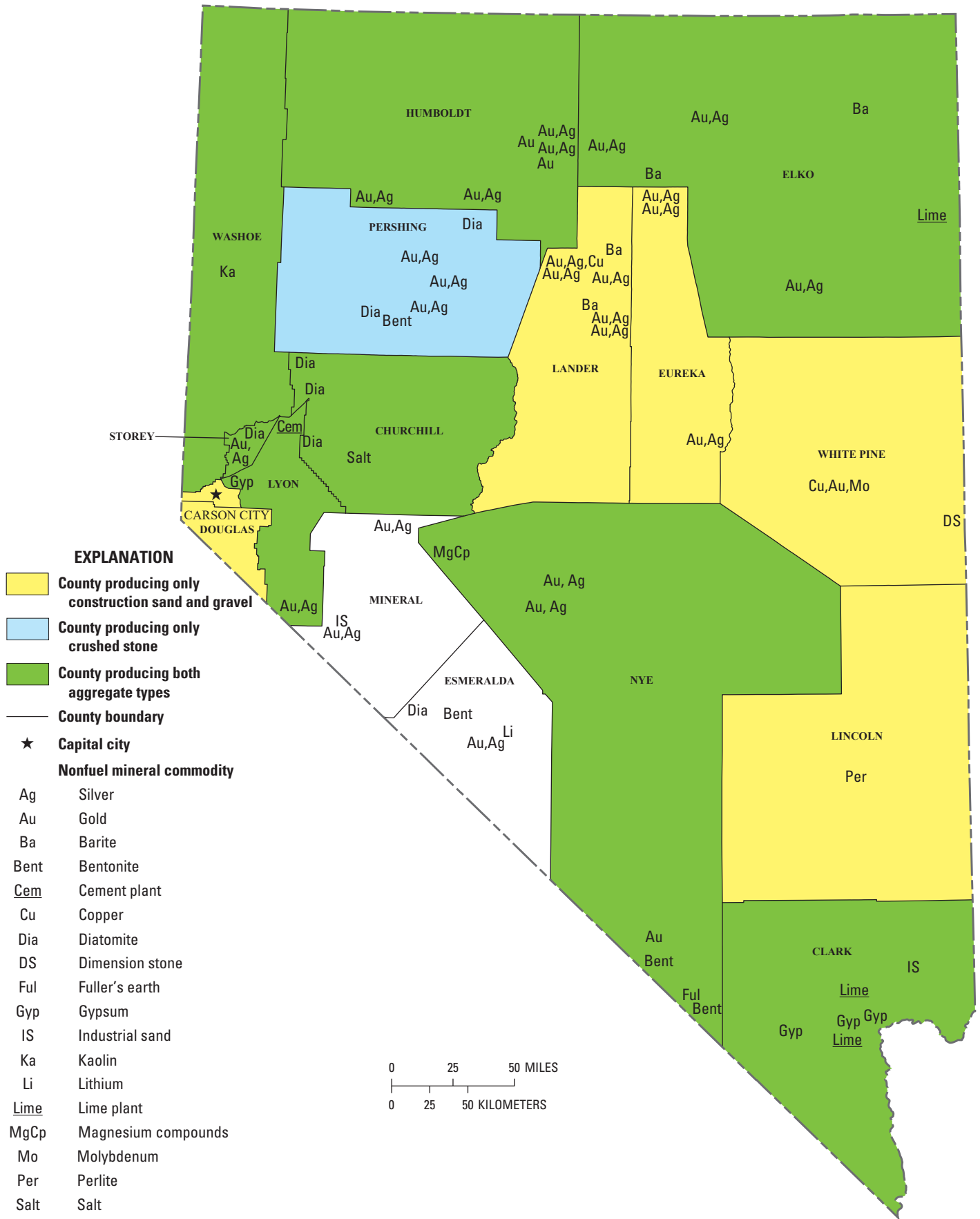




2014 Minerals Yearbook

NEVADA [ADVANCE RELEASE]



Base from U.S. Geological Survey digital data
Albers Equal-Area Conic projection

Figure 1. Map showing major nonfuel-mineral-producing areas in Nevada in 2014. Sources: Nevada Bureau of Mines and Geology and U.S. Geological Survey.

