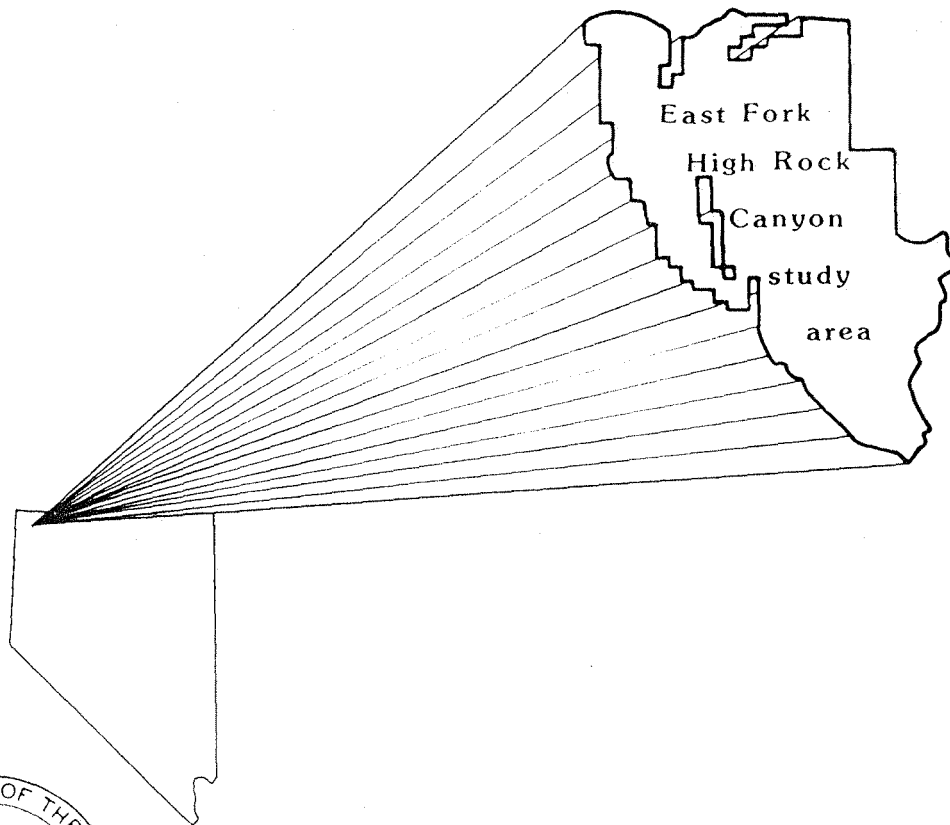


Mineral Land Assessment/1986
Open File Report

Mineral Resources of the East Fork High Rock Canyon Study Area, Humboldt and Washoe Counties, Nevada



BUREAU OF MINES

UNITED STATES DEPARTMENT OF THE INTERIOR

MINERAL RESOURCES OF THE EAST FORK HIGH ROCK CANYON
STUDY AREA, HUMBOLDT AND WASHOE COUNTIES, NEVADA

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PREFACE

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and U.S. Bureau of Mines to conduct mineral surveys on U.S. Bureau of Land Management administered land designated as Wilderness Study Areas ". . . to determine the mineral values, if any, that may be present" Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a Bureau of Mines mineral survey of a portion of the East Fork High Rock Canyon Wilderness Study Area (BLM No. CA-020-914/NV-020-006A), Humboldt and Washoe Counties, NV.

This open-file report will be summarized in a joint report published by the U.S. Geological Survey. The data were gathered and interpreted by Bureau of Mines personnel from Western Field Operations Center, East 360 Third Avenue, Spokane, WA 99202. The report has been edited by members of the Branch of Mineral Land Assessment at the field center and reviewed at the Division of Mineral Land Assessment, Washington, DC.

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SUMMARY

In 1985, at the request of the U.S. Bureau of Land Management, the U.S. Bureau of Mines studied 27,930 acres of the 52,000 acre East Fork High Rock Canyon Wilderness Study Area, CA-020-914/NV-020-006A, in order to evaluate the mineral resources. The study area is located in Humboldt and Washoe Counties, NV, about 45 miles east of Cedarville, CA.

