



## BEDROCK

basin fill, undivided (Pliocene to Miocene) sedimentary rocks, undivided (Pliocene to middle Eocene) older pre-volcanic sedimentary rocks (middle Oligocene to Eocene) basalt and basaltic andesite (Quaternary to upper Miocene) volcanic rocks, upper (Pliocene to upper Miocene) volcanic rocks, lower (Miocene to middle Eocene) Msc Scotty Wash Quartzite and Chainman Shale, undivided (Mississippian) Mj Joana Limestone (Mississippian) Pilot Shale (Devonian to Mississippian) **Guilmette Formation (Devonian)** Simonson Formation (Devonian) Dsca Cherty argillaceous member of Sevy(?) Dolomite (Devonian) Sevy and Laketown Dolomites, undivided (Silurian to Devonian) Oes Ely Springs Dolomite (Upper Ordovician) Eureka Quartzite (Middle to Upper Ordovician) OCp Pogonip Group (Upper Cambrian to Middle Ordovician) Antelope Valley Limestone (Lower to Middle Ordovician) Nopah Formation, undivided (Cambrian) Smoky and Halfpint Members of Nopah Formation, undivided (Cambrian) **Dunderberg Shale Member of Nopah Formation (Cambrian)** Banded Mountain Member of Bonanza King Formation (Cambrian)

Cbp Papoose Lake Member of Bonanza King Formation (Cambrian)

Cc Carrara Formation (Cambrian)

## SOURCES OF MAP DATA

Barnes, H., Ekren, E.B., Rodgers, C.L., and Hedlund, D.C., 1982, Geologic and tectonic maps of the Mercury quadrangle, Nye and Clark Counties, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map 1197, scale 1:24,000.
Ekren, E.B., Orkild, P.P., Sargent, K.A., and Dixon, G.L., 1977, Geologic map of Tertiary rocks, Lincoln County, Nevada: U.S. Geological Survey Map J-1041, scale 1:250,000.
Frizzell, V.A., Jr., and Shulters, J.C., 1990, Geologic Map of the Nevada Test Site, southern Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-2046, scale 1:100,000.
Guth, P.L., and Yount, J.C., 1994, Prelimlnary geologic map of the Indian Springs 1:100,000 quadrangle, Clark, Lincoln, and Nye Counties, Nevada: unpublished U.S. Geological Survey Open-File Report, scale 1:100,000.

scale 1:100,000.
Hinrichs, E.N., and McKay, E.J., 1965, Geologic map of the Plutonium Valley quadrangle, Nye and Lincoln Counties; Nevada: U.S. Geological Survey Map GQ-384, scale 1:24,000.
Hudson, M.R., 1997, Structural geology of the French Peak accommodation zone, Nevada Test Site, southwestern Nevada: U.S. Geological Survey Open-File Report 97-56, scale 1:12,000.
Poole, F.G., 1965, Geologic map of the Frenchman Flat quadrangle, Nye, Lincoln, and Clark Counties, Nevada: U.S. Geological Survey Map GQ-456, scale 1:24,000.

Tschanz, C.M., and Pampeyan, E.H., 1970, Geology and mineral deposits of Lincoln County, Nevada: Nevada Bureau of Mines of Geology Bulletin 73, 187 p., scale 1:250,000.
Workman, J.B., Menges, C.M., Page, W.R., Taylor, E.M., Ekren, E.B., Rowley, P.D., Dixon, G.L., Thompson, R.A., and Wright, L.A., 2002, Geologic map of the Death Valley ground-water model area, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2381-A, scale 1:250,000.

## ABSTRACT

Despite considerable progress mapping the geology of the United States over the past century, numerous areas of pronounced interest for tectonic and climate history, resource development, engineering, ecosystem protection, and hazards reduction remain poorly mapped. One such location is the Spotted Range and Ranger Mountains of south-central Nevada, a large area where detailed geologic mapping has long been impossible due to access restrictions. Although 1:100,000 and 1:250,000 scale regional mapping exists over this area, stratigraphic units are highly generalized, particularly for Devonian, Mississippian, and Cenozoic rocks, and structural and stratigraphic boundaries are notional in some areas. We present a preliminary 1:48,000-scale geologic map of the Spotted Range and surrounding areas based on recently released high-resolution aerial imagery. Our mapping of middle Cenozoic sedimentary and volcanic rocks was supported by preliminary field characterization and forthcoming U-Pb zircon and 40Ar/39Ar geochronology in the northernmost Spotted Range and southernmost Fallout Hills. This work is part of the U.S. Geological Survey Intermountain West Project, which is developing a seamless digital geologic map of a large portion of the southwestern USA. The new mapping improves prior work with more detailed differentiation of upper Paleozoic lithologies based on regionally accepted lithostratigraphic units rather than generalized chronostratigraphic units, as well as more precise and accurate linework for stratigraphic contacts and structural features. These improvements yield considerably better delineation of normal and strike-slip faults, which will assist with restoring Cenozoic transtensional deformation patterns and identifying potential seismic hazards. Our mapping also provides better control on the surface expression and subsurface structure of the Spotted Range thrust fault system in the Ranger Mountains and southern Spotted Range. Finally, the improved structural mapping may assist with characterizing the Rock Valley fault system as well as the hydrogeologic properties of the Las Vegas basin and the greater Death Valley regional ground-