Concurrent Baseline and Reclamation Planning

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Cedar Creek Associates Inc.

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- In business since 1982
- Our core business is reclamation planning and monitoring
- Baseline inventory and federal level permitting added later
- Many of our projects concurrently evaluate baseline resources and reclamation needs.

Reclamation

Surface Mining Control and Reclamation Act of 1977 (SMCRA)

Idaho Code – Title 47, Chapter 15, Idaho Mined Land Reclamation Act

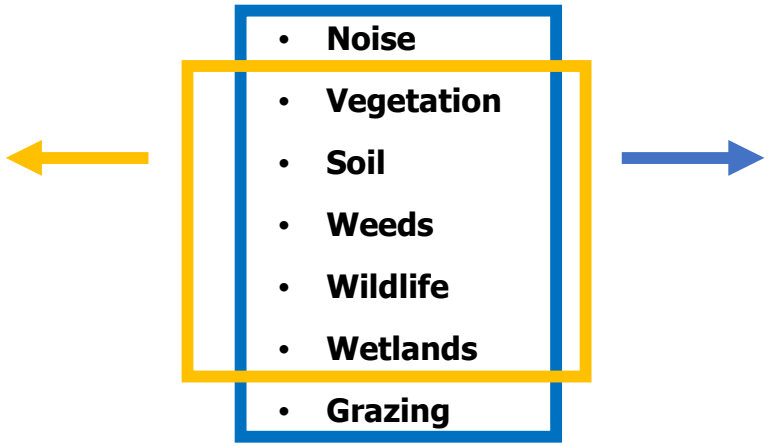
Idaho Code – Title 47, Chapter 18, Section 1803, Reclamation Fund Created – Financial Assurance

IDAPA 20.03.02 – Rules Governing Mined Land Reclamation

IDAPA 20.03.03 – Rules Governing Administration of the Reclamation Fund

NDEP, BLM, and USFS. 1998. Nevada Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, the Bureau of Land Management and the U.S.D.A. Forest Service.

Environmental Resources



Baseline

National Environmental Policy Act of 1969

The Federal Land Policy and Management Act of 1976

BLM. 2019a. Winnemucca District Survey Protocols and Information for Western Burrowing Owl. March 2019.

BLM. 2019b. Burrowing Complex Survey Method.

BLM. 2020. Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species. Updated April 2020. 11 pp.

NDOW. 2018. Acoustic Impacts and Greater Sage-grouse; A Review of Current Science, Sound Measurement Protocols, and Management Recommendations. 13 pp.

SETT. 2022. Nevada User GIS Data Package for 2021, Available at: https://dcnrftp.ndep.nv.gov. Accessed August 2022.

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What we see with Independently Conducted Programs

- Vegetation cover described and mapped very differently
  - Creates issues when conducting impact assessments for federal/state permitting
  - Basic terminology becomes confusing, sometimes contradictory
- Multiple surveys are conducted in overlapping habitats
  - Unbalanced amount of data is generated
- A disconnected picture of a cohesive biological system

An Integrated Planning Process

1. Consolidate protocols and data requirements.
2. Develop common terminology and naming convention for all documents.
3. Schedule data collection to meet overlapping survey windows.
4. Create a nested sampling design.

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Start with the basic project area…

