

STATUS OF PIKA POPULATIONS IN THE BODIE HILLS

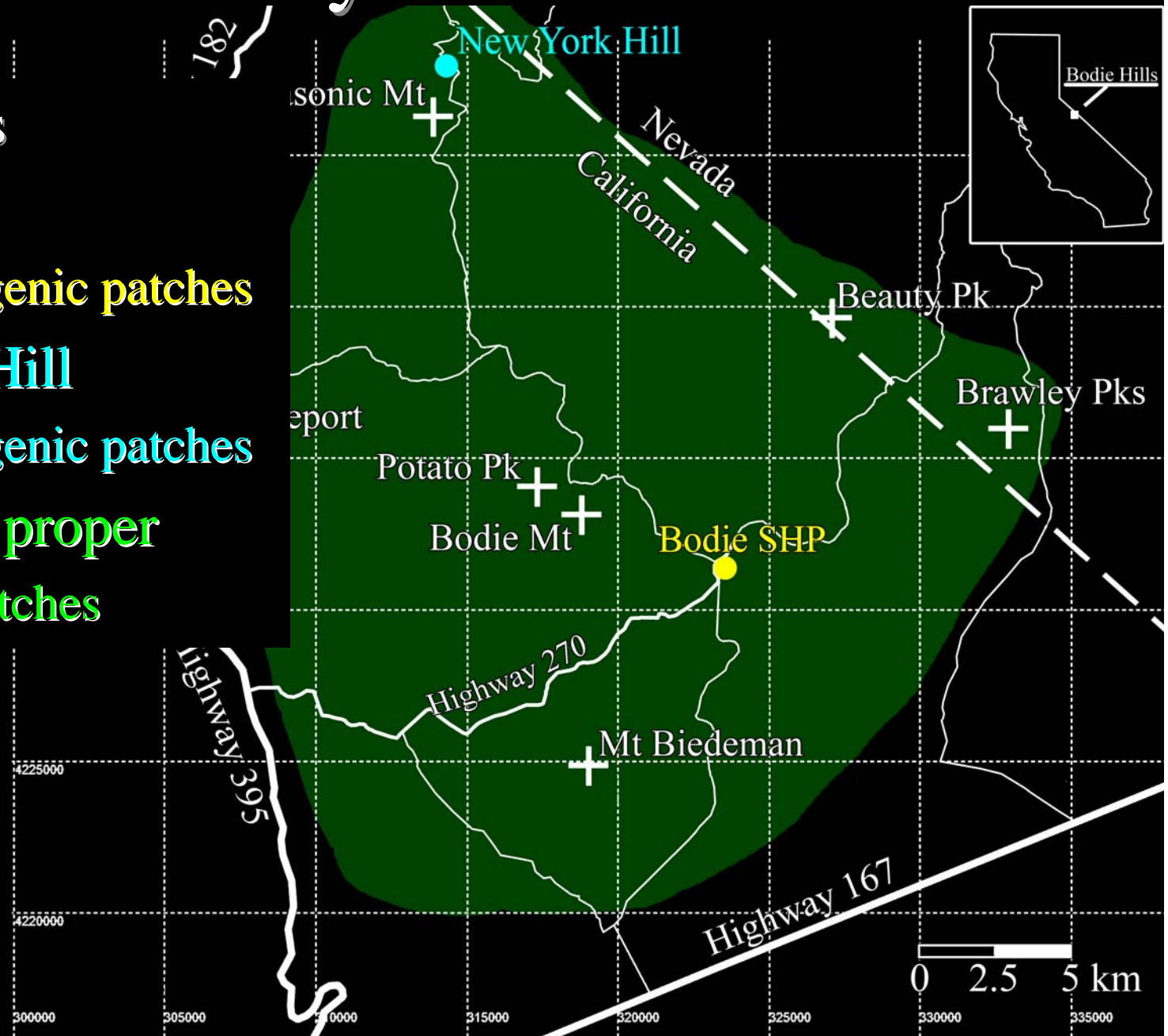
Lyle Nichols
Department of Life Sciences
Santa Monica College



