STATUS OF PIKA
POPULATIONS IN THE
BODIE HILLS

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Bodie Hills Survey

Three Regions

- **Bodie SHP**
  - Anthropogenic patches
- **New York Hill**
  - Anthropogenic patches
- **Bodie Hills proper**
  - Natural patches
Overall Decline in Patch Occupancy at Bodie SHP

Patch Occupancy = -0.645*Year + 1330

R² = 0.50, F₁,₁₉ = 19.11, P = 0.00033
“Currently every mine dump or rock pile, regardless of size, shape, or height, contains therein one or more pikas, or family units, providing only that the rubble is of sufficient size to permit them a thorofare [sic] into and throughout the dump. Only the relatively few dumps which consist only of slag are completely without these mammals. Thus, hundreds, perhaps even thousands, of pikas, now inhabit the Bodie mine field.”

JH Severaid Locations

- n = 28 identifiable sites
- 1948 & 1949 patch occupancy at 100%
- 2010 patch occupancy at 57%
New York Hill Patches

2,513 - 2,618 m
New York Hill Patches

\[ n = 17 \text{ patches} \]

41% Occupied

Trend?

2,513 – 2,618 m
Bodie Hills Patches

2,209 – 3,112 m
Bodie Hills Proper

n = 51 patches

0% Occupied
Bodie Hills Survey

Three Regions

- Bodie SHP – 41% occupied but in decline
- New York Hill – 41% occupied (trend?)
- Bodie Hills proper – 0% occupied
Dating Bodie Hills Patch Occupancy

- Last known occupied year estimated as in Nichols 2010
- Estimates based on mean pellet diameters by latrine
- Last known occupied year = most recent latrine on patch
- \( n = 260 \) latrines, \( 10,518 \) pellets
Bodie SHP & NY Hill curves are statistically equivalent ($P = 0.68$)
Bodie Hills curve is significantly different from Bodie SHP & NY Hill curves ($P << 0.001$)
Status of Bodie Hills Pikas

• Bodie Hills pika populations suffered a region-wide collapse in the late 20th century

• Two declining relict populations survive on vulnerable anthropogenic sites:
  – New York Hill – Unprotected
  – Bodie SHP – “Protected” not PROTECTED
Research in Progress

- What factors influence persistence and extirpation on Bodie Hills patches?

- Assess Bodie SHP patch microclimates with temperature data loggers

- Compare genetic structure of Bodie SHP and New York Hill populations

- Request for Fecal Help – generalized pellet aging model