

Two Resident Raptors at the Ruth Patrick Science Education Center

Raleigh, the Barred Owl

Raleigh is a Barred Owl that was hit by a car in Raleigh, North Carolina in 2008. He cannot be released back into the wild because he will never again be able to fly well enough to hunt. We are not sure whether Raleigh is a male or a female. In the raptor world, females are larger than males. The table in Figure 2 shows Raleigh's weight over a period of time. We thought he was a male when he first arrived. What do you think?

Raleigh has some interesting characteristics. His color helps him to camouflage, or blend in with, trees. He has a small skeleton with hollow bones and is very lightweight, with a fluffy body and long wings. The hair-like structures on his feathers reduce air resistance, which reduces vibration, which reduces sound. Even the legs of an owl are feathered to muffle sound. His body is designed for "silent flight." An owl hunts by stealth, not by speed.

We feed Raleigh a rat each day, and he swallows it whole. He has no teeth. In the wild, a Barred Owl is an opportunistic predator that will eat small mammals, birds, amphibians, reptiles, and invertebrates including crayfish. The prey's body parts that he doesn't digest are coughed up later as pellets. Owl pellets are regurgitated balls of indigestible waste, usually bones and fur.

The owl's eye orbits are very large. Owls' eyes are especially adapted for nocturnal hunting. Their eyes contain many photoreceptors called rods, which are sensitive to black and white contrast in low light. Cones, on the other hand, discern color, and are helpful for day vision. Because the eyes are so large, there is not much room left in the owl's skull to accommodate large muscles, so the owl cannot roll its eyes, like we do. Instead, the owl has the ability to rotate its head a full 270 degrees, while humans are restricted to about 180 degrees.

Raleigh has very good hearing. The owl has a flat face with concave facial disks that work like a satellite dish to collect and funnel sound. His ear openings are right behind his facial disks. The ears are asymmetrical. One ear opening is higher than the other, which helps the owl identify exactly where a sound is coming from. Have you ever seen a dog cock its head when listening to a new sound?

The Barred Owl lives in swamps and woodlands near water. It is one of our most vocal owls. It calls to establish territory or to attract a mate. The call of the species sounds like someone saying, "Who cooks for you?" The Barred Owl is solitary, except during breeding season.



Figure 1.
Average Weight for Barred Owls, in grams (g)

	Range	Mean
Barred Owl, Male	468-774	632
Barred Owl, Female	610-1051	801

(Source: Cornell Laboratory of Ornithology, 2000)

Figure 2. Raleigh's Weight (g)

DATE	MASS in grams
4/28/08	690
5/19/08	708
6/2/08	720
6/16/08	722
6/30/08	731
7/14/08	730
7/28/08	733
8/11/08	724
8/25/08	740
9/8/08	762
9/22/08	770
10/6/08	776
10/20/08	744
11/3/08	748
11/17/08	810
12/1/08	822
12/15/08	860
12/29/08	858
1/20/09	847
2/5/09	799
2/19/09	847
3/16/09	846
3/30/09	831
4/9/09	801
4/23/09	760

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Windsor, the Red-Tailed Hawk

Windsor is a Red Tailed Hawk. Nineteen years ago, when he was just a fledgling, this hawk was shot by a hunter. He lived on the ground for about two weeks and barely survived by eating insects until he was rescued. During that time, his broken wing healed incorrectly, leaving him unable to fly well enough to hunt.

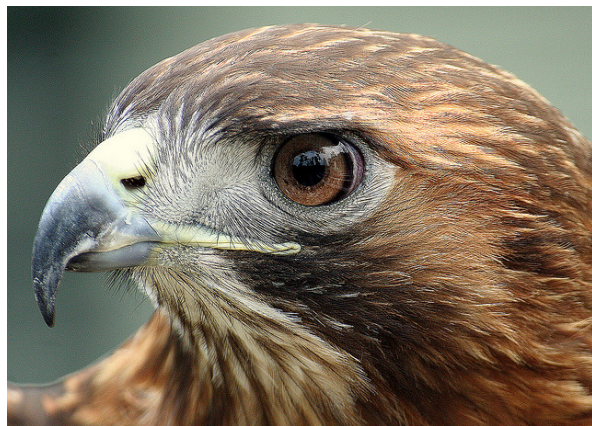
The Red-Tailed Hawk is a large hawk with long, broad, rounded wings and a distinctive rusty red tail. Juveniles have yellow eyes, which become dark brown as the hawk gets older.

Windsor has some remarkable physical features. The hawk's shape is sleek, strong, and aerodynamic, and it has no feathers on its feet. These characteristics aid in very fast flight, which is the main tool it relies on, along with good eyesight, to catch prey. This is different than the owl, which relies on silence. To fly, the hawk spreads his wings, soars, and catches thermals, or warm air currents.

The hawk is a diurnal predator with amazingly sharp eyesight. The eyes of a Red-Tailed Hawk contain more cones than rods. This helps him to see in the daylight. The hawk's eyes are close together and he has binocular vision. He can pinpoint something and stay focused on it, even if there is a strong breeze pushing against his body. This helps the bird when it is perched on the top of a tree or on a branch, which tend to sway in the wind. If you look closely at Windsor's face, you will notice the ridges over the hawk's eyes. These supraorbital ridges act like a baseball cap or sun visor to block out sunlight. Hawks (and owls) have a nictitating membrane that cleans, covers, and protects their eyes. It is usually used when they are flying low and through vegetation.

In the wild, the Red Tailed Hawk primarily eats small mammals such as rats, mice, squirrels, and rabbits, but it will also eat small birds, snakes, and lizards. It uses its strong, sharp talons to kill prey, and then tears it into bite-sized pieces with its powerful, curved beak. The back talon on the hawk is called the helix. The helix works like a ratchet to lock down on the prey, which aids in killing struggling prey items. Hawks cough pellets, too, but unlike owls, they don't tend to roost in the same place repeatedly, so they are not as easy to find.

The Red Tailed Hawk prefers to live in open country, such as fields, groves, and plains. Its call is a strong piercing scream ("KREEE-e-e-e"). As with the owl, the male will be smaller than the female. A male Red-Tailed Hawk may weigh from 690 to 1,300 grams with a mean weight of 1,030 grams. A female can weigh between 900 and 2,000 grams, averaging 1,220 grams.



(left) Raleigh, the Barred Owl
(above) Windsor, the Red Tailed Hawk