

## SNAMP Fisher Study: *Status Indicators*



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### A Management System Has:

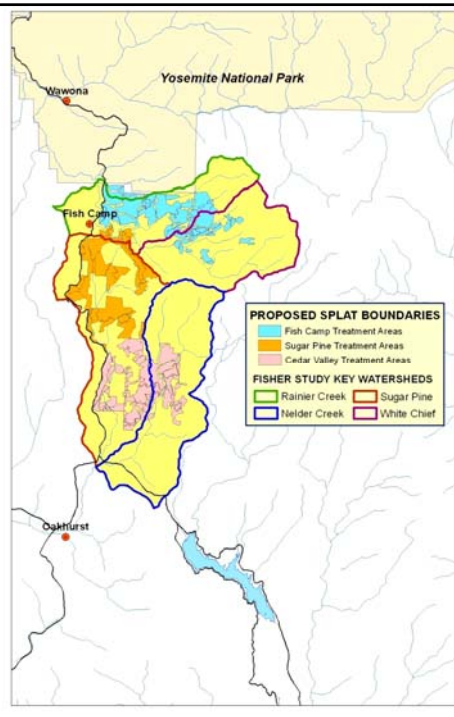
- A decision maker
- Explicit goals
- An ecosystem (including people)
- The ability to manipulate the ecosystem
- The capacity to monitor ***indicators*** of ecosystem response to manipulation

## Indicators for Fisher Management

- **Occupancy** in key watersheds
- Adult female **survival** rate
- **Population** size in key watersheds

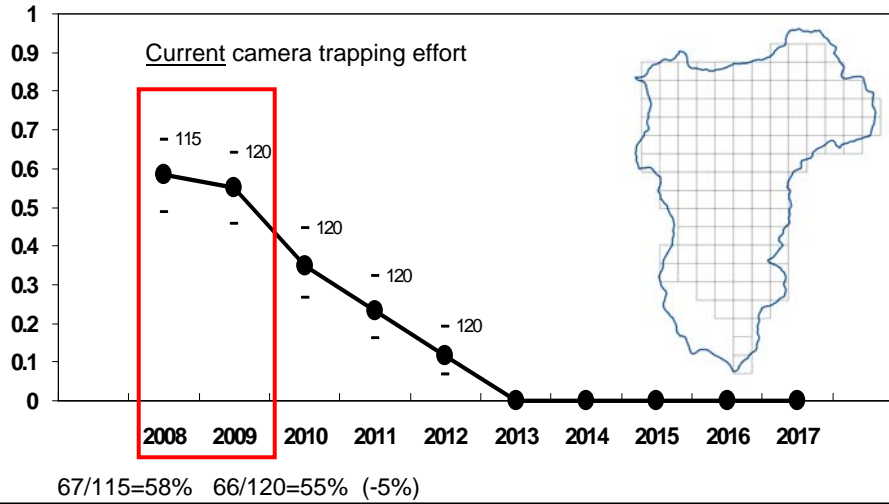
## Sugar Pine Key Watersheds

There are 120 sample cells (1km<sup>2</sup>) within the key watersheds of the Sugar Pine Study Area



