



ESSEX MAN GETS \$260,000 GRANT FOR WILDLIFE TRANSMITTER TECHNOLOGY, GROWING INTEREST IN BIRDHOUSE MON

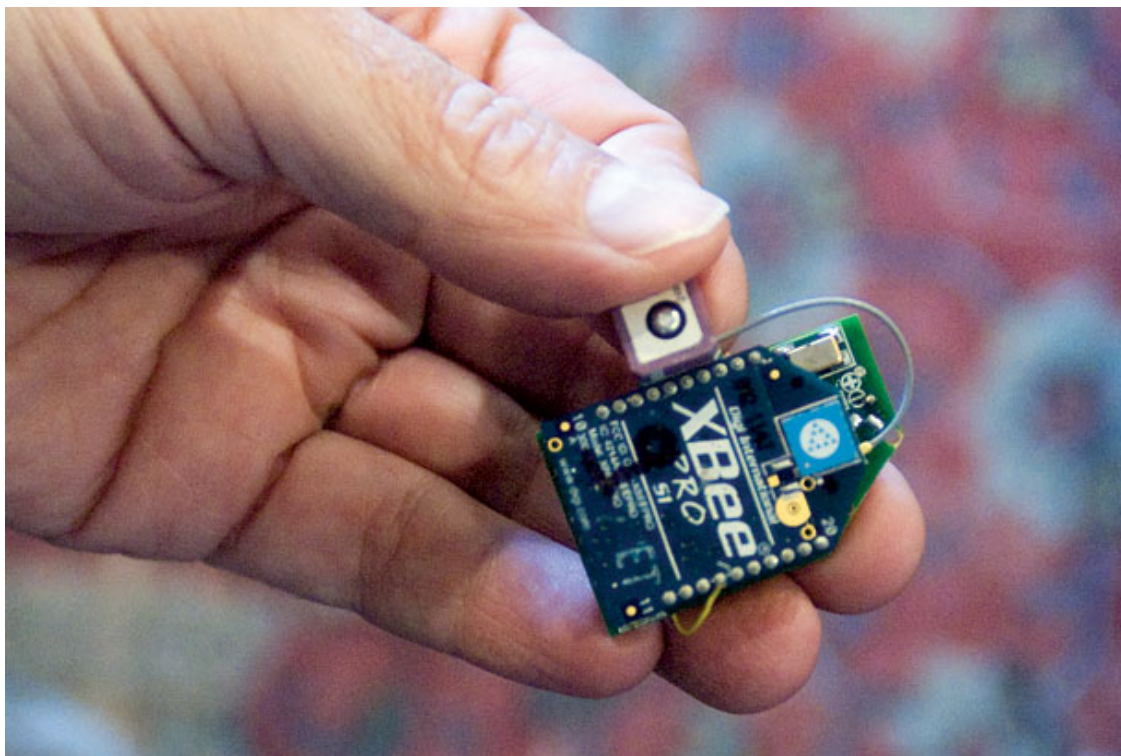
A Breakthrough in Backyard Biology

By Myers Reece, 5-22-11

ESSEX – For much of the past year, Doug Bonham has holed up in his Essex home, building circuit boards and dreaming about birds.

His last paycheck came last April, around the time he lost his electronics job in Seattle. Since then, he has lived off an ever-dwindling savings account. But he always knew he had an idea with vast potential, an idea with wings, if he could only get it to fly.

Bonham's perseverance has proven worth the year of financial uncertainty. The National Science Foundation recently awarded Bonham's one-man business Hawk-Owl Systems, in partnership with Craighead Beringia South, a \$260,000 grant to continue efforts to improve technology for wildlife research transmitters.



Caption: Sitting in his Essex home, Doug Bonham holds a prototype circuit board to be used in a transmitter that tracks wildlife. - Lido Vizzutti/Flathead Beacon

Bonham believes his work could potentially have far-reaching impacts on wildlife biology, and he says another project involving birdhouse-monitoring equipment is an innovation in "citizen science."

"I cleared out my savings," Bonham said from his home last week. "I was down to nickels and dimes, so it was a big risk. But I was confident."

After 25 years in electronics, including a period in the wildlife transmitter field, Bonham lost his job last April. But he had been in the transmitter business long enough to see ways that it could be improved, not the least of which is cost.

Bonham said most wildlife transmitters, which are attached to animals to monitor their activity and location, cost between \$2,000 and \$7,000, a steep price for shallow-pocketed biologists. But transmitters using Bonham's technology – the circuit boards he has designed and the software he has written – will run around \$1,000, he said.

Not to mention, he said they outperform other transmitters in their ability to incorporate three different technologies: GPS,

two-way radio and satellite.

“Specifically with birds, it’s definitely a novel approach to try to combine these technologies,” said Bryan Bedrosian, a wildlife biologist with Bonham’s partner Craighead Beringia South.

“What makes us so excited about it,” he added, “is how we’re going to get these transmitters out to the research community at a lower price.”

Craighead Beringia South is a nonprofit science and education institute located in Kelly, Wyo. It was founded by Derek Craighead of the famed Craighead family, known for their contributions to wildlife research. Derek’s father John and uncle Frank pioneered the wildlife transmitter field, particularly for tracking grizzly bears.

Bedrosian and Bonham said it’s extremely uncommon for a nonprofit to be awarded the National Science Foundation grant. Typically, it goes to a university research institution.

Bonham will build the prototypes and then pass them on to S & K Electronics out of Ronan where the transmitters will be produced in larger quantities. Biologists can customize them, with materials such as epoxy, to fit them to specific animals.

There is one of Bonham’s transmitters out in the field, attached to a golden eagle near Livingston. Bedrosian is pleased with the results.

“We have over 1,800 accurate GPS locations and it’s been just over a month,” Bedrosian said.

Bonham has also been working on another project geared toward what he calls “citizen science.” He has created technology that can be installed in customized birdhouses to monitor bird activity. Bonham envisions bird lovers using the monitors in their yards as a hobby, while contributing to science.

The technology collects data, which is retrieved through a USB connection and uploaded into a database where it can be compared with other findings across the country or world. The information can also be printed out in charts and spreadsheets. Cameras installed in the birdhouses take photographs to accompany the data.

Much can be gleaned from the data, Bonham said, including feeding activity, the habits of newborns and the effect that outside human disruption has on bird behavior. In addition to his career in electronics, Bonham also has a background in biology.

“I’m hoping it begins to show people what science is,” he said. “It’s an open process. You don’t need a Ph.D. or a lab coat. Anybody can go to a science conference. Anybody with valid data can contribute.”

Bonham said he has received interest from the University of Montana and Boise State University in pursuing funding for the nest-monitoring technology. Julie Heath, an assistant professor in BSU’s Department of Biological Sciences, said the university has one of Bonham’s units, without a camera, up and running.

“Right now we have 150 nest boxes and it would be great to have every one have a monitor and a camera,” she said.

The units, Heath said, will help in the university’s studies of American Kestrels and provide an alternative to stationing a researcher near the nest.

“The nest box monitors he’s developing will allow us to observe bird behavior that we don’t normally get,” she said. “It’s hard to see into a nest.”

For Bonham, it’s nice to be part of this kind of work again, decades after he earned his bachelor’s degree in wildlife biology at UM.

“I always wanted to get back into biology,” he said. “This is a way to combine biology with 25 years of electronics.” **[End of article]**

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