Bodie Hills Survey

Three Regions

- **Bodie SHP**
 - Anthropogenic patches
- **New York Hill**
 - Anthropogenic patches
- **Bodie Hills proper**
 - Natural patches

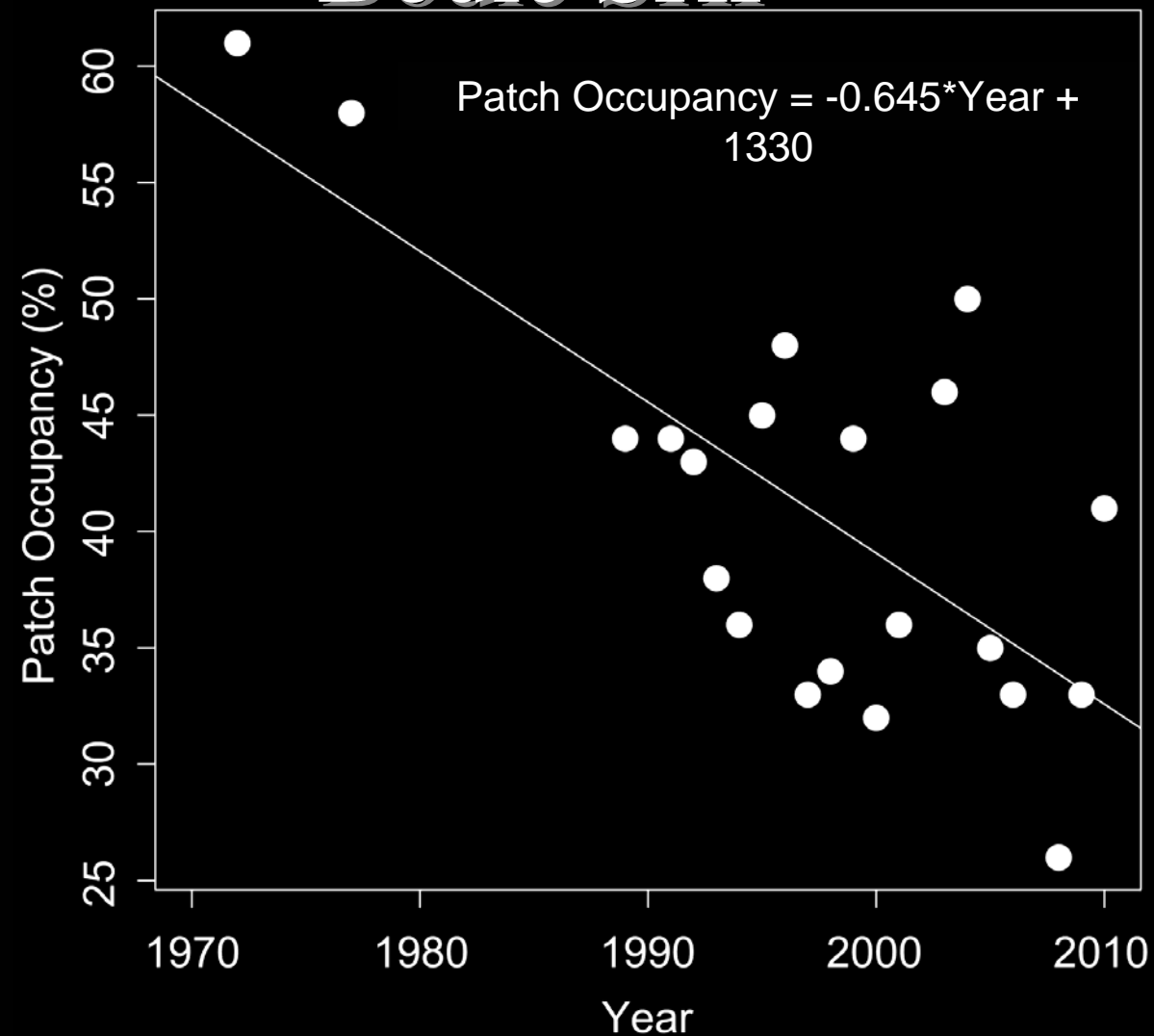


Bodie SHP Patches



2,530 – 2,717 m

Overall Decline in Patch Occupancy at Bodie SHP



$$R^2 = 0.50, F_{1,19} = 19.11, P = 0.00033$$

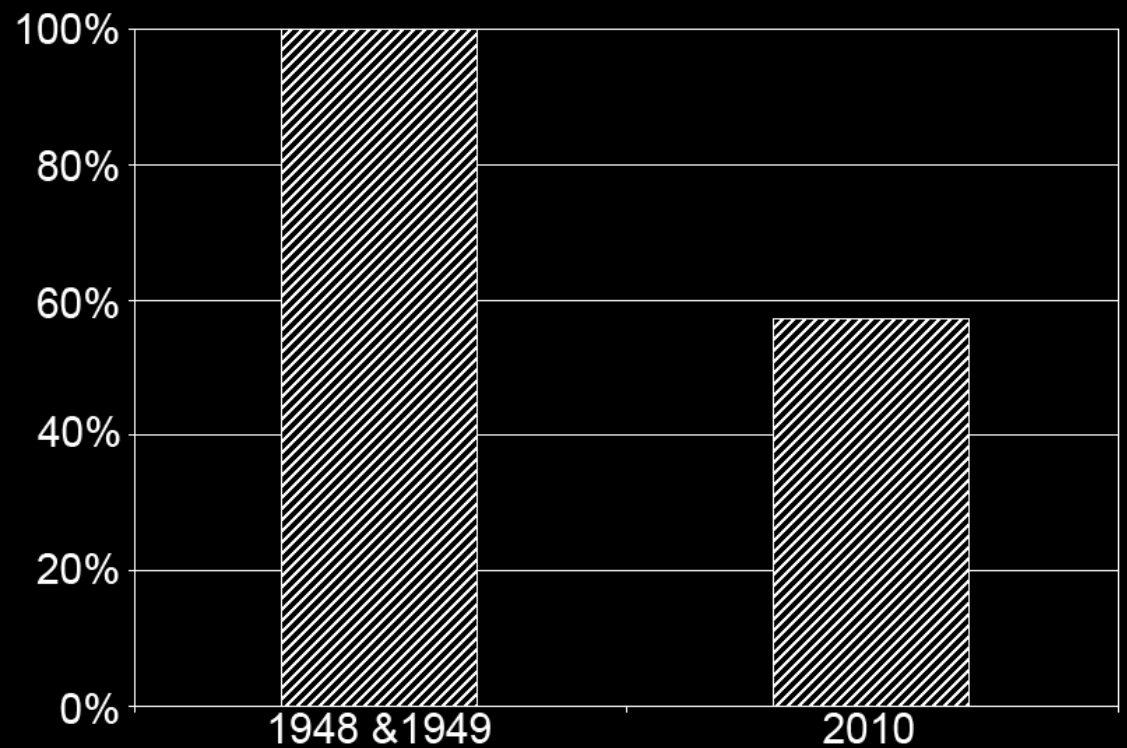
“Currently every mine dump or rock pile, regardless of size, shape, or height, contains therein one or more pikas, or family units, providing only that the rubble is of sufficient size to permit them a thorofare [sic] into and throughout the dump. Only the relatively few dumps which consist only of slag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

J. H. Severaid – First
Pika Researcher at Bodie

Severaid, JH. 1955. The Natural History of the Pikas (Mammalian genus *Ochotona*). Ph.D. Dissertation, University of California at Berkeley, CA.