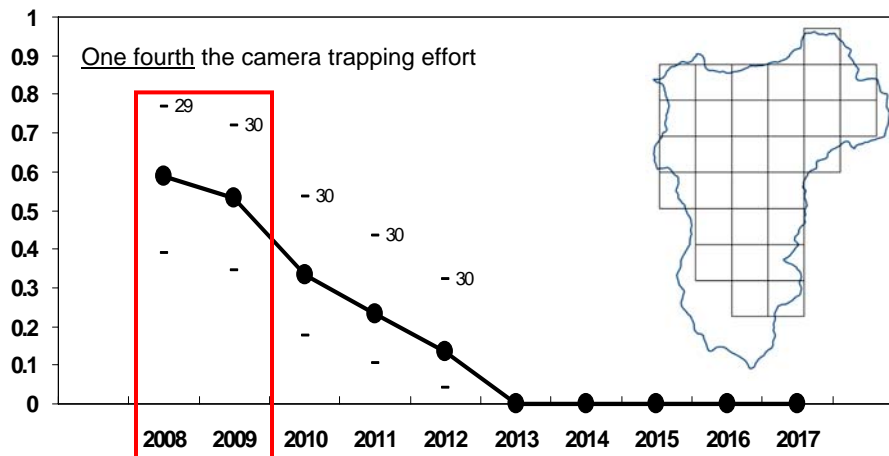
## Indicators for Fisher Management

OCCURRENCE WITH 95% CONFIDENCE LIMITS AND N



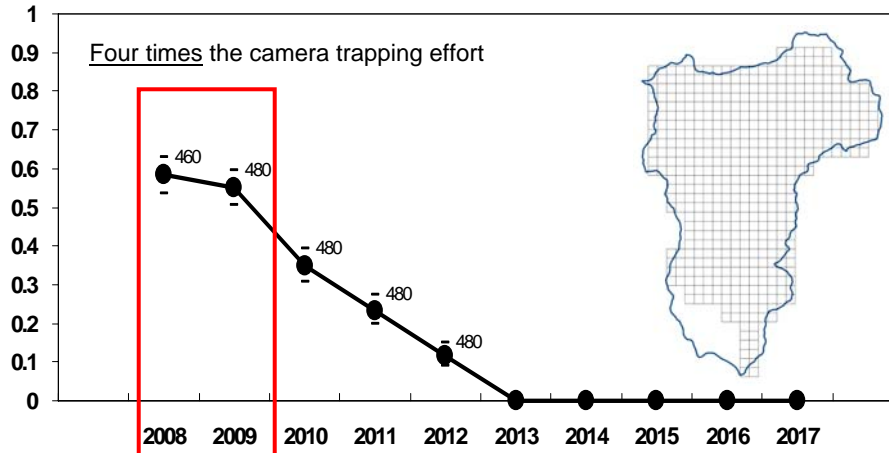
## Indicators for Fisher Management

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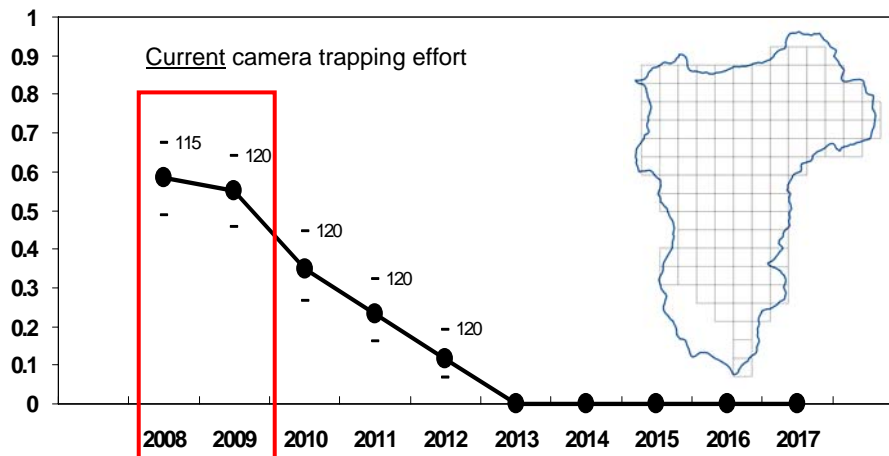
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# Occupancy Modeling

- 1,1,1,1
  - 1,1,1,1
  - 1,1,1,1
  - 1,1,1,1
  - 1,1,1,1
  - 1,1,1,1
- 1,0,1,0
  - 1,1,0,0
  - 0,1,0,1
  - 0,0,1,1
  - 0,1,1,0
  - 1,0,0,1

100% Detectability

~50% Detectability

Raw Occ./D = true

Occupancy

MacKenzie et al. 2006. Occupancy Estimation and Modeling.

