UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Mineral resource potential of National Forest RARE II and Wilderness lands in Wyoming

Compiled by

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This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

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ILLUSTRATIONS

INTRODUCTION

Information to provide a state-wide overview has been compiled on the mineral and energy resource potential of National Forest lands in Wyoming that are in or are being considered for inclusion in the National Wilderness Preservation System. This compilation includes data from a variety of sources. Where available, the primary source has been reports published by the U.S. Geological Survey and the U.S. Bureau of Mines that were prepared in response to a provision of the Wilderness Act (PL88-577) of 1964, requiring survey of the mineral resources and evaluation of the mineral resource potential of lands to be included in the Wilderness System. For areas that lack such surveys, information from other published and unpublished reports was used, as well as verbal information supplied by Geological Survey geologists, principally Robert S. Houston and Ronald G. Worl. Useful comments were made by Robert C. Pearson, Alfred L. Bush, and Richard B. Taylor. Any errors are the responsibility of the compilers.

The areas discussed are those listed in a report by the U.S. Forest Service, dated January, 1979, entitled "Final environmental statement, roadless area review and evaluation (RARE II)." Changes that may have been made to this list or to the boundaries of the areas since this publication were not known and were not considered here.

The report includes a text that gives a brief description of the status of work, the geology, and the mineral and energy resource potential of each area, and provides a list of the most pertinent references. A number of references were used in evaluating all of the areas and, instead of citing them each time, they are listed below. The report also includes a 1:1,000,000-scale map (plate 1) that shows the mineral and/or energy resource potential of each area. As shown on the map explanation, the areas have been divided into two groups: (1) areas that have been covered by a mineral survey as mandated by the Wilderness Act, and (2) areas whose mineral potential has been determined from other geologic studies. Those who need more detailed information are encouraged to refer to the listed reports, as plate 1 necessarily provides only generalized information.

Assignments of mineral resource potential--both in the text and on the map--are stated as high, moderate, low, or unknown, after Goudarzi (1984). Terrane can be classified as either favorable or unfavorable for mineral and/or energy resources based on geologic environments, defined in terms of geological, geochemical, and geophysical characteristics. Geologic terranes that are considered unfavorable have low potential for mineral/energy resources. Terranes that are regarded as favorable have either moderate potential or high potential. Resources (deposits) do not have to be identified for an area to be assigned a high resource potential; however, evidence indicating that mineral forming processes were active in at least part of the area is required.

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Branch of Mineral Classification, Conservation Division, 1964, Reported occurrences of selected minerals in Wyoming: U.S. Geological Survey Mineral Investigations Resource Map MR-42, scale 1:500,000.

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Heasler, H. P., Hinckley, B. S., Buelow, K. G., Spencer, S. A., and Decker, E. R., 1983, Geothermal resources of Wyoming: National Geophysical Data Center, National Oceanic and Atmospheric Administration, scale 1:500,000.

Love, J. D., and Christiansen, A. C., 1983, Preliminary geologic map of Wyoming: U.S. Geological Survey Open-File Report 83-802, scale 1:500,000.

Osterwald, F. W., Osterwald, D. B., Long, J. S., Jr., and Wilson, W. H., 1966, Mineral resources of Wyoming: Wyoming Geological Survey Bulletin 50, 287 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

BIG HORN NATIONAL FOREST

LITTLE BIGHORN (2-020)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; McEldowney, Abshier, and Lootens, 1977; Lageson and others, 1978; Damp and Jennings, 1982) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The northern half of the Little Bighorn area is underlain by Paleozoic sedimentary rocks, and the southern half is underlain by Precambrian granitic and gneissic rocks. Placer gold has been recovered from the Bald Mountain mining district, located east of the Little Bighorn area. The lower member of the Cambrian Flathead Sandstone is the source of the gold, and outcrops of the Flathead Sandstone extend into the eastern part of the study area. Gold prospects are also found on quartz veins near the southern tip of the area.

Uranium deposits occur along major folds in cave-fill material and solution breccia in the upper 200 ft of the Mississippian Madison Limestone in the Pryor and Bighorn Mountains of Montana and Wyoming (McEldowney, Abshier, and Lootens, 1977). Mines and prospects are located along anticlines in the Pryor-Little Mountain mining district, which is northwest of the Little Bighorn area. The karst terrain in the upper part of the Madison Limestone is also exposed in the northern part of the Little Bighorn area, and the geology is favorable for the occurrence of uranium deposits. Uranium also occurs in the Tensleep Sandstone in this area (Damp and Jennings, 1982).

Commodities

Uranium.

Mineral and energy resource potential

The northern part of the Litle Bighorn area has a moderate resource potential for uranium in cave-fill and solution breccia deposits. The mineral and energy resource potential of the rest of the area is regarded as low. Although the basal gravels of the Flathead Sandstone contain placer gold, gold values are low and the distribution of the gold is highly irregular.

References

Damp, J. N., and Jennings, M. D., 1982, National uranium resource evaluation, Sheridan quadrangle, Wyoming and Montana: U.S. Department of Energy PGJ/F-127(82), p. 51-52.

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Lageson, D. R., Ver Ploeg, A. J., Glass, G. B., Hausel, D. W., Breckenridge, R. M., Gaylord, D. R., Marrs, R. W., King, J. K., and Madina, A. L., 1978, Sheridan County, Wyoming: Wyoming Geological Survey County Resource Series 5.

McEldowney, R. C., Abshier, J. F., and Lootens, D. J., 1977, Geology of uranium deposits in the Madison Limestone, Little Mountain area, Bighorn County, Wyoming, in Veal, H. K., ed., Exploration frontiers of the central and southern Rockies: Rocky Mountain Association of Geologists Symposium, p. 321-336.

DEVIL'S CANYON (2-021)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; McEldowney, Abshier, and Lootens, 1977; Damp and Jennings, 1982), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Devil's Canyon area is underlain by Paleozoic sedimentary rocks. Precambrian granitic and gneissic rocks crop out in a few isolated localities. Uranium deposits occur along major folds in cave-fill material and solution breccia in the upper 200 ft of the Mississippian Madison Limestone in the Pryor and Bighorn Mountains of Montana and Wyoming (McEldowney, Abshier, and Lootens, 1977). Mines and prospects are located along anticlines in the Pryor-Little Mountain mining district, which is northwest of the Devil's Canyon area. The karst terrain in the upper part of the Madison Limestone is also exposed in the northern part of the Devil's Canyon area, and the geology is favorable for the occurrence of uranium deposits. Uranium also occurs in the Tensleep Sandstone in this area (Damp and Jennings, 1982).

Commodities

Uranium.

Mineral and energy resource potential

The Devil's Canyon area has a moderate resource potential for uranium in cave-fill and solution breccia deposits. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Damp, J. N., and Jennings, M. D., 1982, National uranium resource evaluation, Sheridan quadrangle, Wyoming and Montana: U.S. Department of Energy PGJ/F-127(82), p. 51-52.

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.
McEldowney, R. C., Abshier, J. F., and Lootens, D. J., 1977, Geology of uranium deposits in the Madison Limestone, Little Mountain area, Bighorn County, Wyoming, in Veal, H. K., ed., Exploration frontiers of the central and southern Rockies: Rocky Mountain Association of Geologists Symposium, p. 321-336.

WALKER PRAIRIE (2-023)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Lageson and others, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The northeastern part of the Walker Prairie area is underlain by Paleozoic sedimentary rocks, and the remainder of the area is underlain by Precambrian granitic and gneissic rocks containing sparsely mineralized quartz veins. There are no mining districts in or near the area. The only mine present is the Walker mine, located on the South Fork Wolf Creek southwest of Walker Mountain, where gold, copper, and lead have been produced from vein-type deposits. Several gold and tungsten prospects are found on quartz veins west of the Walker mine.

Commodities

Gold, copper, lead, and tungsten.

Mineral and energy resource potential

The area around the Walker mine has a moderate resource potential for gold, copper, lead, and tungsten in vein-type deposits. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.
_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.
Lageson, D. R., Ver Ploeg, A. J., Glass, G. B., Hausel, D. W., Breckenridge, R. M., Gaylord, D. R., Marrs, R. W., King, J. K., and Madina, A. L., 1978, Sheridan County, Wyoming: Wyoming Geological Survey County Resource Series 5.

SIBLEY LAKE (2-024)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Lageson and others, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Sibley Lake area is underlain by Precambrian granites and gneisses. No mines or mining districts are located in or near the area, and the only reported mineral occurrence is a nickel prospect in the NW 1/4 sec. 2, T. 56 N., R. 84 W.

Commodities

Nickel.

Mineral and energy resource potential

The northwestern corner of the Sibley Lake area has a moderate resource potential for nickel. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Lageson, D. R., Ver Ploeg, A. J., Glass, G. B., Hausel, D. W., Breckenridge, R. M., Gaylord, D. R., Marrs, R. W., King, J. K., and Madina, A. L., 1978, Sheridan County, Wyoming: Wyoming Geological Survey County Resource Series 5.

HIDEOUT CREEK (2-025)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Lageson and others, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Hideout Creek area is underlain by Paleozoic sedimentary rocks, and there are no mining districts, mines, or prospects in the area. Closest production is in the Bald Mountain mining district, located a few

miles to the northwest, where placer gold has been recovered from the Cambrian Flathead Sandstone.

Commodities

None known.

Mineral and energy resource potential

The Hideout Creek area has a low mineral and energy resource potential.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Lageson, D. R., Ver Ploeg, A. J., Glass, G. B., Hausel, D. W., Breckenridge, R. M., Gaylord, D. R., Marrs, R. W., King, J. K., and Madina, A. L., 1978, Sheridan County, Wyoming: Wyoming Geological Survey County Resource Series 5.

BEAR ROCKS (2-026)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Lageson and others, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Bear Rocks area is underlain by Paleozoic sedimentary rocks. No mines or mining districts are located in or near the area, and the only mineral occurrence reported is a locality containing thin films of specular hematite in quartz veins in a sheared, epidotized granite in the NW 1/4 NE 1/4 sec. 11, T. 35 N., R. 89 W.

Commodities

None known.

Mineral and energy resource potential

The Bear Rocks area is regarded as having a low potential for mineral and energy resources.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Lageson, D. R., Ver Ploeg, A. J., Glass, G. B., Hausel, D. W., Breckenridge, R. M., Gaylord, D. R., Marrs, R. W., King, J. K., and Madina, A. L., 1978, Sheridan County, Wyoming: Wyoming Geological Survey County Resource Series 5.

HORSE CREEK MESA (2-027)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Fisher, 1906), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Horse Creek Mesa area is underlain by Precambrian granitic and gneissic rocks and by sedimentary rocks of Paleozoic age. The northern part of the area lies within the Bald Mountain mining district. Fine flakes of placer gold have been recovered from the lower member of the Cambrian Flathead Sandstone in this district. No other mines or mineral occurrences are reported, and no exploratory drilling for oil and gas has been done.

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Horse Creek Mesa area is regarded as low. Although the basal gravels of the Flathead Sandstone contain placer gold, gold values are low and the distribution of the gold is highly irregular.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Fisher, C. A., 1906, Geology and water resources of the Bighorn basin: U.S. Geological Survey Professional Paper 53, 72 p.

BRUCE MOUNTAIN (2-028)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Lageson and others, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Bruce Mountain area is underlain by granitic and gneissic rocks of Precambrian age. There are no mines or mining districts in the area, and the only prospect reported is located just north of the West Fork South Tongue River. Small quantities of hematite are found associated with quartz in a network of fracture fillings.

Commodities

None known.

Mineral and energy resource potential

The Bruce Mountain area is regarded as having a low potential for mineral and energy resources.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Lageson, D. R., Ver Ploeg, A. J., Glass, G. B., Hausel, D. W., Breckenridge, R. M., Gaylord, D. R., Marrs, R. W., King, J. K., and Madina, A. L., 1978, Sheridan County, Wyoming: Wyoming Geological Survey County Resource Series 5.

PINEY CREEK (2-029)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Kiilsgaard and others, 1972; Segerstrom and Weisner, 1976).

Mining districts, mines, and mineral occurrences

Most of the Piney Creek area is underlain by Precambrian igneous and metamorphic rocks that show no alteration or other indications of mineralization. Paleozoic sedimentary rocks crop out in the northeastern corner of the area. No mines or mining districts are located in the Piney Creek area, however, the area does have a number of gold placer and lode

prospects along South Piney Creek. Analyses of stream-sediment samples from the creek do not yield anomalous values for metallic minerals. Mafic dikes in the area have slightly high concentrations of iron, manganese, cobalt, chromium, copper, nickel, and vanadium, as is typical of these rocks.

Commodities

None known.

Mineral and energy resource potential

The Piney Creek area has a low potential for mineral resources. The resource potential for oil and gas in the northeastern part of the area is also regarded as low (Spencer and Powers, 1983).

References

Kiilsgaard, T. H., Ericksen, G. E., Patten, L. L., and Bieniewski, C. L., 1972, Mineral survey of the Cloud Peak Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1371-C, 60 p.

Segerstrom, K., and Weisner, R. C., 1976, Mineral resources of areas adjacent to the Cloud Peak Primitive Area, Wyoming, with a section on Aeromagnetic interpretation by D. B. Jackson: U.S. Geological Survey Bulletin 1391-D, 37 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

LITTLE GOOSE (2-030)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Kiilsgaard and others, 1972; Segerstrom and Weisner, 1976).

Mining districts, mines, and mineral occurrences

Most of the Little Goose area is underlain by Precambrian granites and gneisses. Paleozoic sedimentary rocks crop out in the northwesternmost corner of the area. The Little Goose area contains one mine and a number of gold prospects. Vein deposits in Precambrian igneous and metamorphic rock were the target of the Bishop mine, located at the headwaters of the West Fork Little Goose Creek. Many of the prospects in the area are localized on mafic dikes near Little Goose Peak, and on a pegmatite dike at the confluence of Willow Creek and the West Fork Little Goose Creek. Sample analyses of quartz veins and mafic dikes within these rocks reveal slightly anomalous values for metallic minerals.

Commodities

None known.

Mineral and energy resource potential

The Little Goose area has a low potential for mineral resources. The resource potential for oil and gas in the northwesternmost corner of the area is also regarded as low (Spencer and Powers, 1983).

References

Kiilsgaard, T. H., Ericksen, G. E., Patten, L. L., and Bieniewski, C. L., 1972, Mineral survey of the Cloud Peak Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1371-C, 60 p.

Segerstrom, K., and Weisner, R. C., 1976, Mineral resources of areas adjacent to the Cloud Peak Primitive Area, Wyoming, with a section on Aeromagnetic interpretation by D. B. Jackson: U.S. Geological Survey Bulletin 1391-D, 37 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

CLOUD PEAK CONTIGUOUS (2-031)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Kiilsgaard and others, 1972; Segerstrom and Weisner, 1976).

Mining districts, mines, and mineral occurrences

The Cloud Peak Contiguous area is underlain almost entirely by igneous and metamorphic rocks of Precambrian age. The only exception is an area along the southwestern boundary where Precambrian rocks are overlain by a sequence of Paleozoic sedimentary rocks that dip westward into the Bighorn basin. No mines or mining districts are located in the Cloud Peak Contiguous area, and evidence of past prospecting activity is limited to a few quartz veins that were prospected for gold and copper.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysical criteria, the mineral and energy resource potential of the Cloud Peak Contiguous area is low.

References

Kiilsgaard, T. H., Ericksen, G. E., Patten, L. L., and Bieniewski, C. L., 1972, Mineral survey of the Cloud Peak Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1371-C, 60 p.

Segerstrom, K., and Weisner, R. C., 1976, Mineral resources of areas adjacent to the Cloud Peak Primitive Area, Wyoming, with a section on Aeromagnetic interpretation by D. B. Jackson: U.S. Geological Survey Bulletin 1391-D, 37 p.

ROCK CREEK (2-032)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Kiilsgaard and others, 1972; Segerstrom and Weisner, 1976).

Mining districts, mines, and mineral occurrences

The Rock Creek area is underlain almost entirely by igneous and metamorphic rocks of Precambrian age. The only exception is an area along the eastern boundary where Precambrian rocks are overlain by a sequence of Paleozoic sedimentary rocks. No mines or mining districts are located in the area, and past activity is limited to a few iron prospects south of Stone Mountain, and a few gold prospects on a tributary of Rock Creek.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysical criteria, the Rock Creek area has a low mineral resource potential. The resource potential for oil and gas is also regarded as low (Spencer and Powers, 1983).

References

Kiilsgaard, T. H., Ericksen, G. E., Patten, L. L., and Bieniewski, C. L., 1972, Mineral survey of the Cloud Peak Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1371-C, 60 p.

Segerstrom, K., and Weisner, R. C., 1976, Mineral resources of areas adjacent to the Cloud Peak Primitive Area, Wyoming, with a section on Aeromagnetic interpretation by D. B. Jackson: U.S. Geological Survey Bulletin 1391-D, 37 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

GROMMUND CREEK (2-033)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Wendell and others, 1976), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Grommund Creek area is underlain by granitic and gneissic rocks of Precambrian age. There are no mining districts, mines, prospects, or mineral occurrences in the area. The Kelly Creek mining district is located just outside the area to the east, where placer gold has been recovered from gravels in the Cambrian Flathead Sandstone. Outcrops of the Flathead Sandstone do not extend into the Grommund Creek area.

Commodities

None known.

Mineral and energy resource potential

The Grommund Creek area is regarded as having a low potential for mineral and energy resources.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Wendell, W. G., Glass, G. B., Breckenridge, R. M., Root, F. K., and Lageson, D. R., 1976, Johnson County, Wyoming - Geologic map atlas and summary of land, water, and mineral resources: Wyoming Geological Survey County Resource Series 4.

SEVEN BROTHERS (2-034)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Kiilsgaard and others, 1972).

Mining districts, mines, and mineral occurrences

Most of the Seven Brothers area is underlain by granitic and gneissic rocks of Precambrian age. There are no mining districts, mines, prospects, or mineral occurrences in the area.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysical criteria, the Seven Brothers area has a low potential for mineral and energy resources.

References

Kiilsgaard, T. H., Ericksen, G. E., Patten, L. L., and Bieniewski, C. L., 1972, Mineral survey of the Cloud Peak Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1371-C, 60 p.

HAZELTON PEAKS (2-036)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Wendell and others, 1976), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Hazelton Peaks area is underlain by Precambrian granites and gneisses. There are no mining districts, mines, prospects, or mineral occurences in the area.

Commodities

None known.

Mineral and energy resource potential

The Hazelton Peaks area is regarded as having a low mineral and energy resource potential.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Wendell, W. G., Glass, G. B., Breckenridge, R. M., Root, F. K., and Lageson, D. R., 1976, Johnson County, Wyoming - Geologic map atlas and summary of land, water, and mineral resources: Wyoming Geological Survey County Resource Series 4.

LEIGH CREEK (2-037)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Fisher, 1906), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Leigh Creek area is underlain by a sequence of Paleozoic sedimentary rocks. It contains no mining districts, mines, prospects, or mineral occurrences. Anomalous radioactivity has been recorded from the Cambrian Flathead Sandstone along the eastern border of the area, but no radioactive minerals were found.

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Leigh Creek area is regarded as low.

References

Darton, N. H., 1906a, Mineral resources of the Big Horn Mountain region, in Contributions to economic geology 1905: U.S. Geological Survey Bulletin 285, p. 303-310.

_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Fisher, C. F., 1906, Geology and water resources of the Bighorn basin, Wyoming: U.S. Geological Survey Professional Paper 53, 72 p.

DOYLE CREEK (2-038)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Darton, 1906a, 1906b; Wendell and others, 1976), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Doyle Creek area is underlain primarily by Precambrian granitic and gneissic rocks. There are no mining districts, mines, prospects, or mineral occurrences in the area.

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Doyle Creek area is regarded as low.

References

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_____1906b, Geology of the Big Horn Mountains: U.S. Geological Survey Professional Paper 51, 129 p.

Wendell, W. G., Glass, G. B., Breckenridge, R. M., Root, F. K., and Lageson, D. R., 1976, Johnson County, Wyoming - Geologic map atlas and summary of land, water, and mineral resources: Wyoming Geological Survey County Resource Series 4.

CLOUD PEAK WILDERNESS (NF-933)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Kiilsgaard and others, 1972).

Mining districts, mines, and mineral occurrences

The Cloud Peak Wilderness is underlain almost entirely by igneous and metamorphic rocks of Precambrian age. No mines or mining districts are located in the area, and past activity is limited to a few copper, silver, and gold prospects along Edelman and East Goose Creeks and in the vicinity of Lake Arden. Sparsely mineralized quartz veins occur in fractured and brecciated biotite granite. Mafic dikes in the area have slightly high concentrations of iron, manganese, cobalt, chromium, copper, nickel, and vanadium, as is typical of these rocks.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysical criteria, the Cloud Peak Wilderness has a low potential for mineral and energy resources.

References

Kiilsgaard, T. H., Ericksen, G. E., Patten, L. L., and Bieniewski, C. L., 1972, Mineral survey of the Cloud Peak Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1371-C, 60 p.

BLACK HILLS NATIONAL FOREST

INYAN KARA (2-018)

Kind and amount of data

The area has been mapped (Mapel and Pillmore, 1963), and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation, but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Inyan Kara area is underlain by a large intrusive body of Tertiary age comprised of syenite porphyry, which makes up the core of Inyan Kara Mountain. Paleozoic sedimentary rocks have been truncated by the intrusion but crop out on the southwest, north, and northeast sides of Inyan Kara Mountain. Quaternary landslide material and talus deposits rim the rest of the mountain.

