Honeydew Creek Bridge
Wilder Ridge Road
Honeydew
Humboldt County
California

HAER No. CA-22

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CAL,
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PHOTOGRAPHS

HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service, Western Region
Department of the Interior
San Francisco, California 94102

NATIONAL PARK SERVICE, WESTERN REGION

HISTORIC AMERICAN ENGINEERING RECORD

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Dave Swanlund, Photographer November, 1979

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Honeydew Creek Bridge

HAER No. CA-22

Location:	The bridge is located on Wilder Ridge Road, 1.9 miles south of the town of Honeydew in southwestern Humboldt County. It spans Honeydew Creek in the NE¼, SW¼ of Section 7, T3S, R1E, HBM, U.S.G.S. 7.5 Min. Quadrangle, Honeydew, California. Assessor's Parcel No. 107-106-05.
Date of Construction:	1925
Present Owner:	The County of Humboldt County Courthouse 825 Fifth Street Eureka, California 95501
Present Use:	Vehicular traffic
Significance:	Honeydew Creek Bridge is the only known inverted Warren truss bridge in the State of California. On the basis of its unique design and architectural significance (per 36 CFR 60.6c) the bridge has been determined to be eligible for inclusion to the National Register of Historic Places.
Historian:	Susan Hope Wilson
Report Preparation:	Karen A. Glatzel Humboldt County Department of Public Works

Honeydew Creek bridge spans Honeydew Creek at Wilder Ridge Road near Honeydew, Humboldt County, California (Figures 1-4). The Creek widens both upstream and downstream from this point, with a 600 foot wide canyon a short distance upstream from the bridge. The region was inhabited by Native Americans of the Sinkyone and Mattole tribe for approximately 1,500 years prior to white occupation. No archaeological sites existed at the Creek crossing because more favorable terrain for village sites existed to the northwest at the confluence of Honeydew Creek and the Mattole River (Milburn, 1979). The Sinkyones and Mattole Indians used Honeydew Creek for fishing and as a source of water. Even though camps may have been set up along the banks in the vicinity of the present bridge, no archaeological resources are likely to be unearthed there due to the high rate of erosion (Milburn, 1979).

White settlers infiltrated the Honeydew area during the Union Mattole Company (now Union Oil Company) oil boom of 1864-1866 in the Petrolia area. Oil exploration ended due to poor transportation facilities, heavy rains, bad winters, and poor equipment availability. Afterwards, the settlers turned to ranching, stock raising, and timber for livelihoods.

The Creek and town of Honeydew derive their names from the following occurrence: early trappers, camping along the Creek, noted a heavy, sticky dew covering all their belongings when they would awaken in the morning. This dew was so sweet it could be used to sweeten their coffee and thus earned the name "honeydew." This substance was actually the exude of cottonwood leaves, which the settlers later realized could also be used as a sweetening agent. The region then became known as the "honeydew area," and the town, creek, and bridge eventually adopted the name (Fuel, 1979).

The 1865 Doolittle Map shows no trail or crossing of Honeydew Creek, then called South Fork Mattole River, in the location of the present bridge. The township survey of 1874 shows a trail following the ridge, to the east of the existing bridge, which drops down to the creek at the location of Bear Trap Creek Bridge (4C-66) located 0.5 mile downstream of the existing Honeydew bridge. The Lentell Maps of 1888, 1898, 1909, and 1914 show a road and an implied crossing at the location of the present bridge.

The 1921-22 Belcher Map shows a bridge in the present alignment. This bridge was a wooden truss bridge made from squared fir timbers. This bridge was destroyed during a landslide of material from the steep adjoining slopes (Smith, 1979).