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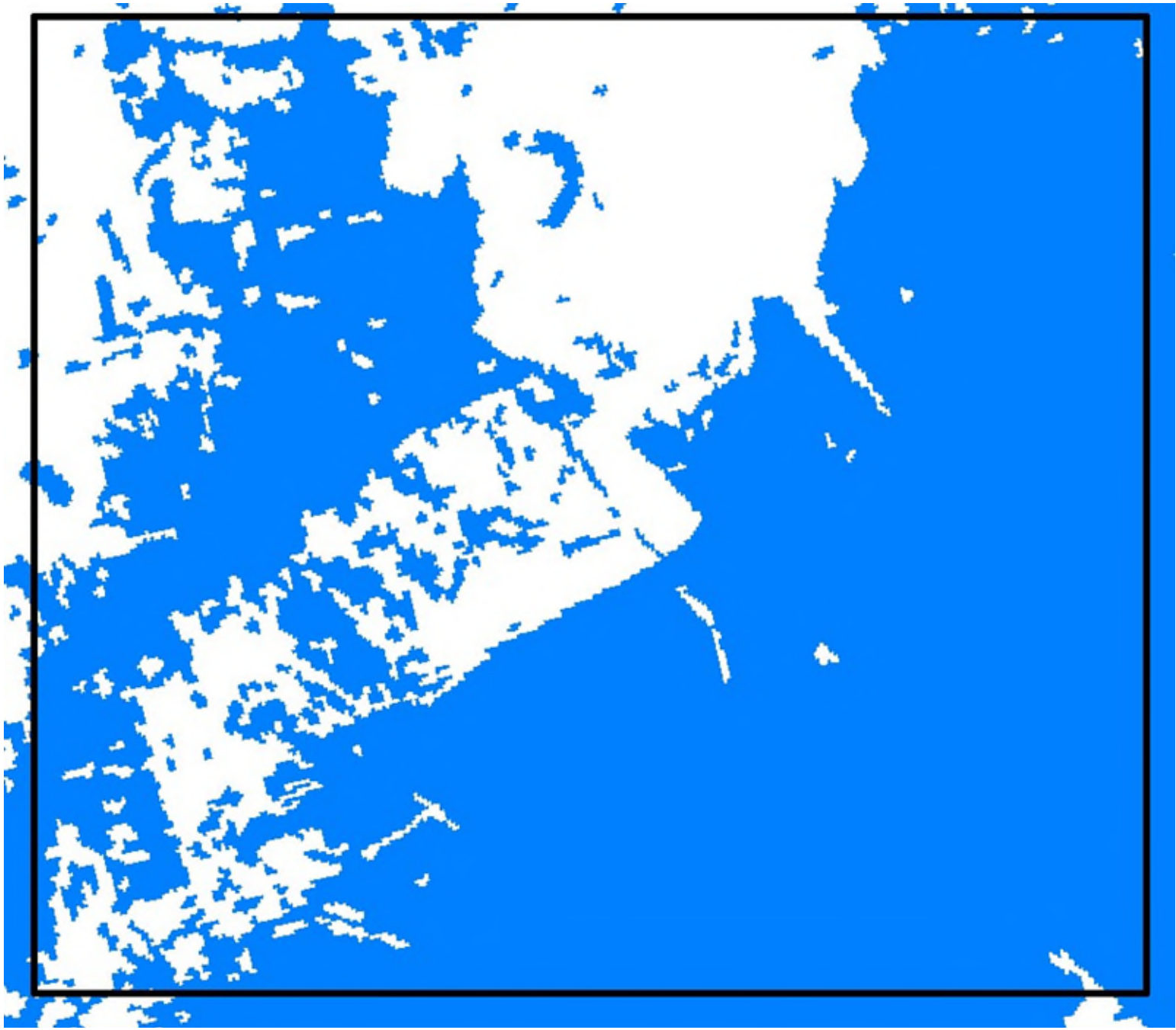
Map Elevation, Aspect, Slope