THE MINERAL INDUSTRY OF NEVADA

By Madan M. Singh

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Nevada Bureau of Mines and Geology for collecting information on all nonfuel minerals.

In 2014, the value of the nonfuel mineral production¹ in the State of Nevada was \$7.52 billion. This was an 18.3% decrease from the State's revised nonfuel mineral production value of \$9.21 billion in 2013 (table 1). Nonfuel mineral production in the State surpassed \$10 billion in value in 2011 and remained above that figure in 2012, but has declined since then (fig. 1). Nevada accounted for approximately 9.4% of the total U.S. nonfuel mineral production value in 2014, which ranked it second among the 50 States. On a per capita basis, the value of nonfuel mineral production was \$2,650 compared with the average national value of \$252. In 2014, the number of nonfuel mines decreased but the mine employment increased with respect to the previous year (table 2).

In 2014, the leading five minerals in production value in the State, in alphabetical order, were copper, diatomite, gold, lime, and silver.

In 2014, Barrick Gold Corp. produced 72 metric tons (t) of gold and Newmont Mining Corp. produced 49 t. Barrick produced 28 t from the Goldstrike and Cortez Mines and Newmont also produced 28 t from the Carlin Trend mines. Newmont's Twin Creeks Mine (Humboldt County) and the Round Mountain Mine (Nye County), a joint venture between Kinross Gold Corp. and Barrick, were other major producers.

Approximately 62% of the silver produced in the State was a byproduct of gold mining. There was only one mine, Coeur Mining Co.'s Rochester Mine in Pershing County, which qualified as a primary silver producer; the mine produced 38% of the silver in Nevada. In 2014, copper production was dominated by KGHM International Ltd.'s Robinson copper-gold-silver-molybdenum mine near Ely in White Pine County. This operation was also the sole producer of molybdenum in the State. The Phoenix Project (Newmont) near Battle Mountain in Lander County also produced copper at its solvent extraction–electrowinning (SX–EW) plant on site. Newmont shipped some copper concentrates out of State. KGHM exported all of its copper concentrates to smelters outside Nevada (Muntean and others, 2016, p. 6).

In 2014, important industrial commodities produced or processed in Nevada included barite, cement, clays, construction aggregates (including dolomite), diatomite, dimension stone, gemstones (opal and turquoise), gypsum, lime, lithium carbonate, magnesite, perlite, and salt.

¹“The terms “nonfuel mineral production” and related “values” encompass variations in meaning, depending upon the mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers), depending on the individual mineral commodity.

All USGS mineral production data published in this chapter are those available as of June 2017. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the internet at <http://minerals.usgs.gov/minerals>.

Tesla Motors Inc. began construction of its \$5 billion battery plant east of Reno in Storey County in June 2014, with production expected to begin in 2017. It planned to produce lithium-ion batteries for Tesla electric cars and for business, commercial, and home use. Albemarle Corp.'s Silver Peak operation in Clayton Valley in Esmeralda County, where subsurface brines are evaporated on a playa, was the sole producer of lithium compounds in the United States. In 2014, Nevada was the leading domestic producer of barite, 95% of which was used for drilling muds, and the second largest producer of diatomite. Premier Magnesia, LLC was the only producer of hard-rock magnesite in the country from its Gabbs Mine (Nye County) (Muntean and others, 2016, p. 9).

Events, Trends, and Issues

Advanced exploration projects indicate potential for major developments, particularly for gold along the Carlin and Cortez Trends in Eureka, Lander, and Elko Counties, such as Barrick's large Goldrush deposit near its Cortez complex. Newmont continued to develop its Long Canyon deposit in the Pequop Mountains (Elko County). The Pumpkin Hollow copper project (Nevada Copper Corp.) near the town of Yerington (Lyon County) was ready for production but capital investment of more than \$1 billion was being sought (Muntean and others, 2016, p. 7).

