NPS Form 10-900
(Rev. 10-90)

OMB No. 1024-0018

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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

United States Department of the Interior
National Park Service

1315

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Stanislaus Branch, California Forest and Range Experiment Station (CF&RES)
other names/site number Strawberry Work Station Historic District, FS 05-16-53-0514, Trinomial CA-Tuo-2351H

2. Location

street & number Forest Road 4N13B ☐ not for publication

city or town Strawberry ☐ vicinity

state California code CA county Tuolumne code 109 zip code 95375

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register Criteria. I recommend that this property be considered significant ☐ nationally ☐ statewide ☒ locally. (☐ See continuation sheet for additional comments.)

Greg Greenway 10-30-2008
Signature of certifying official Date

Pacific Southwest Region, U.S.D.A. Forest Service
State or Federal agency and bureau

In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. (☐ See continuation sheet for additional comments.)

[signature] 19 AUG 2008
Signature of certifying official Date

California Office of Historic Preservation
State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:

☒ entered in the National Register
☐ See continuation sheet.
☐ determined eligible for the National Register
☐ See continuation sheet.
☐ determined not eligible for the National Register
☐ removed from the National Register
☐ other (explain): _____

for Edson M. Beall — 1-15-09
Signature of Keeper Date of Action

5. Classification

Ownership of Property
(Check as many boxes as apply)

- ☐ private
- ☐ public-local
- ☐ public-State
- ☒ public-Federal

Category of Property
(Check only one box)

- ☐ building(s)
- ☒ district
- ☐ site
- ☐ structure
- ☐ object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
6	1	buildings
1		sites
		structures
		objects
7	1	Total

Name of related multiple property listing
(enter "N/A" if property is not part of a multiple listing.)

N/A

Number of contributing resources previously listed In the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

GOVERNMENT
OTHER/forest research
LANDSCAPE/forest

Current Functions
(Enter categories from instructions)

GOVERNMENT
LANDSCAPE/forest

7. Description

Architectural Classification
(Enter categories from instructions)

LATE 19TH AND EARLY 20TH CENTURY AMERICAN MOVEMENTS/Craftsman /Forest Service Rustic

Materials
(Enter categories from instructions)

foundation STONE/granite
walls WOOD
roof ASPHALT
other

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)
Note: Long quotes have been lifted from "An Evaluation of Historic Administrative Buildings on the Stanislaus National Forest," completed by PHR Associates, Dr. Rebecca Conard, Principal Investigator, in 1989.

The Stanislaus Branch of the California Forest and Range Experiment Station (CF&RES) consists of a small group of operational and residential buildings, modest landscape elements—including the narrow drive that loops through the Station—and an experimental plot exclosure and ladder tree that exemplify the forestry research for which the Station was created. This Branch Station was constructed over a decade, between 1927 and 1937, and was comprised of eight buildings; seven of them are extant. "These are the superintendent's residence (#1018), still used as a residence), a caretaker's cottage (#1110, still used as a residence), an office-laboratory (#1111, now used as a residence), a residential cabin (#1218, still used as a residence), a dormitory (#1346, used as a barracks for seasonal crew), a warehouse (#2220), and a stone pump house (#2614)." Six of the seven buildings appear much as they did during the Station's period of significance, 1937 - 1951. All of the buildings are of a style termed 'Forest Service Rustic' (e.g., PHR 1989:var.). This style accentuates use of natural, forest materials—wood and, often, stone. Wood siding is typically finished rather than rough and is placed horizontally; it is often wide, V-notched, tongue-and-groove. Rather than yielding majestic, impressive buildings that make a bold statement on the land, Forest Service Rustic structures are generally modest and subservient to their surroundings. This holds true for the Stanislaus Branch Station.

Arranged in an elongated loop, the Station is sited along side the South Fork of the Stanislaus River, set in a mature conifer forest. The buildings--together with an example of one of the Station's experimental plots--cover an area of approximately 4.75 acres. Though the small village of Strawberry is within a mile, the Station has a sense of remoteness. Access is limited because the compound is removed from well-traveled roads and can be reached only by following a narrow, paved road, 4N13 to 4N13B, for a distance of approximately 0.75 miles as it winds southward from the village of Strawberry, and dead-ends at the Stanislaus Branch Station (PHR 1989:3-3). The site plan for the Station is unchanged since its construction.

8. Statement of Significance

Applicable National Register
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

- [X] **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] **B** Property is associated with the lives of persons significant in our past.
- [X] **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "X" in all the boxes that apply.)

- [ ] **A** owned by a religious institution or used for religious purposes.
- [ ] **B** removed from its original location.
- [ ] **C** a birthplace or a grave.
- [ ] **D** a cemetery.
- [ ] **E** a reconstructed building, object, or structure.
- [ ] **F** a commemorative property.
- [ ] **G** less than 50 years of age or achieved significance within the past 50 years.

Criteria Areas of Significance
(Enter categories from instructions)

Architecture, Conservation, Science, Government

Period of Significance

1937-1951

Significant Dates

N/A

Significant Person
(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Edward J. Maher, Architect
Norman K. Blanchard, Architect

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.) See continuation sheets.

9. Major Bibliographical References

Bibliography
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)
See continuation sheets.

Previous documentation on file (NPS):

- [ ] preliminary determination of individual listing (36 CFR 67) has been requested.
- [ ] previously listed in the National Register
- [ ] previously determined eligible by the National Register
- [ ] designated a National Historic Landmark
- [ ] recorded by Historic American Buildings Survey # _____
- [ ] recorded by Historic American Engineering Record # _____

Primary Location of Additional Data

- [ ] State Historic Preservation Office
- [ ] Other State agency
- [X] Federal agency
- [ ] Local government
- [ ] University
- [ ] Other

Name of repository:

10. Geographical Data

Acreage of Property 4.75 (690 feet NE/SW x 300 feet NW/SE)

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing		Zone	Easting	Northing
1	10	760680	4230690	3			
2				4			

☐ See continuation sheet

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Pamela A. Conners

organization USDA, Forest Service, Stanislaus National Forest date 2006

street & number 19777 Greenley Road telephone 209.532.3671 x362

city or town Sonora state CA zip code 95370

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **vicinity map.**
A **USGS map** (7.5 or 15 minute series) indicating the property's location.
A **sketch map** of the Stanislaus Branch Station Historic District.

Photographs

Representative **black and white photographs** of the property with descriptions.

Additional items
(Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name USDA Forest Service, Stanislaus National Forest

street & number 19777 Greenley Road telephone 209.532.3671

city or town Sonora state CA zip code 95370

Narrative Description, continued:

Five of the seven extant Stanislaus Branch Station buildings were built using standard plans developed by or under the supervision of San Francisco Bay Area Architects Norman K. Blanchard and Edward J. Maher. These buildings were constructed by New Deal relief workers, supervised by Stanislaus National Forest Engineer, Reginald Drew. The other two buildings were probably built from plans that were part of Region 5 Forester Coert DuBois' 1917 'Improvement Circular.' Promulgated in an effort to bring a more unified and professional appearance to Forest Service buildings in California, the Circular included a set of plans for common Forest Service buildings (contextual history in USDA FS, PSW 1990: 7-9). These two earlier, pre-Depression buildings at the Stanislaus Branch Station were probably built by Stanislaus National Forest personnel.

"The landscaping, including the driveway and walkways, still reflects the type of setting L. Glenn Hall advocated in his 1935 *Landscape Manual for Administrative Sites in the California Region*. The site does not appear to have been graded any more than necessary to provide level building pads and good drainage. The buildings have been arranged spatially to form a harmonious architectural grouping and to take advantage of what natural light is available in this secluded spot.... [While some of the mature trees have been removed because they posed an imminent hazard to the buildings, a substantial number of native trees and undergrowth remain, providing] abundant natural landscaping, shading the entire compound and creating an added degree of privacy between and among the buildings. Native materials were used to construct porch steps and landings for several of the buildings, and all of the buildings rest on native stone foundations, which further integrate them into the natural environment. The driveway, now asphalt surfaced, is wide enough to accommodate only one vehicle at a time; thus, its narrowness plus its curvilinear path help fit it into the natural landscape. Footpaths, when they occur, are either unsurfaced or surfaced with natural materials, such as cedar blocks or step stones. Current and recent residents have also planted lawns and gardens and erected split-rail fences, but the newer landscaping materials are informal and complement the older setting" (PHR 1989:3-3&4).

In addition to the buildings and associated landscaping that comprise the Stanislaus Branch Station Historic District, the remains of an experimental test plot exclosure and a ladder tree, located a few yards behind the caretaker's residence, are integral to the Station's historic association and strongly contribute to its historic significance. The remnant experimental plot exclosure consists of deteriorated wooden posts and wire and sheet metal strip fencing; the ladder tree is a large ponderosa pine with a 20-foot ladder section attached to the tree, about 50-feet from the ground. While neither the 20' x 30' exclosure fencing nor the tree ladder is intact, these elements compose an associated site that is a direct link with the history of forestry research conducted by the Forest Service during the Station's period of significance.

Construction Sequence

The first buildings constructed by the Forest Service at the Stanislaus Branch of the California Forest & Range Experiment Station were during the period 1927-1931; they "consisted of a three-room caretaker's cottage (#1110), a two-room office-laboratory (#1218), and a garage-storage building. They are stylistically distinguishable by their steeper-pitched gable roofs, narrower siding, and window treatment. With the advent of various emergency programs in the early 1930s, funds and labor became available to expand the facilities. During the period 1934-1937, a superintendent's residence [#1018], a new office-laboratory [#1111], a dormitory [#1346], and a large garage-warehouse [#2220] were constructed. According to Dr. Harry A. Fowells, nominally in charge of the experiment station from 1936 to 1953, the former two-room office-laboratory (#1218), which originally sat on the site of the new office-lab (#1111) was moved approximately 100 feet southwest and converted into a residential cabin. The caretaker's cottage (#1110) also was moved approximately 100 feet (direction unknown) and remodeled. The garage-storage building was razed; presumably, it was no longer needed after the warehouse was constructed. Site plans prepared ca. 1937 indicate that another staff residence and garage were proposed for construction on the east side of the [South Fork] Stanislaus River, but there is no evidence that these structures were ever built" (PHR 1989:3-3, 3-4, 3-5).

Narrative Description, Construction Sequence, continued:

While the buildings have been adapted over the past 70 years, six of the seven have historic integrity and visually convey their time and historical theme. The Station's 1937 site plan, including the location of an experimental plot and ladder tree, are reflected in the Stanislaus Branch Station as it is seen today. Below are descriptions of all seven buildings and a summary of additions and/or major modifications to each.

Superintendent's Residence (1018): See photograph 22 on page 13 of Photographs/Contemporary continuation sheets.

Built in 1934 using a Blanchard and Maher "B" building standard plan, this residence is a single storied, side-gabled, wood-framed building sheathed in 10-inch wide, horizontal tongue and groove (T&G) wood siding. With the bedroom addition (see below), the ground plan changed from rectangular to slightly L-shaped. The primary perimeter foundation is granite with brushed concrete. Most of the windows are original wood-framed double-hung sash, including those on the portion of the front façade that comprises the original building; the remainder are aluminum-framed. A red brick chimney pierces the slope of the south side of the gable roof. Although the historic Craftsman detail of the front porch railing is missing, this recessed porch retains its original configuration, T&G wood flooring, chamfered support posts, and pierced metal porch light. The major alteration is the 12' x 21' 8" second bedroom on the north end; this occurred sometime before 1974. This addition is apparent, due to the break in exterior siding, and the concrete pier foundation supporting it, contrasting with the original granite and brushed concrete foundation. The original cedar shingle roof was replaced with asphalt composition after 1974. The rear stoop was expanded into a covered porch by 1978. A split rail fence borders the lawn adjacent to the residence, north and northeast. Minimal exotic vegetation is adjacent to the house, including flowers and strawberries. While the modifications are apparent, their visual effect does not overwhelm the historic qualities of the building. The superintendent's residence has historic integrity and contributes to the historic qualities of the Strawberry Station Historic District (cf. PHR survey form: bldg. 1018).

Caretaker's Residence (1110)): See photograph 17 on page 10 of Photographs/Contemporary continuation sheets.

Built in 1927, probably using a Coert DuBois plan, this residence is a single storied, steeply gabled, wood-framed building sheathed in 5-inch wide, horizontal T&G, V-cut, wood siding. The original ground plan was rectangular, with an integral, recessed porch centered on the front facade. The building rests on a perimeter foundation made of granite mortared with brushed concrete. Most of the windows are wood-framed and include fixed pane, double-hung sash, and hopper; remaining windows are aluminum-framed sliders. A metal chimney pierces the east slope of the gabled roof and replaces a chimney on the west roof slope that is covered in horizontal V-cut wood siding. The caretaker's residence was moved about 100 feet and extensively "rebuilt" in 1935 or 1936. The front facade has been radically altered; where there had been wood-framed windows, a single, larger, aluminum sliding window has been installed. The front entry was relocated from center to right-of-center and the recessed porch was enclosed. A pedimented porch roof was added, probably at the same time that the porch was enclosed. A wood deck has been added and the front door is a hollow-core replacement. A split rail fence demarcates the southwestern perimeter of the house grounds from the superintendent's residence, building 1018. The caretaker's residence lacks historic integrity and does not contribute to the historic qualities of the Strawberry Station Historic District (cf. PHR survey form: bldg. 1110).

Narrative Description, continued:

Office-Laboratory (1111): See photographs 19 and 21 on pages 11 and 12 of Photographs/Contemporary continuation sheets.

Built in 1935 using a standard "B" building plan developed under Blanchard and Maher, this residence was used as a combination office and laboratory from the time of its construction through 1969, when the station facilities were turned over to the Stanislaus National Forest. Built on the spot previously occupied by the original office-laboratory building (#1218), building 1111 became the station's research hub and remained so for over three decades. The somewhat L-shaped ground plan is 33 feet at the base of the "L" and nearly 31 feet on the leg. The office-laboratory was converted to a residence in about 1970, with resultant but minimal interior alterations. "The exterior of the building has undergone only one minor alteration: a small window on the west façade has been closed and infilled with 10" V-cut tongue-and-groove siding which matches the rest of the siding" (cf. PHR survey form:bldg. 1111, item 40). A split rail fence demarcates a small front lawn. The office-laboratory is one of the Station's four buildings located adjacent to the river. The office-laboratory has historic integrity and contributes to the historic qualities of the Strawberry Station Historic District.

Two-Room Office-Laboratory, a.k.a. Cabin (1218): See photograph 24 on page 14 of Photographs/Contemporary continuation sheets.

Built in 1931 as a combination office and laboratory, in 1936 it was converted to a residence. Originally a rectangular ground plan that probably used a DuBois design, this single storied, side-gabled, steep-roofed, wood-framed building measured 12' x 14'. It was sheathed with 5-inch wide, horizontal T&G, V-cut, wood siding. Between 1952 and 1974, a bathroom addition measuring 7 2/3-feet x 8 ½-feet was built and centered on the rear of the building, transforming the footprint to a "T" and forming an intersecting gable roofline. The original rectangular building is supported by a perimeter stone and mortar foundation along with stone piers and posts; the addition rests on a concrete perimeter foundation. The addition is also distinguished from the original building by its 7-inch wide V-cut, wood siding. A plywood water heater shelter is attached on the south wall of the addition. The windows are wood-framed double-hung sash with 1/1 lights; there is also a wood-framed hopper window. An unpeeled log fence borders the grounds on the northeast, and a grassy area extends about 25-feet toward the river.

The cabin and the stone pumphouse (building #2614) are generally viewed together; moreover, the two buildings are linked by a rock-lined footpath. Although building 1218 was moved between 1931 and 1934 from the present site of building 1111 to its current location, the move occurred during the district's period of significance. The cabin is one of the Station's four buildings that are adjacent to the river. The former two-room office/lab that is now a residence has historic integrity and contributes to the historic qualities of the Strawberry Station Historic District (cf. PHR survey form: bldg. 1218).

Dormitory (1346): See photographs 10, 15 and 16 on pages 7, 8 and 9 of Photographs/Contemporary continuation sheets.

Built during the 1936 and 1937 seasons, the dormitory is the most impressive of the Station's structures. Referenced as plan B-8X and drawn by someone with the initials G.J. R. (checked by Norman Blanchard), the dormitory has a "U"-shaped ground plan, with a recessed "side" porch that faces and is just a few yards from the South Fork Stanislaus River. The building is single storied and the roof has intersecting gables. The foundation is granite rock held together with brushed concrete. The exterior is as it was designed and features one wing with a relatively massive, stepped

Narrative Description, Dormitory (1346), continued:

and battered granite rock chimney and fireplace at opposite ends. The dormitory cladding is horizontal, V-cut, 10"-wide, T&G rustic siding. With one exception (see below), the windows, doors, and modest decorative elements—including beveled and dog-eared rafter tails, some cantilevered windows, and some of the original wood-framed windows with Z-braced, functional shutters and hand-forged iron "S" hardware—are intact.

"The interior has undergone some modification, but the building nonetheless retains some of its original finishing materials, including tongue-and-groove pine paneling on walls and ceilings and an interior brick wall behind the kitchen stove, and kitchen cabinetwork. The most significant interior alteration has occurred in the center section of the building, which originally was partitioned into a bedroom and communal barhroom. Most of the area has been remodeled into a communal bathroom, thereby eliminating the bedroom. A portion of this area has also been partitioned into a hallway, paralleling the front porch and connecting the dining room with the living room. The original floor plan had no interior passageway connecting the two rooms. A 1983 floor plan indicates tht this change occurred about then."

The side and front porch decks and steps are constructed of native stone. "Chamfered post supports and the wood balustrade are identical to those depicted on the 1935 architectural drawings." The original porch lighting--using pewter on sheet metal light fixtures—has, however, been altered to incorporate motion detection and flourescent lights. Though distracting, this alteration is reversible, and there are extant 1938 drawings for the original fixtures, referenced as 'Type #28 Front Porch Bracket Fixtures.' "A post and rail fence of unpeeled logs borders the barracks grounds on the northeast approximately 30 feet from the building. A paved asphalt road and dirt footpath parallel the northwest façade of the barracks. Also located on the northwest side is an LPG tank." The dormitory has historic integrity and contributes to the historic qualities of the Strawberry Station Historic District (cf. PHR survey form: bldg. 1346).

Warehouse/Shop (2220): See photographs 7 and 9 on pages 5 and 6 of Photographs/Contemporary continuation sheets.

Built in 1936, the warehouse is the first structure seen as one approaches the Stanislaus Branch Station. It was built using a standard Region 5, Depression-era plan designed and drawn by Edward J. Maher. The Warehouse footprint is a simple rectangle; the single-storied building is side-gabled, wood-framed, and incorporates wood-framed windows and a granite stone foundation; the roofing is corrugated metal panels. Designated the B-7X03 plan, the Warehouse front façade has four bays accessed by overhead garage doors faced with corrugated metal panels. The bays are in-between a platform-level sliding door at one end and two pairs of stationary wood-framed windows on the other (3 over 6 panes, each). Contrasting with the usual horizontal siding, the gable ends have vertical board and batten insets. These insets incorporate banks of fixed sash, multi-light windows. The back wall faces the South Fork Stanislaus River, and has single course of eave-height, fixed sash, 3 over 2 light windows. While there are no major changes to the warehouse, there are a few minor modifications, including a small metal-framed sliding window in the north elevation and a short flight of wooden steps built in front of the wooden sliding door at the front façade. The warehouse has historic integrity and contributes to the historic qualities of the Strawberry Station Historic District

Narrative Description, continued:

Pumphouse (2614): See photographs 27 and 28 on pages 15 and 16 of Photographs/Contemporary continuation sheets.

Built in 1934, the small (10' 6" x 14' 8") pumphouse is the only structure of the Stanislaus Branch Station constructed primarily of rough-cut granite. Though a building plan has not been located, the pumphouse was probably designed by or under the direction of Architects, Blanchard and Maher. The ground plan is a simple rectangle; the stone foundation ledge projects a small distance from the walls. The building is one story and has a saltbox gable roof. The uncentered double door is on the eave wall, facing the former two-room Office-Laboratory (1218); the door is made of vertical, 10-inch wide planks with original metal hardware. While the basic building has not been modified, two out-of context control panel boxes are attached to the exterior wall, adjacent to the door, overpowering the small, front window. Another fixed, wood-framed, multi-light window is centered to the gable peak. A rock-lined dirt path connects the pumphouse with cabin 1218. At an unknown date, the pump equipment was removed; the builidng is currently used for storage. The pumphouse has historic integrity and contributes to the historic qualities of the Strawberry Station Historic District.

Statement of Significance

The Stanislaus Branch Station of the California Forest & Range Experiment Station (CF&RES) is historically significant because it represents an important, early period in forestry research in Region 5 of the Forest Service (Criterion A) and because it represents an important type, period, and method of construction that is distinctively Depression-era Forest Service architecture in Region 5 (Criterion C). The property is significant, at the state level, in the areas of science, conservation, government (Criterion A) and architecture (Criterion C). The period of significance is from 1937 to 1951, from the time when the buildings comprising the district were completed and used as a headquarters for forestry research to the time Duncan Dunning, leader of the Pine Management Division, retired and research activity at the Stanislaus Branch Station began a steady decline (Fowells 1978:8. Also cf. StF Summit RD E.F. File). The historical context of the Forest Service and Region 5's administrative building program during the Great Depression and its connections with the national recovery program are developed in such works as *A History of the Architecture of the USDA Forest Service* (Grosvenor 1999) and "A Thematic Study of Administrative Buildings in the Pacific Southwest Region" (USDA FS, PSW 1990).

The Stanislaus Experimental Station lies entirely within the administrative boundary of the Stanislaus National Forest (StF), and its current use is employee housing and storage by the StF's Summit Ranger District. However, the station's history—while entertwined with that of the Stanislaus National Forest—owes more directly to the Forest Service Branch of Research. Important, fundamental forestry research was being conducted in the area beginning in about 1906 that, not until 1942, was formally designated as the Stanislaus-Tuolumne Experimental Forest. From 1906 until 1915, research projects were conducted under authority of the District/Regional Forester. In 1915, the Branch of Research was established, and the research mission was transferred from the District Forester the Branch of Research. Through its architecture and historic function, the Branch Station also embodies an important part of the historical context of Depression-era New Deal social recovery efforts of the 1930s and early 1940s.

Many of the basic details about the Stanislaus Branch Station—exactly when it was established, under whose specific direction, and for what precise purposes—remain vague. However, it is clear that research was recognized as an important function of the agency since its inception. Gifford Pinchot, the first Chief of the Forest Service, was a quintessential political Progressive who believed that scientific management of the nation's forests was possible and essential to the health and vigor of the country and its people. "Practicality" and "use" were by-words of his philosophy, and he constantly employed results of experimentation as a tool to develop policy or to demonstrate a point. An unwavering belief in scientific management was a hallmark of the new agency, the US Forest Service created in 1905.

