

POTENTIAL RESOURCES ASSOCIATED WITH PROPOSED ROADLESS AREAS IN NEVADA (SECOND EDITION)

Nevada Bureau of Mines and Geology (NBMG) Open-File Report 06-12

Ronald H. Hess and Jonathan G. Price

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The maps contained in this report (Plates 1 through 17) have been produced at the request of the Nevada Division of Minerals to help inform the Governor of Nevada, local, state, and federal agencies, and other stakeholders, including the general public, regarding decisions on land use.

In its November 2000 Final Environmental Impact Statement regarding roadless areas (http://roadsless.fs.fed.us/documents/feis/), the U.S. Forest Service defined inventoried roadless areas as "undeveloped areas typically exceeding 5,000 acres that meet the minimum criteria for wilderness consideration under the Wilderness Act and that were inventoried under the Forest Service's Roadless Area Review and Evaluation (RARE II) process, subsequent assessments, or forest planning." At that time, the acreage of inventoried roadless areas on lands managed by the Forest Service in Nevada amounted to approximately 2.2 million acres, 55% of the 3.8 million total acres managed by the Forest Service in Nevada. In 2006 the Forest Service proposed the Nevada Division of Minerals with the outlines of currently proposed roadless areas shown in this report. These proposed roadless areas total approximately 2,243 million acres (Plate 1) and do not include existing, officially designated Wilderness Areas within lands managed by the Forest Service (Plate 15).

Although this report is part of the series of open-file reports of the Nevada Bureau of Mines and Geology (NBMG), which do not undergo technical and scientific peer review as do NBMG bulletins, reports, and maps, the maps presented in this report are largely available from other published sources, some of which have undergone peer review. References are provided on the individual maps.

The Nevada Division of Minerals asked that NBMG show on these maps areas with potential for mineral and energy-resource development in relation to proposed roadless areas. Several maps in this report are essentially the same as used in NBMG Report 51 ("Preliminary Assessment of the Potential for Carbon Dioxide Disposal by Sequestration in Geological Settings in Nevada," published in 2005). In this open-file report we use the same geographic information system (GIS) analysis as used in NBMG Report 51, updated as explained on individual maps, to portray areas most likely to experience development of mineral, petroleum, and geothermal resources in the future.

Several maps in this open-file report are used in the GIS derivation of other maps; others are presented as related information. Plate 2 illustrates the distribution of mines and mineral-resource prospects throughout the state. We did not use this map in the GIS analysis because some of these sites do not contain significant mineral deposits.

Plate 3 (which shows mineral deposits that have been mined in the past, from federal databases included in

NBMG Open-File Report 01-03, plus known gold and silver deposits from NBMG Map 149, published in 2006, with a few additions that will be included in the next update of this publication) and Plate 4 (mining districts from NBMG Report 47, published in 1998) were used to create Plate 5. Other approaches to evaluating mineral-resource potential, including maps produced by the U.S. Geological Survey, are discussed in NBMG Report 51.

Plates 6 and 7 are two ways of portraying active mining claims on lands managed by the Bureau of Land Management and the Forest Service. Plate 8 is derived through GIS analysis from Plate 6, with the assumption that areas within three miles of active mining claims have a high potential for mineral-resource discovery. Plate 9 is an enlarged version of the map of oil and gas potential in Nevada from NBMG Bulletin 104 (published in 1988). Plate 10 (derived from data in NBMG Report 51 with primary data from NBMG Map 141, published in 2005) and Plate 11 (derived from NBMG Map 151, also published in 2005) are two depictions of potential for development of geothermal power.

Plate 12 (wind-power potential, derived from a national assessment by the U.S. Department of Energy) and Plate 13 (areas with stands of piñon pine and juniper, a proxy for areas that may have potential for harvesting of biomass for heat or power generation, derived from a 2005 report released by the U.S. Environmental Protection Agency) are shown but not further used in this open-file report. Another renewable energy source, solar, is not portrayed, because all areas of Nevada exceed the national average for solar energy incidence, according to the U.S. Department of Energy (http://www.nrel.gov/gis/solar.html#collector).

Plates 14, 16, and 17 are three illustrations of the combination of Plates 5 (mineral-resource potential derived from GIS analysis of known deposits), 8 (overlapping and additional areas of mineral-resource potential assumed from the nearness to active mining claims), 9 (moderate and high oil and gas potential), and 10 (geothermal resource potential). Plate 16 is the same as Plate 14, with the addition of currently restricted lands that are shown in detail on Plate 15. Plate 17 highlights the areas within the proposed roadless areas that do not fall within areas portrayed on Plates 5, 8, 9, and 10 as areas with potential for development of mineral, oil and gas, or geothermal resources. These areas total approximately 88,000 acres.

