## NATIONAL REGISTER OF HISTORIC PLACES **INVENTORY -- NOMINATION FORM**

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### SEE INSTRUCTIONS IN HOW TO COMPLETE NATIONAL REGISTER FORMS **TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS**

# 1 NAME

HISTORIC Eddy Tree Breeding Station

AND/OR COMMON Institute of Forest Genetics

## LOCATION

STREET &	NUMBER 2480 and 2500 Car	rson Road	NOT FOR PUBLICATION	
CITY, TOW	Placerville		CONGRESSIONAL DISTRICT CONGRESSIONAL DISTRICT CONGRESSIONAL district #14	
STATE	СА	CODE 06	COUNTY Eldorado	соре 017

## **CLASSIFICATION**

CATEGORY	OWNERSHIP	STATUS	PRES	ENT USE
X DISTRICT	XPUBLIC		AGRICULTURE	MUSEUM
BUILDING(S)	PRIVATE	UNOCCUPIED	COMMERCIAL	PARK
STRUCTURE	ВОТН	WORK IN PROGRESS	X EDUCATIONAL	PRIVATE RESIDENCE
SITE	PUBLIC ACQUISITION	ACCESSIBLE	ENTERTAINMENT	RELIGIOUS
OBJECT	_IN PROCESS N/a	YES: RESTRICTED	LGOVERNMENT	X_SCIENTIFIC
	BEING CONSIDERED	XYES: UNRESTRICTED	INDUSTRIAL	TRANSPORTATION
		NO	MILITARY	OTHER:

# AGENCY

REGIONAL HEADQUARTERS:(// applicable) USDA Forest Service, Pacific Southwest Forest & Range Experiment Station (Region 5) STREET & NUMBER

1960 Addison Street

Berkelev

VICINITY OF

STATE California 94704

## LOCATION OF LEGAL DESCRIPTION COURTHOUSE.

Eldorado County Recorder, Government Center Complex REGISTRY OF DEEDS, ETC.

STREET & NUMBER

CITY, TOWN

TITLE

360 Fair Lane

STATE 95667 CA

## Placerville **6 REPRESENTATION IN EXISTING SURVEYS**

Institute of Forest Genetics

Property of United States of America

April 19, 19	65	FEDERA	LSTATE	XCOUNTYLOCAL	
DEPOSITORY FOR SURVEY RECORDS Eldora	do County Recorder,	Government	Center	Complex	
CITY, TOWN				STATE	
Placer	ville			UA	



CO	NDITION	CHECK ONE	CHECK OF	NE
XEXCELLENT	DETERIORATED	XUNALTERED	X ORIGINAL SI	TE
GOOD	RUINS	ALTERED	MOVED	DATE
FAIR	UNEXPOSED			

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Institute of Forest Genetics consists of sixteen buildings, a research nursery, and an arboretum on 116 acres of land 65 miles east of Sacramento, California, in the foothills of the Sierra Nevada. The area being nominated for the National Register of Historic Places consists of approximately 73 acres of this property. The arboretum includes hybrid plantations, areas planted in exotic and native trees, and approximately 20 acres of undeveloped land. Owned and operated by the U.S. Forest Service since 1935, the Institute's present function as a tree breeding research station is the same as that for which it was originally founded in 1925 by James G. Eddy.

The Institute is characterized by its seven contributing vernacular frame buildings and two contributing rubble-stone buildings spatially oriented on the grounds to function as a scientific, research facility. The Institute originally consisted of two vernacular frame buildings with gable roofs constructed in 1930: a nursery building five bays long and an administration building seven bays long. Both were located along Carson Road where the nursery area is now. These buildings were torn down in 1935 to make way for the present facilities. The nine present contributing buildings date from 1936 to 1938, with renovations occurring in subsequent years, but with few alterations to the Institute's original style, workmanship, materials and use. Period furnishings can be found in the Administration Building and the Staff House. The original landscaping design and materials have been retained throughout the facility. Thus, the Institute has retained its architectural integrity in both its exterior and interior appearance.