Even though forestry research was taking root in the US in the early years of the 20th century, its fruiting was, necessarily, slow. The nature of forestry research involves time... trees and forests take time to grow. Early forestry research was fundamental—such as what key factors and combinations of factors promote or retard tree growth? How many trees should be left after harvest to provide for healthy timber stand replacement? What is the replacement cycle for reestablishing timber stands after fires, harvests, or other occurrences? How does one recognize productive, healthy conifer cones from those that do not produce good seed? What are the post-harvest factors that most affect timber growing productivity? What are the soil physics that promote or retard tree growth? How fast do different tree species grow, and what factors enhance growth for differenct species? Can timber stand regeneration or improvement be aided by fertilizing and, if so, what is the cost-benefit ratio? What factors promote the success of seedlings, and how can those factors be controlled? Such research, however, takes time to accumulate results, and the analyses takes time to gel into scientifically reliable patterns.

Statement of Significance, continued:

Though the historic significance of the Stanislaus Branch Station is stated on the preceding page, the context that frames and supports its significance is presented in the narrative, below, organized in the following topics: 1. Seeds of Sustainable Forestry on the Stanislaus Forest, 1905 – 1925; 2. The California Forest Experiment StationTakes Root, 1926; 3. A Toehold for the Stanislaus Research Branch Station, 1927; 4. Riding the Wave; 5. Expansion at the Stanislaus Branch Station; 6. E.C.W. and C.C.C. Work at the Stanislaus Branch Station; 7. Selecting Station, Branch Station and Experimental Forest Locations; 8. Moving Beyond Empirical Research, Kotok Exits, and Wartime Priorities; 9. Stanislaus – Tuolumne Experimental Forest Established; 10. Preparing for Post-War Responsibilities and Opportunities; 11. Paradigm Shifts and Changing of the Guard; 12. From Strawberry to Redding; and 13. There Arises a Certain Grandeur.

Seeds of Sustainable Forestry
on the Stanislaus Forest, 1905 – 1925

One of the reasons the Forest Service was established was to demonstrate that lumber harvesting could be done on a sustainable basis; harvesting timber in a way that assured future healthy crops of trees. The idea of timber as a sustainable crop was one of the prime reasons that the new agency was moved, in 1905, out of the Department of the Interior and into the Department of Agriculture. However, the scientific foundation for this cornerstone of the agency rested on shaky ground. A great deal of scientific work had been done in European forests to support national policies regarding forest management, but such work was virtually nonexistent in the United States and, particularly, in the vast forest reserves in the American West. While some of the principles developed elsewhere could be applied here, the idea of managed use of forest resources through a system of permits was novel to the management of national forests. A permit system would, for example, allow federal forest officers to stipulate how logging was to occur on national forests; they could take a long and wide view, and aspire toward sustainability as well as protection of other forest resources affected by a timber harvest, such as grazing, recreation, and water and hydroelectric development.

The Forest Service was committed to developing and incorporating the science of forestry as the foundation for its management... management through the system of use permits and timber harvest agreements. Even before 1908, when the US Forest Service decentralized and formed "district," now "regional" offices, California national forests were the scene of experiments in forestry. A significant number of these occurred on the Stanislaus National Forest, probably due in part to its relative proximity to the District Office in San Francisco and, somewhat later, to the University of California (UC) at Berkeley— in 1914, the university formally established its School of Forestry. In addition to proximity, the Stanislaus provided opportunities to conduct both broad and focused forestry experiments. Perhaps ironically, industrial-scaled timber harvests facilitated by burgeoning railroad logging systems provided the substance for many of the early forestry experiments and studies. Indeed, on the quadrant of the Stanislaus targeted for forestry research, railroad logging entered a crest in 1908 and soon transitioned from a system that required several small sawmills in the woods to a pattern of taking the rails to the timber and hauling logs to two large sawmills at town railheads (Conners 1997:49-50, 61). For fundamental pine research related to commercial harvest and sustainability, and to have a study location that offered both significant stands of virgin timber to use as control areas along with the presence of active logging operations, provided the best of both worlds.

Statement of Significance

Seeds of Sustainable Forestry on the Stanislaus Forest, 1905 – 1925, continued:

In the years before 1915, when the Branch of Research was established, formal forestry experiments were organized by researchers in the District Office. Through the early years, District 5—essentially California—cultivated a corps of research-minded officials, Coert DuBois, Paul G. Redington, T. D. Woodbury, E. N. Munns, Stuart Bevier Show, Duncan Dunning, and Edward I. Kotok to name a few. In retrospect, these men constituted a pantheon for early forestry research in California; more will be said about Dunning later in this history. In cooperation with Stanislaus National Forest officials, the District Office established a number of study plots on the forest near Cleveland Hollow, Dodge Ridge, and Cow Creek, perhaps as early as 1906 but definitely by 1909. Established in areas after significant logging had occurred, these early plots were to study growth of residual stands, establishment and growth characteristics of regenerated timber stands, and the decay of logging slash (Fowells 1978:1; Schubert 1960:1).

Duncan Dunning reported that the first harvest cutting plots in what would later become a formal 'experimental forest' within the Stanislaus National Forest occurred in 1909. He also noted that these plots were established and monitored by District Office personnel until 1924, well after the Branch of Research was established in the Washington Office. The research plots were "rather widely scattered [due to] the necessity of taking advantage of logging or other operations as they chanced to occur in suitable locations when the research could be financed; in part, also, from the natural dispersal of [timber] types, age classes, and sites" (USDA FS/Dunning 1940:np).

This area of the Stanislaus was viewed by researchers as especially important for 'Methods of Cutting,' experiments, designated in the literature as 'Mc.' The year 1910 appears to be the earliest Mc study plots on the Stanislaus: four plots between 14 and 20 acres were established (USDA FS, R-5 1931:23). These permanent plots were designed as places where growth of the residual stand and the amount of regeneration following a typical 'selective' harvest could be measured. Usually, all trees at least four inches in diameter at breast height (dbh) were tagged and measured. Subplots designed to monitor regeneration often were fenced to exclude sheep. These plots were periodically re-measured and results analyzed until the early 1930s (USDA FS, PSW 1987).

Using science as the basis for timber sale agreements and special use permit provisions that were designed to sustain the forest's natural resources was given added force from an unlikely source: recreation. The spike of recreational use in this vicinity between the early 1910s and the end of that decade was traceable largely to the wildly popular and increasingly ubiquitous automobile. Improvements to State Highway 108 between Sonora and Sonora Pass, especially in the 1920s and 1930s, compounded the trend and brought unprecedented numbers of recreationists to the area—numbers that included visitors from distant places. Stanislaus National Forest officials encouraged this increased recreational use by such means as establishing and promoting summer home tracts and organizational camps; building and improving roads and trails; issuing special use permits for visitor services on national forest land such as lodges, gas stations, and stores; developing additional public camp grounds and facilities; and proactively cooperating with state officials to stock sport fish and game while suppressing some native fish and game species viewed as deleterious. While this increased dispersed recreation could be viewed as a serious threat to the inviolability of the research study plots, it could also be viewed as providing a receptive audience to the message of scientific management.

Statement of Significance
Seeds of Sustainable Forestry on the Stanislaus Forest, 1905 – 1925, continued:

As various forces encouraged use of the area by people from more distant places, there was also recognition that the economy of the local communities relied significantly upon the commercial value of timber, directly and indirectly. Later, when Dunning presented his case for formalizing an experimental forest in this area—in order to continue forestry studies and to be able to initiate new ones free of public uses that could conflict with the area's research use—he presented the experimental forest *and* the Stanislaus Branch Station as public relations assets. Noting that local communities "depend wholly or in part on the timber resources," he reported that surrounding the branch station were...

> extensive cut-over areas where problems of rehabilitation (stand improvement, planting, brush control) should be undertaken if the land is to continue to support a local population after the virgin timber is reduced.... The nearby Pine Crest and other recreation areas attract a large summer population to the vicinity. Numerous influential citizens have homesites near, and several public service organizations have camps there. Active local sportsmen's clubs are interested in the condition of the trout streams and timber cover for deer. The natural beauty of the headquarters site favors development of a local center of public interest [USDA FS/Dunning 1940:np].

In addition to experimental work on the Stanislaus, in 1912, the Feather River Experiment Station was established on the Plumas National Forest to conduct planting experiments for Northern California, and the Converse Flat Tree Nursery, on the Angeles National Forest, was to do the same for Southern California (Ayres 1958:70).

As forestry research work advanced under direction of the various District Offices across the nation, its centrality to the agency's mission was administratively underscored in 1915 when the Branch of Research was authorized in the Washington Office. Rather than organizing research such that each District directed the work, it was set-up at the Washington Office level so that the Branch of Research Director reported directly to the Chief of the Forest Service. In this way, it was thought that research would garner the attention it deserved, be prioritized in accord with national urgencies, and be effectively coordinated on a national scale. Earle Clapp was named Director remaining in that position for many years. In his retrospective testimony before a senate committee in 1933, he recalled that the branch was established in "recognition of the fact that only by means of research would it be possible to obtain in the shortest possible time and at the lowest possible cost the basic knowledge necessary... to make forest lands and forests render the largest possible economic and social service (US Senate, Clapp 1933:651-652).

Painting a historical view of the Branch of Research to the Senate committee, Clapp noted that, while research had been one of the earliest functions of the organization that would later become the Forest Service, by 1915 it was "almost wholly submerged in the effort to administer the national forests...."

> It was scattered in several branches, the primary responsibility was national forest administration. Research in silvics, for example, was in the branch of forest management; range investigations were in the branch of grazing; field stations except the Forest Products Laboratory and the range stations reported to administrative officers in charge of national forest districts; separate stations were maintained for each class of work even in the same region and consequently correlation was extremely difficult.... Research was so submerged, in fact, and so out of the thought of the rank and file of Forest Service personnel that its development was practically at a standstill... [US Senate, Clapp 1933:652-653].

Statement of Significance
Seeds of Sustainable Forestry on the Stanislaus Forest, 1905 – 1925, continued:

Once the Branch of Research was established, Forest Examiner S. B. Show—who would, in March 1926, become the District Forester—was transferred to the Feather River Experiment Station as planting assistant. According to R. W. Ayres—who had been a Forest Supervisor for several forests, including the Stanislaus from 1908 through 1919, as well as holding various jobs in what was then called the California District Office (renamed the "Regional" Office in 1930)—wrote that Show went to Feather River to do "a general field and office review of the planting problem." Earlier, since 1910, Show had collaborated with E. I. Kotok on planting experiments at the Pilgrim Creek Nursery on the Shasta National Forest (Ayres 1958:71). By 1918, Show was at work on 'methods of cutting research' on the Stanislaus, completing a progress report on plots 1 and 3. Approved by T. D. Woodbury, Acting District Forester, Show's report was a follow-up on a 1916 progress report by Duncan Dunning. Its 19-pages of text are illustrated with about 50 photos and repeat photos taken in 1910 and 1916 (Show 1918).

R.W. Ayres summarized Region 5's research work conducted during the 1920s:

> By 1922 there had been more than ten years study of cut-over areas to determine the effects of cutting on the remaining growth and on reproduction in order to modify marking practice as the results dictated. In addition there were 25 sample plots varying in size from 6 to 24 acres totaling 300 acres and involving measurement of 17,500 trees every five years. These plots were located on the Shasta, Lassen, Plumas, Tahoe, Stanislaus, Sierra, and Sequoia Forests. Two periods of five years had elapsed and the results had been studied by Duncan Dunning of the research branch of the District Office. In February 1922 he issued a paper, "Some Results of a Cutting Study in California," which was a concise summary of the scientific results of this study. This was published as Department Bulletin #1176 and was issued in January 1924 to the California supervisors with a letter from District Forester Redington. He emphasized a few of the outstanding conclusions reached. One was that the so called group selection system was a failure from a silvicultural standpoint; instead of leaving groups of Ponderosa pine they should be thinned in order to secure increased growth and for seed production groups could be left to prevent injuries with [steam] donkey logging on rough ground. The importance of advance reproduction was stressed because it was found that it took from ten to twenty years to secure a fair stand of reproduction; this should be protected during logging operations and marking should be designed to release well established growth from light and root competition [Ayres 1958:29-30].

District Forester Redington defined and underscored the policy of striving "toward sustained yield management.... One reason behind this talk of sustained yield was a congressional Capper Committee report on the status of the timber supply of this country" (Ayres *op cit*). This 1920 report to the Senate, written under direction of the newly appointed Chief Forester William B. Greeley, connected the dots between timber depletion, concentration of timberland ownership, lumber exports, and high domestic lumber prices. Important to the story of forestry research, the Capper Report called for the Forest Service to increase cooperation with private forest land owners, the fallout from which caused a rift between the first and former Chief of the Forest Service, Gifford Pinchot, and the new chief. Also important to note is that Chief Greeley had graduated from UC at Berkeley before going to Yale for his master's degree in forestry. Once in the Forest Service, he gained experience in California and the West before going to the Washington Office as Chief of Silviculture which, at that time, was also in-charge of research with Earle Clapp as director; Greeley succeeded his mentor, Henry Solon Graves as Chief Forester in 1920 (Steen 1976:145-147; 181-183).

Statement of Significance

Seeds of Sustainable Forestry on the Stanislaus Forest, 1905 – 1925, continued:

In 1923, Raphael Zon organized and became director of the first federal forest experiment station, the Lake States Forest Experiment Station in St. Paul, Minnesota. Historian Terry West pointed out that this was a time during which Forest Service "research was shifting from empirical observation to experimental testing of hypotheses, but agency funding did not keep pace with research needs." An imminent scientist, Zon had earlier been chief of the Office of Silvics beginning in 1907; later he was Chief of Forest Investigations, and in 1920 was in charge of special investigations on forest economics (West 1990:4-5; Drake 1951:4).

Also in 1923, Duncan Dunning completed a report based on his intensive research on the Stanislaus National Forest: "Preliminary Summary, Cow Creek – Methods of Cutting Plot, Stanislaus Plot 5." This report formed the basis for a scathing memorandum regarding excessive damage to residual trees and to the reproduction capability of the land that was directly attributable to use of high-powered steam donkeys in the logging operation. The report documented establishment of plots on 10 acres of the Standard Lumber Company Sale area, designated 10/10/[19]20, in the northeast quarter of the northeast quarter (NENE) of Section 4 in Township 4 North, Range 18 East, Mt. Diablo Base Meridian (MDBM). Located near the Stanislaus National Forest's Cow Creek Ranger Station, the timber marking preparatory to the post timber sale study and analysis was accomplished by a star-studded forestry crew: W. S. Price, M. R. Brundage, S. B. Show, and Duncan Dunning. The plot was logged using a Willamette 12 x 14 compound yarder capable of mainline speeds between 360- and 600-feet per minute, located about 600-feet from the nearest and about 1,500-feet from the farthest point. These steam-powered machines, collectively called 'steam donkeys,' pulled or yarded, felled and limbed trees from the stump to the log deck. Mounted on a large, wooden sled, a steam donkey could pull itself from place-to-place by attaching its massive wire rope to the butt of a tree, engaging the cable drum, and pulling itself toward the tree. With the aid of overhead rigging, steam donkeys also hoisted logs from decks and onto traction engine wagons or railroad cars. By yarding logs over the ground at high speeds, these powerful engines left deep troughs of compressed soil—some of which, a century later—are still visible on today's aerial photos.

Following this field study, Dunning and Show passionately opposed use of high speed logging machinery. In their assessment, it caused excessive damage to residual trees and to the future productivity of the site. Dunning and Show also displayed frustration regarding the Standard Lumber Company's generally destructive logging practices, including careless falling and yarding. They expressed their viewpoint in a memorandum to District Forester, Paul Redington. The memo outlined their study methodology and displayed results of their measurements and observations. They concluded:

Statement of Significance
Seeds of Sustainable Forestry on the Stanislaus Forest, 1905 – 1925, continued:

> We wish to record our belief that this situation calls for an overhauling of Service policy rather than for an inspection of the local officers concerned. It is true that some of these men expressed satisfaction with the condition of this area after logging but to us it seems clear that much of the destruction is inherent in the type of logging machinery we are now permitting to operate on Government sales [USDA FS, R-5 1923:1-2].

Deputy District Forester, T. D. Woodbury was quick to intervene and attempt to soften the effect of the Dunning-Show memo on District Forester Redington. To put it into historical perspective and invoke the memory of an agency legend, Woodbury wrote:

> Years ago Gifford Pinchot took a look at a Madera Sugar Pine Lumber Company sale area on the Sierra [National Forest, immediately south of the Stanislaus] after cutting, held up his hands in horror and issued the dictum that no donkey logging would be allowed on the National Forests. The result was a considerable period of inactivity in timber sales and small receipts. Mr. Pinchot soon found out that the heavy timber of the Sierra Nevadas could not be logged on rough ground without steam machinery and that steam machinery could not be used in the forest without some injury to the trees left. He also found out that the Forest Service could not make good on its boast that the National Forests were for use and that the Forests would be made self supporting in ten years unless mature timber in need of cutting was sold freely. Ever since that time we have been making an effort to sell large quantities of stumpage with minimum damage in connection with cutting. In attempting to minimize damage we have had to row up-stream for we have had to fight the natural economic trend in the lumber industry which is, of course, toward lower logging costs. We have prohibited high lead and high speed.

Though Woodbury admitted to not having seen the ten-acre tract referred to by Show and Dunning, he predicted that the reported results were "about average." Woodbury noted that the Standard Lumber Company contract had been written before the use of high speed donkeys was prohibited, so that damage was to be expected. He squarely put the blame for any "careless falling and lack of care in selecting locations for the logging lines" on the Stanislaus Forest Supervisor, J.V. Wulff: "This should not be tolerated, and it is the Supervisor's problem to see to it that this is corrected." Woodbury tried to point out "a few bright spots" in the data supplied with the Show - Dunning memo that had presented such "a very dark picture." Woodbury noted that, even though the destruction in the seedling class was large, there were still 649 seedlings left per acre, less than 10-feet tall. Using the customary standard of planting between 600 and 700 trees per acre, the area could be considered "fairly satisfactorily stocked with reproduction in spite of the destructive logging." Woodbury believed that Show and Dunning's suggestion, that timber sale men make similar sample plot studies, was impractical. Moreover, he pointed out that "[n]o progress at all has been made in connection with securing the field data for the Forest Management record which was devised several years ago," let alone adding more requirements for collecting field data. Woodbury closed his memo with an odd argument that says something different than what he may have meant:

> While I hold no brief for the destructive logger, I sometimes feel that investigators do no[t] fully appreciate the problems of administrative officers who are caught between the urge from overhead to sell large amounts of timber and swell the receipts, and the urge from lumbermen to allow the use of destructive but cheap methods of harvesting the timber purchased. There is a common meeting ground somewhere and I am as anxious to find it as anyone [Woodbury 1923:1].

Statement of Significance, continued:

The California Forest Experiment Station Takes Root, 1926

Among other issues, this exchange boldly underscored the tension between research and general forest administration and the desire of research to be out from under the control of the regional and national forest lines of authority.

It was with this backdrop that the California Forest Experiment Station was established on July 1, 1926, with a staff of four technical men and two clerks. At this juncture, its two, broad research areas were forest management (Pine Region) and forest survey pursuant to producing a timber and vegetation type map (CF&RES 1935-39:2). Most Stanislaus studies were transferred to the newly established station. California's Experiment Station director was E. I. Kotok. The technical staff consisted of Duncan Dunning, A. E. Wieslander, and H. W. Siggings; Roscoe Weaver was assigned to the Devils Canyon Nursery in Southern California. Dagmar Vinther was chief clerk and L.O. Baxter was secretary. The annual budget for this inaugural year was $32, 412.50 of federal funds and $8,000 in cooperative funds. Duncan Dunning became chief of pine management and continued his deep interest in the Stanislaus area, always pushing for more research there (Fowells 1978:1). Director E. I. Kotok defined that the "over-all objective of research in pine management is to develop methods of harvesting timber crops that will insure optimum growth within the residual stand, proper stocking, and adequate regeneration so that timber holdings can be operated on a sustained yield basis" (CF&RES 1938-39:4). Dunning was a prolific publisher of this research, and was regarded as "the keenest observer and best naturalist in the Station. Additionally, he developed scores of silvicultural protocols,data analysis techniques and tools, such as an instrument for measuring tree increment cores (Dunning 1925:183-184). Unfortunately, there appeared to be a deep-seated friction between him and Director Kotok" that probably played a role in the delayed establishment of a formal experimental forest on the Stanislaus (Fowells 1978:8).

R. W. Ayres retrospectively cast Duncan Dunning as a central figure not only in the history of forestry research, but also in the history of timber management in Region 5. Ayres perceived that this history broke into four distinct periods. What he termed the "prologue of timber marking" was from 1902 to 1908. During this period, the California District was established, and the "timber sale and research men began to develop rules for the forests of this part of the country instead of using those made for the country as a whole." From 1909 to 1918, was a developmental period during which the California District established its identity and policies. According to Ayres, a "new chapter began in 1919 with the advent of a set of Marking Principles for California national forests." The fourth chapter began in 1927 when Duncan Dunning's tree classification was published in the *Journal of Agricultural Research.* As Ayres noted, Dunning was able to draw upon three, five-year periods during which tree growth had been studied on the 25 Western Yellow/Ponderosa pine sample plots within the California District/Region. The title of this study was *A Proposed Tree Classification for the Selection Forests of the Sierra Nevada with Special Reference to Western Yellow Pine* (Ayres 1958:25). Ayres summarized the gist and import of Dunning's publication:

Statement of Significance
The California Forest Experiment Station Takes Root, 1926, continued:

> Instead of four classes [thrifty, mature, thrifty-mature, and decadent] he made seven based on the dominance of the tree in the stand and the size and shape of the crown. The new classification was an elaboration of the old one based on actual growth figures and other data. Dunning's main plea was for an individual consideration of each tree, or rather a recognition of the fact that each tree was an individual with special characteristics. He did not offer this as the solution of all marking difficulties for 'whatever system of tree grouping is used in marking it is not to be expected that there will be perfect agreement among men. But adherence to a definite system of appraising each tree... will prevent obvious mistakes in marking, raise the average rate of growth in cut-over stands, decrease losses and improve the quality of the seed trees.' His classification gave a solid foundation on which to appraise trees as to their value as seed bearers, as future producers of wood and as to their chances of surviving attacks from insect or disease. This new classification became popular with the field men at once and within a year timber markers and timber sale men were referring to trees by Dunning's number classification.... It was officially adopted in March 1928 for the California Region when it was stated that while the classification was applicable to ponderosa pine, it could be applied with reasonable success in marking any of the commercial species [Ayres 1958:30-31].

In 1928, Dunning's tree classification was reprinted as a Government Printing Office publication, *A Tree Classification For The Selection Forests of the Sierra Nevada.* In his introduction, Dunning spoke of the individuality of trees, even though they are most often thought of in terms of a forest. "When to inherent variability are added the effects of a wide range of interrelated environmental factors, the great differences in the behavior of individual trees can be readily appreciated. It is adjudged a common fault to lose sight of the forest through confusion of the trees. Much more frequently in forestry the mass effect is the more obvious, and there is failure to see their proper relationships in the elementary components of the forest—the individual trees." Through data gathered from experimental forest plots on the Lassen, Plumas, and Feather River area, and significantly, on the Stanislaus, Dunning's system of seven tree classes was based upon age, position (dominance), crown length, crown width, form of tip, and vigor. Tree class was related to growth rates (Dunning 1928:755-756, 763).