Crude gypsum production decreased in the period 2012 through 2014, although data were withheld. Elissa Resource Ltd. was evaluating its Thor rare-earth-elements (REE) project in Clark County, 28 km east of the Mountain Pass REE mine in California (Elissa Resources Ltd., 2012). In 2014, Albemarle Corp. agreed to purchase the Rockwood operations at the Silver Peak Lithium Mine, Esmeralda County, for \$6.2 billion (U.S. Securities and Exchange Commission, 2014). Western Lithium Corp. started a hectatone processing plant in December 2014 for use as an additive for high-pressure, high-temperature drilling muds. The hectorite clays for the plant were mined in the moats of the McDermitt Caldera in Kings Valley, Humboldt County (Holzel, 2014).

Aggregates by State and End Use

A companion dataset, “Aggregates by State and End Use,” replaces the discrete aggregate tables that were included in the individual State chapters prior to 2014 and is available on the State Minerals Statistics and Information web page at <https://minerals.usgs.gov/minerals/pubs/state/>. This dataset is updated annually.

References Cited

- Elissa Resources Ltd., 2012, Elissa Resources reports phase one drill results from Thor REE Project, Nevada, 2012: Vancouver, British Columbia, Canada, Elissa Resources Ltd. press release, June 19. (Accessed May 1, 2018, at <http://www.marketwired.com/press-release/elissa-resources-reports-phase-one-drill-results-from-thor-ree-project-nevada-tsx-venture-eli-1670878.htm>.)
- Holzel, Dee, 2014, Western Lithium holds dedication ceremony for new Fernley plant processing Humboldt County hectorite clay: Elko [NV] Daily Free Press, Mining Quarterly, December 9, 1 p. (Accessed May 1, 2018, at https://elkodaily.com/mining/western-lithium-holds-dedication-ceremony-for-new-fernley-plant-processing/article_f27ab0c9-341f-567c-bc22-1ae791a3ebc9.html.)
- Muntean, J.L., Davis, D.A., and Shevenell, Lisa, 2016, The Nevada mineral industry 2014: Reno, NV, Nevada Bureau of Mines and Geology, University of Nevada, Special Publication MI-2014, 171 p. (Accessed October 31, 2017, at <https://pubs.nbmgs.unr.edu/The-NV-mineral-industry-2014-p/mi2014.htm>.)
- U.S. Securities and Exchange Commission, 2014, Albemarle and Rockwood announce merger to create a premier specialty chemicals company, 2014: Baton Rouge, LA, and Princeton, NJ, U.S. Securities and Exchange Commission press release, July 15, 6 p. (Accessed May 1, 2018, at https://www.sec.gov/Archives/edgar/data/1315695/000110465914051654/a14-17054_2ex99d1.htm.)

TABLE 1
NONFUEL MINERAL PRODUCTION IN NEVADA^{1,2,3}

(Thousand metric tons and thousand dollars unless otherwise specified)

| Mineral | 2012 | | 2013 | | 2014 | | |
|--|-------------|---------------------|---------------------|---------------------|------------------------|---------|-----------|
| | Quantity | Value | Quantity | Value | Quantity | Value | |
| Barite | 659 | 73,200 | 717 | 80,500 | 649 | 85,800 | |
| Gold ⁴ | kilograms | 175,000 | 9,440,000 | 170,000 | 7,720,000 | 151,000 | 6,160,000 |
| Lithium carbonate ⁵ | metric tons | W | W | 870 | 11,200 | W | W |
| Sand and gravel, construction | | 12,100 ^r | 78,200 ^r | 12,700 ^r | 87,800 ^r | 13,400 | 88,700 |
| Silver ⁴ | kilograms | 250,000 | 251,000 | 255,000 | 195,000 | 326,000 | 203,000 |
| Stone, crushed | | 8,350 | 80,900 | 7,840 ^r | 74,900 ^r | 8,550 | 76,200 |
| Combined values of cement, clays (bentonite, fuller's earth, kaolin), copper, diatomite, gemstones (natural), gypsum (crude), lime, magnesite, molybdenum concentrates, perlite (crude), salt, sand and gravel (industrial), stone (dimension), and values indicated by symbol W | | XX | 1,110,000 | XX | 1,040,000 ^r | XX | 908,000 |
| Total | | XX | 11,000,000 | XX | 9,210,000 ^r | XX | 7,520,000 |

^rRevised. W Withheld to avoid disclosing company proprietary data; included in "Combined values" data. XX Not applicable.

