

Captive breeding for the conservation of the (critically) endangered *Podarcis raffonei*: towards a functional understanding behind the causes of its decline

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PhD project presentation – 1st year

BMCA / Ciclo 40°



Credit: Eurolizards

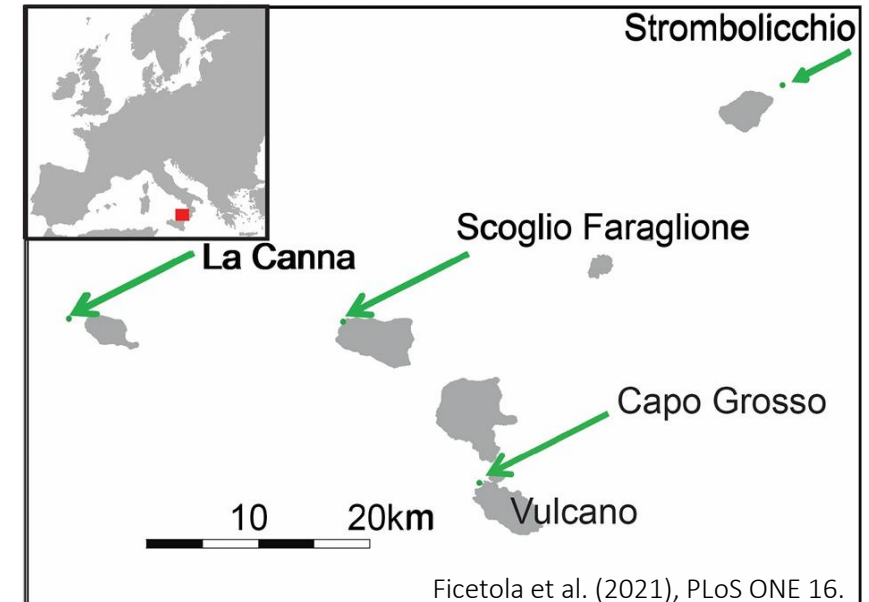


Italian wall lizard
Podarcis siculus



Credit: Massimo Capula

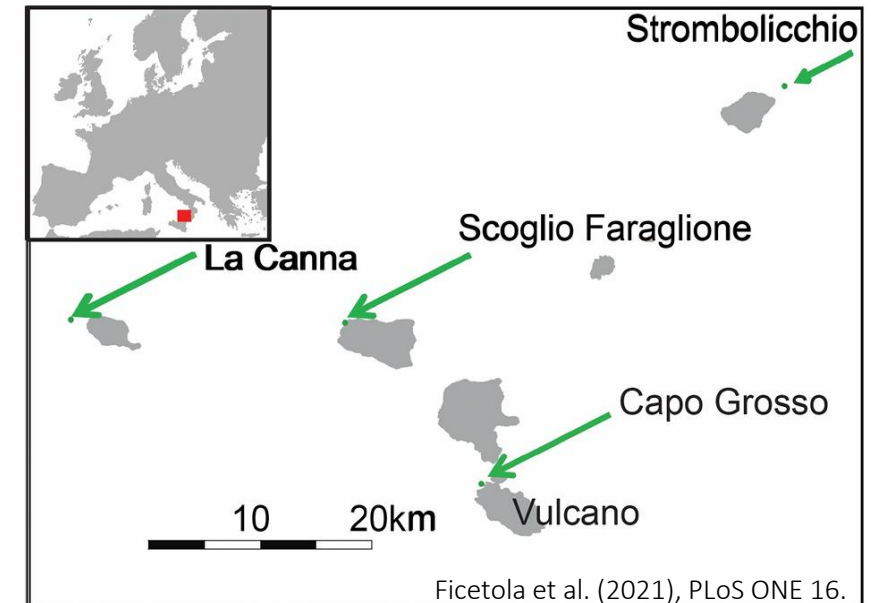
Aeolian wall lizard
Podarcis raffonei





Aims and scope:

- Conserve *P. raffonei* through captive breeding and reintroduction
- Understand better the mechanisms that mediate competitive exclusion and adaptation to insular environments:
Why is *P. siculus* such a successful invasive species?
Why is *P. raffonei* less successful in its own habitat?

