

Lack of Seasonality for Cercariae of
Nanophyetus salmincola in the Snail *Juga
silicula*

An Honors Thesis by Shelby Nicole Lofton

Purpose

Building upon knowledge of the life cycle of *Nanophyetus salmincola*.

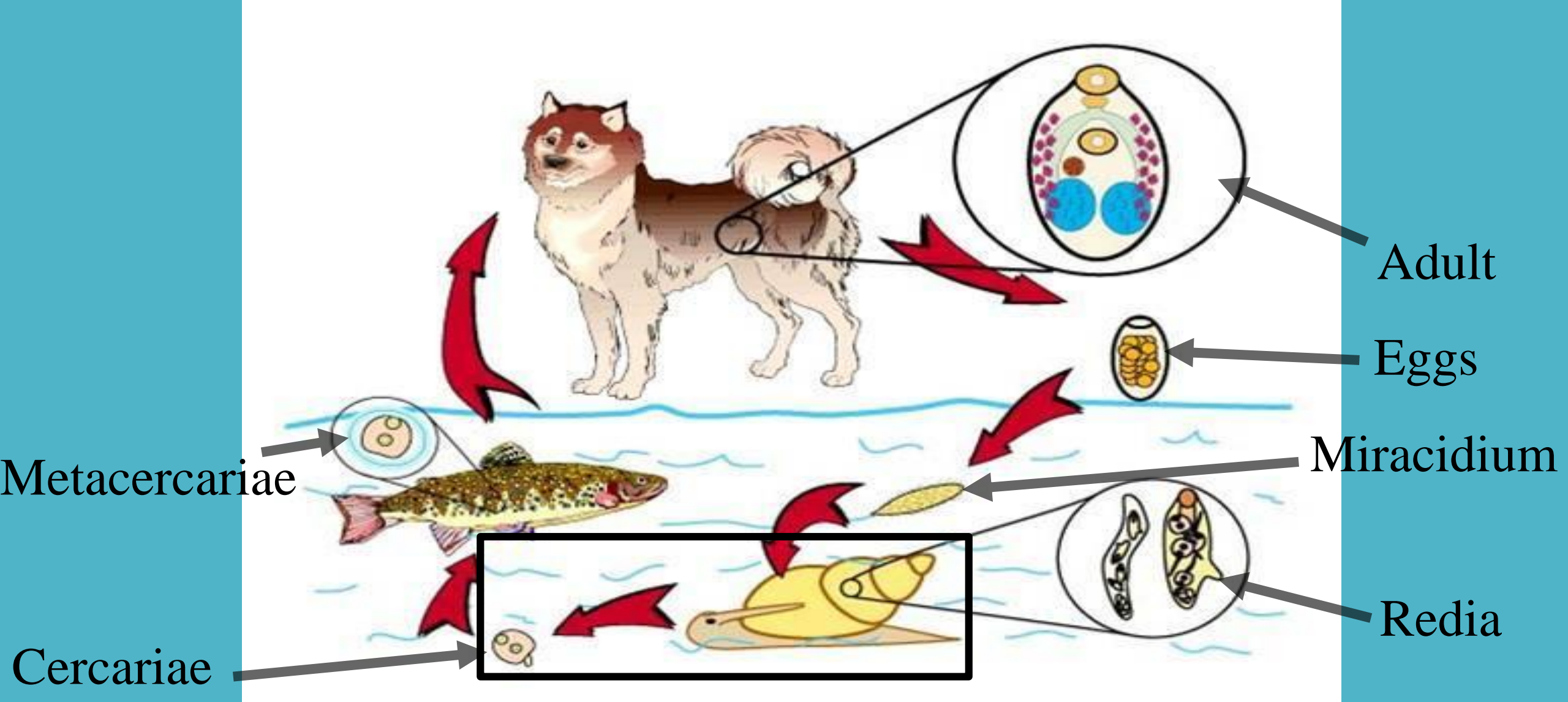
Hypothesis

Colder water temperatures result in greater amounts of shed *N. salmincola* cercariae than warm water temperatures.



Introduction

Juga snail & *Nanophyetus salmincola*



Life cycle of *N. salmincola* is considered complex with 3 hosts & 6 life stages.

