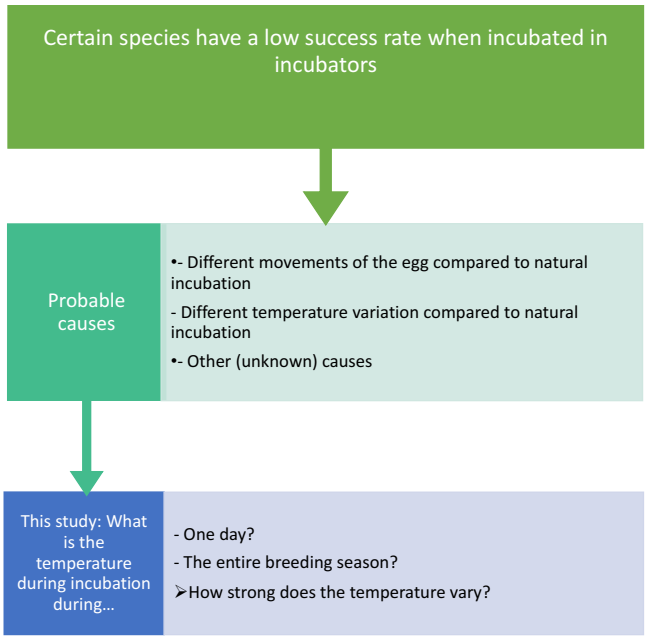
Parental egg-turning and temperature gradient in nests of waterfowl

Breeding success in cavity-nesting ducks

AERES
MBO
BARNEVELD

2018
waterfowl
conservation
workshop

Motivation



Research questions

This study:

What is the temperature of the eggs during one day? And the entire breeding season?

How strong does the temperature vary during a certain amount of time?

Is there a difference between different species?

Materials and methods

Materials

Research done on four different nests:

- Wood Duck
- Ringed Teal
- Mandarin Duck A
- Mandarin Duck B

Nest types: Nest boxes and hollow tree stumps

Measuring instruments: EggLogger (4 pieces)
(Measuring temperature and movement)

