Testimony of Gary Ivey, PhD

On Sandhill Cranes

Photo: Lon Yarbrough

Research Associate, International Crane Foundation

A little history

Mid-1800s

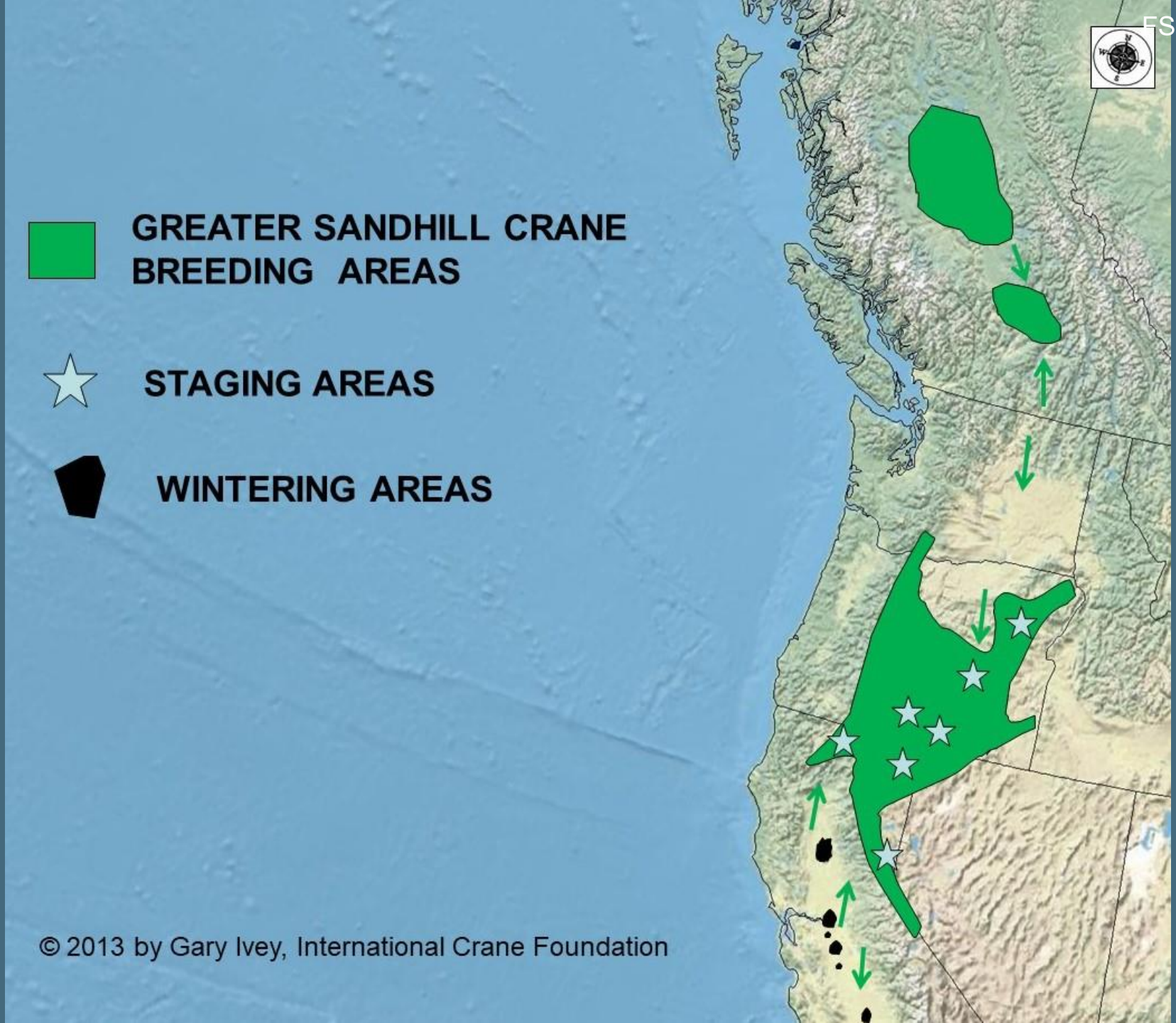
- nesting cranes were abundant in the Intermountain West

1880-1918

- populations drastically reduced

1940s

- only about 5 pairs left in California
- about 100 pairs in Oregon
- extinct in Washington State in 1941



New power lines needed to build and operate the twin tunnel project pose a take threat to Greater Sandhill Cranes

Greater Sandhill Crane

State “Fully Protected” and “Threatened” in California; mitigation for “take” is required in the HCP/NCCP context.