These maps collectively show areas of the state that have potential for resource development. No recommendation for what should or should not be managed as wilderness areas is made by NBMG.

This information should be considered preliminary. It has not been edited or checked for completeness or accuracy.

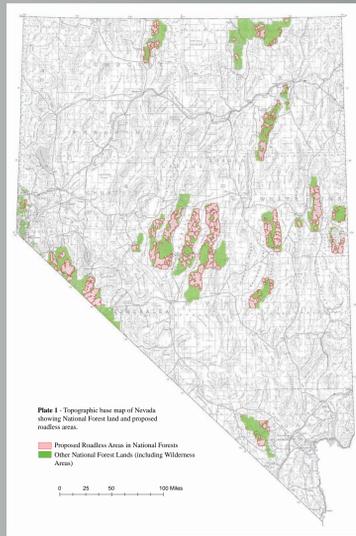


Plate 1 - Topographic base map of Nevada showing National Forest land and proposed roadless areas.

- National Forest Land
- Proposed Roadless Areas
- Other National Forest Lands (including Wilderness Areas)

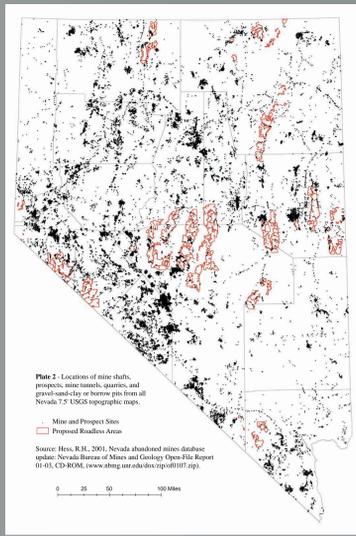


Plate 2 - Locations of mine shafts, prospects, mine tunnels, quarries, and gravel-sand-clay or borrow pits from all Nevada USGS topographic maps.

- Mine and Prospect Sites
- Proposed Roadless Areas

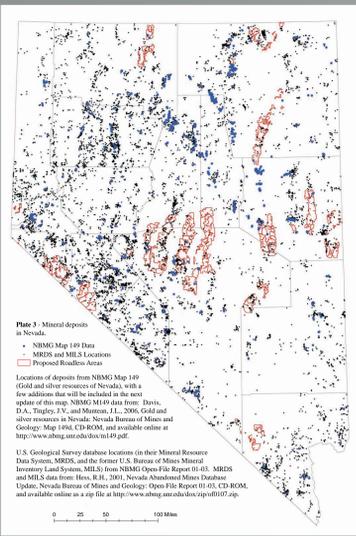


Plate 3 - Mineral deposits in Nevada.

- NBMG Map 149 Data (MREDS and MLI-3 Locations)
- Proposed Roadless Areas

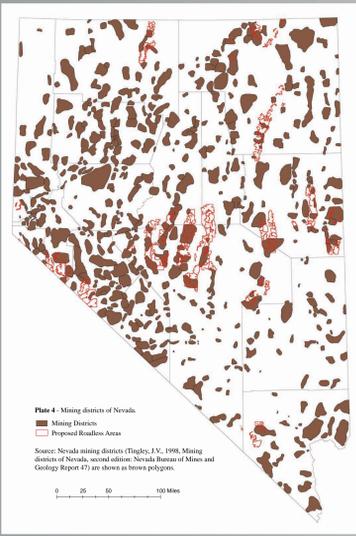


Plate 4 - Mining districts of Nevada.

- Mining Districts
- Proposed Roadless Areas

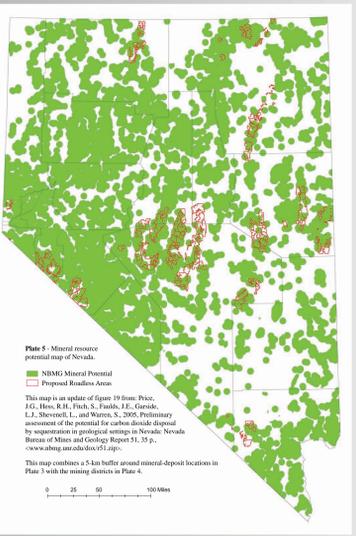


Plate 5 - Mineral resource potential map of Nevada.