Microsoft Excel with EggLogger applications

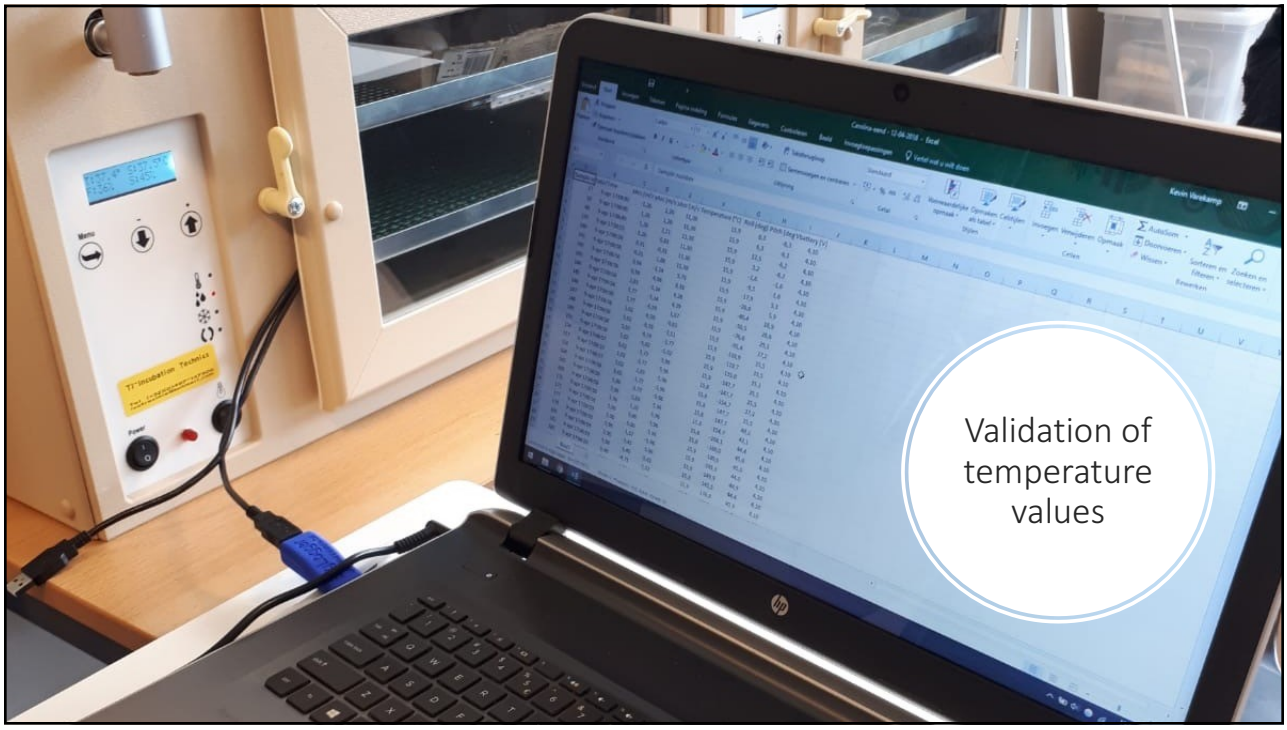
Materials and methods

Observations

- EggLogger are placed in the nests before the start of the breeding process.
- Checking and reading: at least once every 7 days
- Weather conditions

Validation

- Calibration EggLogger
- Validation of measured values in the incubator
  - Heating curve
  - Cooling curve


Validation of temperature values


Checking the nests


Checking
the nests

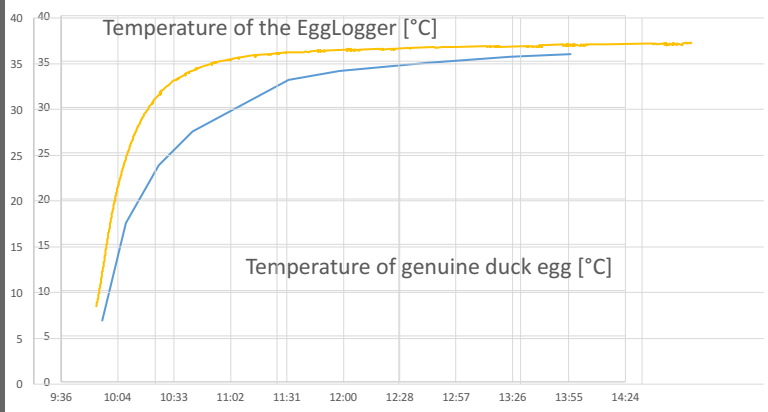

Bothered?


Will they notice?