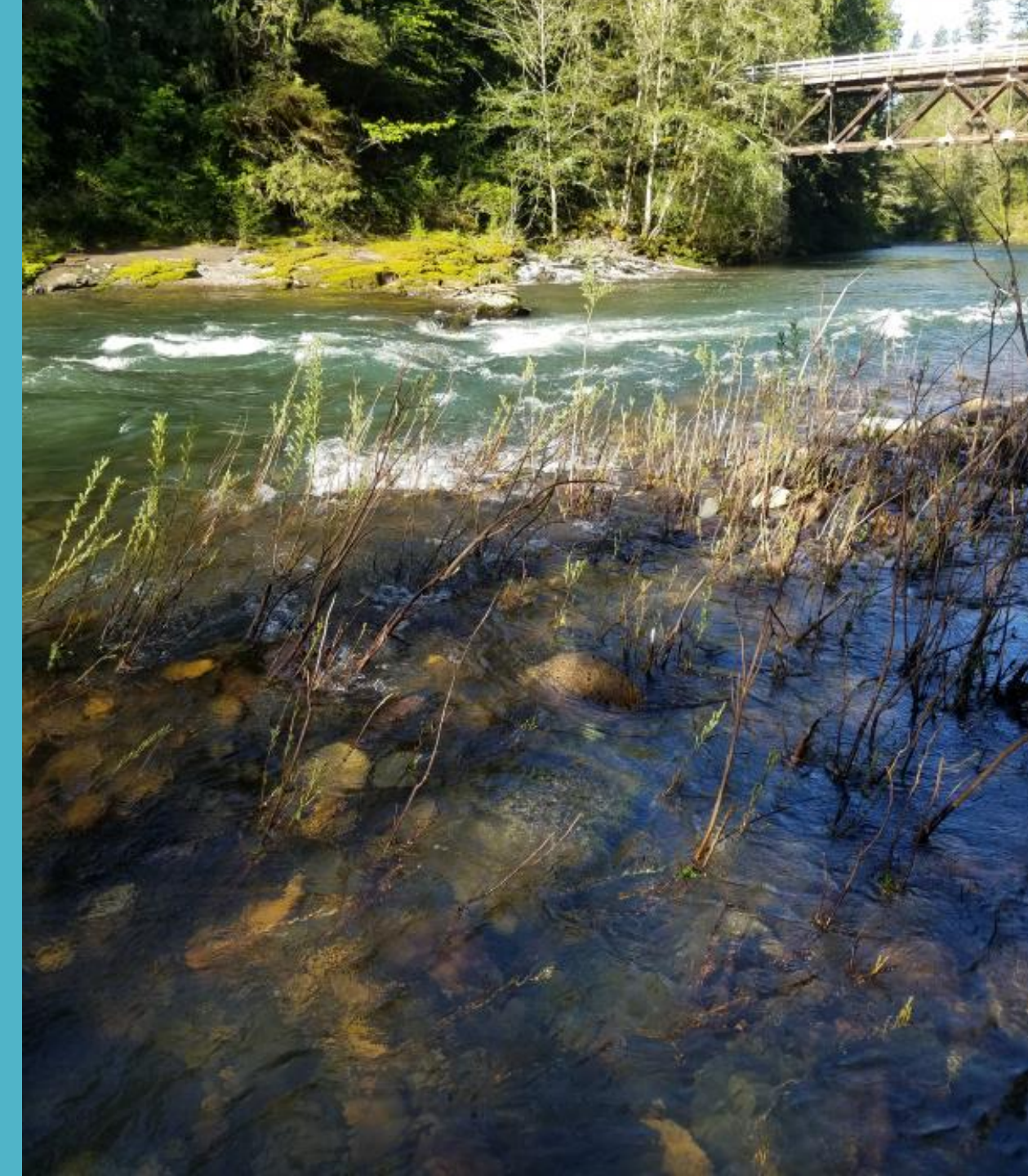
Juga Snail

- *Juga silicula*
- Generalist
- Live up to seven years



Materials & Methods

How I did what I did



South Santiam River

- Cold water site
- Found at Cascadia State Park



Oak Creek

- Warm water site
- Found at Oregon State University

Sample Reach

- Locations
- Transects: 3x3m
- Sampling: range of substrates
- Collecting snails





