MONITORING COUGAR SPATIAL ECOLOGY
ACROSS A WILDLAND-URBAN INTERFACE

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INTRODUCTION

The Cache County is expected to double in population size in the next thirty years. The cougar species (Puma concolor) is significantly threatened by human expansion and development because of its large home range and low population numbers.

RESEARCH OBJECTIVES

1. Apply noninvasive study methods to monitor the spatial ecology of P. concolor and their prey items (Odocoileus hemionus) in relation to human activity along the wildland-urban interface of the southern Bear River Range.

2. Engage the public in volunteer efforts to assist in data collection and promote ecological education.
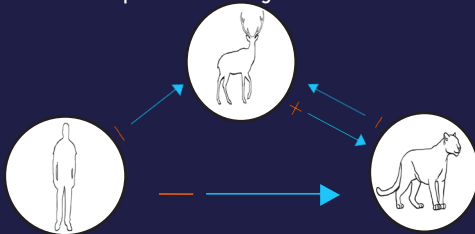

Fig 1. Our predicted interspecific interaction model of the widlland and urban areas of the southern Bear River Range.

METHODS

- Non-invasive trail camera survey method
- Each transect surveyed during two 4-week periods at different times of year
- Wildland survey cameras placed at stations 1km apart along 16km and 8km transects within canyons
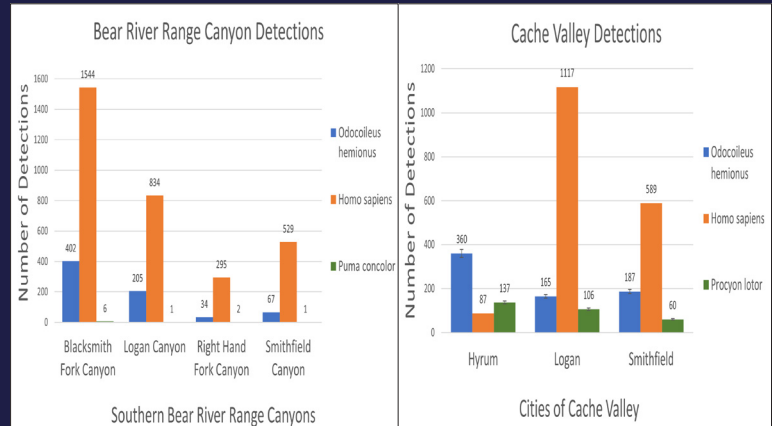- 8 urban survey cameras in three cities of Cache Valley

RESULTS

Fig. 1. (Left) Comparative analysis of detections in canyon camera stations shows positive correlation between P. concolor and O. hemionus. (Right) At city camera stations, O. hemionus. is negatively correlated with Homo sapiens presence (humans, vehicle, bicycle detections).

NEXT STEPS

We will analyse our data using a multispecies occupancy model. The data will be subjected to a principal component analysis, which analyzes the colinearity of multiple variables to determine which are the best predictors of P. concolor presence. We will run this analysis with variables including human presence, O. hemionus presence, landscape type, and vegetation cover. Additional PCA will be run using GIS-extracted data, including elevation and distance from roads.