No mining districts are located in the Inyan Kara area, and past activity is limited to a single copper mine with production reported from the 1800's. Gold, silver, lead, and zinc were produced from the Black Buttes mining district, which is located 8 mi northeast of the area. Mineralized rock in the Black Buttes district is localized along the Paleozoic limestone-intrusive andesite porphyry contact in replacement-type deposits (Hausel, 1980). A small plug of syenite porphyry crops out at Inyan Kara Mountain and it crosscuts a number of Paleozoic and Mesozoic limestones, creating an environment favorable for similar replacement-type deposits.

Commodities

Gold, silver, lead, and zinc.

Mineral and energy resource potential

The mineral resource potential of the Inyan Kara area is regarded as moderate for gold, silver, lead, and zinc in replacement-type gold deposits similar to those of the Black Buttes mining district. The resource potential for coal and geothermal energy is low. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Hausel, W. D., 1980, Gold districts of Wyoming: Wyoming Geological Survey Report of Investigations 23, p. 65.

Mapel, W. J., and Pillmore, C. L., 1963, Geology of the Inyan Kara Mountain quadrangle, Crook and Weston Counties, Wyoming: U.S. Geological Survey Bulletin 1121-M, 56 p.

SAND CREEK (2-352)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Love, Christiansen, and McGrew, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Sand Creek area is underlain by Precambrian quartz-mica and hornblende schists and Paleozoic sedimentary rocks. All of the rocks have been truncated by Tertiary intrusions. The intrusive igneous rocks crop out primarily in the center of the area.

The Negro Hill mining district covers most of the Sand Creek area. Gold was recovered from placer and lode deposits in the Negro Hill district during the late 1800's (Hausel, 1980). Placer tin has also been reported in this area. Gold, tin, tantalum, and lithium minerals have been mined in the Tinton district, which is located 1 mi east of the area in the northern part of the Black Hills, South Dakota (Smith and Page, 1941). The Bear Lodge mining district, located approximately 12 mi northwest of the Sand Creek area, was known for lode deposits of gold. Deposits of tin and gold occur in pegmatite dikes in Precambrian quartz-mica and hornblende schists in all of these mining districts.

Commodities

Tin and gold.

Mineral and energy resource potential

The mineral resource potential of the Sand Creek area is regarded as moderate. From the data available, the geology of the area is favorable for the occurrence of tin and gold deposits in pegmatite dikes within Precambrian schists. The resource potential for coal and geothermal energy is low. Other energy resources are unknown, and their potential is regarded as low.

References

Hausel, W. D., 1980, Gold districts of Wyoming: Wyoming Geological Survey Report of Investigations 23, p. 63.

Love, J. D., Christiansen, A. C., and McGrew, L. W., 1978, Preliminary geologic map of the Gillette $1^{o}x2^{o}$ quadrangle, northeastern Wyoming and western South Dakota: U.S. Geological Survey Open-File Report 78-343, scale 1:250,000.

Smith, W. C., and Page, L. R., 1941, Tin-bearing pegmatites of the Tinton district, Lawrence County, South Dakota: U.S. Geological Survey Bulletin 922-T, p. 595-630.

BRIDGER-TETON NATIONAL FOREST

CORRIDOR (4-101)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Love, Antweiler, and Williams, 1975).

Mining districts, mines, and mineral occurrences

The rocks in the Teton Corridor consist of Mesozoic and Cenozoic sedimentary strata, which are unconformably overlain by Pleistocene welded tuffs. No mines or mining districts are located in the area, and past activity is limited to gold placer prospects along Pilgrim Creek and along the Snake River and its tributaries. Stream-sediment samples yielded moderate quantities of fine-flake gold from Pilgrim Creek and small quantities of finely divided gold from the Snake River.

The Jackson Hole coal field is located just south of the Teton Corridor. Coal has been mined from the Mesaverde Formation on Pilgrim Creek, 1 mi south of the area, and from the Bacon Ridge Sandstone along Buffalo Fork Creek, 9 mi southeast of the area. The Bacon Ridge Sandstone crops out in the southern part of the Corridor, and contains coal-bearing beds.

No exploratory oil and gas wells have been drilled in the Teton Corridor, and the nearest drill hole is about 8 mi southeast of the area. No oil or gas was discovered; however, many of the potentially productive horizons were not tested. Suitable source and reservoir rocks are present and thermal maturation analyses indicate that the environment was favorable for the generation of hydrocarbons. Six large northwest-trending anticlines, located in the central and southern parts of the area, may have provided suitable traps for oil and gas. A small gas seep on the east flank of the Bailey anticline documents the presence of hydrocarbons beneath the surface.

No hot springs are found in the Teton Corridor, however, a number of hot springs are located in Yellowstone National Park within 2 mi of the area. Data from these springs suggests that the area near the north and northwest margins of the Corridor may be favorable for the occurrence of geothermal resources, but the data is limited and the presence of geothermal resources is unknown.

Commodities

Gold, oil, and gas.

Mineral and energy resource potential

The potential for gold resources is moderate in placer deposits along a 1 mi stretch of Pilgrim Creek near the area's southern boundary. The resource potential for coal is regarded as low, because coal beds are thin and contain numerous shale partings. The resource potential for oil and gas is regarded as moderate (Powers, 1978). Geothermal resource potential is unknown. The potential for other mineral and energy resources is low.

References

Love, J. D., Antweiler, J. C., and Williams, F. E., 1975, Mineral resources of the Teton Corridor, Teton County, Wyoming: U.S. Geological Survey Bulletin 1397-A, 51 p.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1;500,000.

GROS VENTRE (4-102)

SPORTSMAN (4-102)

FLAT CREEK (4-102)

DELL CREEK (4-102)

GAME CREEK (4-102)

Kind and amount of data

The Gros Ventre area, delineated from the surrounding areas by a dashed line on Plate 1, has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Simons and others, 1980). Information on geology and mineral resources of the Sportsman, Flat Creek, Dell Creek, and Game Creek areas, which surround the Gros Ventre area, is adequate for a preliminary mineral resource evaluation.

Mining districts, mines, and mineral occurrences

The Gros Ventre Range is a northwest-trending, broad anticlinal arch with a gently dipping northeast limb and a steeply dipping, thrust-faulted southwest limb. Most of the range is comprised of Paleozoic sedimentary rocks. Precambrian biotite and granitic gneiss crop out in two areas along the southwestern boundary of the Gros Ventre area, one near Turquoise Lake and the other around Shoal Lake. Mesozoic and Cenozoic sedimentary rocks crop out south and southwest of the Gros Ventre area in the Dell Creek and Game Creek areas.

The Gros Ventre, Sportsman, Flat Creek, Dell Creek, and Game Creek areas (subsequently referred to collectively as "the area") are in the Western phosphate field. The Permian Phosphoria Formation contains phosphate rock and other associated mineral commodities such as uranium, vanadium, chromium, and fluorite, and it crops out in the northeastern and south-central parts of the area.

No mines or mining districts are located within the area, but several gold, iron, and molybdenum prospects are found near the center of the area. Copper, silver, and zinc occurrences have been described from the upper part of the Triassic-Jurassic Nugget Sandstone in the Hoback and Salt River Ranges (Love and Antweiler, 1973). The Nugget Sandstone crops out in the southwestern part of the area and may contain mineralized rock. Some coal has been mined from the Little Granite Creek mine, which is located 3 mi to the south in the Green River coal field, and the Jackson coal field, which is

located just north of the area. Thin, sub-bituminous coal beds are present in the Frontier Formation, which underlies the northwestern, south-central, and southeastern parts of the area.

No exploratory drilling for oil or gas has been done within the area, however, a well drilled on Granite Creek 5 mi to the southwest encountered gas shows at numerous levels. The nearest gas field, the Merna field, is located 15 mi south of the area. No hot springs are found in the area, although a few small hot springs occur to the south along Granite Creek. Heasler and others (1983) indicate that the subsurface temperature of Granite Hot Springs may be as high as 93°C, and that the area surrounding it is underlain by aquifers containing thermal waters.

Commodities

Phosphate, oil, gas, copper, silver, zinc, and geothermal energy.

Mineral and energy resource potential

The northeastern, southeastern and south-central parts of the area have high potential for phosphate resources in the phosphatic-shale members of the Phosphoria Formation. Simons and others (1980) estimated that the area contains at least 500 million tons of phosphate rock. The thin coal beds in the area are of limited extent, and as a result, the resource potential for coal is regarded as low. The southwestern part of the area has a moderate resource potential for copper, silver, and zinc in strata-bound deposits.

The southwestern half of the area has a high resource potential for oil and gas beneath the Cache Creek thrust fault, as suitable source and reservoir rocks are present, and there have been oil and gas shows in wells drilled to the south (Powers, 1978; Spencer and Powers, 1983). Powers (1978) also designated a strip along the northeastern border of the area as having a moderate resource potential for oil and gas. Geothermal resource potential for the south-central and southeastern parts of the area is moderate (Heasler and others, 1983). The remainder of the area has a low potential for mineral and energy resources.

References

Heasler, H. P., Hinckley, B. S., Buelow, K. G., Spencer, S. A., and Decker, E. R., 1983, Geothermal resources of Wyoming: National Geophysical Data Center, National Oceanic and Atmospheric Administration, scale 1:500,000.

Love, J. D., and Antweiler, J. C., 1973, Copper, silver, and zinc in the Nugget Sandstone, western Wyoming, in Wyoming Geological Association Guidebook, 25th Annual Field Conference, 1973: p. 139-147.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

Simons, F. S., Love, J. D., Keefer, W. R., Harwood, D. S., and Bieniewski, C. L., 1980, Mineral resources of the Gros Ventre Wilderness Study area, Teton and Sublette Counties, Wyoming: U.S. Geological Survey Open-File Report 80-510, 94 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

MUNGER MOUNTAIN (4-103)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Paleozoic and Mesozoic sedimentary rocks underlie most of the Munger Mountain area. The area contains high-grade bituminous coal beds in the Cretaceous Bear River and Frontier Formations and is part of the McDougal coal field. Several mines, located south of the Munger Mountain area, are operating or have operated in the past. No mines or mining districts are located within the area. Although gold placers are commonly found along the Snake River and its tributaries, no gold has been found in the area itself. Copper, silver, and zinc occurrences have been described from the upper part of the Triassic-Jurassic Nugget Sandstone in the Hoback Range and in the Salt River Range (Love and Antweiler, 1973). The Nugget Sandstone crops out in the southwestern part of the area and may contain mineralized rock. Most recently, the Munger Mountain area has become a target for oil and gas exploration, as it is located in the Idaho-Utah-Wyoming overthrust belt.

Commodities

Oil, gas, coal, copper, silver, and zinc.

Mineral and energy resource potential

The resource potential for oil and gas in the Munger Mountain area is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). The northeastern part of the area has a moderate resource potential for coal. The southwestern part of the area has a moderate resource potential for copper, silver, and zinc in strata-bound deposits. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Love, J. D., and Antweiler, J. C., 1973, Copper, silver, and zinc in the Nugget Sandstone, western Wyoming, in Wyoming Geological Association Guidebook, 25th Annual Field Conference, 1973: p. 139-147.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

MONUMENT RIDGE (4-104)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Antweiler and Love, 1967; Powers, 1978; Heasler and others, 1983), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Monument Ridge area is primarily underlain by Cretaceous and Tertiary sedimentary rocks. No mining districts, mines, or prospects are located in the area, and the geology is unfavorable for deposits of phosphate similar to those found in adjacent RARE II areas. The Bacon Ridge Sandstone and the Harebell Formation, which crop out on the west side of the area, contain gold-bearing, quartzite-pebble conglomerates and gold-bearing sandstones. Thick sub-bituminous coal beds are also found in the Bacon Ridge Sandstone, but they are limited in extent.

An exploratory gas well was drilled near the southwest corner of the Monument Ridge area, but no gas was discovered. Closest production is in the Merna gas field located approximately 15 mi southeast of the area. A few small hot springs are found on Granite Creek 5 mi north of the Monument Ridge area and, although no hot springs are found within the area, it is probably underlain by aquifers containing thermal waters with temperatures greater than 50°C because of the proximity to other hot springs (Heasler and others, 1983).

Commodities

Gold, oil, gas, and geothermal energy.

Mineral and energy resource potential

The Monument Ridge area has a high resource potential for oil and gas, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). The potential for geothermal resources is regarded as moderate. The potential for gold resources in the Monument Ridge area is also regarded as moderate. The volume of gold-bearing sandstones and conglomerates is large, but the gold within the sandstones and conglomerates is highly dispersed (Antweiler and Love, 1967). Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Antweiler, J. C., and Love, J. D., 1967, Gold-bearing sedimentary rocks in northwest Wyoming - a preliminary report: U.S. Geological Survey Circular 541, 12 p.

Heasler, H. P., Hinckley, B. S., Buelow, K. G., Spencer, S. A., and Decker, E. R., 1983, Geothermal resources of Wyoming: National Geophysical Data Center, National Oceanic and Atmospheric Administration, scale 1:500,000.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

JENNY CREEK (4-105)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Powers, 1978; Heasler and others, 1983; Love and Christiansen, 1983), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Jenny Creek area is underlain by claystones, sandstones, and conglomerates of the Tertiary Wasatch, Hoback, and Pass Peak Formations. No mining districts, mines, or prospects are located in the area, and the geology is unfavorable for deposits of phosphate and coal similar to those found in adjacent RARE II areas.

No exploratory drilling for oil or gas has been done within the Jenny Creek area, however, a well drilled on Granite Creek 15 mi to the northwest had numerous gas shows, and the Merna gas field is located just 15 mi southeast of the area. A few small hot springs are found on Granite Creek 10 mi northwest of the Jenny Creek area and, although no hot springs are found within the area, it is probably underlain by aquifers containing thermal waters with temperatures greater than 50°C because of the proximity to other hot springs (Heasler and others, 1983).

Commodities

Oil, gas, geothermal energy, and gold.

Mineral and energy resource potential

Conglomerates of the Pass Peak Formation are reported to be gold-bearing (Love and Christiansen, 1983), and the potential for gold resources in these conglomerates is regarded as moderate. The resource potential for oil and gas is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). The potential for geothermal resources is moderate. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Heasler, H. P., Hinckley, B. S., Buelow, K. G., Spencer, S. A., and Decker, E. R., 1983, Geothermal resources of Wyoming: National Geophysical Data Center, National Oceanic and Atmospheric Administration, scale 1:500,000.

Love, J. D., and Christiansen, A. C., 1983, Preliminary geologic map of Wyoming: U.S. Geological Survey Open-File Report 83-802, scale 1:500,000.
Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

GRAYBACK (4-106)

Kind and amount of data

The geology of the area has been mapped (Schultz, 1914; Schroeder, 1976), and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Sheldon, 1963; Powers, 1978; Heasler and others, 1983), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Grayback area is underlain by Paleozoic and Mesozoic sedimentary rocks. Very fine flakes of placer gold have been found in the gravels of the Snake River and its tributaries, and in the terrace gravels above the Grand Canyon of the Snake River. Several mining camps were located along the Snake River; the Bailey Creek mining camp extended up Bailey Creek, 0.5 mi north from its junction with the Snake River, and the Pine Bar mining camp consisted of placer workings at the mouth of Pine Creek (Schultz, 1914). Copper, silver, and zinc occurrences have been described from the Triassic-Jurassic Nugget Sandstone in the eastern part of the area on Cabin Creek and near the head of Halfturn Creek. The Nugget Sandstone also crops out in the western part of the area along Bailey Ridge, and may contain mineralized rock in this area as well.

Two north-south trending belts of coal-bearing strata in the Cretaceous Frontier and Bear River Formations crop out in the Grayback area. One is located just east of the Darby thrust, and the other is located between the Absaroka thrust and the Darby thrust. Both of the coal-bearing belts are included in the McDougal coal field. Several mines are operating in the McDougal field, but all are located south of the area; it also contains numerous prospect pits. The Permian Phosphoria Formation, which contains phosphate rock, crops out west of the Darby thrust on both limbs of an anticline and west of the Absaroka thrust in a ring around Bradley Mountain. Fluorine, uranium, vanadium, chromium, and other trace metals are also present in the Phosphoria Formation.

A few small hot springs are found on Granite Creek 10 mi northeast of the area, and Astoria hot springs is located at the northern tip of the area just north of Hoback. Although no hot springs are found within the Grayback area, it is probably underlain by aquifers containing thermal waters with temperatures greater than 50°C (Heasler and others, 1983), because of the proximity to other hot springs. A number of oil and gas wells have been drilled around the perimeter of the area, both inside and outside the boundary, but all of the wells have been dry (Ver Ploeg and De Bruin, 1982). Closest production is in the Lookout Mountain field just outside the southeastern corner of the area, and in the Merna field located 5 mi to the east.

Commodities

Gold, copper, silver, zinc, oil, gas, coal, phosphate, and geothermal energy.

Mineral and energy resource potential

The resource potential for oil and gas in the Grayback area is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). Geothermal resource potential is regarded as moderate east of Kilgore Creek, and is regarded as low elsewhere in the area (Heasler and others, 1983).

Mineral resource potential in the Grayback area is regarded as moderate for fine placer gold in the gravels of the Snake River and its tributaries, and moderate for copper, silver, and zinc in strata-bound deposits. The potential for phosphate resources is also moderate (Sheldon, 1963). Phosphate deposits in the area are of low grade, and have not been mined because higher grade deposits are present in nearby areas (Schroeder, 1973). The resource potential for coal is also regarded as moderate.

References

Heasler, H. P., Hinckley, B. S., Buelow, K. G., Spencer, S. A., and Decker, E. R., 1983, Geothermal resources of Wyoming: National Geophysical Data Center, National Oceanic and Atmospheric Administration, scale 1:500,000.

Love, J. D., and Antweiler, J. C., 1973, Copper, silver, and zinc in the Nugget Sandstone, western Wyoming, in Wyoming Geological Association Guidebook, 25th Annual Field Conference, 1973: p. 139-147.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

Schroeder, M. L., 1976, Geologic map of the Bull Creek quadrangle, Teton and Sublette Counties, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-1300, scale 1:24,000.

Schultz, A. R., 1914, Geology and geography of a portion of Lincoln County, Wyoming: U.S. Geological Survey Bulletin 543, 141 p.

Sheldon, R. P., 1963, Physical stratigraphy and mineral resources of Permian rocks in western Wyoming: U.S. Geological Survey Professional Paper 313-B, 273 p.

Ver Ploeg, A. J., and De Bruin, R. H., 1982, The search for oil and gas in the Idaho-Wyoming-Utah salient of the overthrust belt: Wyoming Geological Survey Report of Investigations 21, 108 p.

SALT RIVER RANGE (4-107)

Kind and amount of data

Information on geology and mineral resources is adequate for a preliminary mineral resource evaluation (Allsman and others, 1949; Rubey, 1958; Powers, 1978; Heasler and others, 1983), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Paleozoic and Mesozoic sedimentary rocks underlie most of the Salt River Range area. The Salt River Range vanadium deposits are located 3-6 mi east of Afton, from Willow Creek on the north to LaBarge Creek on the south. The vanadium deposits occur in the Meade Peak Phosphatic Shale Member of the Permian Phosphoria Formation, and the vanadium is confined to a carbonaceous-shale or mudstone horizon within the phosphatic shale. The Phosphoria Formation also contains deposits of phosphate rock, in both the Meade Peak and Retort Phosphatic Shale Members. Although the deposits are of low grade, the westernmost parts of the deposits are readily accessible in the canyons of Dry, Swift, and Willow Creeks, and contain a number of prospects (Mansfield, 1916). In addition to phosphate and vanadium, the Phosphoria Formation contains small concentrations of silver, chromium, lead, zinc, cadmium, copper, molybdenum, and nickel.

A northwest-trending belt of coal-bearing strata crops out on the east side of the Salt River Range, east of the Absaroka thrust. This belt of strata comprises the Greys River field, and contains thin, bituminous-coal beds in the Cretaceous Frontier Formation. Most of the coal beds are poorly exposed and, although they contain scattered prospects, none of them have been mined. The Salt River Range area also has several copper prospects in the Nugget Sandstone (Schultz, 1914). Copper, silver, and zinc have been mined from the Nugget in the Lake Alice district, located approximately 5 mi south of the area (Love and Antweiler, 1973).

One exploratory well has been drilled in the area just south of Cottonwood Creek, and several others have been drilled outside of the area to the east and to the west. No oil or gas has been produced from any of these wells (Ver Ploeg and De Bruin, 1982). Nearby production occurs in a north-trending belt east of the Prospect thrust, in the Ote Creek, Michelson Creek, Bald Mountain, Goat Hill, and Riley Ridge fields. Many of the producing fields in the southern part of the Idaho-Utah-Wyoming overthrust belt are on the west side of the Absaroka thrust, and are on trend, structurally, with the Salt River Range area.

No hot springs are known in the Salt River Range area, although a few local hot springs occur just west of the area and north of Auburn. Heasler and others (1983) indicate that the subsurface temperature of Auburn Hot Springs may be as high as 102°C, the result of deep local circulation along major faults.

Commodities

Oil, gas, vanadium, phosphate, coal, copper, silver, and zinc.