Experimental Design

- Sampling: end of month
- Data: °C
- Returning

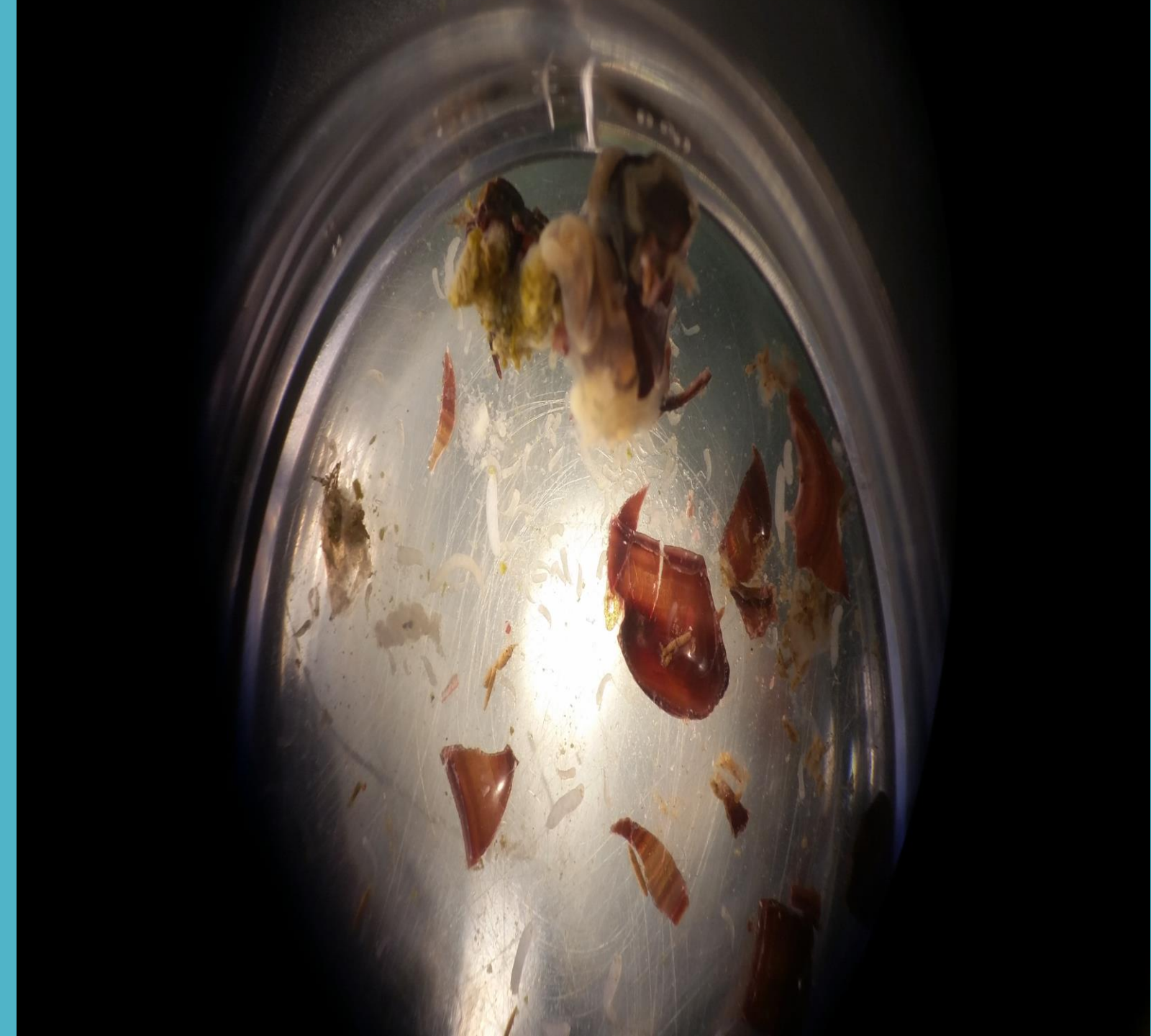
Parasite evaluations

➤ Laboratory: snail incubation

-Light exposure

