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The sensitive window for sex determination in a lizard with environmental sex determination

Introduction

Sex determination, the process that decides the sex of an individual, occurs in gonochoristic vertebrates in two distinct modes: in the form of genotypic sex determination (GSD) and environmental sex determination (ESD). In ESD sex of a progeny is fully dependent on some environmental factor, in vertebrates most prominently temperature. In species with ESD males and females do not consistently differ in genotypes, but their development is set by the environmentally sensitive epigenetic switch during a sensitive period.

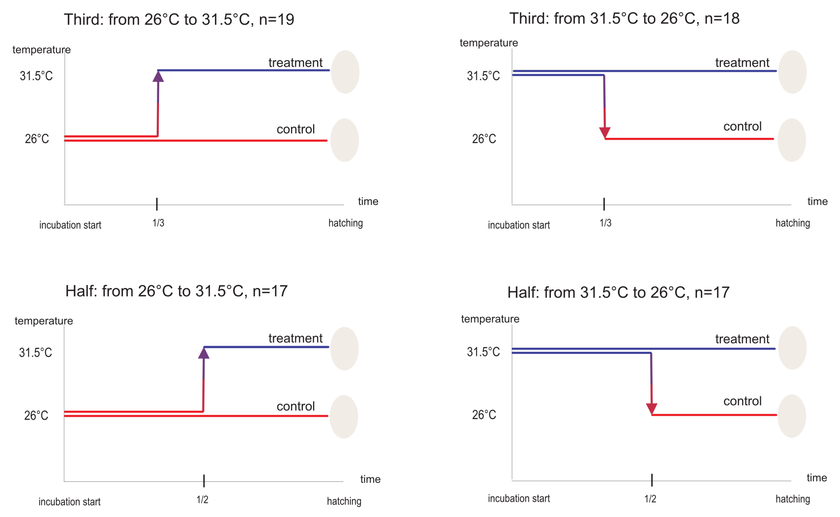
First step

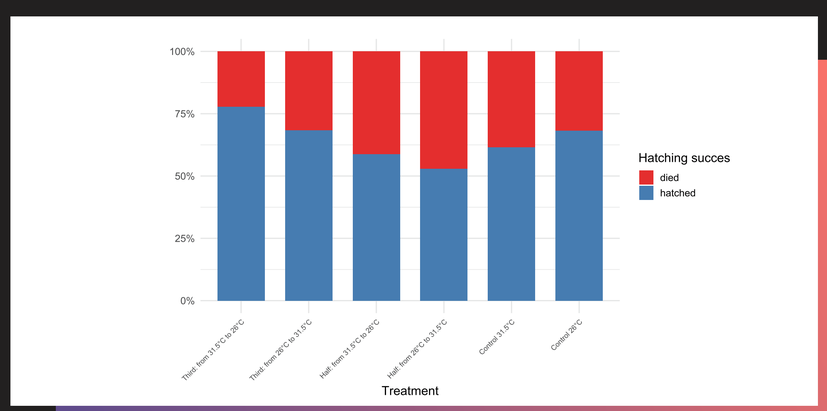
Looking for the sensitive period

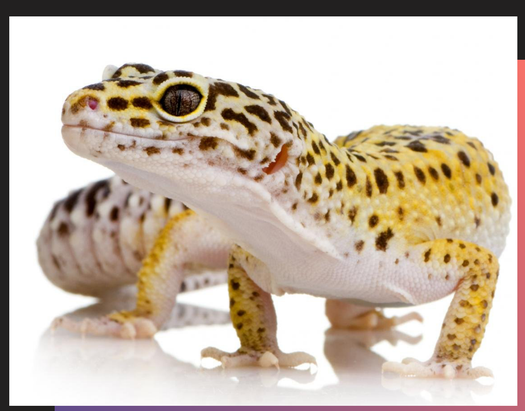
The sensitive period of sex determination is an important trait, which was determined only in a small number of species. It is assumed that period, when the embryo is sensitive to environmental stimuli, occurs during the second third of embryonal development. However, it could vary a lot among different species. We introduce the project on the determination of the sensitive period in the leopard gecko (*Eublepharis macularius*), a model ESD reptile.

Methods

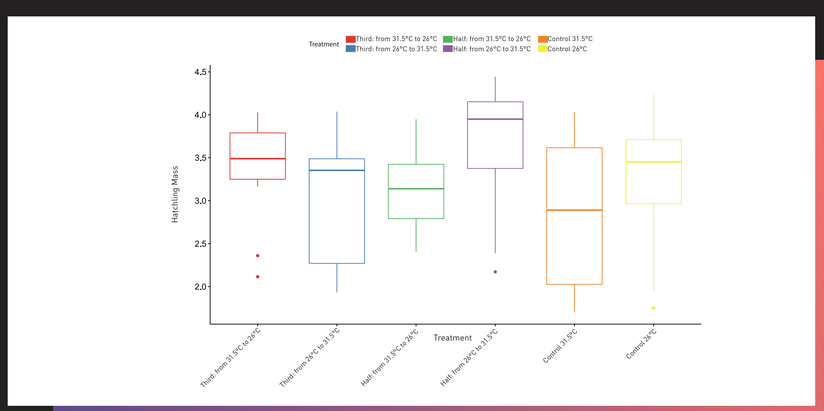
Each pair of eggs were incubated together for the first third, or half of the incubation time in stable temperature (26°C female development, 31.5°C male development). Then one of the eggs was moved to the opposite sex temperature to evaluate the effect of temperature in this phase of development.
The other egg served as control.







Eublepharis Macularius



Preliminary results

No differences in mortality between treatments.
(Fisher's Exact Test, p=0.6831)
No difference in hatchling mass between treatments.
(ANOVA, controlled for eggmass, p=0.102)
The effect of treatment on sex on hatchling will be evaluated during autumn.

Conclusions

The determination of the sensitive period will allow to further explore the proximate mechanisms of environmental sex determination in this squamate. The different treatments do not significantly affect hatchling viability (body weight, mortality).