Reading and interpretation of the EggLogger data

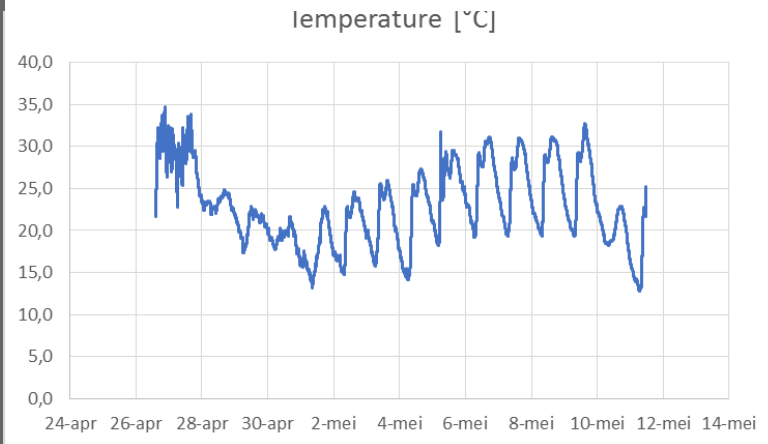
Results: Validation of measured data

Temperature gradient of the EggLogger and a genuine duck egg in one graph



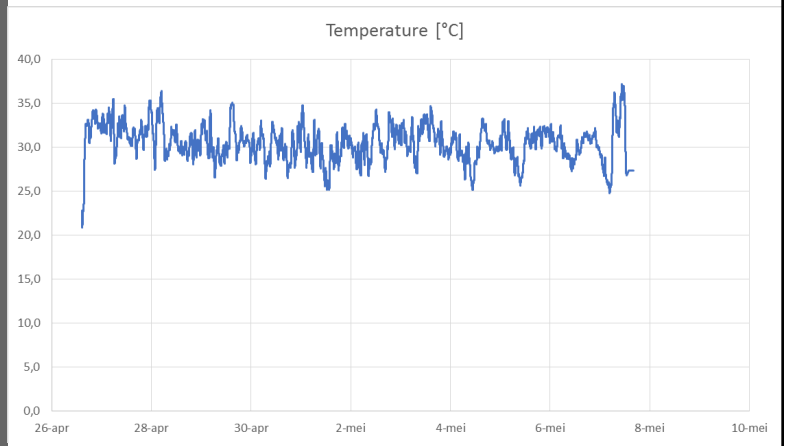
Results: EggLogger data

Mandarin Duck



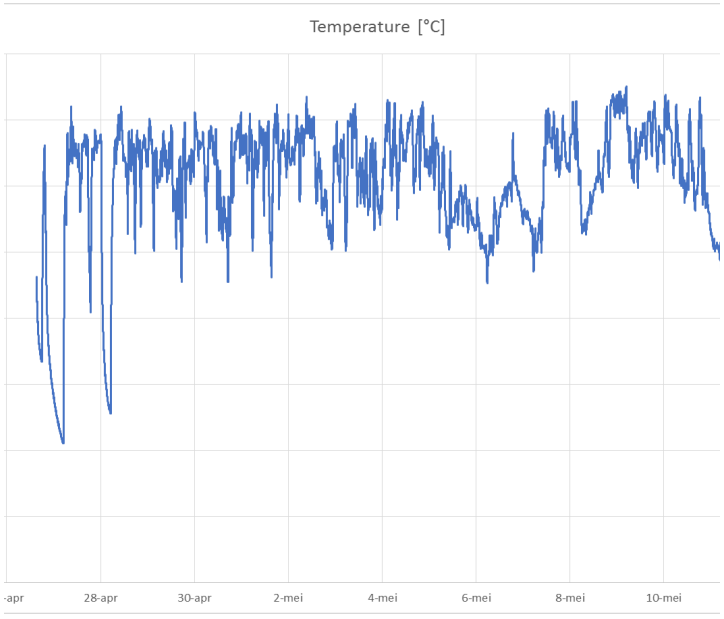
Results: EggLogger data

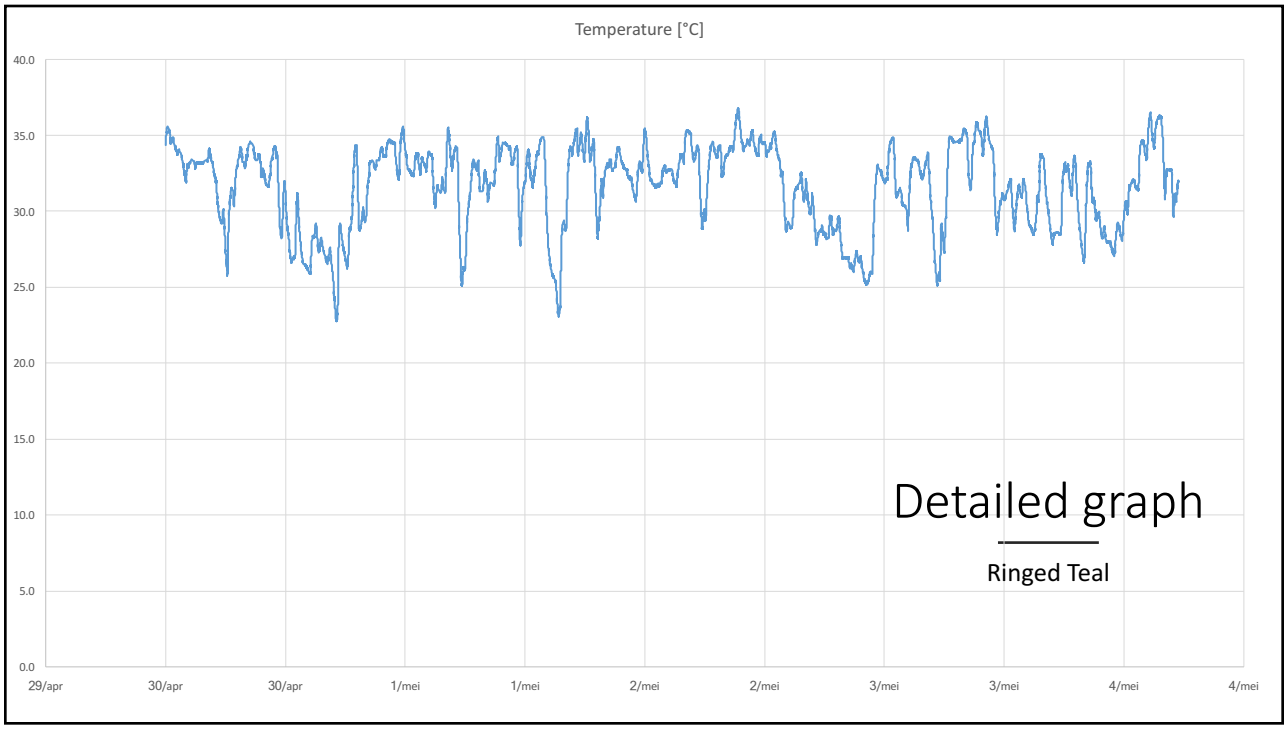
Wood Duck



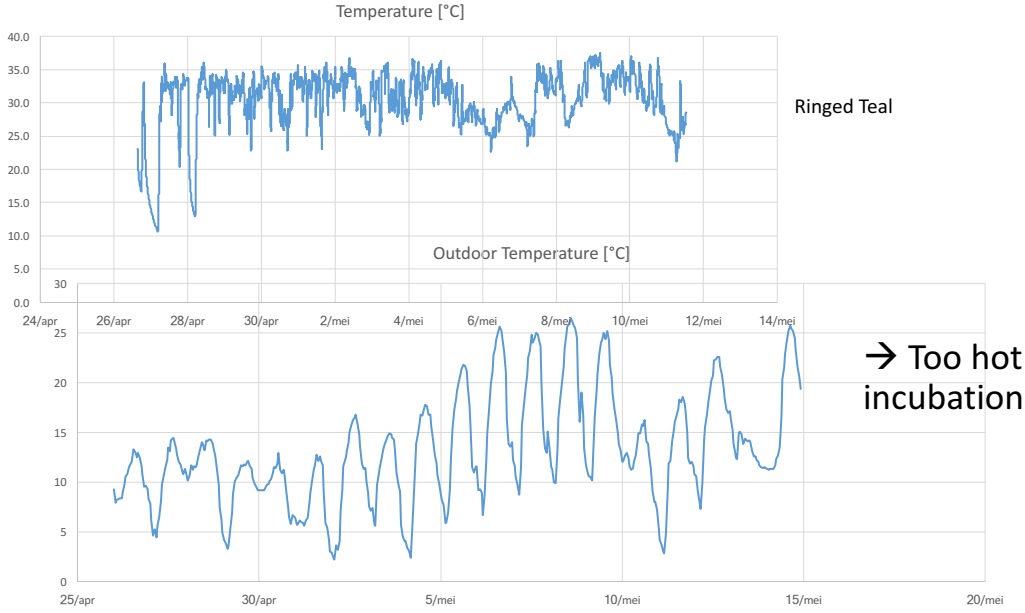
Results: EggLogger data

Ringed Teal





Comparison Ringed Teal with outdoor temperature data