JH Severaid Locations

- $n = 28$ identifiable sites
- 1948 & 1949 patch occupancy at 100%
- 2010 patch occupancy at 57%



New York Hill



New York Hill Patches



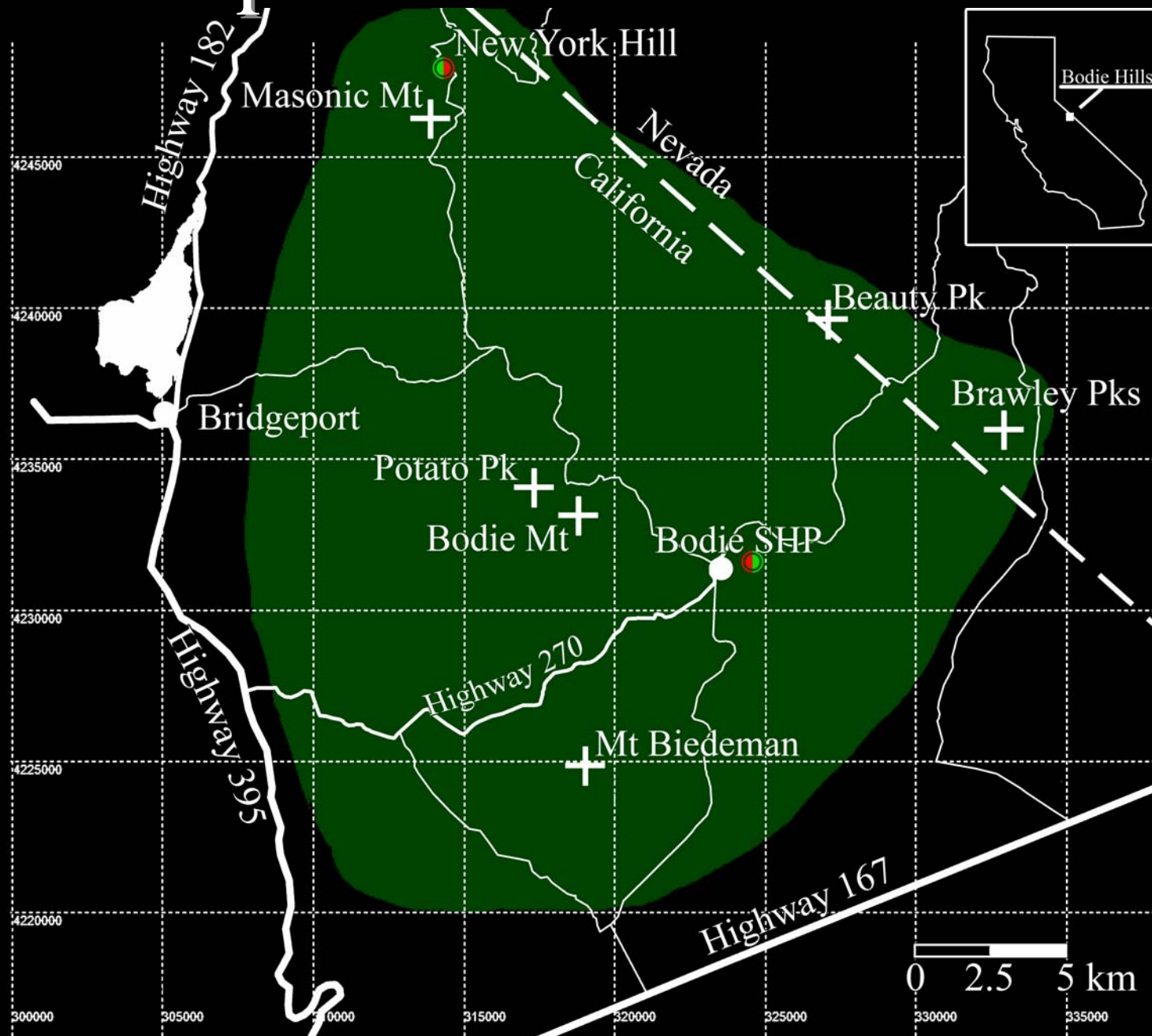
2,513 – 2,618 m

New York Hill Patches

n = 17 patches
41% Occupied
Trend?