Mineral and energy resource potential

The resource potential for oil and gas in the Salt River Range area is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). The resource potential for vanadium and phosphate is moderate on the west side of the area, west of the Absaroka thrust (Rubey, 1958). Although the resource potential for base and precious metals in the Phosphoria Formation has not been determined, recovery of some of these metals

could enhance the resource potential for phosphate and vanadium. The potential for coal resources is moderate on the east side of the area, east of the Absaroka thrust. The resource potential for copper, silver, and zinc in strata-bound deposits is also regarded as moderate. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Allsman, P. T., Majors, F. H., Mahoney, S., and Young, W. A., 1949, Investigation of Salt River Range vanadium deposits, Lincoln County, Wyoming: U.S. Bureau of Mines Report of Investigations 4503, 4 p.

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Mansfield, G. R., 1916, A reconnaissance for phosphate in the Salt River Range, Wyoming, in Contributions to economic geology 1915: U.S. Geological Survey Bulletin 620, p. 331-349.

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Schultz, A. R., 1914, Geology and geography of a portion of Lincoln County, Wyoming: U.S. Geological Survey Bulletin 543, 141 p.

Ver Ploeg, A. J., and De Bruin, R. H., 1982, The search for oil and gas in the Idaho-Wyoming-Utah salient of the overthrust belt: Wyoming Geological Survey Report of Investigations 21, 108 p.

DEADMAN (4-108)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Sheldon, 1963; Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Deadman area is underlain by Paleozoic and Mesozoic sedimentary rocks. Coal-bearing strata of the Cretaceous Frontier Formation crop out on the east side of the area, east of the Darby thrust. These strata are part of the McDougal coal field, which contains several mines and numerous prospect pits, most of which are located southeast of the area. The Permian Phosphoria Formation, which contains phosphate rock, crops out west of the Darby thrust on the west side of the area. Fluorine, uranium, vanadium, chromium, and trace metals are also present in the Phosphoria Formation.

Copper, silver, and zinc occurrences have been described from the upper part of the Triassic-Jurassic Nugget Sandstone in the Hoback and Salt River Ranges (Love and Antweiler, 1973). The Nugget Sandstone crops out on the west side of the area, west of the Darby thrust, and may contain mineralized rock. A few oil and gas wells have been drilled north and northeast of the Deadman area, but all of the wells have been dry (Ver Ploeg and De Bruin, 1982). Closest production is in the Lookout Mountain field located 5 mi to the east.

Commodities

Oil, gas, coal, phosphate, copper, silver, and zinc.

Mineral and energy resource potential

The Deadman area has a high resource potential for oil and gas, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). Mineral resource potential in the area is moderate for bituminous coal and moderate for phosphate. Phosphate deposits are probably of low grade, similar to those in the Grayback area to the north (Schroeder, 1976). The resource potential for copper, silver, and zinc in strata-bound deposits is also regarded as moderate. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Love, J. D., and Antweiler, J. C., 1973, Copper, silver, and zinc in the Nugget Sandstone, western Wyoming, in Wyoming Geological Association Guidebook, 25th Annual Field Conference, 1973: p. 139-147.

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NORTH FORK SHEEP CREEK (4-109)

Kind and amount of data

Information on geology and mineral resources is adequate for a preliminary mineral resource evaluation (Sheldon, 1963; Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The North Fork Sheep Creek area is underlain by Paleozoic and Mesozoic sedimentary rocks. Bituminous coal-bearing strata of the Cretaceous Frontier Formation crop out in the northeastern corner of the area, east of the Darby thrust. These strata are part of the McDougal coal field, which contains several mines and numerous prospect pits. One of the mines is located just outside the northeastern boundary of the area, and another is located near the southeastern boundary.

The Permian Phosphoria Formation, which contains phosphate rock, crops out in a north-trending belt west of the Darby thrust on the west side of the area. Fluorine, uranium, vanadium, chromium, and trace metals are also present in the formation.

Iron has been reported in a Pennsylvanian conglomerate which crops out just north of Sheep Creek in the south-central part of the area (Schultz, 1914). The conglomerate is composed largely of hematite pebbles. Gold prospecting has been conducted in the vicinity of Horse Creek in the North Fork Sheep Creek area, which is outside the area to the east. The gold occurs in Mesozoic sedimentary rocks (Schultz, 1914). Copper, silver, and zinc occurrences have been described from the upper part of the Triassic-Jurassic Nugget Sandstone in the Hoback and Salt River Ranges (Love and Antweiler, 1973). The Nugget Sandstone crops out on the west side of the area west of the Darby thrust, and may contain mineralized rock.

One exploratory well has been drilled just north of Sheep Creek inside the southwestern corner of the area, and another was drilled outside the area on the other side of the creek. Both of these wells were dry (Ver Ploeg and De Bruin, 1982). Oil and gas is being produced in the Lookout Mountain field, located 5 mi east-northeast of the area, and the Ote Creek field, located 10 mi to the southeast.

Commodities

Oil, gas, coal, phosphate, copper, silver, and zinc.

Mineral and energy resource potential

The resource potential for oil and gas in the North Fork Sheep Creek area is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). The potential for coal resources is moderate in the northeastern corner of the area where outcrops of the Frontier Formation are found. Low-grade phosphate deposits, similar to those in the Deadman and Grayback areas to the north, are found in the Phosphoria Formation. The potential for phosphate resources in the western part of the North Fork Sheep Creek area is regarded as moderate. The resource potential for copper, silver, and zinc in strata-bound deposits in the western part of the area is also regarded as moderate. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Love, J. D., and Antweiler, J. C., 1973, Copper, silver, and zinc in the Nugget Sandstone, western Wyoming, in Wyoming Geological Association Guidebook, 25th Annual Field Conference, 1973: p. 139-147.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

Schultz, A. R., 1914, Geology and geography of a portion of Lincoln County, Wyoming: U.S. Geological Survey Bulletin 543, 141 p.

Sheldon, R. P., 1963, Physical stratigraphy and mineral resources of Permian rocks in western Wyoming: U.S. Geological Survey Professional Paper 313-B, 273 p.

Ver Ploeg, A. J., and De Bruin, R. H., 1982, The search for oil and gas in the Idaho-Wyoming-Utah salient of the overthrust belt: Wyoming Geological Survey Report of Investigations 21, 108 p.

SOUTHERN WYOMING RANGE (4-110)

Kind and amount of data

Information on geology and mineral resources is adequate for a preliminary mineral resource evaluation (Sheldon, 1963; Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Paleozoic and Mesozoic sedimentary rocks underlie most of the Southern Wyoming Range area. The Permian Phosphoria Formation, which contains phosphate rock, crops out along the crest of the north-trending Wyoming anticline and in another north-trending belt farther to the east. In addition to phosphate, fluorine, uranium, vanadium, chromium, and trace metals are present in the Phosphoria Formation (Sheldon, 1963). A number of phosphate prospects are located along this belt of exposure. Copper prospects have been reported in the Wyoming Range (Schultz, 1914), and copper, silver, and zinc have been mined from the Nugget Sandstone in the Lake Alice district, located approximately 5 mi southwest of the area (Love and Antweiler, 1973).

A number of exploratory wells have been drilled along the western border of the Southern Wyoming Range area east of the Greys River, but no oil or gas has been found (Ver Ploeg and De Bruin, 1982). Nearby production occurs in a north-trending belt east of the Prospect thrust, in the Ote Creek, Michelson Creek, Bald Mountain, Goat Hill, and Riley Ridge fields.

Commodities

Oil, gas, phosphate, copper, silver, and zinc.

Mineral and energy resource potential

The resource potential for oil and gas in the Southern Wyoming Range area is regarded as high, because favorable source beds, potential reservoirs,

structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). The potential for phosphate resources in the area is regarded as moderate. Phosphate deposits in the Phosphoria Formation are of low grade, similar to those found in the RARE II areas to the north. The resource potential for copper, silver, and zinc in strata-bound deposits is also regarded as moderate. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Love, J. D., and Antweiler, J. C., 1973, Copper, silver, and zinc in the Nugget Sandstone, western Wyoming, in Wyoming Geological Association Guidebook, 25th Annual Field Conference, 1973: p. 139-147.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

Schultz, A. R., 1914, Geology and geography of a portion of Lincoln County, Wyoming: U.S. Geological Survey Bulletin 543, 141 p.

Sheldon, R. P., 1963, Physical stratigraphy and mineral resources of Permian rocks in western Wyoming: U.S. Geological Survey Professional Paper 313-B, 273 p.

Ver Ploeg, A. J., and De Bruin, R. H., 1982, The search for oil and gas in the Idaho-Wyoming-Utah salient of the overthrust belt: Wyoming Geological Survey Report of Investigations 21, 108 p.

GANNETT SPRING CREEK (4-111)

(part of Gannett Spring Creek (4-111) is in contiguous parts of Idaho)

Kind and amount of data

Information on geology and mineral resources is adequate for a preliminary mineral resource evaluation (Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Gannett Spring Creek area is underlain by Jurassic and Cretaceous sedimentary rocks. No mining districts, mines, or prospects are located in the area, and the geology is unfavorable for the occurrence of phosphate, vanadium, and coal resources similar to those found in adjacent RARE II areas.

Several exploratory wells have been drilled in the northern part of the area, but no oil or gas has been found (Ver Ploeg and De Bruin, 1982). Closest production is in the Riley Ridge field, located 20 mi to the east. Many of the producing fields in the southern part of the Idaho-Utah-Wyoming overthrust belt are on the west side of the Absaroka thrust, and are on trend, structurally, with the Gannett Spring Creek area.

Commodities

Oil and gas.

Mineral and energy resource potential

The Gannett Spring Creek area has a high resource potential for oil and gas, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to the productive southern part of the overthrust belt are present (Powers, 1978). Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

Ver Ploeg, A. J., and De Bruin, R. H., 1982, The search for oil and gas in the Idaho-Wyoming-Utah salient of the overthrust belt: Wyoming Geological Survey Report of Investigations 21, 108 p.

COMMISSARY RIDGE (4-112)

Kind and amount of data

Information on geology and mineral resources is adequate for a preliminary mineral resource evaluation (Sheldon, 1963; Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Commissary Ridge area is in the Salt River Range and is primarily underlain by Paleozoic and Mesozoic sedimentary rocks. Copper, silver, and zinc occurrences have been described from the upper part of the Triassic-Jurassic Nugget Sandstone throughout the Salt River Range. Prospecting and mining activity in the Commissary Ridge area is centered around Hobble Creek in the Lake Alice district. Copper and silver were produced from the Griggs mine and the Ferney Gulch mine in the early 1900's (Love and Antweiler, 1973). An iron prospect, located near La Barge Creek at the northern tip of the area, occurs in a pisolitic hematite bed in the Pennsylvanian Wells Formation. The Permian Phosphoria Formation, which contains phosphate and small concentrations of other associated minerals including vanadium, silver, chromium, lead, zinc, cadmium, copper, molybdenum, and nickel, crops out in a north-trending belt on the east side of the area.

No exploratory drilling for oil and gas has been done within the Commissary Ridge area. Several wells have been drilled nearby, but no oil or gas has been found (Ver Ploeg and De Bruin, 1982). Nearby production is in the Hoback III Unit, Tip Top, Pinegrove, Dry Piney-Nugget, Labarge, and Willow Creek fields, located 5-15 mi to the east. Many of the producing fields in the southern part of the Idaho-Utah-Wyoming overthrust belt are on the west

side of the Absaroka thrust, and are on trend, structurally, with the Commissary Ridge area.

No hot springs are known in the area, although a few local springs occur just outside the area to the east. Heasler and others (1983) indicate that the subsurface temperature of Big Fall Creek Springs and other springs within the overthrust belt may be as high as 60°C. Geothermal systems in this area are probably the result of deep local circulation along faults and fractures.

Commodities

Oil, gas, phosphate, copper, silver, and zinc.

Mineral and energy resource potential

The resource potential for oil and gas in the Commissary Ridge area is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Utah-Wyoming overthrust belt are present (Powers, 1978). The potential for phosphate resources and associated minor elements in low-grade deposits is regarded as moderate on the east side of the area just west of the Absaroka thrust. The resource potential for copper, silver, and zinc in strata-bound deposits is moderate. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Heasler, H. P., Hinckley, B. S., Buelow, K. G., Spencer, S. A., and Decker, E. R., 1983, Geothermal resources of Wyoming: National Geophysical Data Center, National Oceanic and Atmospheric Administration, scale 1:500,000.

Love, J. D., and Antweiler, J. C., 1973, Copper, silver, and zinc in the Nugget Sandstone, western Wyoming, in Wyoming Geological Association Guidebook, 25th Annual Field Conference, 1973: p. 139-147.

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NUGENT PARK WEST (4-113)

Kind and amount of data

Information on geology and mineral resources is adequate for a preliminary mineral resource evaluation (Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Nugent Park West area is underlain by Jurassic sedimentary rocks. No mining districts, mines, or prospects are located in the area, and the geology is unfavorable for the occurrence of phosphate, vanadium, and coal resources similar to those found in adjacent RARE II areas.

No exploratory drilling for oil and gas has been done within the Nugent Park West area, however, several wells have been drilled less than 5 mi to the west and southwest. No oil or gas was found (Ver Ploeg and De Bruin, 1982). Nearby production is in the Dry Piney-Nugget, Hogsback-Nugget, and Labarge fields located 25 mi to the east. Many of the producing fields in the southern part of the Idaho-Utah-Wyoming overthrust belt are on the west side of the Absaroka thrust, and are on trend, structurally, with the Nugent Park West area.

Commodities

Oil and gas.

Mineral and energy resource potential

The resource potential for oil and gas in the Nugent Park West area is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the overthrust belt are present (Powers, 1978). Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

Ver Ploeg, A. J., and De Bruin, R. H., 1982, The search for oil and gas in the Idaho-Wyoming-Utah salient of the overthrust belt: Wyoming Geological Survey Report of Investigations 21, 108 p.

HAMS FORK RIDGE (4-114)

Kind and amount of data

Information on geology and mineral resources is adequate for a preliminary mineral resource evaluation (Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Hams Fork Ridge area is underlain by sedimentary rocks of the Tertiary Wasatch Formation. No mining districts, mines, or prospects are located in the area. The Permian Phosphoria Formation, which contains phosphate rock, crops out in isolated patches along Hams Fork Ridge (Sheldon, 1963).

No exploratory wells have been drilled in the area itself. Several wells have been drilled in nearby areas, but no oil or gas has been discovered (Ver Ploeg and De Bruin, 1982). Nearby production is in the Willow Creek, Labarge, and Hogsback-Nugget fields, located 20 mi to the east. Many of the producing fields in the southern part of the Idaho-Utah-Wyoming overthrust belt are on the west side of Absaroka thrust, and are on trend, structurally, with the Hams Fork Ridge area.

Commodities

Oil and gas.

Mineral and energy resource potential

The resource potential for oil and gas in the Hams Fork Ridge area is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the overthrust belt are present (Powers, 1978). The resource potential for phosphate is regarded as low, because of the limited extent of the Phosphoria Formation. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1:500,000.

Sheldon, R. P., 1963, Physical stratigraphy and mineral resources of Permian rocks in western Wyoming: U.S. Geological Survey Professional Paper 313-B, 273 p.

Ver Ploeg, A. J., and De Bruin, R. H., 1982, The search for oil and gas in the Idaho-Wyoming-Utah salient of the overthrust belt: Wyoming Geological Survey Report of Investigations 21, 108 p.

BACON RIDGE (4-115)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Sheldon, 1963; R. G. Worl, oral commun., 1984), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Bacon Ridge area is underlain by Paleozoic and Mesozoic sedimentary rocks and Cenozoic glacial deposits. There are no mining districts, mines, or prospects in the area, and the only mineral occurrence reported is phosphate in the phosphatic-shale members of the Permian Phosphoria Formation. Sheldon (1963) stated that phosphate rock underlies the entire area, and the phosphate is at a minable depth. One exploratory oil and gas well has been drilled near the center of the area, but no oil or gas was found. Oil- and gas-bearing

strata occur in the Bacon Ridge anticline, the southern end of which crosses the study area.

Commodities

Phosphate, oil, and gas.

Mineral and energy resource potential

The Bacon Ridge area has a moderate potential for phosphate resources. The resource potential for oil and gas is also regarded as moderate (R. G. Worl, oral commun., 1984). The potential for other mineral and energy resources is regarded as low.

References

Sheldon, R. P., 1963, Physical stratigraphy and mineral resources of Permian rocks in western Wyoming: U.S. Geological Survey Professional Paper 313-B, 273 p.

GYPSUM CREEK (4-116)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Sheldon, 1963; R. G. Worl, oral commun., 1984), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Gypsum Creek area is underlain by Paleozoic and Mesozoic sedimentary rocks. There are no mining districts, mines, or prospects in the area, and the only mineral occurrence reported is phosphate in the phosphatic-shale members of the Permian Phosphoria Formation. Sheldon (1963) stated that phosphate rock underlies most of the area, and the phosphate is at a minable depth. Several exploratory oil and gas wells have been drilled just outside the southeastern border of the area, but no oil or gas was found.

Commodities

Oil, gas, and phosphate.

Mineral and energy resource potential

The resource potential for oil and gas in the Gypsum Creek area is regarded as moderate (R. G. Worl, oral commun., 1984). The potential for phosphate resources in the southern part of the area is also regarded as moderate. The potential for other mineral and energy resources is regarded as low.

References

Sheldon, R. P., 1963, Physical stratigraphy and mineral resources of Permian rocks in western Wyoming: U.S. Geological Survey Professional Paper 313-B, 273 p.

WEST SLOPE TETONS (SOUTH) (S4-610)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Myers and Kluender, in press).

Mining districts, mines, and mineral occurrences

The West Slope Tetons (South) area is comprised of Paleozoic, Mesozoic, and Cenozoic sedimentary rocks, which unconformably overlie rocks of the Precambrian crystalline basement. No mines or mining districts are located within the area, and evidence of past exploration is limited to prospects in the phosphatic-shale members of the Permian Phosphoria Formation, which crop out near the western boundary. Trenching of the outcrop revealed a fairly thick, high-grade deposit, estimated to contain 2.5 million short tons of phosphate rock, 430 thousand tons of which lie within the study area (Myers and Kluender, in press).

Commodities

Phosphate.

Mineral and energy resource potential

The West Slope Tetons (South) area has high potential for phosphate resources in a small, narrow strip of land along the western boundary. The potential for other mineral and energy resources is regarded as low.

References

Myers, W. B., and Kluender, S. E., in press, Mineral resource potential of the West Slope Tetons Roadless Area, Teton County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1654-A, scale 1:24,000.

PALISADES (4-613)

(See description under Targhee National Forest)

GREEN-SWEETWATER (4-901)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Worl and others, 1984).

Mining districts, mines, and mineral occurrences

Most of the Green-Sweetwater area is underlain by a Precambrian complex of high-grade metamorphic and felsic igneous rocks. Paleozoic and Mesozoic sedimentary rocks are exposed in the northwestern part of the area, and Quaternary glacial deposits are common throughout.

No mining districts are located within the area, however, the Atlantic City-South Pass gold districts are located 5 mi to the southeast. Gold was mined from quartz veins in graphitic schist and metadiorite. The Green-Sweetwater area is devoid of the rock types that hosted the gold-bearing quartz veins in these mining districts.

Sub-bituminous coal has been mined from the Cretaceous Frontier Formation near the Willow Creek Ranger Station in the northern part of the area. This area is included in the Green River coal region. The Permian Phosphoria Formation is also exposed in the northern part of the area, and contains beds of phosphate rock. Analyses of the phosphate rock revealed moderate to trace amounts of fluorine, vanadium, uranium, rare earths, and molybdenum.

Several wells have been drilled in the Green-Sweetwater area just south of Willow Creek, and a number of other wells have been drilled just north of the area near Gypsum Creek. Oil and gas shows have been recorded, but there has been no production. The Pinedale field, located 15 mi southwest of the center of the area, is the nearest producing field.

Commodities

Oil and gas.

Mineral and energy resource potential

The Green-Sweetwater area has a moderate resource potential for oil and gas. The Wind River fault parallels the Wind River Range along its southwest flank and dips eastward under the range. Precambrian rocks from the core of the range have been displaced westward and now overlie Paleozoic and Mesozoic sedimentary rocks, which contain potential petroleum reservoirs.

The resource potential for coal is regarded as low, because the thin coal seams in the Frontier Formation are discontinuous. The deposits of phosphatic rock in the Phosphoria Formation are of low grade, and as a result, the area is regarded as having a low resource potential for phosphate as of 1985. Based on geological, geochemical, and geophysical criteria, the potential for other mineral and energy resources is also regarded as low.

References

Worl, R. G., Lee, G. K., Long, C. L., and Ryan, G. S., 1984, Mineral resource potential map of the Bridger Wilderness and the Green-Sweetwater Roadless Area, Sublette and Fremont Counties, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1636-A, 12 p., scale 1:250,000.

SEVEN LAKES (4-902)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Sheldon, 1963; R. G. Worl, oral commun., 1984), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Seven Lakes area is underlain by a Precambrian complex of high-grade metamorphic and felsic igneous rocks, covered with Quaternary glacial deposits. Paleozoic and Mesozoic sedimentary rocks crop out in the western part of the area. There are no mining districts, mines, or prospects in the area, and the only mineral occurrence reported is phosphate, in the phosphatic-shale members of the Permian Phosphoria Formation. The phosphate is at minable depth in the western part of the area (Sheldon, 1963). An exploratory oil and gas well was drilled in the western part of the area, but no oil or gas was discovered. Closest production is in the Dubois field, located approximately 25 mi to the northeast.

