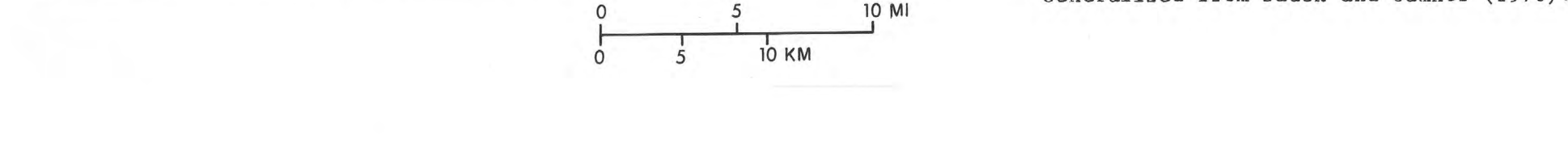


MAP A.--RESIDUAL AEROMAGNETIC MAP



EXPLANATION

AEROMAGNETIC CONTOURS--Contour interval 100 gammas.

Markers indicate closed aeromagnetic low.

VOLCANIC ROCKS OF ANDESITIC TO RHYOLITIC COMPOSITION

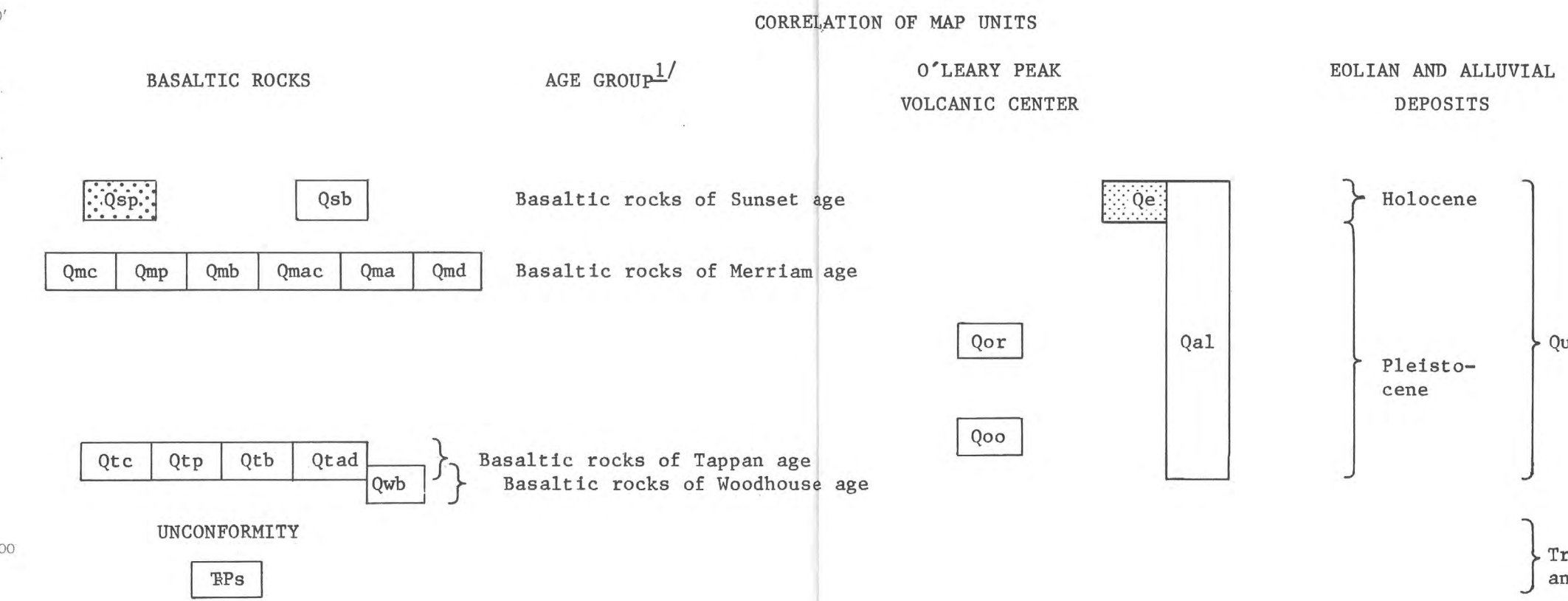
BASALT OR BASALTIC ANDESITE VENT OF MERRIAM OR SUNSET AGE (c.150,000 YRS.)