Between 1874 and 1888 Honeydew was connected to Shelter Cove to the south by Wilder Ridge Road and Horse Mountain Road, which formed part of the old Highway 1. From Honeydew north, Highway 1 continued to Petrolia, Capetown, and Ferndale, each representing one day's journey by wagon (Landergen, 1979). The tanbark industry and other merchants and ranchers in the Honeydew area used the wagon road toward Petrolia (Mattole Road) connecting with Lighthouse Road south of Petrolia to reach the wharf, coastal railroad, and other shipping facilities operating at the mouth

of the Mattole River (Smith, 1979). From this point, tannin, sheepskins, and wool were exported, and other goods and supplies were imported for use by the local settlers. The route northeastward through Bull Creek and Dyerville was not completed until 1911-1912. The present route to Briceland through Ettersburg (Ettersburg Honeydew Road) was also nonexistent at that time (Landergen, 1979). From the late 1880's through 1912, anyone wishing to travel north or south along old Highway 1 between Ferndale and Shelter Cove had to cross Honeydew Creek at the site of the present bridge. Even with a passable wagon road the trip was long, arduous, and hazardous, which limited the number of travelers. Travel in winter was obstructed due to the poor road conditions, mud slides, and high water at many of the river fords along the route (Roscoe, 1980). A review of historical records on the regions and interviews with local residents and historians revealed no events of historical importance associated with this route or the bridge crossing (Humboldt County Department of Public Works, 1979; E. Landergen, L. Smith, M. Roscoe, R. Fuel, 1979).

Honeydew Creek Bridge was designed by Arthur Logan, the County Surveyor, and built in 1925 by Frank Kelley, a local contractor. Stanley Roscoe, a County Public Works employee, was the construction inspector. Frank Kelly replaced Logan as County Surveyor in 1926. In the early 1940's he became County Engineer. Frank Kelly was born in 1884 and died in 1953 (Kelly, 1982). Frank Kelly's sons, Bob and Hugh, are engineers in a private consulting firm in Eureka.

The present Bridge is an inverted Warren pony truss structure with verticals. The six truss panels are each 16-feet, 8-inches long and 14-feet, 10-inches in height from top to bottom chord. The timber deck is supported with transverse steel members connected at the midpoint of the truss verticals, so that the top chord extends 5-feet, 4-inches above the timber runner planks, forming a railing. Additional timber railings are bolted to the steel truss structure on each roadway face. The bridge is 105-feet long, with a minimum roadway width of 13.7 feet between the 6-inch curbs. Plans of the bridge are included with this report (Appendix I). The following is a description of the structural components of the bridge excerpted from the September 14, 1971, Bridge Report (Appendix II).

Type:	Steel Warren pony truss
Skew:	None
Spans:	1 at 100.0' center to center of bearings
Length:	105' along centerline of bridge
Vertical Clearance:	Unimpaired
Roadway Width:	13.4' minimum between timber curbs. 13.9' minimum clear between the roadway faces of the steel trusses. The tops of the pony trusses extend 5' 4" maximum above the top of the timber runner planks.
Railing:	The railing is timber bolted to the steel truss members.
Curbs:	6" x 6" UDF on 3" scupper blocks
Surfacing:	None
Deck:	Runner Planks - Two wheel lanes of 4 each 3" x 12" UDF planks placed at 6' 7" center to center of lanes. One extra 3" x 12" plank is placed along the inner edge of one wheel lane near both ends of the bridge.
Deck:	Transverse Planks - 3 each 1/2" x 12" redwood planks placed at 12-3/4" centers
Stringers:	15 each 4" x 17-1/2" to 17-7/8" deep redwood. Maximum spacing is 14" centers
Floorbeams:	Steel 15142.9
Truss Detail:	15.0' center to center of trusses. 14' 9 5/16" top to bottom of truss chords. Six panels of 16' 8" each. Additional truss details can be obtained from the plans.
Abutments:	Concrete abutments from a prior bridge at this site were modified to provide the abutments for this bridge. Both abutments bear on sandstone rock outcrops.
Profile:	The distance from the top of the left (upstream) timber curb to the ground is as follows:

A-1 (face of abutment)	16'
14' from center of A-1 bearing	33'
46' from center of A-1 bearing	32'
86' from center of A-1 bearing	38'
90' from center of A-1 bearing	24'
A-2 (face of abutment)	15'

From top of the timber curb to the bottom of the lower chord is 10.0'.

The basic Warren type truss bridge was patented in 1848 by two British engineers and gained immediate popularity with American bridge builders. Even today, this simple but structurally sound design is often employed by contemporary bridge engineers (Comp and Jackson, 1977).

