BEeS

The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference

Seville
22-24/05/23

Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective

LifeWatch ERIC

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SUMHAL
Sustainability for Mediterranean Hotspots in Andalusia integrating LifeWatch ERIC

CSIC
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

Introduction

Presentation and aim

- PhD student at Doñana Biological Station (CSIC-EBD)
- "*Movement strategies of lesser and common kestrels across the annual cycle*"

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Materials and methods

Study species

Lesser kestrel (*Falco naumanni*)

Common kestrel (*Falco tinnunculus*)

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Materials and methods

Study species

Similarities

- Sexual dimorphism
- Hunting techniques
- Willingness to occupy nest boxes
- Well studied species

Differences

- Distribution
- Breeding and migratory behaviour
- Habitat use
- Diet

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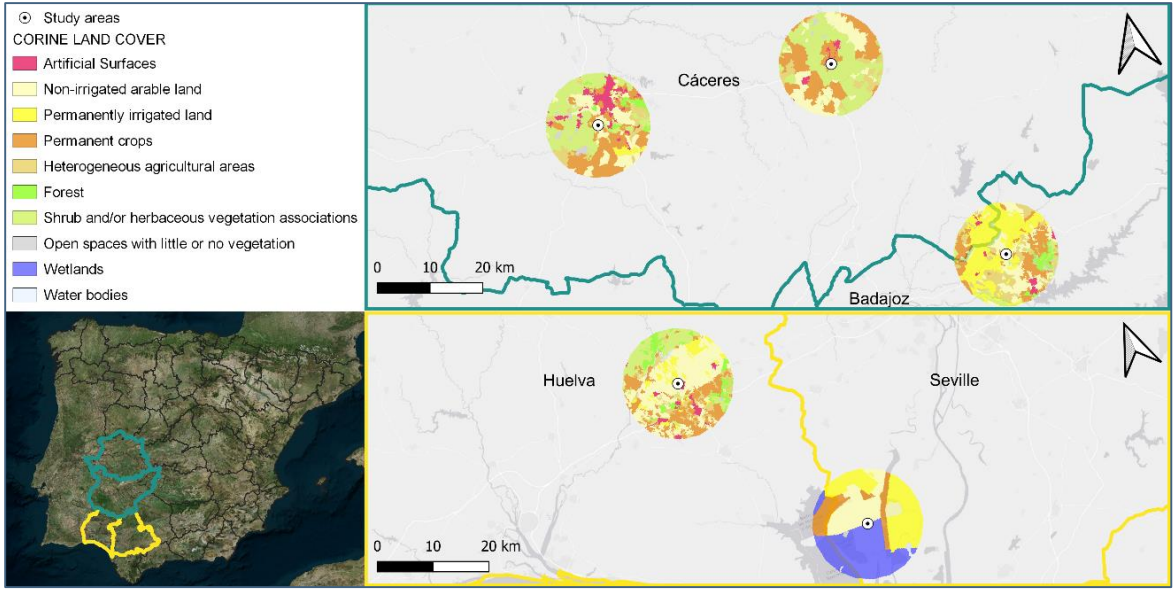
Materials and methods

Study areas



- Trujillo
- Casa de la Enjarada
- Acedera

- Palma del Condado
- Doñana National Park

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Materials and methods

Periods of the Annual Cycle

Breeding season (33%)

- **Courtship**: 9 March to 20 April (43 days)
- **Incubation**: 21 April to 23 May (33)
- **Chick rearing and postfledging**: 24 May to 6 July (44)

Nonbreeding season (67%)

- **Postbreeding**: 7 July to 5 October (91 days)
- **Wintering**: 6 October to 8 February (126)
- **Prebreeding**: 9 February to 8 March (28, 29)

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Materials and methods

Tracking Dataset

- Resampled to a 1-h interval
- Minimum of diurnal locations:
  - ≥ 8 for breeding periods and postbreeding (i.e., spring and summer)
  - ≥ 6 for wintering and prebreeding periods
- Excluding travelling days:
  - Great daily distances (≥ 50 km between the first and last location of the day)