Bureau of Mines personnel reviewed pertinent literature and county mining records and examined prospects or mineralized areas. There are no organized mining districts and no historical or active claims in the study area; one small pit lies in the southwest corner of the study area. Based on published literature, sample results and field observations, there are no recognized mineral, geothermal, or fossil fuel resources. Epithermal mineralization indicators are not present or exposed. Sand and gravel deposits in the study area are not likely to be developed as other deposits are closer to market areas.

INTRODUCTION

This report describes the USBM (U.S. Bureau of Mines) portion of a cooperative study with the USGS (U.S. Geological Survey) to evaluate mineral resources and potential of the East Fork High Rock Canyon study area at the request of the BLM (U.S. Bureau of Land Management). The USBM examines individual mines, prospects, claims and mineralized zones and evaluates identified resources; the USGS conducts broader geological, geochemical, and geophysical surveys, and is responsible for evaluating the potential for undiscovered resources. Results of the investigations will be used to help determine the suitability of the East Fork High Rock Canyon WSA (Wilderness Study Area) for inclusion into the National Wilderness Preservation System. Although the immediate goal of this and other USBM mineral surveys is to provide data for the President, Congress, government agencies, and the public for land-use decisions, the long-term objective is to ensure the Nation has an adequate and dependable supply of minerals at a reasonable cost.

The entire East Fork High Rock Canyon WSA contains 52,000 acres. The portion of this area requested for study by the BLM contains 27,930 acres, and in this report it is referred to as the "study area".

Setting

The East Fork High Rock Canyon study area is in the north Calico Mountains, about 35 mi (miles) from the California-Nevada state line, in northwestern Nevada (fig. 1). Cedarville, CA is about 45 mi west and Gerlach, NV is 45 mi south of this area.

Improved secondary gravel roads on the north and west sides of the study area provide access to unimproved roads or jeep trails that encircle most of the study area. Most of the interior is accessible by foot traverse. The terrain is characterized by low or moderate rolling hills incised by steep canyons most of which are dry. Elevations range from 6,609 ft (feet) to 4,920 ft. Much of the study area is covered by sage brush and other common desert-type vegetation.