With this and other research, a foundation for forest planning was beginning to be laid. Again, as Ayres summarized:

> Research had furnished data, indicating the length of time it takes trees of the various species to grow from one diameter class to another, as a basis for calculating the future cut. Rotations were based on the length of time necessary to grow saw timber [measuring] from 24 to 26 inches in diameter. The yield during the first cutting cycle was calculated by spreading the stand to be cut, under the prevailing marking practice, over the cutting cycle. Rough predictions for the second cut were made by a study of dominant and co-dominant trees on cut over areas [Ayres 1958: 49-50].

A Toehold for the
Stanislaus Research Branch Station, 1927

Virtually simultaneous with Dunning's ground-breaking publication and during a time that must have been both awkward and heady for basic forestry research, what appears to be the first building to support research on the Stanislaus was constructed. Known later as the caretaker's cottage, or building No. 4, it was constructed during 1927

Statement of Significance
A Toehold for the Stanislaus Research Branch Station, 1927, continued:

about 100-feet from its current location at what later became the Stanislaus Branch Station. During the 1935/1936 season, it was moved to its current location and rebuilt (cf. USDA FS, PSW 1938:photo 4 DD-1935). Some references dating to this period note that the Stanislaus Branch Station had only a small, 30-acre experimental area. Yet other references indicate that this Branch Station was assigned a somewhat larger area. However, it is undisputed that it would be 1940 before Dunning's proposal for "an adequate tributary experimental forest" was approved (USDA FS, PSW 1935-39:2-3).

Complaints within and outside of the Forest Service about institutional disjoints among the agency, its research function, and the forest industry, prompted the Society of American Foresters to organize a committee to study the problems and suggest remedies. Headed by Director of Research, Earle H. Clapp, the eventual outcome was passage, in May 1928, of the McSweeney-McNary Act (45 Stat. 221; 16 U.S.C. 487). Providing legislation that both established the relationship of research within the agency and congressional support for it, research was codified as a major function of the Forest Service. Organizationally, research was now joined to the other two principal lines of authority under direction of the Chief of the Forest Service, on a par with national forests administration and co-operation with States and private owners in forestry programs.

The McSweeney-McNary Act authorized a comprehensive Forest Service research and forest inventory program. Linked with research, the inventory program provided for a program of systematic, periodic forest inventories known as Forest Inventory and Analysis (FIA). Intended to provide an impartial, national, comprehensive inventory of the extent, condition, and use of all forested lands, regardless of ownership, the FIA remains active and goes beyond the periodic inventories of the past. Today's FIA work is under authority of the Forest and Rangeland Renewable Resources Research Act of 1978, which supplanted the McSweeney-McNary Act (West 1990:7; www.fao.org/; www.srs.fs.usda.gov/fia/).

Tracing how California research faired in light of the McNary-McSweeney Act, Regional Forester S. B. Show's frank and sometimes acerbic memoir noted that Earle H. Clapp had "become a strong man in Wash...."

> Very able, imaginative and daring, ruthlessly driving through toward his goals, shooting for the moon, demanding, cajoling and getting hard labor on his projects by selected administrators and researchers alike, sitting firmly at the head of the table, he accomplished miracles in establishing and building up a system of regional experiment stations (regional boundaries and headquarters chosen by him to protect Directors from R.F.'s [regional foresters] whom he generally mistrusted;) in getting the 'charter' McNary-McSweeney Act and the Forest Survey; in building toward an elite corps of researchers, protected in their freedom to criticize national forest administration to its discomfort and benefit....
>
> After [1928 when] Greeley left and while Clapp was driving ahead on Research, higher brass dealing with N. F. [national forest] affairs was content to drift with no serious plan, program or effort to continue and expand the legislative and financial growth which Greeley had pushed so hard and successfully.... Meanwhile the determined Clapp had driven through the Charter McNary-McSweeney research act and was pushing his directors to drum up support for local project authorization with appropriations to support them. Kotok was notably successful in this; other directors, counting on a silver spoon policy of getting something for nothing, got the latter. Clapp stubbornly rammed through his policy.
>
> Thus, from 1929-1933 there were two antithetical policies, positive for research, negative for the N. F.'s. That is why the best bet seemed to be to tie onto the Clapp formula, as I did [Show n.d.: 108-109, 114].

Statement of Significance, continued:

Riding the Wave

Thus, from Regional Forester S. B. Show's perspective, due largely to Kotok's initiative and Show's decision to ally Region 5 closely with research, Region 5 and California's Research Station benefited more than other regions and stations during this period. Even the first years of the General Integrating Inspections, beginning in 1938, included both Regional Forester Show and Station Director Kotok spending "as much time as possible" with the inspection team. Show was a self-proclaimed expansionist when it came to extending national forest lands and influence, and the New Deal offered a favorable political climate in which to promote his policies and programs (cf. Show n.d.:130-131, 214). The sea change of the New Deal was a wave that Show and Kotok rode in their land and program expansion pursuits for California's national forests. Moreover, the Forest Service's Chief Forester, Ferdinand Silcox, —picked for the job "as a spiritual brother of the New Deal"—provided a more sympathetic ear than did his more cautious immediate predecessors (Show n.d.:139). However, from a federal perspective, Show also felt that California's national forests were potential fodder and part of a power play by Secretary of the Interior Harold L. Ickes who sought to expand the land base and political influence of the National Park Service within the Department of the Interior, often at the expense of the US Forest Service. The New Deal also tended to reduce the decentralized authority that the Forest Service valued; one result was the central staff reorganization in 1935 that established a functionalized staff of Assistant Chief Foresters.

S.B. Show's memoir noted that the Great Depression years were "far from placid," for the Forest Service, and that the experiment station, "under Kotok's aggressive and imaginative leadership was growing vigorously in various directions. The program of work centers and moderately elegant 'facilities' for each was substantially completed...."

> These included: Mt. Shasta and Pilgrim Cr., Shasta N.F. for fire research; Black's Mt. and Burgess Spr, Lassen N.F. for Eastside pine range and research; Feather River, Plumas N.F. for Westside conifer research on medium sites; Placerville, Eldorado N.F. for pine genetics research; Pinecrest, Stanislaus N.F. for Westside superior conifer sites research; Northfork, Bass Lake and Kings C.[anyon] all Sierra N.F. for forest influences research; the San Joaquin Range, Sierra N.F. for foothill range and wildlife research; Yurok, Six Rivers N.F. for redwood research; Tanbark Flat and Glendora, Angeles N.F. for S. Cal.[ifornia] influences research. Each was a sizeable project to which the Region, in its own long range interest, contributed [Show n.d.:167-168].

Within the Washington Office, Research had a strong ally in Earle Clapp, who took the reins as Acting Chief Forester after the death of Ferdinand Silcox in 1939. In turn, in early 1943 when Clapp handed-over the reins to Lyle F. Watts Watts, too, had close ties with the Research Branch, having been a researcher and director of the Northern Rockies Experiment Station. On the regional level, leadership development, generalist training, and continuing education for forest officers was a prime goal of S. B. Show during his tenure as Regional Forester. Importantly, Show and his close colleague and brother-in-law, E. I. Kotok, purposefully nested these research "work centers" where "forest officers could be exposed to results of research bearing on their own jobs, and where other groups could receive similar exposure (Show n.d.:168, 190)...

> Thus the long-standing and more than cordial relations between Region and Station and the attitudes of their heads brought about a program of mutual advantage. The relations were recognized and hailed as far superior to those existing anywhere else [Show n.d.:168-169].

Statement of Significance, continued:

Expansion
at the Stanislaus Branch Station

This value placed on proximity of research stations and branches to forest officers and other stakeholders is evident in the choice of location for the Stanislaus Branch Station, both in the literal and figurative senses. Referred to by Show as the "facility at Pinecrest," the Stanislaus Branch Station was only a few miles from the Sonora District's Pinecrest Ranger Station at Pinecrest Lake. Moreover, Pinecrest Lake was familiar territory for many San Francisco and East Bay area recreationists. Cow Creek Ranger Station was just a little further up the hill from Pinecrest, and was a familiar sight for travelers from the bay area, valley, and foothills to the high country. The territory was also familiar to private and federal forest officials, since it was in prime timber-producing country that, by the 1920s was directly accessed by the Standard - Pickering Sugar Pine railroad logging system. Jesse R. Hall, Stanislaus Forest Supervisor for two decades from 1926 to 1946, regularly interacted with the Stanislaus Branch during his tenure and sought to incorporate research findings into the work of his rangers.

As reported by Harry Fowells, research scientist in-charge of the Stanislaus Branch Station from 1936 through 1953, the first buildings constructed at the headquarters site, from 1927 through 1929, were a 3-room living quarters known as the caretaker's cottage, a 2-room office/laboratory, and, reportedly, a garage-storage building. Water was piped from a spring above the buildings; sewage was pumped away from the river, uphill, into a septic tank. This pump also forced water from the river into the fire system... "turning the wrong valves was disastrous." Flamo was used for lighting and supplemented the woodstove for cooking. A photo by Fowells shows that there was a swing bridge across the South Fork Stanislaus adjacent to the station; a "clear head and steady feet were essential to cross" (Fowells 1978:3-4). Capital improvements at the Stanislaus Branch Station were unquestionably boosted by passage of the 1928 McSweeney-McNary Research Act. This "legitimatised the experiment stations, authorized forest research on a broad scale, and provided appropriations" (West 1990:7; US Senate 1933:687).

Probably at least partly due to a solid working relationship between the Stanislaus Forest Supervisor Jesse Hall, Dunning established a 160-acre sample plot on the Miner's Ditch Timber Sale in 1928. Located in Sections 4 and 9 of Township 4 North, Range18 East MDBM, just southwest of Cow Creek Ranger Station, this sale of national forest timber was logged by the Pickering Lumber Company in 1923, successors, in 1921, to the Standard Lumber Company. Shortly after the sale, Dunning tallied the living trees and those that had died since logging. He also tried to discern the causes of death. He reexamined the area for dead trees in 1927, using loss figures from "adjacent intensive Stanislaus plots" as a control area. Dunning attributed the principal cause of loss to windfall and wind breakage, accounting for 60-percent of all loss. Bark beetles accounted for 29-percent, and logging injury for 10-percent. Other "miscellaneous agencies accounted for the remainder." Insect losses were greatest—exceeding windfall—in sugar pine (USDA FS, PSW1928:1-2).

This same year, 1928, a study was conducted that focused on damage attributed to tractor logging, which was fast-replacing steam donkeys for yarding logs from stump to landing. The study results were to suggest "the desirability and nature of logging restrictions which will keep this damage at a minimum...." The study data did not... "bring out any additional means of regulation, as the damage was due to the same practices that were found in the other studies and can be held to a minimum by the intelligent enforcement of the standards agreed upon at the field meeting last spring and set forth in the circular 'S-Sales-Policy-Standards-(Tractor)' of May 24, 1927.... Altho the time study has not been worked up as yet, we expect it to clearly show that a 'cat boss' would have been an excellent investment from the output standpoint" (USDA FS, R-5/Berry 1928:1, 12). Ayres later reported that one result of these studies was the requirement that logging companies hire a 'cat boss' for supervising tractor logging operations whenever daily output exceeded 100,000 feet board (Ayres 1958:37).

Statement of Significance
Expansion at the Stanislaus Branch Station, continued:

Also in the latter 1920s, E. I. Kotok worked closely with his former forestry instructor, Professor Walter Mulford, to establish the California Forest and Range Experiment Station on the UC Berkeley campus. Mulford, previously the head of the Cornell School of Forestry, in 1914 became the head of that program at Berkeley. In that position until he retired in 1947, he, Kotok and others continued to build and strengthen the ties between the university and Forest Service research (Kotok 1963: 218, 222-224). Following on the heels of the McSweeney-McNary Act, in 1929, the US Forest Service enacted its L-20 Regulation, establishing policy to designate Natural Areas for scientific and educational purposes, Primitive Areas "to maintain primitive conditions of transportation, subsistence, habitation, and environment..." and Experimental Forests and Ranges for long-term research unfettered by other management objectives. By 1929, the Stanislaus Branch Station facilities were made available through a cooperative agreement to UC's Professor Myron E. Krueger in order to conduct a ground-breaking, large logging and milling study focused on research and analysis of plots Mc 9-11. This study, "The Economic Significance of Tree Size in Western Sierra Nevada Lumbering," was published by M. R. Brundage, D. Dunning, and M. E. Krueger in 1933 as California Agricultural Experiment Station Bulletin No. 549. Austin Hasel joined the station and worked with Dunning on plot re-measurements in these early years. Lester Lloyd was the first field assistant in 1929 and was later the first full-time resident at the Stanislaus Branch Station. Howard Siggins, one of the original staff of the CF&RES, worked with Dunning until 1929, when he died in the fall of that year from injuries incurred in an automobile accident near the mountain village of Long Barn, just a dozen miles from the Stanislaus Branch Station. Fowells reported that there was suspicion of wrongful death—that the attending emergency room doctor in the Sonora hospital was intoxicated when Siggins was brought in—but a lawsuit was not filed (Kotok 1963: 197; Fowells 1978:5, 7-9).

Ironically, it seems that the economic hardships brought on by the Great Depression had, overall, a positive effect on the development of the Stanislaus Branch Station in particular and on the Branch of Research in general. With the L-20 Regulation in-place, a standing committee was established with representatives of the Regional Office and of the California Experimental Station to study "the needs for experimental forests and natural areas, and [to report] annually to the Investigative Committee [additional] areas recommended for selection." Experimental Forests (E.F.) proposed were: Feather River (Plumas) and Swain Mountain (Lassen); Natural Areas proposed were Butte Creek (Lassen), Lava Beds (Modoc), Mono Mills (Inyo), Sweetwater (Inyo), and South Fork Tuolumne River (Stanislaus). After approving the report on these experimental forests and natural areas, in a subsequent committee meeting, the principles for selecting these areas were articulated (USDA FS, R-5 1931:8-19).

During the latter 1920s, Pickering Lumber Company used its Sugar Pine Railway to harvest timber in the Dodge Ridge – Cleveland Hollow areas (cf. Map 1927:Terry). In 1930 or 1931, Duncan Dunning recommended setting aside the remaining uncut areas on Dodge Ridge in the North Fork Tuolumne drainage of the Stanislaus National Forest as a reserve for the CF&RES. "The central theme of the research program [there] was the development of harvesting methods in the old-growth stands which would lead to adequate regeneration of the desirable pines" (Fowells 1978:1, 3).

Up to 1930, although twelve harvest cutting plots had been established over the years and although the aim had been to chart the plots every 5 years, vegetation was charted intensively on only half of them, aggregating about 56 acres. This work had begun after harvests of various intensities, ranging from clear cuts to removal of only the over-mature stand. The work was painstaking: All residual trees were plotted, brush was charted, and tallies made of all plant species on milacre quadrants. "On these same plots, the staff counted all cones on pines and firs for 28 years. They also set out seed traps, about a yard square, to estimate the seed fall." On three plots, Mc 9-11, 624 traps were distributed. In 1930, Victor Clements joined the Station and was in charge of the growth studies on the 'methods of cutting' plots (Fowells 1978:3, 6).

Statement of Significance
Expansion at the Stanislaus Branch Station, continued:

During this period, debate was lively regarding the function of research in society: Was research primarily for the sake of accruing knowledge? Or was it undertaken for the sake of its application to specific problems deemed important by society? An economically strapped country vigorously volleyed criticism at researchers for practicing "pure" versus "applied" research. University of California, Berkeley was anxious to weigh-in on the issue, and University President Sproul summarized his reconciliation of the debate in his first address to the student body. Reported in the Regional Office and California Experiment Station's standing committee notes, Sproul's remarks were paraphrased:

> There are two phases to be considered in any research work. He said, 'Is it true? And if it is what of it?' The research program of the Division of Forestry tries to live up to this standard and while it is developed along a rather fundamental line it endeavors never to lose sight of the essential usefulness of the possible results. It is not committed to a program of 'pure' research as much as a number of other units of the College of Agriculture [USDA FS, PSW 1931:126].

This more utilitarian approach fit the era as well as the agency that endeavored to improve its resource management through application of science.

In March 1931, the Region 5 Investigative Committee Meeting met regarding the progress of forest research throughout the region. A Who's Who of conservation and forestry attended, including from the Forest Service and Research, Stuart B. Show, T. D. Woodbury, R. L. Deering, Wallace Hutchinson, Robert Ayres, Louis Barrett, Overton Price, Russell W. Beeson, E. I. Kotok, Roy C. Brundage, Walter Clay Lowdermilk, Duncan Dunning, Austin Hasel, Victor Clements, Hubert Person, A. Everett Wieslander, L. H. Reineke, J. E. Elliott, and W. V. Benedict. From UC Berkeley, the chairman of the Department of Forestry, Walter Mulford, was among the attendees. The committee heard a great deal about research that had transpired at the Stanislaus Branch during 1930. Modest appropriation increases had allowed for carrying out previous investigative committee recommendations among which was to increase "the yearlong silvicultural staff for the pine region to three men," by the addition of V. A. Clements who was transferred from the Washington Office. The committee tipped its hat to entities such as UC Berkeley and the State Board of Forestry and testified to the close and growing relationship among the Forest Service, the University of California, and State Forestry (cf. Kotok 1963: 209-211):

> Continued generous and wholehearted support of cooperating agencies has made available funds for the maintenance or expansion of projects now inadequately provided for by Federal funds.... Such mutuality of interests of the cooperating agencies undoubtedly is indicative of a public desire to push forward the formulation of sound forest policies for the State, based on the best facts which research can establish [USDA FS, PSW 1931:4-5].

Fundamental forestry research data was accumulating for the western pine forests. By 1931, the California Experiment Station was conducting research on 33 methods of cutting (Mc) sample plots totaling 522.7 acres and over 31,000 numbered trees. By the end of the 1930 field season, data had been gathered and analyzed for 14 of these plots for 20 growing seasons. A new Mc Plot, Stanislaus 12, was located at Cow Creek in virgin timber near Stanislaus Plot 5. "The plot is very similar to Plot 5 before the latter was cut over and was established to obtain growth and other data in virgin timber for comparison with results secured from the cutover stand on Plot 5...." The report noted that considerable work was done in 1930 on Stanislaus plots, the data from which formed a major part of the research that would underlay an upcoming General Methods of Cutting Bulletin being written by Duncan Dunning. It was reported that:

Statement of Significance
Expansion at the Stanislaus Branch Station, continued:

> Before the general Mc bulletin can be written the compilation of 1930 field records and preparation of progress reports must be completed. A large amount of rearrangement and combining of individual plot results must be done. For the first time we now have Hansel [Hasel] and Clements, two permanent men of experience to carry on field measurements and office work so that Dunning can be relieved to the extent that more rapid progress should be made on the bulletin [USDA FS, PSW 1931:20, 22].

Twelve of the 33 'methods of cutting plots' established in California were connected with the Stanislaus Branch Station, and they ranged in size from between 7 and 160 acres; most were from 10 to 20 acres. Additionally, the Stanislaus woods and mill study data and other sample plot records were being used to develop mensuration tables for commercial trees in the Western Sierra Nevada (USDA FS, PSW 1931:20, 22-23, 30).

At the same time that the country was sliding deeper into the Great Depression and resources for capital improvements had shrunk, the need was growing for support buildings at the Stanislaus Branch Station. Infusion of resources in the form of Emergency Conservation Work (ECW)--through the Civilian Conservation Corps (CCC)--and other New Deal programs would not be available until 1933. But despite hard economic times, Building No. 3 (currently #1218), was constructed during 1931 (USDA FS, CFRES 1938:1). Building #1218 was CF&RES' original combination office and laboratory at the Stanislaus Branch.

As the Great Depression deepened, in 1931 and 1932 Dunning and Harry A. Fowells established five site-factor stations near the Stanislaus Branch headquarters. Each station "differed in elevation, aspect, and exposure. One station was on a south-facing slope in a partially cutover area; another was in a virgin stand. Three stations were on a north slope: in a clear cut, in a partial cut, and in a virgin stand. Records from three stations covered 11 years and those from another spanned 19 years. Data from the fifth site factor station were charted for more than 30 years, at least through 1963. Daily visits were made to the stations to record air temperature, soil temperature ¼-inch and 7-inches below the surface, relative humidity, wind velocity, precipitation, cloudiness, barometric pressure, and to observe and report on the seedlings. The main object of this work was to try to determine the main factors that influenced mortality and survival of seedlings (Fowells 1978:4; and Stark 1963:1-2).

Soils research—especially on the issue of erosion—was garnering attention at the department level. Soil erosion had gained a place on center stage during the eight-year drought in the southern plains and eastern Colorado and New Mexico between 1931 and 1939. Dubbed the Dust Bowl, millions of acres of grasslands in this area had been plowed and farmed. But in the summer of 1931, the rains ceased and winds blew the bare topsoil into the atmosphere. During 1931, the area suffered 14 major dust storms; in 1933, there were 38. About one-fourth of the area's population left and made their way West, especially to California, in an effort to escape the dust and the grinding poverty it exacerbated.

Statement of Significance
Expansion at the Stanislaus Branch Station, continued:

While initially focused on its implications for food production, the urgency of mitigating soil erosion quickly spread to forestry and grassland management practices and was translated into action at the various research branch stations. There was an almost Messianic quality to a 1932 address by the Secretary of Agriculture, Arthur Hyde:

> Some pages in human history reflect no credit upon mankind. First in importance is that page which describes man's treatment of the soil.
>
> Man was placed in a garden. He has destroyed the cover on thousands of acres; he has laid waste wide stretches of pleasant country; he has made human life all but impossible in many places....
>
> We in America are fortunate. We still have time to choose between conservation at low immediate cost, and continued exploitation at an outrageous ultimate cost.
>
> We, too, have inherited a garden which we have fully possessed. We have been too busy with our works to take stock of our possessions, how they have been obtained, what has been or is now happening to them. It is time to give serious thought, from a national standpoint, to the land.
>
> Our traditional national policy of planless agricultural development should be replaced without delay with a program based upon such a utilization of our land resources as will yield greater economic and social values, will stay erosion and soil depletion, will preserve and conserve our land inheritance, and limit our agricultural plant to such a size as will supply the Nation's needs, without the ruinous blight of overproduction [Hyde 1932:1, 10].

Almost on cue, cooperative soils research with the UC Berkeley began at the Stanislaus Branch Station. Studying forest soils in the area, Professor G. B. Bodman, Soil Physicist at UC Berkeley, began studies at the Station in 1931. In 1932, Professor Joseph Kittredge came to the UC School of Forestry as a professor of forestry and ecology. Very soon, he began a series of studies at the Stanislaus Branch Station to measure winter snow depths and water content. Combined with research at the San Dimas Branch Station in Southern California, Kittredge's work on the effects of vegetation on water storage and snowmelt is considered to be pioneering. Moreover, his proclivity to work in an interdisciplinary mode enriched the field of forestry research and resulted in developing a course in forest influences in the United States; for many years, the only course of its kind. In order to have a text and better teach the course, he eventually wrote Forest Influences (1948). At Berkeley, Kittridge also taught one of the first courses in forest recreation in the country (Kotok 1963: 223-224; Fowells 1978:5; www:dynaweb.oac.cdlib.org; www.sunsite.berkeley.edu/uchistory).

