

This is a detailed geological map of Strawberry Crater, Arizona, at a scale of 1:24,000. The map shows various geological units labeled with codes such as Qe, Qwb, Qal, Qsp, Qma, Qmb, Qtc, Qtp, Qqp, Qtb, and Qmp. Topographic features include Deadman Mesa, Cocconino Forest, and several peaks numbered 1 through 18. A dashed line indicates a boundary or fault. The map also shows contour lines with a 20-foot interval and a datum of mean sea level. A scale bar at the bottom indicates distances up to 6 miles. A north arrow and magnetic declination information are provided at the bottom left.

Base from U. S. Geological Survey, 1:24,000,  
Strawberry Crater, Arizona, 1969

Geology slightly modified from Moore and Wolfe, 1976

UTM GRID AND 1969 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 20 FEET  
DATUM IS MEAN SEA LEVEL

SCALE 1:24,000

QUADRANGLE LOCATION

ARIZONA

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1982

Strawberry Creek is located about 12 mi (20 km) northeast of the Sugarloaf rhylolite dome (Fig. 1). The Strawberry Creek (Fig. 1), which developed largely between approximately 1.0 and 0.4 m.y. ago. The northeast quadrant of the volcanic field is dominated by a north-south trending linear depression, the Interior Valley. At the southwest end of the depression is the Sugarloaf rhylolite dome, which is a prominent feature parallel to the Interior Valley and is an exposed portion of the conduit system that fed the Sugarloaf rhylolite dome. The Interior Valley is the Sugarloaf rhylolite dome, and approximately on the same northeast trend are the Sugarloaf rhylolite dome and Strawberry Creek. Sugarloaf is approximately 0.22 m.y. old, and two O'Leary Peak eruptions are dated at approximately 0.22 m.y. old and 0.24 m.y. old (Damon and others, 1974; Damon and Shaffiquah, unpublished data). The Interior Valley is a linear depression that formed in the stratocone and before the eruption of the Sugarloaf rhylolite dome—between approximately 1.0 and 0.4 m.y. ago. The presence of the youthful vents with the linear trend of the similarly youthful Interior Valley suggests that the conical ridge, Sugarloaf rhylolite dome, and vent, and the Interior Valley all formed under the influence of a common volcano-tectonic control, and the relatively narrow range of ages indicates that the vent and the valley are closely related in genesis.

The group of aligned vents described above coincides closely with a sharply defined aeromagnetic low that is strongly linear and a mile or so (about 2 km) wide (Wolfe and Hoover, 1982). The magnetic lineament continues into the Strawberry Crater Roadless Area, where it presumably marks the northeast extension of the volcano-tectonic feature recorded by the Interior Valley.

Semi-quantitative spectrographic analyses of 18 samples of flow and pyroclastic units are given in Wolfe and Hahn (1982). The range of values is appropriate for unaltered basaltic rocks and shows no indication that mineral deposits are present.

Damon, P. E., Shafiquillah, M., and Leventhal, J. S. 1974, K-Ar chronology for the San Francisco volcanic field and rate of erosion of the Little Colorado River, in Karlstrom, T. N. V., Swann, G. A. and Eastwood, R. L. eds., pt. I, Regional Studies, Geology of Northern Arizona: p. 221-235.

The eastern San Francisco volcanic field was previously mapped and described in detail by Moore and Wolfe (1976). The area, in the southern part of the Colorado Plateau, is underlain by Quaternary lavas and cinder cones that overlie nearly horizontal Permian Kaibab Limestone or Triassic siltstone or sandstone of the Moenkopi Formation. Holocene basaltic cinders from the eruption of Sunset Crater mantle much of the area. Locally, basaltic ash has been reworked to form small dunes.

Basalt lavas and the related cinders and tephra are alkali-olivine basalts with variable degrees of olivine, clinopyroxene, and ilmenite phenocrysts. Within and adjacent to the Strawberry Crater Roadless Areas, they have been divided, largely on the basis of their physiographic location, into four age groups (Moore and Wolfe, 1976), from oldest to youngest: the Woodhouse, Tappan, Sunset, and Sunset age groups. K-Ar dating (Damon others, 1974; Damon and Shafiquillah, unpublished data) suggests that Woodhouse age lavas in the Strawberry Crater quadrangle range from 0.5 to 1.5 m.y. old, Tappan age lavas range from 0.5 to 0.8 m.y. old, and Sunset age lavas range from a few tens of thousands of years to about 0.15 m.y. old. Tree-ring dating (Sawley, 1958) indicates that the lavas and cinders of the Sunset Crater are less than 1000 years old.

The Strawberry Grater flow consists of blocky basaltic andesite dated at less than 100,000 years old (Damon and others, 1974). The basaltic andesite contains abundant magnetite and is brecciated. The breccia consists of a few small phenocrysts of olivine, clinopyroxene, and orthopyroxene in a very fine to glassy groundmass. The cone, built largely of agglutinated basaltic andesite spatter, was breached by the flow, subsequently buried by the Mesa del Pique flow phenocrysts, plagioclase and orthopyroxene was emplaced within the breached cone. In addition to resting on older Quaternary basalt, Strawberry Grater and its lava flow overlie the east edge of the rhyolite of the Deshares flow. The basal part of the Strawberry Peak silicic center has been dated at about 0.17 m.y. old (Damon and Shafiqullah, unpublished data).