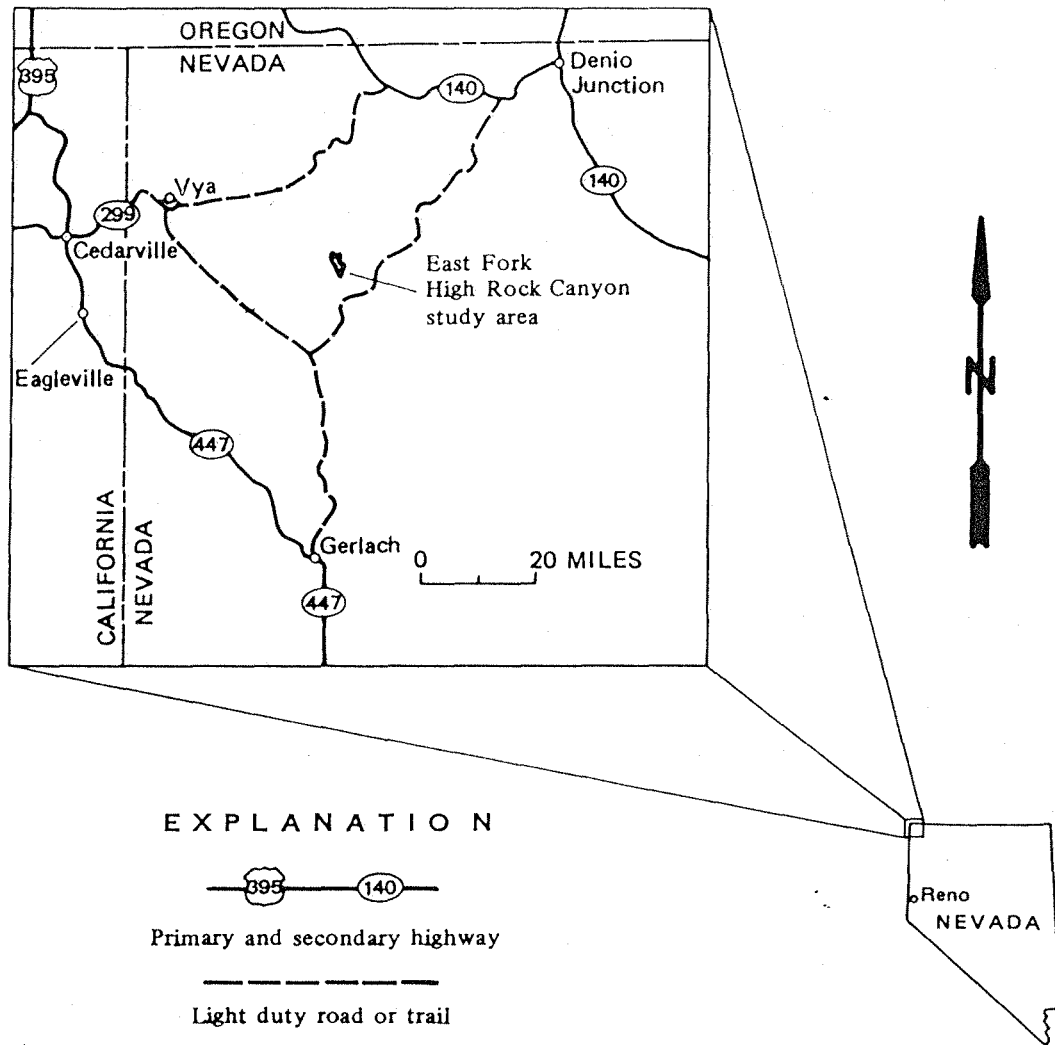


FIGURE 1. - Location of the East Fork High Rock Canyon study area, Humboldt and Washoe Counties, NV

Previous and Present Studies

Published information concerning mineral resources in northwestern Nevada are few. The main sources are from Nevada county reports by Willden (1964) and Bonham (1969). Regional geology reports that include the study area are: Ferguson (1944), Overton (1947), Noble and others (1970), Korringa (1973), Stewart and Carlson (1976), and Greene and Plouff (1981). Nevada mining districts were described by Ransome (1909) and by Schilling (1969). Connors and others, of Barringer Resources, Inc., covered the study area with a general reconnaissance geochemical study.

Prefield studies by the USBM included an examination of published mineral-related information, and a search of county courthouse mining records. Field studies were conducted in May and June 1985 and all known mining properties or mineralized zones were evaluated. During this investigation 45 lode samples were collected to assess mineral resources in the areas of anomalies reported by Connors and others (1982).

Rock samples were crushed, split, and checked for radioactivity and fluorescent minerals at WFOC (Western Field Operations Center) and sent to the Bureau's research center in Reno, NV, for analyses. The samples were analyzed by fire assay, atomic absorption, or inductively coupled argon plasma methods. Thirty-one of the 45 samples collected were also analyzed by semi-quantitative emission spectrography to determine the presence and amount of 40 elements ^{1/}.

For this report, "no significant values" means that the assay results indicated average or below average amounts of metals expected for a given rock type.

ACKNOWLEDGEMENTS

The author gratefully acknowledges Leon Esparza, USBM geologist, for assistance in field studies and Joseph McFarlan, USBLM geologist at Cedarville, CA for geology-related information and logistical help.