-12 well plate





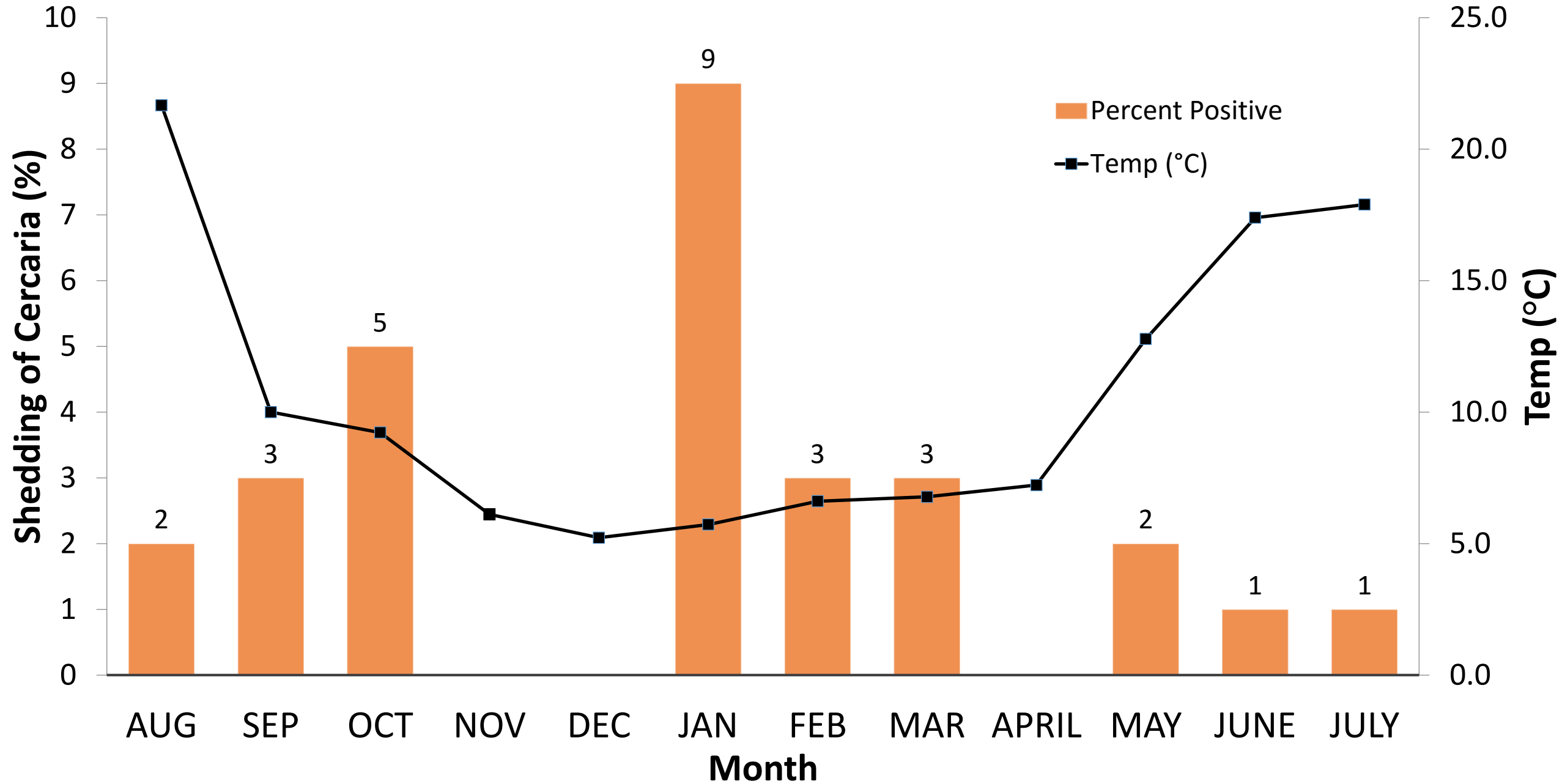
Through the Microscope

- Dissecting
microscope
- Measurement
- Determined
presence/prevalence
of cercariae