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Materials and methods

Tracking Dataset

- Lesser kestrels:
  - 90 individuals (41 females and 49 males)
  - 11584 tracking days
  - 322 combinations (e.g., individual + period + year: lesser kestrel ID 1170 courtship in 2018)
- Common kestrels:
  - 38 individuals (21 females and 17 males)
  - 9786 tracking days
  - 211 combinations

Materials and methods

Movement parameters (daily scale)

Breeding season

- **Maximum distance to the nest (km)**
- **Nest attendance (%)**

Annual cycle

- **Cumulative distance (km)**
- **Minimum convex polygons (ha)**: 100% and 50% isopleths
- **Turning angle (radians)**
- **Stationary behaviour (%)**
- **Roosting behaviour (categorical: 1, 0)***

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Results

Periods of the Annual Cycle

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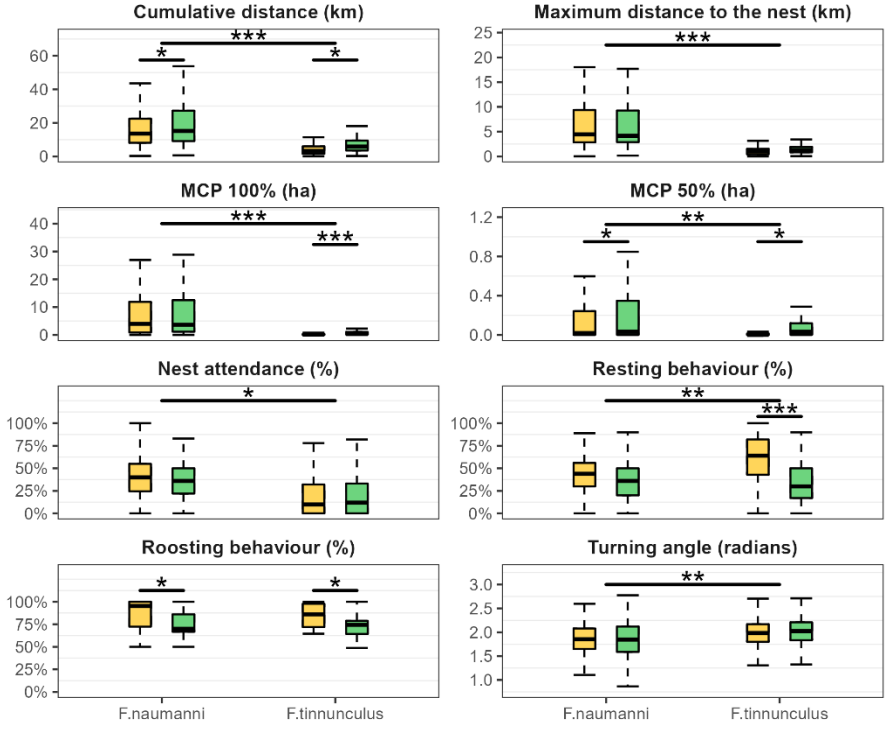
Courtship



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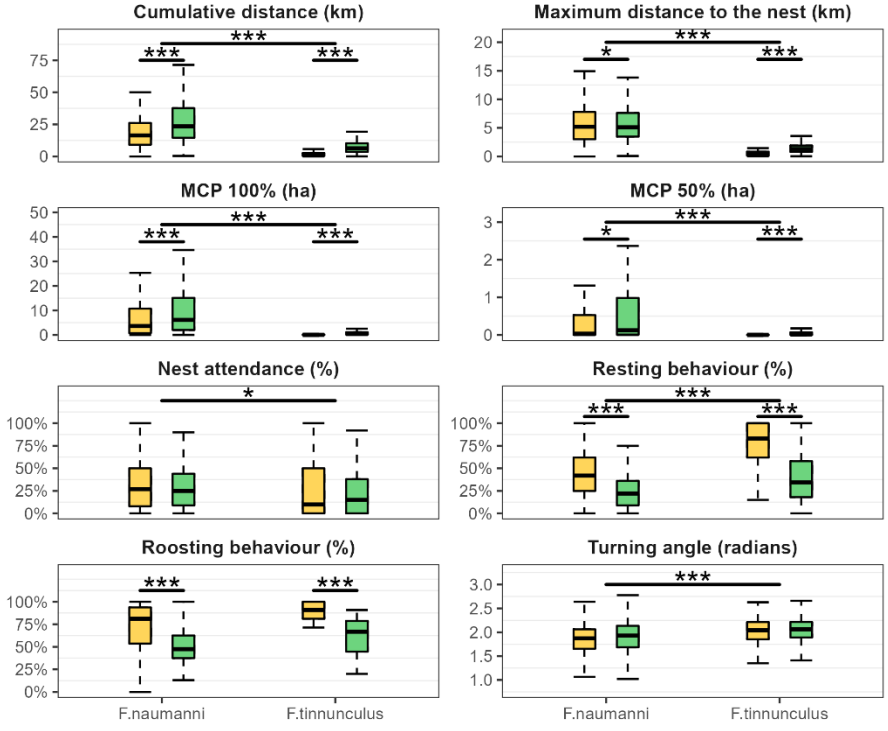
Incubation



