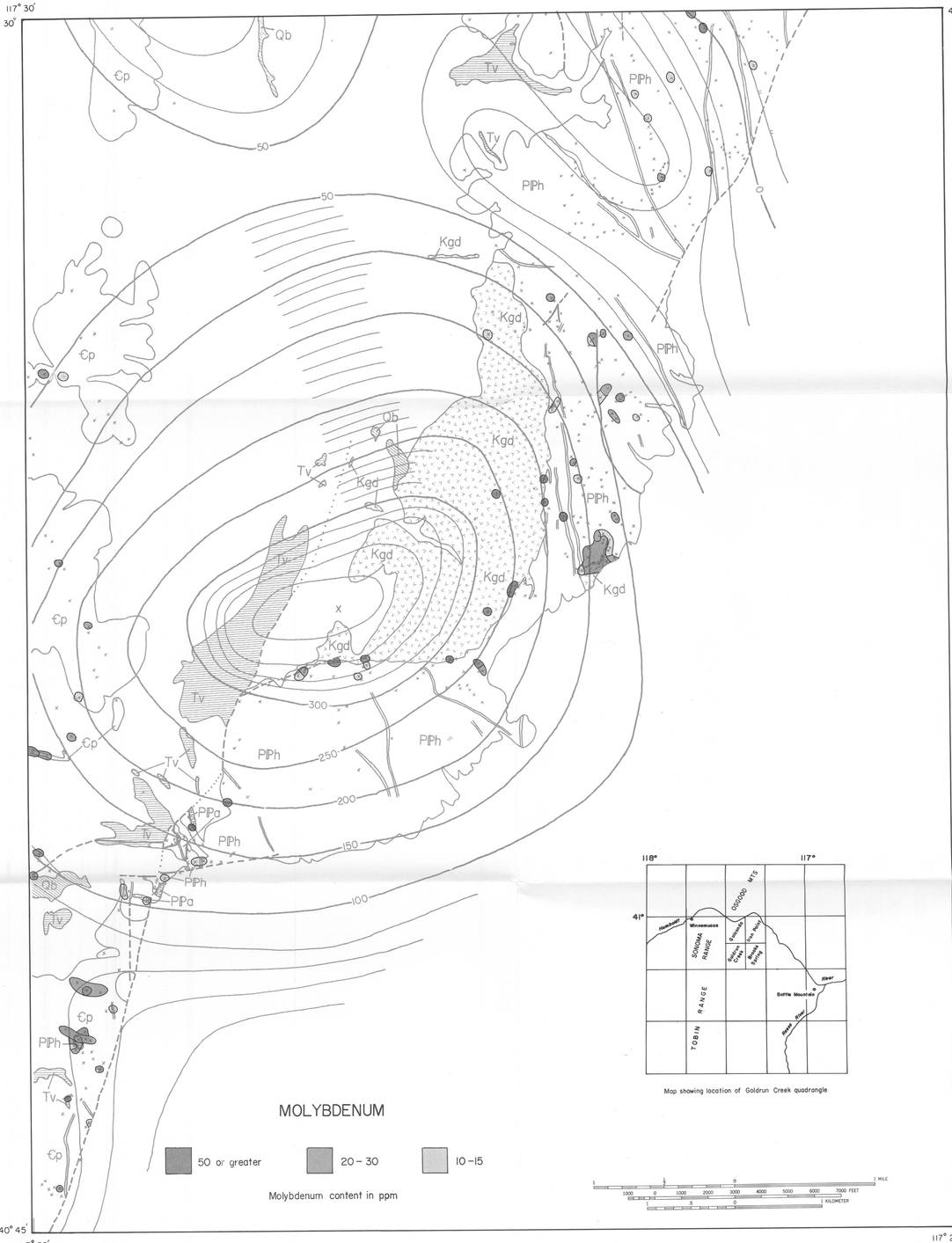
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-508



MOLYBDENUM

50 or greater | 20 – 30 | 10 – 15

Molybdenum content in ppm

Map showing location of Goldrun Creek quadrangle

EXPLANATION

Qb — Quaternary basalt

Tv — Tertiary volcanic rocks

Kgd — Cretaceous granodiorite

Cretaceous dike rocks

PPh — **Permian and Pennsylvanian Havallah sequence. Includes Havallah Formation, chiefly limy quartzite, and Pumpernickel Formation. (Pennsylvanian?), chiefly chert, shale, greenstone, and quartzite**

