



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

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Project Title
Embryonic Development Rates of Taricha torosa Subjected to Varying Light Levels

Objectives/Goals **Abstract**
Question: Does the amount of full spectrum light in a newt egg's surroundings determine embryonic development and hatch rate?

Hypothesis: The newt eggs will develop and hatch quicker with the equivalent of some sunlight penetration

Methods/Materials

1. Identify a known newt pond location
2. Collect water from adjacent freshwater watershed
3. Hike up to newt pond and check for newt displaying mating behavior.
4. Collect two amplexing pairs of newts (male/female pair in courtship)
5. Measure equal amounts of water (2 cups) for the newt eggs# permanent containers
6. Make sure water samples are at desired temperatures for each tank prior to contact with the eggs.
7. Set up two identical tanks with aerator systems and egg attachment points
8. Allow newts to mate and lay eggs. Remove newts after eggs have been laid.
9. Cover one of the tanks completely so that no light penetrates into the tank, allow the second tank to remain clear for light penetration
10. Tank A will consist of exposure of eggs to full spectrum light
11. Tank B will consist of no light exposure
12. Record any initial differences
13. Check tanks daily and photograph embryos
14. Record time of first noticeable embryonic movement
15. Draw conclusions

Results
Eggs exposed to full spectrum light developed at a faster rate than those kept in a darkened environment. The embryos in Tank A (light tank) developed a comma shape several days ahead of their counterparts in Tank B (darkened tank). They also exhibited movement inside of their eggs at a much earlier

Conclusions/Discussion
Based upon the difference between the samples, I conclude that when female newts lay their eggs in nature, they want to ensure they lay them close enough to the surface of the water so that ultra-violet light penetrates to the eggs. However, if she lays the eggs too close to the water's surface, there is a danger that

Summary Statement
Does exposure of newt eggs to full spectrum light affect the rate of embryonic development?

Help Received
East Bay Regional Park District naturalist Cynthia Taylor oversaw collection and set up of this experiment.