA CODE 415) 221-5100

THE SCIENCE MUSEUM

THE ALEXANDER F. MORRISON PLANETARIUM

THE STEINHART AQUARIUM

Department of Botany

July 1, 1970

Mr. Robert D. McCulley, Director
Pacific Southwest Forest and Range
Experiment Station
P.O. Box 245
Berkeley, California 94701

Dear Mr. McCulley:

Through Dr. Donald Lynch I have learned that some of the distributional area of Carpenteria californica may be preserved in a research natural area. This species is one of California's rare endemics. It undoubtedly is one of those relect-endemics which have come down to us from pre-Pleistocene times when the climate was more moist than today's climate. As the climate became drier this species became restricted to its present distribution along the few tributaries of the San Joaquin River.

I visited several of the small areas in 1967 where Carpenteria occurs and was impressed with the restricted nature of its distribution. I certainly urge the Forest Service to take the necessary steps to establish a research natural area to insure the preservation of this species, not only a rare endemic but also one of California's most attractive flowering shrubs.

Sincerely yours,

Elizabeth McClintock

Elizabeth McClintock
Curator

SEQUOIA FOOTHILLS DISTRICT

Golden Valley Garden Club

Fresno, California

September 24, 1970

Forest Supervisor,
Sierra National Forest,
Federal Building, Rm. 3211,
1130 "O" St.,
Fresno, California 93721.

Dear Sir:

The Golden Valley Garden Club, member of California Garden Clubs, Inc., (Sequoia Foothills District) wishes to be on record as heartily endorsing your proposal to permanently dedicate two areas of Carpenteria californica.

We believe that the proposed Research Natural area in Backbone Creek deserves the support of all conservationists and botanists interested in preservation of our California Native Plants.

The proposed Carpenteria Botanical area to be established on the upper side of the new highway Big Sandy Bluffs is of particular interest to our club. In the interest of both conservation and highway beautification we believe that this beautiful, unusual native shrub should be encouraged to thrive and spread. Our interest is great enough to extend some financial support, insofar as our limited club finances permit, to provide some plants to enhance the highway landscaping.

We do hope that your efforts to get these areas classified will meet with success.

Very truly yours,

Mrs. Harlan Roberts Pres.
Golden Valley Garden Club
P. O. Box 54,
Kerman, California 93630