2,513 – 2,618 m

Bodie Hills Proper



Bodie Hills Patches



2,209 – 3,112 m

Bodie Hills Patches



2,209 – 3,112 m

Bodie Hills Proper

n = 51 patches

0% Occupied

Bodie Hills Survey

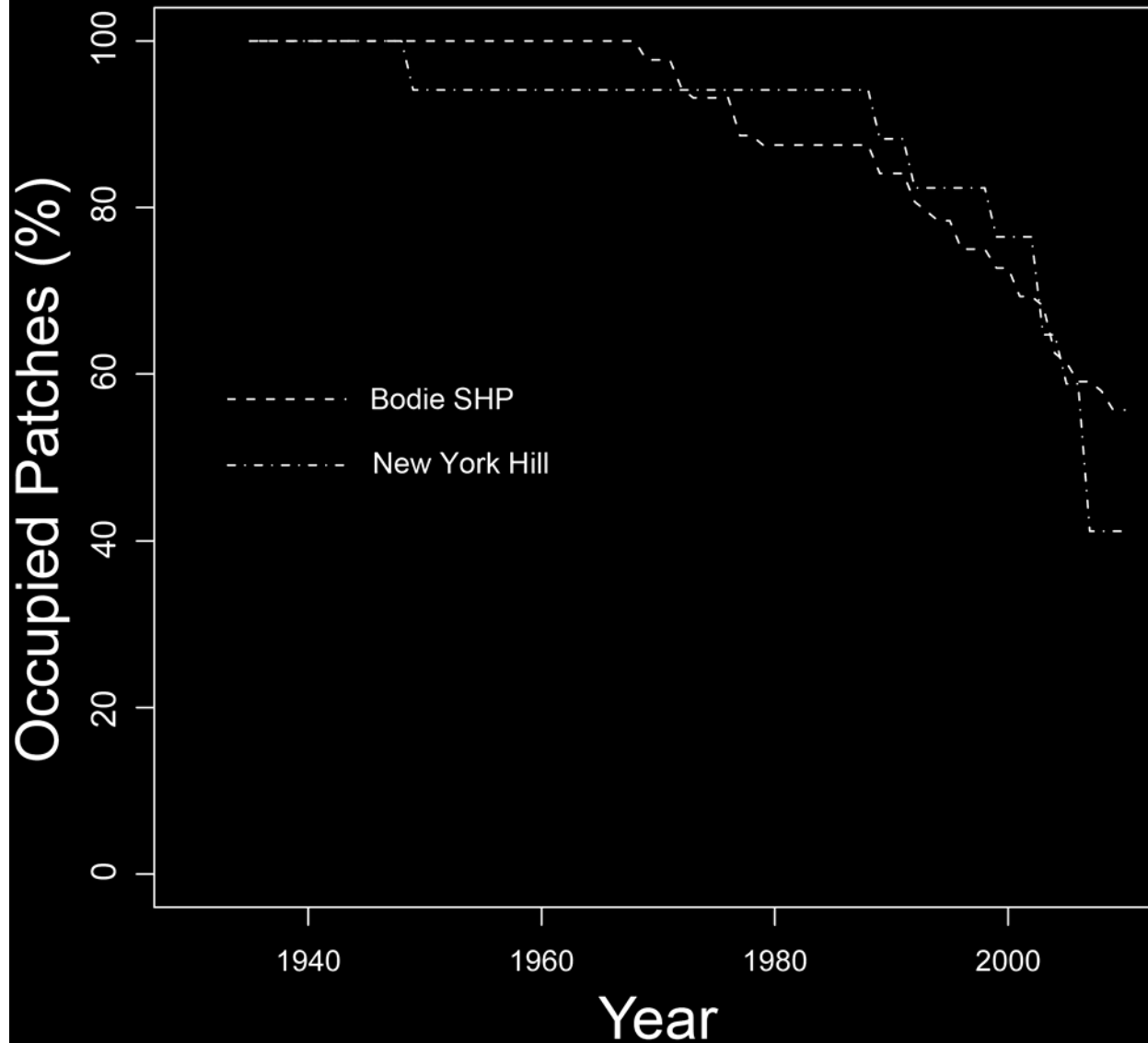
Three Regions

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

Dating Bodie Hills Patch Occupancy

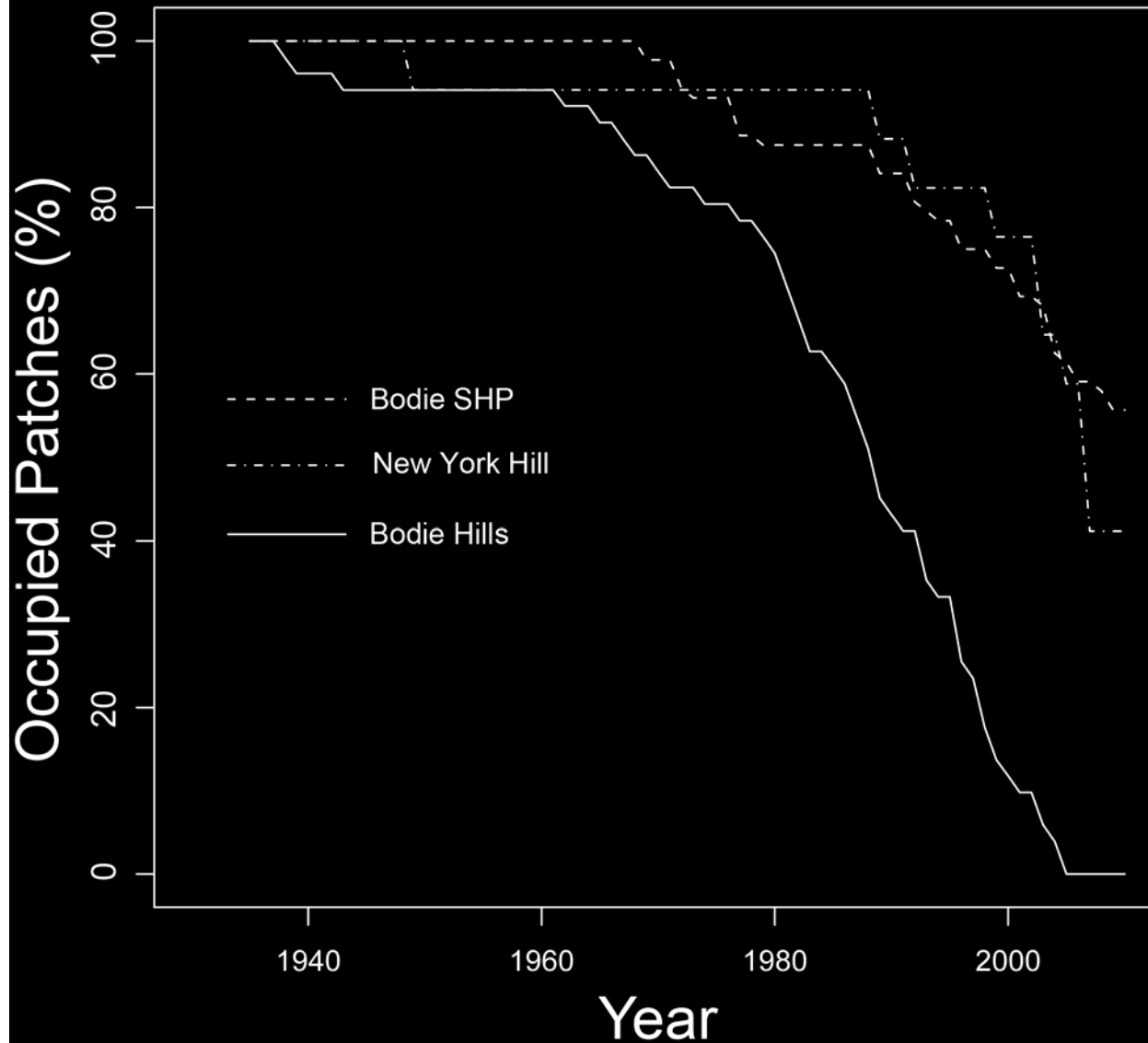
- Last known occupied year estimated as in Nichols 2010
- Estimates based on mean pellet diameters by latrine
- Last known occupied year = most recent latrine on patch
- $n = 260$ latrines, 10,518 pellets

Dating Patch Occupancy



Bodie SHP & NY Hill curves
are statistically equivalent (P
 $= 0.68$)

Dating Patch Occupancy



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