Ontogeny of Southern Brook Lamprey (*Ichthyomyzon gagei*) with emphasis on abundance, distribution, and morphology in a small watershed

Ichthyomyzon gagei

SOUTHERN BROOK LAMPREY RESEARCH GROUP

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Background

Southern Brook Lamprey, *Ichthyomyzon gagei*, is a primitive, non-parasitic filter-feeder that lives in the South Eastern United States. They experience three life stages:

- ammocoete, metamorphosis, and adult

Stage Defining Characteristics:

- gill slits, caudal fins, and photoreceptive eyes

Habitat Preference:

- sandy clay substrate that allows for burrowing
- gravel-sandy substrate which is used during spawning

This Project

This study aims to assess the presence of Southern Brook Lamprey at nine sites within a small watershed, Panther Creek, on the Tombigbee National Forest just south of Starkville, Mississippi.

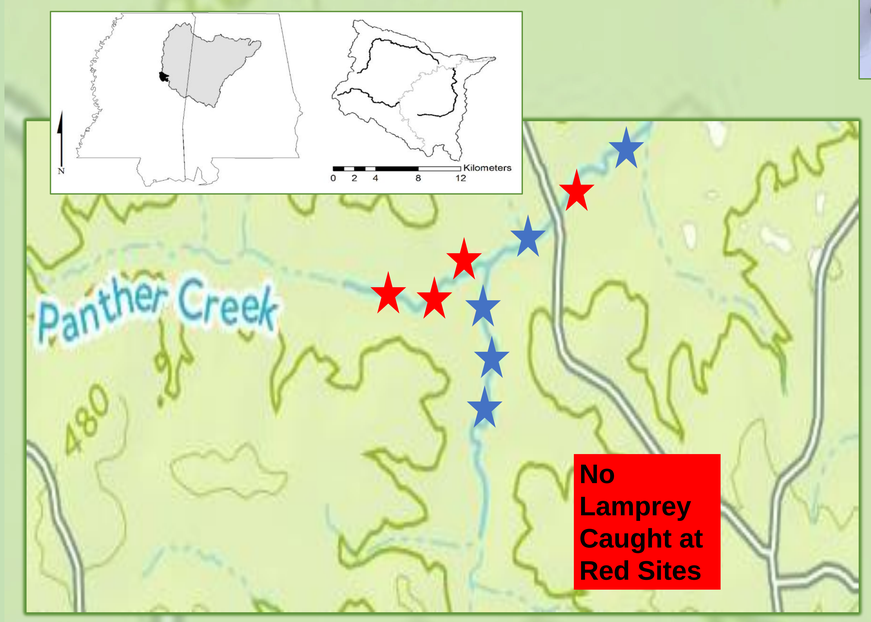
Objectives

1. Determine if Southern Brook Lamprey are present throughout Panther Creek.
2. Determine the influence of size on metamorphosis

Expectations

1. Southern Brook Lamprey will always present.
2. Metamorphic traits will always be present after a certain length.

Study Area: Panther Creek



Life Stage Analysis

Life Stage 1: Ammocoete

Life Stage 2: Metamorphosis/ Transformer

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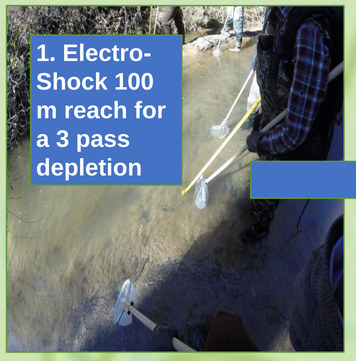
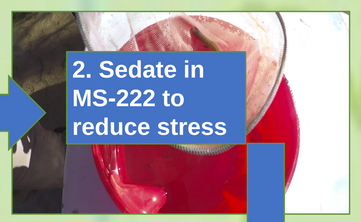
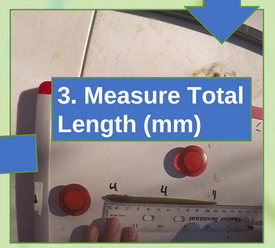
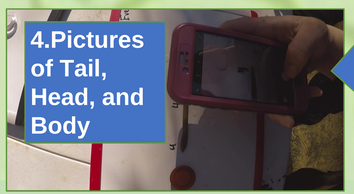
Life Stage 3: Adult

Methods



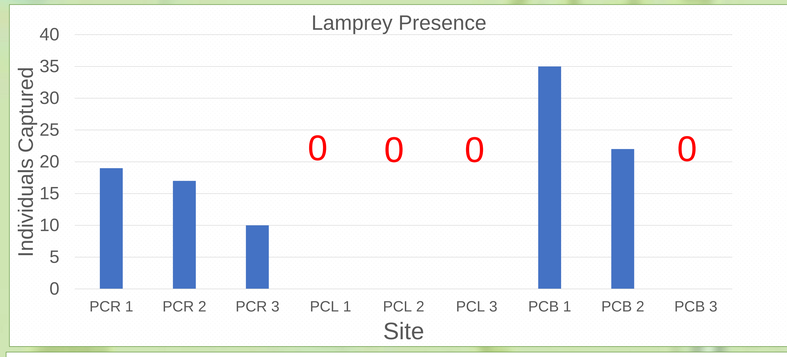






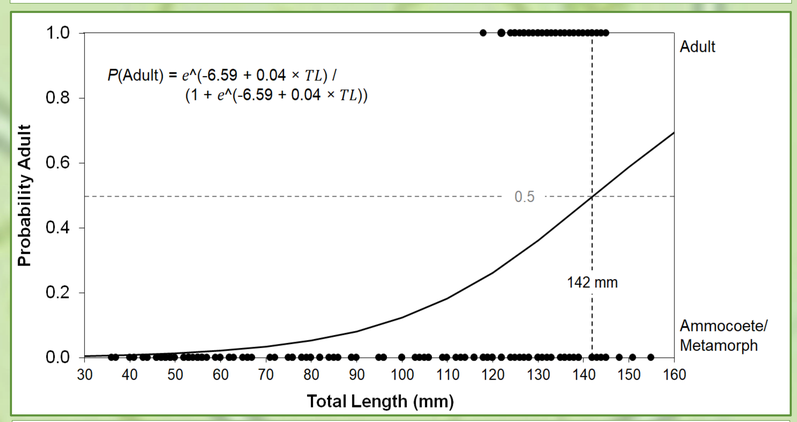
Results: Objective 1

1. Southern Brook Lamprey were absent from 4 of the 9 sites.
2. 123 individuals;30 adults (24.3%) and 93 ammocoetes (75.6%)



Results: Objective 2

1. Size and life stage experience overlap. (0 = ammocoete; 1= adult)
2. The majority of the fish captured were between 36-63mm and 117-144mm.



Conclusion: Objective 1

Southern Brook Lamprey are absent at some points.
The empty sites are likely due to habitat within those areas.

- 3 southern sites cut off from creek by waterfall.
- 1 northern site is completely bedrock

Conclusion: Objective 2

Size does appear to have some kind of impact on metamorphosis, **BUT**

- it is not a good predictor of metamorphosis will occur
- there is likely another biological or environmental factor

For the Future

Further morphometric analysis using ImageJ software may lead to a suitable predictor (e.g., dorsal fin height).