Arizona Wildlife Podcast

Transcript: Episode 5 – Monitoring Wildlife Populations

(Please note: this podcast was recorded live from a public presentation. It was not a rehearsed speech. This transcript attempts to capture the dialogue as it was spoken. At times when the speech was difficult to hear or understand, a good effort was made. These rare cases are noted in the text.)

The content for this episode came from the training day at the 2008 National Envirothon competition. It was originally recorded on July 29, 2008, outdoors at the Flagstaff Arboretum. It consisted of Arizona Game and Fish Department employees providing background information about some of the wildlife and wildlife issues found in the state. It concluded with a question and answer session by the students participating in the competition.

Listen as Eric Proctor discusses the different techniques biologists use to monitor wildlife populations and how technology has improved this monitoring.

ERIC:
We have found that monitoring wildlife populations can give us many clues as to the overall health of an ecosystem. We can start monitoring is the…is the…are certain populations declining? Are certain populations increasing? What is that telling us about how the ecosystem is changing? So we monitor populations to determine the health of the overall environment. That's something that we've been doing. So the question then is: how do we monitor wildlife populations? What are some techniques that you might be able to think of for ways that we might monitor populations of wild animals?

Yes.

STUDENT:
Helicopter surveys.[1]

ERIC:
Helicopter surveys, absolutely. Helicopter or even airplane surveys. We'll actually get above something and fly and count animals. Okay. We'll see what we can see. It's really effective in the snow. Big black animal sticks out really well in the snow. You can go and count all the big black dots. Okay. That's one way. It's pretty intensive. Counting animals can be difficult because are you really being sure that you're getting all of them.

STUDENT:
Um, you could do quadrant surveys for smaller animals.[1]

ERIC:
Okay, we could do quadrant surveys, absolutely. Another sampling technique would be random sampling where you…where you capture a bunch of animals, you place some sort of identifier on them, release them out, and capture them again and see how many recaptured ones you got and you could do some estimates. Quadrant surveys as well. You can…you can survey a particular area.

Now we're using technology. One of the most common methods that saves us time as well as given us a lot more data that we didn't have before is using what we would call radio collars. Okay. Now there are the old school radio collars that we still use depending on the purpose and those would be just a simple collar and all it does is send out a nice little beeping. Typically on a frequency that you can't hear. You need to get a special receiver. But it just sends out a beep. It does nothing else. Okay. We use that on our wolf project. And the whole point of that is you've probably seen TV shows where they get out there with the big antenna and they listen. That's what they're doing. They've…they've trapped an animal. They've put a collar on it and then rereleased it. Then they go and they find the location of it. Okay.

Now, with the increase in things like GIS and GPS has helped us with what we call GPS collars now. These are slightly larger collars. We use them typically on larger animals – elk, bighorn sheep. We could use them on the wolves if we want. We're…we're getting some technology that allows us to get smaller, as well. But these are collars that we'll put on and they can track wherever the animal is basically at any time. It will store the data on the collar, okay, and then we can retrieve that collar. So we might be able to get location information every 6 hours, for example. We could know where that elk was every six hours, every 4 hours, every 12 hours, whatever the need was. So, where before we went out with that little antenna and maybe got us a location every two weeks, now we can get much more common data allowing us to get a lot more. Tracking those populations, we're seeing how big their home ranges are; how are they using their habitat, okay; where are the water sources; where is their shelter all those types of things we can track by using these collars. Okay. So, that's an example of technology and how technology has changed what we're doing.

Now another cool example of using those collars and other examples of technology is along highways. Now highways have become a massive, massive challenge for our wildlife biologists. Why are highways so bad? Why is it a challenge for wildlife?

STUDENT:
They disrupt animal corridors.[1]

ERIC:
They disrupt animal corridors. Something called habitat fragmentation, okay. They split the habitat. You put a big highway in the middle of the forest, okay, you've probably split the habitat. An elk might be on this side of the forest…of the highway; its food might be on this side of the highway. It now has to cross the highway. We have two areas in the state, in particular, I-17, just south of Flagstaff, as well as another area outside of another town that we have called Payson. These two areas are in the high…what we would call the high country. They're… they're highly travelled roads by recreationists, people leaving Phoenix to escape the heat. They come up to the high country on these two roads, and these two areas are two of the highest what we call elk-vehicle collisions rates in the country. So, these are places where elk and vehicles are hitting each other, usually in bad results. Now what we're doing is using those GPS collars we talked about to figure out how the…the elk are behaving along the highways, and figuring out ways that we can help make these highways permeable. What does it mean to make a highway permeable?

Yes.

STUDENT:
To allow elk to pass across.

ERIC:
Yeah, permeable means to pass through. So the idea is how do we get elk from one side of the road to the other without basically putting them on the road. There are two ways you can do that. You can send them

over the road or you can send them under the road. And you use different techniques for different reasons. We're not going to get specifically into those. But right now along, outside Payson and right down south of, um, Flagstaff where we're working on this as well, we're putting underpasses. We're actually using the collars to figure out where are the elk moving and then we'll put an underpass there that guides them so that instead of crossing the road and being hit by a car they can just travel over and not be disturbed by the cars.[2] Now, that's good to an extent. They're going to come to the road and, hopefully, we have a fence set up so they can't cross. So when they hit the fence, they'll go left or they'll go right. One direction will take them to the underpass; the other direction is going to take them to the end of the fence. You can't build these underpasses everywhere. At the end of the fence now, what's going to happen? Those elk are now going to cross the street. So we've actually developed, and this is just being researched right now, an elk crosswalk. Now how do you think an elk crosswalk might work?

STUDENT:
It uses sensors.[1]

ERIC:
It uses sensors. Does the elk just come up and push a button and its ready to cross? Not quite. It's using sensors. What we have is this software that's actually sitting in the trees, or somewhere on a radio tower, and then it can detect when an elk is near the road in this particular area. Okay. And what it will do is send a signal down the road warning cars that there's an elk on the road. It doesn't stop the cars. There's no stoplight that goes into effect. But it just sends a signal saying, "Hey, elk on the road. Please slow down." And so we hope that the cars will slow down and sort of watch for those elk. So, we're in the process of researching it to see if those are effective. So, those are examples of technology that we're using, primarily GPS collars, to monitor wildlife and solve a problem.

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Thank you.

[1] Due to the quality of the recording, many of the student responses were not picked up entirely. The transcript denotes an approximation of the actual spoken words by the students.

[2] This was an error on the speaker's part. Underpasses are actually designed to take the animals under the road not over them.