Effectiveness of anti-nesting devices (“anemometers”) for white storks using REN pylons and recommendations for improvement

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EFFECTIVENESS OF "ANEMOMETERS" FOR STORKS USING REN PYLONS

INTRODUCTION

- White stork use of pylons to nest (and pearch)

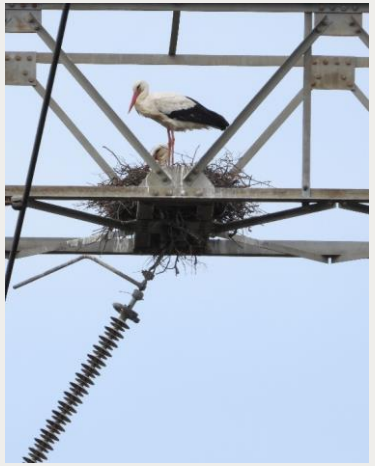
  - Common behaviour in many countries
  - Very significant (and increasing) in Portuguese Transmission network

REN pylons hold (in 2014) ~20% of national breeding population

EFFECTIVENESS OF "ANEMOMETERS" FOR STORKS USING REN PYLONS

INTRODUCTION

- REN's long term nest management to minimize outage risk
  - Helicopter nest counts to identify the ones in dangerous locations of pylons (above conductors)
  - Removal of those nests and **install anti-nesting/ perching devices (>95% "Anemometers")**
  - Provide nesting platforms at safe locations of pylons



- Overall, these management actions successfully decreased (bird-related) outages in last decades
- But the effectiveness of "anemometers" preventing nest re-construction was never properly measured

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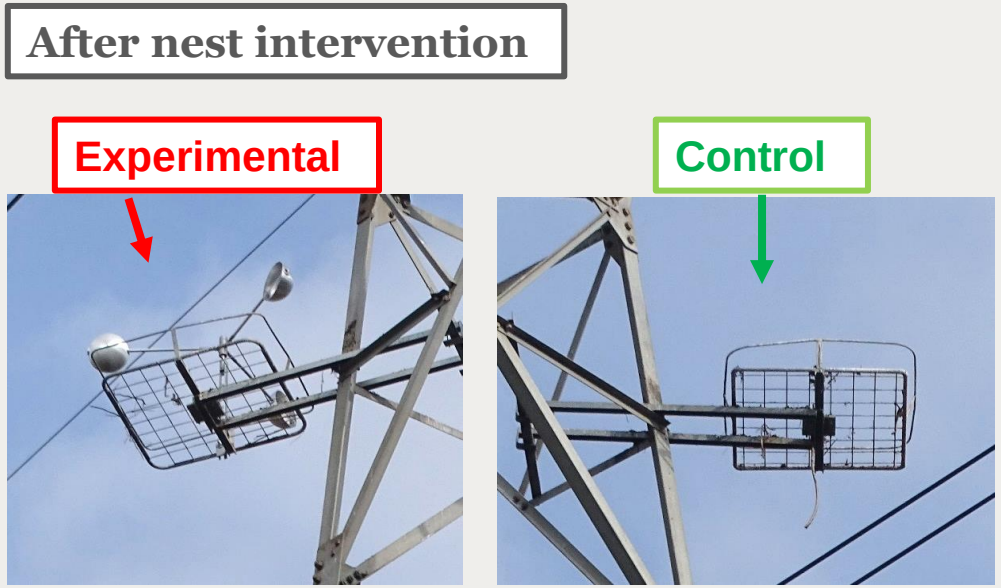
Methods

- Paired experimental design (at pylon scale)



- Total of **43 nest pairs** on 36 pylons; interventions in 2020-22 (before the breeding season)

- Systematic **observations to survey nest reconstruction** on each Experimental and Control location at least until the 2nd breeding season after intervention

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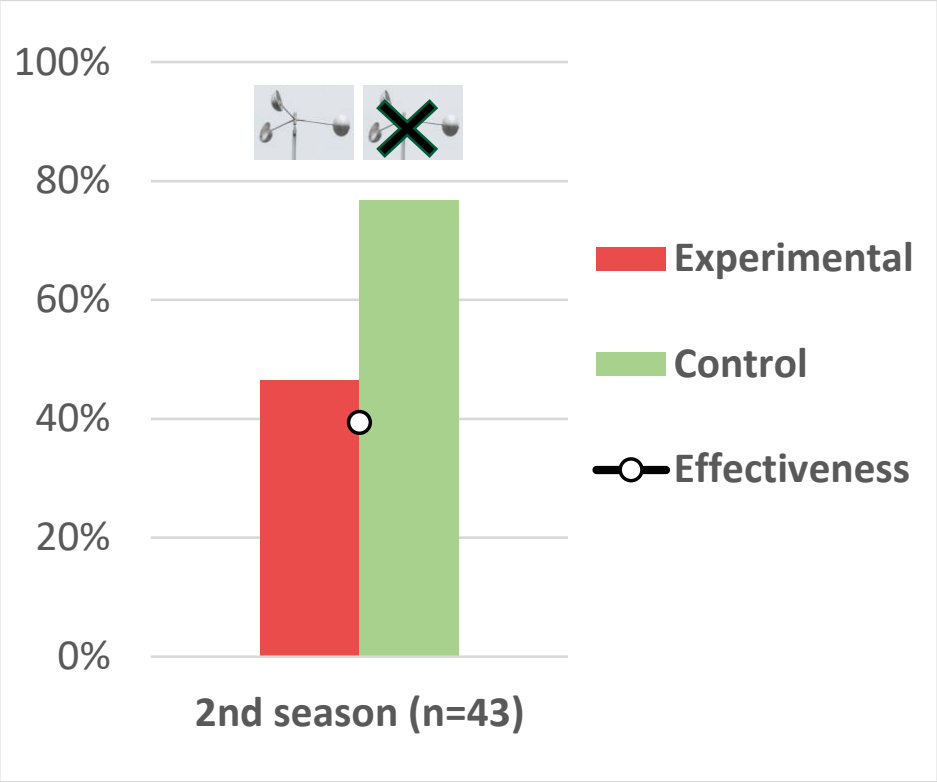
Results