K-Ar Age, m.y.--From Damon and others (1974), P. F. Damon and M. Shaq'ullah (unpublished data), and E. W. McKee (unpublished data)

AGE OF SUNSET GRATER--Tree-ring age from Salley (1958)

OUTLINE OF DETAILED GEOLOGICAL AND GEOPHYSICAL MAPS OF THE SPRINKLER QUARTER, ROADLESS AREA (Wolfe and Hahn, 1982; Wolfe and Hammer, 1982). Generalized from Sack and Sumner (1970)

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



<sup>1/</sup> Informal terms distinguishing among basaltic flows and pyroclastic deposits on the bases of stratigraphic and physiographic relations degree of weathering and erosion, and, in part, K-Ar ages and petrographic and chemical data (Moore and others, 1976)

## DESCRIPTION OF MAP UNITS

	EOLIAN AND ALLUVIAL DEPOSITS	Qad	Vitrophire plug of Strawberry Crater
Qe	EOIAN DEPOSITS (HOLOCENE) – Basalt ash		BASALTIC ROCKS OF TAPPAN AGE (PLEISTOCENE)
Qa1	ALLUVIUM AND COLLUVIUM (HOLOCENE AND PLEISTOCENE)	Qec	Basalt cinder cones
	BASALTIC ROCKS	Qtp	Local basalt pyroclastic deposits
	BASALTIC ROCKS OF SUNSET AGE (HOLOCENE)	Qtb	Basalt flows
	Basaltic pyroclastic sheet from eruption of Sunset Crater	Qtda	Basaltic andesite porphyry dome
Qsp			O'LEARY PEAK VOLCANIC CENTER (PLEISTOCENE)
Qab	Kama's flow from Sunset Crater--Alkali olivine basalt	Qor	Rhyodacite flow of Deadman Mesa
	BASALTIC ROCKS OF MERRIAM AGE (PLEISTOCENE)	Qoo	Rhyodacite obsidian flow north of O'Leary Peak
Qnc	Basaltic cinder cone		BASALTIC ROCKS OF WOODHOUSE AGE (PLEISTOCENE)
Qmp	Basaltic pyroclastic sheets	Qwb	Basalt flows
Qmb	Basalt flow	TPs	SEDIMENTARY ROCKS OF TRIASSIC AND PERMIAN AGE--Red sandstone with minor shale and conglomerate of the Triassic Neenopi Formation. Sandy dolomitic limestone and minor sandstone and siltstone of the Permian
Qnac	Basaltic andesite cinder and spatter cones		
Qna	Basaltic andesite flow		

CONTACT--Also distinguishes adjacent flows or adjacent cones within the same age group

FAULT--Dotted where concealed; U, upthrown; D, downthrown side

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..... BASALTIC PYROCLASTIC
..... another napped unit

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## STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related Acts require the U.S. Geological Survey and the U. S. Bureau of Mines to survey certain areas to determine their mineral resource potential. Results must be made available to the public and be submitted to the Administration and the Congress. This report presents the results of a geophysical survey of the Strawberry Crater Roadless Areas in the Coconino National Forest, Coconino County, Arizona. The Strawberry Crater Roadless areas were surveyed by the U.S. Geological Survey during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

#### LOCATION AND GEOGRAPHIC SETTING

The Strawberry Crater Roadless Areas are located in Coconino County, Arizona, approximately 20 mi (30 km) northeast of Flagstaff, Arizona, in T. 23 and 24 N., R. 9 E. Together the two study areas encompass 9840 acres (about 40 km<sup>2</sup>) in the northeastern portion of the Coconino National Forest, which is in the eastern San Francisco volcanic field in the southwestern Colorado Plateau physiographic province.

The Strawberry Crater Roadless Areas are accessible from U.S. Highway 89 by several interconnecting Forest Service roads. The areas are bounded on the west by a high voltage transmission line and on the southeast by the paved road connecting Sunset Crater and Wupatki National Monuments (fig. 1).

