# CONSEQUENCES OF RISING TEMPERATURES ON LEKKING BEHAVIOR OF LITTLE BUSTARDS (*TETRAX TETRAX*)

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# CONCERNING EFFECTS OF CLIMATE CHANGE

- **My question**: How are the rising temperatures effecting lekking behavior?
- **Importance**
  - More effects of climate change emerge over time
  - High temperatures can affect survival, breeding activity, food availability
  - Researching impacts on animals and their habitats helps understand these consequences
  - Can help predict future consequences

# ABOUT THE LITTLE BUSTARD

- **Physical features**
  - Sexual dimorphism
  - Bilateral symmetry
- **Reproduction**
  - Lek mating system
    - Males jump and flap wings
    - Produces a “snort-call” to attract females
  - No male parental care
  - Chicks are relatively independent

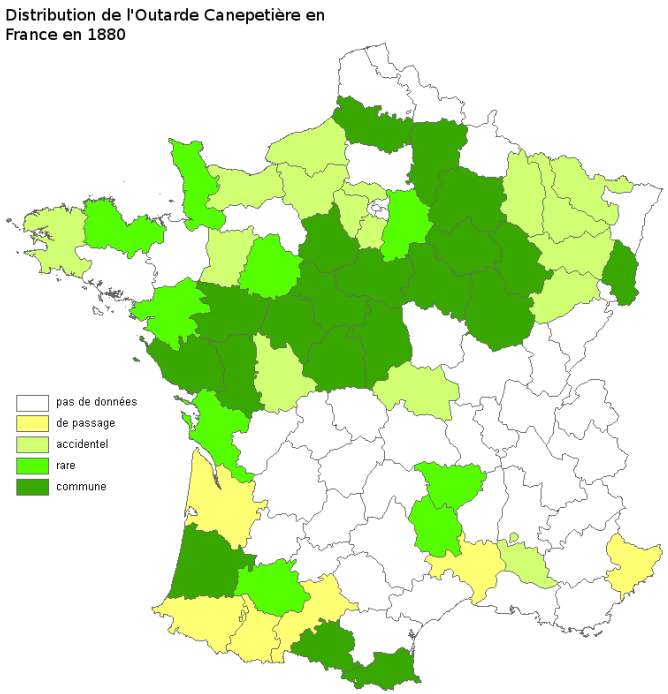
# ABOUT THE LITTLE BUSTARD

- **Habitat**
  - Dry, open grassland or savanna
  - Can also inhabit agricultural land

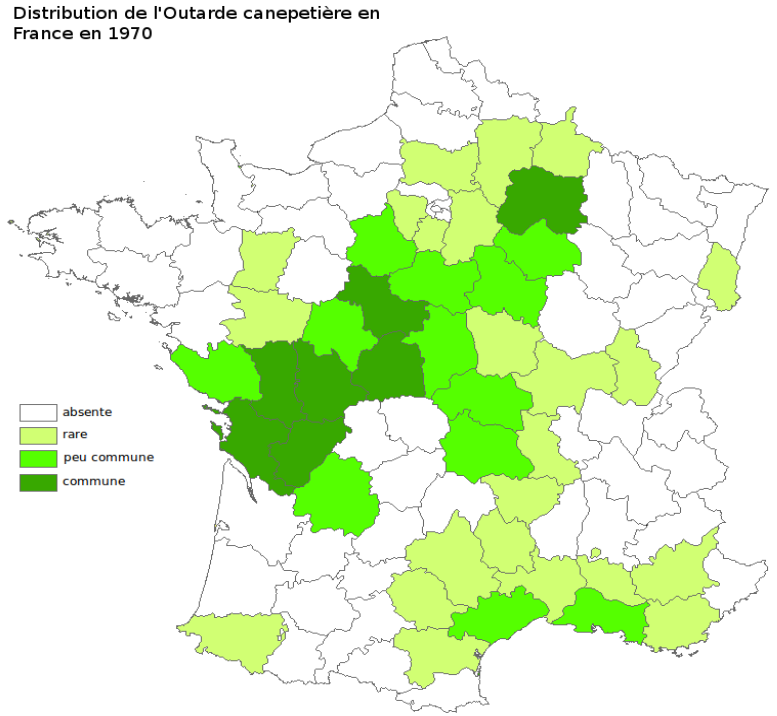
- **Range**
  - Used to inhabit from Portugal to Northwest of China
  - Now extinct in many countries
  - Two distinct breeding populations remain

https://www.birdinginspain.com/birding-phototrip/photographing-little-bustard.html