The Honeydew Creek Bridge was inverted to eliminate any over-structure with cross members to accommodate high loads. Even though Honeydew Creek Bridge is inverted, it represents the common form of the Warren truss, in which both verticals and diagonals are rigid compression members. The placement of the deck at the midpoint of the trusses rather than level with the top or bottom chord was a common engineering practice during the 1920's; this was done for the economic advantages of using the truss members and top chord for a railing as well as for structural support (Lagenbach, 1979).

Warren truss bridges are very common and still constitute a widely accepted design choice for new structures. However, the inverted Warren truss is considered rare. Honeydew Creek bridge is believed to be the only existing true inverted Warren truss in California. Due to this, the California State Historic Preservation Officer (SHPO) and the U.S. Secretary of the Interior have determined that the Honeydew Creek bridge is eligible for inclusion on the National Register.

The existing Honeydew Creek bridge is in a deteriorated condition and has been repeatedly damaged by large logging trucks; the concrete abutments and curtain walls are cracked, and the truss end posts show evidence of numerous collisions. On August 19, 1980, the Humboldt County Board of Supervisors passed a Resolution to replace the bridge. The Resolution stipulates that the County will not maintain the existing bridge as a historic structure, nor be responsible for any liability incurred by the structure after completion of the new bridge. As a mitigating measure, the Resolution states that the existing bridge shall be salvaged after completion of the new bridge, and that the old Honeydew Creek bridge shall never again be made a part of the County-maintained road system (Appendix III).

A Humboldt County Bridge Inspection Report, dated June 28, 1950 (Appendix II), included the following detailed information about the condition of the Honeydew Creek bridge:

Alignment: Poor. Bridge on a short tangent between two very short radius curves which reverse in direction.

Width: A "ONE WAY BRIDGE." Narrow for the location, but commensurate with width of adjoining road.

Vertical Clearance: Unimpaired.

Longitudinal Floor Planks: In a decayed and decrepit condition generally. All should be removed and replaced with new planks at an early date.

Diagonal Floor Planks: There is some loss in effective cross-sectional area by decay on the upper face of some of the diagonal planks where they come in contact with the longitudinal planks, but the condition is not immediately dangerous from a safety standpoint.

Stringers: Are of a poor quality of redwood, however, all are in fair condition. Temporarily, they can be stressed safely to a maximum of 1,600 pounds per square inch in bending.

Structural Steel Members: A large amount of rocks and debris have accumulated on top of the abutment seats and around and against the bearing plates under the trusses. The material should be removed at an early date and those areas should be kept clean and free from debris at all times.

Some rust has broken through the paint on many of the steel members, but there is no apparent decrease in cross-sectional area of any of them. All the steel members should be cleaned with a sand blast to remove all the rust and then be repainted at an early date. The steel members are in good condition otherwise.

The floorbeams can be stressed safely to a maximum of 24,000 pounds per square inch in bending.

The steel truss members can be stressed safely to a maximum of 24,000 pounds per square inch in direct tension or compression, less the customary deductions for the allowable stress in long compression members in amounts that depend on their slenderness ratio.

Abutments: Both are of a very poor quality of concrete as evidenced by a loss in volume apparently due to frost action. Some of the anchor bars that fasten the lower end of the upstream knee braces in position and some of the reinforcing bars are exposed at the abutment at the Honeydew end.

Stress Analysis: Calculations made in accordance with Bridge Maintenance and Research Department standards, as of May 1950, show that the redwood stringers and steel floorbeams will support all combinations of maximum legal loads safely.

Load Limit: 21 tons for semi-trailer combination, 23 tons for truck and full trailer.

The next Honeydew Creek Bridge Inspection Report, dated May 19, 1955, noted numerous changes made to the Bridge since the 1950 inspection. All of these changes were of a maintenance nature only (Appendix II, 1955 Bridge Report).

Additional inspections were conducted in April and November, 1969, in March, 1970, in September, 1971, February, 1973, and December, 1980 (Appendix II). These reports note extensive damage to the railings, wheel guards, truss verticals, and longitudinal runners, as well as deterioration of the stringers, abutments and curtain walls. Even though some structural members have been repaired or replaced since the Bridge was constructed, there have been no basic changes in the design.