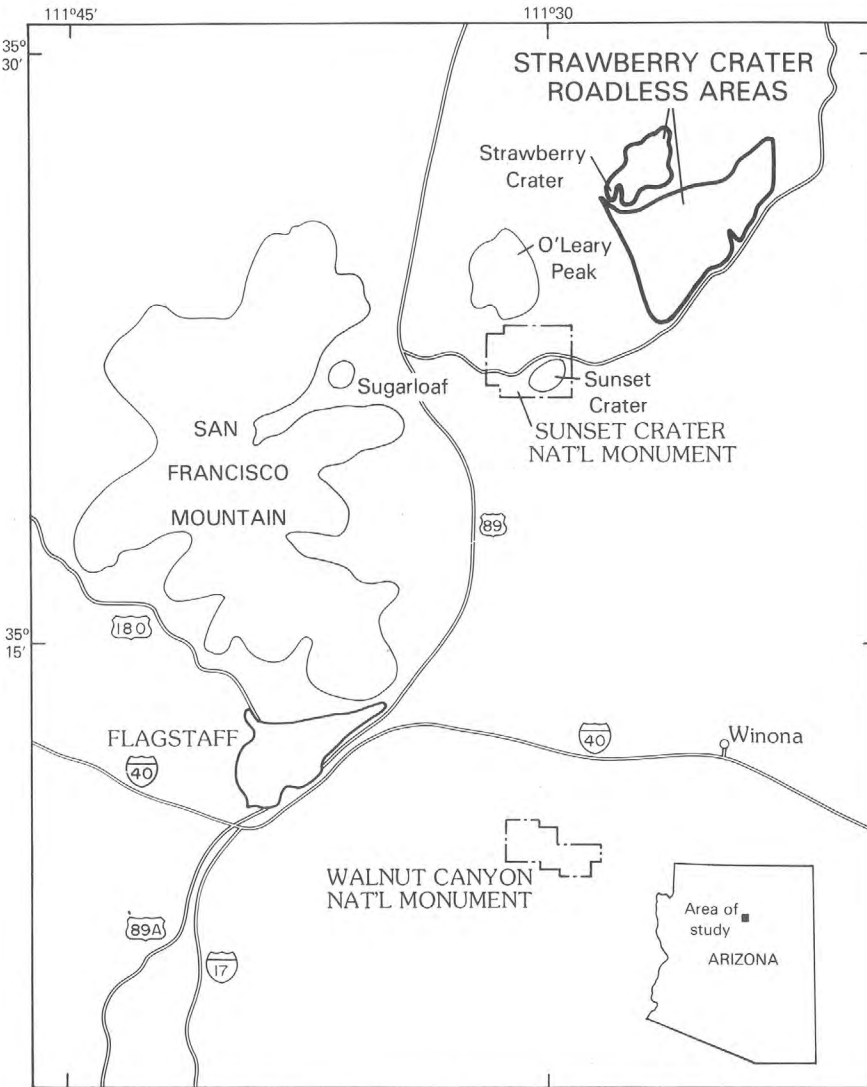


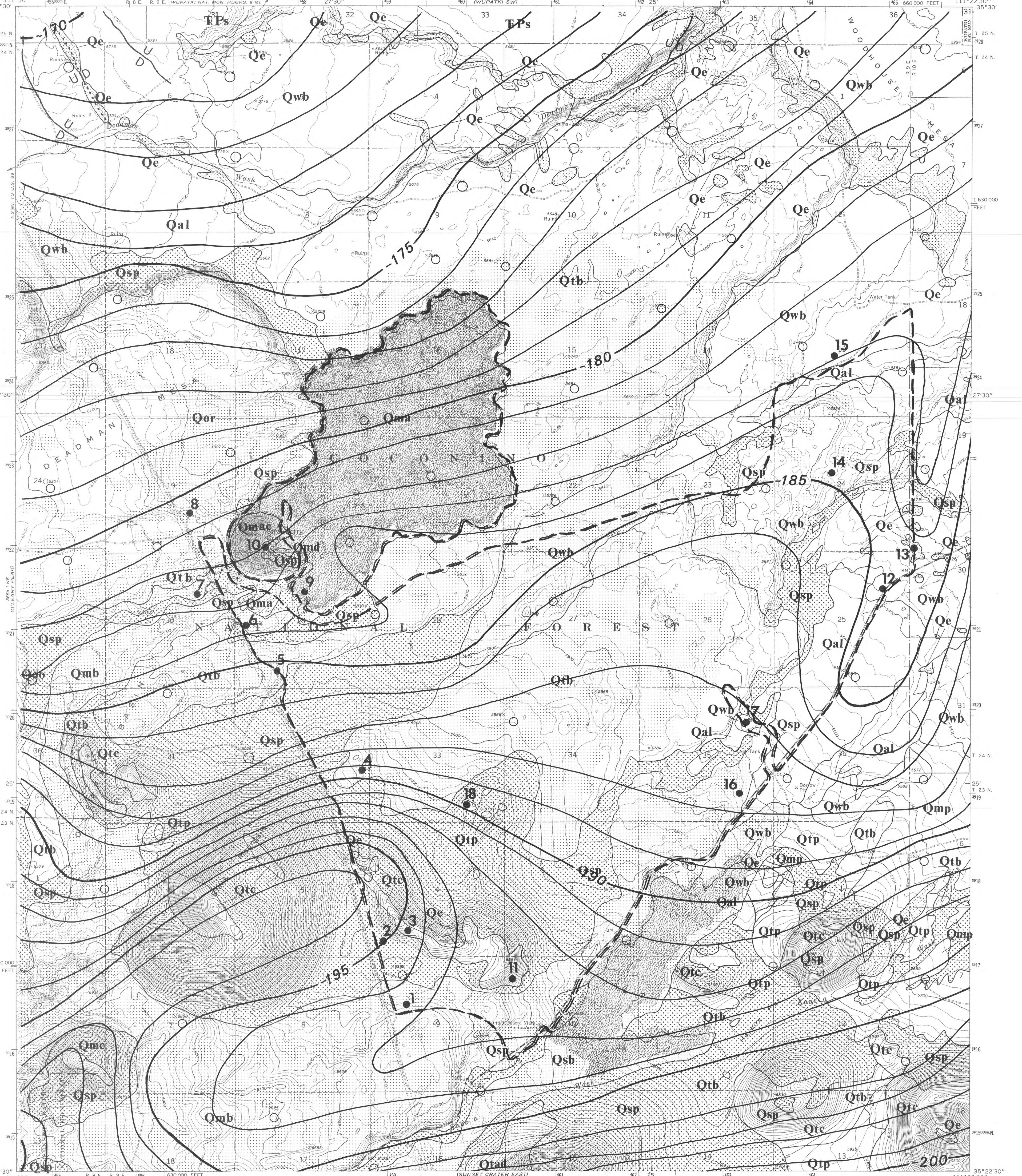
Figure 1. Index map showing location of the Strawberry Crater Roadless Areas, Coconino County, Arizona.

## INTERPRETATION OF AEROMAGNETIC DATA

A sharply defined aeromagnetic low that is strongly linear and a mile or so (about 2 km) wide extends from the northeast corner of the map to the northwest corner of the map. The line extends from the core ridge to Strawberry Creek, and is parallel to the ridge crest about 12 mi (20 km) northeast of the San Francisco Mountain stratovolcano, and developed largely during the late Pleistocene and Holocene. The northeast quadrant of the volcano has been dissected by a series of small-scale faults, and a depression, the Interior Valley. At the southwest corner of the map, a linear magnetic low extends along linear topographic element parallel to the ridge crest, and is parallel to the ridge crest conduit system that fed the stratovolcano. Directly in the mouth of the Interior Valley is the Sugarloaf Peak silicic center, which is a small, circular, northeast-trending ridge. The Sugarloaf Peak silicic center is the O'Leary Peak silicic center. Sugarloaf is approximately 0.22 m.y. old, and two small, circular, northeast-trending ridges are approximately 0.17 and 0.24 m.y. old (Nason and Johnson, 1977; Johnson, 1978; Johnson, unpublished data). The Interior Valley formed after construction of the Sugarloaf Peak silicic center, and is approximately 0.5 and 0.22 m.y. ago. Coincidence of the linear magnetic low with the trend of the similarly youthful Interior Valley and the Sugarloaf Peak silicic center, the O'Leary Peak silicic center, and the Interior Valley suggests that the linear magnetic low is a tectonic control, and the relatively narrow age spans further suggests that the magmas may be closely related.