Stanislaus Branch Plot 6 was the subject of an important study reported on in the 1932 California Forest & Range Experiment Station Progress Report by A. A. Hasel Assistant Silviculturist; Ernest Wohletz Junior Forester; and Willard B. Tallman Junior Forester. Approved by Duncan Dunning June 1936 and by Director E. I. Kotok in July 1936, the report includes data tables, analyses, photographs and maps. One of the photos, a 1928 image featuring a 12'-deep trough dug by logs, showed the damage that had occurred on the plot when logs were yarded by high speed steam donkeys.

Statement of Significance, continued:

E.C.W. & C.C.C. Work
at the Stanislaus Branch Station

Meanwhile, in an effort to stave the spiral of economic depression, President Franklin D. Roosevelt's administration developed a series of programs. These programs focused on developing productive work opportunities for masses of jobless people and, by so doing, 'priming the pump' at fundamental levels of the country's economic structure. President Roosevelt had always possessed an affinity for conservation, and he had urged a program that would accomplish such work while providing thousands of jobs that, both directly and indirectly, would stimulate the economy at its lower rungs. The outcome was the Emergency Conservation Work Act that developed into the Civilian Conservation Corps. By spring of 1933, the US Forest Service was poised to take advantage of this infusion of funds and personnel to accomplish long-awaited conservation and capital improvement work. In California, a Forest Service, Region 5 employee newsletter, *The California Ranger*, announced in May of 1933:

> Recalling the stirring days following America's entrance into the World War [I], a 'Civilian Army' of conservation workers, greater than the manpower of the standing Army of the United States, will begin moving on June 1 toward the forests of the West. Uncle Sam is going into conservation work in a big way. The President on May 14 issued orders to the Army to proceed without delay to establish work camps at every approved project by July 1. Movement of men will start June 1 and continue at the rate of 25 companies of 175 to 190 men per day in train load lots.
>
> Of the total allocation, California will receive the following number of men; from the Seventh Corps Area--65 companies of 190 men to southern California; from the Fifth Corps Area--91 companies of 190 men to central and northern California; total for the State, 29,640....
>
> The number of E.C.W. camps authorized for California are as follows: National Forests, 166; National Parks, 12; State-private lands, 33; State parks, 5; total 216. The personnel of each camp will consist of 212 men including officers, or a total of 45,792 men.

The first camp in the national forests of California to be manned by the President's Emergency conservation workers opened May 13 in Piru Canyon on the Angeles Forest...(USDA FS, R-5 5/19/1933).

With the promise on the horizon of unprecedented funding and personnel for conservation and capital improvement projects, the California region endeavored to upgrade its public image through its architecture. While it wanted to retain its connection with rusticity, the region did not want to associate itself with what were considered by some to be rude and substandard administrative buildings. This was a Forest Service that was transforming from a more passive, land stewardship model to a more proactive, land management model. Administrative buildings were intended to reflect this transformation while, simultaneously, honoring its roots. The style that evolved is what later was termed "Forest Service Rustic" (cf. PHR1989:admin. summary). Administrative sites were to fit their surroundings—both by allowing the site itself to suggest the placement of buildings, roads and landscaping features—but also by allowing the site to suggest materials. Since most administrative facilities in R-5 were in forested settings, wood was the primary construction material for the standard buildings developed for the region. However, if the setting for an administrative building was not a forested environment, its materials were to harmonize with its actual setting.

Statement of Significance
E.C.W. & C.C.C. Work at the Stanislaus Branch Station, continued:

A July 1933 issue of *The California Ranger* reported to employees that the California region was embarking on a new tack; it was 'out with the old, and in with the new:'

> The California Region has thrown all the old Forest Service ranger stations and other building plans into the discard and is starting out to give the boys in the field a place to live and work in that they are not ashamed of. This time, instead of listening to how some 'hairy-chested' forester thinks a home and office should be built, we have gone out and secured architectural help worthy of the name, and expert advice on color schemes, etc.
>
> In keeping with this 'new deal,' plans and specifications were sent out on July 10 to a dozen or more prospective bidders asking quotations on 321 ready-cut stations, administrative offices, garages, etc., to be delivered to sixty different shipping points in R-5
>
> The preparation of the plans and specifications for nine different types of building[s] has required the entire time of two architects and several members of the RO [Regional Office] for the past 60 days. It is believed that this is the largest undertaking of its kind ever attempted in the Forest Service. A complete set of plans and specifications will soon be mailed to each forest [USDA FS, R-5 7/14/1933].

The plans and specifications that this article referred to were those of architects Norman K. Blanchard and Edward J. Maher—a San Francisco-based firm whose work has become linked with Depression-era Forest Service architecture in California. Region 5 officials had contracted with Blanchard and Maher to produce a set of standard plans for a suite of Forest Service building types: everything from single car garages to offices, and from warehouses to residences. The design and construction methods and materials were to convey a professional and utilitarian sense; strong yet modest; and adapt ably harmonious with the varied settings of California's national forests.

Selecting Station, Branch Station &
Experimental Forest Locations

The Branch of Research viewed its mission as fundamentally linked with institutions of higher learning. So strong was this tie, that the opportunity for close association between Forest Service research and major universities was one of the criterion for selecting branch station locations. In fact, several of the Station headquarters were co-located on university campuses. By 1933, Director Earle Clapp reported that headquarters for six of the 11 regional stations thus far established were maintained in cooperation with universities. For example the Allegheny Station worked in cooperation with the University of Pennsylvania, at Philadelphia; the California Station worked in cooperation with the University of California, at Berkeley, the Northeastern Station worked cooperatively with Yale University, at New Haven; and the Southwestern Station worked with the University of Arizona, at Tucson.

In selecting areas to be designated experimental forests, they were to be "as fully representative as possible of the conditions in an important subregion." Reporting to the US Senate, Clapp posited an educated guess that "from 5 to 10 experimental forests will ultimately be required in each forest region in the continental United States and a smaller number in outlying regions...."

Statement of Significance
Selecting Station, Branch Station & Experimental Forest Locations, continued:

> The McSweeney-McNary Forest Research Act specifies 13 such forest regions in the United States proper and 3 in outlying possessions. The area of each of the experimental forests will range from about 1,500 acres as a minimum to about 5,000 as a maximum, exclusive of natural areas. Housing and incidental laboratory facilities are needed and are gradually being provided at the experimental forests.... The same general policy is to be followed in the establishment of experimental ranges. Provision is also made for natural forest and range areas to form a part of experimental forests and ranges wherever possible, and for such other natural areas as may be necessary throughout the country for research purposes. To date 15 experimental forests and 2 experimental ranges have been set aside by formal proclamation. Sixteen natural areas have been set aside and are available for investigative purposes. About an equal number of experimental forests and natural areas are in advanced stages of selection and formal establishment. Conditions in practically every forest region of the United States are represented.... Experimental forests and ranges, with the bulk of the field research of the forest experiment stations concentrated on them, should within a relatively few years become invaluable for demonstration purposes as well as for the research for which they are primarily created.... These experimental forests and ranges are in fact branch stations at which the bulk of the field activities of the station are concentrated. Each station works on the problems of an entire region.... [US Senate 1933:662-663].

Appealing to the Senate's sense of utility and humanity, Clapp testified that the Branch of Research's elemental reason for being was to serve society:

> Organization, facilities for work, finances, men, and effective supervision are, however, merely a beginning. Taken alone they mean nothing. Singly and collectively they only pave the way for research. Research itself is only a means to an end. The end is human welfare.... Forest management, one of the most important classes of forest research, determines how to establish, bring to maturity, measure, and protect forests or, in the broadest sense of the term, how to grow or manage forest properties [US Senate, 1933:669].

Clapp even tried to make the case in his Senate testimony that planning could have averted the Depression:

> If the use of all of our land in the United States and the development of all of our industry had been plan-wise, however, we might have escaped the present depression. A possible means of minimizing if not eliminating future depressions may lie in the right kind of planning. The making of plans or the setting up of objectives for the future is in a real sense an expression of faith in the future of the United States and of preparation for it [US Senate 1933:686].

Despite difficult economic times, Clapp was relentless in his offensive to build and promote forestry research within the agency, and he saw a direct connection between researchers' productivity and their working environment (US Senate, 1933:684). The construction initiative to occur at the Stranislaus Branch Station was just one product of Clapp's vision and determination.

In 1933, an Emergency Conservation Work – Civilian Conservation Corps camp was established about 750 feet southwest of and on the same side of the South Fork as the Stanislaus Branch Station (Forest Service site number 05-16-53-536). Named Camp Strawberry, it appears to have had two different CCC camp numbers assigned to it: F-85 from about 1935 to 1939, and F-393 from 1940 to 1942 (USDA FS, R-5 7/5/1933). Among the CCC companies that made Camp Strawberry their home was Company 1914. Harry Fowells recollected that:

Statement of Significance
Selecting Station, Branch Station & Experimental Forest Locations, continued:

> The Stanislaus National Forest provided much support service to the Station, in addition to setting aside areas for research purposes. Especially helpful in the development of the Station facilities was the assignment, in the mid-Thirties, of a spike camp of CCC enrollees [Camp Strawberry]. The camp stayed until the CCC was abolished in June 1942 [Fowells 1978:5].

Not actually a 'spike camp,' Strawberry was a highly developed camp. Confusingly, another CCC camp, also sometimes referred to as Camp Strawberry; occupied the railroad logging camp called 'Camp Strawberry 2,' abandoned by the Pickering Lumber Company at the onset of the Depression. Camp Strawberry 2 was beside the Sugar Pine Railway line along the North Fork of the Tuolumne River, adjacent to today's Meadowview Campground at Pinecrest. Later, this location became an organizational camp occupied by UC Berkeley's Camps Blue and Gold. Further complicating matters, Pickering Lumber Company's Camp Strawberry 1 was located along its Strawberry Branch railroad, about 1,500 feet south southeast of the Stanislaus Branch Station, on the other (south) side of the South Fork Stanislaus River. Railroad logging operations out of Camp Strawberry 1 had ceased after the 1929 season (Marshall 1991:117; Conners 1997:121, 144). To muddy matters a little more, the Stanislaus Branch Station is sometimes referred to as the "Strawberry Branch Station."

CCC Camp Strawberry provided funding and a ready source of labor for adding to the buildings that already supported the Stanislaus Branch Station. Expansion was facilitated by various New Deal initiatives, including the Emergency Conservation Work, Public Works Administration, and Civil Works Administration programs (Fowells 1978:3). From 1936 through 1937, Reginald Drew supervised construction of the buildings at the Branch Station (Fowells 1978:9). Though, clearly, the CCC crews were an asset for the Stanislaus Branch Station, their work sometimes was not up to par. For example, an April 1934 report by M.D. Stowell of the California Forest Experiment Station described a project on the old Miner's Ditch timber sale. While its purpose was to release sugar pine seedlings from competition from white fir and incense cedar in order to increase the occurrence of well-spaced, dominant sugar pines, Stowell believed the results were less than optimal due to imprecise fieldwork. Under the ECW program, CCC crews from Strawberry Camp had released 6,733 sugar pines on 223 acres, but...

> In the main, the CCC boys were just out of high school and did not consider the work seriously. They were inclined to be careless on their work unless watched continuously [Stowell 1934:n.p.].

Sometimes CCC crews redid work done by previous CCC enrollees. An oral history of Riley Gilkey, a long-time Stanislaus National Forest employee, related that his father—a master carpenter, mechanic and millwright—supervised considerable work at the Stanislaus Branch Station with another CCC crew to correct poor workmanship (Gilkey 1989 in PHR 1989:2-13).

Little documentation has been located that traces the administrative decisions regarding construction at the Stanislaus Branch Station. It is clear, however, that there was a conscious effort, at least after 1934, to adopt Region 5 guidance regarding the appropriate appearance of the region's administrative sites. As stated in L. Glenn Hall's introduction to his manual, the first 'fundamental objective' was:

> to retain and express the rugged simplicity and naturalness which is symbolic of the United States Forest Service; second, to adapt buildings and other structures to the sites in such manner as will disturb existing ground conditions the least; third, to consider the cost of the maintenance of landscaping in planning and constructing any new improvements [Hall 1935:1].

Statement of Significance
Selecting Station, Branch Station & Experimental Forest Locations, continued:

Though not strictly an administrative site under authority of the Regional Office, the California Experiment Station was aware of and largely followed regionally promulgated design principles. For example, the horizontality of the buildings, their adaptation to the landscape, the generous yet not overpowering architectural use of local rock, and adoption of Region 5 standard plans at many of its stations support this. At the Stanislaus Station, following Hall's guidance, native granite was used for foundations, exterior chimneys, and a utility building. Although referring to retaining walls, Hall noted that native rock was preferable to other options because it "usually looks better and is more economical." He also noted that, when mortared walls were being constructed for a "naturalistic" appearance, the mortar between the rocks "should be brushed out with a wire brush in order to have as little mortar showing as possible" (Hall 1935:13). Stanislaus Branch Station evidenced these precepts; even the two buildings constructed before 1934—the 1927 caretaker's residence and the 1931 office/laboratory—were re-adjusted to the landscape and put on mortared granite foundations.

In 1934, two more buildings were added to the Stanislaus Branch Station: a staff house and a pump house. The staff house, building No. 1 (#1018), used a Blanchard and Maher standard "B" plan. Labeled on the 1936 site plan as the 'superintendent' cottage, this simple, functional building's siding was horizontal V-cut tongue-and-groove wood over a wood frame; the perimeter foundation was native granite mortared with concrete. A decorative porch light, which was probably subsequently added, was a "Type 28" front porch bracket fixture. The light fixture featured a pierced design in sheet metal and an "X" of tinned wires on three sides. Plans for this simple, attractive, and distinctive porch light are dated 1938. This fixture also appeared, at least, on the new office-laboratory and the dormitory. The pump house, Building No. 7 (#2614), is the only Stanislaus Branch Station building whose walls are built of stone. Now used for storage, the 140-square foot (14' 8" x 10' 6") pump house was probably designed under Blanchard and Maher and would have been an "X" plan, though no specific plan has been located.

The Federal Emergency Relief Act (ERA) facilitated construction, in 1935, of a new office-laboratory that served as the branch station's "permanent headquarters." During the same year, the 32' x 74' combination garage/shop/warehouse was framed and covered, and the foundation for the 10-man dormitory was completed; framing had to wait until spring. The Branch of Research Monthly Report for February 1935 further noted that all foundations at the Stanislaus Branch Station were of native granite, and that "an adequate sewage system is practically completed" (cf. PHR 1989:2-13).

The 1935 CF&RES Annual Report cited the Stanislaus Branch--with Blacks Mountain and the Feather River--as California's branch stations with a research focus on pine forest management. The report also noted work at the Stanislaus Branch Station 'headquarters plant' and on providing access to the associated experimental forest:

> About 7 miles of approach road to the experimental forest was constructed up to the bridge site in the Middle Fork Stanislaus. Routine examinations were made of Plots 7, 8, 9, 10, and 11.... The approach road to the experimental forest will be completed and some progress made in the main arterial road. Control will be surveyed and a topographic map made for the experimental forest by the Regional Engineer. The inventory and type map for the experimental forest will be begun. A number of improvements will be made at the headquarters plant [USDA FS, CF&RES 1935:3, 5].

Experiments with planting tree seedlings whose roots had been variously pruned were being conducted at the Stanislaus Branch Station, and report Rs/M-1(F), summarized in the 1935 CF&RES Annual Investigative Report, noted that:

Statement of Significance
Selecting Station, Branch Station & Experimental Forest Locations, continued:

> Two areas of one acre each were planted with 2400 seedlings and 2600 seed spots in Anderson Valley [in the southern part of the Stanislaus National Forest] on a 1934 burn [with root pruned stock]. On the Strawberry sale area 3 acres were stripped of bear clover and other brush and 27 acres were planted with 4487 seedlings of PP [ponderosa pine] and SP [sugar pine] 1-1 stock root pruned...[USDA FS, R-5 1935:1].

As promised in the Annual Investigative Report, site development continued at the Stanislaus Branch Station during 1935. At this juncture, nationwide, experimental forests and ranges numbered 48, and their attendant facilities were being developed (West 1990:9). During the Fifth CCC Period, beginning April 1, 1935, there were 48 camps in Region 5 on national forest land and administered by the Forest Service (CCC 1935:Apr.-Sept.). CCC Camp F-85 Strawberry is not listed on the camp facility report titled "CCC Camps in National Forests and on Private Land in California" for periods 6 – 12, 1936-1938 (CCC 1936-1938.) When a listing for Strawberry reappears on the roster for the Thirteenth Period, April 1 to September 30, 1939, the camp number is F-393 and the Company Number is 1914 (CCC 1939:1).

In 1935, the former office-laboratory, building #1218, was moved from the site that would soon be occupied by a new office-laboratory, building #1111. The old office-laboratory was moved closer to the South Fork and was converted to a "bachelor cabin" when the larger office-lab was built in 1936. The stone pump house was located near the bachelor cabin and was linked to it by a rock-lined path. To maintain the buildings, keep them secure when not in-use, and to cook for researchers and guests, William (Bill) Partington was hired in 1935. A trained electrical engineer on the East Coast, he had lost his job during the Depression; he served the station in this capacity until about 1938 (Fowells 1978:10, 14. Also cf. USDA FS, PSW var.$_2$).

In 1936, Scientist Harry Fowells was assigned to the Stanislaus Branch Station. Many years later, he described his role at the station—in addition to being a scientist—as being 'nominally in-charge.' Indeed, 1936 was a very active year for additional site development. In that year the nine-year-old caretaker's cottage was moved about 100 feet from its original location and rebuilt. Also during 1936, the combination warehouse/garage/shop was nearly completed. Earlier referred to as Building No. 6 and later as #2220, the architect was E. J. Maher and the plan was designated B-X-7.

Not only were Stanislaus Branch Station buildings completed through funding by various New Deal programs, labor to collect experiment data as well as to construct some of the minor facilities that supported various research projects came through these Depression-era programs. One example was the wooden tree ladders that reached up to 120-feet into the crowns of sugar pine, ponderosa pine, Jeffrey pine, and white fir; built to study flower and cone development and to try to "find out why cone crops are so periodic." Constructed in 12 sections of 10-feet, each section was held to the tree with insulated cables. Using these ladders, researchers methodically collected conelets and studied their development. In the Jeffrey pine, temperatures were measured daily at heights of 30, 60, and 120 feet; ladders on the other trees were 80 to 100 feet up (Fowells 1978:4, 6). These "ladder data," as well as seed traps used to collect seed fall, were ultimately instrumental in developing a model for predicting naturally generated conifer stands following harvest. These data also led to developing guidelines for reserving seed trees during harvest to assist in natural regeneration of the stand. Enrollees in New Deal programs were known to have planted and tended seedlings; their labor, no doubt, was used in many other ways at the Stanislaus Branch Station in such arduous tasks as clearing brush and building exclosures in preparation of various experiments.

Statement of Significance
Selecting Station, Branch Station & Experimental Forest Locations, continued:

While research on methods of cutting continued and blister rust control work in this area peaked through mid-1930s, Duncan Dunning proposed to formally establish an experimental forest near the Branch Station. Here, reasoned Dunning, was a place "to apply the theories emerging from detailed research on the experimental plots." It would be another seven years before the Stanislaus-Tuolumne Experimental Forest was approved (Fowells 1978:2).

In 1937, the combination dormitory and mess hall was completed. The architectural plan for this building is dated 1935; it features an "H"-shaped ground plan. Though not fancy the dormitory had a number of architectural details that set it apart. In addition to the rather massive chimneys that book-end the bunk room / game room wing, most windows have Z-braced wood shutters with iron, "S"-shaped stays. The few windows without shutters are set-off by vertical siding that extends from the window ledges to the roof line, contrasting with the horizontal wood siding on the balance of the dormitory. Rafter tails are exposed and doubled. Like many R-5 Depression-era buildings, the gable vents are louvered and add a modest embellishment to the overall appearance of the building. The light for the river-facing porch is a pewter-on-sheet metal fixture. As shown in 1938 drawings, these appear to be a rare feature of Forest Service buildings. The dormitory architect was "G.J.R." and the plan was checked by Norman K. Blanchard (photo and label DD-1936; CFRES 1938:5; PHR 1989:2-13).

During 1937, the Stanislaus Branch Station hosted two prestigious visitors: Gifford Pinchot and Yale Dean Henry Solon Graves, both men former groundbreaking Chiefs of the Forest Service (Fowells 1978:13. Harry Fowells' oral history tape noted that Fowells had taken the photograph of Pinchot at the Stanislaus Branch Station and that the Station has the negative; this image has not been found. Cf. StF Summit RD E.F. file.) Harry Fowells wrote that "[b]ecause of the picturesque setting and comfortable facilities of the Stanislaus Branch, Director Kotok often offered the use of the buildings to University of California [Berkeley] staff. This was, no doubt, part of the cooperative arrangements with the University; for years, the Station was quartered in Hilgard and Giannini Halls and later in Mulford Hall." In addition to Pinchot and Graves, among the visitors to the Stanislaus Branch were Dean C. B. Hutchinson, College of Agriculture (1930s); Professor Ciciacy-Wantrup (late 1930s); Professor R. A. Fisher, mathematical statistician, and family (1939). H. A. Smith, Harvard graduate and expert in forest development, also visited the Stanislaus Station, probably in 1937. Washington Office officials, including Earle Clapp, Edward Munns, and Leonard Barrett, visited the Stanislaus Branch, all before 1953. Foresters from a number of countries also visited (Fowells 1978:10).

Late in 1936, the California Forest and Range Experiment Station assembled a photograph folio depicting the improvements at its branch stations. Updated in 1945, this folio included images for:

1. Blacks Mountain Branch, Susanville, including Burgess Springs Experimental Range, Lassen N.F.
2. Badger Well, Modoc N.F.
3. Devil Canyon Branch, San Bernardino N.F.
4. Feather River Branch, Quincy, Plumas N.F.
5. Institute of Forest Genetics, Placerville, Eldorado N.F.
6. Kings River Branch, Sanger (near Trimmer), Sequoia N.F.
7. Mount Shasta Branch, Mount Shasta N.F.
8. San Dimas Experimental Forest, Glendora (Tanbark Flat), Angeles N.F.
9. San Joaquin Experimental Range, O'Neals, Sierra N.F.
10. Stanislaus Branch, Pine Crest (Strawberry), Stanislaus N.F.

