

Arizona Wildlife Podcast

Transcript: Episode 18 – Bald Eagle Breeding Biology and Behavior

(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 bald eagle banding overview presentation that took place at the Arizona Game and Fish Headquarters in Phoenix on March 12, 2009. It was part of the Arizona Game and Fish Department's Homeschool outreach program.

Listen as Kenneth "Tuk" Jacobson, the Department's bald eagle management coordinator explains common breeding biology and behaviors of bald eagles. Following the live recording, the audio was edited and Eric Proctor, a Department educator, interjected appropriate questions to link the content.

ERIC:

I understand bald eagles are breeding in Arizona. Is this primarily in the high country, up in the mountains?

KENNETH:

So, kind of the picture here in Arizona, although the breeding areas are statewide, the real concentration of them is...is here in the central part of the state, mainly on the Salt and the Verde Rivers. With eagles' diets being 80% fish, it's not surprising that they also place their nests at least within a mile of water. We do have some breeding areas that are a lot further than that. Our furthest is about twelve miles away from water and an elevation change between those twelve miles is about six thousand foot. So those birds, they...they have a tough time every year, uh, producing young. Uh, they have been successful but, uh, it's very hit and miss.

ERIC:

Interesting. Are there enough trees for them to find suitable nests in those areas?

KENNETH:

Here in Arizona where they're nesting is on cliffs and pinnacles, cottonwoods, uh, trees, snags. Cottonwoods by far, as far as a tree, uh, nesting site, is by far where most of them nest in trees, and then cliffs. The cliffs and the pinnacles, that's something that you don't see in the majority of the other states where bald eagles live. Uh, there's a lot more trees in those states. So they use...use the trees. Here in Arizona, you've got a lot of areas...a lot of habitat that's got cliffs and ledges. So eagles here, quite a large number of them, do utilize those substrates to nest in. The only other places that you see this in is on eagle populations on other islands, where they have an abundance of cliffs and not an abundance of large trees. And then in our higher elevation areas, where...where cottonwoods aren't available they'll, uh, nest in ponderosa forests and mixed conifer forests. Basically nesting in the larger pine trees in the area.

ERIC:

Are eagles territorial? How close would nests be to each other?

KENNETH:

The density is largely tied to how much food they have, how much...how much area they...they need in order to basically feed their nestlings and be productive. If they need a larger area, they'll defend a large area. If they need a smaller area, they'll just use their energy for what's necessary for them. On our unregulated Verde and Salt Rivers, what I mean by unregulated is these are the stretches of the rivers above the dams; there's no dams that are controlling the flow in the river. But on those...on those sections that, uh, we don't have any dams controlling the flow, uh, we've got one nest about every twenty kilometers. The regulated portion of the Salt River, we've got one nest every twenty kilometers, about the same. The regulated portion of the Salt River is basically your...your Roosevelt Lake, Canyon, Saguaro, that stream of lakes just...just to our, uh, northeast. Now, on the regulated portion of the Verde, downstream of Bartlett Dam, we've got one breeding area every five kilometers, which, uh, makes our densest breeding population in the state.

ERIC:

When does breeding occur?

KENNETH:

A little bit of breeding chronology. We don't have as harsh of winters. We don't get real cold here, similar to other latitudes. Our breeding happens much, much earlier than you see in, say, Washington, Oregon. The birds are actually at their nest sites, building nests, getting ready for their nests...nesting season, pair bonding, they start that in sometime in November a lot of times. Sometime between November and January is when that continues, they're getting their nests built up and ready for the season. And then they lay their eggs by December, sometime between December and March. March being some of the, probably the more northern, higher altitude, uh, nest sites where they've got snow and other things that they've got to wait for before they can start breeding.

Uh, once...once those eggs are hatched, it takes thirty-five days for them to hatch. You can almost set your clock by that. It might take thirty-six on a rare occasion but if...if you know when they laid those eggs...eggs and started incubation you can almost mark your calendar by when those eggs are going to hatch.

PARTICIPANT:

I have a question on laying the eggs: do they...when they're ready to lay the eggs, do they lay them like one egg one day and another egg the next day like chickens do or...?

KENNETH:

Yes they will, different than chickens though. Uh, chickens they'll...they'll lay an egg and then they'll, in the morning, maybe one in the afternoon, maybe another one for, you know, a day or two later until they get a nest full of the eggs, you know, as many eggs as they want to incubate. And then they'll start incubating, and at that point, that's when the eggs start to develop. So with chickens all of them hatch about the same time. With the eagles, they'll lay an egg and they start incubating immediately. They might lay another egg a day or two later. As a result, you'll have one...one nestling hatch early, another nestling hatch two, three days later and then you'll have the size and development difference between the nestlings. Some end up being larger and growing bigger, some end up being smaller. If that difference is too much, that smaller one ends up not getting quite enough food or as much food as...as he'd like because the bigger ones are able to fight him off for it and...and dominate.

Yes.

PARTICIPANT:

Um, how many nestlings do they usually have at one time?

KENNETH:

They usually have one or two nestlings. However, they will have as many as three.

So, once those eggs hatch, they're...they're little furry, fuzzy white things, and it takes them twelve weeks before they're fully grown, they have all their feathers. They have the muscles necessary to fly. And at...actually at that twelve weeks of age, they're the same size as the adults. They actually look a little bit bigger because for that first year, that first set of feathers, they're feathers are actually a little wider, and a little longer. And that helps those birds on those first flights as well as they're learning to fly and maneuver, it helps them out to...to learn how to do it and not hurt themselves. Uh, they're second year, once they molt those feathers, they'll come in and be narrower and smaller and allow them to be a little bit more agile, but they don't need the training wheels, yes.

And then, once they're out of the nest, they're still not quite done with their parents. They still need...they still need to be trained on how to find food, how to avoid danger. So there's a lot of learning that goes on between the nestlings and the adults, even after they leave the nest. And this lasts for about 45 days, a month and a half. They stay in the breeding area. They learn from their adults and then decide that they're good and ready to go on their own and they fly. Fly off. They fly north about this time, remember this is May and June. We're dealing with temperatures of 115, 120 degrees. They don't have any air conditioning. They actually end up flying...flying up north and spend their summers up in the higher latitudes. Uh, a lot of them are up in Washington, Oregon. Uh, many of them go and hang out at Yellowstone Lake. They'll...they'll even fly as far as Lake Manitoba, Canada and spend their...spend their summers, uh, up there.

Yeah.

PARTICIPANT:

Is there a way to tell where they go?

KENNETH:

We've got this information off of transmitters. We've...we have put transmitters on a select few individuals to...to answer that specific question as well as, uh, we get band reports from these other places on birds that we have banded here.

Yes.

PARTICIPANT:

Do they all fly...like does the family group go or they just fly on their own and they just know where to go?

KENNETH:

They, uh, fly on their own...

PARTICIPANT:

Even those nestlings...¹

KENNETH:

One nestling might leave. The other nestling stays for a couple more days and then it leaves. The first nestling might end up in Washington, whereas the other one ends up in, uh, North Dakota. That was one thing that we didn't know how that worked, but yeah, at those forty-five days they're on their own.

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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.