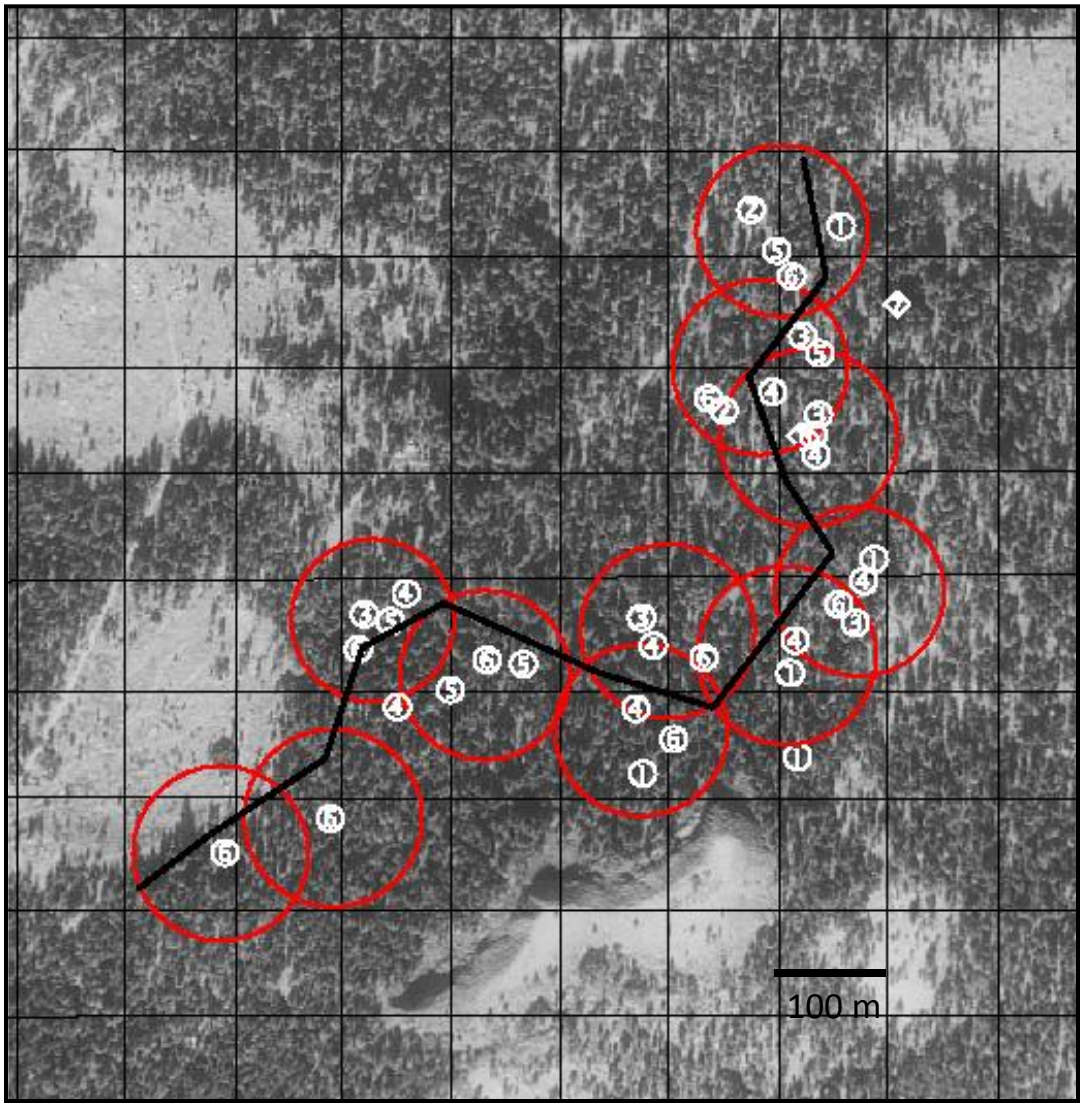
First Repeat Census of Sierra Sooty Grouse

James D. Bland



Sierra Sooty Grouse

(*Dendragapus fuliginosus sierrae)*

Sierra Nevada endemic ?