Wolfe, E. W. and Hahn, D. B., 1982, Geologic map and geochemical analyses of the Strawberry Crater Roadless Areas, Coconino County, Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-1394-A, 1:24,000.

Wolfe, E. W., and Hoover, D. B., 1982, Geophysical maps of the Strawberry Crater Roadless Areas, Coconino County, Arizona: U. S. Geological Survey Miscellaneous Field Studies Map MF-1394-B.

Wolfe, E. W., and Hoover, D. B., 1982, Geophysical maps of the Strawberry Crater Roadless Areas, Coconino County, Arizona: U. S. Geological Survey Miscellaneous Field Studies Map MF-1394 B.

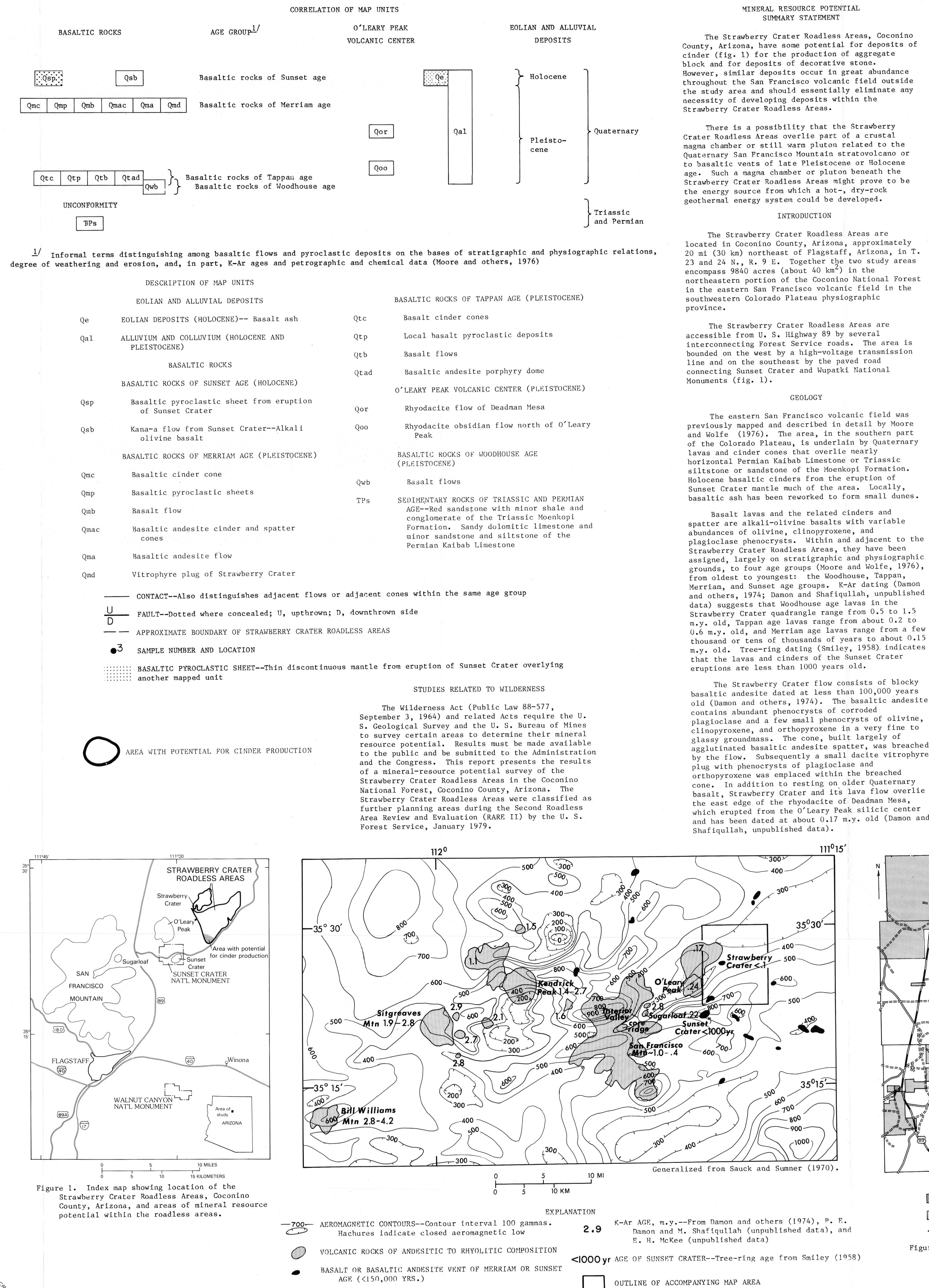


Figure 1. Index map showing location of the Strawberry Crater Roadless Areas, Coconino County, Arizona, and areas of mineral resource potential within the roadless areas.

Figure 2. Residual aeromagnetic map of the San Francisco volcanic field.

Figure 3. Patented and unpatented mining claims in the vicinity of the Strawberry Crater Roadless Areas.