Photo: Lon Yarbrough

I was asked to:

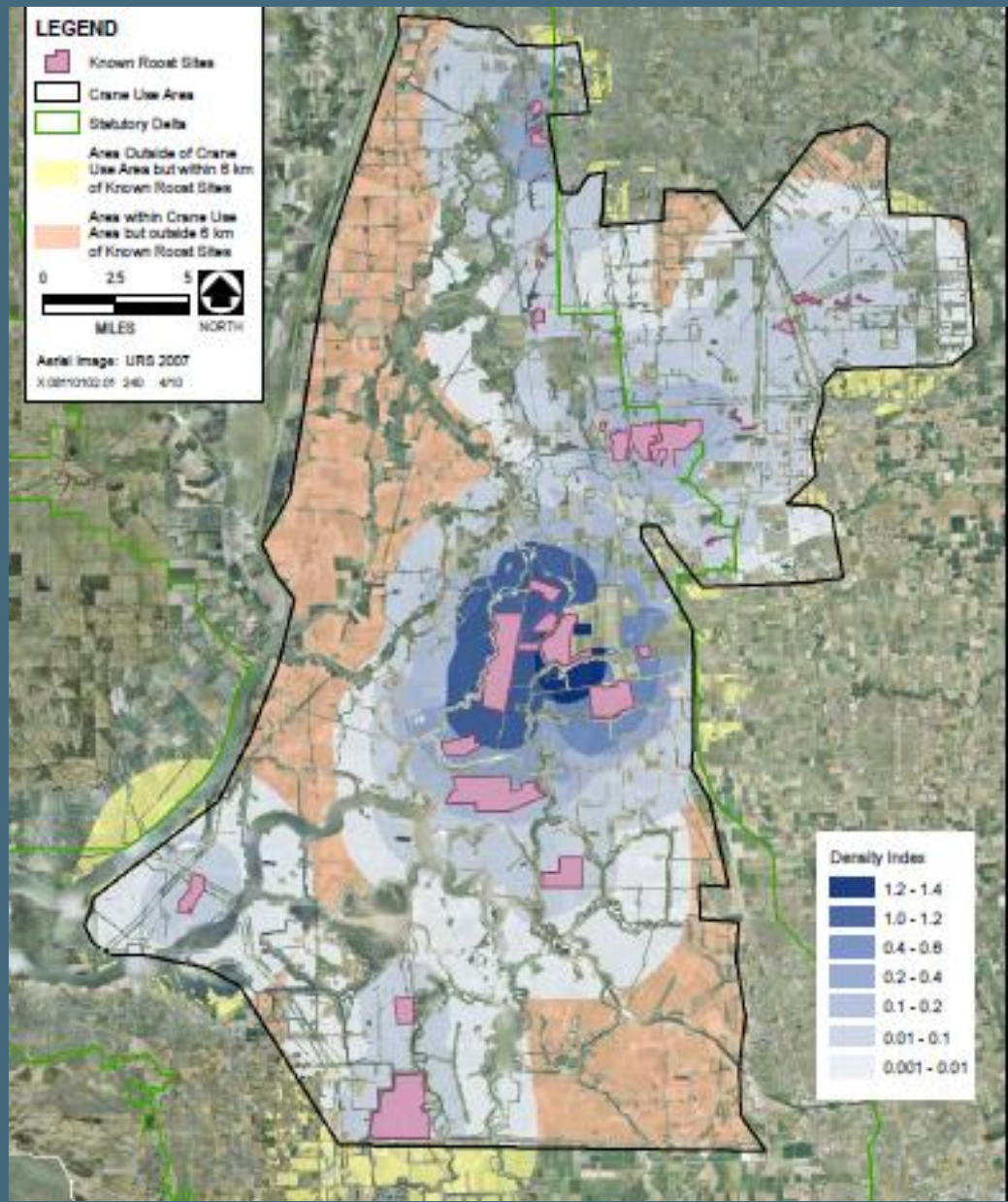
1. Estimate greater sandhill crane mortality from new power lines

2. Make recommendations to achieve “no net loss” to mitigate take of greater sandhill cranes from new lines.

Assessing impacts to Greater Sandhill Cranes

- Using GIS and data on numbers of Greaters at roost sites, plus our data on foraging flight distances I developed a model to predict relative numbers of Greaters.

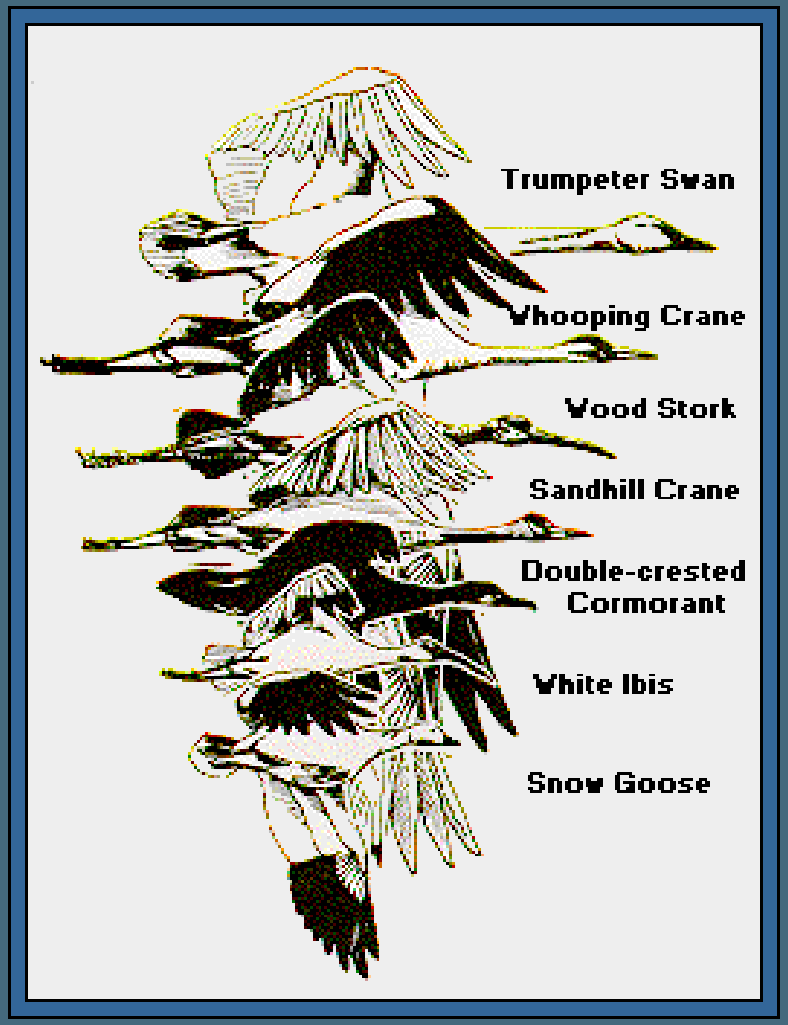
- Such models can be used to assess impacts of proposed developments and assist with conservation and recovery planning.