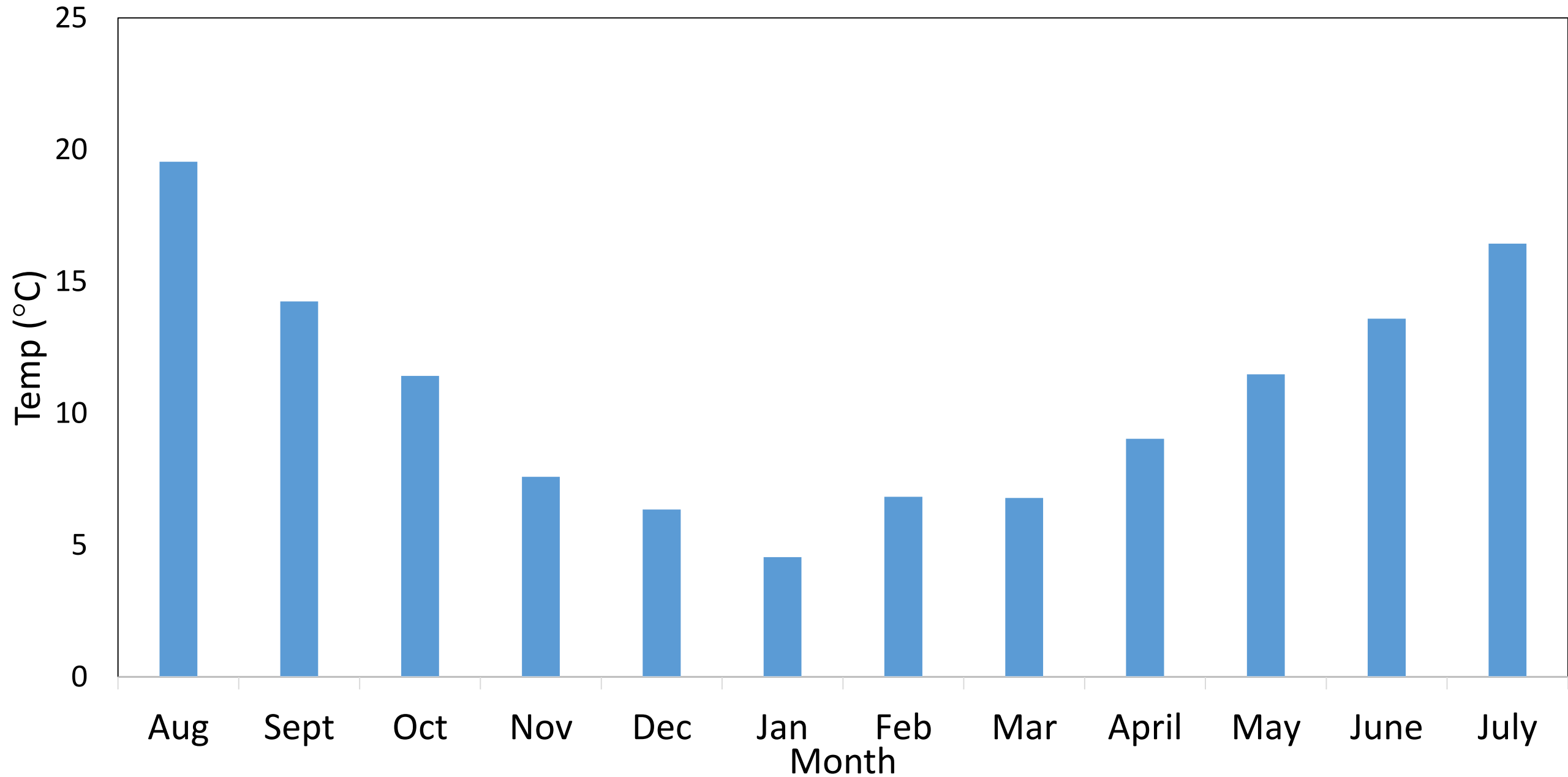
Results

Found it

