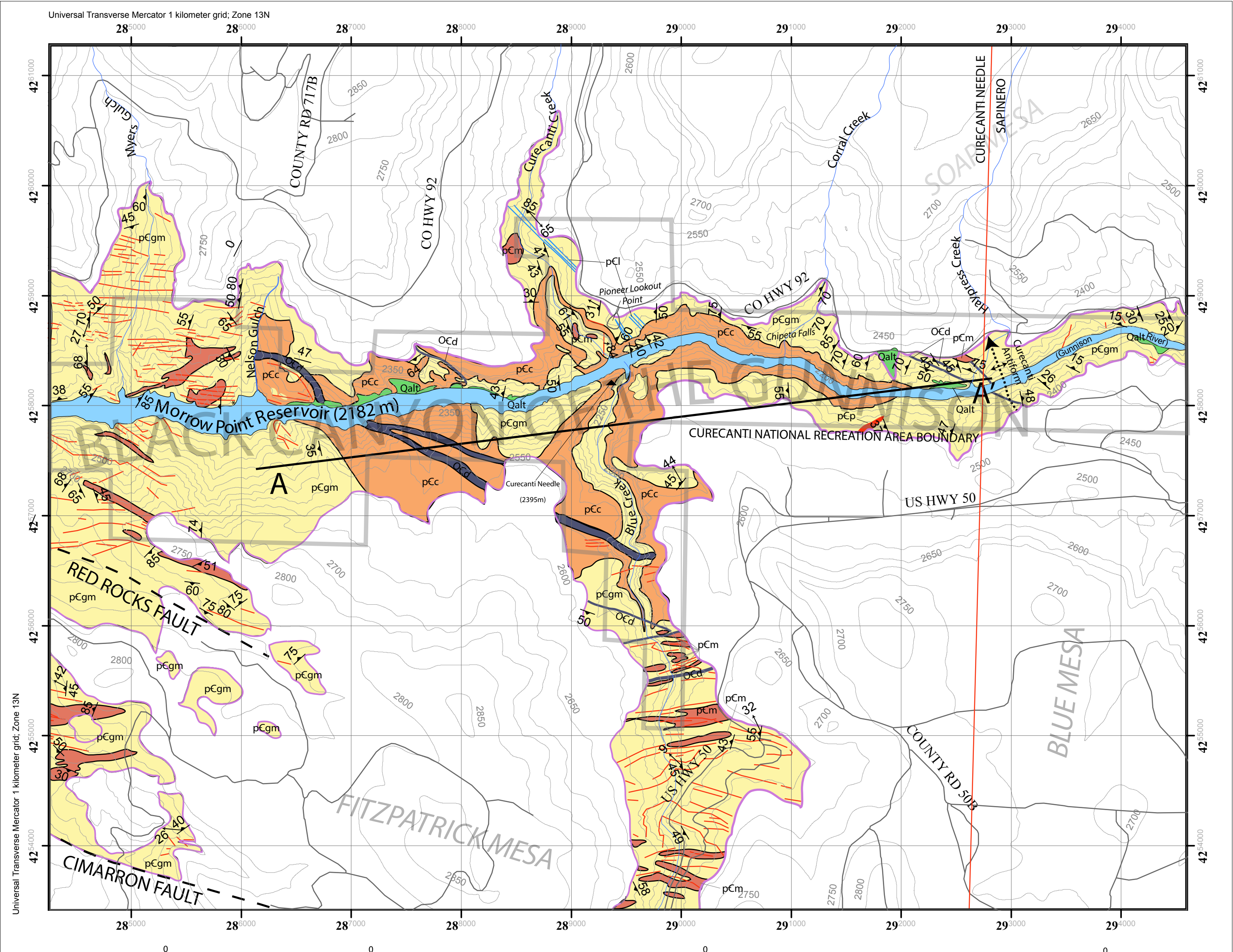


GEOLOGIC MAP AND CROSS SECTION OF PROTEROZOIC ROCKS IN THE
BLACK CANYON OF THE GUNNISON RIVER, CURECANTI NEEDLE AREA,
WESTERN COLORADO

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Geology updated from Hansen, 1971¹



EXPLANATION

QUATERNARY

Qalt Valley alluvium, landslides, or talus; angular to subrounded rubble. Includes rock streams, coarse slope wash, and gravel bars along the Morrow Point Reservoir.

ORDOVICIAN

OCd Diabase dike. Dark-gray to black, fine- to medium-grained dikes consist of labradorite, augite, quartz, magnetite, and traces of biotite, hornblende, and apatite. Radiometric age (rubidium-strontium) is 500 ± 70 Million years².