Statement of Significance
Selecting Station, Branch Station & Experimental Forest Locations, continued:

The photographs show a great variety of styles, from the Institute of Forest Genetics' Colonial Revival to the Spanish Colonial Revival adobe at the San Joaquin Experimental Range. They also evidence a wide variety of specialty facilities, such as greenhouses, seed laboratories, classrooms, barns, blacksmith shops, and powerhouses. They also show many similarities, such as branch supervisor's dwellings, general dwellings, dormitories/bunkhouses/barracks, laboratories or combination laboratory-offices, and garages or combination garage-shop-warehouses. All of the listed buildings were completed as of 1938. Branch stations affiliated with Forest Management/Silvicultural Investigations were Blacks Mountain, Feather River, and Stanislaus (USDA, CF&RES 1943:16). Completion of the Stanislaus Branch Station improvements in 1937 and the notion that it was a "comfortable facility" coincides with a statement made by Stuart B. Show in his memoir about the status of branch station developments at that time:

> The [California Experiment] Station, under Kotok's aggressive and imaginative leadership was growing vigorously in various directions. The program of work centers and moderately elegant 'facilities' for each was substantially completed [Show n.d.:167].

Moving Beyond Empirical Research, Kotok Exits, and Wartime Priorities

Research on the Stanislaus Branch during this period focused on how to manage for highly productive, continuous yields in high site quality sugar pine – ponderosa pine forests. Dunning noted that: "Small scale studies of growth and succession between 1910 and 1937 indicated that to maintain the pines in the stand, complete stocking, and improve stand structure, there must be flexibility of cutting in respect to time, space, and selection of trees." Alluding to his lingering proposal for formally establishing an Experimental Forest, Dunning wrote that a "6000-acre experimental forest on Middle Fork of Stanislaus River [has been] tentatively selected [and is] awaiting final examination and report for withdrawal. Small tract of virgin timber reserved on North Fork of Tuolumne River. Approach road to Middle Fork constructed by CCC and ERA [Emergency Relief Administration] labor. Headquarters improvements partly constructed." Another project sheet, dated April 1, 1938 for Natural Reproduction research within the Forest Management – Pine Region division had as its purpose "to determine the principal factors affecting seed production, seed distribution, and seedling establishment and development with a view to cultural treatments favoring ponderosa and sugar pines." Review of past work noted that "seed production studies begun in 1926 by counting cones and recording trap catches on 9 areas where seed trees are described and mapped. Ladders and instruments installed in sample trees to study flowering in 1936" (USDA FS, CF&RES 1938-1939).

An important occurrence happened in 1939 that helped the Forest Service to set aside special forest areas for research. The Secretary of Agriculture issued the U-1, U-2, and U-2A Regulations to replace the L-20 Regulation. Additionally, Strawberry CCC Camp reappears on the roster for the Thirteenth Period, April 1 to September 30, 1939; the camp number is F-393 and the Company Number is 1914. At this juncture, there were a total of 35 CCC camps in California's national forests (CCC 1939:1).

The California Forest and Range Experiment Station annual report for 1939 included a section entitled "Pine Region." Indicating a maturity of and turning point in pine research, it opened with:

Statement of Significance
Moving Beyond Empirical Research, Kotok Exits, And Wartime Priorities, continued:

> Research directed toward practicable forest management in the Pine Region of California distinguished four fields of problems: (1) the virgin merchantable timber which should be converted by a first lumbering treatment one step toward managed forests; (2) naturally restocked areas of unmerchantable timber requiring cultural treatments; (3) unstocked burned and cut-over areas requiring planting; and (4) the necessity for tables and standards as tools in every-day forestry and lumbering work.... Emphasis during most of the 29 years since work began, necessarily has been placed upon sampling the effects of cutting practices currently feasible. Expedient as such empirical research many be, its inefficiency long has been obvious; chance failures and successes can rarely be explained, hence other failures often cannot be avoided nor successes duplicated [USDA FS, CF&RES 1935-39:4].

Late in 1940, as the clouds of another world war were gathering, Duncan Dunning submitted his "Report on Stanislaus-Tuolumne Experimental Forest, Stanislaus National Forest" which reformulated his arguments for this experimental forest in light of the new U-1, U-2, and U-2A Regulations. In his report, Dunning presented another argument for this area as an experimental forest. Rather than for purely scientific purposes, it could also serve as a public relations asset. Noting that local communities "depend wholly or in part on the timber resources," he reported that surrounding the branch station were "extensive cut-over areas where problems of rehabilitation (stand improvement, planting, brush control) should be undertaken if the land is to continue to support a local population after the virgin timber is reduced... The nearby Pine Crest and other recreation areas attract a large summer population to the vicinity. Numerous influential citizens have homesites near, and several public service organizations have camps there. Active local sportsmen's clubs are interested in the condition of the trout streams and timber cover for deer. The natural beauty of the headquarters site favors development of a local center of public interest." Despite these arguments, it would be nearly three more years before the Stanislaus-Tuolumne Experimental Forest was approved by the Acting Director of the CF&RES, Murrell W. Talbot (USDA FS, CF&RES 1940:np).

Referencing the threat of war and the role of forest and range research, the Director's introduction to the 1940 annual CF&RES report noted that:

> Attention has been diverted to some extent away from forest and range research as a direct result of the mounting interest—and justly so—in the defense program of the Nation. From another angle, the need for research findings has increased.... How to safeguard the basic land resource reasonably while production is geared to an emergency tempo presents an even greater challenge. It seems to me that research should assume a leading role, particularly on the national forests, in a definite attempt to avoid, or at least to minimize, some of the costly land-use mistakes of the first World War. Examples are: wasteful cutting of high-grade timber and nearly Western-wide overstocking of range lands – the injurious effects of which have not yet been fully overcome after the lapse of nearly a quarter century....
>
> [F]inally it is my conviction that research must be looking ahead to the time when the critical defense period will have passed. Then the task will be primarily one of guiding the repair of locally damaged forest and range resources, of revitalizing disrupted projects, and of reorienting fact-finding programs to fit the changed post-war conditions. This task will involve every division and branch.... We must build up a backlog of useful work which will absorb some of industry's unemployment after the war, and which will also add to the permanent wealth of the land [letter Jan. 1941 in USDA FS, CF&RES 1940:1-2].

Statement of Significance
Moving Beyond Empirical Research, Kotok Exits, And Wartime Priorities, continued:

Early in 1940, Director E. I. Kotok left that position. Not one to mince words, in the estimation of Regional Forester S. B. Show, Kotok's replacement had "new and less aggressive goals, and had far less knowledge of and interest in N. F. affairs" (Show n.d.:213). Thus, to Show's eye, the hand-in-glove relationship that characterized Region 5 and the California Experiment Station was, with Kotok's departure, a thing of the past. By the close of 1940, the CF&RES had added two more branch stations: Yurok Redwood in the Coastal Northwest and Swain Mountain in the volcanic Southern Cascades.

With wartime priorities, the Civilian Conservation Corps withered and, in 1942, was discontinued. Strawberry Camp disbanded in June 1942. During 19th CCC period, as of May 15, CCC Company 1954 was assigned to F-393 Strawberry; this company "will be at Camp F-388, Tuolumne, until approximately May 22;" and returned home on July 13. By this time, there were only twelve CCC camps in California's national forests administered by the Forest Service. July 13, 1942, Company 839 that had been assigned to F-393 Strawberry, was transferred to a discharge center (CCC 1942:1; Fowells 1978:8). Work being done by the CCC boys for the Stanislaus Branch Station was a very likely reason for Strawberry Camp being one of the last camps in California's national forests to close.

At the same time, logging was stepped-up on the national forests while steel and other strategic materials were being stockpiled. On the Stanislaus National Forest, most logging was accomplished by railroad logging systems and, within 1000-feet of the Stanislaus Branch Station, the Pickering Lumber Company's Sugar Pine Railway had tracks. When Pickering returned to this area--after a 13-year, Depression-induced hiatus--in order to salvage steel rails for the war effort, its operations were delayed... sometime in the 1930s, Fowells had taken a CCC crew to part of the railroad grade abandoned in 1929 and had scavenged several rails to construct a cattle guard at the entrance to the Stanislaus Branch Station. Fowells was embarrassed when the 1942 steel salvaging work train, "had to stop at the break in the tracks" (Fowells 1978:16).

Meanwhile, Dunning continued to refine and disseminate his work. In 1942, he published "A Site Classification For The Mixed-Conifer Selection Forests of the Sierra Nevada." Having previously calculated site-class curves for California's irregular pine-fir forests in 1933, "this research note has been prepared to make the curves more readily available and to describe their peculiar features sufficiently to enable correct application" by other agencies and for general purposes (Dunning in USDA FS, CF&RES 1942:1). As an example of the importance and enduring value of this work, Dunning's site classifications for mixed conifer selection forests of the Sierra Nevada were used in California's Board of Equalization property tax rules for timber land, adopted in 1977 (CA Bd. of Eq. 1983:rule 1021).

In the context of world war, a log shortage was identified and the Forest Service Research Branch was identified to address the problem. The Forest Products Requirements and Supplies group was tasked with this and broader wartime initiatives—efforts that tapped much of the California Research Station's energy. The 1942 CF&RES annual report listed several other areas of wartime assistance given by the Station, such as aerial photograph interpretation translated to wartime needs. These efforts included:

> (1) detailed vegetation-class map of the [San Francisco Bay Area's] Eastbay hills, for the emergency fire protection plan; (2) a guide for mapping vegetation-cover classes required for the War Mapping Project; and (3) (upon request of OCD [Office of Civilian Defense] to the university Extension Division) three lectures by Jenson on the aerial photograph phase of a University course on industrial camouflage planning.

Statement of Significance
Moving Beyond Empirical Research, Kotok Exits, And Wartime Priorities, continued:

Other contributions included the possible increased harvest of incense cedar for pencil slats and the study of various forest and other plants for production of useful substances and materials, such as quinine substitutes (leaves, bark and roots of Garrya), insecticides for shipping foods (leaves, bark and roots of Amorpha), cork oak harvest and sustainability, and Indian hemp as a source of wartime fiber. The Department of Agriculture's "food for freedom" program occupied much of the Range Research division's time for the duration of the war (USDA FS, PSW 1942:3).

There were also numerous inquiries on subjects such as Douglas fir bark for cork, fast growing eucalyptus for fuel wood, life raft redesign, and wood flame-proofing. The CF&RES also provided substantial assistance to the Forest Service's Emergency Rubber Project at Salinas and to integrating the guayule project with University of California at Berkeley programs. The 1942 annual report listed post-war planning as the CF&RES' most important contribution for the year during which data was transmitted to Sub-Committee No. 2 of the Department Inter-Bureau Post-War Planning Committee. "A large amount of work was done by this Committee under the chairmanship of [S. B.] Show—more recently by Talbot since Show moved up as chairman of the Departmental Committee" (USDA FS, PSW 1942:5).

Murrell Talbot served as the Director of California Research Station during most of World War II, officially in the position from 1941 through 1944. Wartime exigencies translated to making hard choices on research priorities at the Stanislaus Branch Station, too. Under the heading 'Activities Suspended for the Duration,' Talbot reported: "In Forest Management (Pine) which had to absorb effects of previous cuts as well as 1942 losses, it was necessary to curtail practically all projects. Phases suspended include overdue field measurements for 16 groups of harvest cutting field plots, 9 stand improvement plots, 1884 charted vegetation quadrats and 248 chains of reproduction incidence transects (Silvics) and 13 planting experiments in northern burns and brushfields" (USDA FS, PSW 1942:8-9). Addressing personnel issues, Talbot remarked:

> ...we have lost heavily in manpower to the armed forces, to guayule and other civilian agencies, and through reassignment. This is a factual comment, not a complaint, for we have been glad to tackle the increasing volume of war jobs which carry an element of satisfaction in wartime contribution to the war effort, and thus have a morale-sustaining value [USDA FS, PSW 1942:10].

Talbot reported that, among the "activities completed during 1942, Fowells completed the test of root stimulation; and Hasel reported upon a new strip sampling method of timber volume estimation, also an analysis of sampling error of timber cruises in the pine region. The site classification for the Pine Region was revised by Dunning" (USDA FS, PSW 1942:11).

Stanislaus – Tuolumne
Experimental Forest Established

At long last, on December 6, 1943, the Stanislaus-Tuolumne Experimental Forest was formally established. Dunning had submitted his report requesting designation December 19, 1940 and received approval to move it up the chain of command by the Acting Station Director, M. Talbot, on September 13, 1943. September 20, it gained approval from Regional Forester, S. B. Show and was forwarded to the Forest Service Washington Office. Final approval was under authority of Regulation U-4; it was signed by Acting Chief C. L. Forsling (USDA FS/Dunning 1940:np).

Statement of Significance

Stanislaus – Tuolumne Experimental Forest Established, continued:

The Stanislaus-Tuolumne Experimental Forest was comprised of two, discontiguous areas. Tract 1 was about 200 acres of virgin timber in the South Fork Stanislaus drainage. The prevailing timber growing site quality was Site I, and the dominant trees were about 240 feet tall; exceptional sample plots had an annual growth rate of over 700 board feet per acre. Tract 2 was 1,300 acres of virgin pine-fir stands and cut-over timberlands in the North Fork Tuolumne drainage (Schubert 1960:1-2, 4; mapped on pg.3. Schubert paraphrased USDA FS, CF&RES 1940:np). Dunning elaborated upon the condition of the tracts he had recommended for this experimental forest: "Surfaces have been subjected to considerable disturbance, often recent and severe, so that the forest floor is extremely variable—usually thin. Erosion from road and logging disturbance is evident locally." Elevations on the tracts ranged from 5,200 to 6,900 feet (USDA FS, CF&RES 1940:np).

Dunning reported that the proposed experimental forest area was available because it was retained under government control when the first surveys of Townships 4 and 5 North, Range 18 East were rejected. There were two patented claims near headquarters in Township 4 North, Range 18 East that were mostly cutover. Dunning further reported:

> To the west and south, practically all the desirable timber passed to private control and was cut without restrictions prior to 1929. Most of this cut-over land has just been added to the Stanislaus National Forest by exchange [USDA FS, CF&RES 1940:np].

Aggregating 1,687.28 acres, both tracts were in Township 4 North, Range 18 East, Mount Diablo Base Meridian, and included:

Section 20: Lots 3, 7, 8, N1/2NW, SWNW, NWSW, SESW, S1/2SE
Section 26: NW
Section 27: N1/2, SW, N1/2N1/2SE
Section 28: E1/2, SENW, E1/2SW
Section 33: NE, N1/2NENW
[USDA FS, R-5/Robertshaw 8/12/1986:undated attachment]

Dunning explained the virtues of both selected tracts as an experimental forest. Tract 1, referred to as the "headquarters site," straddles the South Fork of the Stanislaus River. Of its 200 acres, 60 acres supported a mixed-conifer stand of mature and immature trees with a volume of 1.832 million board feet (mmbf); the remaining 140 acres had been cutover in 1927 in a Forest Service sale to the Pickering Lumber Company. Considering other resource uses in the area, Dunning reported that the impact of the headquarters site withdrawal would be negligible to grazing because most of the area had been closed to that use since about 1926, and "the small additional area that would be eliminated from Pedro's range by moving the drift fence is of no consequence." Dunning noted that a "considerable number of fishermen follow the river through the branch station grounds," and he recommended that "stiles should be built in the fences to accommodate them." However, a "small flat along the river to the west, used as a camp site by fishermen and picnickers, would be closed to use to avoid further developments with associated fire risk." Dunning also noted that a CCC camp of 200 men—Camp Strawberry—was located in the west forty of the proposed headquarters site withdrawal. But Dunning had included the area in his proposal to block future use of the area after the CCC camp was gone. Indeed, between the time Dunning wrote his proposal and the time it was approved, the CCC camp had been abandoned.

Statement of Significance
Stanislaus – Tuolumne Experimental Forest Established, continued:

Dunning described the flat across the river, to the south of headquarters, as a potential site for a proposed small staff-house, the only available place for a small nursery, and a camp site for station workers during peak work periods; it included a spring to supply water for these potential developments. The site development plan for the Stanislaus Branch, drawn May 1936, shows this proposed staff quarters, a parking area, and access road; these facilities were not built (cf. Map, USDA FS, PSW, 1936). Dunning had explained that putting the small staff-house across the river was planned in order to "permit removal of the original cabin from its present temporary, undesirable location north of the river and to permit use of the present guard station (B-house) for its intended purpose of superintendent's dwelling."

Regarding roads, Dunning said that Stanislaus National Forest officials contemplated "conversion of the logging railroad grade from the Mono Road to Lyons Dam into an automobile road." He, therefore, included the portion of "this grade passing south of headquarters [Strawberry Branch of the Sugar Pine Railway] to prevent uses developing along the right-of-way adjacent to the station." Headquarters, according to Dunning, got its water from the spring, previously mentioned, "near the quarter corner between Sections 19 and 20." Only a "small amount of water" was pumped from the river for lawn maintenance and fire protection at the headquarters. The CCC camp, however, pumped its water from the river. Dunning forecast that another spring would need to be developed, probably outside the area of the proposed withdrawal, to provide adequate fire protection for headquarters. Because of "considerable winter population in the vicinity," Dunning noted that a caretaker stayed at the station from December 1 through March 31. Dunning closed his argument for Tract 1 by saying that the research use provided favorable opportunities "to promote good public relations" (USDA FS, CF&RES 1940:np).

Tract 2, on the lower slope of Dodge Ridge on the south side of the North Fork Tuolumne, comprised 1,300 acres. Of that area, 450 acres had been cutover in 1928 and 1929, and 221 acres were described as "barren;" the remaining 629 acres comprised a virgin, mixed-conifer forest with a timber volume of 31.665 mmbf. Dunning noted that the volume figures were estimated by prorating O. M. Evans' 1926 cruise, and that the cutover portion of the tract bore volumes of about eight-thousand board feet (mbf) per acre. The site quality was estimated as I-175 with small areas being IA-200. Some dominant trees exceeded 200 feet in height and impressive annual growth rates of 700 board feet per acre had been measured.

Dunning noted that the railroad spurs that had been constructed through Tract 2 were built so that the area could be tractor logged and that they formed "an excellent transport and protection system" of roads. He also noted that the tract was visible from Pinecrest Peak Lookout and, above about 6,000 feet, from Crandall Peak Lookout. He remarked that there had not been a fire in the tract since 1890. In order to reduce the potential for blister rust attacks on sugar pine, Ribes had been eradicated in 1929 in this tract, except for a 45-acre study area included in Plots 9-11; between 1930 and 1940, there was one Ribes re-treatment by the Office of Blister Rust Control. Dunning also noted that there had been "some early culling of the sugar pine for shakes and of cedars for posts. Nearly all the remaining cedar was culled from the old growth area through ranger sales in 1940."

Dunning made additional observations about the uses and condition of Tract 2, including the stipulation that logging plans "should contemplate reservation and protection of cover along the stream courses and on rougher, non-commercial shoulders and ridges" in order to protect habitats for deer, grouse, mountain quail, bear, and other wildlife. Tract 2 was envisioned by Dunning as being important for "field studies requiring close observation near headquarters." He anticipated making "small sales to accomplish required experimental treatments at such times as

Statement of Significance
Stanislaus – Tuolumne Experimental Forest Established, continued:

research could be handled conveniently by the station.... Demonstrations of good forestry, with due regard for watershed and wildlife values, in this accessible, much-frequented place, would be of considerable value" (USDA FS, CF&RES 1940:np).

Lastly, Dunning's proposal laid out the administrative arrangement between and the Stanislaus National Forest and the Experiment Station for the Stanislaus-Tuolumne Experimental Forest:

> The Experiment Station shall be responsible for initiating and supervising all experimental work. All timber sale agreements, administrative use, free use, grazing and special use permits relating to the occupancy and use of the experimental forest shall be prepared and issued by the [Stanislaus] Forest Supervisor, but no timber shall be cut or other use authorized on the experimental forest except under the conditions and requirements prescribed or approved by the California Forest and Range Experiment Station [USDA FS, CF&RES 1940:np.].

For Dunning, the overarching purpose of the Stanislaus-Tuolumne Experimental Forest was for it "to serve as a place for field studies and for demonstration of forest management practices in the sugar pine-ponderosa pine and sugar pine-fir types. The forest was specifically selected as typical of the high site quality stands of the middle west slope of the Sierra Nevada." Considerations in selecting Tracts 1 and 2 also included their potential for studying the effects of forest practices on erosion and streamflow, forage for cattle and deer, and pathological and entomological problems (Schubert 1960:9). Also considered an important area of investigation was the problem of managing this high-site forest in a way that achieved adequate timber regeneration in the context of competitive, aggressive brush species such as bear clover, deerbrush, manzanita, whitethorn, mountain lilac, and chinquapin... Ribes had been knocked back during the Blister Rust Control campaign (Fowells 1978:3). Early studies on brush control involved mechanical methods; later, various herbicides were tested (Fowells 1978:4).

Preparing for Post-War
Responsibilities & Opportunities

Interestingly, the CF&RES Annual Report for 1943 did not mention acquisition of the Stanislaus–Tuolumne Experimental Forest; nor was it mentioned in the 1944 report. Instead, the war preoccupied Acting Director M. W. Talbot:

> The wartime program of 1943 for this Station was built around two aims: (1) to make accumulated knowledge and experience available for immediate war needs; and (2) to carry on the most essential long-range projects on a bare maintenance level – the better to prevent loss of past investment and to prepare for the anticipated big demand upon us for resource-management facts [USDA FS, CF&RES 1943:1].

CF&RES' 1944 annual report was prefaced by a statement that lauded the experiment station's accomplished and increased profile but worried about its transition to post-war projects:

Statement of Significance
Preparing for Post-War Responsibilities & Opportunities, continued:

> Review of the record of this Station last year [1944] justifies three conclusions: first, forest and range research made a substantial contribution to war-supporting activities; second, an increasing demand for information during the past year reflects a widening appreciation of the role expected of research in furtherance of resource management; and third, wartime demands upon and weakening of the Branch of Research comprise a trend which should be reversed as speedily as war requirements permit, in order to get prepared in time for post-war responsibilities – and opportunities [USDA FS, CF&RES 1944:1].

Despite this weakening in the Branch of Research, the research and publications trudged forward. For example in 1944, Harry A. Fowells published "Site Preparation As An Aid To Sugar Pine Regeneration" in Forest Research Notes (No. 41, December 27). This documented experimentation with mechanical brush and bear clover removal to improve natural pine reproduction (Fowells 1944:4).

The reflection of the Stanislaus-Tuolumne Branch Station in the1945 CF&RES Annual Report seems to indicate that Dunning, as Chief of the Forest Management Research Division, chaffed somewhat at the wartime emphasis on applied research, even though he was proud of the contributions made by Research to the war effort. His thoughtful report on forest management research in pine and redwood noted that his division's efforts in 1945...