Commodities

Phosphate, oil, and gas.

Mineral and energy resource potential

The western part of the Seven Lakes area has a moderate resource potential for phosphate, oil, and gas. Oil- and gas-bearing strata occur in the Bacon Ridge anticline, the southern end of which is found in this part of the area. The potential for other mineral and energy resources is regarded as low.

References

Sheldon, R. P., 1963, Physical stratigraphy and mineral resources of Permian rocks in western Wyoming: U.S. Geological Survey Professional Paper 313-B, 273 p.

TOGWOTEE (4-903)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Berryhill and others, 1951; Antweiler and Love, 1967; Powers, 1978), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Togwotee area is underlain by Cretaceous sedimentary rocks. Glacial deposits and landslide deposits cover some of these units. The western half of the area is included in the Jackson Hole coal field and contains beds of sub-bituminous coal in the Bacon Ridge Sandstone and the Mesaverde Formation. Some mining has taken place near outcrops of these formations at the mouth of Lava Creek.

The Harebell Formation, which crops out on the west side of the area, contains gold-bearing quartzite-pebble conglomerates and gold-bearing sandstones. No gold production is recorded, and the only evidence of prospecting activities are the placer workings on Lava and Pacific Creeks.

Several exploratory wells have been drilled near the Togwotee area, however, no oil or gas has been discovered. Closest production is in the Dubois oil field, located on an anticline approximately 20 mi southeast of the area. Anticlinal structures are present just south of the Togwotee area, and these structures may contain suitable source and reservoir rocks.

Commodities

Oil, gas, gold, and coal.

Mineral and energy resource potential

The western part of the Togwotee area has a moderate resource potential for gold in placer deposits. Although the volume of gold-bearing sandstones and conglomerates is large, gold values are low and the gold is highly dispersed (Antweiler and Love, 1967). The western part of the area also has a moderate potential for coal resources (Berryhill and others, 1951). The resource potential for oil and gas is regarded as moderate in the eastern part of the area (Powers, 1978). Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Antweiler, J. C., and Love, J. D., 1967, Gold bearing sedimentary rocks in northwestern Wyoming - a preliminary report: U.S. Geological Survey Circular 541, 12 p.

Berryhill H. L., Jr., Brown, D. M., Burns, R. N., and Combo, J. X., 1951, Coal resources map of Wyoming: U.S. Geological Survey Coal Investigations Map C-6, scale 1:500,000.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1;500,000.

BRIDGER WILDERNESS (NF-008)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Worl and others, 1984).

Mining districts, mines, and mineral occurrences

The Bridger Wilderness is underlain largely by a Precambrian complex of high-grade metamorphic and felsic igneous rocks. Paleozoic and Mesozoic sedimentary rocks are exposed in the northwestern part of the area, and Quaternary glacial deposits are common throughout.

No mining districts are located within the area, however, the Atlantic City-South Pass gold districts are located 15 mi to the southeast. Gold was mined from quartz veins in graphitic schist and metadiorite. Several prospect pits are found just south of the area, and a few prospects for placer gold are found within the area. The Bridger Wilderness is devoid of the rock types that hosted the gold-bearing quartz veins in these mining districts.

Base-metal sulfides are found along the northeastern boundary of the area and are disseminated along felsic dikes and shear zones or occur in small pods in migmatite and gneiss. Banded iron-formation (taconite) also occurs in the northern part of the area as discrete bodies in migmatite and migmatitic gneiss. The iron content of the taconite averages 25 percent. Phosphate is present in the Permian Phosphoria Formation, exposed in the northwesternmost corner of the area. Analyses of the phosphate rock revealed moderate to trace amounts of fluorine, vanadium, uranium, molybdenum, and rare earths. Molybdenum occurs in small pods in a porphyritic granite near Schiestler Peak, in the southern part of the area.

Several exploratory wells have been drilled close to the study area, however, none have been drilled within the area itself. Oil and gas shows have been recorded, but there has been no production. The Pinedale field, located 20 mi southwest of the center of the area, is the nearest producing field.

Commodities

Oil and gas.

Mineral and energy resource potential

The western part of the Bridger Wilderness has a moderate resource potential for oil and gas. The Wind River fault parallels the Wind River Range along its southwest flank and dips eastward under the range. Precambrian rocks from the core of the range have been displaced westward and now overlie Paleozoic and Mesozoic sedimentary rocks, which contain potential petroleum reservoirs. The eastern part of the Wilderness has a low resource potential for oil and gas.

The potential for metallic-mineral resources is regarded as low, because the occurrences of base-metal sulfides, iron, and molybdenum are small and scattered. The potential for phosphate resources is also low, because the low grade phosphate rock occurs in thin beds of limited extent. The potential for other mineral and energy resources is also regarded as low.

References

Worl, R. G., Lee, G. K., Long, C. L., and Ryan, G. S., 1984, Mineral resource potential map of the Bridger Wilderness and the Green-Sweetwater Roadless Area, Sublette and Fremont Counties, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1636-A, 12 p., scale 1:250,000.

TETON WILDERNESS (NF-082)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Antweiler and others, 1983, and in press).

Mining districts, mines, and mineral occurrences

The eastern part of the Teton Wilderness is underlain by Eocene volcaniclastic rocks of the Absaroka Volcanic Supergroup. The western part of the wilderness is underlain by Paleozoic, Mesozoic, and Cenozoic sedimentary rocks, covered in part by deposits of glacial debris.

No mines in the area are currently active. Two copper mines operated during the early 1900's near the southeast margin of the area, and copper prospects are present in Precambrian crystalline rocks on the South Buffalo Fork River. Analyses of samples from this area did not yield anomalous copper values. Gold placers have been worked along several major streams that drain gold-bearing conglomerates of the Cretaceous Harebell Formation and Pinyon Conglomerate in the southwestern part of the wilderness. Stream-sediment samples from this area yielded moderate quantities of fine-flake gold.

Copper, lead, molybdenum, nickel, silver, zinc, uranium, and vanadium occur in small amounts in black shales at the base of the Mississippian-Pennsylvanian Amsden Formation, which crops out in the south-central part of the Teton Wilderness. Analyses of rock samples yielded anomalies for each of these elements.

A part of the Jackson Hole coal field lies within the Teton Wilderness. Coal has been mined from the Bacon Ridge Sandstone along Buffalo Fork Creek, just south of the area, and from the Mesaverde Formation on Pilgrim Creek, located a few miles to the southwest. The Bacon Ridge Sandstone and Mesaverde Formation crop out in the southwestern part of the wilderness and contain thin, coal-bearing beds with numerous shale partings. Other coal-bearing formations in the area include the Frontier and Meeteetse Formations.

No exploratory oil and gas wells have been drilled in the Teton Wilderness, and the nearest drill hole is located 2 mi south of the area. No oil or gas was discovered, however, many of the potential producing horizons were not tested. Suitable source and reservoir rocks are present and thermal maturation analyses indicate that the environment was favorable for the generation of hydrocarbons. Small gas seeps on the Whetstone anticline and the east flank of the Bailey anticline document the presence of hydrocarbons.

A number of anticlines which may have entrapped oil and gas are found in the Wilderness. The Spread Creek anticline, located just southwest of the area, has been tested by seven drill holes. Several encountered oil and gas shows, but only one was capable of gas production in small quantities. Reflection seismic data indicate that large, previously unrecognized, bedding-plane thrust faults may have displaced stratigraphic and structural traps.

The potential for discovery of oil and gas still exists, because large volumes of oil and gas have been produced from anticlines similar to those in the Wilderness in the Bighorn basin, located 40-50 mi to the east. Accumulations of oil and gas may also be found in sedimentary rocks beneath the Buffalo Fork thrust fault and other faults in the western part of the area.

Oil and gas may have accumulated in the Younts basin(?), which is a major elongate structural downwarp located between the Washakie and Absaroka Ranges in the southeastern part of the Teton Wilderness (Antweiler and others, 1983). The basin(?) is represented by a gravity anomaly, and is postulated to contain over 20,000 ft of Paleozoic and Mesozoic sedimentary rocks under a relatively thin veneer of volcaniclastic rocks.

Several hot springs are located along the North Buffalo Fork River near its junction with Soda Fork. Temperatures of the springs range from 92° to 113°F, and the flow was estimated to vary from 300 to 20,000 gal/day (Antweiler and others, 1983). The warm springs are probably the result of heating of meteoric water associated with a thermal gradient along the Soda Creek fault. A number of hot springs are located northwest of the wilderness in Yellowstone National Park.

Commodities

Oil, gas, gold, copper, lead, molybdenum, nickel, silver, zinc, uranium, and vanadium.

Mineral and energy resource potential

The potential for gold resources is moderate in placer deposits in the western part of the area. Significant quantities of gold are found in alluvial deposits along several major streams draining the Harebell Formation and Pinyon Conglomerate. The resource potential for copper, lead, molybdenum, nickel, silver, zinc, uranium, and vanadium in black shales of the Amsden Formation is regarded as moderate in three separate localities in the south-central part of the wilderness.

The resource potential for coal is low, because the coal beds are discontinuous. The resource potential for oil and gas is regarded as moderate in anticlinal traps and fault traps in the western part of the area. Based on current geologic interpretation, the resource potential for oil and gas in the Younts basin(?), located in the southeastern part of the area, is also moderate. Geothermal resource potential is low. The potential for other mineral and energy resources is also regarded as low.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Antweiler, J. C., Williams, F. E., Jinks, J. E., and Light, T. D., 1983, Preliminary report on the mineral resource potential of the Teton Wilderness, Teton, Fremont, and Park Counties, Wyoming, with sections on Geology by J. D. Love and H. J. Prostka, and Interpretation of geophysical data by D. M. Kulik and L. A. Anderson: U.S. Geological Survey Open-File Report 83-470, 32 p.

MEDICINE BOW NATIONAL FOREST

DEER CREEK (2-067)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Spencer, 1916), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Deer Creek area is underlain by Precambrian granitic and gneissic rocks. The Deer Creek mining district, located approximately 5 mi north of the area, was a chromite producer in the early 1900's (Beckwith, 1939). The chromite occurs in lenses of serpentine near the contact of the serpentine with younger granitic intrusions. No mining districts, mines, prospects, or mineral occurrences are recorded in or near the area.

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Deer Creek area is regarded as low.

References

Beckwith, R. H., 1939, Asbestos and chromite deposits of Wyoming: Wyoming Geological Survey Bulletin 29, p. 812-843.

Spencer, A. C., 1916, The Atlantic gold district and the North Laramie Mountains, Freemont, Converse, and Albany Counties, Wyoming: U.S. Geological Survey Bulletin 626, p. 47-81.

BUFFALO PEAK (2-068)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Spencer, 1916), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Buffalo Peak area is underlain by Precambrian granitic rocks, which contain layers of schist and gneiss cut by quartz veins and diabase dikes. The War Bonnet mining district is located at the southeastern corner of the area. Copper occurs in quartz veins and diabase dikes in this district, and prospecting has centered around the veins and dikes that show

surficial alteration. No production has been recorded. Uranium has been reported from an isolated locality along the northern border of the area.

Commodities

None known.

Mineral and energy resource potential

The potential for mineral and energy resources in the Buffalo Peak area is regarded as low.

References

Spencer, A. C., 1916, The Atlantic gold district and the North Laramie Mountains, Freemont, Converse, and Albany Counties, Wyoming: U.S. Geological Survey Bulletin 626, p. 47-81.

LA BONTE CANYON (2-069)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Spencer, 1916), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The La Bonte Canyon area is underlain by Precambrian granitic and gneissic rocks. Several mines and prospects are located in the area north of La Bonte Creek, and this part of the area is included in the War Bonnet mining district. Copper occurs in quartz veins and mafic dikes, however, mineralized rock is localized, and no production has been recorded from the district.

Commodities

None known.

Mineral and energy resource potential

The La Bonte Canyon area is regarded as having a low potential for mineral and energy resources.

References

Spencer, A. C., 1916, The Atlantic gold district and the North Laramie Mountains, Freemont, Converse, and Albany Counties, Wyoming: U.S. Geological Survey Bulletin 626, p. 47-81.

LARAMIE PEAK (2-070)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Segerstrom and Weisner, 1977).

Mining districts, mines, and mineral occurrences

Most of the Laramie Peak area is underlain by Precambrian granite containing numerous diabase and amphibolite dikes. Small quantities of base and precious metals were mined from vein-type deposits in the Esterbrook mining district, located in the northeastern corner of the area. Prospect pits are numerous in this part of the area, and along a shear zone outside the area's southeastern border. Analyses of rock samples from some of the prospects yielded slightly anomalous values of copper, lead, zinc, gold, and silver, however, the mineralized rock is generally too low in grade and/or too sparsely distributed to be considered as a potential resource.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysical criteria, the Laramie Peak area has a low potential for mineral and energy resources.

References

Segerstrom, Kenneth, and Weisner, R. C., 1977, Mineral resources of the Laramie Peak Study area, Albany and Converse Counties, Wyoming, with a section on Aeromagnetic interpretation by M. D. Kleinkopf: U.S. Geological Survey Bulletin 1397-B, 35 p.

EAGLE PEAK (2-071)

Kind and amount of data

The eastern part of the area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Segerstrom and Weisner, 1977). The western part of the area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Spencer, 1916), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Eagle Peak area is underlain by Precambrian granitic and gneissic rocks. There are no mines or mining districts in the area, and past activity is limited to a few prospect pits northeast of Eagle Peak. Sample analyses from mafic dikes in the area yielded slightly anomalous values of lead.

Commodities

None known.

Mineral and energy resource potential

The eastern part of the Eagle Peak area has a low potential for mineral and energy resources (Segerstrom and Weisner, 1977). The resource potential of the rest of the area is also regarded as low.

References

Segerstrom, Kenneth, and Weisner, R. C., 1977, Mineral resources of the Laramie Peak Study area, Albany and Converse Counties, Wyoming, with a section on Aeromagnetic interpretation by M. D. Kleinkopf: U.S. Geological Survey Bulletin 1397-B, 35 p.

Spencer, A. C., 1916, The Atlantic gold district and the North Laramie Mountains, Fremont, Converse, and Albany Counties, Wyoming: U.S. Geological Survey Bulletin 626, p. 47-81.

ROCK CREEK (2-072)

Kind and amount of data

The area has been mapped and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Houston and others, 1968), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Rock Creek area is underlain almost entirely by Precambrian metavolcanic and metasedimentary rocks. No mines or mining districts are located in the Rock Creek area. Gold, lead, copper, and silver have been produced from quartz veins in Precambrian metasedimentary and mafic volcanic rocks in the Cooper Hill mining district, which lies just outside the eastern border of the area (Hausel, 1980). Local beds of uranium-bearing conglomerate, containing as much as 1,380 ppm uranium are present near the base of the Precambrian Magnolia Formation (Deep Lake Group) at Onemile Creek (Karlstrom and others, 1981).

Commodities

Uranium and thorium.

Mineral and energy resource potential

The Rock Creek area has a moderate potential for uranium and thorium resources in fluvial, quartz-pebble conglomerates of the Precambrian Magnolia Formation. Radioactivity of the conglomerates is well above background level for the area (Houston and others, 1968). Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Hausel, W. D., 1980, Gold districts of Wyoming: Wyoming Geological Survey Report of Investigations 23, p. 39.

Houston, R. S., McCallum, M. E., King, J. S., Ruehr, B. B., Myers, W. G., Orback, C. J., King, J. R., Childers, M. O., Matus, I., Currey, D. R., Gries, J. C., Stensrud, H. L., Catanzaro, E. J., Swetnam, M. N., Michalek, D. D., and Blackstone, D. L., Jr., 1968, A regional study of rocks of Precambrian age in that part of the Medicine Bow Mountains lying in southeastern Wyoming, with a chapter on The relationship between Precambrian and Laramide structure: Wyoming Geological Survey Memoir 1, 167 p., scale 1:64,000.

Karlstrom, K. E., Houston, R. S., Flurkey, A. J., Coolidge, C. M., Kratochvil, A. L., and Sever, C. K., 1981, A summary of the geology and uranium potential of Precambrian conglomerates in southeastern Wyoming: Grand Junction, Colorado, U.S. Department of Energy, National Uranium Resource Evaluation Program Report GJBX-139-81, v. 1, 541 p.

PENNOCK MOUNTAIN (2-073)

Kind and amount of data

Information on geology and mineral deposits is not adequate for a preliminary resource evaluation.

Mining districts, mines, and mineral occurrences

Most of the Pennock Mountain area is underlain by Precambrian quartzo-feldspathic gneiss and quartz diorite, cut by a number of mafic dikes (Houston and others, 1968). Paleozoic sedimentary rocks crop out in the southeastern part of the area, and folded sedimentary rocks of Cretaceous age crop out in the extreme eastern part of the area. No mines or mining districts are located in the area, and past activity is limited to a few copper, gold, and silver prospects near the head of South Fork Lake Creek.

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Pennock Mountain area is unknown.

References

Houston, R. S., McCallum, M. E., King, J. S., Ruehr, B. B., Myers, W. G., Orback, C. J., King, J. R., Childers, M. O., Matus, I., Currey, D. R., Gries, J. C., Stensrud, H. L., Catanzaro, E. J., Swetnam, M. N., Michalek, D. D., and Blackstone, D. L., Jr., 1968, A regional study of rocks of Precambrian age in that part of the Medicine Bow Mountains lying in southeastern Wyoming, with a chapter on The relationship between Precambrian and Laramide structure: Wyoming Geological Survey Memoir 1, 167 p., scale 1:64,000.

SNOWY RANGE (2-074)

Kind and amount of data

The Snowy Range area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Houston and others, 1983).

Mining districts, mines, and mineral occurrences

The Snowy Range area is underlain entirely by rocks of Precambrian age, which are covered in part by a thin veneer of Pleistocene glacial debris. Precambrian units are composed chiefly of metasedimentary and metavolcanic rocks, and are cut by gabbroic dikes and sills.

Gold was produced from the Gold Hill mining district, which lies on the southwestern margin of the Snowy Range Wilderness. Numerous gold prospects occur within the area, and most are localized along its southern, western, and eastern borders. The gold is found in quartz veins in norite country rock. Local beds of uranium-bearing conglomerate are present near the base of the Precambrian Magnolia Formation (Deep Lake Group) at Onemile Creek, about 8 mi northeast of the Snowy Range area. Uranium and thorium are also found in quartz veins associated with mafic intrusive and metasedimentary rocks, and in fault and shear zones.

Commodities

Uranium, thorium, and gold.

Mineral and energy resource potential

The northwestern half of the Snowy Range area has a moderate resource potential for uranium, thorium, and gold in fluvial, quartz-pebble conglomerates of the Precambrian Magnolia Formation. Neither surface or subsurface investigations in the area revealed uranium, thorium, or gold deposits; however, exceptionally high radon anomalies suggest that uranium may be present at depth (Houston and others, 1983). The potential for mineral and energy resources in the southeastern half of the area is regarded as low.

References

Houston, R. S., Karlstrom, K. E., Lanthier, L. R., Miller, W. R., and Bigsby, P. R., 1983, Mineral resource potential map of the Snowy Range Wilderness Study area, Albany and Carbon Counties, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1596-A, scale 1:50,000.

LIBBY FLATS (2-075)

Kind and amount of data

A strip along the northwestern border of the Libby Flats area is included on the mineral resource potential map of the Snowy Range Wilderness (Houston and others, 1983), and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed for this part of the area. The

remainder of the Libby Flats area is included on a geologic map by Houston and others (1968), and information on geology and mineral deposits is adequate for a preliminary resource evaluation of this part of the area.

Mining districts, mines, and mineral occurrences

The northeast-trending Mullen Creek-Nash Fork shear zone cuts the Libby Flats area near the southern boundary. The quartzo-feldspathic gneisses north of the shear zone and hornblende and biotite gneisses south of the shear zone are all of Precambrian age. A few gold and copper prospects are located on the western border of the area near the shear zone.

The southeastern tip of the Libby Flats area lies in the Centennial Ridge gold-platinum mining district. With the exception of some free gold in quartz veins, most of the gold and platinum-group metals occur in sulfides in faults and small shear zones which cut mafic schists, gneisses, and amphibolitized meta-igneous rocks (McCallum, 1968).

Commodities

Gold and platinum-group metals.

Mineral and energy resource potential

The geology of the southeastern part of the Libby Flats area is favorable for deposits of gold and platinum-group metals similar to those of the Centennial Ridge mining district, and the mineral resource potential for these commodities is regarded as moderate. The mineral resource potential of the northern two-thirds of the area is regarded as low (Houston and others, 1983). There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Houston, R. S., Karlstrom, K. E., Lanthier, L. R., Miller, W. R., and Bigsby, P. R., 1983, Mineral resource potential map of the Snowy Range Wilderness Study area, Albany and Carbon Counties, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1596-A, scale 1:50,000.

Houston, R. S., McCallum, M. E., King, J. S., Ruehr, B. B., Myers, W. G., Orback, C. J., King, J. R., Childers, M. O., Matus, I., Currey, D. R., Gries, J. C., Stensrud, H. L., Catanzaro, E. J., Swetnam, M. N., Michalek, D. D., and Blackstone, D. L., Jr., 1968, A regional study of rocks of Precambrian age in that part of the Medicine Bow Mountains lying in southeastern Wyoming, with a chapter on The relationship between Precambrian and Laramide structure: Wyoming Geological Survey Memoir 1, 167 p., scale 1:64,000.