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Fire Frequency

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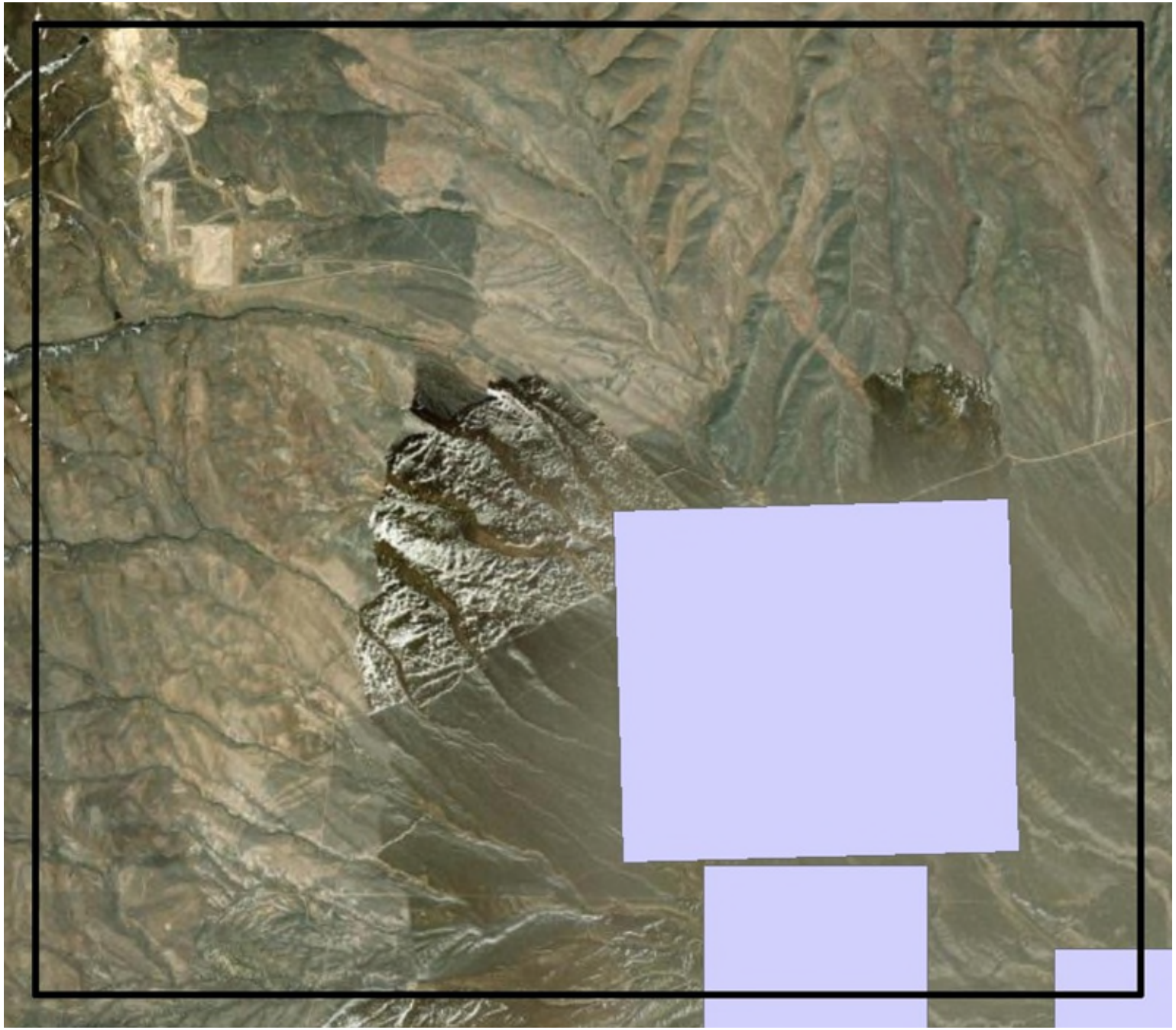
Add wildlife habitat mapping….



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Add wildlife habitat mapping….