¹Includes data available through June 2017.

²Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

³Data are rounded to no more than three significant digits; may not add to totals shown.

⁴Recoverable content of ores and concentrates.

⁵Lithium content.

TABLE 2
MINING ACTIVITY IN NEVADA

| Mining activity | 2012 | 2013 | 2014 | |
|--|--------------------|--------|--------|--------|
| State rank ¹ | 1 | 1 | 2 | |
| Employment, number: ² | | | | |
| Nonfuel mineral mines | 8,260 | 7,653 | 8,227 | |
| Mills and plants | 3,408 | 3,583 | 3,465 | |
| Number of nonfuel mineral mines ² | 219 | 223 | 216 | |
| Number of mills and plants ² | 61 | 66 | 66 | |
| Average annual wage, all mining ³ | dollars per year | 83,135 | 87,168 | 88,482 |
| Average annual wage, all industries ³ | do. | 42,404 | 42,941 | 43,534 |
| Per capita value ¹ | dollars per person | 4,010 | 3,300 | 2,650 |
| National per capita value ¹ | do. | 241 | 236 | 252 |

do. Ditto.

¹Based on unadjusted State total value.

²Source: U.S. Mine Safety and Health Administration.

³Source: National Mining Association.

TABLE 3
STRUCTURE OF THE NONFUEL MINERAL INDUSTRY IN NEVADA¹

(Nonfuel-mineral-producing companies, not including aggregate producers)

