EXECUTIVE SUMMARY: Metallic and Industrial Mineral Resource Potential of Southern and Eastern Oregon: Report to the Oregon Legislature

BACKGROUND

The 2015 Oregon Legislature passed HB 3089, which required the Department of Geology and Mineral Industries (DOGAMI) to prepare a report that included 1) a review of the mineral resource potential of eastern and southern Oregon counties, 2) an evaluation of which metallic and industrial mineral commodities are most likely to be economically developable, and 3) recommendations for future mineral resource potential assessment activities. HB 3089 also required DOGAMI to provide a list of all relevant mineral inventories and studies previously completed by the department, and a cost estimate for making that information available online.

REPORT SUMMARY

Review of Mineral Resource Potential: A team of DOGAMI geologists performed a high-level, qualitative review of published mineral and geologic data on 15 different mineral commodities for 22 southern and eastern Oregon counties. Data reviewed included the state mineral inventory (Mineral Information Layer for Oregon), digital geologic map (Oregon Geologic Data Compilation), and a custom map of mining claim information from the Bureau of Land Management's LR 2000 mining claim database.

Mineral Resource Evaluation: Table 1 summarizes the results of the mineral resource evaluation. Counties were rated for mineral resource potential, defined as the likelihood that new mineral resources could be discovered or defined. A mineral resource is defined as a sufficiently large concentration of a useful or valuable mineral that extraction at a profit may be feasible under current or foreseeable conditions. Mineral resource potential ratings are High, Moderate, Low, Present (at least one occurrence of the commodity had been recorded in the county), or Not Found (no occurrences of the commodity are known from the county).

Recommendations: As directed by HB 3089, the report provides recommendations, including estimated related costs, for further mineral resource potential assessment activities in southern and eastern Oregon with the department's existing personnel. The first five recommendations are part of a phased four-biennium package, ordered by biennium. They are:

1. Compile existing paper and digital information into a comprehensive integrated mineral geodatabase. First biennium, estimated cost ~$635,000.
2. Collect regional exploration data including stream sediment geochemistry and satellite-based mineral maps. Second Biennium, estimated cost ~$682,000.
3. Create detailed geologic maps of mineral occurrence areas identified through recommendations 1 and 2. Third biennium, estimated cost ~$697,000.
4. Develop ore system models of mineral occurrences identified and mapped with recommended activities 1-3. Fourth biennium, estimated cost ~$313,000.
5. Study the geologic setting of Oregon sunstone occurrences to guide exploration. Estimated cost ~$139,000.
6. Prepare and publish a technical resource guide for small mining operations. Estimated cost ~$138,000.

Additional requirements of HB 3089: The list of all relevant previous mineral inventories and studies has been published on the department's website, and is included in the report as Appendix B. All DOGAMI publications, including mineral resource inventories and studies, have been available for free download in the department's online Publications Center since December 2015. The cost of including mineral inventories and reports was not significant.

DOWNLOAD THE FULL REPORT

The full report is available for download at: http://www.oregongeology.org/pubs/ofr/p-O-16-06.htm

Table 1. Mineral resource potential by county for selected commodities. Commodities are grouped into metallic ores and industrial minerals. Commodities in each group are listed in order of decreasing potential.

	Metallic Minerals							Industrial Minerals							
County	**Precious Metals: Gold & Silver**	**Base Metals: Copper, Lead, & Zinc**	**Nickel**	**Chromite**	**Uranium**	**Platinum Group Metals**	**Lithium**	**Limestone**	**Bentonite**	**Diatomite**	**Zeolites**	**Silica**	**Pumice**	**Perlite**	**Sunstones**
Baker	H	M	L	L	L	P	NF	H	M	L	M	NF	NF	M	NF
Coos	M	M	NF	H	NF	L	NF	P	NF	NF	NF	H	NF	NF	NF
Crook	H	L	NF	NF	M	NF	NF	P	H	L	L	NF	NF	NF	NF
Curry	H	H	H	M	P	L	NF	P	NF	NF	NF	L	NF	NF	NF
Deschutes	L	NF	NF	NF	NF	NF	NF	NF	NF	H	NF	NF	H	NF	NF
Douglas	H	H	H	M	NF	M	NF	L	NF	NF	NF	H	L	NF	NF
Gilliam	NF	NF	NF	NF	NF	NF	NF	NF	L	NF	NF	NF	P	NF	NF
Grant	H	H	L	H	P	L	NF	P	L	P	P	NF	NF	NF	NF
Harney	H	M	NF	NF	M	NF	M	P	M	H	H	NF	L	P	H
Jackson	H	M	L	M	L	P	NF	H	M	NF	NF	H	P	NF	NF
Jefferson	H	P	NF	P	NF	NF	NF	P	L	NF	NF	NF	NF	NF	NF
Josephine	H	H	H	H	P	M	NF	H	NF	NF	NF	P	NF	NF	NF
Klamath	NF	NF	NF	NF	NF	NF	NF	NF	L	M	NF	NF	H	P	NF
Lake	H	L	NF	NF	H	NF	L	P	P	H	L	P	P	H	H
Malheur	H	P	P	P	H	NF	H	P	H	H	H	L	L	L	L
Morrow	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	P	NF	NF	NF
Sherman	P	NF	NF	P	NF	NF	NF	NF	NF	NF	P	NF	NF	NF	NF
Umatilla	L	NF	NF	NF	P	NF	NF	NF	P	NF	NF	P	NF	L	NF
Union	M	P	NF	NF	P	P	NF	P	P	P	NF	NF	NF	P	NF
Wallowa	L	M	NF	NF	P	P	NF	H	NF	NF	NF	P	NF	NF	NF
Wasco	L	NF	NF	NF	NF	NF	NF	NF	H	NF	NF	NF	NF	L	NF
Wheeler	L	P	NF	P	P	NF	NF	P	L	L	L	NF	NF	NF	NF

Mineral Potential Key

High	H
Moderate	M
Low	L
Present	P
Not Found	NF

For the ratings criteria used to create this table, see the assessment methodology on page 7 of the full report.