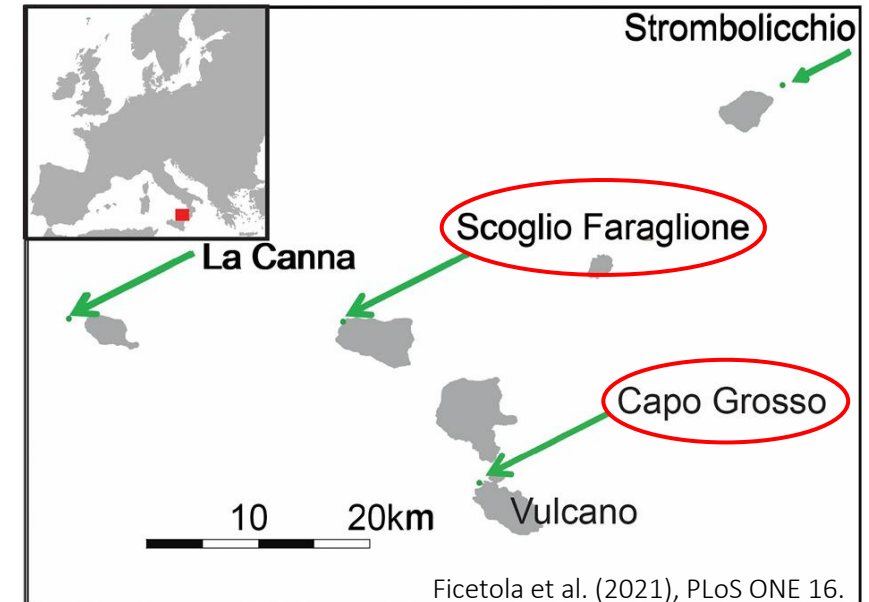




BIOPARCO enclosures for captive breeding



80 *P. raffonei* from CG
80 *P. raffonei* from SF



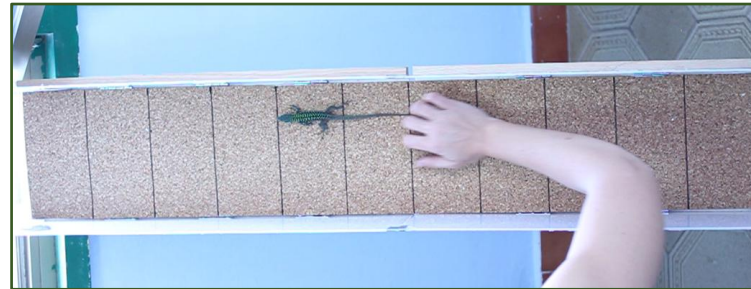
I. Functional performance and thermal physiology study

- Variation in functional traits of *P. raffonei* & *P. siculus*. How are they linked to whole-organism performance?
- Which are the mechanisms behind *P. siculus* prevalence over *P. raffonei* in the Aeolian islands?

Both for generations P (2025) and F1 (2026):

- 20 male *P. raffonei* from CG
- 20 male *P. raffonei* from SF
- 20 male *P. siculus* (sampled from the population in BIOPARCO)