GOLCONDA THRUST FAULT

PPa — Permian and Pennsylvanian Antler sequence. Includes Edna Mountain Formation, Antler Peak Limestone, Highway Limestone, and Battle Formation

Cp — Cambrian Preble Formation

Depositional contact

Fault

Thrust fault

x — Sample locality

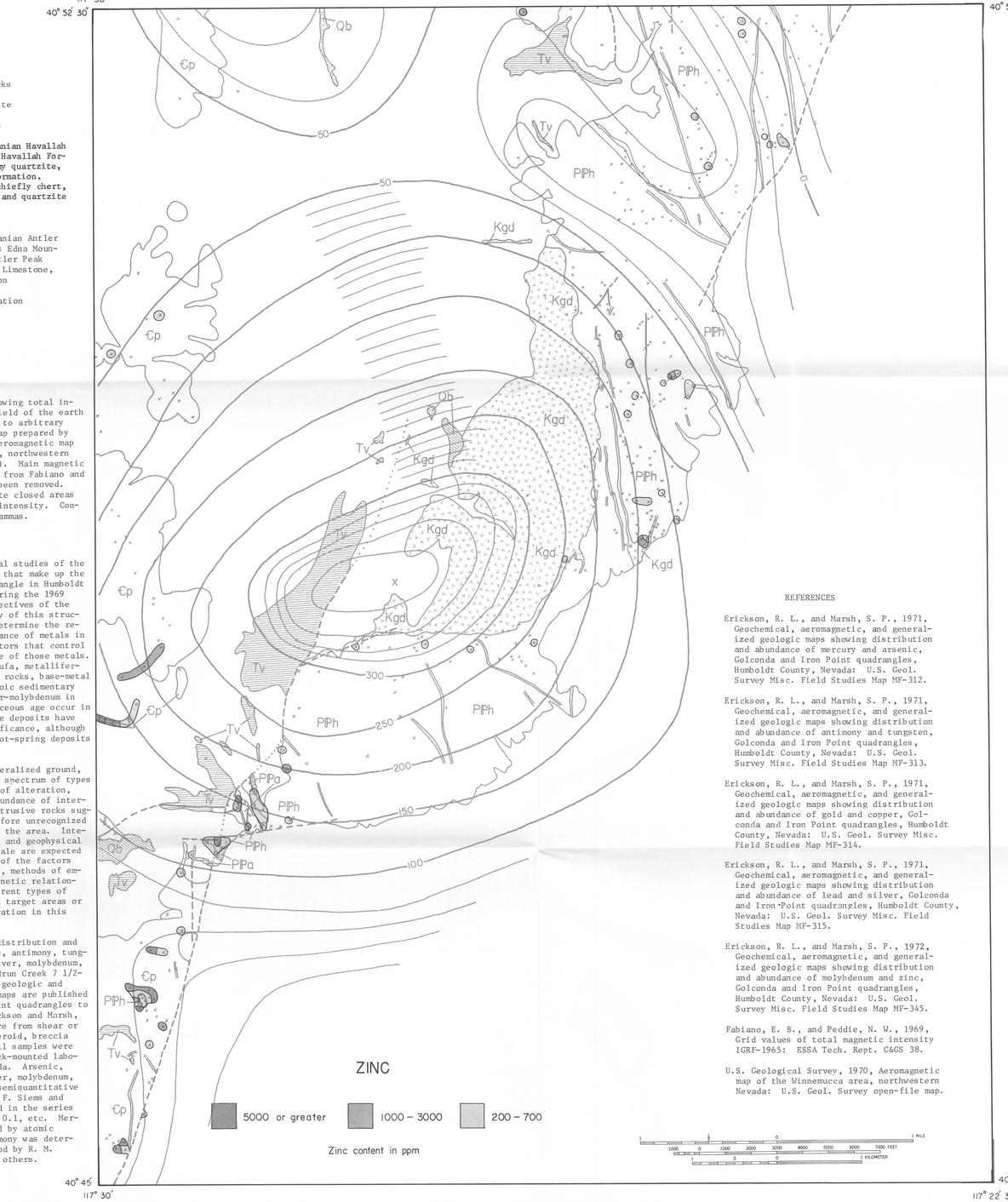
50 — Magnetic contours showing total intensity magnetic field of the earth in gammas relative to arbitrary datum. Magnetic map prepared by D. R. Mabey from aeromagnetic map of Winnemucca area, northwestern Nevada (USGS, 1970). Main magnetic field of the earth from Fabiano and Peddie (1969) has been removed. Hachured to indicate closed areas of lower magnetic intensity. Contour interval 10 gammas.