Why are cranes so vulnerable to collisions (strikes) with power lines?

Body size makes cranes vulnerable to power line strikes

Large birds are less maneuverable than small birds



Take-off incline contributes to powerline strikes

Flight altitude contributes to power line strikes

Flock size contributes to power line strikes

Behavior contributes to power line strikes.

Because they enter and exit roosts during poor light conditions and often at night.

Photo: Lon Yarbrough

Distance of lines from roost sites effects their vulnerability to strikes

- Lines near roosts are more likely to kill birds
- No crane “strikes” were found > 1.6 km from roost sites in Colorado (Brown et al. 1987).

Information needs for estimating power line mortality

- Knowledge of movement patterns and site use duration
- Estimate of flight distance probabilities
- Average bird population at each roost site
- Estimate of abundance by distance from site
- Estimate of number of power line crossings/day
- Estimate of mortalities/crossing

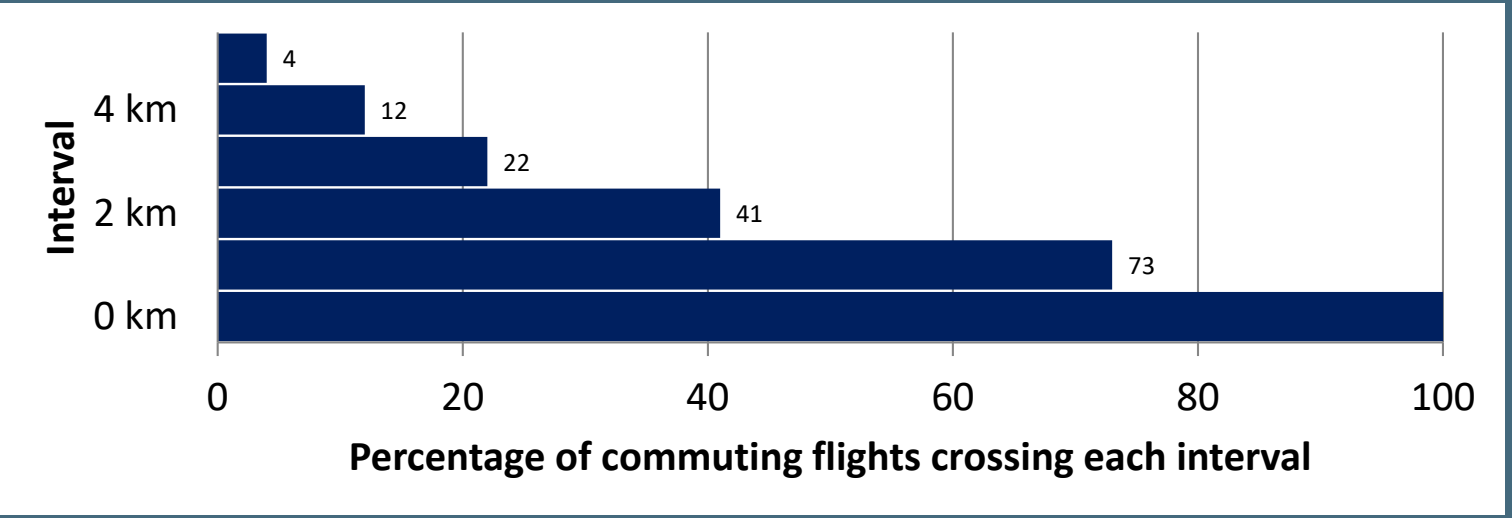
Crane daily movement patterns

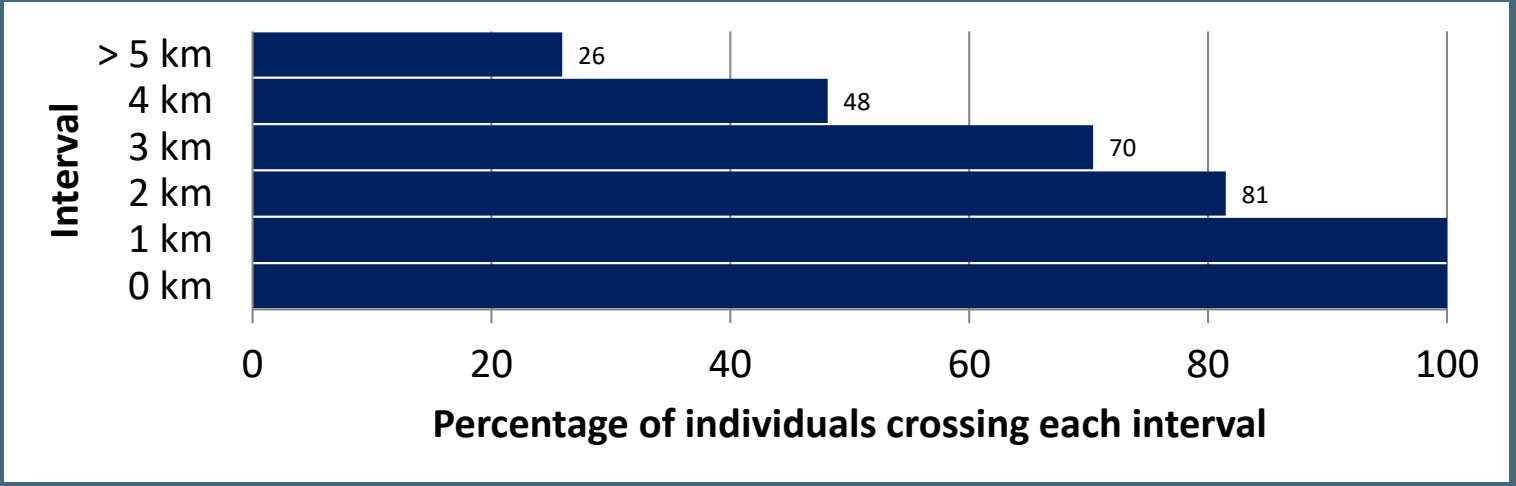
- Roost in water at night in large communal flocks.
- Feed in morning.
- Loaf mid-day (may return to roost sites).
- Resume feeding in late afternoon.
- Return to roost water late evening = > 4 flights/day

Site use duration

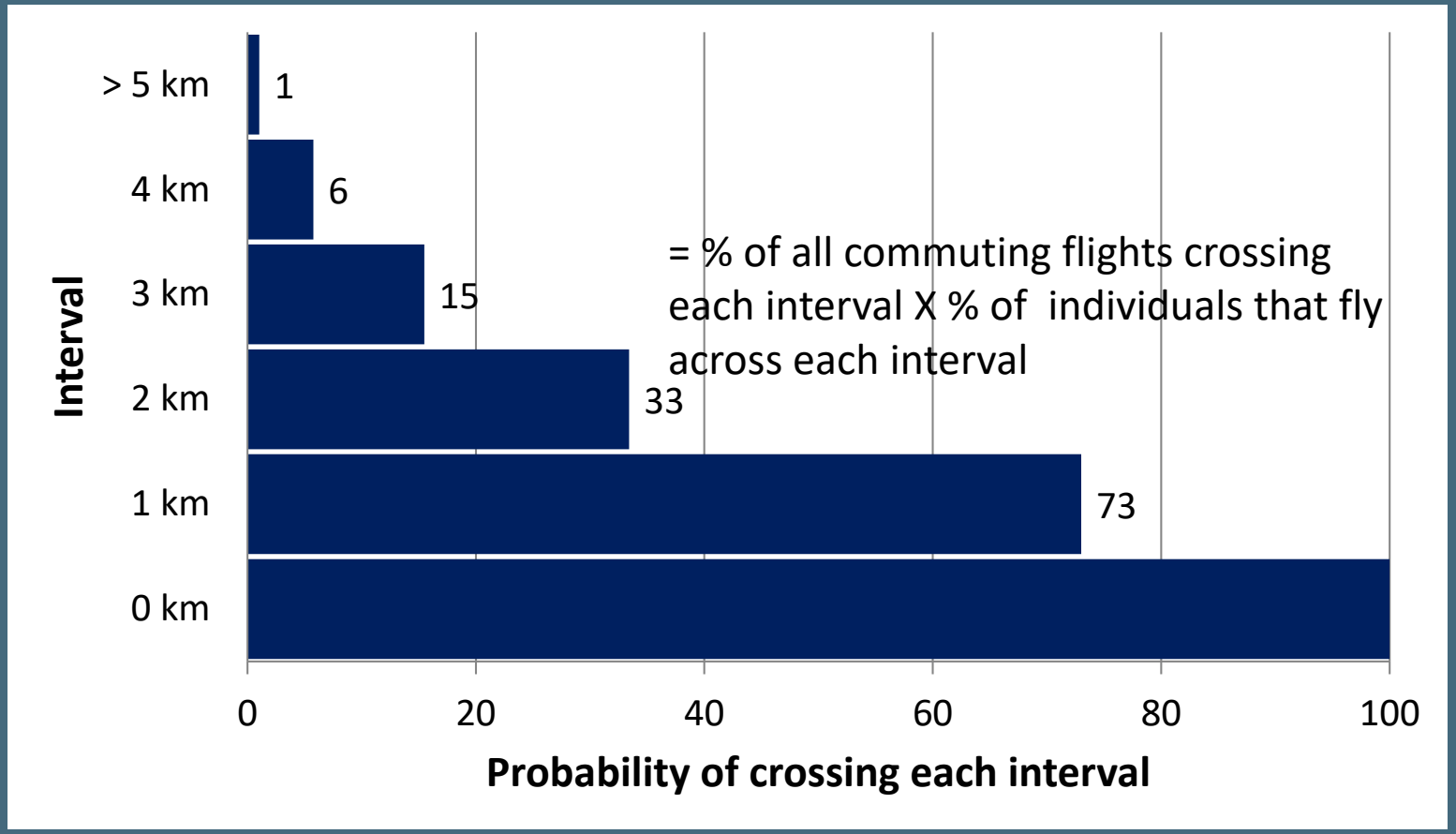
- Averaged 130 days for radio-marked greaters in our study