In 1935, the Works Progress Administration worked with Institute of Forest Genetics personnel to develop a comprehensive construction plan for the Institute. They designed a formal landscape including circular drives and high stone curbs around a complex of buildings constructed in similar architectural style. Most of the present facilities were completed between 1936 and 1938 by the Civilian Conservation Corps. Buildings that were constructed in later years do not detract from the integrity of the site, because they are consistent with the original landscaping plan, and are necessary for the continuation of the Institute's research work.

#### Buildings

Building numbers correspond to the sketch maps. Building dimensions are marked on sketch map no. 2. Floor plans and landscaping plans are available at the Institute of Forest Genetics, and at the U.S. Forest Service Region 5 office in San Francisco.

Most of the major repairs/renovations were made with Title X funds ca. 1975. Details of these repairs are included in the following building descriptions. All of the repairs were made in such a way as to retain the original appearance of the buildings as much as possible (from discussions with the consulting architect of the Title X project, Keith Lee).

Contributing Buildings

- 1 <u>Administrative Building</u>: Constructed 1937-38. A one-story, L-shaped building with neo-Colonial detailing. It has a pedimented portico, and a cupola on a gable roof. Siding type is V rustic 12", and the color is brown. The roof is cedar shingled. The wood-paneled interior includes an

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- entrance lobby, vault, the Institute's extensive library, herbarium, offices and laboratories, a small conference room, and two public restrooms. Workmanship is of superior quality. Title X repairs included repair of roof damage due to dry rot, restoration of termite damage, plumbing and electrical wiring replacement, installation of a sprinkler system to conform to code, and the replacement of a snow-damaged metal awning with a wooden one over the back entrance to conform with original building materials. The only interior alteration has been the closing in of the fireplace in the library, but the alteration is not permanent. 7,479 sq ft.
- 2 <u>Mirov Lab and Office Building</u>: Constructed 1938. An L-shaped, frame building with a gable roof and some neo-Colonial styling. Siding type is V rustic 12", and the color is brown. The roof is cedar shingled. The wood-paneled interior includes a kitchen, a large conference room, laboratories, seed and pollen banks, and two bathrooms. Workmanship is of superior quality. Title X repairs consisted of rewiring of the building. 8,920 sq ft.
- <u>Staff House</u>: Constructed 1937-38. A one-story, L-shaped, neo-Colonial building with a hipped roof, and a rubble-stone foundation, two rubble-stone chimneys. It has lattice work and a picket fence in front. Siding type is V rustic 12", and the color is brown. The roof is cedar shingled. The wood-paneled interior includes four bedrooms, one with private bath and fireplace, a kitchen, living room with fireplace, one communal bathroom, and a basement. Workmanship is of superior quality. Title X repairs consisted of restoration of termite damage. Originally designed as living quarters for the Institute staff, it now serves as temporary lodging for Forest Service staff, visiting scientists, and summer interns. 3,132 sq ft.
- 4 <u>Guest House</u>: Constructed 1936. A one-story frame building in a rustic bungalow style. Siding type is V rustic 12", and the color is brown. The roof is cedar shingled. The wood-paneled interior includes a bedroom, kitchen, bathroom, and living room with fireplace. Workmanship is of superior quality. Title X repairs consisted of replacement of shingles damaged from dry rot, restoration of termite damage, plumbing and electrical wiring replacement. 884 sq.ft.
- 5 <u>Superintendent's House</u>: Constructed 1936-37. A one-story building, in similar style to the Staff House. Siding type is V rustic 12", and the color is brown. The roof is cedar shingled. The wood-paneled interior includes a kitchen, dining room, living room, laundry room, three bedrooms and a bathroom. Workmanship is of superior quality. Title X construction consisted of extension of an aluminum siding roof over back porch, not visible from main drive or front entrance. 1,676 sq.ft.
- 6 <u>Warehouse/Garage</u>: Constructed 1936. A rectangular frame building with a gable roof and attached utility shed. Siding type is V rustic 12", and the color is brown. The roof is tin. Workmanship is of superior quality.

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Used for cone drying and seed extraction, for constructing and repairing equipment, and for storage. 3,508 sq.ft.