Usually difficult to detect

Cryptic

Quiet

Usually lives in the forest canopy

In spring, males "hoot" in tree canopy

Useful for counting purposes

Peak hooting: mid-April to early-June

Audible 300-1000 m, throughout day

Males hoot in groups

- Not considered leks
  - No central arena
  - Close enough to hear each other

Few previous censuses, not helpful for methods or repeating

Hoffmann (1956): repeat census; 6 males

Bendell & Zwickel (1984): density index across N. America

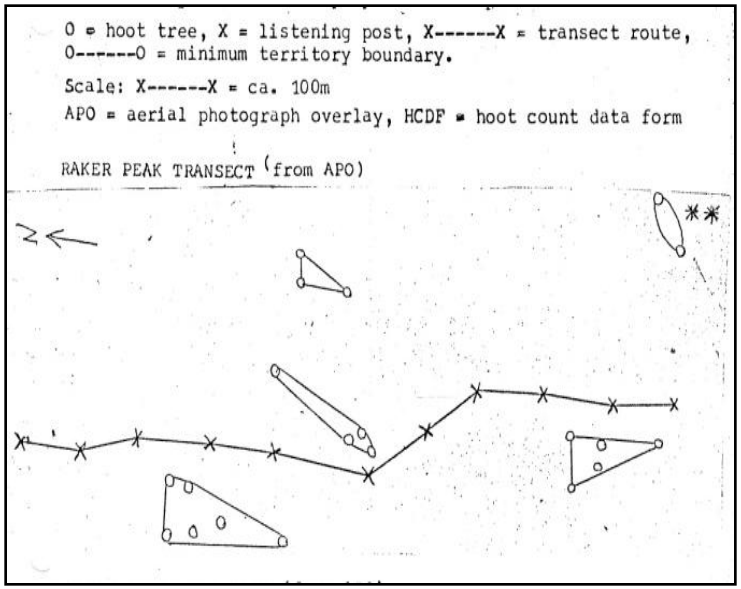
Bland (1993): within hooting group densities

Credible & efficient assessment methods are needed

Agencies mandated to collect SOGR population data:

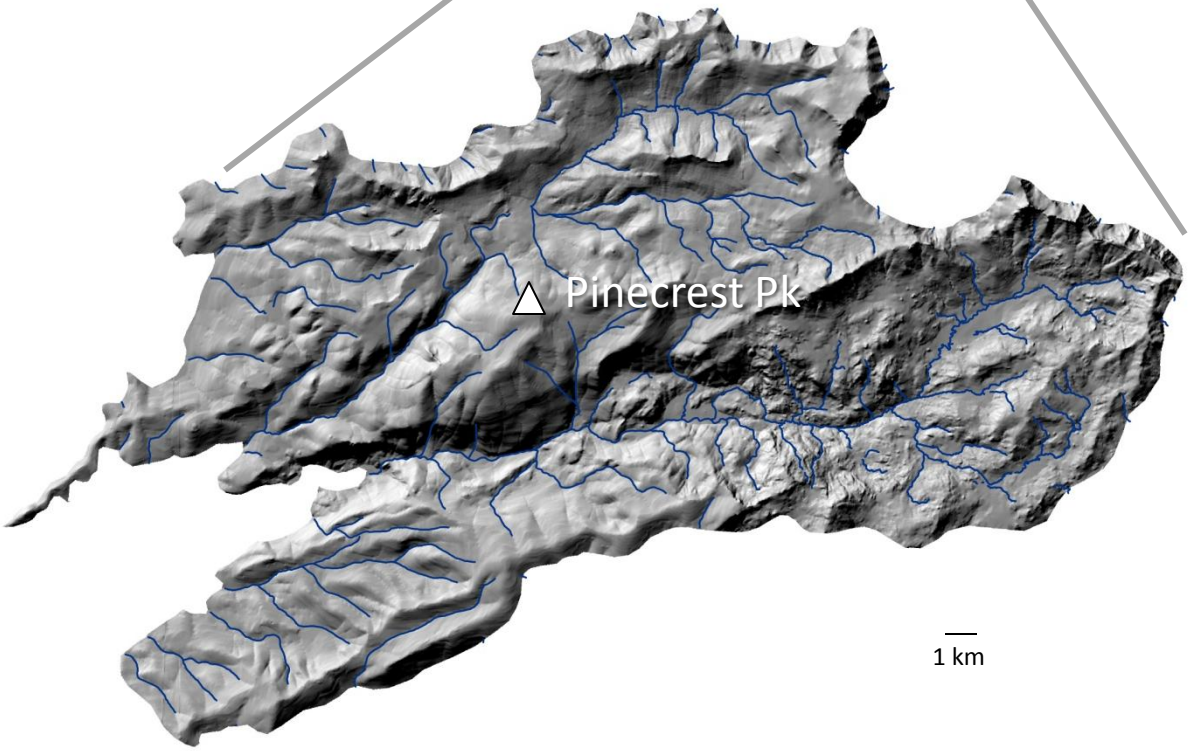
- DFG, hunting seasons and limits
- USFS, Management Indicator Species monitoring