> were again constrained toward application of research findings. Growing appreciation of the critical timber situation in California increased demands for stand, growth and silvicultural information. Principles and methods developed by the Station are appearing to a gratifying degree in the management of both private and public forests. Thanks to firmly grounded studies of 35 years' duration, most demands could be satisfied in some measure from information at hand. This was particularly fortunate at a time when military furloughs made collection of new and thorough analysis of old data almost impossible. Looking to the immediate future, however, the resumption of forest management research cannot be too forcibly urged. In prospect or preparation are numerous over-all policy making surveys, working circle plans, and cooperative sustained yield agreements that will fix the pattern of land management for many years. Obviously these plans must be predicated on high-order forestry virtually certain to grow the requisite wood. With early decisions as to cutting budgets and capital investments fixing the matter, future intensification of forest practices may be extremely difficult if not too late. Another factor bespeaking the importance of a sound, modern technology is the trend toward closer utilization. More intensive utilization carries a threat as well as a promise. Dissociated from good silviculture, the increased drain must inevitably accelerate forest deterioration. It is opportune for land managers to courageously abandon minimum standards and it behooves Research to aid in formulating modern principles [USDA FS, CF&RES 1945:2].

One of the major projects completed by Dunning's group during 1945 was a new growth estimate for California's commercial forest land. A significant factor in these estimates was bear clover, or kit-kit-dizze (*Chamaebatia foliolosa*). Viewed as great detriment to reestablishing cutover timber stands--since it out-competed conifer seedlings for water, sun, and nutrients--finding a commercially viable means of suppressing bear clover was a problem that the Experimental Station was charged with solving. Dunning reported on a project conducted by Fowells at the Strawberry Branch Station concerning bear clover eradication using "the promising chemical '2, 4-D'" applied in a 1-percent solution. But in spite of modest accomplishments, Dunning lamented project stoppages, data compromises, and the growing gap between the demand and the supply of forestry research:

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Preparing for Post-War Responsibilities & Opportunities, continued:

> The major portion of long-term studies in harvest cutting, forestation, stand improvement, silvics and yield remained suspended. Improvements, surveys, and identifying markers essential to these studies are seriously deteriorating. The Stanislaus, Yurok, and Feather River branches continued under custodial guardianship. Consistently increasing need for the information these studies could yield coupled with accelerated deterioration makes early continuation urgent [USDA FS, CF&RES 1945:2, 4, 5].

G. F. Burks, the project leader for 'Surveys and Services for War Agencies' reported that California's 1944 lumber production topped the previous 1943 record by 5 percent. During the war, lumber production and distribution was virtually controlled by the military for its use and for essential civilian uses. While military controls were lifted almost immediately after the end of the war and government buying largely ceased, there was unprecedented civilian demand (USDA FS, CF&RES 1945:21). Studies conducted at Stanislaus Branch were also highlighted in a national context in the 'Forest Research Monthly Reports.' Stanislaus work noted in the 1945 report included the results and status of seed crop surveys, cone count, and root pruning studies.

Fowells reported that, after World War II when manpower and funds were more available, research activity at the Stanislaus Branch Station and its experimental forest sharply increased. Dunning put "together all the bits and pieces of information from the plot studies" and formulated a promising silvicultural system and protocol termed *Unit Area Control*....

> Simply, it meant doing all the things necessary in harvesting any piece of forest (stand condition class) and in the follow-up treatments to keep the desired species, usually pine, in control of that piece of land.... Unit Area Control was often misunderstood and consequently seldom applied, [but] it was largely the observations from the Stanislaus that led Dunning to suggest this approach to managing stands.

This was also a period during which mistletoe, and seed and cone insect studies were conducted at Strawberry by the University of California Forestry School (Fowells 1978:4, 5, 11).

During the 1948/1949 season, researchers at the Stanislaus Branch Station conducted a Unit Area Control experiment on about 200 acres in Tract 2. Completed by Experimental Forest logging crews; they harvested about 8 million board feet (mmbf). The objective of this harvest was to convert old-growth timber to managed stands; by the 1970s, cautious forestry scientists could say that the "objectives of this study and demonstration appear to have been met." Dr. Douglas Roy helped prepare this 1948-49 Unit Area Control study, including measurement of residual stands The Five-Year Plan for the Stanislaus-Tuolumne Experimental Forest completed three decades later, noted that after the harvest linked with the 1948-49 Unit Area Control study, logging in the tract was limited to salvaging dead and dying merchantable timber (Schubert 1960:4; Fowells 1978:7, 10; USDA FS, PSW 1980:3; also cf. USDA FS, PSW var.$_2$).

Other important field-based research was conducted during the 1948-49 season. On site 1-175, the Stanislaus Branch embarked on a timber harvest trial and demonstration project to convert an old-growth sugar pine and fir stand to a managed stand. Since 1909, the study site had been the subject of logging and other treatments designed to create conditions favorable to sugar pine in studies of growth, seed production, seed distribution, germination, survival, soil/climate factors and brush control. The Stanislaus Branch Station was frequently able to leverage its research efforts by linking arms with others, including commercial, government and academic interests. In this case, logging and other treatments that could affect the results of the test were done by experiment station crews under a cooperative agreement with the Pickering Lumber Company in 1948 and the West Side Lumber Company in 1949.

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The Stanislaus Branch assisted in surveying and constructing camps and roads in support of this work. The Blister Rust Control (BRC) offices and Forest Insect Investigations (later, called Divisions of Forest Disease and Forest Insect Research of the Experiment Station), and the Fish and Wildlife Service cooperated with the study. Fowells noted that "[T]he Berkeley Blister Rust Control Office (at the time a unit of the Bureau of Entomology and Plant Quarantine) conducted studies on *Ribes* ecology on some of the plots. This office was deeply interested in measures to increase the sugar pine components of stands and was very helpful (and generous) in the construction of the camp to house the loggers for the 1948 harvest operations." Fowells also noted that the Fish & Wildlife Service's Joyce Keyes, "supplied much know-how and material" to control rodents on the regeneration acres. A total of 200 acres were logged, costing $10.00 per mbf: the 1948 harvest was 3.6 mbf on 90 acres, and the 1949 cut was 4.4 mbf on 110 acres (Fowells 1978:7-8; Schubert 1960:24-25).

The back-to-back years of 1948 and 1949 provided a research opportunity for which the Stanislaus Branch was able to take advantage. While 1948 was a very good year for conifer seed production in the area, 1949 was a poor one. From 1948 through 1957, Stanislaus Branch Station personnel collected data for comparing natural regeneration following clear-cut harvest during the good seed year and the poor seed year, contrasted with seed fall (by species) adjacent to the clear-cut areas.

The Stanislaus Branch Station—with its dormitory and mess hall—also served as a pleasant and convenient meeting place for forestry related field trips and gatherings. For example, in the early fall of 1949, the Branch hosted foresters and lumbermen from the Western Pine Association's Forest Practices Committee. The one-day field trip was intended to demonstrate "the measures being taken to get a new sugar pine crop when converting old-growth to a managed forest." The guest list was a who's who of forestry and lumbering interests in the Central Sierra Nevada, including J. S. Berry of Michigan-California Lumber Company, Fred Ellis and John Ronten of West Side Lumber Company, John Gray, consulting forester, and Duncan Dunning and W. E. Hallin from the Experimental Station (USDA FS, CF&RES 1949:no. 10).

Meanwhile, forestry scientists who used the Stanislaus Branch Station for much or all of their work continued to publish research results. In the November issue of Forest Research Notes (No. 64) Harry A. Fowells' "An Index of Ripeness For Sugar Pine Seed" appeared. This publication documented his experiments with the timing of cone harvest judged by cone specific gravity (Fowells 1949:1). Experimentation results also appeared in timber trade journals, such as Duncan Dunning's "A Sugar Pine Regeneration Cutting Experiment" in *West Coast Lumberman* (1949:62, 64).

During the 1950 field season, a contingent of the Society of American Foresters was attracted to the Stanislaus Station's experimental areas. The CF&RES staff notes chronicled:

> Largest group yet to visit the Station's sugar pine cutting experiment was the June 3 meeting of 110 members of the Northern California Section of the Society of American Foresters. The night before some 80 foresters attended a banquet at Pinecrest Hotel at which Dr. A. B. Andersen, new member of the U.C. School of Forestry staff, spoke informally on the possibility of finding valuable chemical extractives in California pines. The field trip at the Stanislaus Branch went to three areas: First to the Cow Creek plots, for a look at the 'fortunate coincidences' by which nature has established new stands of sugar pine; then to plots near Camp Bumble Bee, to see some of the measures needed to maintain the timber yield from

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sugar pine—such as repeated thinnings and pruning of crop trees; finally to the 1948-49 sugar pine cuttings to see what steps have been taken in this trial of methods for converting an old-growth forest to a managed stand. Lunch, prepared by Mrs. Ray Horsley, was served to the group at the Branch headquarters. Mrs. Horsley and Mrs. Jack Reveal served the lunch. Reports have it that the field trip was one of the most successful in Section annals, well organized and well handled. W. E. Hallin and H. A. Fowells were in charge of the presentation for the Station. Together with Duncan Dunning, they prepared a fact-packed summary of the experimental work, which will probably be of interest to Station foresters who missed the meeting [USDA FS, CF&RES 1949:no. 18].

Meanwhile, basic research and resulting publications continued through the 1950s, including Fowells' "Some Observations On The Seedfall of Sugar Pine" in Forest Research Notes (No. 70, June 12). Here he documented his experiments with sugar pine seed distribution and the amount of seed necessary for natural reproduction (Fowells 1950:1). Some of the work carried on through the decade and into the 1960s was published in the 1960s, such as Nellie Stark's "Field Test of Hybrid Pines in Central California." In this study:

> Eight hybrid and native pines were planted in 1950 on three locations of the Stanislaus-Tuolumne Experimental Forest. Height, diameter, and survival data were recorded annually. Physical injuries from snow, insects, and animals were surveyed in 1962. After 12 years, the most promising hybrid at 5,200 and 5,400 feet elevation was Jeffrey x (Jeffrey x Coulter). This backcross hybrid showed little damage from insects, snow, or porcupines (Stark 1964:1).

Paradigm Shifts &
Changing of the Guard

1951 was a marker year for the Stanislaus Branch and for forestry research in the Forest Service. In that year, Verne L. Harper became Assistant Chief in charge of research, during a time when many basic research programs had been "shelved while forest products research expanded." 1954 appropriations for research were at a similar level as 1947's. In the late 1950s, Harper changed the research structure from one based upon research tied to geographic centers to one of projects. Under this organization, a senior scientist was in-charge of a project and supervised the staff (USDA FS, West 1990:9-10).

In 1951, Duncan Dunning, leader of the California Forest & Range Experiment Station's Pine Management Division, retired. Probably partly due to losing him and to the organizational change, research activity at the Stanislaus began a steady decline. Fowells characterized Dunning's retirement as "bitter and frustrated with what he believed was lack of support for the whole timber management research program in California (Fowells 1978:8. Also cf. StF Summit RD E.F. File). Russell LeBarron replaced Dunning (Fowells 1978:10).

Nonetheless, G. H. Schubert and Harry A. Fowells continued to write-up results of long term Stanislaus Branch studies, such as Fowells' "Natural Reproduction in Certain Cutover Pine-Fir Stands in California" published in the Journal of Forestry (vol. 49). This work concluded that, "despite a predominance of pine seed trees before logging, natural regeneration of cutover lands favors firs and cedars" (Fowells 1978:8). Fowells and Schubert collaboratively published "Recent Direct Seeding Trials in the Pine Region of California" in Forest Research Notes. This report

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summarized various trials—conducted primarily on the Stanislaus—in order that those "interested in direct seeding as a practical means of regeneration and for those interested in a background for trials of their own" would use this report to guide their efforts (Fowells & Schubert 1951:1). Through the decade of the 1950s, Schubert studied sugar pine seed tree fertilization. Accumulating data from eight paired sugar pines, half of the trees were fertilized over three successive seasons resulting in 2.3 times as many cones as the unfertilized trees. The cost of fertilizer was $200 and the worth of seed was $1,250 (Schubert 1960:14). In 1953, Schubert published "A Trial of Three Chemicals as Rodent Repellents in Direct Seeding." Research for the study took place on the Stanislaus-Tuolumne Experimental Forest (S-T EF). Like earlier tests of sodium fluroacetate, red lead, and zinc phosphide in 1950 on the S-T EF, additional compounds were used to coat the seeds. None proved effective as rodent repellents (Schubert 1953:1).

In 1952, the venerable Harry Fowells left the Stanislaus Branch Station and, in 1953, the Branch Station management reins were handed to Gilbert Schubert. Schubert had worked with Fowells in silvics and forest regeneration studies from 1947 through 1952 (PHR 1989:bldg. 1218 telcon; Fowells 1978:7).

Harry Fowells had been a talented researcher for the Stanislaus Branch Station. Beginning his formal forestry studies at Oregon State University in 1928, he transferred to the University of California at Berkeley in order to pursue forestry research. Within a short time there as a research assistant, the Forest Service noted his acumen and offered him full-time employment at the California Forest & Range Experiment Station at Berkeley. Fowells took the job and continued—for many years—to pursue his doctorate on a part-time basis. It was through his student research assistantship and his employment at the Forest Service's Research Station at Berkeley that he began his long association with the Stanislaus Branch of the CF&RES. When in 1953, Fowells finally completed his coursework enabling him to commence his dissertation, the Forest Service transferred him from the CF&RES to what he called a "swivel-chair job" in Washington, D.C. Despite a busy travel schedule demanded by his new job encompassing US Department of Agriculture international research programs, Fowells continued to pursue his formal education; he earned his Ph.D from the University of Maryland in plant physiology in 1958 at the age of 50 (OSU 2001:np). Life-long learning and service mark Harry Fowells' life, and his work at the Stanislaus Branch Station formed a substantial foundation for his future.

Dr. Harry Fowells' career in international agricultural research programs and keen interest in forestry endured past is retirement in 1971. It follows that he continued to analyze data collected at the Stanislaus Branch Station and to collaborate, synthesize and publish his findings well after he had left. For example, building on his work from the late 1940s, in about 1956, he elaborated his seed ripeness studies. While cone color had long been used as the primary indicator of conifer seed ripeness, Fowells found that it was inconsistent as an indicator of germination success. Instead, he concluded that when the specific gravity of cones was 0.80 or lower, seed germination was highest. Fowells also found that seed from immature sugar and Jeffrey pine cones resulted in a high percentage—up to 50 percent—of abnormal seedlings (Schubert 1960:17). The year 1956 was also when Schubert and Fowells published the results of their cone production studies that covered 28 years: 16 years of actual cone counts and 12 years of seed trap or seedling establishment data (Schubert 1960:18-19). This long term Stanislaus Branch study, "Seed Crops of Forest Trees in the Pine Region of California" was published in USDA Technical Bulletin 1150. Summarizing 28 years of data regarding seed production of sugar pine, ponderosa pine and white fir, Fowells and Schubert interpreted the data for application to cutting practices and seed collection for forest regeneration following harvest (Fowells 1978:9). This study noted: "Seed crops were observed chiefly in the vicinity of the Stanislaus Experimental Forest.... Additional information was obtained at the Blacks Mountain Experimental Forest, Lassen National Forest." The summary noted:

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> Cone crops and seed dispersal were observed for a period of about 28 years in the pine region of California..... A strong relationship was found on cutover areas between the volume per acre in Dunning tree classes 1 and 3 and amount of pine seed produced per acre.... Because good seed crops are infrequent, steps should be taken to protect them and to make the most of them in seed collection programs and in planning for natural reproduction [Fowells & Schubert 1956:3].

The Stanislaus Branch Station leadership transition from Harry Fowells to Gilbert Schubert seems to be reflected in their early collaborations and the increase in Schubert's solo publications based upon research on the Stanislaus-Tuolumne Experimental Forest (S-T EF). For example, Schubert's work, "Early Survival and Growth of Sugar Pine and White Fir in Clear-Cut Openings," was published in the California Forest & Range Experiment Station's Forest Research Notes in the November 1956 issue. Sugar pine was still viewed as the most desirable merchantable tree in this belt of the Sierra Nevada, and researchers like Schubert were attempting to isolate the most important factors resulting in sugar pine getting "a head start in the race for dominance" (Schubert 1956:1).

Responding to a demand by foresters to have a means of controlling competing, undesirable vegetation, in 1958 Schubert's research on the Stanislaus-Tuolumne Experimental Forest tested the results of applying 2,4-D and 2,4,5-T to determine the effect on young sugar pine clumped with whitethorn. Finding that the best kill of whitethorn and least damage to sugar pine was with 2,4,5-T applied in September, Schubert published his results in 1960 (Schubert 1960:22). Within the framework of the forestry of its day, researchers based at the Stanislaus Branch Station were incrementally adding to the foundation of scientific forest management envisioned by such luminaries as Pinchot during the early 20th century and Clapp in the early 1930s.

Another important mid-century forestry researcher was Dr. Robert Bega whose work included understanding and limiting white pine blister rust. *Cronartium ribicola* is a rust fungus that can infect most white pines, including sugar pine. In 1910, this fungus, introduced to North America in 1900, had spread to the West Coast. Capable of decimating the white pine populations, the fungus' alternate host is all species in the genus *Ribes*—gooseberry and currant shrubs. Therefore, a massive assault was waged in an effort to effectively eliminate *Ribes* from areas in which white pine also grew. The S-T EF was one of several prime places where this pairing occurred, and thousands of acres on the Stanislaus National Forest were treated by everything from hand-grubbing to application of the plant hormone herbicides 2-4-D and 2-4-5-T. Bega's studies during the latter 1950s about the microclimate limits of white pine blister rust were largely conducted at the Stanislaus Branch Station, and it was part of the research that eventually led to the end of the massive, yet ultimately unobtainable, goal of *Ribes* eradication in California.

From 1962 through 1969, Robert Bega was in charge of the Stanislaus Branch Station site. But through the 1960s, even though funding and work continued to shift away from this Station, fundamental pine research was still conducted there (Bega 1982:3). In addition to studies on controlling brush, factors influencing survival of pine seedlings, and cone crop periodicity, the Stanislaus Branch Station staff studied "seed tree fertilization, seasonal growth, root development, planting stock, pine hybrids, and establishment of big trees" (Fowells 1978:4).

A prodigious generator of this work was Nellie Beetham Stark who was in residence at the Strawberry Branch Experiment Station through the early 1960s and whose work there focused on slilvical studies. During her time at the Stanislaus Branch Station, she met and married Oscar Stark, a scaler who had worked on the Unit Area Control logging study conducted out of the Station and who, later, became caretaker at the Stanislaus Branch (Fowells 1978:10). In 1963, Nellie B. Stark's "Thirty-Year Summary of Climatological Measurements From the Central Sierra

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Nevada" was published. From data collected from the Stanislaus Branch, this foundational work was first published as a US Forest Service Research Note, PSW-36 (Fowells 1978:9). Dr. Stark went on to build a stellar career in Forest Ecology. One of few women in the United States to receive a PhD in Soil Science in the decade between the late 1950s and the early 1960s, Stark earned her degree in 1962 from Duke University. After the Stanislaus Branch Station, she worked at the Desert Research Institute in Nevada. Stark stayed in research and also began a long and influential teaching career when she joined the faculty at the University of Montana, Missoula in 1979. There, she broke new ground as a female full professor in a US forestry school. Through her association with the Montana Forest and Conservation Experiment Station and her teaching career, Stark continued to work on her concept of the 'biological life of a soil;' especially as applied to nutrient loss and productivity (Langenheim 1996:23-24).

A pivot point in the administrative history of the Stanislaus Branch Station is marked by a June 4, 1963 memorandum from Stanislaus Forest Supervisor Harry Grace. The memo documented a telephone conversation Grace had that day with California Forest Experiment Station Director, Keith Arnold. As related by Grace, Arnold said that the...

> Station has decided to curtail some of their programs at Strawberry [the Stanislaus Branch]. Present personnel stationed there are being moved to Redding about July 1. There is a possibility that one man will work on insect control during the summer of 1964. Also that one or two men may be required for plot reading for the next few years. Arnold made the proposition that we take over the station for 3 to 5 years. During that time a decision may be made to close the station.... Also it was mentioned that these buildings might be incorporated into the Logging Camp site we recently acquired, and used for the proposed Y.C.C. [Youth Conservation Corps] program.... My feelings on use of the buildings is that not more than one of the residences be considered for use by the Y.C.C. program. This should be for the Forest Service Camp superintendent. The warehouse, etc. could be used by the camp. Also a part of the dormitory be used by foreman, but leaving two beds available at all times for the station personnel. In making commitment for the dwellings we just keep in mind the Insect Control project will need one dwelling and office – lab building during summer of 1964 [USDA FS, R-5 1963].

Arnold had spoken candidly. In 1964, what is now called the USDA Forest Service Pacific Southwest Research Station (PSW Station), headquartered in Berkeley, California, pulled its programs from the Stanislaus Branch Station and established the Redding Silvicultural Laboratory as a research installation of the PSW Station. While the PSW Station retained the Stanislaus-Tuolumne Experimental Forest in support of its research topical area, the Branch Station improvements were no longer necessary for the work being conducted at the S-T EF. In addition, field research facilities at Blacks Mountain and Swain Mountain experimental forests also supported this topic and were closer to Redding. In addition to the Redding Lab, the PSW Station's work was conducted through various entities such as the Redwood Sciences Laboratory in Arcata, the Institute of Forest Genetics in Placerville, and the Forest Fire Laboratory at San Dimas.

Establishing the Redding Silvicultural Laboratory created a layer of administration between the Stanislaus Branch Station and the California Forest Experimental Station. Also, instead of the Branch Station and its associated experimental forests being 150 miles from the next link up in the chain of command, it was now 300 miles distant. For this and other reasons—such as the change in leadership of the Pine Management Division and changes in forest research program emphases—not only did the PSW Station give up its facilities at Strawberry, but the intensity of experimentation at the S-T EF further declined (Fowells 1978:7).

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Regardless, fundamental studies largely or entirely based on data from the S-T EF continued to be published. For example in the mid-1960s, Harry A. Fowells and Nellie B. Stark published another fundamental forestry work: "Natural Regeneration in Relation to the Environment in the Mixed Conifer Forest Type of California," USDA Forest Service Research Paper PSW-24. Fowells had carried out the experiments on five study areas in the S-T EF under Duncan Dunning's supervision from 1934 to 1941:

> To provide information on factors affecting natural regeneration in the mixed conifer type in California, the Forest Service started in 1931 an intensive study on the Stanislaus-Tuolumne Experimental Forest in the Sierra Nevada of California. The specific objective of the study was to determine the environmental factors favoring or inhibiting the establishment of reproduction of the major species of the mixed conifer type.

These major species are ponderosa pine, sugar pine, white fir, and incense cedar. Silvicultural practices for managing this mixed conifer type were formulated using these data. The elemental quality of Fowells' and Stark's work is evident in their abstract:

> Germination, survival, and growth of ponderosa pine, sugar pine, white fir, and incense-cedar were studied in relation to such environmental factors as air and soil temperatures, light intensity, and soil moisture. The germination of ponderosa pine was best, followed by sugar pine, incense-cedar and white fir. After 5 years, sugar pine had the highest survival rate, followed by ponderosa pine, incense-cedar, and white fir. Highest survival occurred on a cleared, north-facing slope. Natural regeneration of the pines can succeed with protection from rodents and elimination of competition.... The results of the study have had important implication in the development of silvicultural practices in the mixed conifer type in California. First and most important is that the study demonstrated that climatic factors in this region are not so severe as to preclude natural regeneration. Despite the 4-month drought, soil moisture was nearly always available to seedlings--provided competition from other plants was minimized [Fowells & Stark 1965: abstract 1, 14].

