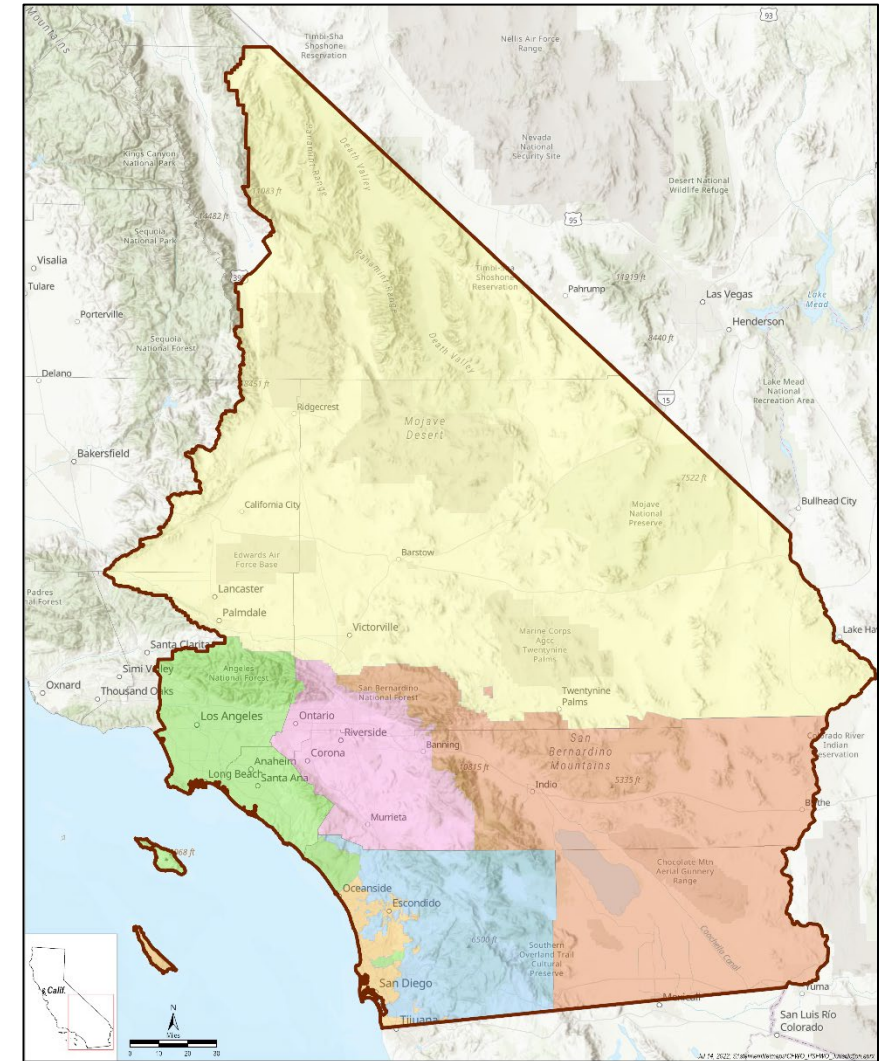


Compensatory mitigation under the Endangered Species Act: wind energy examples from the field