## Indicators for Fisher Management

### Survival (daily aerial radio-tracking)

**Year 1:** 67%      **Year 2:** 59%      **Year 3:** -25%

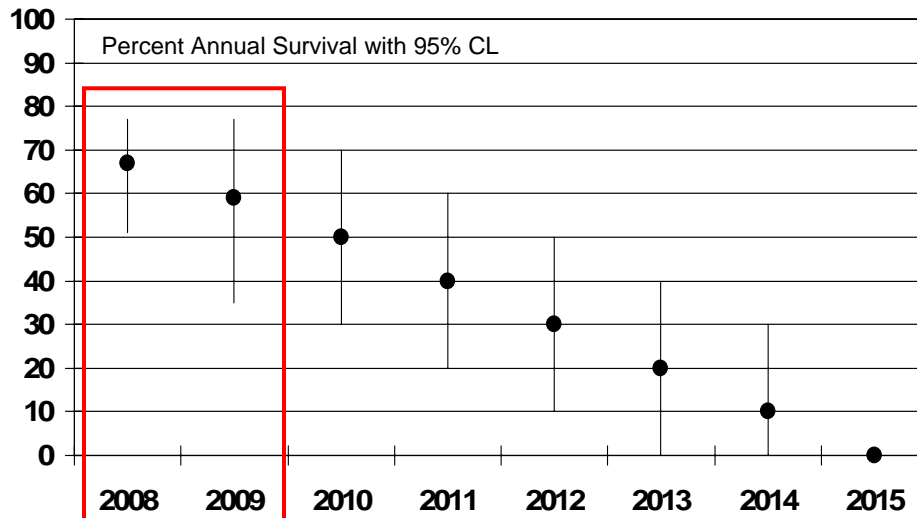
(-12%)

-50%

-75%

-100%

## Adult Survival Rate



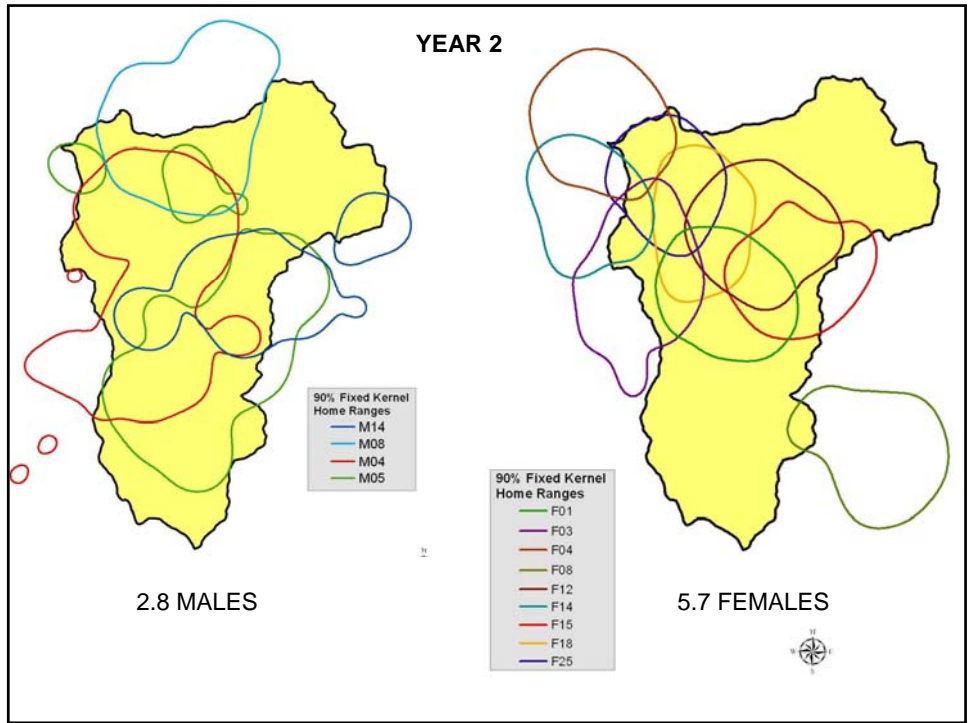
## Indicators for Fisher Management

### Population (mark-resight modeling and home range mapping)

**Year 1:** Insufficient Data

**Year 2:** 2.8 Males (4)  
5.7 Females (9)  
**8.5 Adults**

**Year 3:** -25%  
-50%  
-75%  
-100%



**Questions or Comments?**

## Michael Soule Guidelines:

- **Population 5,000** – Get it on the radar screen (eg Species of Concern)
- **Population 500** – Begin active management to increase numbers
- **Population 50** – Pull out all the stops to save the species (eg captive breeding)