Despite evidence that experimental work conducted at the S-T EF was in decline, the Forest Service took measures in the mid-1960s to protect their investment and formally withdraw the Experimental Forest from claims under the mining laws. Public Land Order 3918, dated January 18, 1966, included the withdrawal of about 1,687.28 acres for the S-T EF (serialized under withdrawal review program as SAC 050253).

Periodically, national forests are the subject of internal inspections; during this span of time, they were termed "General Integrating Inspections," or GIIs. In 1967, the Stanislaus was the subject of a GII, and in a letter dated July 18, 1967 the Regional Forester reported to the PSW Station Director that the recent inspection report recommended that: "The Regional Forester should request the Pacific Southwest Forest and Range Experiment Station to return the administration and management of the Experimental Forest at Pinecrest to the Region." The GII further explained that the Stanislaus reported that the Station was "only using the Experimental Forest at Pinecrest to a very limited extent....

> Occasionally an employee will use the buildings, but mostly for vacationing or they may be used by a foreign visitor or someone from the University of California. If any projects are going on they are not in evidence. Several of the buildings have through agreement been turned over to the Stanislaus National Forest for use.... The Experimental Forest appears to be an island in a managed forest of benefit to no

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> one. It could be used for necessary expansion of the Pinecrest recreation needs. The timber could be harvested as is on the surrounding area and the lands generally put to productive use.

The RF continued:

> Since the inspection team did not acquire a complete list of active research projects on which the Station is working nor did they determine how they would be affected by transferring the administration, we are not well enough informed to request a transfer. We do, however, hope you can explore the situation and give us your opinion on the merits of the proposal.

The Regional Forester noted the "extreme need" for "recreational developments at Pinecrest" and the ongoing efforts to "recapture some summer home sites at Pinecrest.... There are desirable camping and picnicking areas in the Experimental Forest that could contribute to meeting the recreation area needs" [USDA FS, R-5 1967].

On March 27, 1969, the real property comprising the former Branch Station headquarters facilities was transferred to the Stanislaus National Forest (Fowells 1978:4). The headquarters site buildings in Tract 1 of the Experimental Forest--consisting of an office, warehouse/garage, barracks, and four residences--were transferred to the Stanislaus' Summit Ranger District. Soon, PSW Station personnel had retrieved all accountable and other property from the Stanislaus Branch Station. Regarding experimentation tools adjacent to the Branch Station headquarters, permission was given to Stanislaus National Forest personnel to remove the tree ladder and fence around the abandoned weather station. PSW Station personnel were to "locate and identify all plots on the experimental forest and adjacent National forest land" for Summit District personnel. Unless first cleared with the Forest, the PSW Station also agreed not to install new plots on Tract 1 around what was soon to be called the "Strawberry Work Center." PSW Station officials did not anticipate that new plots would be established, but if they were, the plots would "have the same status as any research areas on regular national forest land." The PSW Station Director said that research on the existing plots in Tract 1 was to be closed out—most in the next 3 years, "at which time the 200 acres will be withdrawn from the experimental forest and turned over to the Forest for administration." In closing, PSW Station gave the Stanislaus National Forest permission to control a patch of bark beetle infestation and to remove several trees around the work center identified as hazards (USDA FS, R-5/Ralston 1969).

But as for Tract 2, the PSW Station Director, in a letter to the Regional Forester, noted that both silviculture and recreation research programs were intended there. "Much of the [silvicultural] research will be done in cooperation with our recreation research project to take full advantage of the unique opportunities of the area. All the studies will require close working relations with the Stanislaus National Forest" (USDA FS, R-5/McCulley 1969).

Converting Tract 1 from experimental forest to general forest use became something of a cat and mouse game. Despite the content of Assistant PSW Station Director Robert Ralston's 1969 letter, the PSW Station did not take action on turning over the 200-acre tract to the Stanislaus National Forest. Then, in an October 19, 1973 letter to the Stanislaus National Forest Supervisor, PSW Station Director H. W. Camp referred to a disease research project that required continuing need for the experimental plots in Tract 1. "Thus" he said, "we do not plan to withdraw this area from the Experimental Forest as we thought in 1969" (USDA FS, R-5/Camp 1973). A 1973 memorandum revised the plan mentioned in the 1969 memo and noted that Tract 1 would remain Experimental Forest for "the foreseeable future" (USDA FS, R-5/Rogers 1973). In spite of these communiqués, it appears that Stanislaus officials thought the transfer of the Branch Station improvements had

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included the 200-acre Stanislaus River Block of the Experimental Forest. However, that was later clarified for the forest supervisor in the form of a handwritten note on a 1972 letter from Summit District Ranger Thomas Hoots to the Stanislaus Forest Supervisor: "Not transferred. Must be 'un-withdrawn' by Sec. of Interior. Probably can't be finalized until 1976" (USDA FS, R-5/Hoots 1972).

Meanwhile, Summit District timber sale planners made inroads with the PSW Station in Tract 2. A 1972 salvage logging operation was planned to take place in the experimental forest with normal erosion control and slash disposal practices. This was to be in the larger block, referred to by district officials as "Sheering Creek Block." This area had been the site of a significant windstorm that resulted in a great number of wind-thrown trees. However, it appears that a letter from PSW Station Director H.W. Camp was at least partly intended to keep Stanislaus National Forest officials from getting possessive of either of the experimental forest tracts. Indeed, forest officials were attempting to convert the withdrawal restored to "multiple use management," fully or partially:

> We have reviewed the program of our disease research project and find that they still have need for the experimental plots on the lower [elevation] 200-acre area.... Likewise, we still believe it wise to retain the upper tract for experimental forest purposes.... Accordingly, we feel that there should be no action taken now to change the land status of this Experimental Forest [USDA FS, R-5/Camp 1973].

Perhaps to help insure its experimental forest status, and presumably initiated by the PSW Station, in 1976 the Stanislaus-Tuolumne Experimental Forest was among a dozen Forest Service Research areas included in the first of 28 United States biosphere reserves to receive formal recognition from the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Biosphere reserves were identified and set aside for study of their plant and animal ecology and the genetics of their biological resources. The Forest Service Research areas were: Cascade Head Experimental Forest and Scenic Research Area, the H. J. Andrews Experimental Forest, and Three Sisters Wilderness in Oregon; Coram Experimental Forest in Montana; Coweeta Hydrological Laboratory and Experimental Forest in North Carolina; Desert Experimental Range in Utah; Fraser Experimental Forest in Colorado; Hubbard Brook Experimental Forest in New Hampshire; the Luquillo Experimental Forest in Puerto Rico; the San Dimas Experimental Forest, San Joaquin Experimental Range, and the Stanislaus-Tuolumne Experimental Forest in California.

The S-T EF nomination was confirmed in 1977, and its research potential was recognized by UNESCO's Program on Man and the Biosphere. The S-T EF was described as: "Several plantations, areas of natural young-growth, and large blocks of diverse species and age classes that virtually are uncut, provide great potential for silvicultural and ecological research in this important and complex forest type." Thus, the S-T EF was formally recognized as part of an international network of Biosphere Reserves (USDA FS, CF&RES 1990:46).

There Arises
A Certain Grandeur

For the purposes of providing a context for evaluating the Stanislaus Branch of the California Forest and Ranger Experiment Station, this narrative logically concludes with the 1969 transfer of the former Branch Station headquarters facilities to the Stanislaus National Forest. In 1978, Dr. Harry Fowells wrote a short retrospective of the "History of the Stanislaus - Tuolumne Experimental Forest." He eloquently reflected:

> It would be with much pride if one could say that research at the Stanislaus resulted in a giant step forward in forestry. But in forest research, as in other research, the bits of information often must be combined with other facts to achieve even a small step forward. Aristotle once said, 'from all the facts assembled there arises a certain grandeur.' Hopefully, facts from the Stanislaus will contribute to some grandeur in forestry. To the extent that Dunning used data from the Stanislaus, his exposition of tree classes was a major accomplishment from the Stanislaus. Later, data from some of the same plots led to a model for predicting growth in cutover stands. The years of observations in seed crops certainly should have provided guidelines for reserving seed trees in harvest cuttings.

Between forty and fifty publications directly resulted from Stanislaus studies. The earliest listed by Fowells was a 1928 monograph by Duncan Dunning, "A Tree Classification for the Selection Forests of the Sierra Nevada" in the Journal of Agricultural Research (Fowells 1978:7-8, 11).

Fowells ended his retrospective with a nod to the many forestry and other influential professionals who gained some of their experience from working at the Stanislaus Branch Station:

> Alumni of the Stanislaus Branch have made their mark in forestry or the scientific world: a deputy chief of the Forest Service, a university president, a forestry dean, several university professors, a leader in industrial forestry, a director in the Bureau of Land Management, and a Washington Office staff man. For these and the others who worked there, the Stanislaus will always be a pleasant memory [Fowells 1978:16].

By 1986, the Summit Ranger District owned the Stanislaus Branch Station improvements and the withdrawal report noted that they...

> have no direct connection with the purpose and function of the Experimental Forest.... Terminating withdrawal on this site alone would be impractical.... The actual improvements related to the Experimental Forest research are nominal in value; however, the value lies in the 43 years of research already achieved [USDA FS, R-5 1986:2-3].

Major Bibliographical References

Publications, Manuscripts, Typescripts, Letters

Ayres, R. W. "Bummer", Conservation Writer and Forester (Retired)
1958 *History of Timber Management in the California National Forests, 1850 to 1937.*

Baron, Frank J., N. Stark, and Gilbert H. Schubert
1964 "Effects of Season and Rate of Application of 2,4-D and 2,4,5-T on Pine Seedlings and Mountain Whitethorn in California." In *Journal of Forestry*, Vol. 62, No. 7, July.

Bega, Robert V.
1982 "Addendum, History of the Stanislaus-Tuolumne Experimental Forest, 1955-1982." (4 –page typescript to complement Fowells' 1978 history.)

California, State of (CA Bd. Of Eq.)
1983 Board of Equalization, Property Tax Rules, Chapter 1, Subchapter 11, Article 1, Rule 1021.

Civilian Conservation Corps (CCC)
1935 April 1 [to September 30]. CCC Camps in the National Forests and on Private Land in California and Southwestern Nevada, Fifth Period – Beginning April 1, 1935. (Copies of all CCC camp listings, noted below, are in Stanislaus NF Archive/History File/1800.)

1936-38 "CCC Camps in National Forests and on Private Land in California" composite lists for periods 6 – 12, 1936-1938.

1939 "CCC Camps in National Forests and on Private Land in California, Thirteenth Period – April 1 to September 30, 1939.

1940 "CCC Camps in National Forests and on Private Land in California, Fifteenth Period – April 1 to September 30, 1940."

1941 "CCC Camps in National Forests and on Private Land in California, 17th Period – April 1 to September 30, 1941."

"Revised List as of August 15, 1941, CCC Camps in National Forests and on Private Land in California, 17th Period."

1942 CCC Camps as of May 15, 1942 in National Forests and on Private Land in California, Nineteenth Period – April 1, 1942 to September 30, 1942.

August 11. CCC Division, Headquarters Ninth Service Command. File designation CCC 461/305. Change No. 5 to accompany Directory No. 27, CCC Units, Ninth Service Command, May 27, 1942. Sacramento CCC District.

Clary, David A.
1986 *Timber and the Forest Service.* Lawrence: University Press of Kansas.

Major Bibliographical References
Publications, Manuscripts, Typescripts, Letters (continued)

Conners, Pamela A.
1997 *The Sugar Pine Railway, History of a Sierran Logging Railroad.* USDA Forest Service, Pacific Southwest Region, Stanislaus National Forest.

Drake, George L. (President of the Society of American Foresters)
1951 Society of American Foresters Presentation of the Gifford Pinchot Medal to Raphael Zon. Presentation made at Montreal, P.Q., Canada.

Dunning, Duncan
1923 November 3. "Preliminary Summary, Cow Creek – Methods of Cutting Plot, Stanislaus Plot 5." File designation: Plots RS/Mc-1, D-5/Stanislaus – 5. (This report included about 65 images, most of which are paired, before and after photographs. Copy located in folder 2 of 2, Summit RD, 4060 Research Facilities, Stanislaus Experimental Forest/Permanent Forest).

1925 "An Instrument for Measuring Increment Cores," in *Journal of Forestry*, Vol. 23, No. 2. February 1.

1928 *A Tree Classification for The Selection Forests of the Sierra Nevada.* Reprinted from *Journal of Agricultural Research,* Vol. 36, No. 9, May 1. Washington, D.C.: GPO.

1942 "A Site Classification for the Mixed-Conifer Selection Forests of the Sierra Nevada" in *Forest Research Notes*, No. 28, December 1.

Dunning, D. and L. H. Reineke
1933 *Preliminary Yield Tables for Second-growth Stands in the California Pine Region.* Technical Bulletin 354. USDA Forest Service, Washington, D.C.

Fowells, Harry A.
1978 "History of the Stanislaus- Tuolumne Experimental Forest." December. 16-page typescript (first version was 11 pgs; Fowells added photos and made a few minor changes). (Stanislaus NF Archive/History File/4062.)

Fowells, H. A. and G. H. Schubert
1951 "Recent Direct Seeding Trials in the Pine Region of California" in *Forest Research Notes*, No. 78, June 28.

1956 *Seed Crops of Forest Trees in the Pine Region of California.* USDA Technical Bulletin No. 1150.

Fowells, H. A. and N. B. Stark
1965 *Natural Regeneration in Relation to Environment in the Mixed Conifer Forest Type of California.* USFS Research Paper PSW-24. GPO 972-035.

Grosvenor, John (Architect)
1999 *A History of the Architecture of the USDA Forest Service.* USDA Forest Service Engineering Staff publication EM-7310-8. July.

Hall, L. Glenn (Region 5 Landscape Engineer)
1935 *Landscape Manual for Administrative Sites in the California Region, U.S. Forest Service.* June.

Major Bibliographical References
Publications, Manuscripts, Typescripts, Letters (continued)

Hyde, Arthur (Secretary of Agriculture)
1932 "The Cost and Cure of Erosion." Address before the 57th annual meeting of the American Forestry Association, Baltimore, Maryland, May 26. Mimeograph. (On file, PSW Library, Vallejo, CA.)

Kotok, Edward I. and Ruth Show Kotok
1963 "The U.S. Forest Service: Research, State Forestry, and FAO." Oral history recorded in various sessions, 1963 and 1964 by Amelia R. Fry. Bancroft Library, Regional Oral History Office. Copyright 1975, UC Regents.

Langenheim, Jean H.
1996 "Early History and Progress of Women Ecologists: Emphasis Upon Research Contributions," in *Annual Review of Ecology, Evolution, and Systematics.* Volume 27, pp. 1-53.

Marshall, Manuel J.
1991 *Sugar Pine Railway Memories, Recollections of A Steam Engineer.* Fresno: Pioneer Publishing Company. Edited and annotated by Pamela A. Conners.

Oregon State University (OSU)
2001 "Alumni News, Profile: Harry Fowells" *in Focus on Forestry, The Magazine for the Friends and Alumni of the College of Forestry.* Winter edition.

PHR Associates (PHR)
1989 "An Evaluation of Historic Administrative Buildings on the Stanislaus National Forest." Dr. Rebecca Conard, Principle Investigator. Report designated 16-813. (Stanislaus NF Heritage Resource files.)

Schubert, Gilbert H.
1953 "A Trial of Three Chemicals as Rodent Repellents in Direct Seeding." February 4. Forest Research Notes, CF&RES, No. 84.

1956 "Effect of Fertilizer on Cone Production of Sugar Pine." October 15. Forest Research Notes, CF&RES, No. 116.

"Early Survival and Growth of Sugar Pine and White Fir in Clear-Cut Openings." Nov. 21. Forest Research Notes, CF&RES, No. 117.

1960 "Stanislaus Experimental Forest." June 27. Typescript (26 pg.), Pacific Southwest Forest and Range Experiment Station, Berkeley, CA. (Stanislaus NF Archive/History File/4062.)

Show, S. B.
1918 March 5. File designation S-Plans-Timber Management/Stanislaus/Methods of Cutting. Progress report on plots 1 & 3. Approved July 27, 1918 by T. D. Woodbury, Acting District Forester. (This was a follow up on a progress report by D. Dunning in 1916. Show's report is 19 pages plus about 50 photos and repeat photos taken in 1910 and 1916, with descriptions. Photos include: 95064, 156887; 95065, 156888; 95066, 156889; 95062, 156892; 95058, 156894; 95059, 156895; 95060, 156918; 95061, 156896; 95055, 156898; 95056, 156899; 95050, 156901; 156915; 95051, 156893; 156912; 156913; 95063; 95052, 156900; 156916; 15689?; 156890.)

n.d. "Papers of S. B. Show, Regional Forester." Draft typescript (257 pg.) [This may have been written in about 1950.]

Major Bibliographical References
Publications, Manuscripts, Typescripts, Letters (continued)

Stark, Nellie
1963 "Thirty-Year Summary of Climatological Measurements from the Central Sierra Nevada." US Forest Service Research Note PSW-36.

1964 "Field Test of Hybrid Pines in Central California." US Forest Service Research Note PSW-45.

Stowell, M.D.
1934 April 21. NARA 95-63-A-54, location 761143, boxes 4-5, folder S-Stand Improvement – Stanislaus. "Report on Sugar Pine Release Cutting in Advance Reproduction, Miner's Ditch Sale, Stanislaus National Forest."

US Senate
1933 73d Congress, 1st Session, Document no. 12. "A National Plan for American forestry, Letter from the Secretary of Agriculture Transmitting in Response to S. Res. 175. Washington, D.C.: GPO. Includes Earle H. Clapp's "Research in the United States Forest Service, A Study in Objectives."

US Department of Agriculture, Forest Service (USDA FS)
1955 April 26. Letter from E. L. Peterson, Assistant Secretary, to the Secretary of the Interior. File designation U/Withdrawals, R-5, Lassen, Plumas Stanislaus Experimental Forests and R/Branch Stations/Experimental Forests. (Located in 2760/Withdrawals, StF/SO active files.)

USDA Forest Service, Pacific Southwest Region (USDA FS, R-5)
1923 August 8. Memorandum from T. D. Woodbury, Assistant District Forester, to District Forester [Paul G. Redington]. File reference RS-Mc. 2 pg. typescript (Stanislaus NF Archive/History File/4062.)

1928 January 19. "Tractor Logging Damage Study, Pickering Lumber Company Sale Area, Stanislaus National Forest, District 5." Report by John R. Berry, Logging Engineer and B. O. Hughes, Forest Examiner; approved by S. B. Show, District Forester. File designation SL/Tractors/Tractor Logging; 12-pg. typescript.

1931 March 4. "Forest Research in the California Region, 1930-1931, Report of Region 5, Investigative Committee Meeting, March 2 to 4, 1931." File designation R/Investigative Program/R-5.

1933 May 19. "Emergency Conservation Workers" in *The California Ranger.* (Publication for employees of the US Forest Service, Region 5.)

July 5. "Emergency Conservation Work Camps Which Have Been Established in the National Forests in California." List prepared by L. A. Barrett, Acting Regional Forester.

July 14. "A 'New Deal' in Ranger Stations" in *The California Ranger.* (This article is also available at www.r5.fs.fed.us/newslog/history/ranger-station.html.)

1945 June 18. Letter from Neal M. Rahm, Assistant Supervisor Stanislaus NF to Forest Supervisor. File designation D/Inspection-Stanislaus/Inspection, G. I. (Stanislaus NF Archive/History File/1680).

1955 March 25. Letter from B. H. Payne, Assistant Regional Forester R-5 to Chief , Forest Service. File designation U/Withdrawals, R-5, Experimental Forests – E.O. 10355. (Located in 2760/Withdrawals, StF/SO active files.)

Major Bibliographical References
Publications, Manuscripts, Typescripts, Letters (continued)

USDA Forest Service, Pacific Southwest Region (USDA FS, R-5), continued

1963 June 4. 5650 (4100) Letter from Harry D. Grace, Stanislaus Forest Supervisor to Jon Kennedy and Tom Beard, Summit Ranger District regarding Buildings, Water & Sanitation. (Located in 2760/Withdrawals, StF/SO active files.)

1967 July 18. 4060 (1440) Letter from C. A. Yates, Office of the Regional Forester to Director, PSW Station regarding Research Facilities (Stanislaus - Tuolumne Experimental Forest). (Located in Summit RD, 4060 Research Facilities, Stanislaus Experimental Forest/Permanent Forest).

1969 June 2. 6440 Letter from Robert A. Ralston PSW Station Assistant Director to Forest Supervisor, Stanislaus National Forest regarding Stanislaus-Tuolumne Experimental Forest. (Located in 2760/Withdrawals, StF/SO active files.)

July 23. 4060/4050 (1000) Letter from Robert D. McCulley, PSW Station Director to Regional Forester R-5 regarding Stanislaus-Tuolumne Experimental Forest. (Located in 2760/Withdrawals, StF/SO active files.)

1972 December 7. 6440 Letter from Thomas A. Hoots, Summit District Ranger to Stanislaus Forest Supervisor regarding Stanislaus Experimental Forest, Stanislaus River Block. (Located in Summit RD, 4060 Research Facilities, Stanislaus Experimental Forest/Permanent Forest).

1973 May 21. 4060 (2700) Letter from H. W. Camp, PSW Station Director to Regional Forester R-5 regarding Stanislaus-Tuolumne Experimental Forest. (Located in 2760/Withdrawals, StF/SO active files.)

October 19. 4060/2760 (2400) Letter from H. W. Camp, PSW Station Director to Supervisor, Stanislaus NF regarding Stanislaus-Tuolumne Experimental Forest (Located in 2760/Withdrawals, StF/SO active files.)

December 11. 4060 (2760) Memo to files by Robert R. Rogers, DTMO, Summit Ranger District. (Located in 2760/Withdrawals, StF/SO active files.)

1977 "Revision of Establishment Report, Stanislaus-Tuolumne Experimental Forest." September 2. Signed by Douglas Roy, Project Leader. 2-page document. (Located in 2760/Withdrawals, StF/SO active files.)

1986 "Withdrawal Review Justification and Land Report For Continuation of Withdrawal Case No. SAC 050253, Stanislaus-Tuolumne Experimental Forest." January 18. Report prepared by Martha Zoe Tyler, NC Zone Land Adjustment Team. (Located in 2760/Withdrawals, StF/SO active files.)

1990 "A Thematic Study of Administrative Buildings in the Pacific Southwest Region." Includes Programmatic Agreement, Management Plan, Evaluation Guide, Recording Guide, and Contextual History. Unpublished notebook document. (Located in StF/SO active files.)

var.$_1$ Stanislaus National Forest, Summit Ranger District, Heritage Resources, Experimental Forest (E.F.) File. Contains various material related to the Stanislaus-Tuolumne Experimental Forest as a heritage resource, including notes on Harry Fowells oral history, c. 1937 station development plan, research notes and other publications derived from work on the Stanislaus-Tuolumne Experimental Forest.