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MAP B.--BOUGUER GRAVITY MAP

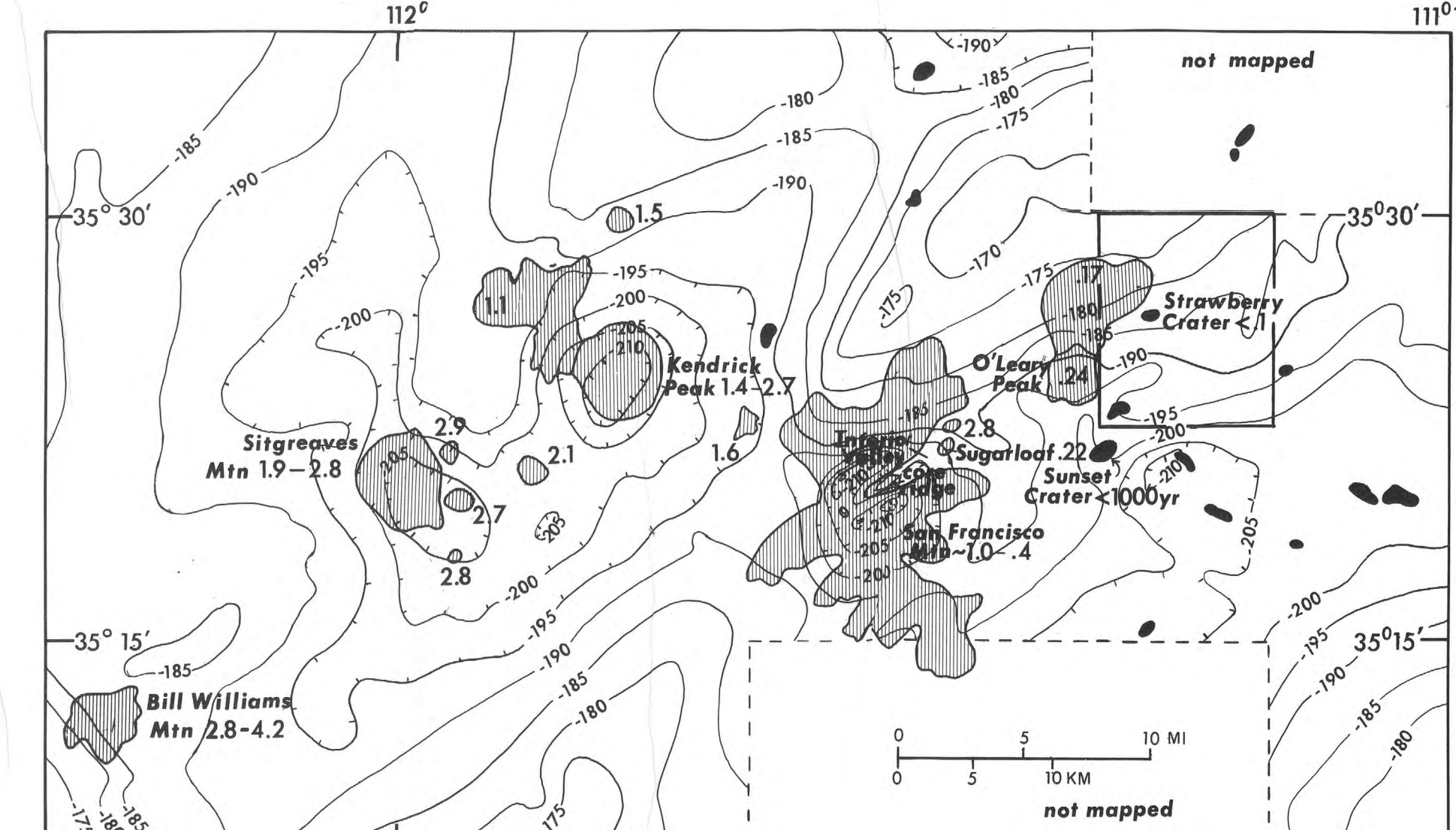


Figure 3. Bouguer gravity map of the San Francisco volcanic field.