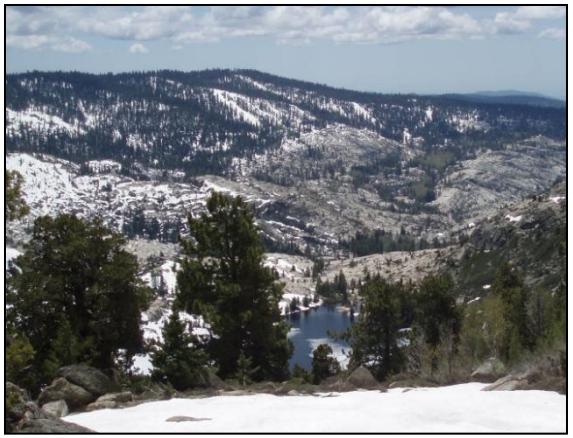
1992 spot map diagram



Pinecrest Study Area

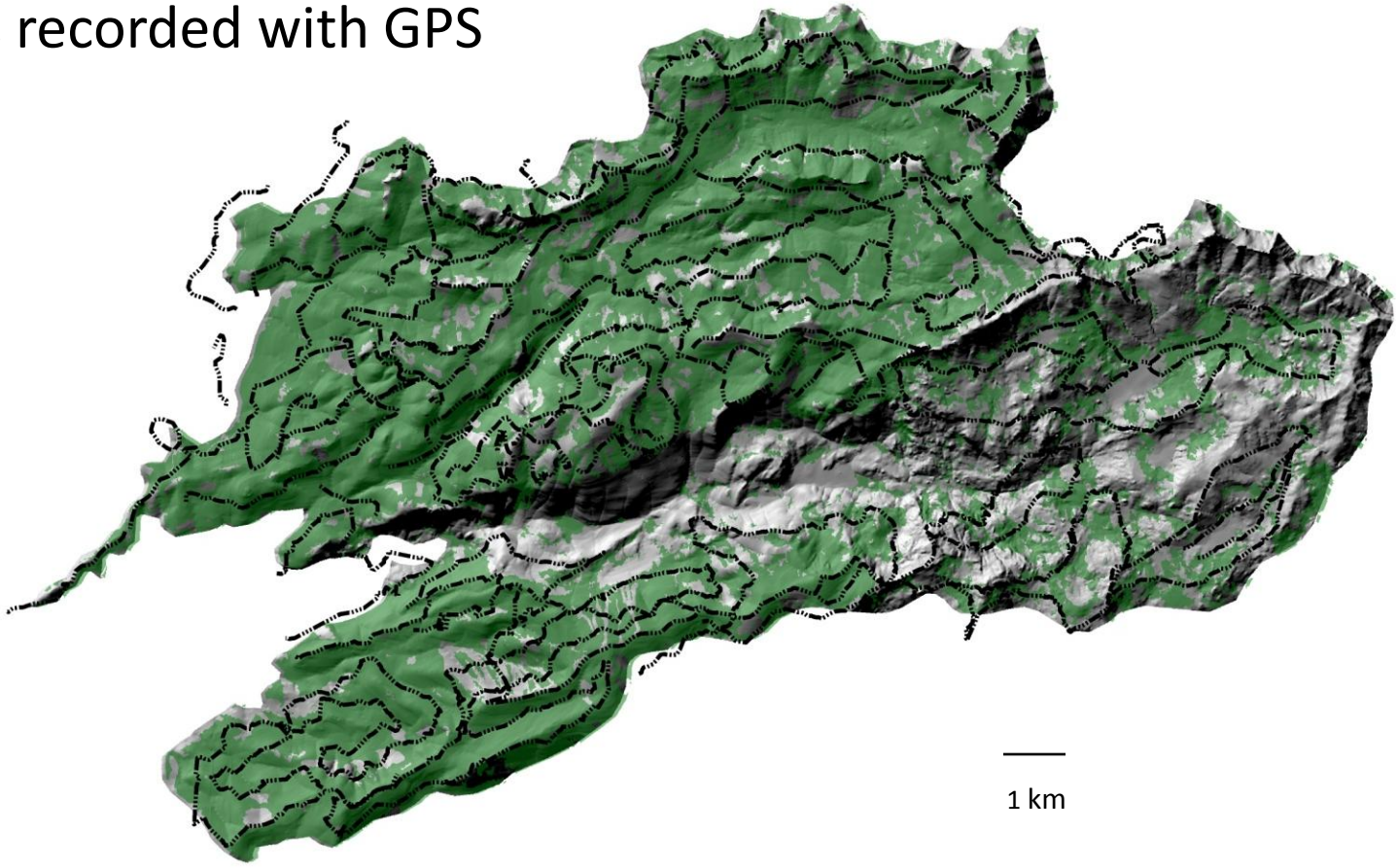
Stanislaus National Forest
167 km^2
Elevation: 1775 – 2800 m





