ORIGIN AND MINERAL RESOURCE POTENTIAL OF ROSEDALE DISTRICT, SOCORRO COUNTY, NEW MEXICO

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OUTLINE

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- Research Importance
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- Acknowledgement
- Question(s)

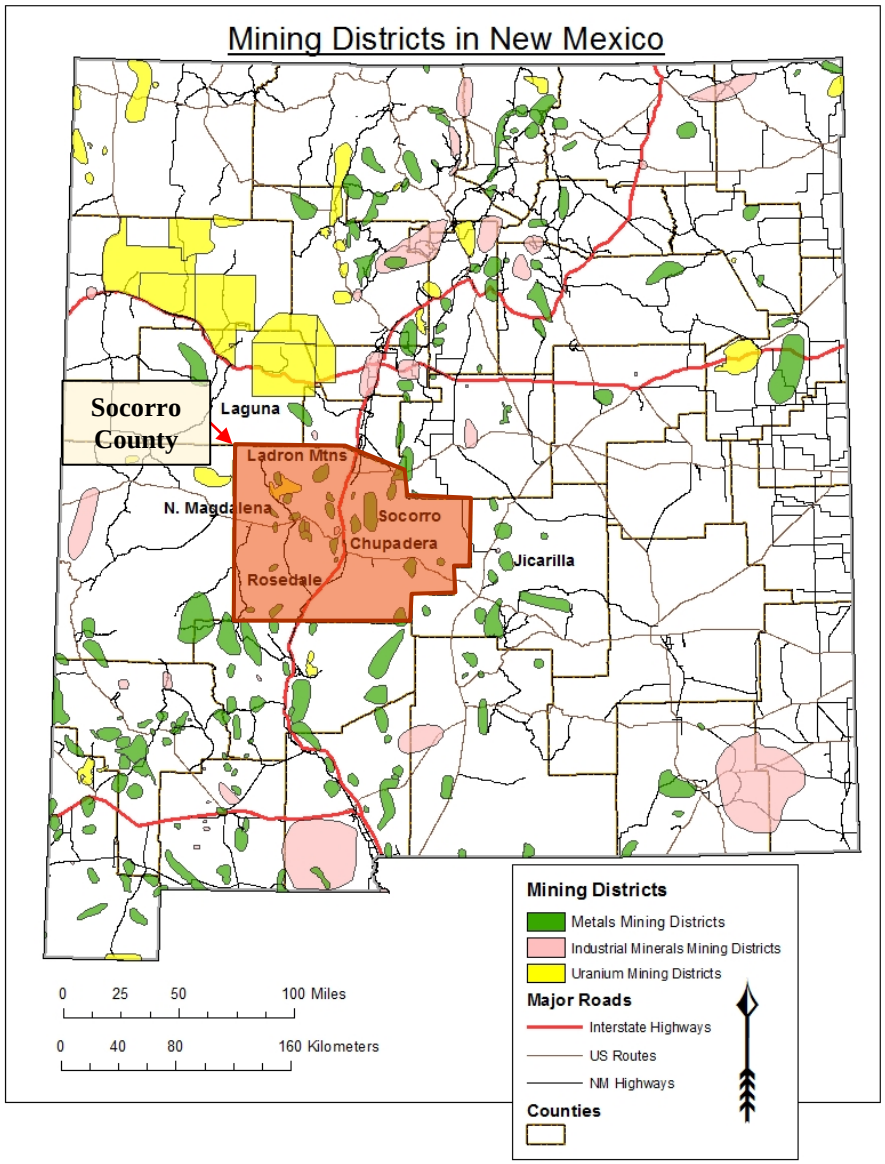
BACKGROUND

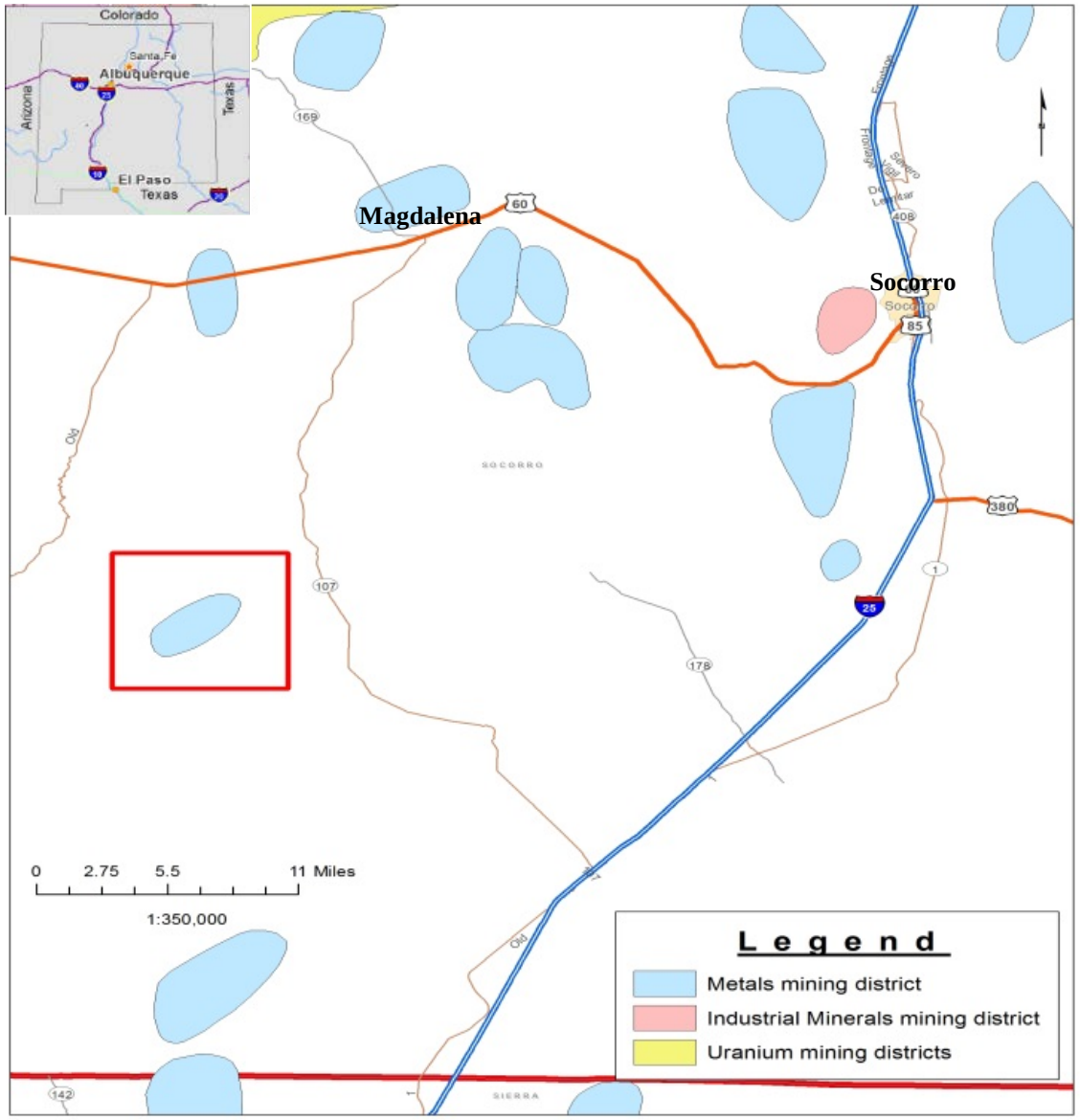
- Discovered in 1882, mining started in 1886. Two major properties produced in Rosedale district are Rosedale and Bell mines
- 28,000 oz (Au) and 10,000 oz (Ag) was estimated total metals produced (1882-1981) and amounted to ≈ $328,000
- Rosedale Mining Co. constructed 10-stamp mill in 1891 and a cyanide plant in 1900. Inactive until the mid 1930's and finally closed in 1941
- Three mill tailings facilities constructed at the Rosedale mine: Longtail, Elizabeth and Rose
- Bell Mine (Golden Bell) patented in 1930 but produced some metals in 1900’s

STUDY AREA

- Located in Socorro County, New Mexico and northeastern slope of the San Mateo Mountains, about 25 miles south of Magdalena and about 30 miles north of San Marcial