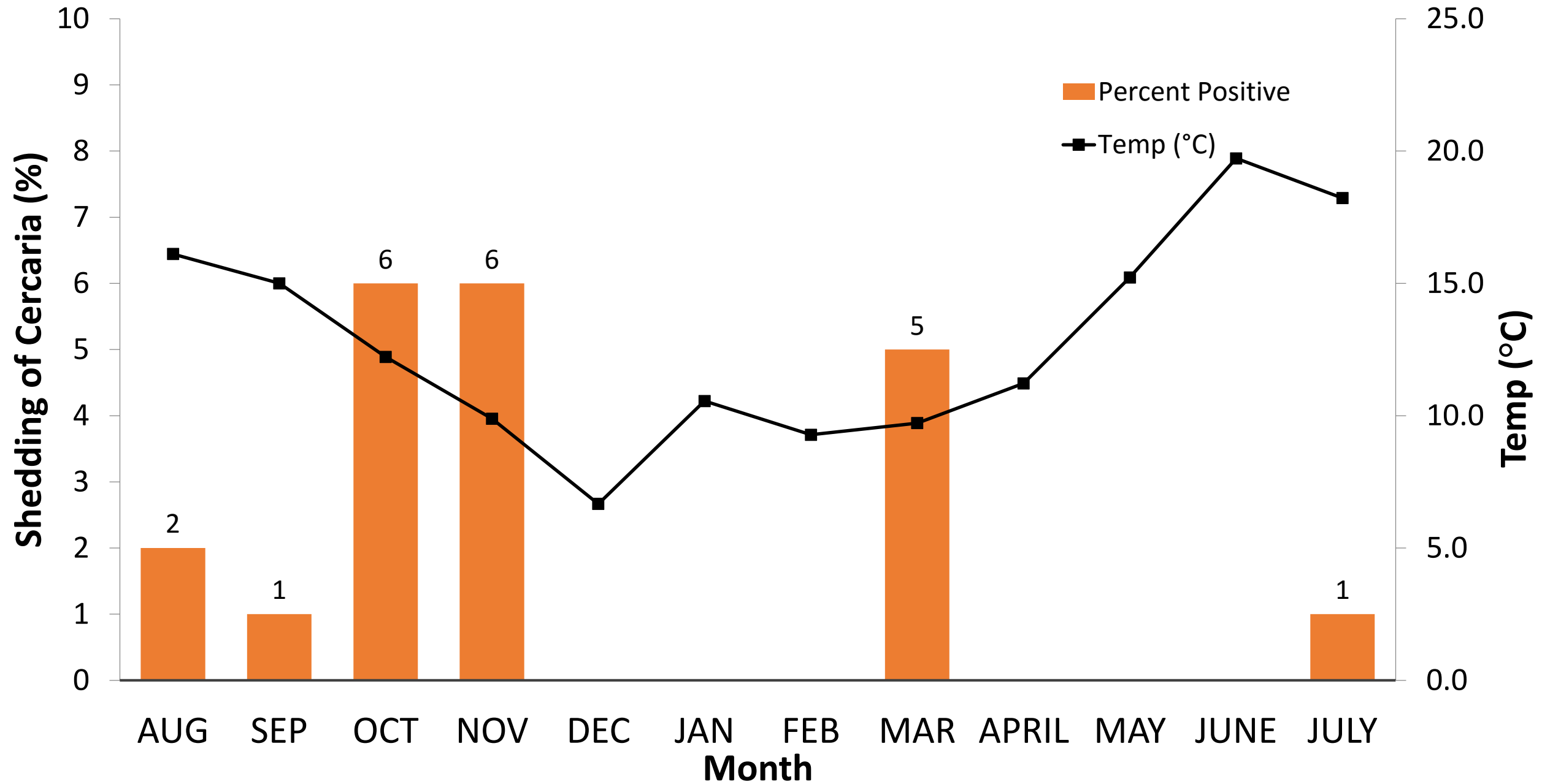
South Santiam River Shedding & Temperatures