Landscape-scale surveys (2006-2009)

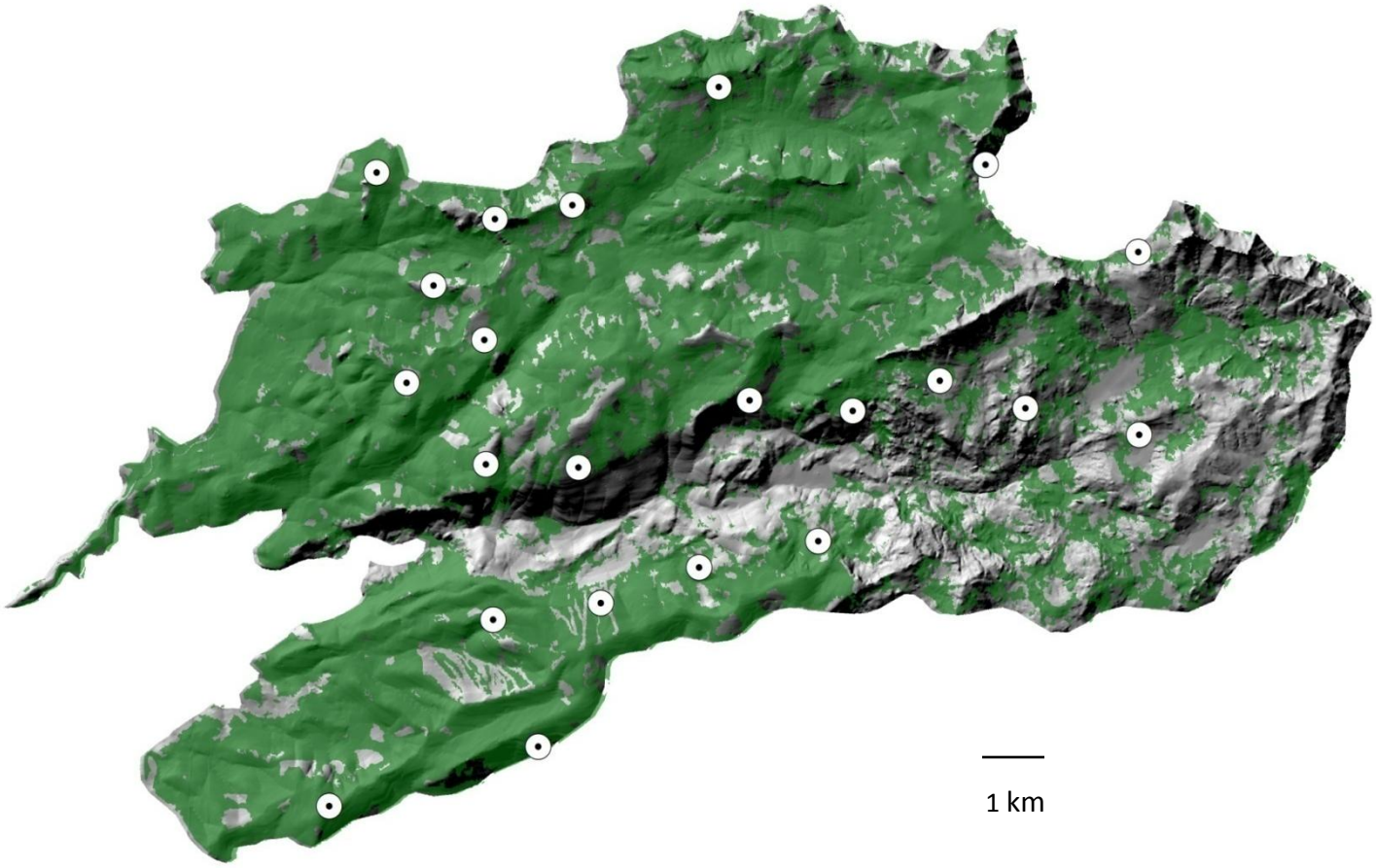
500 km (310 mi) of survey tracks, on foot
Forested areas
~400-800 m spacing, on elevation contours
Female “cackle” every 300-500 m
Detections recorded with GPS