Major Bibliographical References
Publications, Manuscripts, Typescripts, Letters (continued)

USDA Forest Service, Pacific Southwest Region (USDA FS, R-5), continued

var.$_2$ Stanislaus National Forest, Summit Ranger District, Timber Management, Experimental Forest (E.F.) File. Contains various documents related to timber and resource management in the Stanislaus-Tuolumne Experimental Forest, including correspondence between Summit RD and PSW, Research Station, plot maps, and publications derived from work on the Stanislaus-Tuolumne Experimental Forest.

USDA Forest Service, California Forest and Range Experiment Station (USDA FS, CF&RES)

1923 July 25. Memorandum from L. [S.?] B. Show, Silviculturist and Duncan Dunning, Forest Examiner to DF [District Forester Paul G. Redington] and FM. File reference RS-Mc. 2 pg. typescript and 2 pg. attachment "Summary of Damage By Logging To Reserved Trees – Ten Acre Plot" by Duncan Dunning. File reference Mc/Stanislaus/Cow Creek. ("Mc-1" referred to the permanent sample plot established on the SLC's sale area.) (Stanislaus NF Archive/History File/4062).

1928 January 5. Memorandum from Duncan Dunning, Associate Silviculturist to District Forester, D-5. File reference RS/Mc/Stanislaus Plot 7. 6 pg. tissue copy typescript with tables. (Original signature of Dunning. Stanislaus NF Archive/History File/4062.)

1932 Hasel, A. A. Assistant Silviculturist, Ernest Wohletz, Jr. Forester, Willard B. Tallman, Jr. Forester *California Forest & Ranger Experiment Station Progress Report, 1932.* Approved by Duncan Dunning 6/23/1936 and by E. I. Kotok, Director, 7/14/1936. (On file folder 2 of 2, Summit RD, 4060 Research Facilities, Stanislaus Experimental Forest/Permanent Forest.)

1935-1939 CF&RES Annual Reports. (Separate, annual reports in one volume.) Includes "The Work of the California Forest and Range Experiment Station, 1936-1937, A Condensed Summary of the Station's Annual Report and Plan, With Helpful Collateral Information."

1940-1945 CF&RES Annual Reports. (Separate, annual reports in one volume.)

1938 December 20. Branch Station Buildings. Folio of station building photographs compiled; updated 1/9/1945. Original file designation: R/Improvements. (On file R-5/PSW Library, Vallejo, CA.)

1940 "Report on Stanislaus-Tuolumne Experimental Forest, Stanislaus National Forest." Typescript report by Duncan Dunning, Senior Silviculturist December 19, 1940. Approved by the Region 5 Regional Forester, S. B. Show September 20, 1943. Approved in WO, by Acting Chief C. L. Forsling December 6, 1943. (Stanislaus NF 2760 withdrawal files.)

1949 Staff Notes, CF&RES. No. 10, September 13. (On file R-5 Heritage Library).

1950 Staff Notes, CF&RES. No. 18, June 7. (On file R-5 Heritage Library).

Major Bibliographical References, continued
Publications, Manuscripts, Typescripts, Letters (continued)

USDA Forest Service, Pacific Southwest Forest and Range Experiment Station (USDA FS, CF&RES), continued
1977 *Fifty Years of Forestry Research: An Annotated Bibliography of the Pacific Southwest Forest and Range Experiment Station, 1926-1975.* General Technical Report PSW-23/1977.

1980 "Five-Year Plan For The Operation Of The Stanislaus-Tuolumne Experimental Forest." October 6. Approved by Project Leader Douglas F. Roy and Stanislaus Forest Supervisor Blaine L. Cornell. GPO 903-479.

1983 March 11. 1630 letter from Robert J. Laake, Project Leader (signed by Jim Frank), to Herb Hahn, Summit District Ranger, re. History of the Stanislaus-Tuolumne Experimental Forest.

1987 July 9. Letter from William W. Oliver, Principal Silviculturist to Forest Wally Woolfenden, Forest Archaeologist, Stanislaus NF. File designation 2360 (4100); Old Research Plots on Methods of Cutting (Stanislaus NF Archive/History File/4062).

1990 *Experimental Forests and Ranges, Field Research Facilities of the Pacific Southwest Research Station.* General Technical Report PSW-119.

USDI Bureau of Land Management
1962 November 29. "Proposed National Forest Withdrawal." (Stanislaus NF 2760 withdrawal files.)

West, Terry L., Historian, Paper WO History Unit
1990 "Research in the U.S.D.A. Forest Service: A Historian's View." Presented at Third Symposium on Social Science in Resource Management, College Station, Texas A & M, 18 May 1990.

Maps

Larsen, L. T.
1910 Cold Spring Experimental Area No. 7, Stanislaus National Forest, Township 4 North, Range 19 E, Section 32. August 24. Scale 1 inch = 4 chain. 11" x 21" blueline. Includes Plot No. 1.B., Plot 2A and Plot 3; location of cutover areas, topographic lines, and course of North Fork Tuolumne River. (Stanislaus NF Archive/History File/4062.)

Cold Spring Experimental Area No. 7, Stanislaus National Forest, Reproduction Plot No. 3. November 14. Scale 1 inch = 1 chain. 17" x 24" blueline. Includes location of chute, yarding routes, numbered tree locations with legend of species and dbh. Also table of stumps by species and diameter at top of stump. Mapped area shows condition and type of reproduction. (Stanislaus NF Archive/History File/4062.)

Terry, C. N., Chief Engineer
1927 Plan of Surveys, Strawberry Unit, Sugar Pine Rail Road, Pickering Lumber Co. Scale: 4" = 1 mile. Contours by O. M. Evans. Updates 12/31/1929. (Stanislaus NF Archive/History File/historic SPRwy map drawers.)

Major Bibliographical References
Maps (continued)

USDA FS, PSW
1936 May. Development Plan, Stanislaus Branch, California Forest and Range Experiment Station. Contour interval 5 feet.

Newspapers

Modesto Bee
1962 December 12 issue. (In clipping file; volume, number, page, and column unknown.)

Images

1933 Forest Service Photo Negative Inventory System 279288. Strawberry ECW [Emergency Conservation Work] Camp F-85. Two enrollees transplanting seedlings at Experiment Station

1983 June 23. Slides (12) of Harry Fowles at CFRES/Stanislaus Branch. Includes tree ladders.

1934-37 CFRES/Stanislaus Branch, Pine Crest, California. Xerox copies of buildings newly constructed/rebuilt, numbered: DD-1934 (Dwelling); DD-1935 (Laboratory); DD-1935 (Dwelling); DD-1935 (Caretaker's cottage);DD-1936 (Dormitory); 359361 (Dormitory); 359357 (Warehouse/garage); 359358 (Pump house).

Websites

www/FHS
Forest History Society
www.lib.duke.edu/forest/
usfscoll/policy/Wilderness/1929_L-Reg.html

www/PSW
Pacific Southwest Research Station
www.fs.fed.us/psw/
programs/ecology_of_western_forests/experimental_forests/
stanislaus.html

www/sunsite.berkeley

University of California History Digital Archives
http://sunsite.berkeley.edu/uchistory/general_history/campuses/ucb/colleges.html Memoriam for Bodman

Major Bibliographical References
Websites (continued)

www/dynaweb.oac.cdlib.org

http://dynaweb.oac.cdlib.org:8088/dynaweb/uchist/public/inmemoriam/inmemoriam1975/@Generic__BookTextView/1728;pt=1889) Memoriam for Professor Joseph Kittredge.

http://www.fao.org/docrep/x5376e/x5376e05.htm "At The Half Century Mark." An Address by Richard E. McArdle, Chief, US Forest Service, 1955.

http://www.srs.fs.usda.gov/fia/mission Forest Inventory and Analysis system.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number 10 Page 1 of 1

Stanislaus Branch, CF&RES
Name of Property

Tuolumne County, California
County and State

Verbal Boundary Description

The Stanislaus Branch Station Historic District forms an irregular polygon, generally arranged around a driveway which courses through the compound from northeast to southwest, and includes an adjacent experimental plot. The warehouse, on the eastern edge of the Stanislaus Branch Station, is the first building seen when approaching the complex from the access road. An imaginary line drawn 10-feet east of and parallel to the warehouse's northeast wall, continuing down-slope to the South Fork Stanislaus River and northeast (upslope) to elevation 5,175', forms the eastern boundary of the Historic District. The South Fork Stanislaus River defines the compound's southern boundary. The western boundary is defined by a point 10-feet from the northwest corner of the cabin (#1218), extending (downslope) to the river at 205 degrees, and upslope at 25 degrees to 5,175-feet elevation. From that point, the northern boundary is formed by following the 5,175' contour, northeast, to intersect with the northeast boundary corner.

Boundary Justification

The historic district boundary encompasses the Stanislaus Branch of the California Forest & Range Experiment Station during its period of significance. The boundary embraces the station's buildings as well as landscaping features associated with the buildings, including lawns, rock walls, driveways and walkways. It also embraces an experimental plot, located just upslope from the caretaker's residence. Currently in ruins, the plot includes the "site factor station" —with an example of a tree ladder remnant reaching high into the branches of a tall ponderosa pine.

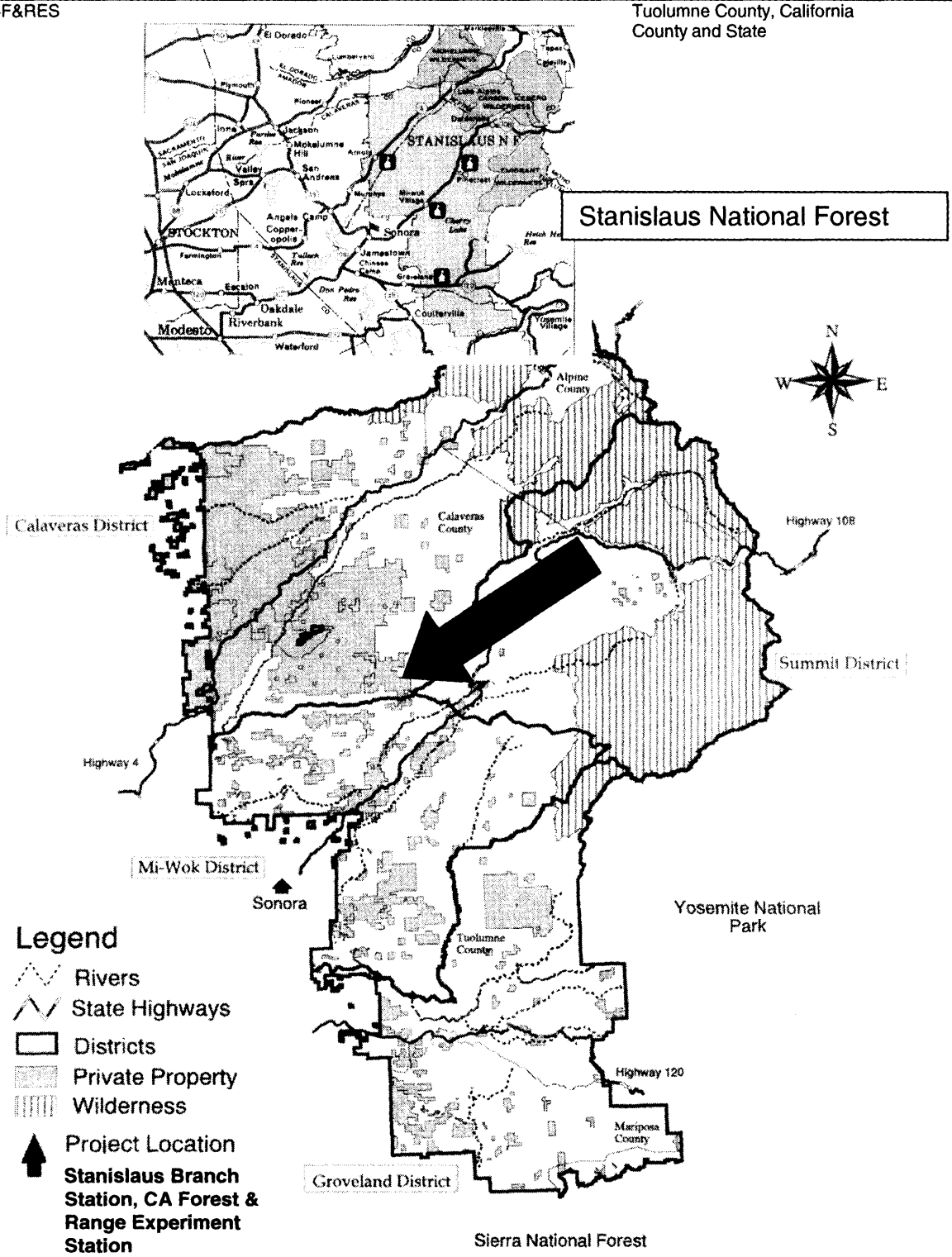
United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Additional Documentation: Vicinity Map, Stanislaus National Forest

Stanislaus Branch, CF&RES
Name of Property

Tuolumne County, California
County and State



NPS Form 10-900-a
(8-86)

OMB Approval No. 1024-0018

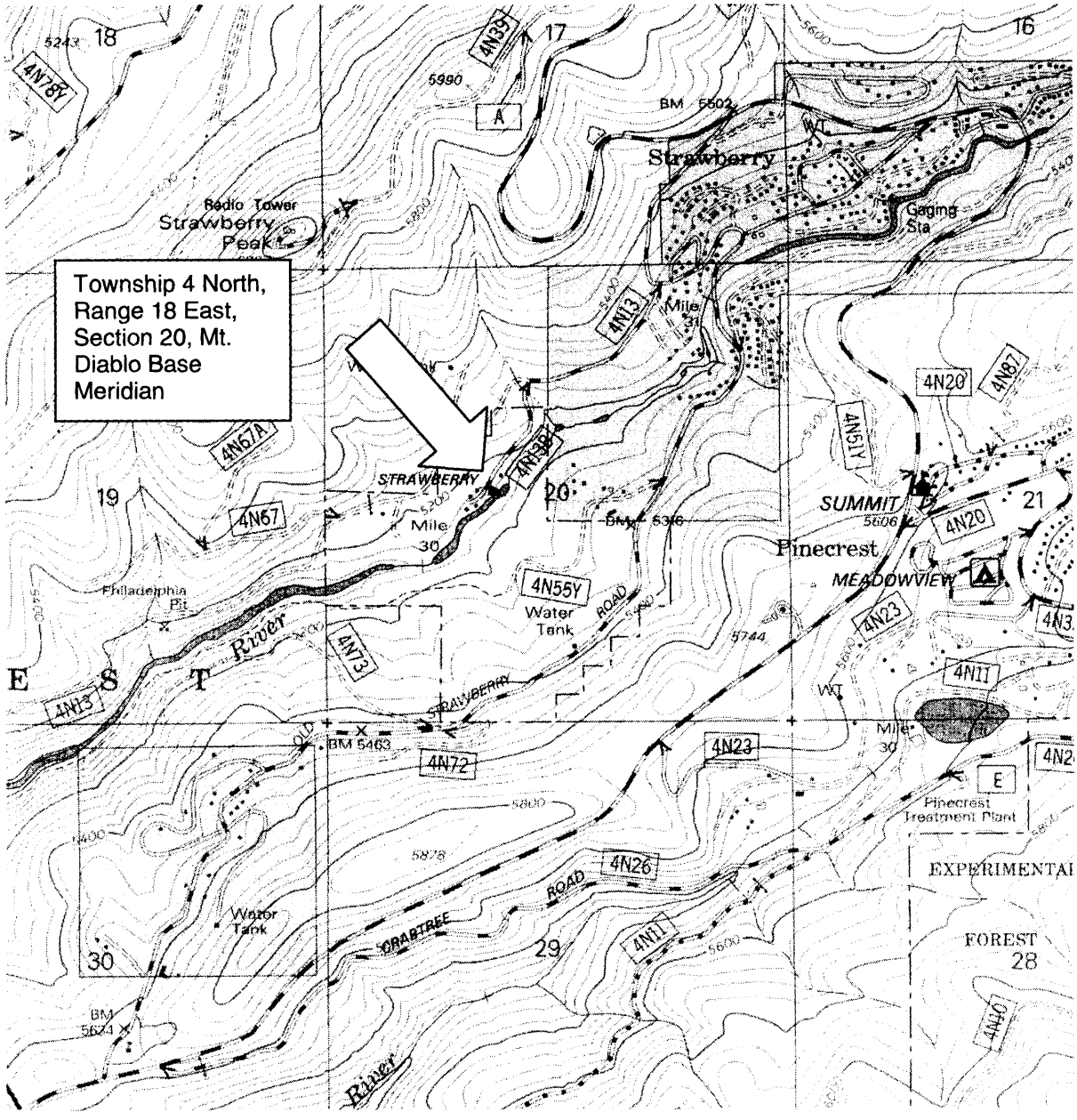
United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Additional Documentation: **Location Map**
USGS Strawberry Quadrangle
1991 Forest Service Revision, 1:24,000

Stanislaus Branch, CF&RES
Name of Property

Tuolumne County, California
County and State



United States Department of the Interior
National Park Service

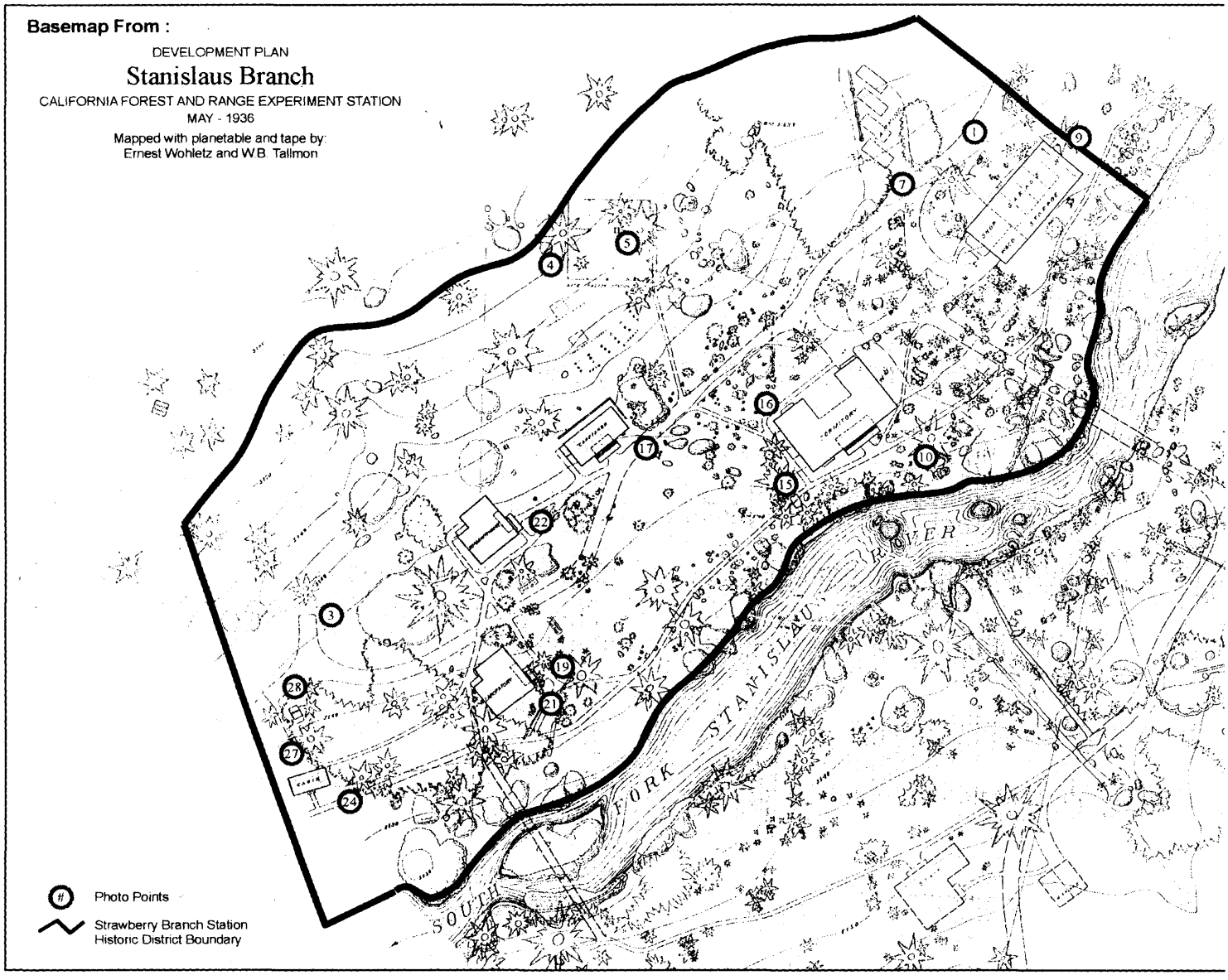
National Register of Historic Places Continuation Sheet

Additional Documentation: Sketch Map with Photo Points

Stanislaus Branch, CF&RES
Name of Property

Tuolumne County, California
County and State

- original map reduced -



United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Additional Documentation: Contemporary Photograph Descriptions (1 of 1 pages)

Stanislaus Branch, CF&RES
Name of Property

Tuolumne County, California
County and State

Photographer: Pamela A. Conners
Photograph Date: 2006
Negatives on File: Stanislaus National Forest, Supervisor's Office, Heritage Resource Management

1. Overview of east end of Stanislaus Branch Station. Corner of warehouse (Building 2220) in foreground, left, and dormitory (Building 1346) visible among the trees. View toward southwest (210°).

3. Overview of west end of Stanislaus Branch Station. Stone pump house (Building 2614) and cabin (Building 1218) among the trees. View toward south (185°).

4. Experimental plot enclosure ruin. Dormitory (Building 1346) in background, behind trees. View toward southeast (130°).

5. Mature ponderosa pine with section of ladder among the branches.

7. Warehouse, front. Building 2220. View toward east (90°).

9. Warehouse, northeast gable end. Building 2220. View toward east (240°).

10. Dormitory, front (porch faces South Fork Stanislaus River). Building 1346. View toward northwest (290°).

11. Dormitory, southwest side. Building 1346. View toward northeast (50°).

16. Dormitory, rear of west wing; chimney detail. Building 1346.

17. Caretaker residence, front. Building 1110. View toward northwest (305°).

19. Laboratory, front. Building 1111. View toward east (90°).

21. Laboratory, south gable end. Building 1111. View toward northwest (280°).

22. Superintendent residence, east (front) eave wall and porch. Building 1018. View toward west (270°).

24. Cabin, south (front) eave wall and east gable end (oblique view). Building 1218. View toward west (280°).

27. Stone pump house south (front) and west gable end (oblique view). Building 2614. View toward north (20°).

28. Stone pump house east gable end and north (rear) eave wall (oblique view). Building 2614. View toward south (200°).