This report complies with the Memorandum of Agreement (MOA) executed by the Advisory Council on Historic Preservation in June, 1981, pursuant to Section 106 of the National Preservation Act of 1966 (16 USC Section 470f, as amended, 90 Stat. 1320 and Section 800 4(d) of the regulations of the Advisory Council on Historic Preservation, "Protection of Historic and Cultural Properties" (36 CFR, Part 800)).

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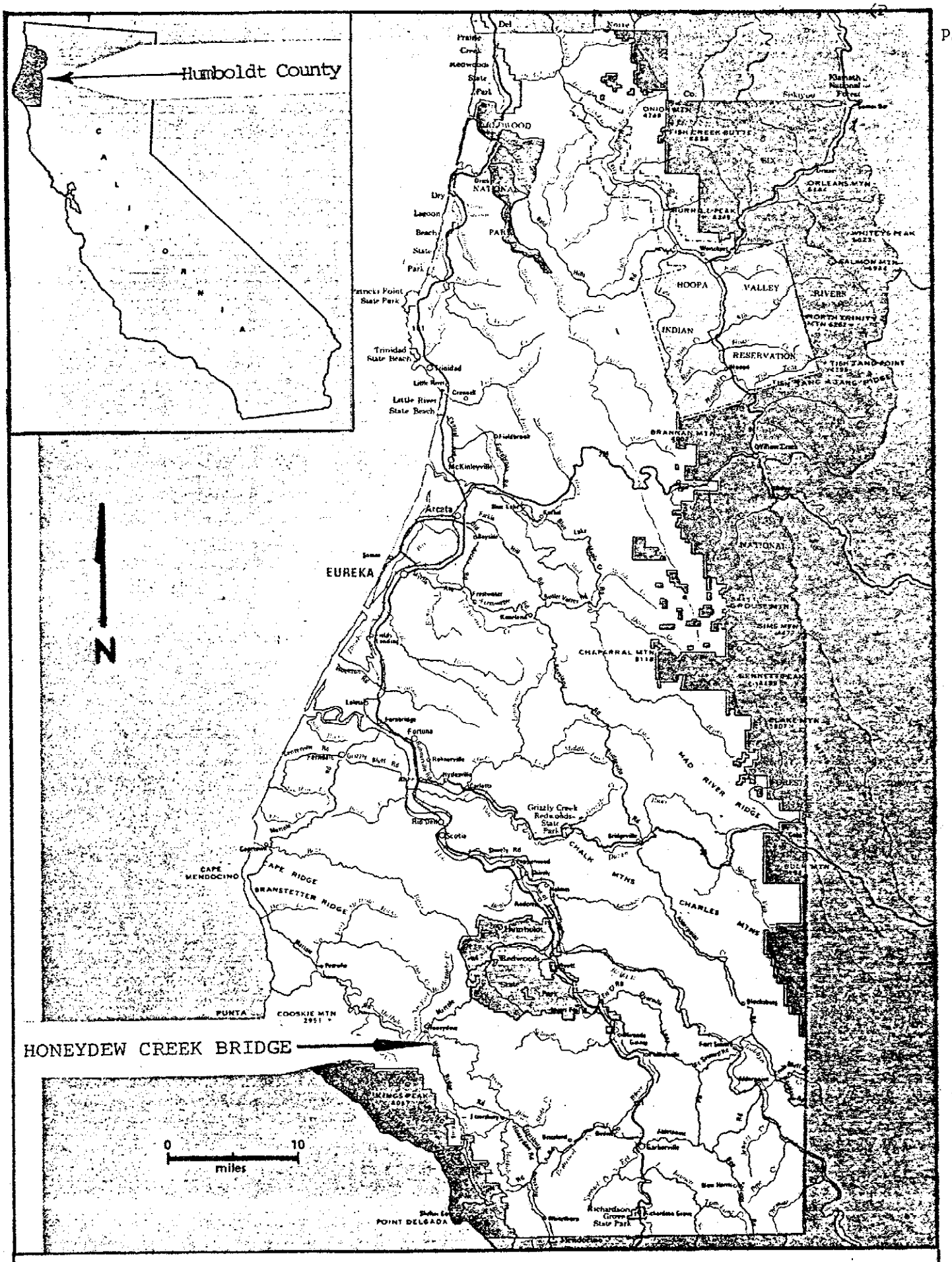