| Commodity | Company | County |
|----------------------------------|--|--|
| Barite | Baker Hughes, Inc. (Argenta Mine) | Lander |
| Do. | Halliburton Energy Services, Inc. (Rossi Mine) | Elko |
| Do. | M-I SWACO (Schlumberger) Greystone Mine | Lander |
| Do. | National Oilwell Varco, Inc. (Big Ledge Mine) | Elko |
| Cement | Eagle Materials, Inc. (Nevada Cement plant) | Lyon |
| Clays: | | |
| Bentonite | IMV Nevada (Lhoist North America) | Nye |
| Do. | Vanderbilt Minerals Corp. | Esmeralda, Nye, Pershing |
| Fuller's earth, attapulgite | IMV Nevada (Lhoist North America) | Nye |
| Kaolin | Eagle Materials, Inc. | Washoe |
| Copper, gold, silver | Newmont Mining Corp. (Phoenix Project) | Lander |
| Copper, gold, silver, molybdenum | KGHM International, Ltd. (Robinson Mine) | White Pine |
| Diatomite | EP Minerals LLC | Churchill (2 operations), Pershing, Storey |
| Do. | Grefco Minerals, Inc. | Esmeralda |
| Do. | Imerys Minerals California, Inc. | Churchill |
| Do. | Nutritional Additives Corp. | Pershing |
| Gold | Atna Resources, Inc. (Pinson Mine) | Humboldt |
| Do. | Barrick Gold Corp., 75%, and Newmont Mining Corp., 25% (Turquoise Ridge Mine) | Do. |
| Do. | Sterling Gold Mining Corp. (Sterling Mine) | Nye |
| Gold and silver | A.U. Mines, Inc. (Manhattan Gulch-placer) | Do. |
| Do. | Allied Nevada Gold Corp. (Hycroft Mine) | Humboldt |
| Do. | Barrick Cortez, Inc. (Cortez Hills Mine) | Lander |
| Do. | Barrick Cortez, Inc. (Cortez Hills Pipeline Mine) | Do. |
| Do. | Barrick Gold US, Inc. (Bald Mountain Mine) | White Pine |
| Do. | Barrick Goldstrike Mines, Inc. (Betze Post Mine) | Eureka |
| Do. | Barrick Goldstrike Mines, Inc. (Meikle Mine) | Do. |
| Do. | Borealis Mining Co., LLC (Borealis-leach pad) | Mineral |
| Do. | Coeur Rochester, Inc. (Rochester Mine) | Pershing |
| Do. | Comstock Mining, Inc. (Lucerne Mine) | Storey |
| Do. | Homestake Mining Co. (Ruby Hill Mine) | Eureka |
| Do. | Jipangu Florida Canyon Mining, Inc. (Florida Canyon Mine) | Pershing |
| Do. | Klondex Mines Ltd. (Fire Creek Mine) | Lander |
| Do. | Klondex Mines Ltd. (Midas Mine) ² | Elko |
| Do. | Mineral Ridge Gold, LLC (Mineral Ridge Mine) | Esmeralda |
| Do. | Newmont Mining Corp. (Carlin Trend Operations) | Eureka |
| Do. | Newmont Mining Corp. (Lone Tree Mine) | Humboldt |
| Do. | Newmont Mining Corp. (Twin Creeks Mine) | Do. |
| Do. | Rawhide Mining, LLC. (Denton-Rawhide Mine) | Mineral |
| Do. | Barrick Gold Corp., 50%, and Kinross Gold Corp., 50% (Round Mountain Mine) | Nye |
| Do. | Silver Standard Resources, Inc. (Marigold Mine) | Humboldt |
| Do. | Sunrise Minerals (Sunrise-placer) | Pershing |
| Do. | Veris Gold USA, Inc. (Jerritt Canyon Mine) | Elko |
| Do. | Waterton Global Mining (Hollister Mine) | Humboldt |
| Gypsum | Art Wilson Co. | Lyon |
| Do. | PABCO Building Products, LLC | Clark |
| Do. | Pioneer Gypsum Mining, Inc. | Do. |
| Do. | Gypsum Resource Materials, LLC | Do. |
| Lime | Graymont Western US, Inc. | Elko |
| Do. | Lhoist North America (Apex) | Clark |
| Do. | Lhoist North America (Henderson) | Do. |
| Lithium | Rockwood Lithium, Inc. (Albamarle Corp.'s Silver Peak Lithium Mine) | Esmeralda |
| Magnesium compounds | Premier Magnesia, LLC (Gabbs Mine) | Nye |
| Perlite | Wilkin Mining and Trucking, Inc. | Lincoln |
| Salt | Huck Salt Co. | Churchill |

See footnotes at end of table.

TABLE 3—Continued
 STRUCTURE OF THE NONFUEL MINERAL INDUSTRY IN NEVADA

(Nonfuel-mineral-producing companies, not including aggregate producers)

| Commodity | Company | County |
|-----------------------------|--------------------------------------|------------|
| Sand and gravel, industrial | J.R. Simplot Co. | Clark |
| Do. | James Hardie Building Products, Inc. | Mineral |
| Stone, dimension | Mount Moriah Stone Co. | White Pine |
| Do. Ditto. | | |

¹The data in this table are taken from the following State report and may differ from those in the U.S. Geological Survey Minerals Yearbook, volume I, Metals and Minerals chapters: Perry, R., and Visher, M., 2015, Major mines of Nevada 2014: Nevada Division of Minerals, Nevada Bureau of Mines and Geology, Special Publication P-26, 28 p. (Accessed October 31, 2017, at http://minerals.nv.gov/uploadedFiles/mineralsnv.gov/content/Programs/Mining/Forms_Publications/mm2014_MajorMines2014_9Oct15.pdf.)

²Midas Mine purchased from Newmont Mining Corp. by Klondex Mines Ltd. on February 11, 2014.