Movement patterns and flight distances of greater sandhill cranes

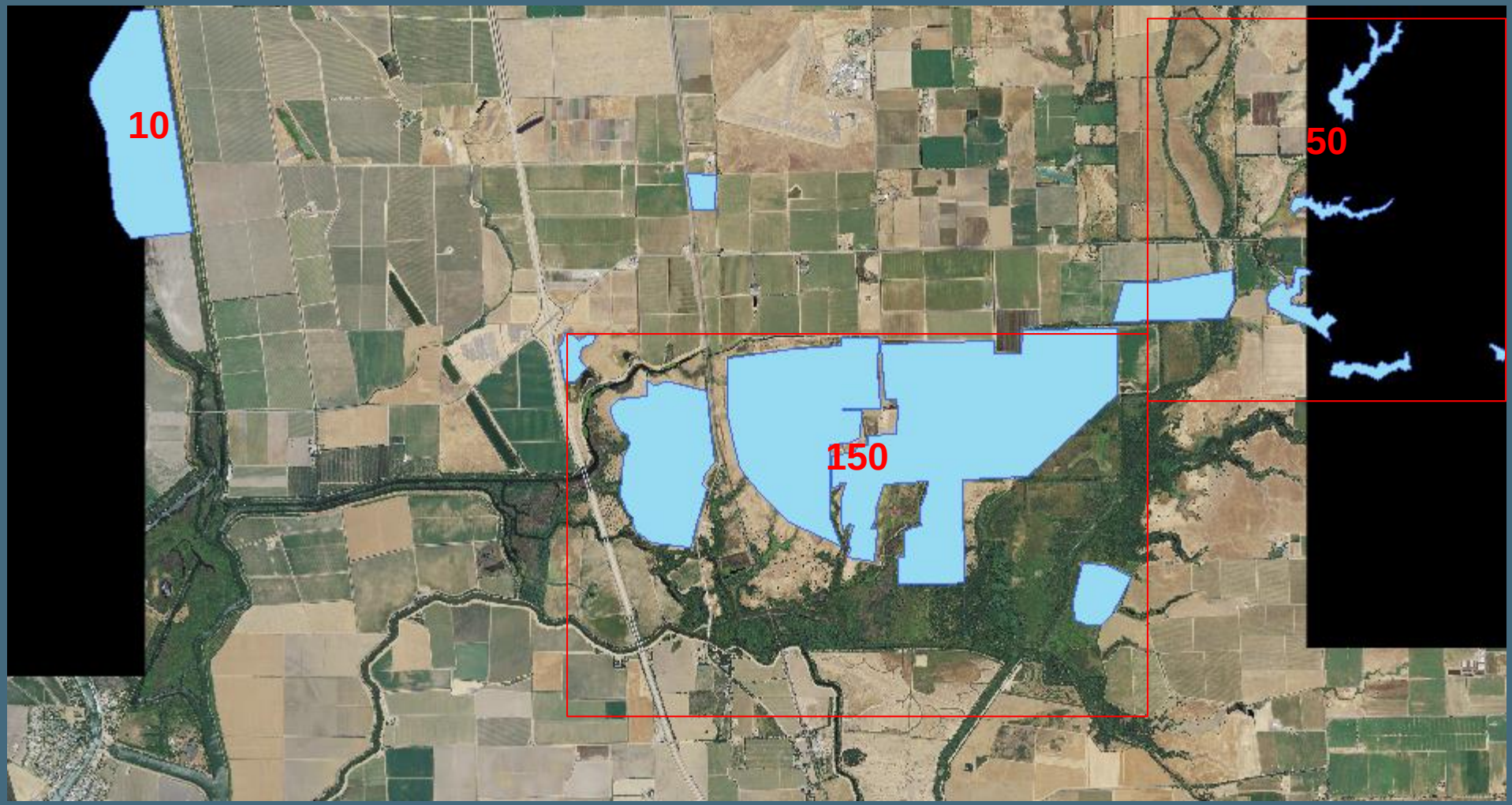




Probability of crossing a line at a given interval