McCallum, M. E., 1968, The Centennial Ridge gold-platinum district, Albany County, Wyoming: Wyoming Geological Survey Preliminary Report 7, 13 p.

EAGLE ROCK (2-076)

TWIN MOUNTAIN (2-077)

CROW CREEK (2-078)

Kind and amount of data

Information on geology and mineral deposits is not adequate for a preliminary resource evaluation.

Mining districts, mines, and mineral occurrences

The Eagle Rock, Twin Mountain, and Crow Creek areas are underlain by a granitic batholith of Precambrian age. No mining districts, mines, or prospects are located in any of the areas. The closest mining district, the Silver Crown (Hecla) district, is located approximately 5 mi to the east; it contains a number of silver, copper, and gold prospects in Precambrian granites, gneisses, and schists, but no production has been recorded (Soule, 1955).

Commodities

None known.

Mineral and energy resource potential

The mineral resource potential of the Eagle Rock, Twin Mountain, and Crow Creek areas is unknown.

References

Soule, J. H., 1955, Investigation of the Copper King copper-gold-silver deposits, Silver Crown mining district, Laramie County, Wyoming: U.S. Bureau of Mines Report of Investigations 5139, 9 p.

SHEEP MOUNTAIN (2-079)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Houston, Patten, and Gersic, 1983).

Mining districts, mines, and mineral occurrences

Most of the Sheep Mountain area is underlain by Precambrian granitic and gneissic rocks. Paleozoic sedimentary rocks crop out in the northeastern and southeastern parts of the area. A thrust fault marks the eastern margin of Sheep Mountain, and movement on this fault was from west to east bringing crystalline rocks over younger sedimentary rocks.

No mines or mining districts are located in the Sheep Mountain area, and past activity is limited to prospects along the granite-metamorphic rock

contact which parallels the eastern border. Titanium-bearing sandstones of the Mesaverde Formation and sub-bituminous coal beds of the Mesaverde and Hanna Formations crop out in the northeastern corner of the area, and outcrops continue to the north and northeast. This region also hosts some oil and gas production in the Rex Lake field, located 3 mi northeast of the area, and in the Big Hollow field, located 7 mi to the east.

Commodities

Oil and gas.

Mineral and energy resource potential

The northeastern corner of the area has a moderate resource potential for oil and gas. Traps for oil and gas may occur in a small anticline near the northeastern border of the area and in sedimentary rocks under the thrust sheet (Houston, Patten, and Gersic, 1983). The potential for titanium resources is low, because the titanium-bearing sandstones are limited in extent and the titanium is highly dispersed (Houston and Murphy, 1962). The potential for coal resources is also regarded as low, because of the limited extent of coal in the outcrops. Other mineral and energy resources are unknown, and their potential is regarded as low.

References

Houston, R. S., and Murphy, J. F., 1962, Titaniferous black sandstone deposits of Wyoming: Wyoming Geological Survey Bulletin 49, 120 p.

Houston, R. S., Patten, L. L., and Gersic, J., 1983, Mineral resources of the Sheep Mountain Wilderness, Albany County, Wyoming: U.S. Geological Survey Open-File Report 83-468, 19 p.

PLATTE RIVER MG-1 (2-080)

(part of Platte River MG-1 (2-080) is in contiguous parts of Colorado)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation, but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Platte River area is underlain by a variety of Precambrian rocks, ranging from mafic igneous rocks with granitic intrusions in the northern part of the area, to hornblende and quartzo-feldspathic gneisses containing numerous granitic pegmatites in the central part of the area, to quartzo-feldspathic gneisses with interlayered amphibolites in the southern part of the area (Houston and others, 1968).

No mining districts occur within the area itself, however a number of districts are found in the region just east of the Platte River area, including the Douglas Creek, Holmes-Keystone, and New Rambler mining districts. Placer gold and small amounts of platinum, palladium, and silver were recovered from the gravels of Douglas Creek and its tributaries in the

Douglas Creek mining district (Hausel, 1980), and in the northeastern part of the Platte River area.

The Holmes-Keystone mining district is located north of the Douglas Creek district. Gold and copper have been produced from vein-type deposits localized along faults in sheared quartz-biotite schist (Currey, 1965). Gold and copper have also accounted for most of the ore production from the New Rambler mining district, located just north of the Holmes-Keystone district (Loucks, 1976; McCallum and Orback, 1968). Minor amounts of platinum, palladium, and silver are associated with the copper sulfides and/or gold, and mineralized rock is generally confined to shear-zone tectonites and mylonitic gneisses.

Deposits of this type occur in a few places in the Platte River area. The Sunset mine, located in the northwestern corner of the area, has explored metagabbro- and metadiorite-hosted quartz veins containing scattered areas of mineralized rock. Several prospect pits in the northwestern corner of the area have exposed a quartz vein containing gold, silver, arsenic, and zinc. Sample analyses from an area just north of the prospects yielded significant anomalies for gold, silver, and lead.

The western edge of the Platte River area is considered a part of the Big Creek pegmatite area (Houston, 1961). Some of the pegmatites are copper-bearing and have been mined for copper, but the majority of the pegmatites are rare earth-bearing, and the largest ones have been mined for niobium. Several niobium-bearing pegmatites are found in the western part of the Platte River area. Copper-bearing pegmatites also occur in the vicinity of Pelton Creek, and small amounts of copper were recovered from the Copper King mine, located on a pegmatite just east of the Platte River area (Swetnam, 1961).

Commodities

Copper, gold, silver, lead, zinc, platinum, palladium, and niobium.

Mineral and energy resource potential

The northern part of the Platte River area has a moderate resource potential for copper, gold, silver, lead, zinc, platinum, and palladium in vein-type deposits. Veins in the area are localized along faults and shear zones in mafic igneous rocks and are subsidiary to the Mullen Creek-Nash Fork shear zone which lies to the north. Gold may also be present in placer deposits in the gravels of Douglas Creek, and the potential for gold resources in this part of the area is regarded as moderate. The western edge of the Platte River area has a moderate potential for niobium resources in pegmatite deposits. The rest of the area has low potential for mineral resources. Energy resources are unknown, and their potential is regarded as low.

References

Currey, D. R., 1965, The Keystone gold-copper prospect area, Albany County, Wyoming: Wyoming Geological Survey Preliminary Report 3, 12 p.

Hausel, W. D., 1980, Gold districts of Wyoming: Wyoming Geological Survey Report of Investigations 23, p. 19-30.

Houston, R. S., 1961, The Big Creek pegmatite area, Carbon County, Wyoming: Wyoming Geological Survey Preliminary Report 1, 11 p.

Houston, R. S., McCallum, M. E., King, J. S., Ruehr, B. B., Myers, W. G., Orback, C. J., King, J. R., Childers, M. O., Matus, I., Currey, D. R., Gries, J. C., Stensrud, H. L., Catanzaro, E. J., Swetnam, M. N., Michalek, D. D., and Blackstone, D. L., Jr., 1968, A regional study of rocks of Precambrian age in that part of the Medicine Bow Mountains lying in southeastern Wyoming, with a chapter on The relationship between Precambrian and Laramide structure: Wyoming Geological Survey Memoir 1, 167 p., scale 1:64,000.

Loucks, R. R., 1976, Platinum-gold-copper mineralization, central Medicine Bow Mountains, Wyoming: Fort Collins, Colorado State University, unpublished M.S. thesis, 298 p.

McCallum, M. E., and Orback, C. J., 1968, The New Rambler copper-gold-platinum district, Albany and Carbon Counties, Wyoming: Wyoming Geological Survey Preliminary Report 8, 12 p.

Swetnam, M. N., 1961, Geology of the Pelton Creek area, Albany and Carbon Counties, Wyoming: Laramie, University of Wyoming, unpublished M.S. thesis, 78 p.

BEAR MOUNTAIN (2-084)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (R. S. Houston, oral commun., 1984), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Bear Mountain area is underlain by Precambrian quartzo-feldspathic gneisses with interlayered amphibolites (Houston and Ebbett, 1977). Tuffaceous sandstones and claystones of the Tertiary North Park Formation crop out in the south-central part of the area. No mines or mining districts are located in the area, and past activity is limited to a few uranium and rare-earth prospects.

Commodities

None known.

Mineral and energy resource potential

The mineral resource potential of the Bear Mountain area is regarded as low (R. S. Houston, oral commun., 1984). There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Houston, R. S., and Ebbett, B. E., 1977, Geologic map of the Sierra Madre and western Medicine Bow Mountains, southeastern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-827, scale 1:125,000.

COON CREEK (2-085)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary resource evaluation (R. S. Houston, oral commun., 1984), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Coon Creek area is underlain by Precambrian mafic igneous, metasedimentary, and metavolcanic rocks, which have been intruded by Precambrian granitic rocks (Houston and Ebbett, 1977). No mines or mining districts are located in the area, and past activity is limited to a single lead-silver prospect in the area's northwestern corner. The closest mining district is the Encampment district, located a few miles to the northwest, where copper, silver, and gold have been produced from stockwork- and vein-type deposits in a Precambrian igneous and metamorphic complex.

Commodities

Copper, lead, zinc, silver, and gold.

Mineral and energy resource potential

Metavolcanic rocks in the Coon Creek area have a moderate resource potential for copper, lead, zinc, silver, and gold in stratiform massive-sulfide deposits similar to those found in the Huston Park area to the west (R. S. Houston, oral commun., 1984). There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Houston, R. S., and Ebbett, B. E., 1977, Geologic map of the Sierra Madre and western Medicine Bow Mountains, southeastern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-827, scale 1:125,000.

ENCAMPMENT RIVER (2-086)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (R. S. Houston, oral commun., 1984) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Encampment River area is underlain primarily by Precambrian granitic and gneissic rocks. Precambrian metasedimentary and metavolcanic rocks crop out in the northeastern part of the area around a local shear zone (Houston and Ebbett, 1977). The area is included in the Encampment mining district.

Copper, silver, and gold have been produced from stockwork- and vein-type deposits in a Precambrian igneous and metamorphic complex in the district, and dump samples from several prospect pits in this part of the area yielded anomalous amounts of copper, lead, zinc, gold, and bismuth.

Commodities

Copper, gold, silver, lead, zinc, and bismuth.

Mineral and energy resource potential

The Encampment River area has a moderate resource potential for copper, gold, silver, lead, zinc, and bismuth in stratiform massive-sulfide deposits similar to those of the Huston Park area to the west (R. S. Houston, oral commun., 1984). Other mineral and energy occurrences are unknown, and their resource potential is regarded as low.

References

Houston, R. S., and Ebbett, B. E., 1977, Geologic map of the Sierra Madre and western Medicine Bow Mountains, southeastern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-827, scale 1:125,000.

HUSTON PARK (2-087)

Kind and amount of data

The mineral survey, as required by the Wilderness Act (PL88-577) and related acts, has been completed for the south-central part of the Huston Park area, delineated by a dashed line on Plate 1 (Houston, Schmidt, and Lane, 1983). Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation of the rest of the area (Houston and Ebbett, 1977).

Mining districts, mines, and mineral occurrences

Most of the Huston Park area is underlain by Precambrian metavolcanic rocks, ranging in composition from basalt to rhyolite. These rocks are intruded by Precambrian granodiorite, gabbro, and granite. Paleozoic and Mesozoic sedimentary rocks crop out near the area's western boundary, and Quaternary glacial and alluvial deposits unconformably overlie older rocks throughout the area.

The Huston Park area is included in the Encampment mining district. Copper, silver, and gold have been produced from stockwork- and vein-type deposits in a Precambrian igneous and metamorphic complex in the district. Several mines and numerous prospect pits are located in the Huston Park area.

Rock-sample analyses from the Itmay and Standard mines, located near the head of the Roaring Fork Little Snake River in the central part of the area, yielded significant amounts of copper and iron, and modest amounts of silver, molybdenum, cobalt, nickel, and gold. The geology of this area is favorable for the occurrence of stratiform massive-sulfide deposits (Houston, Schmidt, and Lane, 1983). The mineralized zone of the Verde (Hinton) mine, located near the head of Soloman Creek, has some of the characteristics of a

stratiform massive-sulfide deposit. Copper was produced from the Verde mine in the early 1900's. Slightly anomalous amounts of tin and tungsten are reported from rock-sample analyses of granites collected in the eastern part of the area, but mineralized rock is absent.

Commodities

Copper, iron, lead, zinc, silver, molybdenum, cobalt, nickel, and gold.

Mineral and energy resource potential

Metavolcanic rocks in two separate localities in the central part of the Huston Park area have a high resource potential for base and precious metals in stratiform massive-sulfide deposits (Houston, Schmidt, and Lane, 1983). Similar metavolcanic successions in areas farther west have a moderate resource potential for base and precious metals in massive-sulfide deposits. The mineral resource potential of the rest of the area is regarded as low. There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Houston, R. S., and Ebbett, B. E., 1977, Geologic map of the Sierra Madre and western Medicine Bow Mountains, southeastern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-827, scale 1:125,000.

Houston, R. S., Schmidt, T. G., and Lane, M. E., 1983, Mineral resource potential and geology of the Huston Park Roadless Area, Carbon County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1637, 7 p., scale 1:24,000.

BRIDGER PEAK (2-088)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Houston and Ebbett, 1977; Karlstrom and others, 1981; R. S. Houston, oral commun., 1984) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Bridger Peak area is underlain by Precambrian metavolcanic and metasedimentary rocks, chiefly quartzites, that are intruded by Precambrian granodiorite, gabbro, and granite. Quaternary glacial and alluvial deposits unconformably overlie older rocks in parts of the area.

The Bridger Peak area is included in the Encampment mining district. Copper, silver, and gold have been produced from stockwork- and vein-type deposits in a Precambrian igneous and metamorphic complex in the district. Several prospect pits in the Bridger Peak area are in zones that have undergone copper-sulfide mineralization.

Anomalous amounts of thorium, uranium, and gold are in rock-sample analyses of quartz-pebble conglomerates in the Precambrian Jack Creek Quartzite (Phantom Lake Metamorphic Suite) and in the Precambrian Magnolia

Formation (Deep Lake Group). The Jack Creek Quartzite crops out in the overturned limb of a major fold, the axis of which trends eastward across the northern part of the Bridger peak area. The Magnolia Formation crops out in an east-trending belt just south of the Jack Creek Quartzite.

Commodities

Copper, lead, zinc, thorium, uranium, and gold.

Mineral and energy resource potential

The Bridger Peak area has a moderate resource potential for copper, lead, and zinc in stratiform massive-sulfide deposits similar to those of the Huston Park area to the south (R. S. Houston, oral commun., 1984). The resource potential for thorium, uranium, and gold is moderate in fluvial quartz-pebble conglomerates of the Magnolia Formation and the Jack Creek Quartzite (Karlstrom and others, 1981). Other mineral occurrences are unknown, and their resource potential is regarded as low. There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Houston, R. S., and Ebbett, B. E., 1977, Geologic map of the Sierra Madre and western Medicine Bow Mountains, southeastern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-827, scale 1:125,000.

Karlstrom, K. E., Houston, R. S., Flurkey, A. J., Coolidge, C. M., Kratochvil, A. L., and Sever, C. K., 1981, A summary of the geology and uranium potential of Precambrian conglomerates in southeastern Wyoming: Grand Junction, Colorado, U.S. Department of Energy, National Uranium Resource Evaluation Program Report GJBX-139-81, v. 1, 541 p.

MOWRY PEAK (2-089)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Houston and Ebbett, 1977; Karlstrom and others, 1981; R. S. Houston, oral commun., 1984) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Mowry Peak area is underlain by Precambrian metavolcanic and metasedimentary rocks that are intruded by Precambrian granodiorite, gabbro, and granite. Quaternary glacial and alluvial deposits unconformably overlie older rocks in parts of the area.

The Mowry Peak area is included in the Encampment mining district. Copper, silver, and gold have been produced from stockwork- and vein-type deposits in a Precambrian igneous and metamorphic complex in the district. Numerous prospect pits are located in the area, and dump samples contain anomalous amounts of copper, gold, silver, lead, zinc, iron, and barite. In addition to the copper prospects, several gold-placer prospects are located along South Spring Creek near the center of the area.

Anomalous amounts of thorium, uranium, and gold are reported from rock-sample analyses of quartz-pebble conglomerates in the Precambrian Jack Creek Quartzite (Phantom Lake Metamorphic Suite). The Jack Creek Quartzite crops out in the overturned limb of a major fold in the southern part of the area.

Commodities

Copper, lead, zinc, thorium, uranium, and gold.

Mineral and energy resource potential

The Mowry Peak area has a moderate resource potential for copper, lead, and zinc in stratiform massive-sulfide deposits similar to those of the Huston Park area to the south (R. S. Houston, oral commun., 1984). The resource potential for thorium, uranium, and gold is moderate in fluvial quartz-pebble conglomerates of the Jack Creek Quartzite (Karlstrom and others, 1981). Other mineral and energy occurrences are unknown, and their resource potential is regarded as low.

References

Houston, R. S., and Ebbett, B. E., 1977, Geologic map of the Sierra Madre and western Medicine Bow Mountains, southeastern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-827, scale 1:125,000.

Karlstrom, K. E., Houston, R. S., Flurkey, A. J., Coolidge, C. M., Kratochvil, A. L., and Sever, C. K., 1981, A summary of the geology and uranium potential of Precambrian conglomerates in southeastern Wyoming: Grand Junction, Colorado, U.S. Department of Energy, National Uranium Resource Evaluation Program Report GJBX-139-81, v. 1, 541 p.

JACK CREEK (2-091)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Houston and Ebbett, 1977; Karlstrom and others, 1981; R. S. Houston, oral commun., 1984) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Jack Creek area is underlain by Precambrian metavolcanic and metasedimentary rocks that are intruded by Precambrian granodiorite, gabbro, and granite. Quaternary glacial and alluvial deposits uncomformably overlie older rocks throughout the area.

The Jack Creek area is included in the Encampment mining district. Copper, gold, and silver have been produced from stockwork- and vein-type deposits in a Precambrian igneous and metamorphic complex in the district. Numerous prospect pits are located in the Jack Creek area, and dump samples yielded anomalous amounts of copper, gold, silver, lead, nickel, and cobalt.

Anomalous amounts of thorium, uranium, and gold are reported from rock-sample analyses of quartz-pebble conglomerates in the Precambrian Jack

Creek Quartzite (Phantom Lake Metamorphic Suite) and in the Precambrian Magnolia Formation (Deep Lake Group). The Jack Creek Quartzite crops out in the overturned limb of a major fold, the axis of which trends northeastward across the southern part of the Jack Creek area. The Magnolia Formation crops out in the northwestern part of the area.

Commodities

Copper, lead, zinc, thorium, uranium, and gold.

Mineral and energy resource potential

The Jack Creek area has a moderate resource potential for copper, lead, and zinc in stratiform massive-sulfide deposits similar to those of the Huston Park area to the south (R. S. Houston, oral commun., 1984). The southern and western parts of the area have a moderate resource potential for thorium, uranium, and gold in fluvial quartz-pebble conglomerates of the Magnolia Formation and the Jack Creek Quartzite (Karlstrom and others, 1981). Other mineral occurrences are unknown, and their resource potential is regarded as low. There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Houston, R. S., and Ebbett, B. E., 1977, Geologic map of the Sierra Madre and western Medicine Bow Mountains, southeastern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-827, scale 1:125,000.

Karlstrom, K. E., Houston, R. S., Flurkey, A. J., Coolidge, C. M., Kratochvil, A. L., and Sever, C. K., 1981, A summary of the geology and uranium potential of Precambrian conglomerates in southeastern Wyoming: Grand Junction, Colorado, U.S. Department of Energy, National Uranium Resource Evaluation Program Report GJBX-139-81, v. 1, 541 p.

SINGER PEAK (2-092)

Kind and amount of data

Information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Houston and Ebbett, 1977; R. S. Houston, oral commun., 1984) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Singer Peak area is underlain by Precambrian metasedimentary and metavolcanic rocks. The area is included in the Encampment mining district, but there are no mines present and past activity is limited to a few prospect pits. Rock samples from prospect pits in the northeastern part of the area yielded anomalous amounts of copper. Copper, silver, and gold have been produced from stockwork- and vein-type deposits in a Precambrian igneous and metamorphic complex in the Encampment district.

Commodities

Copper, lead, and zinc.

Mineral and energy resource potential

The Singer Peak area has a moderate resource potential for copper, lead, and zinc in stratiform massive-sulfide deposits similar to those of the Huston Park area to the southeast (R. S. Houston, oral commun., 1984). Other mineral and energy occurrences are unknown, and their resource potential is regarded as low.

References

Houston, R. S., and Ebbett, B. E., 1977, Geologic map of the Sierra Madre and western Medicine Bow Mountains, southeastern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-827, scale 1:125,000.

BIG SANDSTONE CREEK (2-093)

LITTLE SANDSTONE CREEK (2-094)

Kind and amount of data

Information on geology and mineral deposits is not adequate for a preliminary mineral resource evaluation.

Mining districts, mines, and mineral occurrences

The Big Sandstone Creek and Little Sandstone Creek areas are underlain by sedimentary rocks of the Cretaceous Mesaverde Group. No mining districts, mines, or prospects are located in either area. The closest mining district is the Encampment district, located a few miles to the east, where copper, silver, and gold have been mined from much older rocks (Spencer, 1904).