- Quick stork response: overall, 58% of nests were rebuilt after 1st season and 62% after 2nd.
- **Reconstruction rates** in studied platforms (or slightly deviated but with nest material on it):



- Anemometers significantly reduced the likelihood of nest reconstruction (as compared with controls)
- Effectiveness of near 40%, overall

But not the most relevant result!

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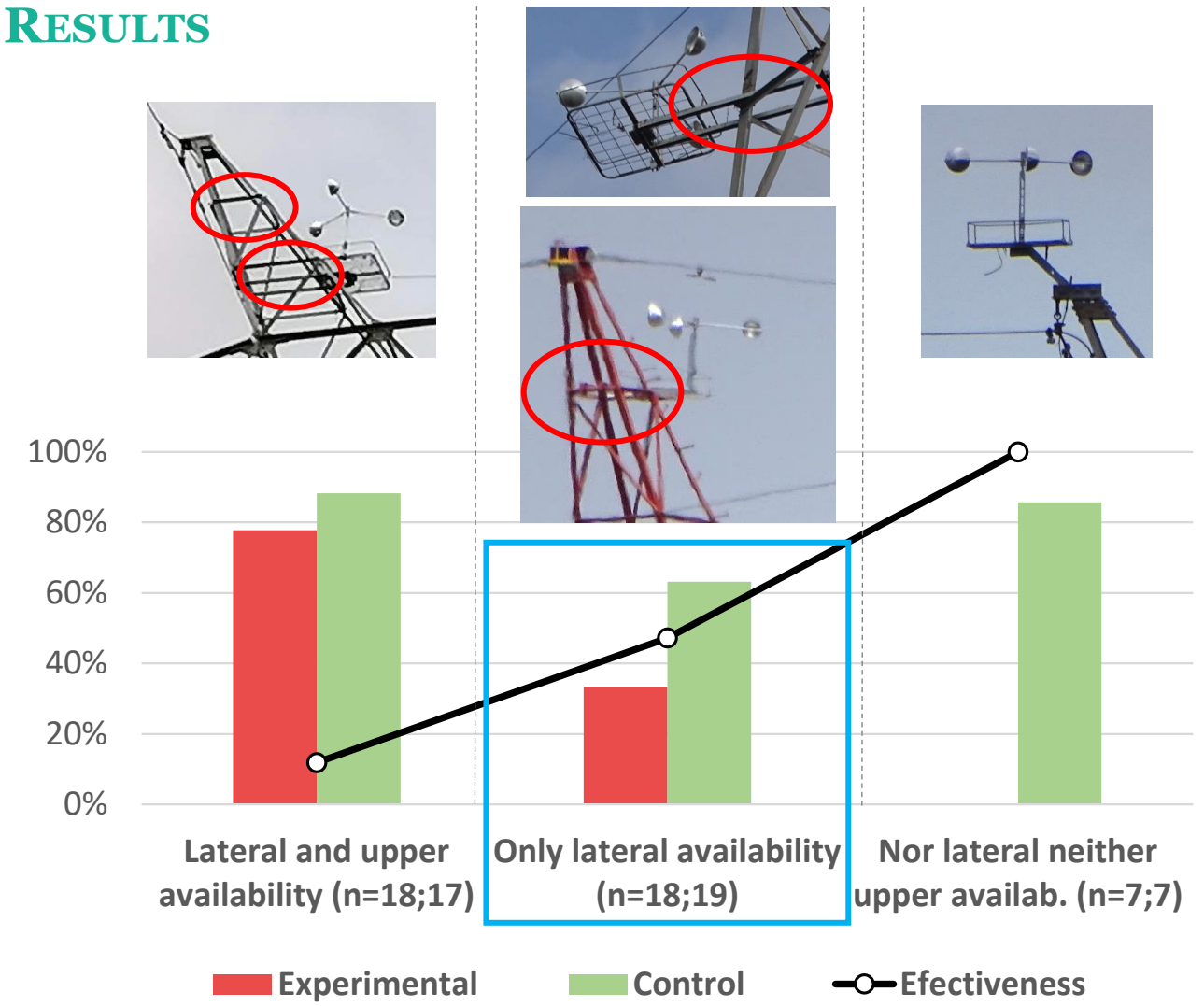
Results



- Effectiveness (in the end of 2nd season) depended on pair location within pylon
  - Availability to rebuilt nests in slightly deviated positions is a key factor
    - But no all nest reconstructions on experimental locations were deviated from anemometers
  - Locations most similar to real context of anemometer installation

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Effectiveness ~ 47%

Effectiveness of "anemometers" for storks using REN pylons

Discussion and Recommendations

- Factors limiting measured effectiveness:
  - White storks adaptability to anthropogenic structures
    - Some individuals are tolerant and "creative"
  - Anemometer rotation depends on the wind

- Anemometer effectiveness should be seen in the context of the overall (successful) REN nest management actions to reduce outages

- Possible improvements
  - Increase anemometer density in key locations (to reduce available space for lateral nest construction)
  - Develop and test other anti-perching devices, after deepening the knowledge on stork use of pylons (mainly outside breeding season and at night)

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