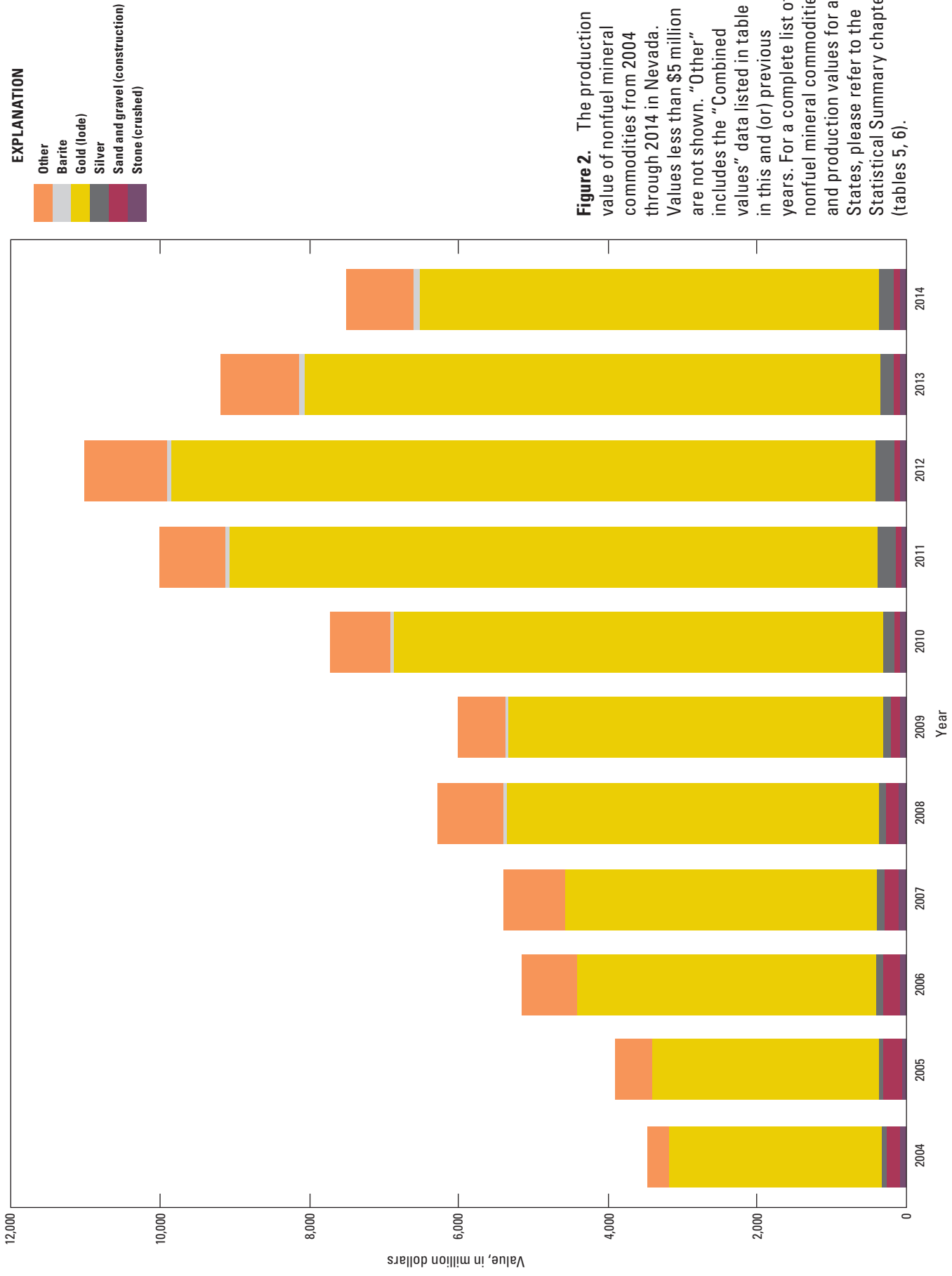


Figure 2. The production value of nonfuel mineral commodities from 2004 through 2014 in Nevada. Values less than \$5 million are not shown. "Other" includes the "Combined values" data listed in table 1 in this and (or) previous years. For a complete list of nonfuel mineral commodities and production values for all States, please refer to the Statistical Summary chapter (tables 5, 6).