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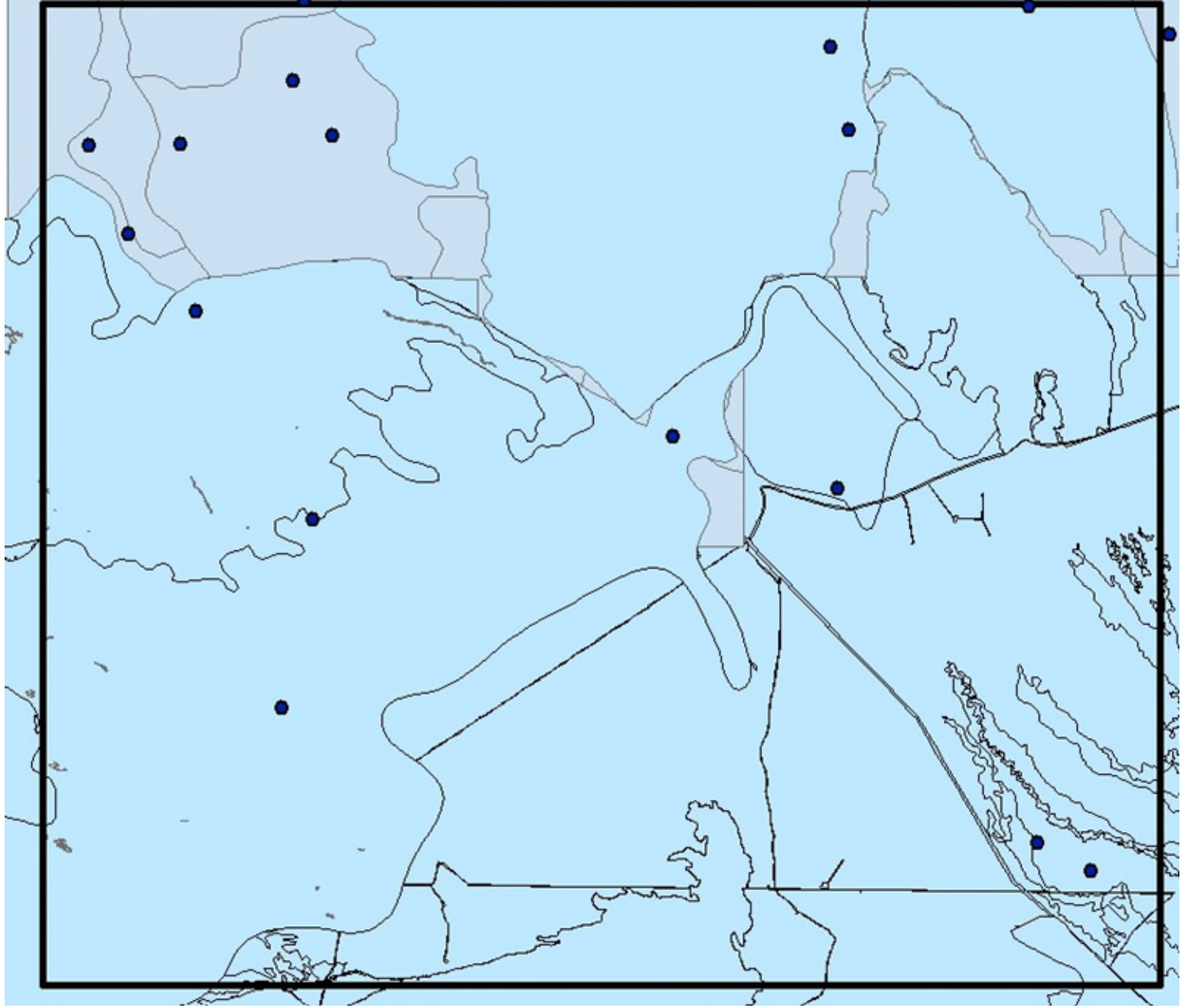
Create a Field Collection Plan



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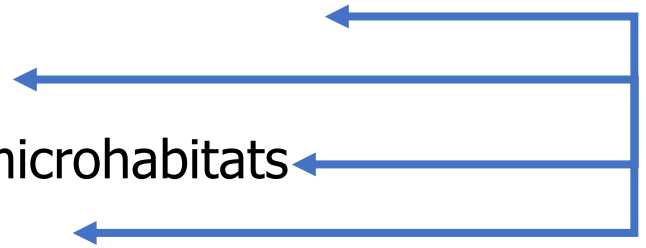
Field Data Collection Plan

- Goal is to create "homogeneous" polygons, grouped by major drivers of habitat characteristics.
  - Soil, slope, elevation, water drives habitat
  - Habitat drives species distributions
- A comprehensive data plan identifies each piece of data to be collected in each polygon to create complete data sets for each type of survey
- A nested data set is created
  - ➢ Landscape level vegetation, habitat features
    - ➢ High-mobility wildlife survey coverage
      - ➢ Low-mobility wildlife surveys
        - ➢ Plant species surveys within microhabitats
          - ➢ Soil test pits



