



Arizona's Raptor Experience, LLC

November 2017

~Newsletter~

Greetings from Chino Valley!

We hope you are well. This month's issue of our newsletter will focus on topics inspired by special days in November dedicated to giving thanks.

Veteran's Day reminds us of the sacrifices made for us by others and gives us the chance to recognize and thank all members, past and present, of our armed forces. Thank you for your service!

Thanksgiving Day is a day of celebration commemorating a gathering of early Americans. Because food is a focal point of this occasion, we thought it would be fun to dedicate this issue to the foods consumed by raptors....with a focus on the unusual!

Photo by Annemarie Jacques



Happy Thanksgiving!

Birds of Prey Eat *What?*

Birds of prey are carnivorous. By definition they kill other animals to eat. This is no surprise to anyone, but what some may find intriguing is the variety and types of prey consumed by both the diurnal raptors and owls. The question is, how do we know what they eat?

The remains of food items in the nest of a bird of prey can provide some insight. This method of documenting prey types is insufficient however, because food preferences change when young are being fed in the nest. A perfect example is the Swainson's Hawk that feeds throughout most of the year on insects and their larvae, but switches to small mammals such as mice and rabbits when feeding young.

Fortunately, there is another easily obtainable source of prey remains that can be dissected to determine its contents – the pellet. Both the diurnal raptors and owls produce pellets of indigestible materials that are regurgitated. These pellets form in the gizzard, or the muscular stomach in both groups of birds. What we find in pellets is in part determined what the bird has consumed, but also by the digestive system of the birds.

Diurnal raptors take food in through the mouth, pass it thorough the esophagus and into a crop. No digestion occurs in the crop - it is simply a storage place for food that slowly releases into the proventriculus or glandular stomach. Owls do not have a crop. The food then proceeds to the gizzard where the food is digested by enzymes and acids. The acids in the stomachs of diurnal raptors measure between 0.2 and 1.2 on the pH scale. The pH value of the acid in an owl's stomach ranges from 2.2 to 2.5. What this means is that diurnal raptors have stomach acids anywhere from 10 to 5,000 times more acidic than the acid in an owl's stomach. As a result, diurnal raptors digest much more bone than owls do.

In both groups of birds, the gizzard contains a valve which prevents indigestible materials from passing to the intestines. Feathers, fur, etc. are compacted by contractions in the gizzard to form a pellet. When the gizzard is almost full of indigestible material, the pellet is regurgitated. This can occur anywhere from several hours to 22 hours after eating. The digestibility of prey and the amount of prey consumed both influence this timing.

Cool fact: Prior to regurgitation, pellets are coated with a pH neutral film which prevents damage to the esophagus.

Pellets can be dissected to reveal the types of prey consumed. Owl pellets contain bones, teeth, beaks and claws that are not broken down in the stomach. Owls tend to swallow their prey whole when

possible, thus preserving more of these clues. Because their stomach acid is more powerful, the pellets of the diurnal birds contain far fewer bones. Materials made of keratin, like claws and beaks, tend to survive both digestive systems. Although not all food types can be identified from pellets, they do yield some important clues.



Eurasian Eagle Owl Pellets

Cool fact: Generally, the largest owls produce the largest pellets. A Great-horned Owl for example can produce pellets from 3-4 inches in length and 1-2 inches in diameter. However, the Snowy Owl might hold the record for the largest pellet ever measured. It was 6 inches long, one inch in diameter and weighted more than 2.5 ounces!

Cool Fact: Great Gray Owls commonly eat the pellets regurgitated by their chicks in the nest. This may be an effort to keep the nest clean.

One last method can be employed to determine what prey are consumed. This involves examining stomach contents, a method used in the past when these birds did not enjoy the legal protection they have today.

We all know that raptors eat small mammals, birds and insects. Below are examples of the more **unusual** prey items documented for several of our common AZ species.

Cooper's Hawk: frogs, lizards, opossum, beetles, butterflies, minnows

Red-tailed Hawk: crawfish, bats, grasshoppers, frogs, salamanders

Swainson's Hawk: Dobson flies, gophers, lizards, frogs

Ferruginous Hawk: snakes, lizards, skunks, grasshoppers, beetles

Harris's Hawk: Sora Rail, Night Herons, Green-winged Teal, Gilded Flicker

Golden Eagle: Great Blue Heron, turkey, geese, ducks, owls, hawks, crows

American Kestrel: bats, frogs, earthworms, caterpillars

Barn Owl: Red-winged Blackbirds, Sora Rails, star-nosed mole

Great-horned Owl: domestic cats, porcupine, hawks, owls, scorpions, crawfish



In next month's issue: Strategies used by diurnal raptors and owls to obtain their food.

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Guest photo:



Andromeda and Goliath

Eurasian Eagle Owls

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