GEOLOGIC SETTING

A thick sequence of upper Tertiary (16 to 14.5 million years) volcanic rock covers a large area of northwestern Nevada, including the study area; volcanics in the study area are at least 1,700 ft thick (Willden, 1964; Bonham, 1969, geologic maps). Numerous vents and an inferred caldera are the likely sources for most of the rocks in the High Rock Canyon area (Korringa, 1973, p. 3858; Greene and Plouff, 1981, p. 4). Another possible contributing source is from a postulated small caldera

^{1/} Aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, chromium, cobalt, copper, gallium, gold, iron, lanthanum, lead, lithium, magnesium, manganese, molybdenum, nickel, niobium, palladium, phosphorus, potassium, platinum, scandium, silicon, silver, sodium, strontium, tantalum, tellurium, tin, titanium, vanadium, yttrium, zinc, and zirconium.

located in the Conlon Camp area. Evidence for this includes a partly preserved circular topographic rim, curved outward-radiating faults, dikes, and outcrops of vitrophyre and pebble conglomerate.

Structures in the area are horizontal with gentle dips that reflect flows over uneven surfaces. Basin and Range faults in this region trend north and N. 20° to 40° W. with 60° to 90° dips (Noble and others, 1970, p. D31; Korringa, 1973, p. 3852).

The geologic features of the study area are simple. Massive brown rhyolite, which crops out extensively, contains lenses of pale yellow tuff in the upper sections. Tan to white tuff covers the rhyolite in topographically low areas, especially in the northern part of the study area. Parts of the tan to white tuff and the rhyolite are capped by thin erosional remnants of dark gray basalt. Both the rhyolite and basalt are massive, with only a few open spaces or vesicles. Intense fracturing and silicification associated with epithermal mineralization found in other areas of northwestern Nevada, is not exposed. Other observed geologic features in the study area include: a fault that contains gouge and jasper; several small cinder cones near the south end; abundant scattered obsidian float in the north part; and dark gray rhyolite dike fragments that contain small grains of opalescent feldspar, similar to moonstone, near Conlon Camp.

MINING ACTIVITY

A search of published literature disclosed no mineral-related activity within the study area. Washoe and Humboldt County mining records through June 1985 were examined, but no claims could be identified that were in or near the study area. A claim notice found at the only workings, a small pit, (sample nos. 33 and 34, fig. 2) could not be verified in the Washoe County records. Material in the pit is gray to green fractured perlite about 8 ft thick and 100 ft long. Ransome (1909) and Schilling (1969) show that the closest mining district, the Leadville district, is about 30 miles south of the area. The sample sites are on figure 2.

MINERAL APPRAISAL

There are no significant mineral resources within the study area. Thirty of the 45 samples from the major rock types, contained no significant values. The 15 samples with gold or silver values were not confined to any one rock type and no trends or mineralized areas could be identified. Seven basalt samples (fig. 2, no. 1, 15, 16, 17, 19, 26, and 27) contained 0.1 oz silver per ton, one basalt sample (fig. 2, no. 29) contained 0.2 oz silver per ton, and another (fig. 2, no. 28) had a trace of gold. One tuff sample (fig. 2, no. 8) contained 0.1 oz silver per ton, and another (fig. 2, no. 39) had a trace of gold. One dacite sample (fig. 2, no. 21) contained 0.4 oz silver per ton, and a rhyodacite sample (fig. 2, no. 31) had 0.1 oz silver per ton. Two rhyolite samples (fig. 2, no. 38, 43) contained 0.2 oz silver per ton and 0.1 oz silver per ton, respectively. No other elements were found in significant quantities. The Barringer Resources, Inc. report of geochemical anomalies is not indicative of mineral resources. These elements (Ba, Mo, W) were

probably present when the tuff was distributed over the area. There are no geothermal or fossil fuel resources in the study area. The Soldier Meadow Hotsprings, 9 mi to the east, is the nearest hot springs location.

The dark gray rhyolite dike fragments (fig. 2, no. 41) in the Conlon Camp area (center sec. 27, T. 40 N., R. 23 E.) contain small feldspar crystals with a blue color play or opalescence, similar to moonstone. This does not represent a resource, but may be of interest to mineral collectors.

Small accumulations of sand and gravel occur in the major drainages, but development is unlikely, as other larger deposits are closer to market areas.