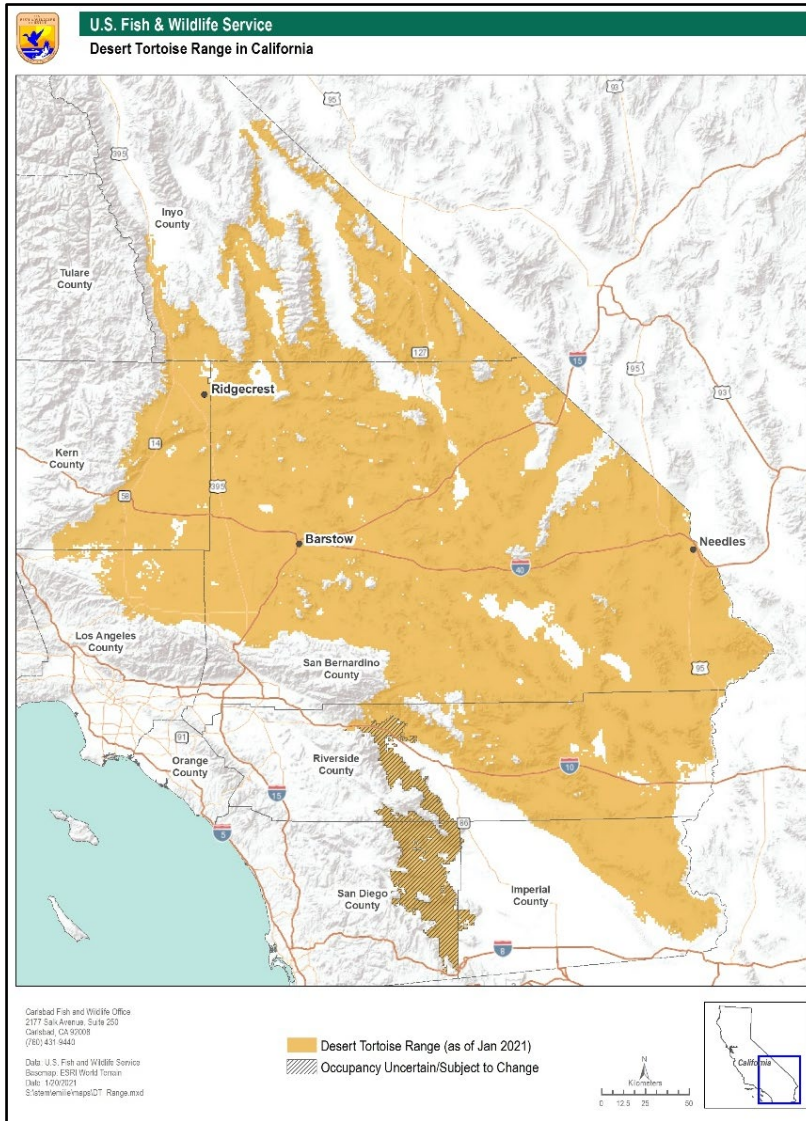


Carlsbad/Palm Springs FWO



Peter Sanzenbacher
USFWS – Palm Springs Fish and Wildlife Office

Mojave desert tortoise (*Gopherus agassizii*)

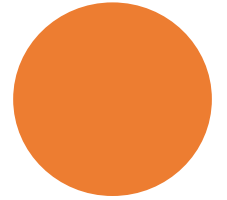


- A wide-ranging and long-lived species occurring in California, Nevada, Utah, and Arizona.
- 1990 - listed as threatened under the federal Endangered Species Act.
- Declining across most of the range with densities decreasing from 3.2% to 11.2% in all but one recovery unit from 2004-2014.



