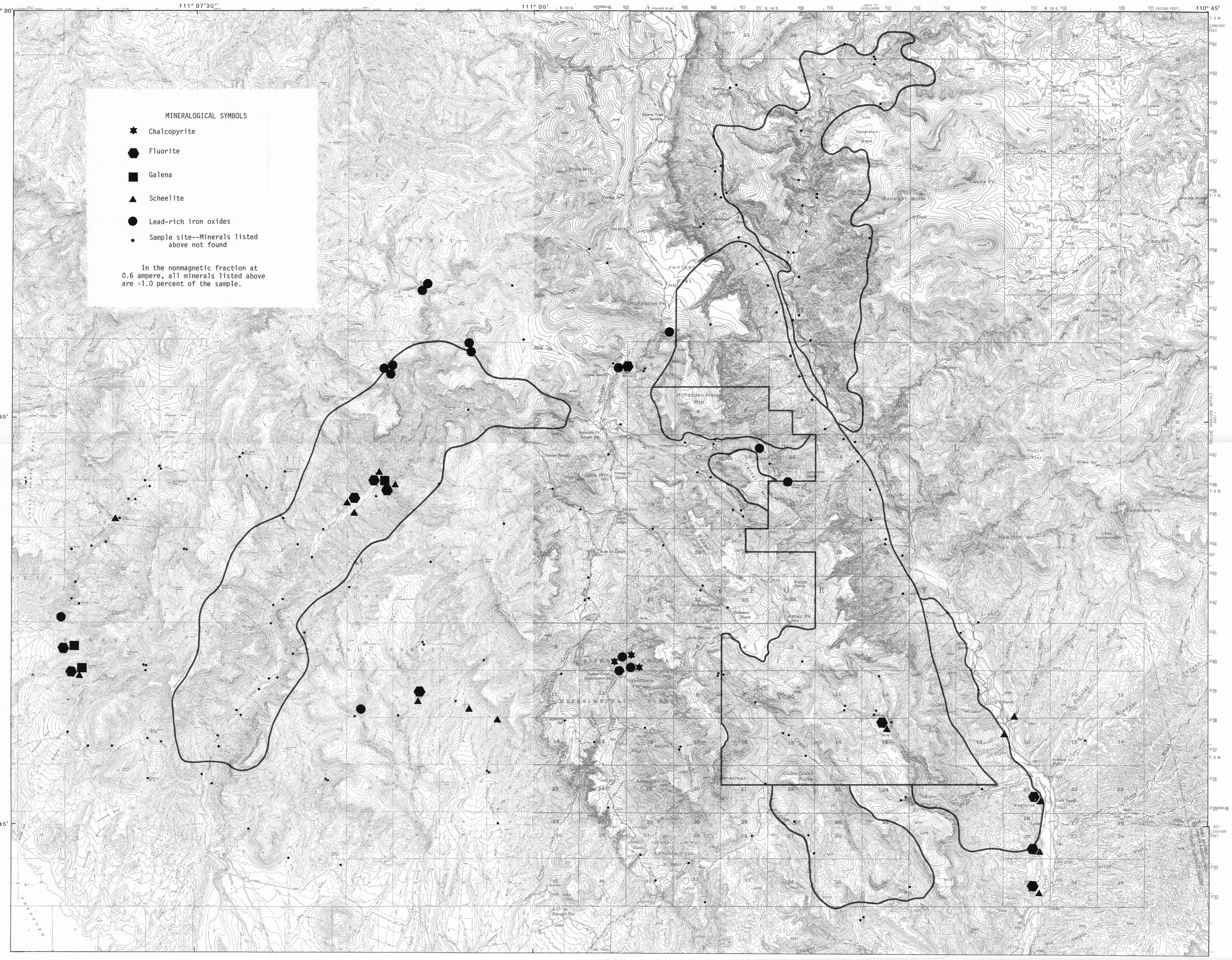
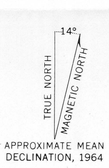
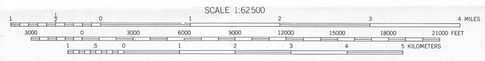


Base from U.S. Geological Survey 1:62,500, McFadden Peak, Rockinstraw Mountain, 1949; 1:24,000, Picture Mountain, Copper Mountain, Greenback Creek, Armer Mountain, Theodore Roosevelt Dam, Windy Hill, 1964





Map showing area of report

Discussion

Reconnaissance geochemical and mineralogical sampling was done in the Sierra Ancha Wilderness and Salome Study Area during April and May 1978. This map shows the distribution of chalcopyrite, fluorite, galena, scheelite, and lead-rich iron oxides in the nonmagnetic fraction of the heavy-mineral concentrate of stream sediment samples collected during the reconnaissance study.