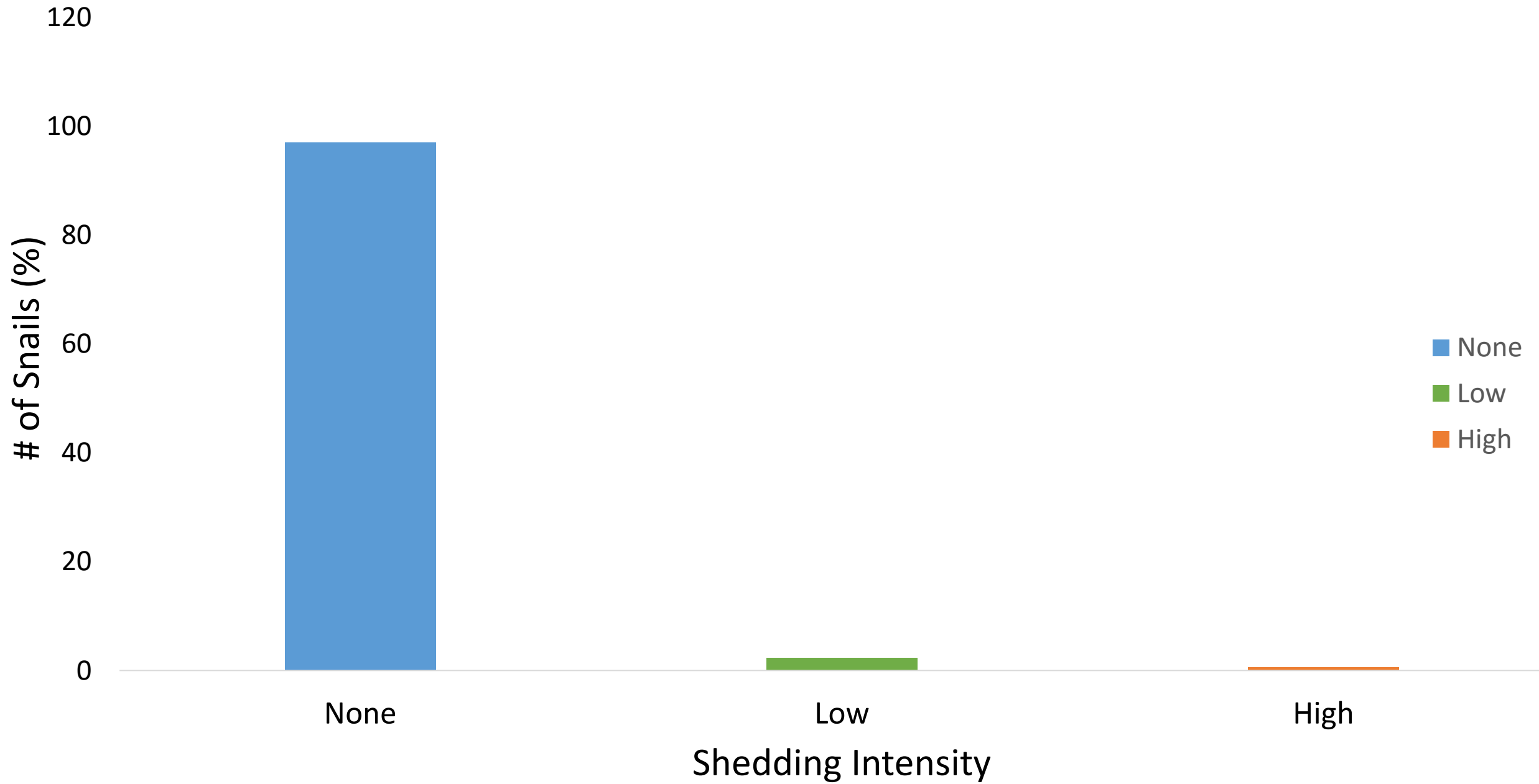
Daily mean temperatures of South Santiam River