- NBMG Mineral Potential
- Proposed Roadless Areas

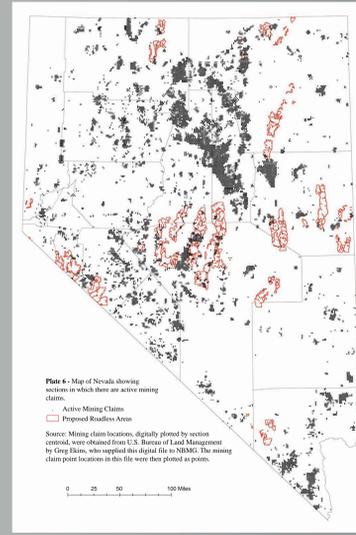


Plate 6 - Map of Nevada showing sections in which there are active mining claims.

- Active Mining Claims
- Proposed Roadless Areas

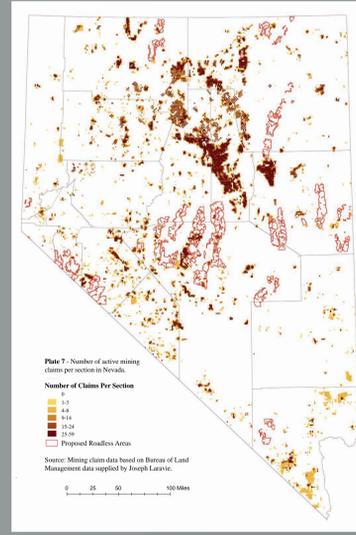


Plate 7 - Number of active mining claims per section in Nevada.

Number of Claims Per Section	Color
1-3	Lightest Yellow
4-6	Light Yellow
7-9	Yellow
10-12	Orange
13-15	Dark Orange
16-18	Red-Orange
19-21	Red
22-24	Dark Red
25-27	Black

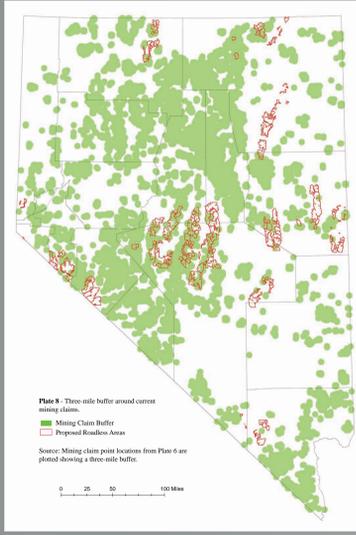


Plate 8 - Three-mile buffer around current mining claims.

- Mining Claims Buffer
- Mining Claims
- Proposed Roadless Areas

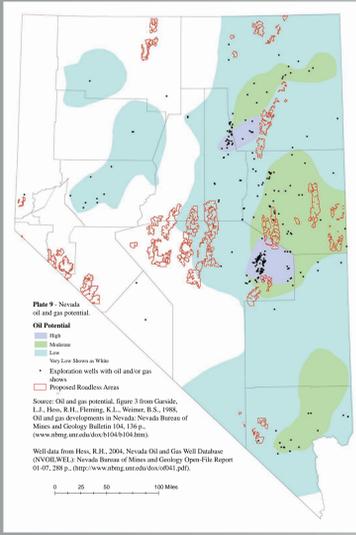


Plate 9 - Nevada oil and gas potential.

- Oil Potential
- Gas Potential
- Moderate
- Low
- Very Low Shown as White

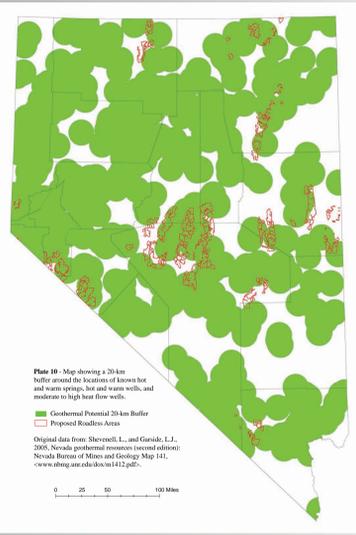


Plate 10 - Map showing a 20-km buffer around the locations of known hot and warm springs, hot and warm wells, and moderate to high flow wells.

- Geothermal Potential 20 km Buffer
- Proposed Roadless Areas

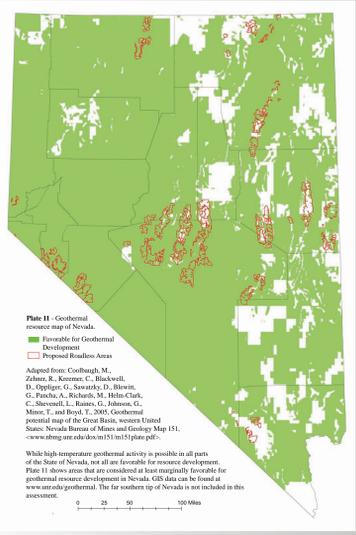


Plate 11 - Geothermal resource map of Nevada.