The heavy-mineral concentrates were obtained by panning stream sediments in the field to remove most of the low-density minerals. The panned samples were then sieved through a 30-mesh sieve in the laboratory, and the minus-30-mesh fraction was further separated with bromoform (specific gravity, 2.86) to remove any remaining low-density grains. Magnetite and other strongly magnetic heavy minerals were removed from the heavy-mineral fraction by use of a hand magnet. The remaining part of each sample was passed through a Frantz Isodynamic Separator[1] and a nonmagnetic fraction obtained at 0.6 ampere. Samples from 215 sites were examined for mineralogical content with the aid of a binocular microscope and an X-ray diffractometer. The nonmagnetic concentrates primarily contained low-iron magnesium silicates, barite, apatite, sphene, zircon, tourmaline, rutile, anatase, and earthy iron oxides. Most ore and ore-related minerals also occurred in this fraction.

Selected minerals from heavy-mineral concentrates reflect known mineralized occurrences and indicate additional possible mineralized areas. Chalcopyrite occurs sparingly with pyrite in the heavy-mineral concentrates as brassy-yellow silt-sized particles. Fluorite typically occurs as clear-white to purple-tinted etched grains and cleavage octahedrons up to 1.0 mm. Galena is found as cleavage cubes mostly coated with lead sulfates and carbonates and ranging from silt-sized particles up to 0.5 mm. Scheelite is easily observed by its characteristic bright, blue-white fluorescence under short-wave ultraviolet light. The lead-rich iron oxides as identified by spectrographic analysis occur as thin coatings on other mineral grains and as punky rock fragments. X-ray diffraction was run on this material, but the mineral identity could not be determined although minium is suspected.

Spectrographic data (Barton and others, 1980) of heavy-mineral concentrates, and analyses of water samples and stream sediments for radon, uranium, and thorium (Negri and others, 1980) provide additional information on the area.

[1]The use of trade names is for descriptive purposes only and does not constitute endorsement of these products by the U.S. Geological Survey.

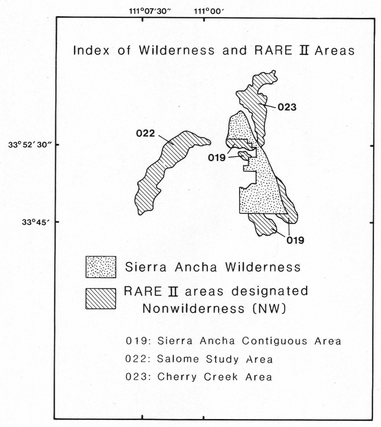
References Cited

Barton, H. N., Tripp, R. B., and Theobald, P. K., 1980, Geochemical maps showing the distribution of elements in the heavy-mineral concentrate of stream sediments in the Sierra Ancha Wilderness and Salome Study Area, Gila County, Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-1162D, scale 1:62,500, 4 sheets.

Negri, J. C., Tripp, R. B., and McHugh, J. B., 1980, Geochemical maps showing distribution of radon and uranium in water samples and thorium and uranium in dry stream-sediment samples in the Sierra Ancha Wilderness and Salome Study Area, Gila County, Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-1162C, scale 1:62,500, 2 sheets.

Studies Related to Wilderness

The Wilderness Act (Public Law 80-577, September 3, 1964) and related Acts, require the Geological Survey and the Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the Administration and the Congress. These maps and reports present the results of a geological and mineral survey of the Sierra Ancha Wilderness and Salome Study Area, Arizona.



MAP SHOWING THE DISTRIBUTION OF MINERALS IN THE HEAVY-MINERAL CONCENTRATE OF STREAM SEDIMENTS IN THE SIERRA ANCHA WILDERNESS AND SALOME STUDY AREA, GILA COUNTY, ARIZONA

By
R. B. Tripp, H. N. Barton, J. C. Negri, and P. K. Theobald

1980

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Interior—Geological Survey, Reston, Va.—1980

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