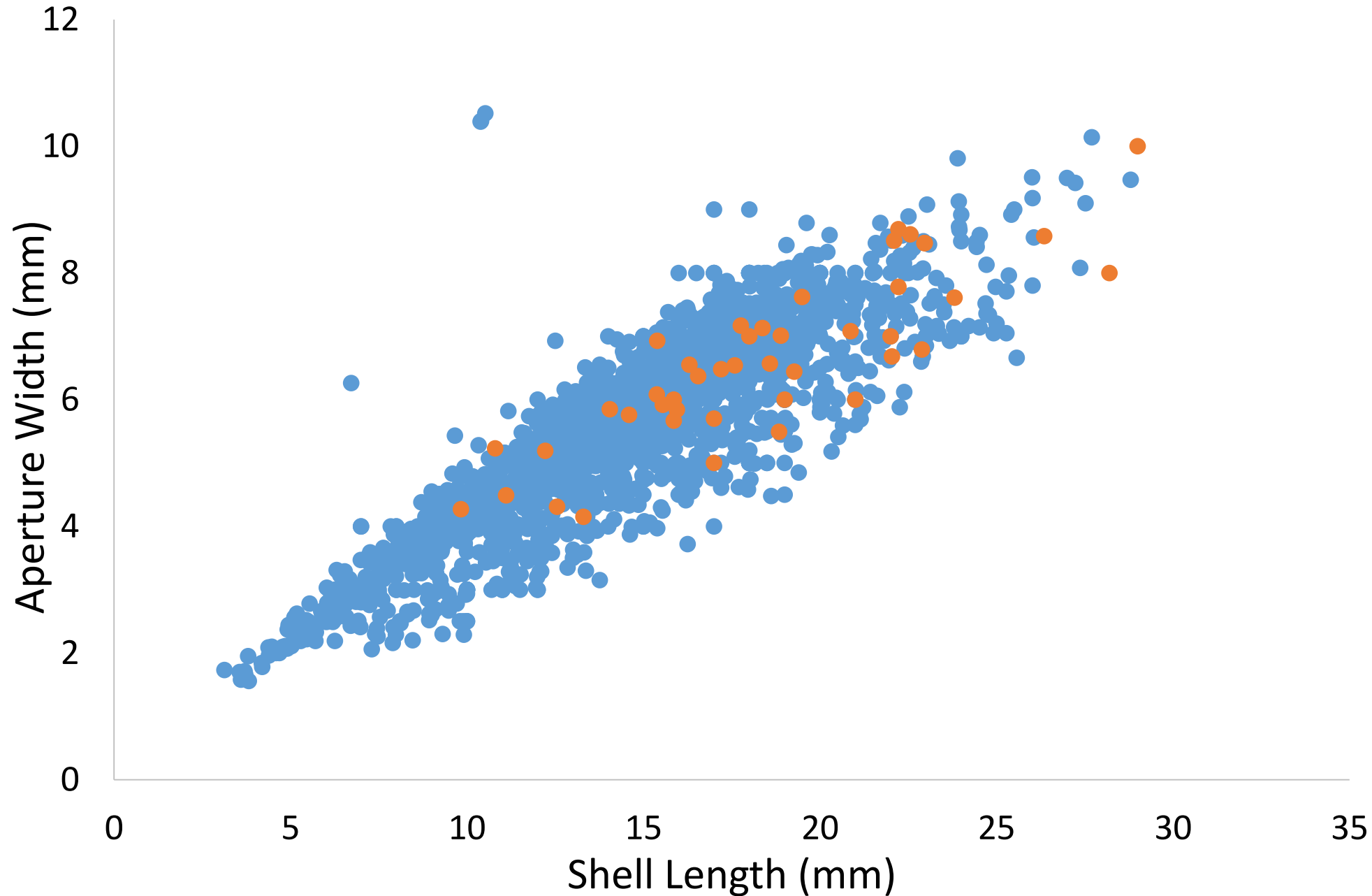
Oak Creek Shedding & Temperatures



Shedding Intensity



Snail Dimensions



➤ Length & width $p = 0.0000$

➤ $> 4\text{mm}$ in width $p = 0.0077$

➤ Month to month $p = 0.2470$

Conclusion

What could this mean?

Maturation & Shedding of Cercariae

- Stream temperature & time of year did not appear to be a contributing factor to shedding of *N. salmincola* cercariae.
- Maturation: no clean pattern
- Supported by data from colleagues

Date	Site	Temp (°C)	Shed Cercariae (%)	Number of Snails
8/13/2014	SDL	16-17	6	108
8/19/2014	SDL	16-17	14	98
8/26/2014	Kings Valley	19	12	NA

Date	Temp (°C)	Number of Snails	Shed Cercariae (%)
5/7/2014	7.4	125	2.4
5/8/2014	7.8	74	6.8
5/14/2014	8.6	136	1.5
6/18/2014	9.1	111	4.5
10/21/2014	10.3	108	0
3/4/2015	4.9	217	0
4/15/2015	6.7	195	1.5
5/4/2015	8.5	333	3.3
5/28/2015	9.8	232	4.7



Implies fish can be
vulnerable to
infection by *N.*
salmoncola at any
time during the year.

Here's where I Drop the mic

Questions?



It's a Jungle out there!

by HAGEN



No Timmy, this gentleman is not homeless:
He is a slug...

Hagen Cartoons: <http://www.hagencartoons.com>

Thank
you