Smaller scale supplemental data collected at each step

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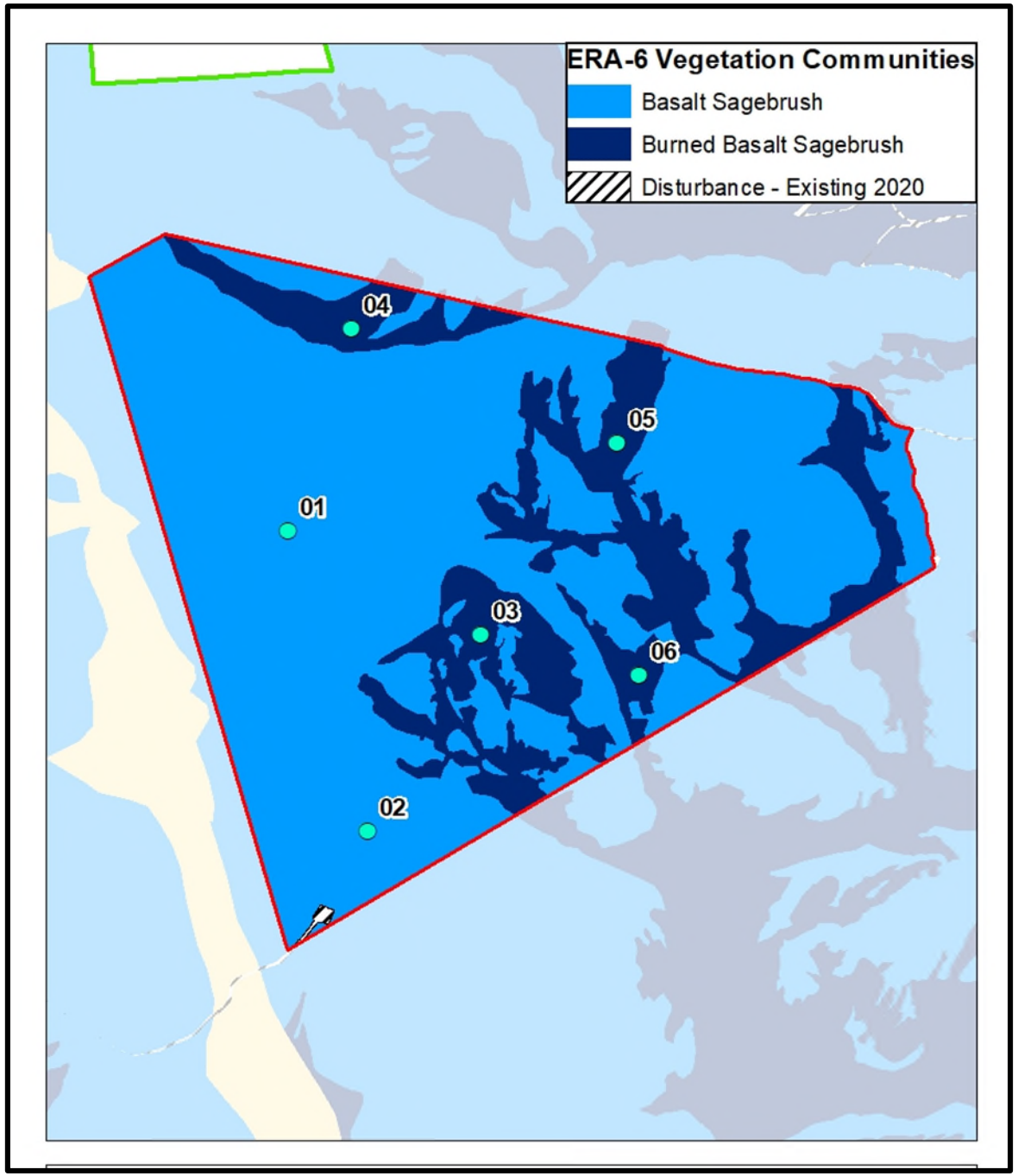
Outcomes

1. Greater Efficiency Gained

- Multiple points of data collected each visit = reduced # of visits
- Pairing a botanist with a wildlife specialist (and/or soil scientist) reduces data gaps.
- Small amounts of supplemental data can be collected to bolster data sets with negligible added hours.