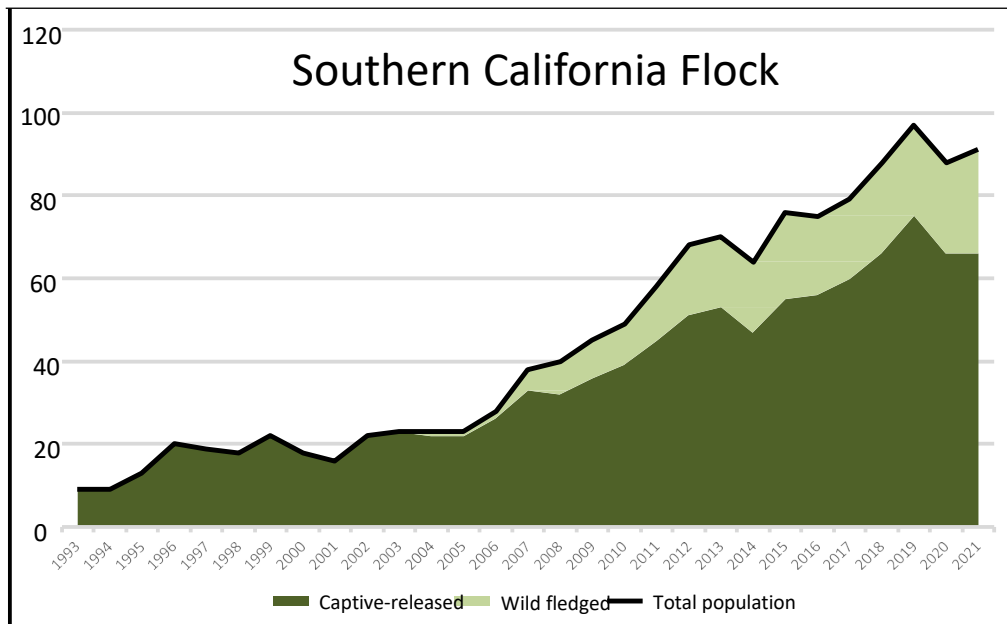
Mesa Wind Energy Repower Project

- 30 MW project with ~460 turbines constructed in 1983 on lands administered by the Bureau of Land Management.
 - The Bureau formally consulted with the Service under section 7(a)(2) of the Endangered Species Act.
- Proposed action to remove ~400 legacy turbines and repower the site with 9 larger modern turbines.
- Surveys found 3 live desert tortoises and estimated ~7 large tortoises within the right-of-way and 24 large tortoises across the entire project site.
- Project will provide compensatory mitigation for 102 acres of permanent and temporary habitat disturbance.
 - 1:1 mitigation ratio.
 - Credits purchased through an approved conservation bank.



California condor (*Gymnogyps californianus*)

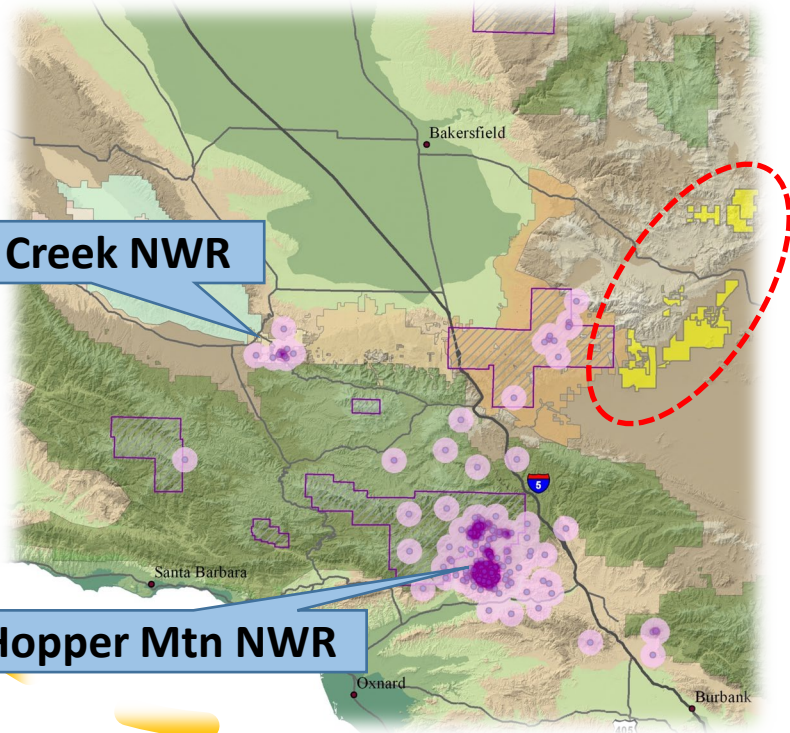
- Iconic species of the western United States
- 1967 - listed as endangered under the federal Endangered Species Act.



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California Condors and Wind Energy

- Condor range expanding as the number of birds in the wild increases.
- Condors now occur in areas with wind energy projects in the Tehachapi Wind Resource Area.



2005 Condor Locations



2019 Condor Activity



Addressing risk to Condors in the Tehachapi Wind Resource Area

- 2016 - The USFWS reached out to wind energy operators in the Tehachapi Wind Resource Area to discuss risk to California condors.
 - many projects already voluntarily addressing condor risk.
- Opportunities for conservation planning and incidental take permits under section 10(a)(1)(B) of the Endangered Species Act.
 - Issuance criteria for an incidental take permit includes: ***minimizing and mitigating the impacts of the taking to the maximum extent practicable.***
- The USFWS and numerous wind energy companies have coordinated on these efforts.
 - Avangrid Renewables
 - Los Angeles Department of Water and Power (LADWP)
 - Wind Energy Condor Action Team (WECAT) – 24 members
 - Terra-Gen

Challenge - What options are there for compensatory mitigation for condors?