1. Locomotor performance (sprint speed)



2. Bite force

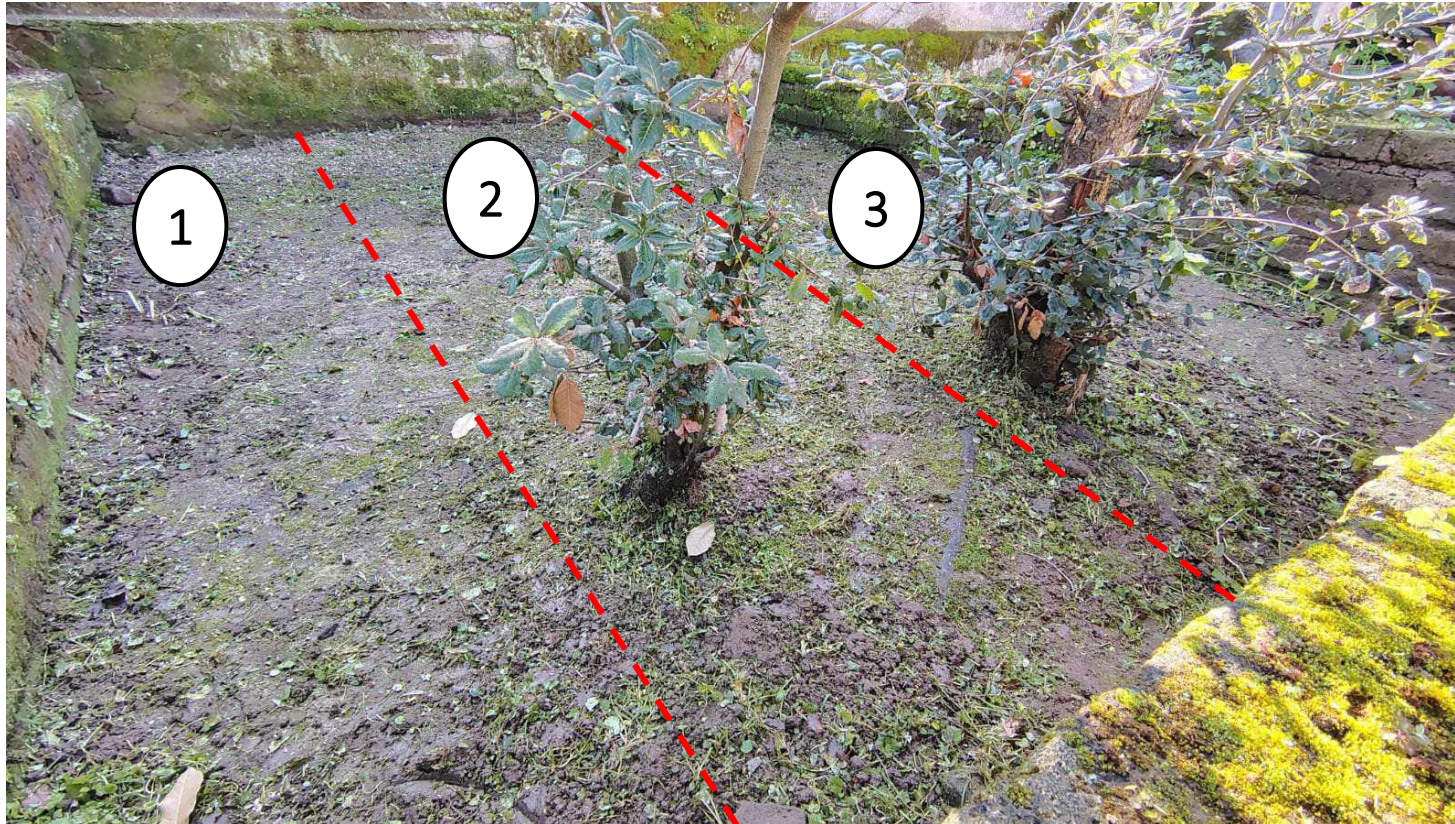
3. Morphology

4. Thermal traits (T_{pref} , VT_{max})



II. Reproductive fitness

- How is the reproductive process of *P. raffonei* affected by the presence of *P. siculus*?
- Direct measurement of the effect on reproductive output.



April – July 2025

1. ~20 *P. raffonei* (males & females)
2. ~10 *P. raffonei* + ~10 *P. siculus*
3. ~20 *P. siculus*

During the experiment (data):

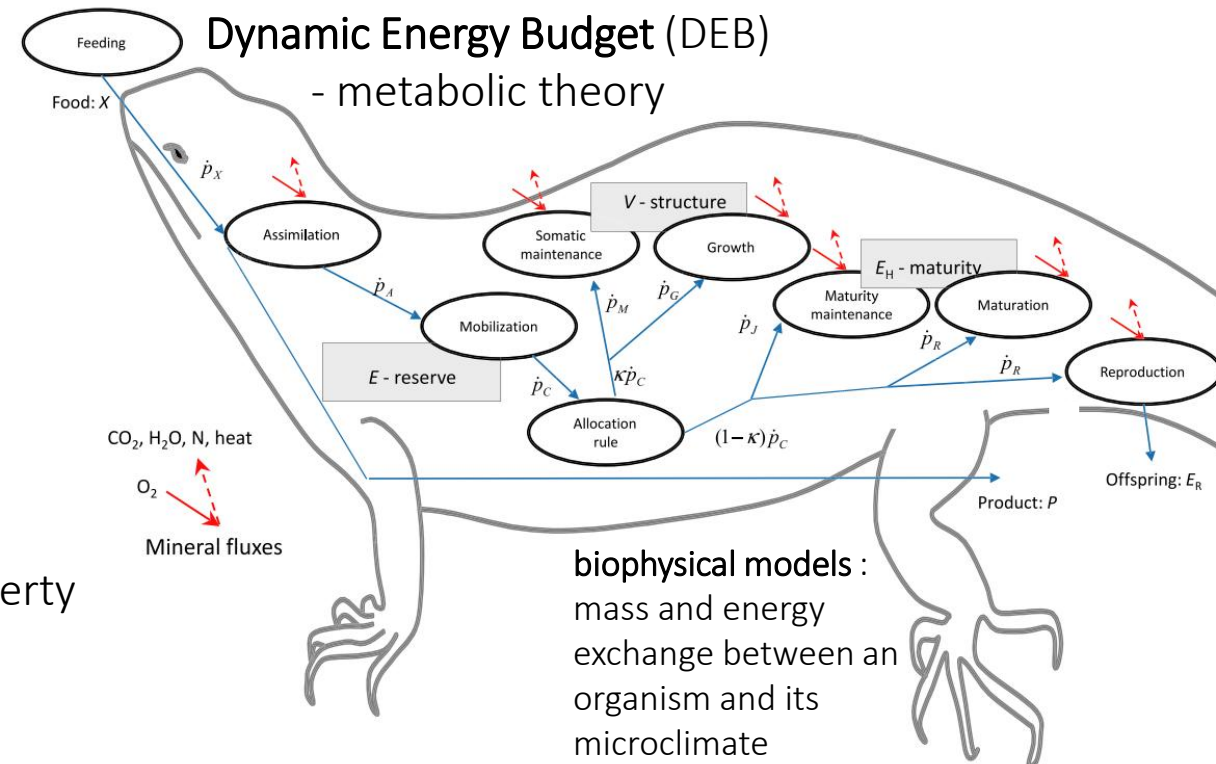
- Weight (once per week)
- SVL (once per month)
- Ecography of gravid females (embryo number)
- Eggs number
- Hatchling number & condition
- Development times

III. Dynamic Energy Budget models from developmental data

- Implementation of very rare developmental data to fit DEB models.
- How efficient is the **growth, reproduction** and **development** of *P. raffonei*?
- How would these processes be affected by climate change (in time) and microclimate change (in space - reintroduction in sanctuary islands)?

Data to be implemented:

- egg development time
- length and weight at birth and puberty
- time to puberty etc.



Questions?

Suggestions?

feel free



Thank you!