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Outcomes

2. **Presence/absence wildlife patterns were more predictable**
    - Small mammal diversity correlated well to soil type + cheatgrass cover + sagebrush species and spacing

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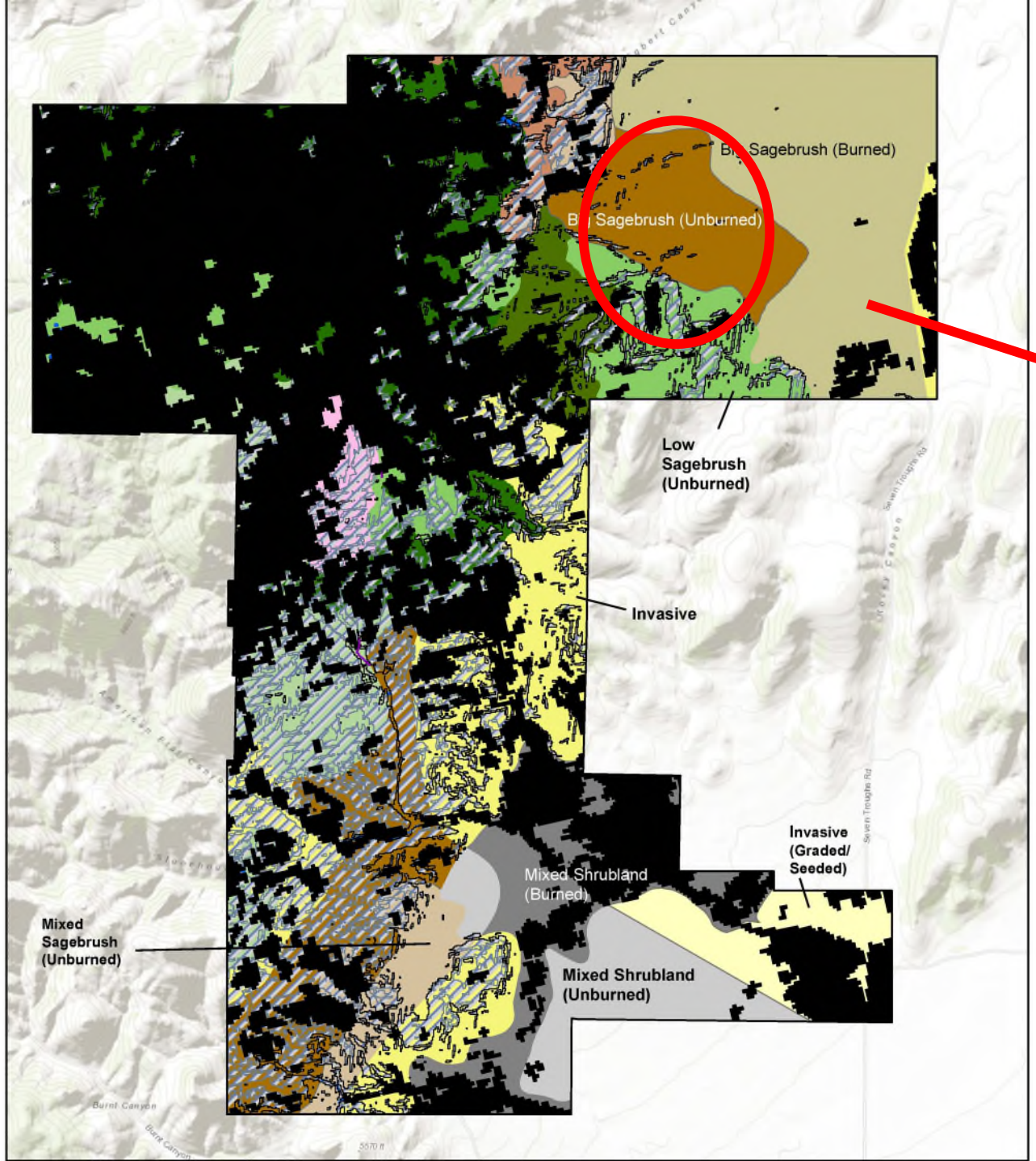

Extent of Burrowing Owl Habitat

- Soil Unit
- Fire
- Slope & elevation
- Understory cover
- Sagebrush density

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Outcomes

3. Impact assessments for individual resources are cohesive

- Wildlife habitat loss = vegetation cover loss = habitats reclaimed and/or mitigated
- Quality of habitat is the same across resource evaluations
- Same terminology, same GIS data

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Outcomes

4. Streamlines future expansion needs

- Polygons are based on environmental features and extend beyond the project area
- Reduces additional field data collection requirements, particularly for reclamation planning.

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Questions?