

JENNA MC CULLOUGH

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Bleak Taylor Intern 2012

Research: "Vocal Behavior of Forest Owls
in the Frank Church Wilderness, Idaho"

To the DeVlieg Foundation
and Clara Bleak,

My name is Jenna McCullough, and I am one of this year's Bleak Taylor Interns. I am a junior at the University of Idaho, studying Biology and Wildlife Resources. I plan on pursuing a master's degree in zoology when I graduate in 2014.



My project is entitled "Vocal Behavior of Forest Owls in the Frank Church Wilderness, Idaho". It was initially based on a field research project for Northern Saw-whet owls in Boardman Oregon. Courtney Conway is my advisor/professor for both projects. My results this summer were not as expected, none of my 15 wooden owl boxes were occupied nor was it the prime season to survey for owls (they generally call much more in the spring, during breeding season). I think I successfully adapted my project according to my situation.

I cannot explain how wonderful this summer was, it has helped me grow as a functioning adult and as a scientist. Believe it or not, I had never used a hammer before! I really enjoyed learning about the Sheep-Eater Indians, in the future maybe an astrology or survival lesson?

Thank you for supporting my career as a biologist.

**Jenna
McCullough**

See Page 2
for description
Of my research
Project.



JENNA MC CULLOUGH – Bleak Intern 2012

Research: “**Vocal Behavior of Forest Owls in the River of No Return Wilderness, Idaho**”

The goal of this project is to identify the best survey methods and the most effective timeframe to conduct surveys in the River of No Return Wilderness Area, Idaho for:

Northern Saw-whet (*Aegolius acadicus*),

Boreal (*Aegolius funereus*)

Screech (*Megascops kennicottii*)

Great Horned Owls (*Bubo virginianus*)

- I will test whether conspecific call-broadcast surveys increase detection probability compared to passive point-count surveys for each species.
- I will also test whether surveys that include broadcasts of multiple species of owls are more or less effective than surveys that include broadcast of only a single focal species.
- I will build and place 15 wooden nest boxes (attached to trees via bungee cords) in forested areas on Taylor Ranch and surrounding areas. The nest boxes will be identical to those used at a comparison site in Boardman, Oregon where >50 pairs of Saw-whet Owls have used (and fledged offspring in) these boxes each of the past 5 years.
- I will use a Global Positioning System (GPS) receiver to record the location of each nest box. If owls nest in any of the nest boxes, I will compare vocal behavior of owls at different stages of the nesting cycle (incubation, nestling, post-fledging) and compare clutch size and number of offspring fledged between owls nesting in the wilderness area and those nesting in a commercial tree farm in Boardman, Oregon.
- I will also compare responsiveness among different times of the night, between sunset and sunrise, throughout the 10-week period.

TAYLOR RANCH INTERN

Jenna McCullough



- Hello! My name is Jenna McCullough and I am a sophomore with dual majors in biology and wildlife resources at the University of Idaho.
- I am researching the vocal behavior of owls, looking specifically at the optimal time and method of surveying for owls.



- In the spring of my freshman year, I began volunteering for Courtney Conway by collecting data on Northern Saw-whet Owls. A large aspen tree farm outside of Boardman, Oregon recorded a large population of these owls in wooden boxes they had put up. I assisted in the banding of these twenty-four nesting pairs and their offspring. This is how I became involved with owls.

VOCAL BEHAVIOR OF OWLS

- The question I am asking is whether call broadcast (a type of survey technique for owls) increases detection rates of owls.
- I am also looking at which time period of the night would be best to survey for owls.
- I had Landon set up fifteen owl boxes in forested areas. Little did I know there is not a lot of easily accessible forested areas, because of the fire a decade ago.



SURVEYING

- None of the boxes were occupied. The main reason is because I would have had to get the boxes made, shipped, then put up by hand in February (before I had even applied for the internship).
- Also, boxes were put up in thin stands of trees (similar to that on the right) that had escaped the fire. They were incredibly hard to get to in the daytime, let alone at night, when I would be broadcasting.



- Instead of relying on the boxes, I opted to create survey routes on the trails around Taylor that I could do in the middle of the night.
- I have three survey periods: thirty minutes after sunset to one A.M., one A.M. to three A.M., and three A.M. to sunrise.
- Previous papers suggest that owls call more in the first time period, and my data has also suggested that as well.

SURVEYING CONT.

- Each of my survey points are slightly off trails, in forested areas, and are at least four hundred meters away from each other. They are not surveyed more than once every six days.
- Each survey begins with a two minute settling period, then five one minute intervals of passive listening.



- Next, the territorial call of five owls are played in succession starting from the smallest, Northern Saw Whet, and ending with the largest, the Great Horned Owl. Each call lasts for thirty seconds, then a thirty second period of listening follows.
- At the beginning of each survey, I record the date, time, cloud cover, wind speed, and external noise. Cloud cover, wind speed and external noise are rated on scales of zero to four. Temperature is also added to the data sheet from information taken on Taylor property.

WHAT I AM LISTENING FOR:



- (Starting counterclockwise from the left) Northern Saw Whet Owl, Flammulated Owl, Boreal Owl, Western Screech Owl, Great Horned Owl



MY RESULTS:

- My data shows that owls call more frequently during the first time period: thirty minutes after sunset to one A.M., and that more owls responded to a broadcasted call than those who just called during the passive 5 minutes of listening.
- If I were to redo this study, I would choose to do it during mating season, when more males are calling to attract mates, rather than during the summer when their chicks have already fledged (left the nest for good).



- If you would like to experience what my summer was like, I suggest hiking three miles at two in the morning to sit in silence for ten minutes. You can also hear two Western Screech Owls on Taylor Property at dusk sometimes. As my data and ornithologist peers suggest, thirty minutes after sunset to one A.M. with clear sky is the optimal time to hear them.

OTHER EXPERIENCES

- Eliza Campbell and I became friends while we helped each other with our respective projects. She would tag along with me at night, and I would help her survey for noxious weeds during the day.





My entire experience with Taylor has been positive. I have learned so many life skills here that I wouldn't have known. Like using a machete, a hammer and a pickaxe. I also learned how to pour concrete!



Thank you!

- Interning at Taylor Ranch reinforced my love for biology and research. I am incredibly confident in my career path, and am excited for the next three years at the University of Idaho.
- Thank you so much for supporting my education and my future as a zoologist. The information I learned at Taylor Ranch aids me academically, and my memories I made here will last a lifetime.