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Big Sandstone Creek and Little Sandstone Creek areas is unknown.

References

Spencer, A. C., 1904, Copper deposits of the Encampment district: U.S. Geological Survey Professional Paper 25, 107 p.

BATTLE CREEK (2-095)

Kind and amount of data

Information on geology and mineral deposits is not adequate for a preliminary resource evaluation.

Mining districts, mines, and mineral occurrences

The Battle Creek area is underlain by sedimentary rocks of the Cretaceous Mesaverde Formation. No mining districts, mines, or prospects are located in the Battle Creek area. The closest mining district is the Encampment district, located a few miles to the east, where copper, silver, and gold have been mined from much older rocks (Spencer, 1904).

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Battle Creek area is unknown. Little information has been published and, although the area is included on Spencer's (1904) map of the Encampment mining district, it is not considered part of the district in this report, because it does not contain rocks similar to those which hosted the district's massive-sulfide deposits.

References

Spencer, A. C., 1904, Copper deposits of the Encampment district: U.S. Geological Survey Professional Paper 25, 107 p.

SAVAGE RUN (2-082)

SAVAGE RUN (2-083)

SAVAGE RUN WILDERNESS (NF-935)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (McCallum and Kluender, 1983).

Mining districts, mines, and mineral occurrences

The northeast-trending Mullen Creek-Nash Fork shear zone, which contains mylonite and other cataclastic rocks, crosses the northwestern part of the Savage Run Wilderness. Rocks northwest of the shear zone are comprised of Precambrian metasediments and metavolcanics. A quartzo-feldspathic gneiss unit with interlayered amphibolite, hornblende gneiss, and metagabbro occurs within the shear zone, and a granitic gneiss and felsic-mylonitic gneiss unit occurs just south of the shear zone in the northeastern corner of the wilderness.

The New Rambler mining district is located east of the Savage Run Wilderness and extends into the northeastern corner of the area. Copper, gold, silver, and platinum-group metals have been produced from the New Rambler mine and from other mines in the district (McCallum and Orback, 1968). Mineralization was generally confined to shear-zone tectonites and mylonitic gneisses. The Holmes-Keystone mining district is located just south of the New Rambler district. Gold and copper have been produced from vein-type deposits

localized along faults in sheared quartz-biotite schist. The Douglas Creek mining district is located south of the Holmes-Keystone district, and southeast of the Savage Run Wilderness and contiguous areas. Placer gold and small amounts of platinum, palladium, and silver have been recovered from the gravels of Douglas Creek and its tributaries.

Several prospects are found along the Mullen Creek-Nash Fork shear zone in the northeastern part of the wilderness, and most of the mineralized rock occurs along joints and fracture planes. Samples from prospects in this area yield anomalous values for copper, but values for other base and precious metals are low. Gold and silver occur in small veins associated with faults in several parts of the wilderness. Significant amounts of gold and silver were found in samples collected outside the wilderness boundary to the southwest and northeast. Samples collected from the North Mullen Creek Valley northeast of the area yielded anomalous values for cobalt, molybdenum, and bismuth. The southeastern part of the wilderness and contiguous areas is underlain by the Mullen Creek mafic complex, and these rocks contain slightly anomalous amounts of platinum, palladium, and nickel.

Commodities

Copper, gold, silver, nickel, and platinum-group metals.

Mineral and energy resource potential

The Savage Run Wilderness and contiguous areas have three regions of moderate mineral resource potential. The southwestern and northeastern parts of the area have a moderate resource potential for gold and/or silver in vein-type deposits associated with faults. The northeastern corner of the area has a moderate resource potential for copper in the intensely fractured rocks of an east-northeast-trending subsidiary of the Mullen Creek-Nash Fork shear zone. The southeastern part of the area has a moderate resource potential for platinum-group metals and nickel in the Mullen Creek mafic complex. There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

McCallum, M. E., and Kluender, S. E., 1983, Mineral resource potential map of the Savage Run Wilderness, Albany and Carbon Counties, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1638-A, 10 p., scale 1:24,000.

McCallum, M. E., and Orback, C. J., 1968, The New Rambler copper-gold-platinum district, Albany and Carbon Counties, Wyoming: Wyoming Geological Survey Preliminary Report 8, 12 p.

SHOSHONE NATIONAL FOREST

WINDY MOUNTAIN (2-039)

Kind and amount of data

The area has been mapped (Pierce, 1965; Pierce and Nelson, 1971); however, information on geology and mineral deposits is not adequate for a preliminary resource evaluation.

Mining districts, mines, and mineral occurrences

Most of the Windy Mountain area is underlain by Tertiary andesitic volcanic rocks. Paleozoic sedimentary rocks crop out along the eastern and northeastern border of the area. No mines or mining districts are located in the area, and no exploratory drilling for oil and gas has been done.

Commodities

None known.

Mineral and energy resource potential

The potential for mineral and energy resources is unknown.

References

Pierce, W. G., 1965, Geologic map of the Deep Lake quadrangle, Park County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-478, scale 1:62,500.

Pierce, W. G., and Nelson, W. H., 1971, Geologic map of the Beartooth Butte quadrangle, Park County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-935, scale 1:62,500.

PAT O'HARA (2-040)

Kind and amount of data

The area has been mapped (Pierce and Nelson, 1968), and information on geology and mineral deposits is adequate for inferences to be made regarding resource potential; however, information is not adequate for a preliminary mineral resource evaluation, and is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the Pat O'Hara area is underlain by Paleozoic and Mesozoic sedimentary rocks. Tertiary andesitic and basaltic volcanic rocks unconformably overlie the sedimentary rocks in local areas. No mines or mining districts are located in the Pat O'Hara area, and past activity is limited to iron prospects in the Mississippian-Pennsylvanian Amsden Formation near the eastern edge of the area. Sample assays from the Amsden report up to 46 percent iron (Osterwald and others, 1966). No exploratory drilling for oil

and gas has been done. Nearby oil and gas fields are the Heart Mountain (6 mi east of the area) and the North Shoshone (12 mi southeast).

Commodities

Iron, oil, and gas.

Mineral and energy resource potential

The eastern part of the area has a moderate potential for iron resources based on occurrences in the Amsden Formation. Projection of nearby regions of moderate oil and gas potential (Spencer and Powers, 1983) to the Pat O'Hara area suggest that the entire area has a moderate resource potential for oil and gas. Other mineral and energy occurrences are unknown, and their resource potential is regarded as low.

References

Osterwald, F. W., Osterwald, D. B., Long, J. S., Jr., and Wilson, W. H., 1966, Mineral resources of Wyoming: Wyoming Geological Survey Bulletin 50, 287 p.

Pierce, W. G., and Nelson, W. H., 1968, Geologic map of the Pat O'Hara Mountain quadrangle, Park County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-755, scale 1:62,500.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

SULPHUR CREEK (2-041)

Kind and amount of data

The area was included in the mineral-resource investigation of the North Absaroka Wilderness and vicinity (Nelson, Prostka, and Williams, 1980), and hence the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed.

Mining districts, mines, and mineral occurrences

Most of the Sulphur Creek area is underlain by andesitic and basaltic volcanic rocks of Tertiary age. These volcanics overlie deformed sedimentary rocks of Paleozoic and Mesozoic age. Dikes and other igneous intrusions cut both the volcanic and the sedimentary rocks.

The western part of the Sulphur Creek area is included in the Sunlight mining region. Silver, lead, copper, and gold have been produced from vein-filled fissures in andesitic volcanic rocks associated with intrusive stocks of syenite and monzonite in this mining region. All of the ore mined was reported to have come from the Painter property, which is located just northwest of the Sulphur Creek area. Mineralized rock, consisting of a network of copper-bearing veins and veinlets, occurs at the headwaters of Sulphur Creek in the western part of the area between Sunlight and Stinkingwater Peaks.

Commodities

Copper, gold, lead, and silver.

Mineral and energy resource potential

The western third of the Sulphur Creek area has a moderate resource potential for base and precious metals in stockwork deposits. This area exhibits extensive hydrothermal alteration, and geochemical analyses show anomalous amounts of copper and gold. A negative magnetic anomaly near Sunlight Peak suggests that hydrothermally altered rock is also present at depth. Because of the absence of mines or mineral occurrences in the eastern two-thirds of the area, the mineral resource potential of this part of the area is regarded as low. The potential for energy resources is also regarded as low.

References

Nelson, W. H., Prostka, H. J., and Williams, F. E., 1980, Geology and mineral resources of the North Absaroka Wilderness and vicinity, Park County, Wyoming, with sections on Mineralization of the Sunlight mining region and Geology and mineralization of the Cooke City mining district by J. E. Elliott, and a section on Aeromagnetic survey by D. L. Peterson: U.S. Geological Survey Bulletin 1447, 101 p.

HEADWATERS SUNLIGHT CREEK (2-042)

HEADWATERS SUNLIGHT CREEK (2-043)

Kind and amount of data

The area was included in the mineral-resource investigation of the North Absaroka Wilderness and vicinity (Nelson, Prostka, and Williams, 1980), therefore, the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed.

Mining districts, mines, and mineral occurrences

The Headwaters Sunlight Creek areas are underlain almost entirely by andesitic and basaltic volcanic rocks of Tertiary age. These volcanics overlie deformed sedimentary rocks of Paleozoic and Mesozoic age. Dikes and other igneous intrusions cut both the volcanic and the sedimentary rocks.

Silver, copper, lead, and gold have been produced from vein-filled fissures in andesitic volcanic rocks associated with intrusive stocks of syenite and monzonite in the Sunlight mining region. All of the ore mined was reported to have come from the Painter property, which is located south-southeast of the headwaters of Sunlight Creek. The Sunlight mining region extends into part of area 2-042 and is adjacent to area 2-043.

Commodities

None known.

Mineral and energy resource potential

The Headwaters Sunlight Creek areas have low potential for mineral resources. Although base and precious metals have been mined nearby and geochemical analyses show anomalous amounts of gold, silver, lead, and zinc in the area, no hydrothermal alteration or other indications of mineralization have been found. There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Nelson, W. H., Prostka, H. J., and Williams, F. E., 1980, Geology and mineral resources of the North Absaroka Wilderness and vicinity, Park County, Wyoming, with sections on Mineralization of the Sunlight mining region and Geology and mineralization of the Cooke City mining district by J. E. Elliott, and a section on Aeromagnetic survey by D. L. Peterson: U.S. Geological Survey Bulletin 1447, 101 p.

TROUT CREEK (2-044)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed for the area south of Rattlesnake Creek (Nelson, Prostka, and Williams, 1980; Antweiler and others, in press). Information on geology and mineral deposits north of Rattlesnake Creek (Pierce, 1979) is adequate for inferences to be made regarding resource potential; however, information is not adequate for a preliminary mineral resource evaluation and is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Trout Creek area is underlain almost entirely by andesitic and basaltic volcanic rocks of Tertiary age, which were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. No mines or mining districts are located in the area, and no exploratory drilling for oil and gas has been done. Nearby production is in the Shoshone and Half Moon oil fields, located approximately 20 mi to the east and southeast, respectively.

Commodities

Oil and gas.

Mineral and energy resource potential

The resource potential for oil and gas is moderate south of Rattlesnake Creek (Spencer and Powers, 1983). Based on projections of resource potential from nearby areas, the area north of Rattlesnake Creek is also regarded as having a moderate resource potential for oil and gas. Mineral occurrences are unknown, and their resource potential is regarded as low.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Nelson, W. H., Prostka, H. J., and Williams, F. E., 1980, Geology and mineral resources of the North Absaroka Wilderness and vicinity, Park County, Wyoming, with sections on Mineralization of the Sunlight mining region and Geology and mineralization of the Cooke City mining district by J. E. Elliott, and a section on Aeromagnetic survey by D. L. Peterson: U.S. Geological Survey Bulletin 1447, 101 p.

Pierce, W. G., 1979, Geologic map of the Cody $1^{\circ}x2^{\circ}$ quadrangle, northwestern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-963, scale 1;250,000.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

WAPITI VALLEY NORTH (2-045)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Nelson, Prostka, and Williams, 1980; Antweiler and others, in press).

Mining districts, mines, and mineral occurrences

The Wapiti Valley North area is underlain almost entirely by andesitic and basaltic volcanic rocks of Tertiary age, which were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. No exploratory drilling for oil and gas has been done within the area. Closest production is in the South Shoshone oil field, located approximately 15 mi to the southeast.

No mines or mining districts are located in the area, and past activity is limited to a few sulfur prospects along Sweetwater Creek. Analyses of samples collected from the prospect pits showed no geochemical anomalies; however, samples collected downstream from the sulfur prospects yielded anomalous amounts of copper, lead, and zinc. The metal enrichment may be related to emplacement of a small intrusive body, but rock sample analyses from the intrusion did not contain anomalous metal concentrations. Base and precious metal deposits occur in a geologic terrane similar to the terrane of the Sweetwater Creek area in the Sunlight mining region, which is less than 10 mi to the north. Copper, lead, silver, and gold have been produced from vein-filled fissures in andesitic volcanic rocks associated with intrusive stocks of syenite and monzonite in this region.

Commodities

Oil, gas, copper, lead, and zinc.

Mineral and energy resource potential

The eastern part of the Wapiti Valley North area has a moderate resource potential for oil and gas in the sedimentary rocks that underlie the volcanics (Spencer and Powers, 1983). The western part of the area has a low resource potential for oil and gas. An area near Sweetwater Creek (designated A on plate 1) has a moderate resource potential for copper, lead, and zinc in vein-type deposits (Antweiler and others, in press). The rest of the area has low potential for mineral resources.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Nelson, W. H., Prostka, H. J., and Williams, F. E., 1980, Geology and mineral resources of the North Absaroka Wilderness and vicinity, Park County, Wyoming, with sections on Mineralization of the Sunlight mining region and Geology and mineralization of the Cooke City mining district by J. E. Elliott, and a section on Aeromagnetic survey by D. L. Peterson: U.S. Geological Survey Bulletin 1447, 101 p.

Spencer, C. W., and Powers, R. B., 1982, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

WAPITI VALLEY EAST (2-046)

SLEEPING GIANT (2-047)

Kind and amount of data

The areas have been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Nelson, Prostka, and Williams, 1980; Antweiler and others, in press).

Mining districts, mines, and mineral occurrences

The Wapiti Valley East and Sleeping Giant areas are underlain by andesitic and basaltic volcanic rocks of Tertiary age, which were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. There are no mining districts, mines, or prospects in either area. Production has been reported from the Sunlight mining region, located 20 mi to the northeast. Copper, lead, silver, and gold were recovered from vein-filled fissures in andesitic volcanic rocks in this region.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysical criteria, the Wapiti Valley East and Sleeping Giant areas have low potential for mineral and energy resources.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Nelson, W. H., Prostka, H. J., and Williams, F. E., 1980, Geology and mineral resources of the North Absaroka Wilderness and vicinity, Park County, Wyoming, with sections on Mineralization of the Sunlight mining region and Geology and mineralization of the Cooke City mining district by J. E. Elliott, and a section on Aeromagnetic survey by D. L. Peterson: U.S. Geological Survey Bulletin 1447, 101 p.

WAPITI VALLEY SOUTH (2-048)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Antweiler and others, in press).

Mining districts, mines, and mineral occurrences

The Wapiti Valley South area is underlain by andesitic to basaltic volcanic and volcaniclastic rocks of the Absaroka Volcanic Supergroup of Tertiary age, which were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. There are no mining districts, mines, or prospects in the area, and no mineral occurrences have been reported. No exploratory drilling for oil and gas has been conducted within the area. Nearby production is in the Half Moon and South Shoshone oil fields, located 10-20 mi to the southeast.

Commodities

Oil and gas.

Mineral and energy resource potential

The Wapiti Valley South area has a moderate resource potential for oil and gas in the sedimentary rocks that underlie the volcanics (Spencer and Powers, 1983; Antweiler and others, in press). Based on geological, geochemical, and geophysical criteria, the potential for other mineral resources is low (Antweiler and others, in press).

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

SOUTH FORK (2-049)

Kind and amount of data

Most of the area has been mapped (Pierce, 1979), and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Antweiler and others, in press). The easternmost part of the area, near Foster Reservoir, was not included in the mineral survey; however, information on geology and mineral deposits is adequate for inferences to be made regarding resource potential.

Mining districts, mines, and mineral occurrences

The South Fork area is underlain by andesitic to basaltic volcanic and volcaniclastic rocks of the Absaroka Volcanic Supergroup of Tertiary age, which were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. There are no mining districts, mines, or prospects in the area. The Stinkingwater mining district, located just south of the southern tip of the area, is the closest mining district. Copper and molybdenum occur in porphyry-type deposits and base and precious metals are found in vein-type deposits in this district, but no production has been reported. Anomalous values for molybdenum were recorded from samples of the Tertiary Willwood Formation, collected north of Ishawooa Creek in the northwestern part of the area.

No exploratory oil and gas wells have been drilled in the South Fork area, however, a well was drilled along the South Fork Shoshone River between the northwestern and southeastern segments of the area, and oil shows were reported from the well. Closest production is in the South Shoshone oil field, also located along the South Fork Shoshone River. Many producing oil fields are found southeast of the area, and most are located on northwest-trending anticlines in the Bighorn basin.

Commodities

Oil, gas, and molybdenum.

Mineral and energy resource potential

A narrow strip of land on the southeast side of the South Fork of the Shoshone River has a high resource potential for oil and gas in the sedimentary rocks that underlie the volcanics (Spencer and Powers, 1983). With the exception of the southwestern tip of the area, which has low

potential, the rest of the South Fork area has a moderate resource potential for oil and gas (Antweiler and others, in press). The easternmost part of the area is also regarded as having a moderate resource potential for oil and gas (Pierce and Andrews, 1941).

Based on geochemical data and on the presence of secondary molybdenum minerals, the area north of Ishawooa Creek (designated A on plate 1) has a moderate resource potential for molybdenum in sedimentary-type deposits (Antweiler and others, in press). The potential for other mineral and energy resources is low.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Pierce, W. G., 1979, Geologic map of the Cody $1^{o}x2^{o}$ quadrangle, northwestern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-963, scale 1;250,000.

Pierce, W. G., and Andrews, D. A., 1941, Geology and oil and coal resources of the region south of Cody, Park County, Wyoming: U.S. Geological Survey Bulletin 921-B, 177 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

PINEY PASS (2-050)

Kind and amount of data

The area has been mapped (Pierce and Andrews, 1941; Pierce, 1979), and information on geology and mineral deposits is adequate for inferences to be made regarding resource potential; however, information is not adequate for a preliminary mineral resource evaluation and is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Piney Pass area is underlain by volcanic conglomerates and tuffs of the Tertiary Wiggins Formation, which is included in the Absaroka Volcanic Supergroup. These rocks were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. No mines or mining districts are located in the area, and no exploratory drilling for oil and gas has been done. Closest production is in the Fourbear oil field, located approximately 5 mi to the southeast.

Commodities

Oil and gas.

Mineral and energy resource potential

Based on limited geologic data, the Piney Pass area is regarded as having a moderate resource potential for oil and gas. The Washakie Wilderness area, which is adjacent to the Piney Pass area, has a high resource potential for oil and gas (Spencer and Powers, 1983), and there are numerous producing oil fields south and east of the area. The potential for other mineral and energy resources is unknown.

References

Pierce, W. G., 1979, Geologic map of the Cody $1^{o}x2^{o}$ quadrangle, northwestern Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-963, scale 1;250,000.

Pierce, W. G., and Andrews, D. A., 1941, Geology and oil and coal resources of the region south of Cody, Park County, Wyoming: U.S. Geological Survey Bulletin 921-B, 177 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

FRANC'S PEAK (2-051)

Kind and amount of data

Most of the Franc's Peak area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Antweiler and others, in press). Information on geology and mineral deposits is not adequate for a preliminary resource evaluation of the easternmost part of the area.

Mining districts, mines, and mineral occurrences

The Franc's Peak area is underlain by andesitic to basaltic volcanic and volcaniclastic rocks of the Absaroka Volcanic Supergroup of Tertiary age, which were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. The sedimentary rocks are in a westward extension of the petroleum-bearing Bighorn basin. Regional stratigraphic and structural patterns suggest that anticlines similar to those that produce oil and gas in the Bighorn basin are present under the volcanic cover in this area.

No exploratory oil and gas wells have been drilled in the Franc's Peak area; however, a number of wells have been drilled within a few miles of the area and some oil shows have been reported. Oil seeps, documenting the presence of oil beneath the volcanic rocks, are found at Calcite, Rainbow, and Sweetwater Springs, located outside the area to the north. Presumably, the oil is derived from Mesozoic strata and has migrated to the surface through the volcanic cover. Nearby production is in the Fourbear, Pitchfork, Shoshone, Enos Creek, and Dickie oil fields, located 5-20 mi east of the area in the Bighorn basin.

The volcanic and volcaniclastic rocks in the Franc's Peak area have been intruded by a number of complex plutons and contain two types of mineralized rock: (1) disseminated copper and molybdenum associated with the intrusions, and (2) lead, copper, zinc, gold, and silver in vein-type deposits clustered

around and within the copper-molybdenum mineralized zones. Minor amounts of gold, silver, copper, and lead were produced from the Kirwin mining district, located near the headwaters of the Wood River outside the southeastern corner of the wilderness. Since then, prospecting has been extensive and a low-grade disseminated copper-molybdenum deposit has been discovered in the Kirwin district.