- Favorable for Geothermal Development
- Proposed Roadless Areas

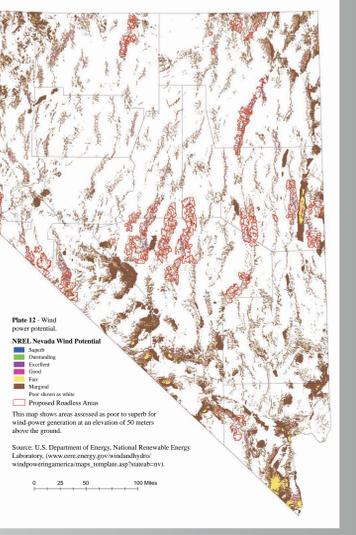


Plate 12 - Wind power potential.

- NEEL Nevada Wind Potential
- Favorable
- Moderate
- Low
- Very Low
- Proposed Roadless Areas



Plate 13 - Nevada piñon-juniper areas.

- Piñon-Juniper Areas
- Proposed Roadless Areas

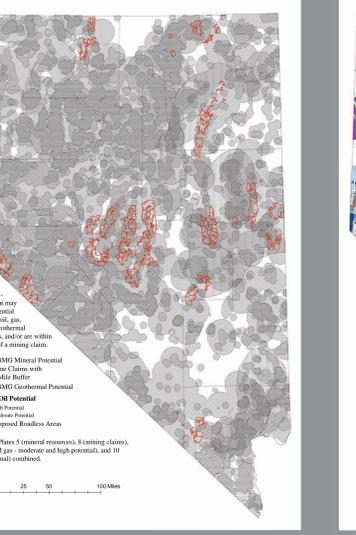


Plate 14 - Areas that may have potential mineral, oil, gas, and/or geothermal resources, and/or are within 3 miles of a mining claim.

- NBMG Mineral Potential
- Mine Claims with 3-Mile Buffer
- NBMG Geothermal Potential
- Oil Potential
- Gas Potential
- Proposed Roadless Areas

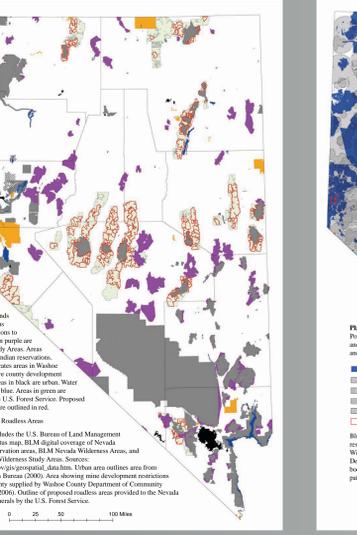


Plate 15 - Restricted lands.

- Various Restricted Lands
- NBMG Mineral Potential
- Moderate or High Oil Potential
- Mine Claims with 3-Mile Buffer
- NBMG Geothermal Potential
- Proposed Roadless Areas

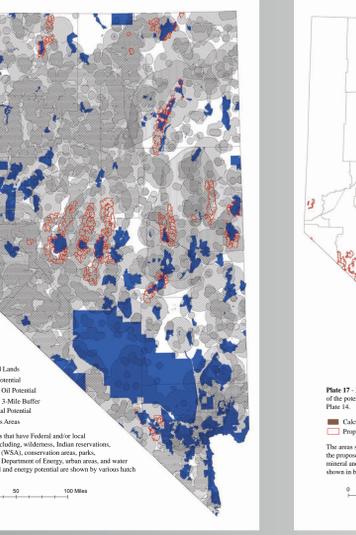


Plate 16 - Potential mineral and energy resources and restricted lands.

- Various Restricted Lands
- NBMG Mineral Potential
- Moderate or High Oil Potential
- Mine Claims with 3-Mile Buffer
- NBMG Geothermal Potential
- Proposed Roadless Areas

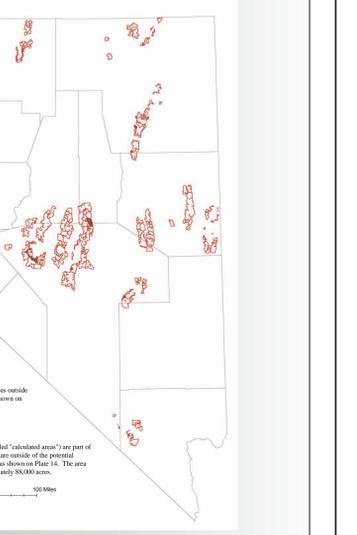


Plate 17 - Proposed roadless areas outside of the potential resource areas shown on Plate 14.

- Calculated Areas
- Proposed Roadless Areas