Habitat not a limiting factor.

Most wind energy projects we are coordinating with already constructed and operational.

Lead poisoning the primary threat to condors in the wild but difficult to quantify mitigation. A work in progress.

Captive breeding programs successful at increasing the number of birds in the wild. Identified as a priority for recovery.



Challenge – How do we quantify compensatory mitigation from captive breeding?

Population modeling - collaborated with Dr. Myra Finkelstein and Dr. Vickie Bakker.

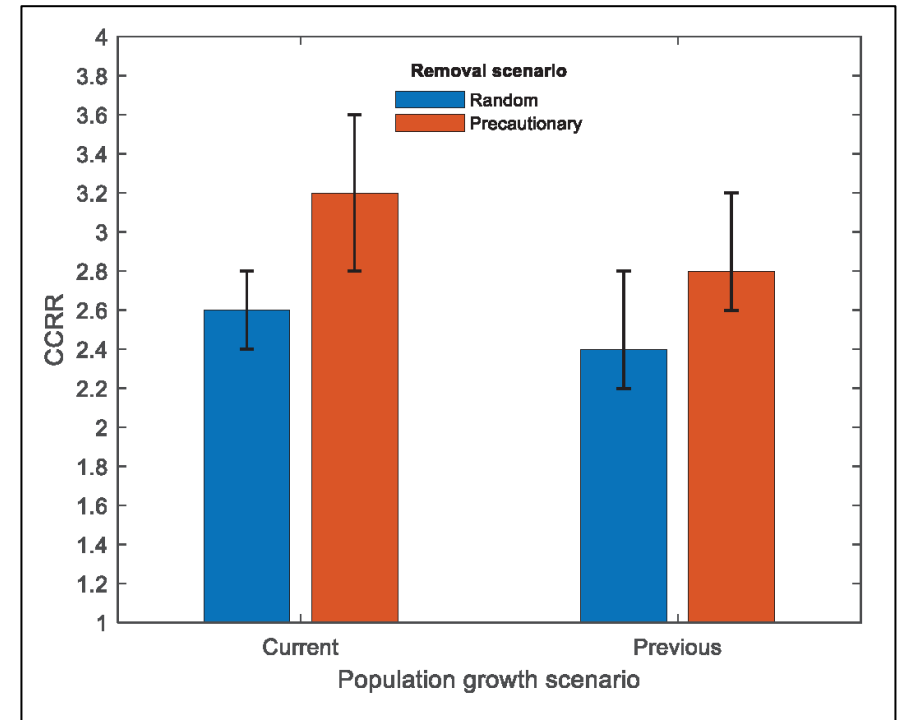
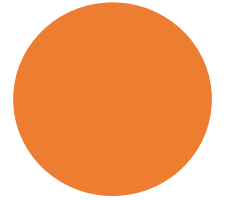
California Condor Replacement Ratio (CCRR)

Estimates the number of captive-bred juvenile releases needed to offset the mortality of a free-flying adult.

- Two scenarios for condor population growth – one slightly increasing and one slightly decreasing.
- Random removal of condors (young adults and older) versus precautionary removal of successful adult breeders.
- Accounted for loss of dependent young.

Results: **2.4 to 3.2**

The number of 1.5 year old birds released to offset the loss of each adult bird in the wild.



Where are we now with this work?



2021 – Issued an incidental take permit to the Manzana Wind Power Project (Avangrid Renewables).

- Take of 2 free-flying condors and 2 dependent eggs/chicks over 30-years.
- * Compensatory mitigation of 6 captive reared young condors.
- * Funding an FTE at the Oregon Zoo for a minimum of 3 years.

2023 – Issued an incidental take permit to WECAT member companies (operating 24 wind projects). <https://www.wecatllc.com/>

- Take of 11 free-flying condors and 11 dependent eggs/chicks over 30-years.
- * Compensatory mitigation of 35 captive reared young condors.
- * Funding construction of additional condor enclosures and operations costs at the Peregrine Fund's World Center for Birds of Prey.

*Conservation plans associated with each permit include minimization and monitoring programs among other commitments.