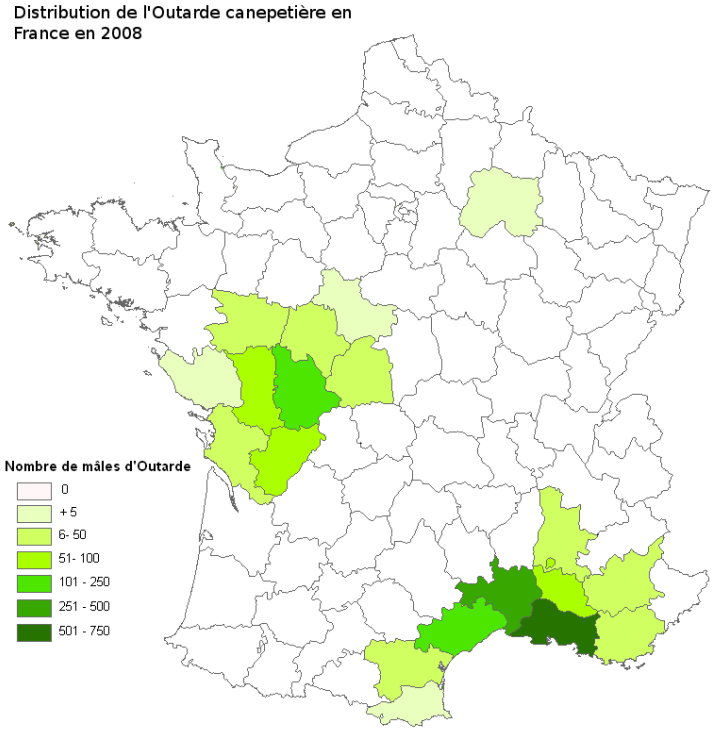
# RANGE OF LITTLE BUSTARD IN FRANCE



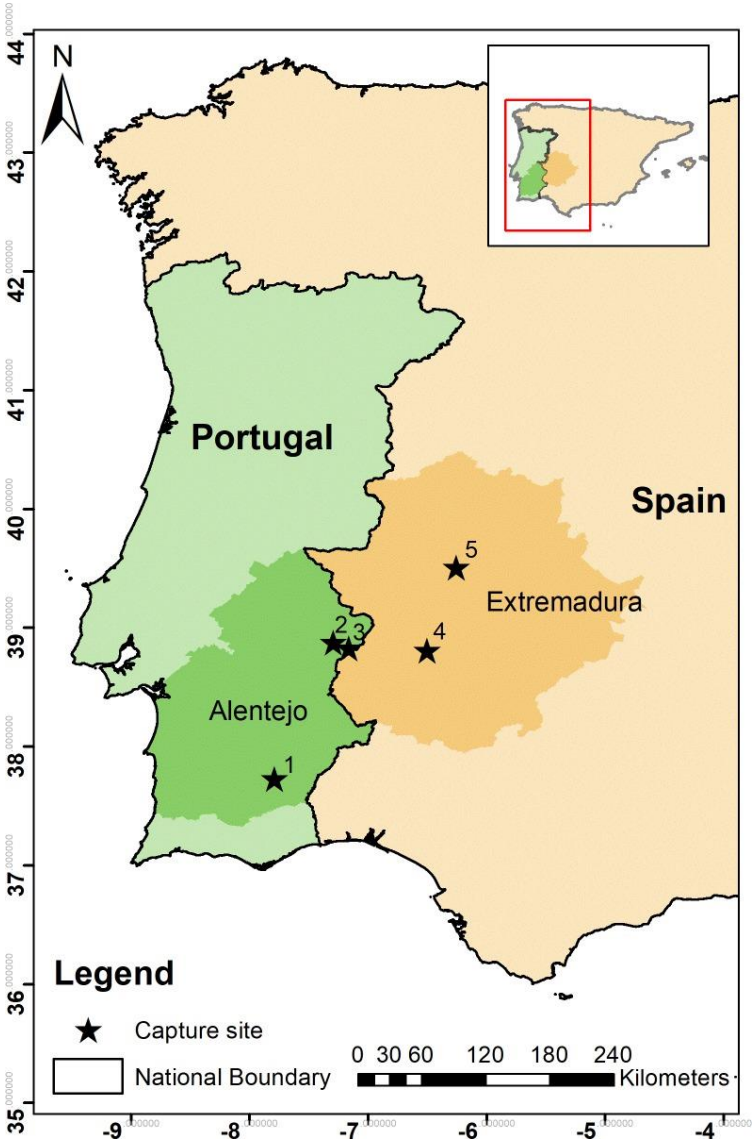

1880




1970




2008



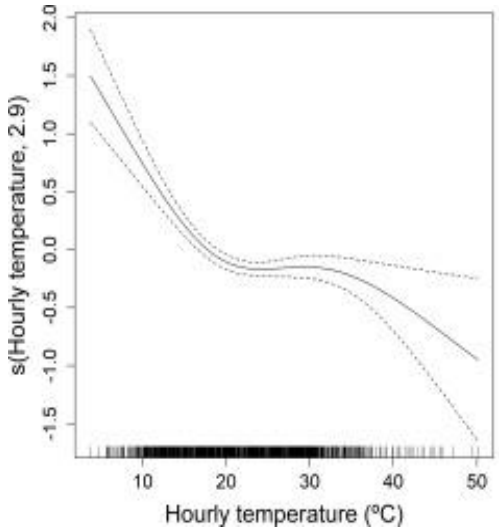

## FEELING THE HEAT: ELEVATED TEMPERATURE AFFECTS MALE DISPLAY ACTIVITY OF A LEKKING GRASSLAND BIRD. GUDKA M, SANTOS CD, DOLMAN PM, ABAD-GÓMEZ JM, SILVA JP.