- 7 <u>Gas Pump</u>: Constructed 1938. A one-story rubble-stone building built into the curve of the road. It has a rectangular cupola on a gable roof cantilevered toward the road. Used originally for housing the gas pump, now for storage of solvents and motorized equipment. 244 sq.ft.
- 8 East Greenhouse: Constructed 1937-38. The original rubble-stone wall at the base still exists. Title X repairs to the greenhouse were extensive, due to severe storm damage. Repairs involved complete replacement of original wood and glass exterior with a redwood frame and fibreglass siding, and new concrete flooring. Most of the original wood frame had rotted and the glass siding was brittle before the storm damage occurred. A cement walkway was poured between the greenhouses to facilitate easy transport of materials. Used for raising plants for research. 1,474 sq.ft.
- 9 <u>Pumphouse</u>: Constructed 1937-38. A one-story, rubble-stone building with a weathervane and octagonal cupola on a gable roof. Now used for storage since well water is no longer used. 360 sq.ft.

### Non-contributing buildings

- -10 West Greenhouse: Constructed 1959. It has a cement floor and wall around the base, glass siding over an aluminum frame. Although constructed at a later date, it was included on the original landscaping plan, and does not detract from the integrity of the site. Used for raising plants for research. 3,324 sq.ft.
- -11 <u>Nursery Building</u>: Originally constructed 1936, rebuilt due to storm damage in 1959. A rectangular frame building. Siding type is V rustic 12", and the color is brown. The roof is fibre glass. Workmanship is of superior quality. Title X repairs consisted of roof extension. Used for storage of equipment, fertilizer, and soil conditioners. 3,310 sq.ft.
- -12 <u>Chemical storage building</u>: Constructed 1983. Constructed of aluminum siding on the sides and roof. Although this building was constructed at a later date, and was not on the original landscaping plan, it is out of the way of public view, is necessary for the continuation of the Institute's research program, and does not detract from the architectural integrity of the site. Used for storage of pesticides and hazardous chemicals.
- -13 <u>Paint storage building</u>: Constructed 1963. A cinder block building with a shingled roof. Although this building was constructed at a later date, and was not on the original landscaping plan, it does not detract from the architectural integrity of the site for the same reasons as building no. 12. Used for storage of paint and less hazardous materials. 160 sq.ft.

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- -15 Lath House I: Constructed 1969. A redwood frame with 1" lath on concrete slab. Used for raising plants for research. 2,000 sq.ft.
- -14 Lath House II: Constructed 1986. A redwood frame with 1" lath on asphalt slab. Used for raising plants for research. 2,304 sq.ft.
- -16 Insectary: Constructed 1957. Redwood and Douglas-fir with 32-inch mesh screening. Used for raising insects for research on insect resistance of trees. 300 sq.ft.

### Outdoor Facilities

- Eddy Arboretum: contains 70 percent of the world's species of pines as well as other trees, the oldest man-made pine hybrids in the world, and classic test plantings dating to 1925.
- Nursery: used continuously since 1925 for propagation of hybrids and other pedigreed tree seedlings for research on growth, disease resistance, and insect resistance.
- Natural area of 20 acres with typical foothills vegetation, buckeye, ponderosa pine, and incense cedar. Landscaping includes lawns and plantings of important U.S. and foreign trees.
- Hybrid Plantations later development of improved trees is studied here.
- Field Test of Natural Progenies of Ponderosa Pine
- Field Test of Elevational Races of Ponderosa Pine used to determine from which elevations seed should be collected for reforestation.