Landscape-scale survey results

22 hooting groups

Avg. distance between nearest-neighbor groups: 1937 m



Territory spot mapping (2009, 2011)

Establish census track for each hooting group

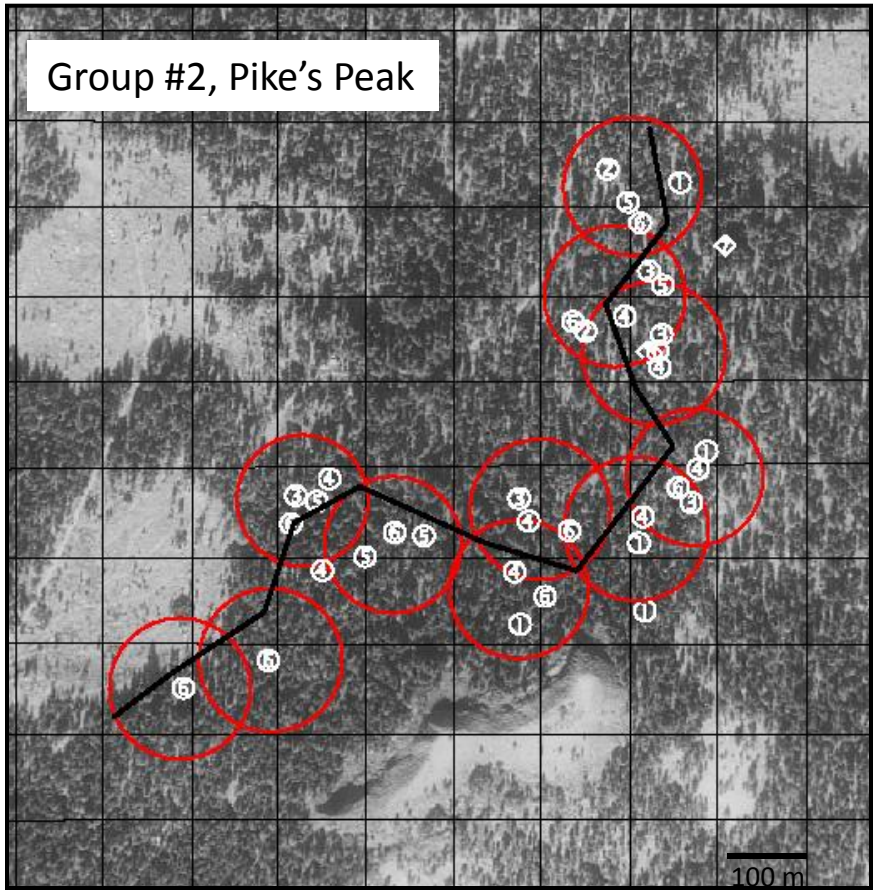
- Within ~50 m of each territory
  - Close enough to stimulate
  - Not so close to frighten

Walk track in both directions

Count displaying males

- Hooting or wing-flutter
- 1st pass excites entire group
  - Countersinging
- 2nd pass detects nearly all