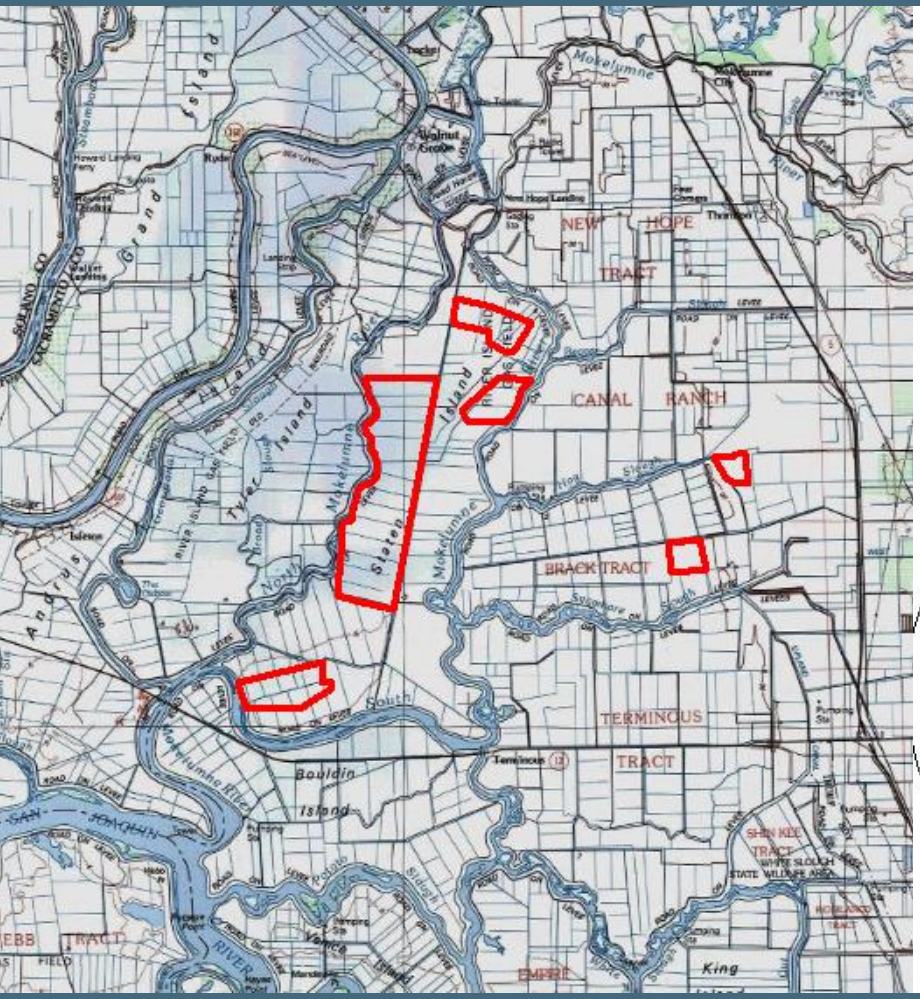


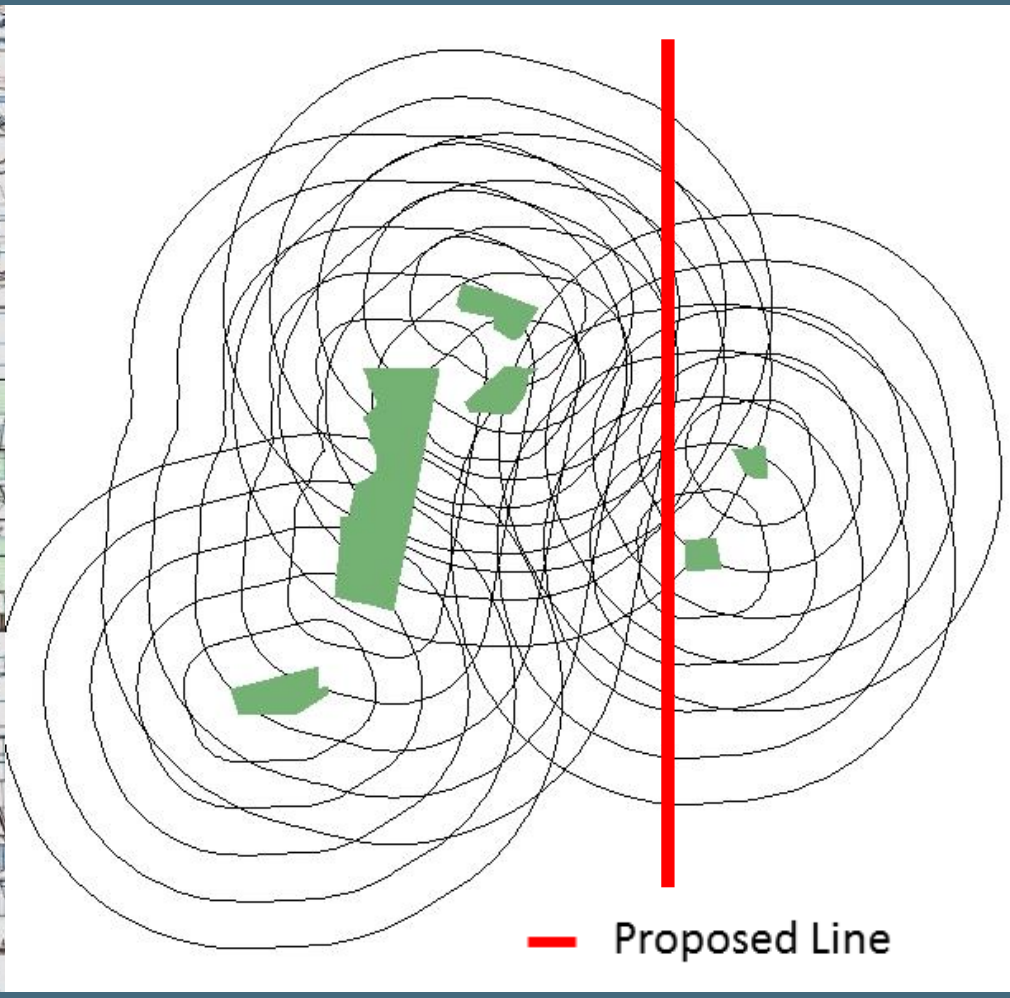
Average greater sandhill crane population at each roost site