# **8 SIGNIFICANCE**

PERIOD	AF	REAS OF SIGNIFICANCE CH	IECK AND JUSTIFY BELOW	
PREHISTORIC 	ARCHEOLOGY-PREHISTORIC ARCHEOLOGY-HISTORIC AGRICULTURE ART COMMERCE	COMMUNITY PLANNING CONSERVATION ECONOMICS EDUCATION ENGINEERING EXPLORATION/SETTLEMENT	LANDSCAPE ARCHITECTURE LAW LITERATURE MILITARY MUSIC PHILOSOPHY	RELIGION X_SCIENCE SCULPTURE SOCIAL/HUMANITARIAN THEATER TRANSPORTATION
<b>X</b> 1900-	COMMUNICATIONS	INDUSTRY INVENTION	POLITICS/GOVERNMENT	X OTHER (SPECIEV) tree breeding
SPECIFIC DAT	ES 1925 to 1938	BUILDER/ARCI	HITECT F. Schumacher	- landscape architect

#### STATEMENT OF SIGNIFICANCE

The Institute of Forest Genetics is historically significant for two important reasons. Founded as the Eddy Tree Breeding Station in 1925 by James G. Eddy, it was the first institution in the world devoted solely to research in the field of forest genetics and tree breeding, and has continued to serve in this function to the present day. The Institute is also a very well-preserved example of Depression-era Forest Service architecture, as its present facilities were constructed by the Civilian Conservation Corps in the 1930's, and they have retained their original appearance.

Research in forest genetics and tree breeding is a relatively new field within forestry, and has become important only since the beginning of this century. It developed in response to increasing demands for forest products. Foresters, the lumber industry, and others involved in forest management were realizing that the rate of forest depletion was far greater than that of reforestation. Rapidly increasing lumber needs, and conversion of forest lands to agricultural and urban lands were erasing forests that weren't being replenished fast enough or at all. Farseeing scientists and others realized that traditional methods of forest management were not enough to cope with what the American Tree Association in 1926 called "the forest problem"(Clapp 1926).

According to Daniels, this problem was, and is "a matter of managing a finite and diminishing forest land base so as to meet increasing demands for wood and other forest values, while still maintaining the renewable nature of the forest resource" (Daniels 1984).

The American Tree Association considered this problem "one of [the United States'] outstanding economic and social problems. ... The stability and in some cases the existence of [manufacturing, distributing, and consuming] industries depends upon the permanence of the timber supplies". Solving this problem continues to be "essential for national development and high standards of living." The American Tree Association and others felt the answer to this "forest problem" lay "in timber culture coupled with improved methods of manufacture and use" (Clapp 1926).

In the early part of this century, most of the forest research being done to correct the problem involved improving forest management, and protecting forest trees from dangers such as fire and insects. In the early part of this century the science of genetics was generating great interest, and it was reasonable to believe that tree breeding could help to improve forest productivity. But very little work had been done in this field. Before 1924, forest tree breeding efforts had been sporadic, and were considered "extra-curricular" for individuals also engaged in other aspects of forestry research. Most forest genetics research was limited to seed collection of superior species, and planting and observation of the seedlings. No large scale breeding projects had been attempted until 1924, when the Oxford Paper

### 9 MAJOR BIBLIOGRAPHICAL REFERENCES

Berriman, C. 1967. The first ten years of the Institute of Forest Genetics. History 101 composition, Sacramento State College. 45 pp. (unpublished, in IFG files).

Callaham, Robert Z. 1961. letter from Callaham, Chief, Division of Forest Genetics Research, to Armand Rotonis, American Forest Products Industries, Inc. May 19, 1961. (unpublished, in IFG files).

## **10 GEOGRAPHICAL DATA**

11

 ACREAGE OF NOMINATED PROPERTY
 approx, 73 acres

 UTM REFERENCES
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 4 2 9 0 0 9 0

 ZONE
 EASTING
 NORTHING
 ZONE

 C 10
 6 9 6 4 0 0
 4 2 8 9 8 2 0
 D 1 0 6 9 5 7 0 0

VERBAL BOUNDARY DESCRIPTION The boundary of the Institute of Forest Genetics property being nominated for the National Register of Historic Places is shown as the red outline on the accompanying map entitled "Record of Survey Institute of Forest Genetics." This area encompasses all the property of the Institute on which buildings and plantations were established during the period of significance (1925-1938). Sketch map 1 also shows these boundaries.

