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*Latin American banders deep into tanagers.*

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### **Developing an Electronic System to Automatically Detect Small Owl Net Captures**

Rocky Point Bird Observatory's (RPBO) Nocturnal Owl Monitoring Project captures large numbers of Northern Saw-whet Owls (*Aegolius acadicus*) each year. Since establishing a second station seven years ago, we have banded an average of 1,010 saw-whets annually with one remarkable year with 1,850. To think that before we began this project they were considered rare in our area. Between our two stations, an average of 16 Barred Owls (*Strix varia*) are also banded each year (predominantly at our Rocky Point station).

Barred Owls are known predators of smaller owls such as screech owls (*Megascops* spp.) and saw-whets. To reduce predations during operations, RPBO has tried a number of methods, including increasing the frequency of net checks and attempting to capture Barred Owls before

and during monitoring. When predation risk was considered to be high, volunteers have been stationed in the net lanes to sit quietly at the nets to detect and quickly remove saw-whets and to keep an eye out for predators. This makes for a long, cold, lonely night.

It was while I was on such a stationary watch post that the idea for an owl net sensor came about. I was holding the pole for one of the nets when I felt it vibrate as a saw-whet hit the net. I thought that an electronic sensor should be able to detect the vibration. I prototyped a simple setup and had success in a mock trial. I contacted a local community college and a group of students built out the system including communications to a home base (with a range of almost 400 m). Unfortunately, we were not able to test it in the field.

This wireless, battery-operated system consists of one sensor unit per net and one remote hub to gather the messages from the sensors and transmit them to a receiver at the banding station. The hub and receiver are based on the Raspberry Pi computing platform. The sensor is based on a piezo vibration sensor with a small Arduino circuit board for communication. Communication between the net sensors and hub is WiFi (2.4GHz) and has a maximum range of around 32 m. The hub communicates with the banding station using a long range 900 Mhz RF link (maximum tested range 395 m).

This past year there was a predation incident at a station in the Eastern U.S. The bander was very disturbed by this and contacted the electrical department at his university. Together they put together a net sensor that detects when a saw-whet hits the net and turns on a spotlight alerting the banding team. I am hoping to get the plans for this sensor to see if we can adapt it to our use. If anyone wants to collaborate on this project, I will welcome his/her involvement.

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