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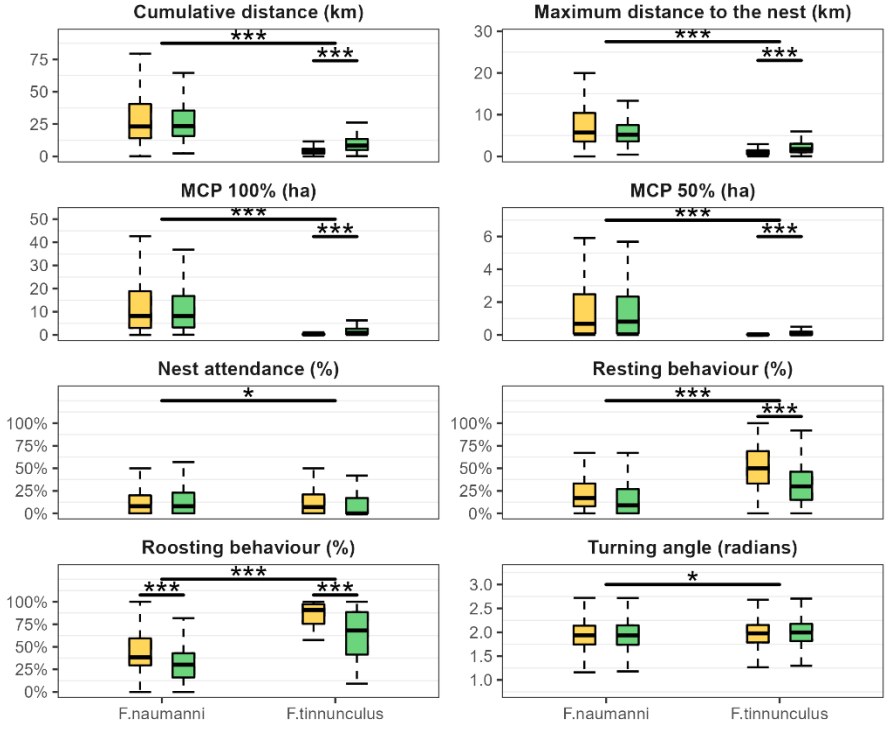
Chick-rearing and postfledging