DISCUSSION

Detailed geologic and geochemical studies of the four 7 1/2-minute quadrangles that make up the Edna Mountain 15-minute quadrangle in Humboldt County, Nevada, were begun during the 1969 summer field season. The objectives of the project are to map the geology of this structurally complex area and to determine the regional distribution and abundance of metals in rocks of the area and the factors that control the distribution and abundance of those metals. Tungsten-bearing hot-spring tufa, metalliferous black shale in Ordovician rocks, base-metal and barite deposits in Paleozoic sedimentary and volcanic rocks, and copper-molybdenum in granodiorite plutons of Cretaceous age occur in the Edna Mountain area. These deposits have been of little economic significance, although tungsten was mined from the hot-spring deposits during World War II.

The numerous occurrences of mineralized ground, however, along with the broad spectrum of types of mineralization, intensity of alteration, structural complexity, and abundance of intermediate to silicic igneous intrusive rocks suggest that concealed or heretofore unrecognized mineral deposits may exist in the area. Integrated geologic, geochemical, and geophysical studies on a district-wide scale are expected to improve our understanding of the factors that control the distribution, methods of emplacement, and spatial and genetic relationships (if any) of these different types of deposits. We hope that broad target areas or guidelines for mineral exploration in this area may be identified.

This series of maps shows the distribution and abundance of mercury, arsenic, antimony, tungsten, gold, copper, lead, silver, molybdenum, and zinc in rocks in the Goldrun Creek 7 1/2-minute quadrangle related to geologic and aeromagnetic base. Similar maps are published for the Golconda and Iron Point quadrangles to the north and northeast (Erickson and Marsh, 1971, 1972). Most samples are from shear or fault zones, fractures, jasperoid, breccia reefs, and altered zones. All samples were prepared and analyzed in truck-mounted laboratories at Winnemucca, Nevada. Arsenic, tungsten, copper, lead, silver, molybdenum, and zinc were determined by semiquantitative spectrographic methods by D. F. Siems and E. F. Cooley and are reported in the series 1, 0.7, 0.5, 0.3, 0.2, 0.15, 0.1, etc. Mercury and gold were determined by atomic absorption methods, and antimony was determined by a colorimetric method by R. M. O'Leary, M. S. Erickson, and others.



ZINC

5000 or greater | 1000 – 3000 | 200 – 700

Zinc content in ppm

REFERENCES

Erickson, R. L., and Marsh, S. P., 1971, Geochemical, aeromagnetic, and generalized geologic maps showing distribution and abundance of mercury and arsenic, Golconda and Iron Point quadrangles, Humboldt County, Nevada: U.S. Geol. Survey Misc. Field Studies Map MF-312.

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Erickson, R. L., and Marsh, S. P., 1971, Geochemical, aeromagnetic, and generalized geologic maps showing distribution and abundance of gold and copper, Golconda and Iron Point quadrangles, Humboldt County, Nevada: U.S. Geol. Survey Misc. Field Studies Map MF-314.

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Erickson, R. L., and Marsh, S. P., 1972, Geochemical, aeromagnetic, and generalized geologic maps showing distribution and abundance of molybdenum and zinc, Golconda and Iron Point quadrangles, Humboldt County, Nevada: U.S. Geol. Survey Misc. Field Studies Map MF-345.

Fabiano, E. B., and Peddie, N. W., 1969, Grid values of total magnetic intensity IGRF-1965: ESSA Tech. Rept. C&GS 38.

U.S. Geological Survey, 1970, Aeromagnetic map of the Winnemucca area, northwestern Nevada: U.S. Geol. Survey open-file map.

GEOCHEMICAL, AEROMAGNETIC, AND GENERALIZED GEOLOGIC MAPS SHOWING DISTRIBUTION AND ABUNDANCE OF MOLYBDENUM AND ZINC, GOLDRUN CREEK QUADRANGLE, HUMBOLDT COUNTY, NEVADA

BY R.L. ERICKSON AND S.P. MARSH, 1973

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