Commodities

Oil, gas, copper, molybdenum, lead, silver, zinc, and gold.

Mineral and energy resource potential

The Franc's Peak area has a moderate resource potential for oil and gas in Paleozoic and Mesozoic sedimentary rocks beneath the volcanic cover (Spencer and Powers, 1983; Antweiler and others, in press). Specific areas having moderate or high mineral resource potential for metals (designated A-D and L on plate 1) include:

A. Gold Reef mining district - Numerous gold prospects are present along Jack Creek in the Gold Reef mining district, but no production has been recorded. Rock samples from this area lacked significant metal concentrations; however, the resource potential for base and precious metals in vein-type deposits is regarded as moderate (Antweiler and others, in press).

B. Franc's Fork - Rock samples collected from the drainage basin of Franc's Fork Creek contain anomalous amounts of silver, molybdenum, lead, cobalt, chromium, and nickel. This area has a high resource potential for base and precious metals in vein-type deposits associated with plutons (Antweiler and others, in press).

C. Meadow Creek basin - Rocks exposed within an intrusive complex in the Meadow Creek basin show varying degrees of alteration and sulfide mineralization. Samples from the area contain anomalous amounts of copper and gold, and diamond-drill holes have encountered low-grade copper-bearing rock at depth. The Meadow Creek basin area has a high resource potential for copper and molybdenum in porphyry-type deposits (Antweiler and others, in press).

D. Kirwin mining district - A small part of the Franc's Peak area southwest of the Kirwin mining district is mineralized, and altered rocks from this zone contain anomalous amounts of lead, zinc, silver, copper, and molybdenum. This area has a high resource potential for base and precious metals in vein-type deposits, and for copper and molybdenum in porphyry-type deposits (Antweiler and others, in press). A low-grade copper-porphyry deposit, estimated to contain 70 million tons of rock averaging 0.75 percent copper and 0.015 percent molybdenum, has been discovered in the Kirwin district just outside of the Franc's Peak area.

L. East Fork Pass - Geochemical analyses of samples collected at the head of the Wood River, near East Fork Pass, yielded anomalous values for copper, molybdenum, lead, and zinc. This area has a high resource potential for

base metals in vein-type deposits similar to those of the Kirwin mineralized region (Antweiler and others, in press).

The potential for other mineral and energy resources is regarded as low.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

WOOD RIVER (2-052)

Kind and amount of data

The southwestern part of the area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Ketner and others, 1966; Antweiler and others, in press). For the rest of the area, information on geology and mineral deposits is adequate for inferences to be made regarding resource potential; however, information is not adequate for a preliminary mineral resource evaluation, and is not sufficient for the mineral survey as required by the Wilderness Act and related acts.

Mining districts, mines, and mineral occurrences

The Wood River area is underlain by andesitic to basaltic volcanic and volcaniclastic rocks of the Absaroka Volcanic Supergroup of Tertiary age, which were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. The sedimentary rocks are in a westward extension of the petroleum-bearing Bighorn basin. Regional stratigraphic and structural patterns suggest that anticlines similar to those that produce oil and gas in the Bighorn basin are present under the volcanic cover in this area.

No exploratory oil and gas wells have been drilled in the Wood River area; however, a number of wells have been drilled within a few miles of the area and some oil shows have been reported. Oil seeps, documenting the presence of oil beneath the volcanic rocks, are found at Calcite, Rainbow, and Sweetwater Springs, located outside the area to the north. Presumably, the oil is derived from Mesozoic strata and has migrated to the surface through the volcanic cover. Nearby production is in the Fourbear, Pitchfork, Shoshone, Enos Creek, and Dickie oil fields, located 5-20 mi east of the area in the Bighorn basin.

The volcanic and volcaniclastic rocks in the Wood River area have been intruded by a number of complex plutons and contain two types of mineralized rock: (1) disseminated copper and molybdenum associated with the intrusions, and (2) lead, copper, zinc, gold, and silver in vein-type deposits clustered around and within the copper-molybdenum mineralized zones. Minor amounts of gold, silver, copper, and lead were produced from the Kirwin mining district, located near the headwaters of the Wood River. Since then, prospecting has

been extensive and a low-grade disseminated copper-molybdenum deposit has been discovered in the Kirwin district. The southwestern edge of the Wood River area, between Dollar Mountain and Dundee Mountain, is included in the Kirwin mining district. Altered rocks in this area contain anomalous amounts of lead, zinc, copper, silver, and molybdenum.

Commodities

Oil, gas, copper, lead, silver, zinc, gold, and molybdenum.

Mineral and energy resource potential

The southwestern part of the Wood River area has a moderate resource potential for oil and gas (Antweiler and others, in press). Based on limited data, the rest of the area is regarded as having a moderate to high resource potential for oil and gas. The Washakie Wilderness, which is adjacent to the Wood River area, has a moderate to high resource potential for oil and gas (Spencer and Powers, 1983), and there are numerous producing oil fields south and east of the area.

The western edge of the area, which is included in the Kirwin district (designated by a D on plate 1), has a high resource potential for copper, lead, zinc, silver, and gold in vein-type deposits, and a high resource potential for copper and molybdenum in porphyry-type deposits (Antweiler and others, in press). A low-grade copper-porphyry deposit, estimated to contain 70 million tons of rock averaging 0.75 percent copper and 0.015 percent molybdenum, has been discovered in the Kirwin district just outside of the Wood River area. Other mineral and energy occurrences are unknown, and their resource potential is regarded as low.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Ketner, K. B., Keefer, W. R., Fisher, F. S., Smith, D. L., and Raabe, R. G., 1966, Mineral resources of the Stratified Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1230-E, 56 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

CASTLE ROCK (2-053)

Kind and amount of data

Information on geology and mineral deposits is not adequate for a preliminary resource evaluation.

Mining districts, mines, and mineral occurrences

The Castle Rock area is underlain by Tertiary volcanic rocks (Love and Christiansen, 1983), and it contains no mining districts, mines, or prospects.

Commodities

None known.

Mineral and energy resource potential

Due to limited geologic data, the mineral and energy resource potential of the Castle Rock area is unknown.

References

Love, J. D., and Christiansen, A. C., 1983, Preliminary geologic map of Wyoming: U.S. Geological Survey Open-File Report 83-802, scale 1:500,000.

TELEPHONE DRAW (2-054)

Kind and amount of data

The section west of the Wiggins Fork Wind River has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Keefer, 1957) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts. Information on geology and mineral deposits east of the Wiggins Fork Wind River is adequate for inferences to be made regarding resource potential; however, information is not adequate for a preliminary mineral resource evaluation.

Mining districts, mines, and mineral occurrences

Precambrian granitic and gneissic rocks crop out in the southwestern part of the Telephone Draw area. These rocks are overlain by sedimentary rocks of Paleozoic age farther north. There are no mining districts, mines, or prospects in the area, and no exploratory oil and gas wells have been drilled.

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the western part of the Telephone Draw area, west of Wiggins Creek, is regarded as low. Due to limited geologic data, the mineral and energy resource potential of the rest of the area is unknown.

References

Keefer, W. R., 1957, Geology of the Du Noir area, Fremont County, Wyoming: U.S. Geological Survey Professional Paper 294-E, 221 p.

CARSON LAKE (2-055)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Keefer, 1957), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Precambrian granitic and gneissic rocks crop out in the southwestern part of the Carson Lake area. These rocks are overlain by Paleozoic sedimentary rocks and by Tertiary volcanic and volcaniclastic rocks farther north. There are no mining districts, mines, or prospects in the area, and no exploratory oil and gas wells have been drilled.

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Carson Lake area is regarded as low.

References

Keefer, W. R., 1957, Geology of the Du Noir area, Fremont County, Wyoming: U.S. Geological Survey Professional Paper 294-E, 221 p.

EAST DUNOIR (2-056)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (Keefer, 1957), but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The East Dunoir area is underlain by andesitic volcaniclastic rocks of Tertiary age. There are no mining districts, mines, or prospects in the area. No exploratory oil and gas wells have been drilled. Closest production is in the Dubois oil field, located 5 mi to the southeast.

Commodities

None known.

Mineral and energy resource potential

The East Dunoir area has a low resource potential for oil and gas (Powers, 1978). Other mineral and energy occurrences are unknown, and their resource potential is regarded as low.

References

Keefer, W. R., 1957, Geology of the Du Noir area, Fremont County, Wyoming: U.S. Geological Survey Professional Paper 294-E, 221 p.

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1;500,000.

SOUTH DUNOIR (2-057)

DUNOIR (2-058)

Kind and amount of data

The areas have been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Prostka, Antweiler, and Bieniewski, 1979).

Mining districts, mines, and mineral occurrences

Most of the Dunoir area is underlain by Tertiary volcaniclastic rocks, consisting of breccias, tuffs, and epiclastic volcanic conglomerates and sandstones derived from andesitic vent complexes that lie outside the area. Paleozoic sedimentary rocks are exposed in the South Dunoir area in the deeply eroded northwest-trending Du Noir anticline. The Permian Phosphoria Formation crops out on the eastern limb of the anticline in the southeastern corner of the Dunoir area. In addition to phosphate, the Phosphoria also contains slightly anomalous concentrations of uranium and molybdenum.

There are no mining districts, mines, or prospects in either of the areas, and no exploratory oil and gas wells have been drilled. Nearby production is in the Dubois oil field, located approximately 8 mi to the southeast. The Du Noir anticline is on strike with the Dubois anticlinal complex in which the Dubois oil field is located; however, the Du Noir anticline is not a good target for oil and gas exploration because it has been deeply eroded to the level of the Devonian rocks, and most of the favorable producing horizons are no longer present.

Oil and gas may have accumulated in the Younts basin(?), which is a major elongate structural downwarp located between the Washakie and Absaroka Ranges, that extends into the northeastern corner of the Dunoir area (Antweiler and others, 1983). The basin(?) is represented by a gravity anomaly, and is postulated to contain over 20,000 ft of Paleozoic and Mesozoic sedimentary rocks under a relatively thin veneer of volcaniclastic rocks.

Commodities

Oil and gas.

Mineral and energy resource potential

The northeastern margin of the Dunoir area, which contains part of the Younts basin(?), has a moderate resource potential for oil and gas (Antweiler and others, 1983). The resource potential for oil and gas in the rest of the Dunoir area and in the South Dunoir area is low (Prostka, Antweiler, and Bieniewski, 1979). Because of the discontinuous nature of the thin, phosphate-bearing beds in the Phosphoria Formation, the potential for phosphate resources is low. The potential for other mineral and energy resources is also regarded as low.

References

Antweiler, J. C., Williams, F. E., Jinks, J. E., and Light, T. D., 1983, Preliminary report on the mineral resource potential of the Teton Wilderness, Teton, Fremont, and Park Counties, Wyoming, with sections on Geology by J. D. Love and H. J. Prostka, and Interpretation of geophysical data by D. M. Kulik and L. A. Anderson: U.S. Geological Survey Open-File Report 83-470, 32 p.

Prostka, H. J., Antweiler, J. C., and Bieniewski, C. L., 1979, Mineral resources of the Du Noir addition, Washaskie Wilderness, Fremont County, Wyoming: U.S. Geological Survey Bulletin 1472, 35 p.

WEST DUNOIR (2-059)

Kind and amount of data

Information on geology and mineral deposits is not adequate for a preliminary resource evaluation.

Mining districts, mines, and mineral occurrences

The West Dunoir area is underlain by andesitic conglomerates, sandstones, and claystones of Tertiary age, which are covered in part by Quaternary landslide deposits. There are no mining districts, mines, or prospects in the area, and no exploratory oil and gas wells have been drilled.

Commodities

None known.

Mineral and energy resource potential

The West Dunoir area has a low resource potential for oil and gas (Powers, 1978). Due to limited geologic data, the potential for other mineral and energy resources is unknown.

References

Powers, R. B., 1978, Map showing appraisal of oil and gas resource potential of RARE II proposed roadless areas in National Forests in the Idaho-Utah-Wyoming overthrust belt: U.S. Geological Survey Open-File Report 78-956, scale 1;500,000.

SHERIDAN PASS (2-060)

Kind and amount of data

Information on geology and mineral deposits is not adequate for a preliminary resource evaluation.

Mining districts, mines, and mineral occurrences

The Sheridan Pass area is underlain by sandstones and claystones of the Tertiary Aycross Formation (Love and Christiansen, 1983), and it contains no mining districts, mines, or prospects.

Commodities

None known.

Mineral and energy resource potential

Due to limited geologic data, the mineral and energy resource potential of the Sheridan Pass area is unknown.

References

Love, J. D., and Christiansen, A. C., 1983, Preliminary geologic map of Wyoming: U.S. Geological Survey Open-File Report 83-802, scale 1:500,000.

BENCH MARK (2-061)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Granger and others, 1971).

Mining districts, mines, and mineral occurrences

The Bench Mark area is primarily underlain by Precambrian granitic and gneissic rocks. Sedimentary rocks of Cambrian age crop out near the area's eastern border, and Quaternary glacial deposits are present throughout.

There are no mines or mining districts in the Bench Mark area; however, some mining activity has taken place nearby. Small quantities of uranium were mined from fracture-type deposits in a breccia zone less than a mile north of the area, and some of the fractures extend into the area. Gold was recovered from the gravels of Warm Spring Creek, but the placer activity was located some distance to the east of the Bench Mark area.

Commodities

Uranium.

Mineral and energy resource potential

The western part of the Bench Mark area has moderate potential for uranium resources in fracture-type deposits. The rest of the area has a low potential for mineral resources. There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Granger, H. C., McKay, E. J., Mattick, R. E., Patten, L. L., McIlroy, P., 1971, Mineral resources of the Glacier Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1319-F, 113 p.

LITTLE POPO AGIE (2-064)

Kind and amount of data

The area has been mapped, and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation (R. G. Worl, oral commun., 1984) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Little Popo Agie area is underlain by Paleozoic sedimentary rocks (Love and Christiansen, 1983), and it contains no mining districts, mines, or prospects.

Commodities

None known.

Mineral and energy resource potential

The Little Popo Agie area is regarded as having a low mineral and energy resource potential.

References

Love, J. D., and Christiansen, A. C., 1983, Preliminary geologic map of Wyoming: U.S. Geological Survey Open-File Report 83-802, scale 1:500,000.

CANYON CREEK (2-065)

PASS CREEK (2-066)

Kind and amount of data

The areas have been mapped (Bayley, 1965), and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation

(R. G. Worl, oral commun., 1984) but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The Canyon Creek and Pass Creek areas are underlain by Precambrian quartz diorite of the Louis Lake batholith, which is cut by a number of diabase dikes. There are no mining districts, mines, or prospects in either of the areas.

Commodities

None known.

Mineral and energy resource potential

The mineral and energy resource potential of the Canyon Creek and Pass Creek areas is regarded as low.

References

Bayley, R. W., 1965, Geologic map of the Louis Lake quadrangle, Fremont County, Wyoming: U.S. Geological Survey Geologic Qudrangle Map GQ-461, scale 1:2400.

MIDDLE FORK (2-901)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Pearson, Kiilsgaard, and Patten, 1971; Pearson, Patten, and Gaskill, 1973).

Mining districts, mines, and mineral occurrences

The Middle Fork area is underlain almost entirely by a large, complex Precambrian batholith, comprised of quartz diorite and porphyritic quartz monzonite. Paleozoic sedimentary rocks crop out in the northeastern part of the area near the Middle and Little Popo Agie Rivers.

No mines or mining districts are located in the area and past activity is limited to a few copper-gold-silver prospects east of Rennecker Peak and a few south of Christina Lake. Prospecting centered on quartz veins and diabase dikes. The Atlantic City mining district is located 3 mi southeast of the area. Gold was mined from quartz veins in metasedimentary and metavolcanic rocks in the district. No quartz veins or metasedimentary and metavolcanic rocks comparable to those of the Atlantic City mining district are found in the Middle Fork area.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysical criteria, the Middle Fork area has a low mineral and energy resource potential.

References

Pearson, R. C., Kiilsgaard, T. H., and Patten, L. L., 1971, Mineral resources of the Popo Agie Primitive Area, Fremont and Sublette Counties, Wyoming, with a section on Interpretation of aeromagnetic data by R. E. Mattick: U.S. Geological Survey Bulletin 1353-B, 55 p.

Pearson, R. C., Patten, L. L., and Gaskill, D. L., 1973, Mineral resources of an area near the Popo Agie Primitive Area, Fremont County, Wyoming: U.S. Geological Survey Bulletin 1391-A, 18 p.

WARM SPRING CREEK (2-902)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Granger and others, 1971).

Mining districts, mines, and mineral occurrences

Most of the Warm Spring Creek area is underlain by Precambrian gneissic rocks, and they are covered in part by Quaternary glacial deposits. Sedimentary rocks of the Tertiary Wind River Formation crop out in the western part of the area. There are no mines nor mining districts in the area, and past activity is limited to a number of uranium prospects east of Union Pass.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysical criteria, the Warm Spring Creek area has a low mineral and energy resource potential.

References

Granger, H. C., McKay, E. J., Mattick, R. E., Patten, L. L., and McIlroy, P., 1971, Mineral resources of the Glacier Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1319-F, 113 p.

TOGWOTEE PASS (2-903)

Kind and amount of data

Information on geology and mineral deposits is not adequate for a preliminary resource evaluation.

Mining districts, mines, and mineral occurrences

The Togwotee Pass area is underlain by Tertiary volcanic and sedimentary rocks (Love and Christiansen, 1983). There are no mining districts, mines, or prospects in the area.

Commodities

None known.

Mineral and energy resource potential

Due to limited geologic data, the mineral and energy resource potential of the Togwotee Pass area is unknown.

References

Love, J. D., and Christiansen, A. C., 1983, Preliminary geologic map of Wyoming: U.S. Geological Survey Open-File Report 83-802, scale 1:500,000.

SOUTH BEARTOOTH HIGHWAY (2-911)

(Line Creek Plateau (1-911) is in contiguous parts of Montana)

Kind and amount of data

The area has been mapped (Pierce, 1965; Pierce and Nelson, 1971), and information on geology and mineral deposits is adequate for a preliminary mineral resource evaluation but is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

Most of the South Beartooth Highway area is underlain by granitic and gneissic rocks of Precambrian age. Outcrops of Paleozoic and Mesozoic sedimentary rocks are limited to the northeastern border of the area east of the Beartooth fault. No mines or mining districts are located in the area, and the only mineral occurrences reported are several rare earth-bearing pegmatites found in Precambrian rocks near the area's southern border. The Red Lodge mining district is located in the contiguous area to the north, near the junction of Rock Creek and Hellroaring Creek. Chromium has been produced from small pods and lenses in bodies of serpentinite in the Red Lodge district.

No wells have been drilled in the South Beartooth Highway area, but oil and gas is being produced 10-20 mi east of the area in the Badger basin, Elk basin, and Silver Tip fields. Petroleum-bearing Paleozoic and Mesozoic sedimentary rocks may be concealed beneath a thrust plate of Precambrian rocks along the Beartooth fault in the northeastern part of the area (Simons and others, 1979). There are no hot springs in the South Beartooth Highway area, but the area is on the western margin of the Bighorn basin, and is probably underlain by aquifers containing thermal waters with temperatures greater than 50°C (Heasler and others, 1983).

Commodities

Oil, gas, and geothermal energy.

Mineral and energy resource potential

The northeastern border of the South Beartooth Highway area has moderate potential for oil, gas, and geothermal resources. Energy and mineral resources in the rest of the area are unknown, and their potential is regarded as low.

References

Heasler, H. P., Hinckley, B. S., Buelow, K. G., Spencer, S. A., and Decker, E. R., 1983, Geothermal resources of Wyoming: National Geophysical Data Center, National Oceanic and Atmospheric Administration, scale 1:500,000.

Pierce, W. G., 1965, Geologic map of the Deep Lake quadrangle, Park County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-478, scale 1:62,500.

Pierce, W. G., and Nelson, W. H., 1971, Geologic map of the Beartooth Butte quadrangle, Park County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-935, scale 1:62,500.

Simons, F. S., Armbrustmacher, T. J., Van Noy, R. M., Zilka, N. T., Federspiel, F. E., and Ridenour, J., 1979, Mineral resources of the Beartooth Primitive Area and vicinity, Carbon, Park, Stillwater, and Sweet Grass Counties, Montana, and Park County, Wyoming, with a section on Interpretation of aeromagnetic data by L. A. Anderson: U.S. Geological Survey Bulletin 1391-F, 125 p.

REEF (2-914)
(Reef Mountain (1-914) is in contiguous parts of Montana)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Nelson, Prostka, and Williams, 1980; Antweiler and others, in press).

Mining districts, mines, and mineral occurrences

Most of the Reef area is underlain by Tertiary andesitic volcanic rocks. The volcanics rest on deformed sedimentary rocks of Paleozoic age, exposed in small windows in the volcanic rocks in the northern, central, and southern parts of the area. No mining districts, mines, or prospects are located in or near the Reef area. Rock and soil samples collected near the summit of a ridge in the north-central part of the area yielded anomalous values for copper, gold, lead, and molybdenum.

Commodities

Copper, gold, lead, and molybdenum.