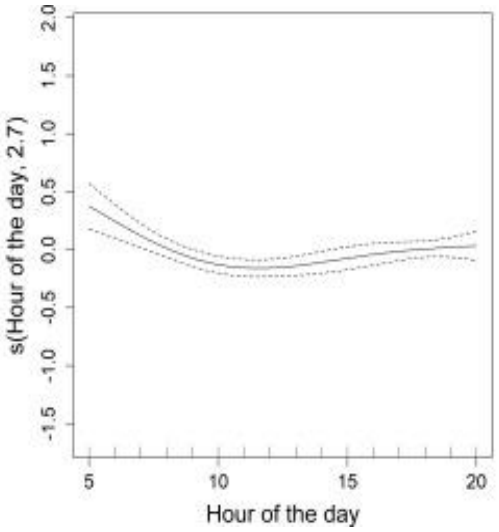
- **Hypothesis**: High temperatures would be the limiting factor in male snort-calling and display activity
- **Methods**
  - Study took place in regions in Portugal and Spain
  - Capture using snares
    - 17 birds were fitted with GPS and accelerometer devices
  - Ambient temperatures measured every hour

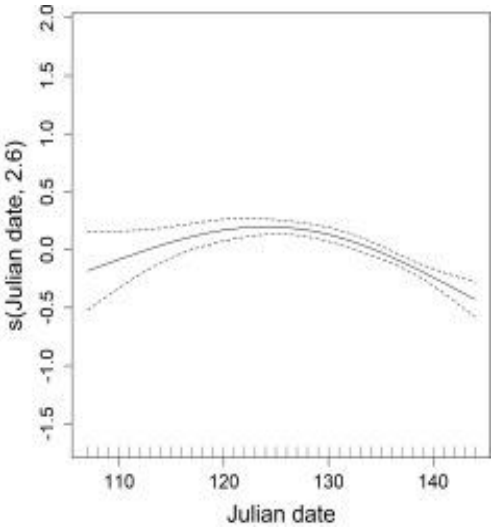
# MODELS OF COLLECTED LITTLE BUSTARD DATA

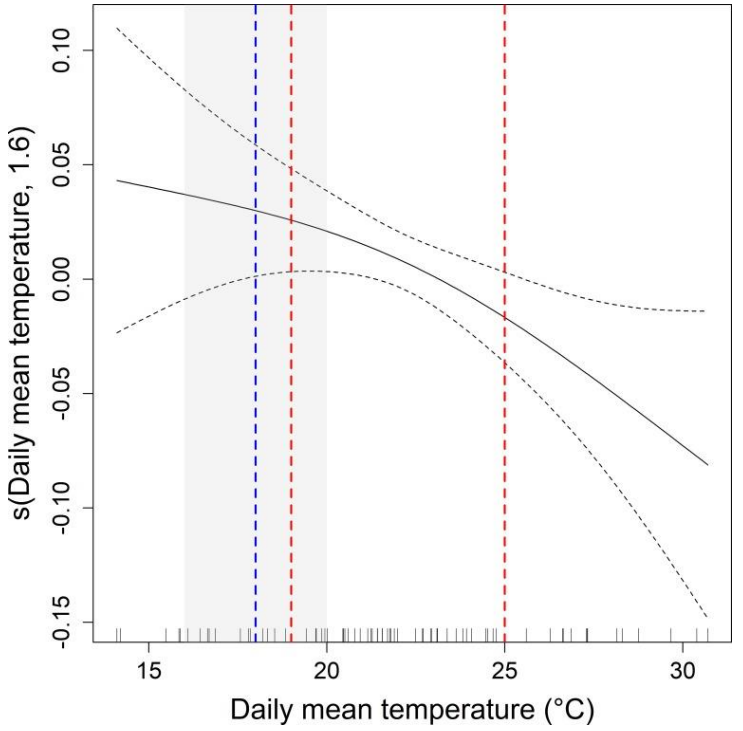
- Collected a total of 8308 accelerometer sequences
- Average daily daytime temperatures: 10°C – 31°C
  - April-May of 2014/2015

- Created models to show probability of male mating behavior
  - Hourly temperature
  - Daily mean temperature
  - Time of day
  - Julian date



# DISCUSSION OF RESULTS

- Based on the IPCC projections, there will be 1°C to 7°C temperature increases for Southern Europe/Mediterranean region
  - Important because little bustards are related to daytime average temperatures

- These increases in temperature are likely to further decreases in display activity
  - Reduced active time of the lek
  - Less mating opportunities
  - May push little bustards to become extinct in even more countries

# CONCLUSION

- It is still unknown whether conservation efforts through captive breeding is helping this species or not due to lack of funds.
- Future research may include how little bustards are behaviorally adapting to modern agricultural methods destroying favorable habitats
- A wide range of lekking animals may be vulnerable to increased temperatures. These studies can help predict how to conserve other species

# LITERATURE CITED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