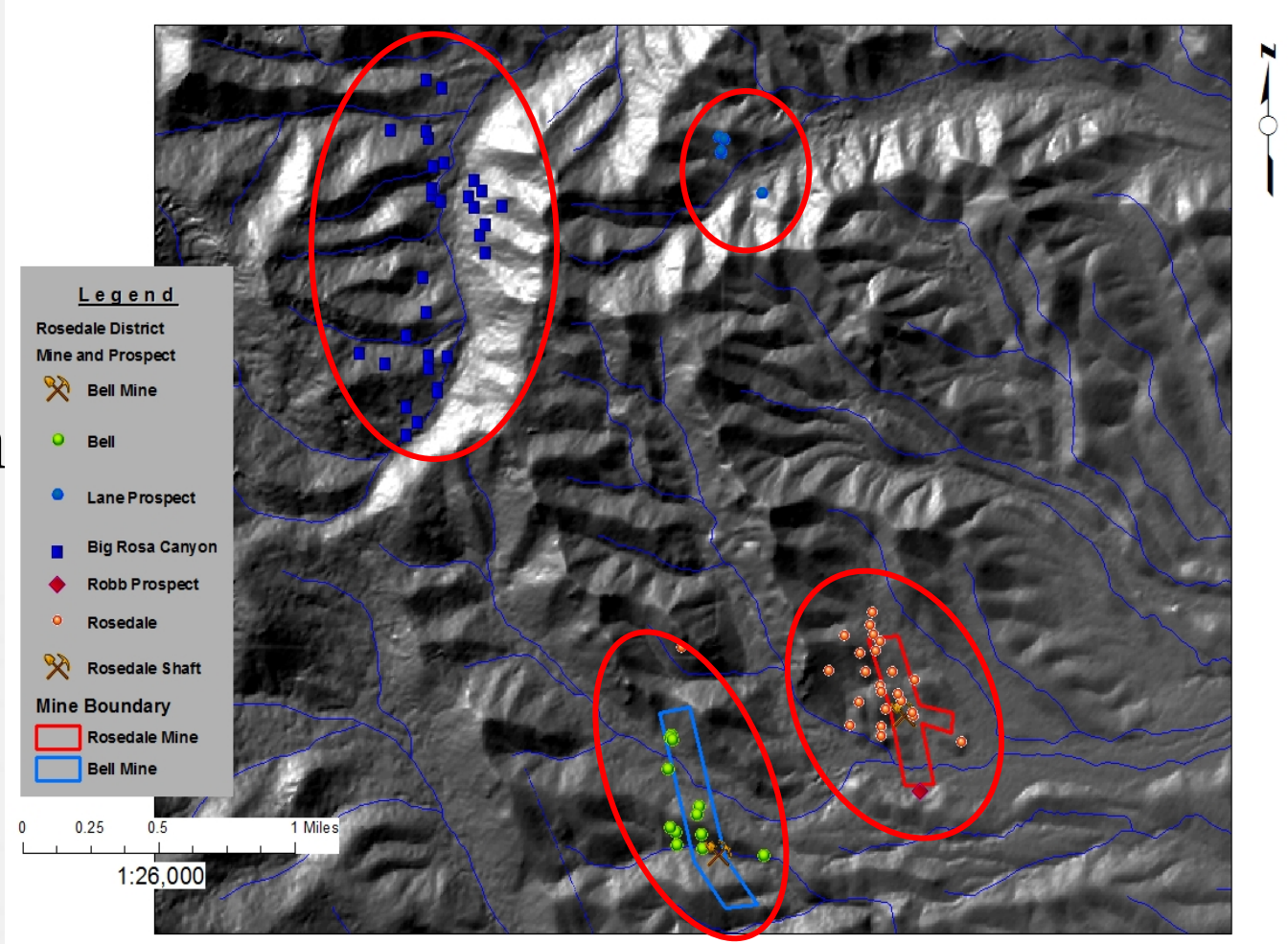
STUDY AREA


Mining Districts in New Mexico
Socorro County
Laguna
Ladron Mtns
N. Magdalena
Socorro
Chupadera
Rosedale
Jicarilla
0 25 50 100 Miles
0 40 80 160 Kilometers
Mining Districts
Metals Mining Districts
Industrial Minerals Mining Districts
Uranium Mining Districts
Major Roads
Interstate Highways
US Routes
NM Highways
Counties


Colorado
Santa Fe
Albuquerque
Arizona
Texas
El Paso
Texas
Magdalena
Socorro
0 2.75 5.5 11 Miles
1:350,000
Legend
Metals mining district
Industrial Minerals mining district
Uranium mining districts

STUDY AREA

- Mines and Prospects
  - Rosedale Mine
  - Bell Mine
  - Robb Prospect
  - Lane Prospect
  - Big Rosa Canyon



GEOLOGIC SETTING

- The district is tectonically active and lies within a structurally complex area and part of Mogollon-Datil volcanic field
- Late Eocene-Oligocene volcanic province that extends from west-central New Mexico southward into Chihuahua, Mexico
- Argillic alterations typically overprints cross-cuts fault zones
- Mineralization occurs in well-developed epithermal veins that is brecciated and sheared in rhyolitic porphyry
- Mineral Association: Limonite and manganese oxides. Sulfides appears above water table