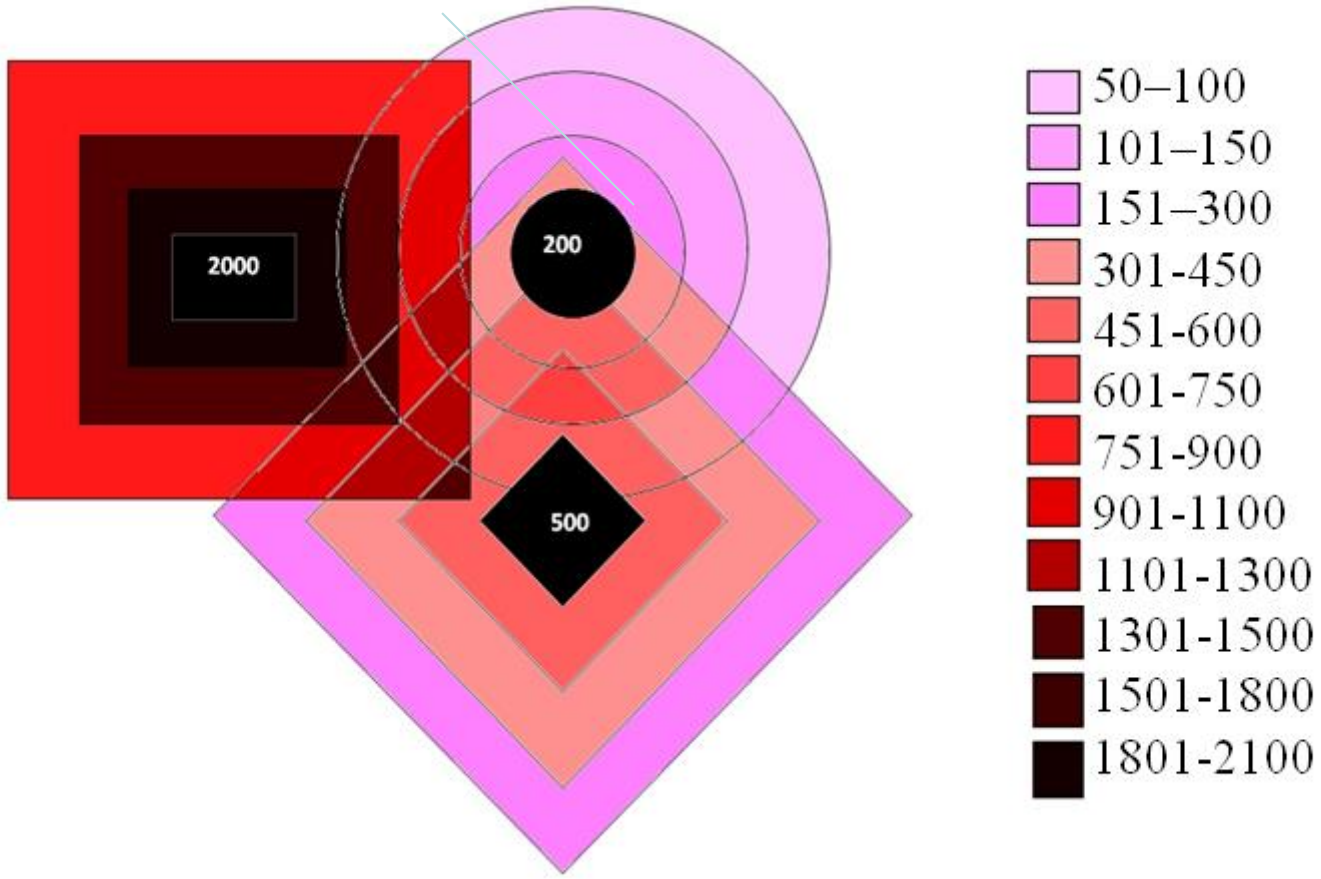
Estimate of abundance by distance from site using ArcMAP