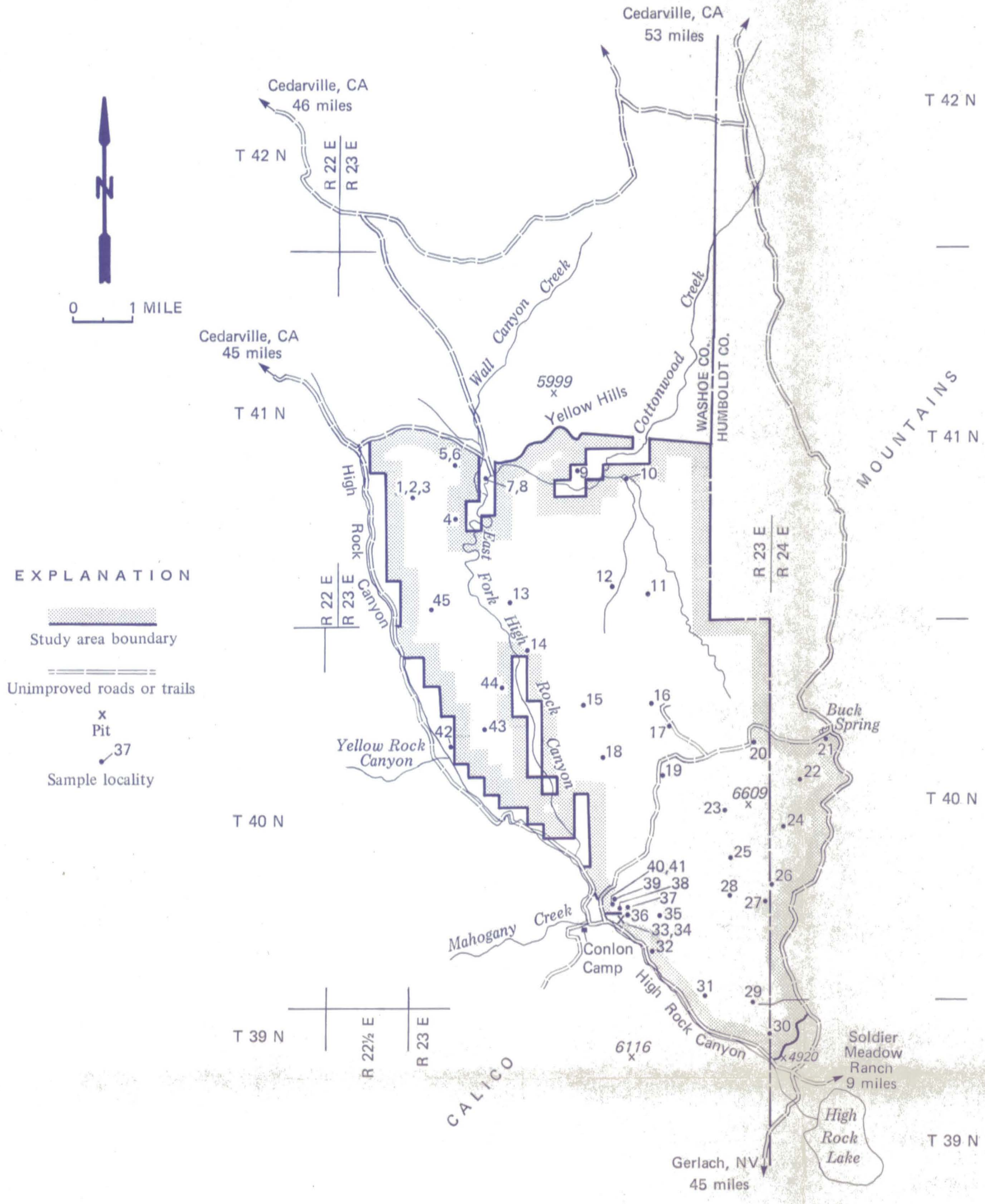


FIGURE 2. - Prospects and sample sites in the East Fork High Rock Canyon study area, Humboldt and Washoe Counties, NV

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