RESEARCH IMPORTANCE

- Regional correlating rock types between the Rosedale District and other parts of New Mexico
- Structural correlation can be used to locate other types of associated deposits
- Overall relationships between stratigraphy, structure, mineralization and the distribution on intrusive
- Improve the geologic models for Au exploration in volcanic-epithermal veins

SCOPE OF WORK

- Origin of Au-Ag mineralization within Rosedale district
- Understand the ore relationships and paragenesis
- Understand the structural settings controlling mineralization
- Build relationships between stratigraphy, structure, mineralization and the distribution for intrusive
- Improve geologic models for Au exploration in epithermal veins in New Mexico
- Evaluation of the mineral-resource potential
- Characterization of the waste rock piles

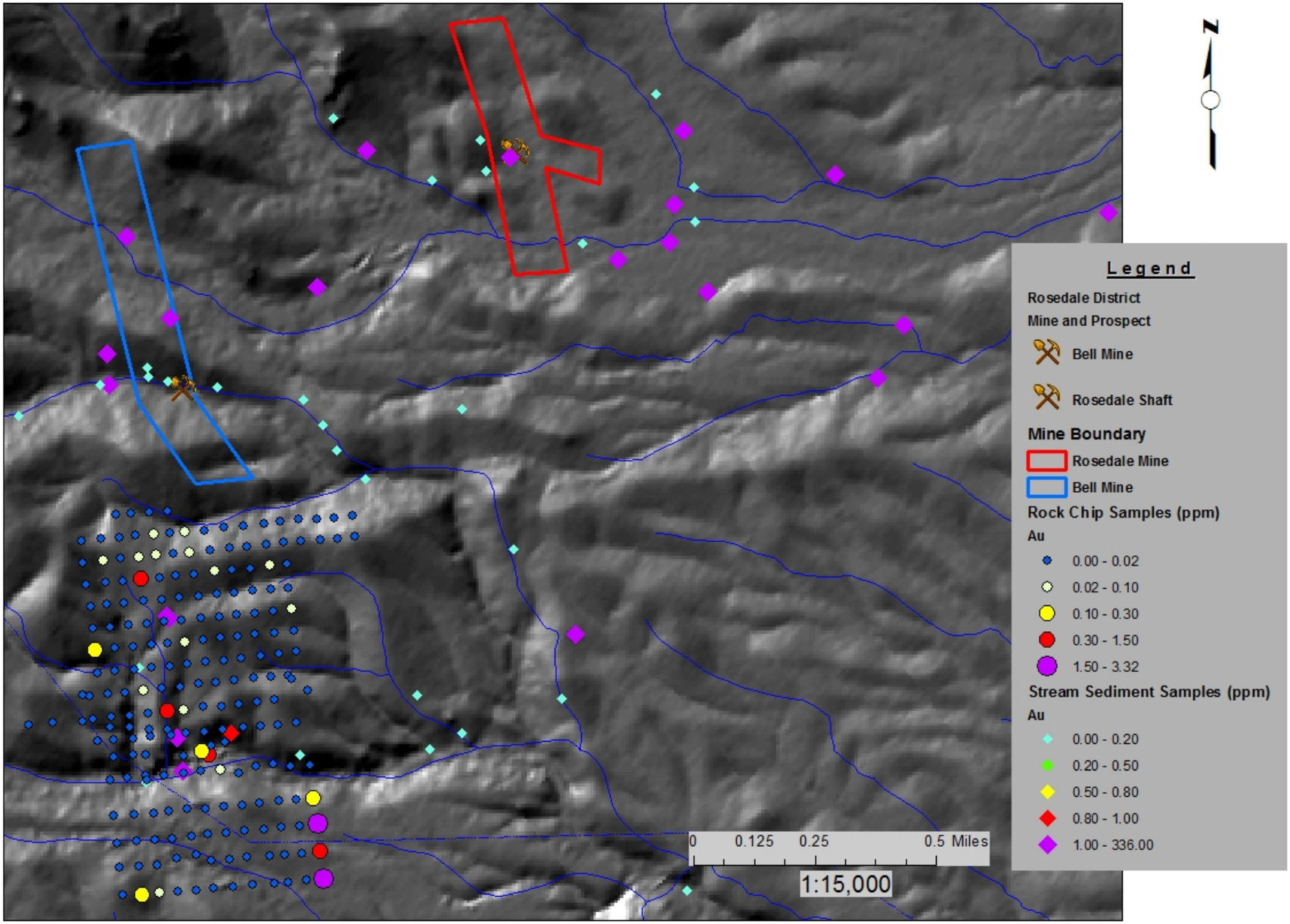
RESEARCH METHODOLOGY

- Interpretation of available historical data
- Detailed geologic mapping and sampling
- Laboratory analysis
  - Geochemistry (ICP)
  - Petrographic studies
  - X-Ray Diffraction (XRD)
  - Electron Microprobe (EMP)
- Surface model interpretation
- Comparison of volcanic-epithermal vein deposits in NM
- Geologic model for exploration

PAST RESOURCE STUDY

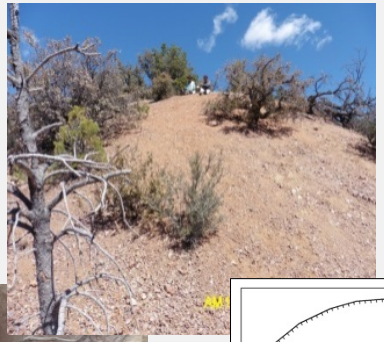
- 21 Stream sediment samples from Rosedale and Bell Mines
- 215 rock chip samples on 200X250ft grid conducted south of Bell Mine
- The sampling delineated the Bell structure and parallel structures, which may indicate a possible cross-cutting structure and a fault offset mineralization.
- 8 drillholes with total depth of 1472ft conducted in 1976, south of the Bell mine