PROTEROZOIC

pCp Coarse grained dikes composed of microcline, quartz, muscovite, and, less commonly, albite; locally contains subordinate biotite or garnet. Many small bodies not mapped. Varies widely in age, but most are likely younger than Curecanti monzogranite. Typically 1-3-m-thick. Arrow indicates dip.

pCc Curecanti monzogranite of the Curecanti pluton; light-gray to orange-pink, medium-grained monzonite or granite. Texturally massive except in the pluton floor. Radiometric age (whole-rock rubidium-strontium) is 1415 ± 20 million years².

pCm Monzogranite dikes; light-gray to pink dikes and dikelets. Mostly lenticular and foliated oblique and parallel to their margins. May range widely in age or be coeval with the Curecanti pluton.

pCf Lamprophyre; mottled-greenish-gray, fine-grained porphyroblastic metamorphosed dikes with chilled borders. Approximate mineral constituents are 43 percent hornblende, 36 percent microcline, 10 albite, 5 percent biotite, 4 percent sphene, and 1 percent apatite. Typically <1 m thick.

pCgm Quartz-rich gneiss and migmatite, light- to medium-gray, well-foliated, locally weakly lineated, medium- to coarse-grained, micaceous, quartzofeldspathic paragneiss commonly containing lenses of granitoid, pegmatite, and quartz. Garnet and sillimanite are present locally (see * symbol on map).

pCf Strike and dip of foliation; trend and plunge of mineral lineation

pCf Approximate location of fault

pCf Plunging anticline axial trace; location approximate

pCf The Great Unconformity between Proterozoic and Phanerozoic rocks; Phanerozoic rocks above unconformity in white

pCf Contact between rock units

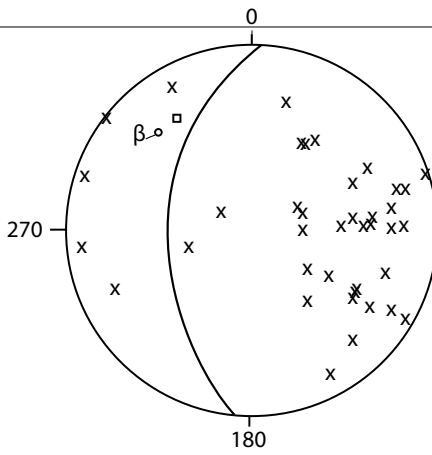
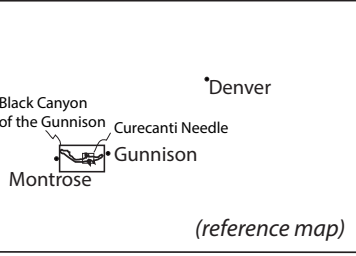
pCf Road

pCf Boundary between 1:24,000 USGS quadrangle

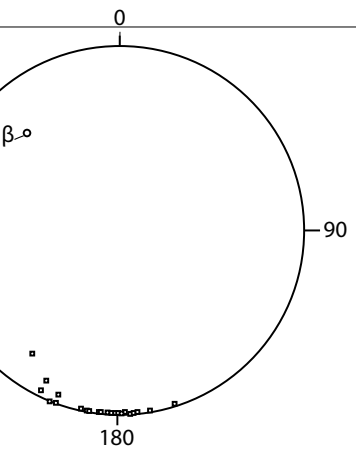
Reference

¹Hansen, W.R., 1971, Geologic Map of the Black Canyon of the Gunnison River and vicinity, western Colorado, U.S. Geological Survey Misc. Geologic Investigations I-0585, scale 1 : 31,680, 2 sheets.

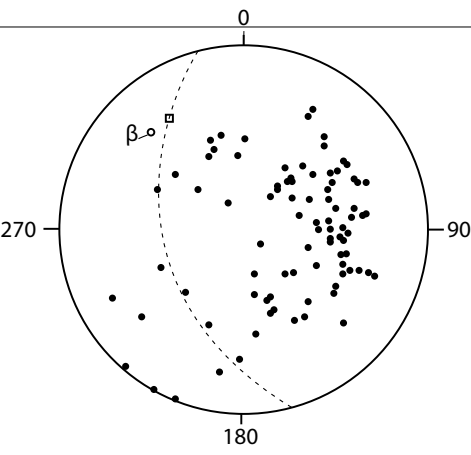
²Hansen, W.R., and Peterman, Z.E., 1968, Basement-rock geochronology of the Black Canyon of the Gunnison, Colorado. U.S. Geological Survey Prof. Pap. 400: C80-C90.



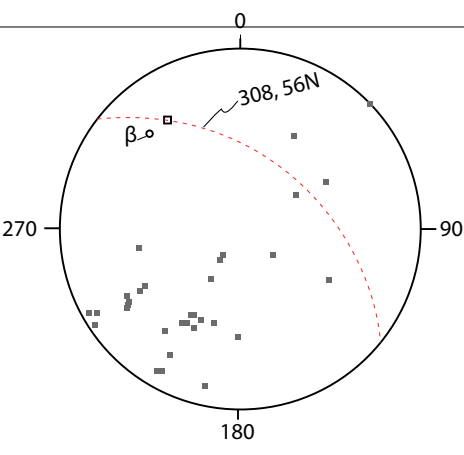
Domain I: from 3 kilometers west of map extent to Nelson Gulch; n=39