figure 1. Honeydew Creek Bridge, general vicinity map

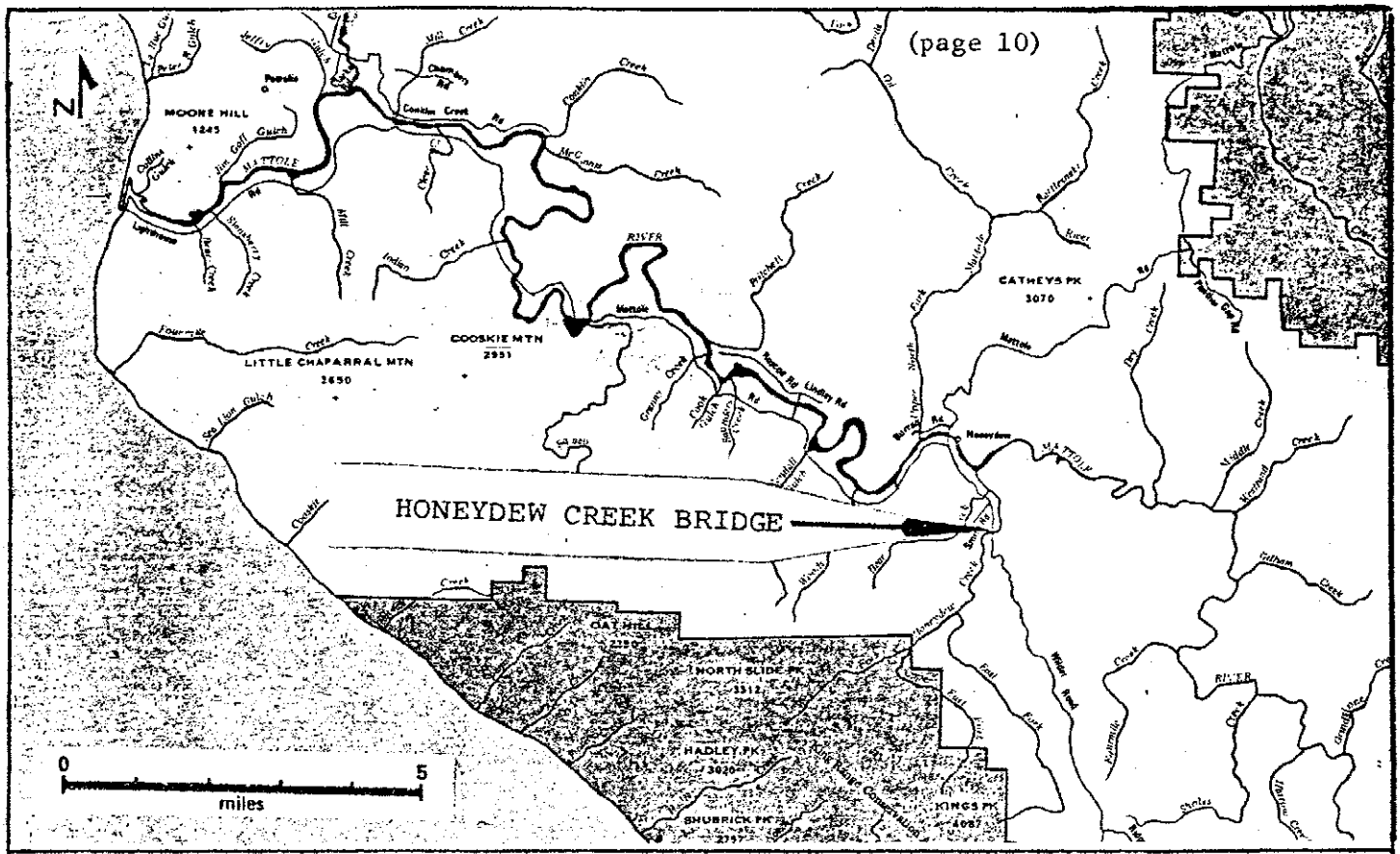

figure 2. Honeydew Creek Bridge, vicinity map.