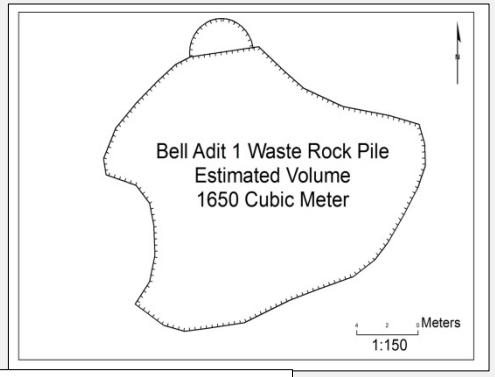
PAST RESOURCE STUDY

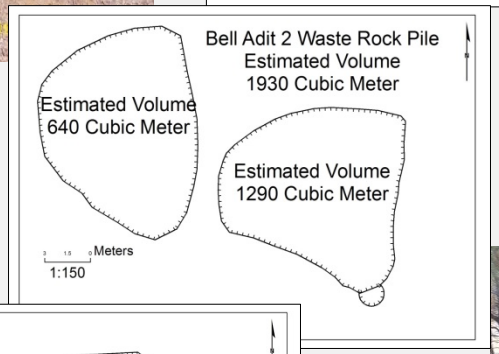


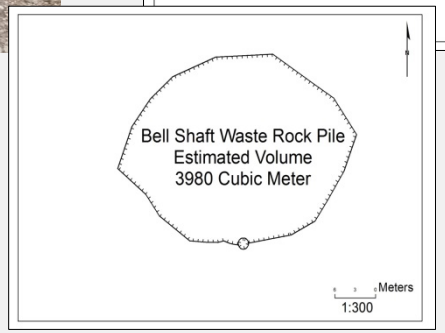
RESOURCE STUDY

- Mapping and sampling of waste rock piles, pits, adits and shafts









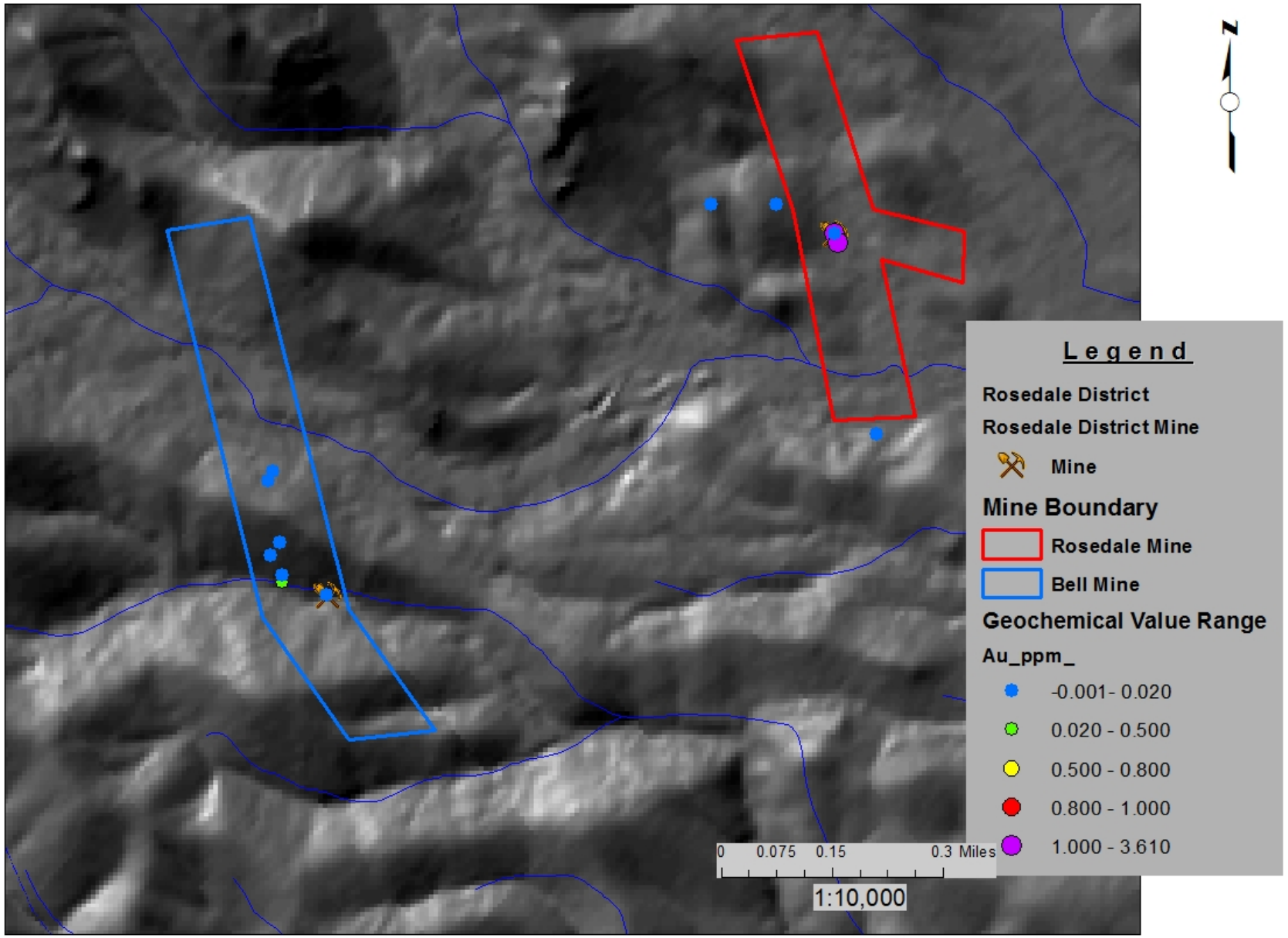
FIELD OBSERVATIONS

Mine	No. of Mines	Mine Features	Depth of workings (ft)
Rosedale	27	Shafts (14 levels), Pits, Adit, Tailings, Mill Foundations, Trenches	2 – 726
Bell	14	Tailings, Shafts, Adit, Mill foundations, Pits	2 - >50
Big Rosa Canyon	33	Shafts, Adit, Pits, Trenches	2 - >30
Robb Prospect	1	Shaft	20
Lane Prospect	5	Shafts, Pits, Trenches	2 - >30

LABORATORY ANALYSIS

- Laboratory analysis of waste rock piles from adits, pits and shafts
  - ICP – 13 bulk composite and rock samples from Rosedale and Bell mines analyzed. 10 samples pending results
  - XRD - 16 samples prepared
  - EMP - 8 samples prepared
  - Petrographic studies -15 samples under preparation
- Interpretation of geochemical data

GEOCHEMICAL PLOT



PRELIMINARY CONCLUSION

- Geochemical analysis values of waste rock samples from both areas shows elevated metals, specifically for Au, Ag, and Cu. However, waste rock piles from Rosedale shows a more consistent elevated metal pattern which requires further investigation.

FUTURE RESEARCH

- Waste rock pile mapping, sampling and volume estimation
- Geological field mapping –Structural and Lithological
- Laboratory analysis and interpretation of petrographic, mineralogical and geochemical data
- 2D/3D geological modeling
- Stratigraphic section interpretation
- Refining of geologic model
- Comparison of volcanic epithermal deposits in NM

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QUESTIONS

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