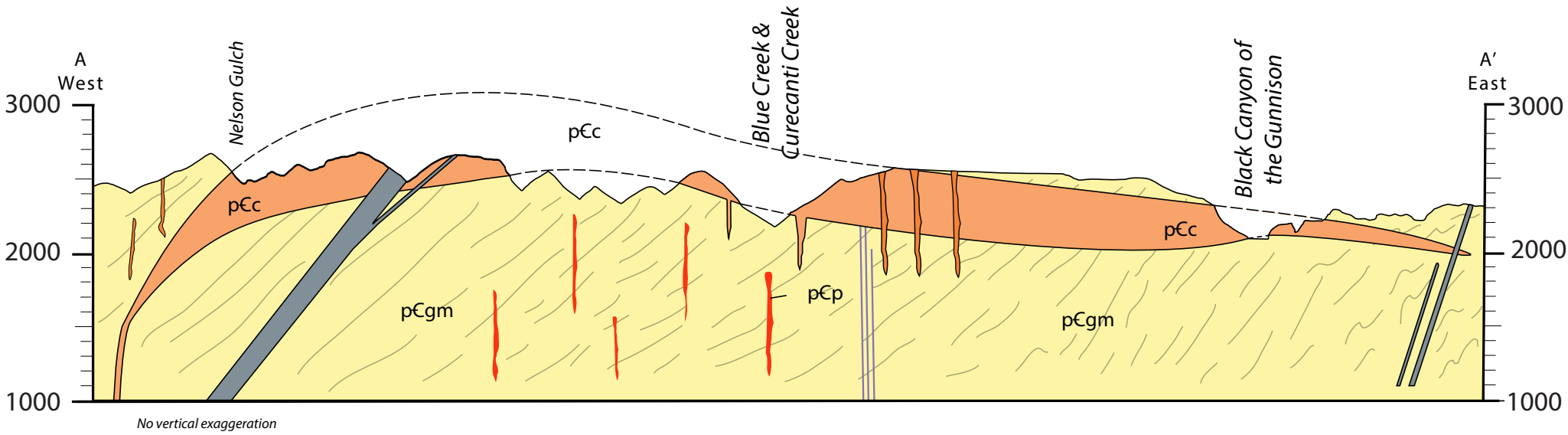
Domain II: east-west dikes; n=22



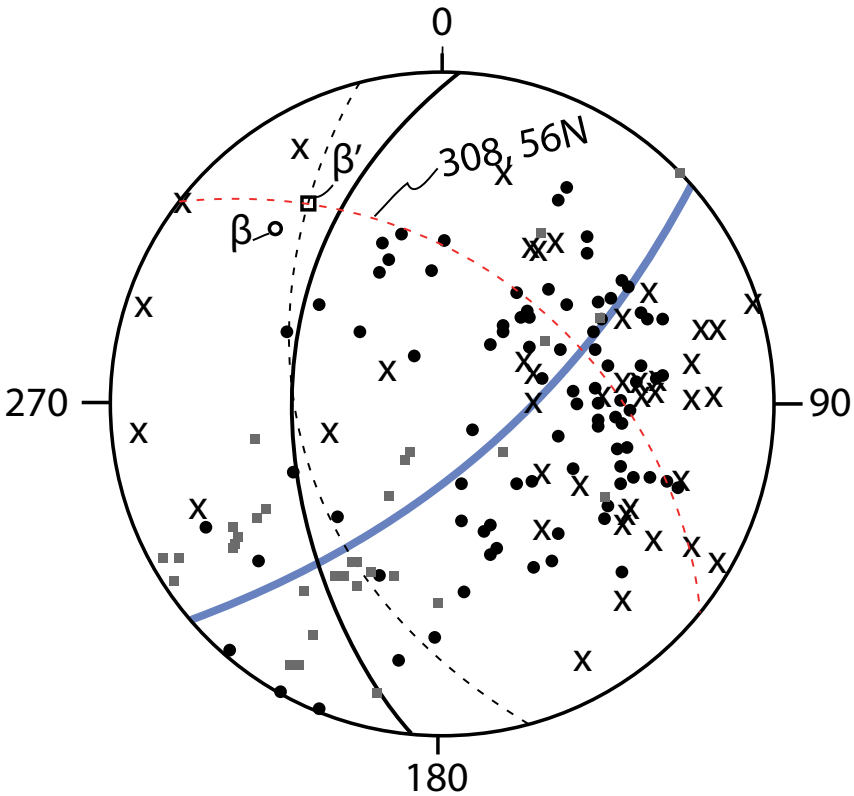
Domain III: within area of Curecanti pluton; n=88



Domain IV: east of Chipeta Falls; n=34



No vertical exaggeration



Domains I, III, and IV. B' is Beta axis calculated by intersection of Domains III and IV. B is Beta axis calculated from all data (not all data plotted on each domain; total n=190).

Stereonets explanation:

- x - representative S_2 west of Curecanti pluton (182, 54W; n=41)
- - representative S_2 within area of Curecanti pluton (165, 54W; n=34)
- - representative S_2 east of Chipeta Falls (308, 56N; n=34)
- - girdle for all S_2 data within area of Curecanti pluton (044, 62SE; n=190)
- β - Curecanti Antiform (all data) beta axis for (18 → 314)
- β' - Curecanti Antiform (plotted data) beta axis for (16 → 320)