Mineral and energy resource potential

The north-central part of the Reef area has a moderate resource potential for copper, gold, lead, and molybdenum in vein-type deposits (Antweiler and others, in press). The rest of the area has a low mineral resource

potential. There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Nelson, W. H., Prostka, H. J., and Williams, F. E., 1980, Geology and mineral resources of the North Absaroka Wilderness and vicinity, Park County, Wyoming, with sections on Mineralization of the Sunlight mining region and Geology and mineralization of the Cooke City mining district by J. E. Elliott, and a section on Aeromagnetic survey by D. L. Peterson: U.S. Geological Survey Bulletin 1447, 101 p.

FITZPATRICK WILDERNESS (NF-024)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Granger and others, 1971).

Mining districts, mines, and mineral occurrences

The Fitzpatrick Wilderness is underlain by a complex assemblage of Precambrian igneous and metamorphic rocks, which are overlain on the east side by northeast-dipping Paleozoic sedimentary rocks. The crystalline rocks are divisible into two distinct terranes, each dominated by granitic rocks which grade outward through a migmatite zone into a thick sequence of gneissic rocks.

There are no mines or mining districts in the Wilderness despite past prospecting activity. Uranium prospects are numerous, and are located along the Ross Lake shear zone, near Whiskey Mountain, and near Dinwoody Creek. Samples from Whiskey Mountain contained anomalous amounts of lead, molybdenum, arsenic, barium, fluorite, and uranium. Several silver prospects are found near Moon Lake, but geochemical samples from this area were not anomalous.

Commodities

Lead, molybdenum, arsenic, barium, fluorite, and uranium.

Mineral and energy resource potential

The potential for resources of fluorite, barium, lead, molybdenum, uranium, and arsenic is moderate along the Ross Lake shear zone in the northern part of the Fitzpatrick Wilderness. The shear zone is a major structural feature and, although the geochemical anomalies along it are weak, it is a likely target for further prospecting (Granger and others, 1971). The rest of the area has a low potential for mineral resources. There is no known geological evidence for oil, gas, coal, or geothermal resources within the area.

References

Granger, H. C., McKay, E. J., Mattick, R. E., Patten, L. L., and McIlroy, P., 1971, Mineral resources of the Glacier Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1319-F, 113 p.

NORTH ABSAROKA WILDERNESS (NF-059)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Nelson, Prostka, and Williams, 1980).

Mining districts, mines, and mineral occurrences

The North Absaroka Wilderness is underlain almost entirely by andesitic and basaltic volcanic rocks of Tertiary age. These volcanics overlie deformed sedimentary rocks of Paleozoic and Mesozoic age that are exposed along the northern and eastern edges of the wilderness. Dikes and other igneous intrusions cut both the volcanic and the sedimentary rocks.

Significant amounts of lead, silver, zinc, copper, and gold have been produced from vein systems and replacement-type deposits in Upper Cambrian carbonate rocks in the Cooke City mining district, which is located just north of the North Absaroka Wilderness. Major mines in the district include the Mohawk and the Irma-Republic mines. Silver, copper, lead, and gold have been recovered from veins in andesitic volcanic rocks associated with intrusive stocks of syenite and monzonite in the Sunlight region, which is nearly surrounded by, but is not part of the Wilderness area. Bentonite, low-quality coal, and localized deposits of uranium and chromite have been mined from surrounding areas.

No exploratory drilling for oil or gas has been done within the area, however, a number of oil and gas fields are located 20 mi to the east, including the Shoshone oil field and the Heart Mountain gas field.

Commodities

Silver, lead, zinc, oil, and gas.

Mineral and energy resource potential

The northern edge of the North Absaroka Wilderness has a moderate resource potential for silver, lead, and zinc in replacement-type deposits in carbonate rocks. The rest of the area has a low mineral resource potential. Occurrences of bentonite, coal, uranium, and chromite are deeply buried, small, or sporadically distributed.

The southeastern corner of the area has a moderate resource potential for oil and gas in Paleozoic and/or Mesozoic rocks which are on trend with known oil fields (Spencer and Dersch, 1981). Other energy resources are unknown, and their potential is regarded as low.

References

Nelson, W. H., Prostka, H. J., and Williams, F. E., 1980, Geology and mineral resources of the North Absaroka Wilderness and vicinity, Park County, Wyoming, with sections on Mineralization of the Sunlight mining region and Geology and mineralization of the Cooke City mining district by J. E. Elliott, and a section on Aeromagnetic survey by D. L. Peterson: U.S. Geological Survey Bulletin 1447, 101 p.

Spencer, C. W., and Dersch, J. S., 1981, Map showing evaluation of oil and gas potential of the Shoshone National Forest, Wyoming: U.S. Geological Survey Open-File Report 81-667, scale 1:500,000.

WASHAKIE WILDERNESS (NF-087)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Ketner and others, 1966; Antweiler and others, in press).

Mining districts, mines, and mineral occurrences

The Washakie Wilderness is underlain by andesitic to basaltic volcanic and volcaniclastic rocks of the Absaroka Volcanic Supergroup of Tertiary age, which were deposited on a sequence of Paleozoic, Mesozoic, and Tertiary sedimentary rocks. The sedimentary rocks are in a westward extension of the petroleum-bearing Bighorn basin. Regional stratigraphic and structural patterns suggest that anticlines similar to those that produce oil and gas in the Bighorn basin are present under the volcanic cover in the Wilderness.

No exploratory oil and gas wells have been drilled in the Washakie Wilderness; however, a number of wells have been drilled within a few miles of the area and some oil shows have been reported. Oil seeps, documenting the presence of oil beneath the volcanic rocks, are found at Calcite, Rainbow, and Sweetwater Springs, located north of the Wilderness. Presumably, the oil is derived from Mesozoic strata and has migrated to the surface through the volcanic cover. Nearby production is in the Fourbear, Pitchfork, Shoshone, Enos Creek, and Dickie oil fields, located 5-20 mi east of the area in the Bighorn basin. Oil and gas may have accumulated in the Younts basin(?), which is a major elongate structural downwarp located between the Washakie and Absaroka Ranges in the southwestern corner of the Washakie Wilderness (Antweiler and others, 1983). The Younts basin(?) is represented by a gravity anomaly, and is postulated to contain over 20,000 ft of Paleozoic and Mesozoic sedimentary rocks under a relatively thin veneer of volcaniclastics.

The volcanic and volcaniclastic rocks in the Washakie Wilderness have been intruded by a number of complex plutons that are closely related to two types of mineralized rock: (1) disseminated copper and molybdenum in zones associated with the intrusions, and (2) lead, copper, zinc, gold, and silver in vein-type deposits clustered around and within the copper-molybdenum mineralized zones. The Stinkingwater mining district is located along the South Fork Shoshone River 15-20 mi north of the head, and contains both types of mineralized rocks. Although prospecting has been extensive, there has been no production from the district (Fisher, 1972). Minor amounts of gold, silver, copper, and lead were produced from the Kirwin mining district,

located near the headwaters of the Wood River outside the southeastern corner of the wilderness. Since then, prospecting has been extensive and a low-grade disseminated copper-molybdenum deposit has been discovered.

Commodities

Oil, gas, gold, silver, lead, zinc, copper, and molybdenum.

Mineral and energy resource potential

The resource potential for oil and gas is high in the southeastern corner of the Washakie Wilderness near the South Fork Wood River, and on the eastern edge of the area near the South Fork Shoshone River (Spencer and Powers, 1983). With the exception of these two areas of high resource potential, the eastern part of the Wilderness has a moderate resource potential for oil and gas in Paleozoic and Mesozoic sedimentary rocks beneath the volcanic cover. The resource potential for oil and gas is also moderate in the Younts basin(?), located in the southwestern corner of the Wilderness (Antweiler and others, 1983).

Specific areas within the Washakie Wilderness having moderate or high mineral resource potential (designated A-L on plate 1) include:

A. Eagle Creek - Minor amounts of gold have been produced from vein deposits in the Crouch mine on Eagle Creek, and the area has been prospected for a number of commodities. Rock sample analyses yielded anomalous values for gold, silver, lead, zinc, copper, and molybdenum. The Eagle Creek area has a high resource potential for base and precious metals in vein-type deposits, and for copper and molybdenum in porphyry-type deposits (Antweiler and others, in press).

B. Ruth Creek - No mines or prospects are located in this area; however, analyses of samples from rocks collected along the creek yielded anomalous values for molybdenum. The Ruth Creek area has a moderate resource potential for molybdenum in porphyry-type deposits (Antweiler and others, in press).

C. Rampart Volcano - No mines or prospects are located in this area; however, sediment-sample analyses from streams that drain the volcano yielded anomalous values for base metals and for gold. The Rampart Volcano area has a moderate resource potential for gold, copper, lead, and zinc in vein-type deposits (Antweiler and others, in press).

D. Clouds Home Peak - Mineralized and altered rocks are exposed within an intrusive complex, and samples from the area contained anomalous amounts of copper, molybdenum, lead, and zinc (Fisher and Antweiler, 1980). The Clouds Home Peak area has a high resource potential for base and precious metals in vein-type deposits and for copper and molybdenum in porphyry-type deposits (Antweiler and others, in press).

E. Deer Creek - Mineralized rock is exposed in granodiorite near Deer Creek, and this area has a moderate resource potential for base and precious metals in vein-type deposits (Antweiler and others, 1980).

F. Anderson Creek/Venus Creek - Geochemical anomalies for gold, silver, copper, and molybdenum are found near a possible volcanic center, and this area roughly coincides with a negative magnetic anomaly. The Anderson Creek/Venus Creek area has a moderate resource potential for base and precious metals in vein-type deposits (Antweiler and others, in press).

G. Stinkingwater mining district - Layered volcanic rocks have been intruded by a large complex pluton in the Stinkingwater region and have been mineralized. Rock samples from the mineralized zone contain anomalous amounts of copper and molybdenum and trace amounts of silver and gold. A multimillion ton, low-grade, copper-molybdenum, porphyry-type deposit has been identified in the district, and the area has a high resource potential for base and precious metals in vein-type deposits (Antweiler and others, in press).

H. Silver Creek - An altered zone containing copper and molybdenum minerals occurs within an intrusive complex near Silver Creek, and samples from the mineralized zone yield anomalous values for copper and molybdenum. This area has a high resource potential for copper and molybdenum in porpyry-type deposits (Antweiler and others, in press).

I. Lost Ranger Top (Birthday) - Several small irregular stock-like plutons have been emplaced into lava flows and breccias of the Tertiary Wiggins Formation in the Lost Ranger Top (Birthday) area. Altered rocks occur within fracture zones and within and adjacent to intrusive bodies, and samples from the mineralized zone contain anomalous amounts of copper and molybdenum (Fisher and Antweiler, 1980). This area has a high resource potential for copper and molybdenum in porphyry-type deposits (Antweiler and others, in press).

J. Robinson Creek - An irregular-shaped pluton has been emplaced into flows and flow breccias of the Tertiary Wiggins Formation, and mineralized rocks are exposed in discontinuous outcrops within the pluton. Copper minerals were observed in outcrops, and rock samples from this area contained anomalous amounts of copper, molybdenum, lead, zinc, and silver (Fisher and Antweiler, 1980). The Robinson Creek area has a moderate resource potential for copper and molybdenum in porphyry-type deposits (Antweiler and others, in press).

K. Yellow Ridge - Highly altered intrusive rocks containing copper minerals are exposed on Yellow Ridge. Samples collected from the altered zone have significant anomalies for copper, and also contain slightly anomalous amounts of lead, zinc, and molybdenum. This area has a moderate resource potential for copper and molybdenum in porphyry-type deposits (Antweiler and others, in press).

L. East Fork Pass - Geochemical analyses of samples collected at the head of the Wood River, near East Fork Pass, yielded anomalous values for copper, molydenum, lead, and zinc. This area has a high resource potential for base metals in vein-type deposits similar to those of the Kirwin mineralized region (Antweiler and others, in press).

The potential for other mineral and energy resources is regarded as low.

References

Antweiler, J. C., Rankin, D. W., Fisher, F. S., Long, C. L., Love, J. D., Bieniewski, C. L., and Smith, R. C., in press, Mineral resource potential of the northern part of the Washakie Wilderness and nearby roadless areas, Park County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-1597-A, 50 p., scale 1:125,000.

Antweiler, J. C., Williams, F. E., Jinks, J. E., and Light, T. D., 1983, Preliminary report on the mineral resource potential of the Teton Wilderness, Teton, Fremont, and Park Counties, Wyoming, with sections on Geology by J. D. Love and H. J. Prostka, and Interpretations of geophysical data by D. M. Kulik and L. A. Anderson: U.S. Geological Survey Open-File Report 83-470, 32 p.

Fisher, F. S., 1972, Tertiary mineralization and hydrothermal alteration in the Stinkingwater mining region, Park County, Wyoming: U.S. Geological Survey Bulletin 1332-C, 33 p.

Fisher, F. S., and Antweiler, J. C., 1980, Preliminary geological and geochemical results from the Robinson Creek, Birthday, and Clouds Home Peak mineralized areas in the Washakie Wilderness, Wyoming: U.S. Geological Survey Open-File Report 80-781, 12 p.

Ketner, K. B., Keefer, W. R., Fisher, F. S., Smith, D. L., and Raabe, R. G., 1966, Mineral resources of the Stratified Primitive Area, Wyoming: U.S. Geological Survey Bulletin 1230-E, 56 p.

Spencer, C. W., and Powers, R. B., 1983, Petroleum potential of wilderness lands in Wyoming: U.S. Geological Survey Circular 902-M, 9 p., and Miscellaneous Investigations Series Map I-1547, scale 1:1,000,000.

BEARTOOTH WILDERNESS (NF-915)
(Beartooth Wilderness (NF-106) is in contiguous parts of Montana)

NORTH BOUNDARY (2-913)
(Rock Creek (1-913) is in contiguous parts of Montana)

Kind and amount of data

The North Boundary area lies within the Beartooth Wilderness, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed for both areas (Simons and others, 1979).

Mining districts, mines, and mineral occurrences

The Beartooth Wilderness and North Boundary areas are underlain by Precambrian granitic gneiss. No mines or mining districts are located in the Wyoming part of the Beartooth Wilderness. The Red Lodge mining district is located on the eastern edge of the Montana part of the Wilderness near the junction of Rock Creek and Hellroaring Creek (James, 1946). Chromium has been produced from small pods and lenses in bodies of serpentinite in the Red Lodge district. No wells have been drilled in the Beartooth Wilderness or North Boundary areas. Oil and gas is being produced in the Badger basin, Elk basin, and Silver Tip fields, located 20-30 mi to the east.

Commodities

None known.

Mineral and energy resource potential

The Beartooth Wilderness and North Boundary areas have a low mineral resource potential. The resource potential for oil and gas is also low, because the total outcrop area of Paleozoic and Mesozoic sedimentary rocks is small and the rocks are so deeply eroded that any oil or gas they might have contained may have escaped or been flushed out by ground water (Simons and others, 1979). Other energy resources are unknown, and their potential is also regarded as low.

References

James, H. L., 1946, Chromite deposits near Red Lodge, Carbon County, Montana: U.S. Geological Survey Bulletin 945-F, 189 p.

Simons, F. S., Armbrustmacher, T. J., Van Noy, R. M., Zilka, N. T., Federspiel, F. E., and Ridenour, J., 1979, Mineral resources of the Beartooth Primitive Area and vicinity, Carbon, Park, Stillwater, and Sweet Grass Counties, Montana, and Park County, Wyoming, with a section on Interpretation of aeromagnetic data by L. A. Anderson: U.S. Geological Survey Bulletin 1391-F, 125 p.

POPO AGIE WILDERNESS (NF-934)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Pearson, Kiilsgaard, and Patten, 1971).

Mining districts, mines, and mineral occurrences

The Popo Agie Wilderness is underlain almost entirely by a large complex pluton - the Louis Lake batholith, comprised of quartz diorite and porphyritic quartz monzonite. Only two small remnants of prebatholithic gneiss remain.

No mining districts, mines, or prospects are located in the Wilderness, and the only mineral occurrence reported is in a pegmatite dike just east of Washakie Pass, where a few small crystals of radioactive allanite have been discovered. Gold was mined in the Atlantic City district, 10 mi southeast of the area, and the gold was recovered from quartz veins in metasedimentary and metavolcanic rocks. No quartz veins, metasedimentary or metavolcanic rocks comparable to those of the Atlantic City mining district are found in the Wilderness.

Commodities

None known.

Mineral and energy resource potential

Based on geological, geochemical, and geophysicial criteria, the Popo Agie Wilderness has a low mineral and energy resource potential.

References

Pearson, R. C., Kiilsgaard, T. H., and Patten, L. L., 1971, Mineral resources of the Popo Agie Primitive Area, Fremont and Sublette Counties, Wyoming, with a section on Interpretation of aeromagnetic data by R. E. Mattick: U.S. Geological Survey Bulletin 1353-B, 55 p.

TARGHEE NATIONAL FOREST

WEST SLOPE TETONS (4-610)
(West Slope Tetons (4-610) is also in contiguous parts of Idaho)

Kind and amount of data

The southern part of the area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Myers and Kluender, in press). Information on geology and mineral deposits of the rest of the area (Gardner, 1944; Schroeder, 1972; Christiansen and others, 1978) is adequate for inferences to be made regarding resource potential; however, information is not adequate for a preliminary mineral resource evaluation and is not sufficient for the mineral survey as required by the Wilderness Act (PL88-577) and related acts.

Mining districts, mines, and mineral occurrences

The West Slope Tetons area is underlain by Tertiary volcanic rocks in the northern part and by Paleozoic and Mesozoic sedimentary rocks in the southern part. Several knobs of Precambrian granitic and gneissic rocks are exposed near the area's eastern border.

The Permian Phosphoria Formation crops out in the southern part of the area and in one isolated locality near the area's northeastern corner. Phosphate rock is found in the phosphatic-shale members of the Phosphoria Formation. Asbestos has been reported from a dike cutting Precambrian rock near the head of Berry Creek, which is located at the northeastern border of the area.

Commodities

Phosphate.

Mineral and energy resource potential

The resource potential for phosphate is regarded as high at the southern end of the West Slope Tetons area. Myers and Kluender (in press) estimated that 2 million short tons of medium- to high-grade phosphate is present in the Phosphoria Formation. On the basis of limited data, the resource potential for phosphate is regarded as moderate in the northeastern part of the area, and along the area's southwestern border. The potential for other mineral and energy resources is unknown.

References

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PALISADES (4-613)

(Palisades (4-613) is also in contiguous parts of Idaho)

Kind and amount of data

The area has been mapped, and the mineral survey as required by the Wilderness Act (PL88-577) and related acts has been completed (Antweiler, Fox, and Campbell, 1984; Oriel and Moore, 1984; Oriel and others, in press).

Mining districts, mines, and mineral occurrences

Most of the Palisades area is underlain by Paleozoic and Mesozoic sedimentary rocks that thicken to the west. Locally, the sedimentary rocks are intruded by igneous rocks and are unconformably overlain by Cenozoic volcanic ashfalls and ashflows with interbedded terrestrial sediments. These strata have been transported tens of miles east-northeastward in large thrust sheets.

No mines or mining districts are located in the Wyoming part of the Palisades area. Coal seams and beds occur in the Cretaceous Frontier and Bear River Formations, which crop out in a northwest-trending belt north of the Absaroka thrust. Small amounts of coal have been mined along Pine Creek, which is in the Idaho part of the Palisades area (Benham, 1983).

Vanadium-bearing phosphate rock is present in the phosphatic-shale members of the Permian Phosphoria Formation. Outcrops of the Phosphoria are fairly extensive, but the continuity is disrupted in places by thrust faults. In addition to phosphate and vanadium, the Phosphoria contains small concentrations of fluorine, uranium, silver, chromium, lead, zinc, cadmium, copper, molybdenum, and nickel.

Malachite- and azurite-stained sandstone and quartzite is found in the Nugget Sandstone at a few localities in the Palisades area. Samples from these localities yielded geochemical anomalies for base and precious metals (Antweiler, Fox, and Campbell, 1984). Anomalous amounts of silver, copper, molybdenum, and lead were found in a few igneous rock samples collected near Indian Peak, however, most samples of the intrusive body contained only traces of these elements. Several gold placer prospects are located just east of the area near the mouth of Coburn Creek, but pan-sample analyses from this area did not reveal high gold values.

A few exploratory wells have been drilled in the northeastern part of the area near Fall Creek, but no oil or gas has been discovered. All of the area is under lease application for oil and gas, and a number of proprietary seismic-reflection surveys have been conducted.

Commodities

Oil, gas, and phosphate.

Mineral and energy resource potential

The resource potential for oil and gas in the East Palisades area is regarded as high, because favorable source beds, potential reservoirs, structural and stratigraphic traps, and thermal maturities comparable to those in the productive southern part of the Idaho-Wyoming-Utah overthrust belt are present (Spencer and Powers, 1983).

The potential for phosphate resources is moderate. Although the resource potential for minor components of the Phosphoria Formation has not been determined, recovery of some of these components could enhance the value of phosphate resources. The potential for coal resources is regarded as low, because the thin coal seams and beds in the Frontier and Bear River Formations are discontinuous. Despite the presence of significant geochemical anomalies, the low-grade, small, strata-bound, metal deposits in the Nugget Sandstone are too discontinuous to be considered a potential resource (Oriel and others, in press). The potential for other mineral and energy resources is regarded as low.

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Study area code (numerical list)

*Wilderness Mineral Survey completed
**Wilderness Mineral Survey completed in part of area

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Alphabetical study area code

*Wilderness Mineral Survey completed
**Wilderness Mineral Survey completed in part of area