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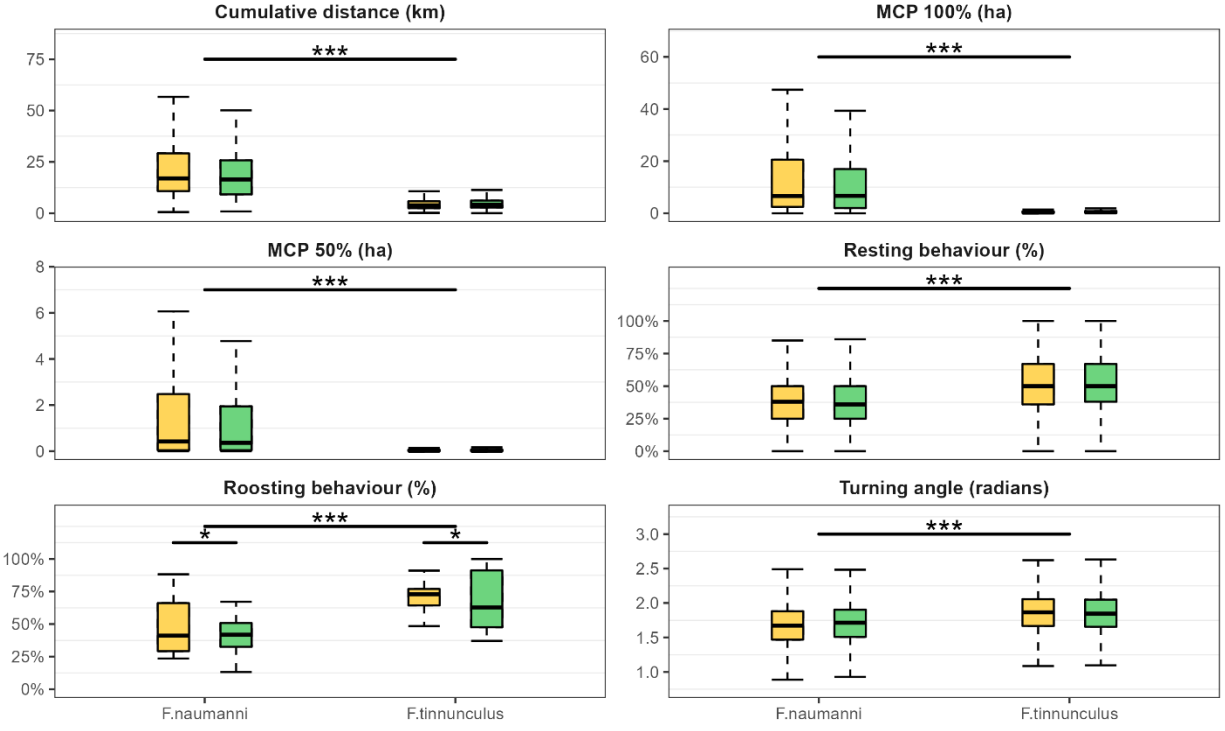
Postbreeding



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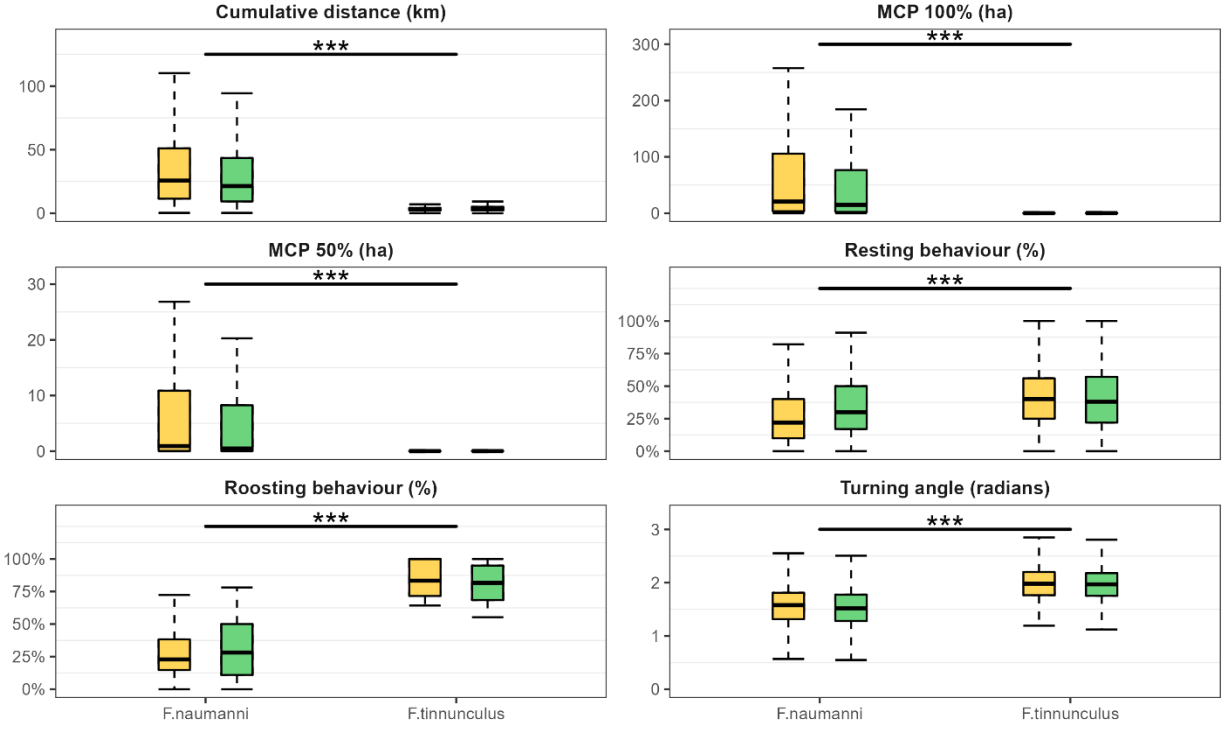
Wintering