	IST ALL STATES A	ND COUNTIES FOR PROP	ERTIES	OVERLAPPING STAT	E OR COUNT	BOUNDARIES	
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FORM	A PREPARE	D BY					
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Kather	rine C. Feall	ock/Historian			//1	/86	
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In complia Historic Pr	nce with Executive	Order 11593, I hereby non	ninate -	state this property to the Na	HISTORIC PRESEI	RVATION OFFICER SIG	SNATUR State
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Company financed a poplar breeding project in cooperation with the New York Botanical Garden. This project was discontinued in 1936, and the hybrids and breeding records were transferred to the U.S. Forest Service Northeastern Forest Experiment Station.

At present, forest genetics and tree breeding research is conducted in every area of forest resource management. Forest experiment stations, academic institutions, and forest products manufacturers are all working to expand and apply the knowledge available in this field, often through cooperative research projects.

In the early 1920's, James Eddy, a successful Seattle lumberman, was well aware that the country's forests were being depleted much more rapidly than they were being replenished. He hoped to apply the principles of forest genetics and tree breeding toward finding a solution. The work of Luther Burbank in fruit and nut tree breeding was attracting national attention, and Mr. Eddy's concept for the Institute of Forest Genetics was developed largely through consultations with Burbank. Eddy was convinced that selection and hybridization techniques, such as those developed by Burbank for plant breeding, could be used to produce faster-growing trees of high-quality wood. In selection, trees are chosen for their superior qualities so their progeny may be used in reforestation. In hybridization, controlled pollination is used to produce hybrid progeny with the desireable qualities of both parent species.

To obtain government funding for his research, Eddy presented his ideas to the U.S. Senate's Select Committee on Forestry at its 1923 public hearing. Although his ideas impressed the senators of the committee, Eddy was unable to obtain government aid at that time. Undaunted, he founded the Eddy Tree Breeding Station in Placerville, California in 1925, and personally funded it for the next ten years. Eddy chose Placerville after extensive investigation of various sites around the country because of its favorable climate, topography, and soil qualities, which could support the growth of forest species from many locations.

Most of the other forest genetics research projects in the United States were initiated as subsidiaries of forest experiment stations, and even by 1936 there were only a few of these. The next unit in the U.S. that was devoted wholely to research in forest genetics was the Southern Institute of Forest Genetics, which was not established until nearly 30 years later in 1954. Its facilities in Gulfport, Mississippi are not exclusive, as they are shared with other units of its parent organization, the Southern Forest Experiment Station. The first forest genetics research unit in Europe, the Society the Breeding of Forest Trees, was not established until 1936 in Sweden. The first in Asia, the Korean Institute of Forest Genetics, was established in 1956.

By 1931, the Eddy Tree Breeding Station's pine arboretum, established in 1925, had become the most complete in the world, containing about 70 of the 95 known species of pine.

In 1932, the station was re-named the Institute of Forest Genetics (IFG), and was incorporated as a non-profit organization.

During the early 1930's, Eddy was unable to provide the Institute with all the funding it needed, due to his own financial difficulties. Fortunately, the Carnegie Institution provided enough aid to keep the Institute operating, although some employees were laid off, and others worked for very little pay.

In 1935, James Eddy gave the Institute to the people of the United States,

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to be managed by the Department of Agriculture.

Between 1935 and 1938, the Institute was aided by the Works Progress Administration with funding and construction done by the Civilian Conservation Corps. The CCC built most of the present facilities, as well as the retaining walls, driveways, and the sewage and drainage systems.

In 1952, James G. Eddy was honored by the American Forestry Association in recognition of his outstanding contributions to forestry and forest genetics. He was actively interested in the work of IFG until his death in 1964.

In 1962, the Institute of Forest Genetics was awarded the Department of Agriculture's Distinguished Service Award for its important accomplishments in forest genetics.

The Institute is now managed by the Genetics Research Unit of the Pacific Southwest Forest and Range Experiment Station, U.S. Dept. of Agriculture, Berkeley, California. The Eddy Arboretum supplies material for pine breeding, serves as a test garden, and is used for research by scientists and students from around the world. The Institute has always operated as a center of seed exchange with other agencies, and provides seed to organizations for establishing cooperative tests. In fact, one of the first exchanges between the People's Republic of China and the United States during the 1973 thaw was that of seed between Chinese and IFG foresters. Many of the Institute's hybrids have been grown in other parts of the United States, and in distant parts of the world.