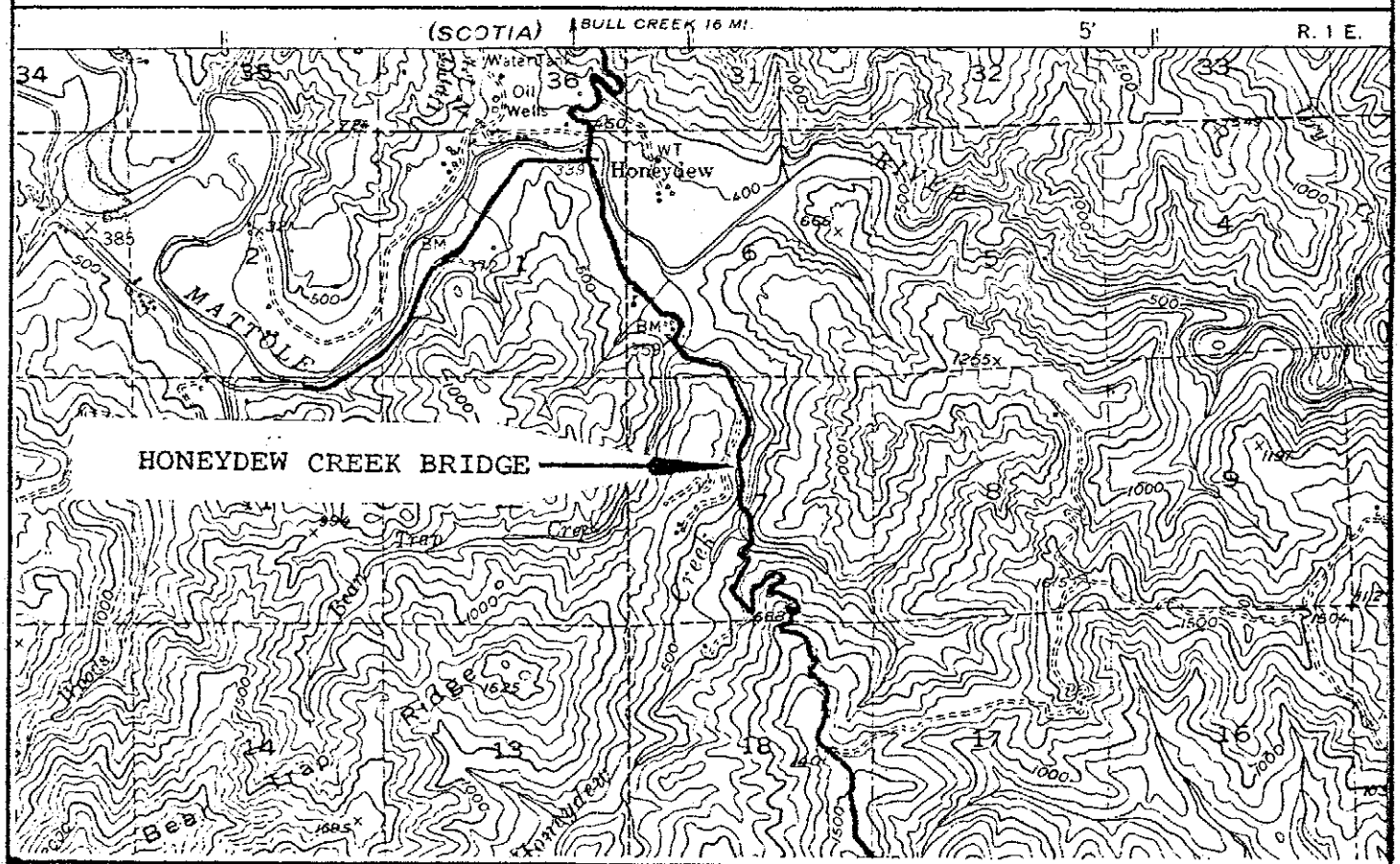

figure 3. Honeydew Creek Bridge. U.S.G.S. 15 minute Point Delgada, California Quadrangle map