If no hooting, 1-2 cackles/150 m

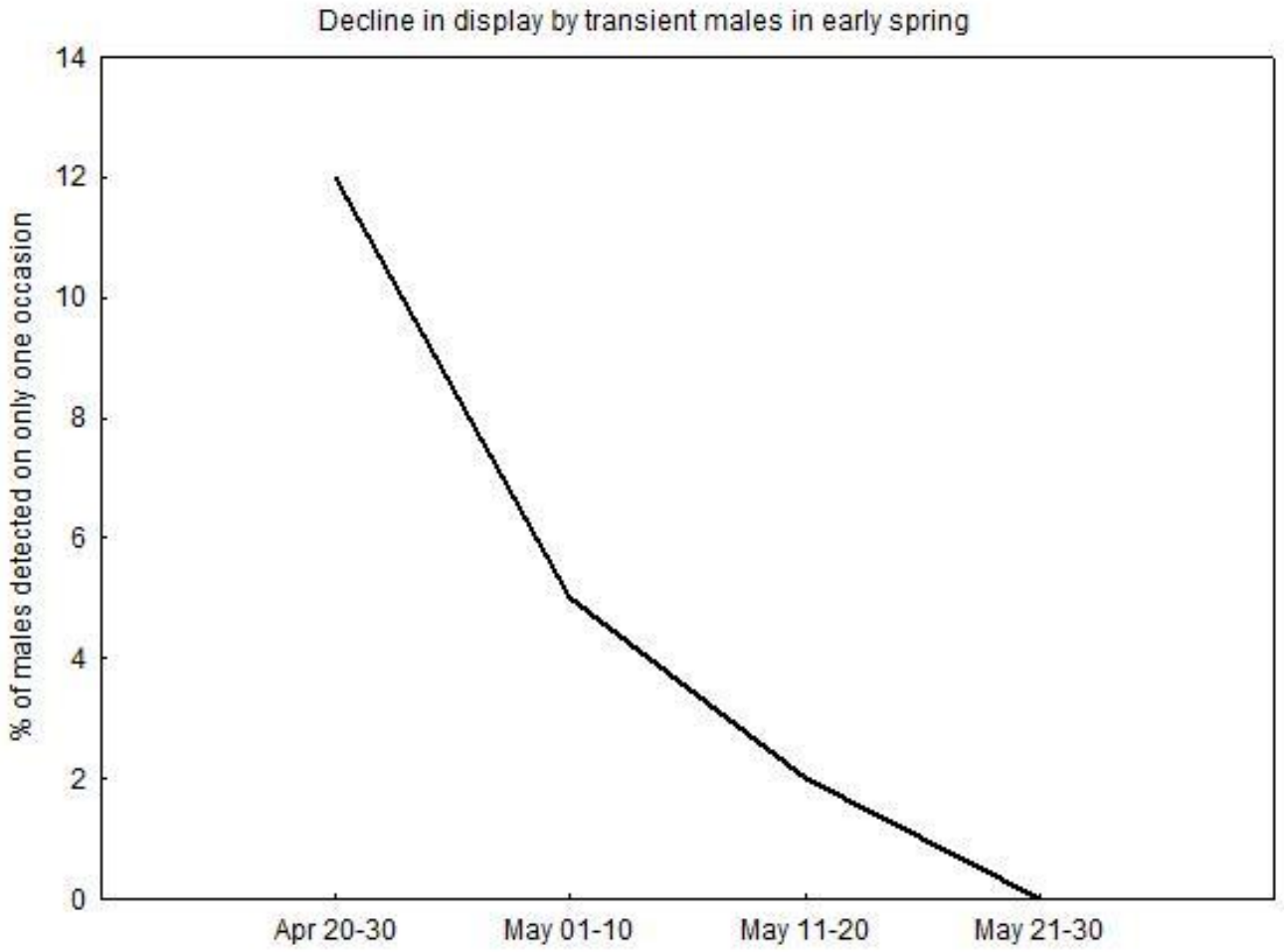


Census population is adult territorial males

Limit detection of non-territorial yearlings by beginning after May 1st

Some yearlings hoot in early spring

< 5% of detections after May 1



Repeat counts 3 times

Repeat interval: 7-10 days

Yearlings sing for a few days only

1-time detections are omitted from final count

End before 2nd week of June

Late morning temperatures start to exceed 70° F

Results of 2009 census

15 most-accessible groups

77 persistent territories

Avg. hooting group = 5.1 males (range = 2-10)