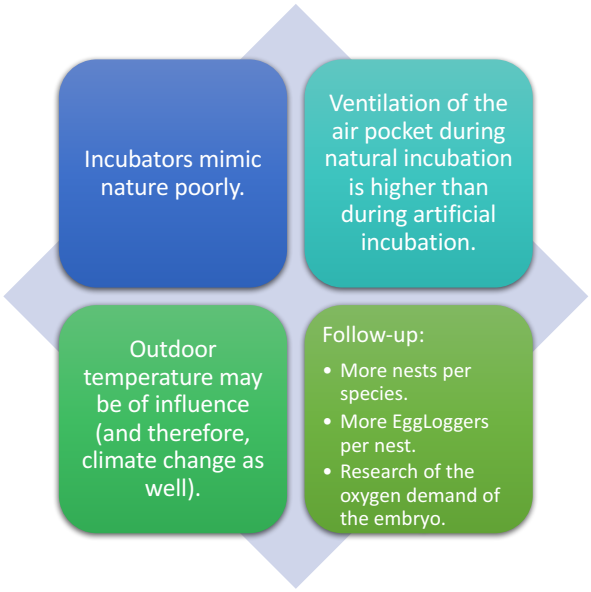
Ringed Teal

→ Too hot for incubation?

Discussion

- EggLogger risks (battery, corrosion) and sulutions.
- Validation and calibration. Temperature measured by the EggLogger is extremely similar to real eggs.
- Ventilation of the air pocket during natural incubation is higher than in an artificial incubator.
- Variation between species.
- Influence of the outside temperature and weather.
- New research questions and hypotheses.

Conclusion




Any questions?
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