Roost population x probability of crossing interval



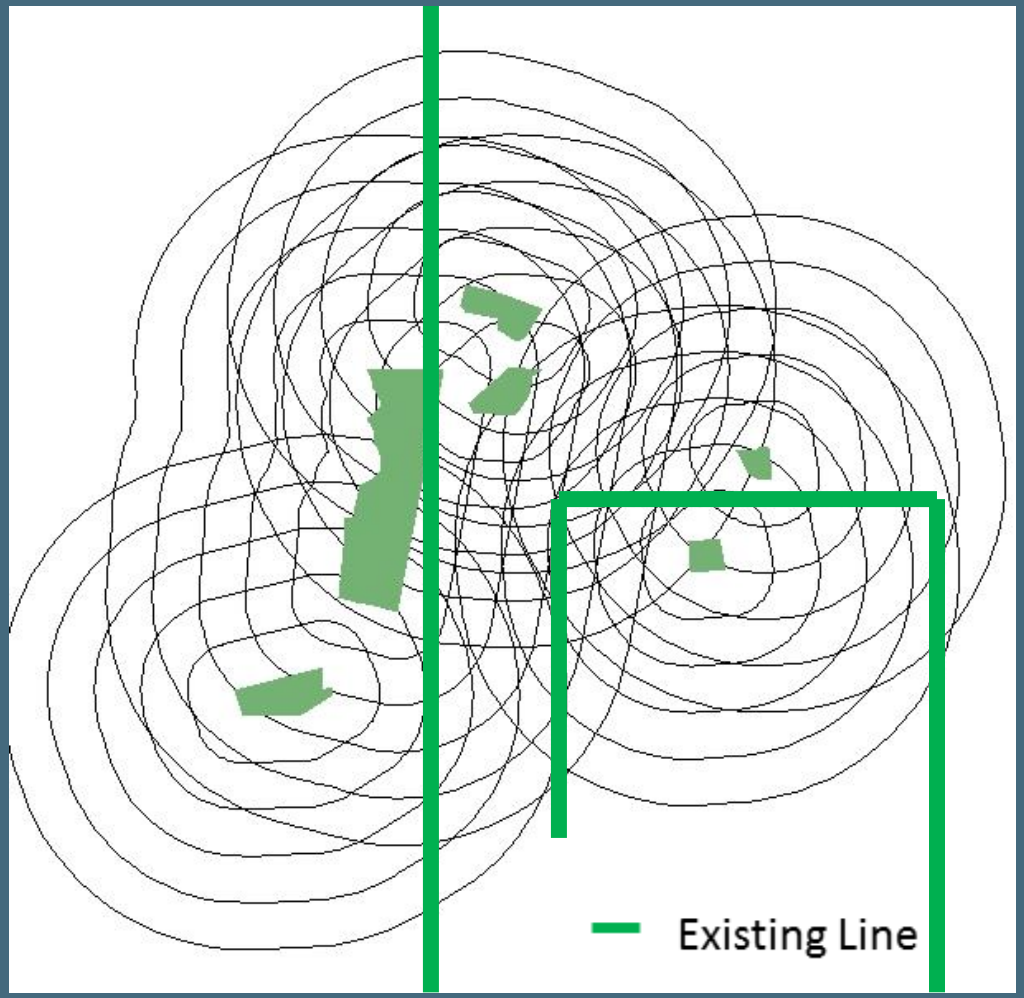


Overlapping polygon values are added together



Mitigation

Evaluate segments of existing lines for burial, removal or marking to develop a strategy to prevent take of 104 greater sandhill cranes



Threats to Sandhill Crane Habitat

- Urbanization/development
  - housing/water projects
- Conversions to incompatible crops
  - orchards/vineyards/turf farms/nurseries/solar farms
- Loss of levees
- Changes in water quality
  - saltwater intrusion
- Changes in habitat management (loss of roost, secure forage sites)


Stone Lakes NWR


Olives

CONCLUSIONS

- I find that take of the Fully-Protected and Threatened Greater Sandhill Crane from project implementation will occur, and since the petitioned project, Alternative 4A in the FEIR/S, is no longer a HCP/NCCP, take would be illegal, unless the final project should only consider transmission line options that prevent take of the subspecies.

- Actions to reduce take at existing lines would not do anything to prevent unpermittable take of Greater Sandhill Cranes on the new lines required at least during the lengthy construction period.

- The FEIR/S also failed to consider project disturbance effects which would result in additional take of the subspecies.

- The FEIS/R failed to address the cumulative impacts contributing to habitat loss for this subspecies in the Delta.
- The FEIS/R did not adequately address the project effects on salinity increases in Delta irrigation supplies which will indirectly effect Sandhill Crane habitat.
- Although the FEIR/S included other Species of Conservation Concern, it failed to address the Lesser Sandhill Crane which will be significantly impacted by take and habitat losses from the project.
- In its current form, the petitioned project would result in unreasonable effect on both Greater and Lesser Sandhill Cranes and is contrary to the public interest.