Avg. distance between nearest-neighbors = 211 m

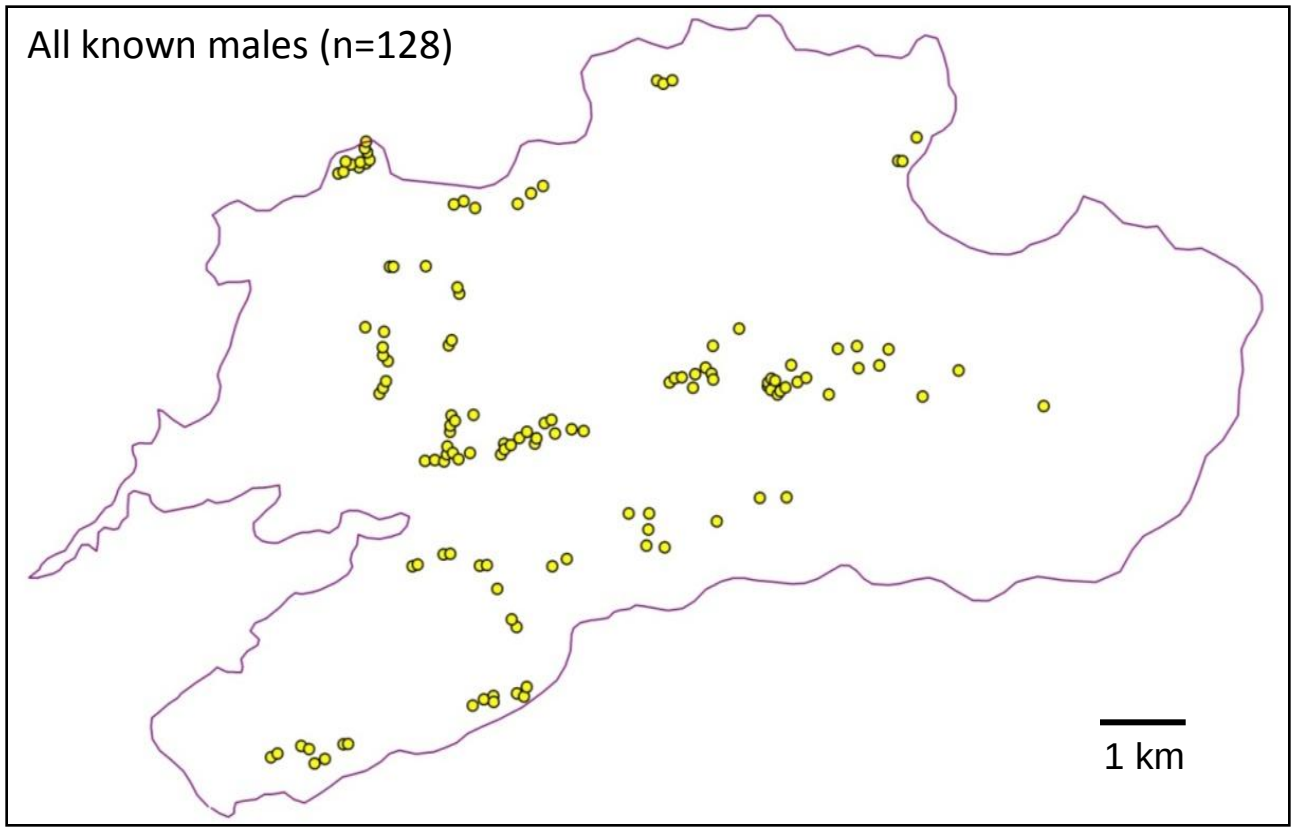
Results of 2009-11 repeat census

12 most-accessible groups

Males declined from 62 to 55 -- 11.3 % (~5.6 %/yr)

Overall density <1 male/km² (all 22 groups, entire study area)

Outside CA: ~10-20/km², >100/km² on Canadian coast



Discussion

~5.6 % decline is within stable range

Hines (1986): ≥60 % annual survival = stable or increasing

Sierra Nevada pops sparser, exhibit group breeding

Might be less resilient to small declines

2 yrs is too short to understand broader pop trend

Pinecrest population should be monitored for several years

The work should improve future censuses

Replicability: procedures standardized

Efficiency: just 3 well-timed counts

Accuracy: singing by yearlings identified and omitted

The work should also improve point count (pres-abs) monitoring

4 multispecies monitoring programs: USGS, PBRO, USFS, IBP

SOGR detection rates are too low to achieve program goals

Occupancy estimates have low statistical confidence

Naïve detection rates must be improved

Point counts should be optimized for SOGR

1) Time to coincide with singing by yearlings
2) Use female calls to stimulate quiet males

Field studies should be conducted to enhance point counts

Census grouse at point count locations, compare results

Test supplemental procedures (call-playback, area searches)

Studies to improve point counts for SOGR may begin in 2013

Support

California Department of Fish and Game

US Fish and Wildlife Service, State Wildlife Grants Program

US Forest Service, Management Indicator Species Program

US Forest Service, Dancers In The Forest Program

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