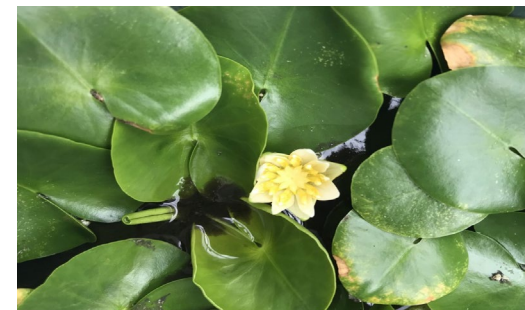


The effect of temperature on growth of *Nymphaea thermarum*

Department of Biology, Eastern Connecticut State University
Amanda Blejewski and Dr. Bryan A. Connolly



Objective/Hypotheses

To determine the effects of temperature on *Nymphaea thermarum* an African hot spring endemic species. We hypothesize that the highest temperature will yield the most amount of growth in *Nymphaea thermarum*.

Introduction

- Native to mud hot springs in southwestern Rwanda
- Critically endangered and extinct in the wild (Fischer, 2019).
- Plants have flowers a few centimeters in diameter and have bright green leaf rosettes.
- Requires shallow water and has a relatively short generation time of 5–6 months (Povilus, 2014).
- *N. thermarum* is a part of the Nymphaeales, one of the most ancient lineages of flowering plants (Povilus, 2014).

Acknowledgements

The Arnold Arboretum of Harvard University for supplying the seeds.

Methods

- *N. thermarum* seeds were obtained from Harvard University of the Arnold Arboretum.
- Seeds were grown in the ECSU greenhouse.
- Cultivated in pots 10 cm in diameter and 8.75 cm tall.
- 1.00 g of 14:14:14 Osmocote Flower and Vegetable fertilizer was added to each of the 36 pots.
- Pots were submerged in different temperatures of water.
- Water temperature and three leaves per plant were measured weekly.

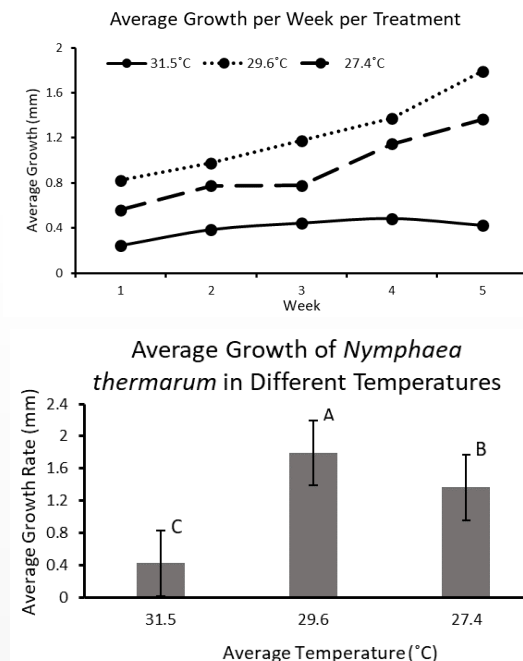


References

- Povilus, R., et al. 2014. Floral biology and ovule and seed ontogeny of *Nymphaea thermarum*, a water lily at the brink of extinction with potential as a model system for basal angiosperms. *Annals of Botany*. 1-16.
- Fischer, E., et al. 2019. *Nymphaea thermarum*. The IUCN Red List of Threatened Species 2019.

Results

- A one-way ANOVA showed that all three treatments were significantly different from one another.
- ANOVA gave a p-value of 6.2672e-13.



Conclusions/Future Directions

Nymphaea thermarum grew the most at the intermediate temperature of 29.6°C.

- Future studies will more closely regulate sunlight and moisture and use a larger number of individuals
- Cultivation studies such as this one, are critical to the survival of this species that is extinct in the wild.