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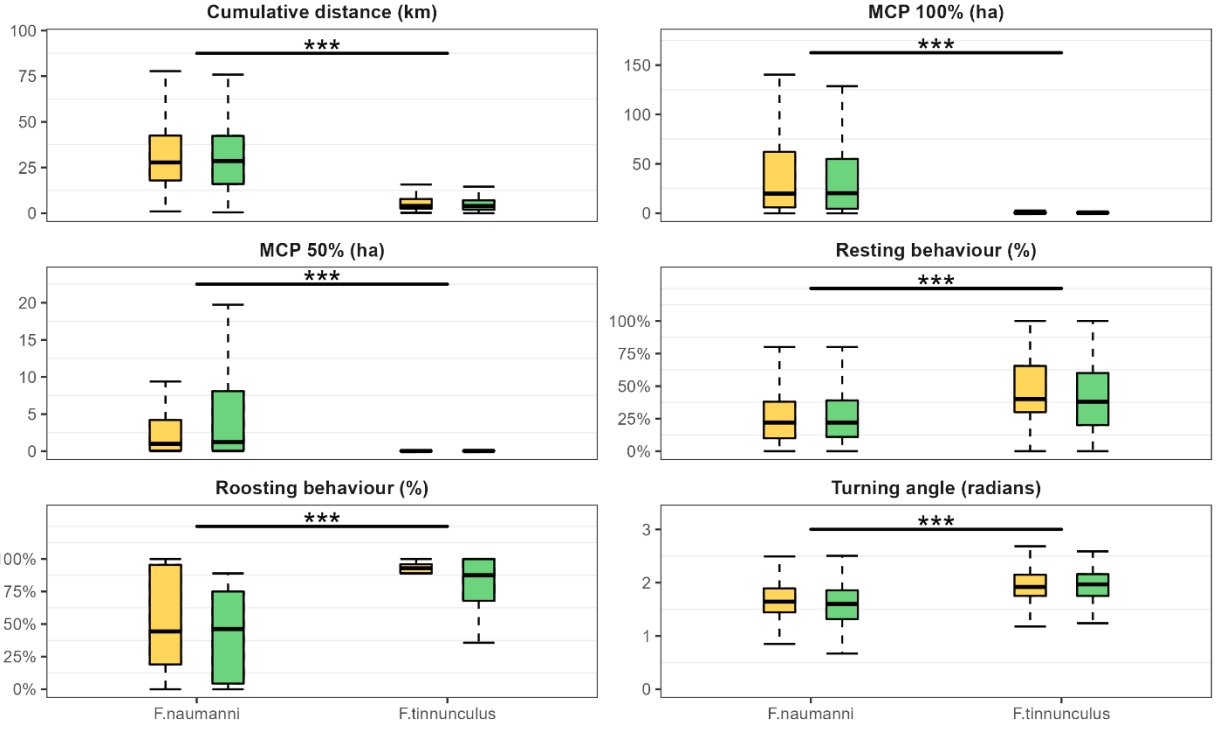
Prebreeding



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Conclusions

1. Lesser and common kestrels differed in all parameters throughout the annual cycle (× roosting behaviour – courtship and incubation)

2. The most important differences occurred during the wintering and prebreeding periods (itinerant lifestyle vs. sedentary)

3. Males and females only differed during the breeding periods (× roosting behaviour – postbreeding)

4. Reproductive role specialization is stronger in common kestrels

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Thank you! | www.lifewatch.eu/bees-2023