Since its establishment, the Institute of Forest Genetics has made, and continues to make, many significant contributions in its field. Its accomplishments are impressive, and have been vital to the advancement of forest research.

. The list of IFG accomplishments includes:

- -development of techniques for crossing pines that led to production of the first published pine hybrids, and were subsequently used by all tree breeders in the world.
- -production of the first hybrid of Monterey pine and knobcone pine which exhibits rapid growth, and is drought-hardy and frost-resistant.
- -production of the first hybrid of pitch pine and loblolly pine which became the most important plantation tree in Korea, and is now in demand in the eastern U.S.
- -revision of pine taxonomy based on species crossability.
- -pioneering research on terpenes of pine, and development of the field of chemotaxonomy.
- -demonstration of altitudinal and geographic races in tree species.
- -pioneering research on insect resistance in pine.
- -research on disease resistance which led to the development of resistant lines in sugar pine.
- -development of nursery management techniques specific for pine and fir races, resulting in improved survival and tremendous savings.
- -pioneering work on single-gene inheritance in trees using the technique of electrophoresis to separate enzymes.

Today, the Institute of Forest Genetics, through its research programs, continues to dedicate itself to Mr. Eddy's original goal: the development of fast-growing, high quality trees for use in mass production and reforestation.

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The Institute's architectural significance lies in its status as a remarkable and unusual example of a Civilian Conservation Corps-built Forest Service facility. Virtually all the main buildings now present at the Institute were constructed with the use of CCC labor.

Many aspects of the construction and landscaping of the Institute exemplify the construction and administration methods of Depression-era Forest Service stations. The Institute grounds are typically representative of comprehensive site planning, an advance in administrative site development initiated during the Depression era. The building arrangement corresponds to function, and administrative and residential buildings are organized in spatially discrete units within the site. Landscaping design was used to integrate the buildings both functionally and aesthetically. The architecture of most of the buildings is rustic-style, also typical of CCC Forest Service architecture. This design is non-intrusive, and the natural building materials of wood and stone conform with the wooded surroundings.

What is unusual for a Forest Service, CCC facility is the neo-Colonial styling of the Administrative Building, the Staff House, and, to a point, the Mirov Laboratory Building. More elaborate and decorative than the rustic style, the neo-Colonial styling included in the architectural design is thought to be a reflection of James Eddy's influence in the design of the site plan through negotiations with Mr. Kotok (then Deputy Forester in charge of Forest and Experimental Range Facilities). Although Eddy had relinquished ownership of the Institute to the U.S. Forest Service in 1935, his influence and involvement in its administration was significant until his death in 1964. He was President of the IFG Board of Trustees, donated large sums of money for research and maintenance of the facilities, and had included a reversionary clause in the deed, requesting that the ownership of IFG property revert back to his family if the Forest Service discontinued the tree breeding research for more than two years.

As a result of Eddy's strong influence, the neo-Colonial styling probably was chosen to evoke an atmosphere not of a Forest Service experiment station, but rather that of a plantation. And of course, much of the grounds of the Institute serve as a forest tree plantation for the carefully selected and bred tree species.

The Institute has retained its architectural integrity. Since their construction in the late 1930's, very little alteration of the present buildings' appearance is visible. The only CCC constructed building that no longer exists was the nursery building. It was storm damaged and replaced in 1959 with a rustic style building conforming to the original design. The landscaping plan remains unaltered, as does the utilization of the facility.

Although some of the present Institute buildings are less than fifty years old, the Institute of Forest Genetics should nevertheless be considered eligible for listing on the National Register of Historic Places due to its exceptional significance. The operation of the Institute itself is over 60 years old, and its status as the first such institute in the world is extremely important in the context of forest research and tree breeding. Its pioneering efforts in the field have contributed much toward the advancement of this science. The fact that it has carried on this work uninterrupted, unlike many other facilities of this type, is also unusual. And finally, it is the only known forest genetics research facility for which the Civilian Conservation Corps constructed the buildings.

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