



THE LEGEND *of* PALE MALE

APPENDIX D



Raptors

What makes a bird a RAPTOR?

Pale Male is a raptor. Raptors are “birds of prey”. A bird of prey is a bird that hunts and kills other animals for food. Birds of prey are predators and the food they hunt for are known as the prey. The word “raptor” means to seize or grasp. Raptors capture their prey with their sharp claws known as talons. Hawks, eagles, falcons, and owls are examples of raptors.

RAPTOR Characteristics:

- **Talons**

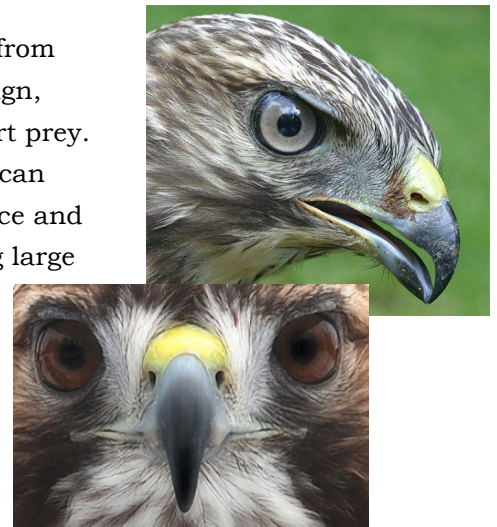


Birds of prey have powerful leg and toe muscles and very sharp claws called talons. These claws are perfectly designed

to catch, hold, and carry prey. The length and size of a raptors toe, and the curvature and thickness of its talons differ between species and reflects the type of prey it hunts. Most birds of prey will have three toes pointing forward and one pointing backward. These toes can apply an extremely powerful grip on their prey. Osprey have three toes facing forward and one facing backward, however, Osprey talons are specially adapted to allow one of its three front toes to bend backwards so that there are two claws pointing forward and two in reverse on each foot. This allows them to hold the fish they catch with four claws, two on each side for a secure grip. Ospreys also have spiny scales on their feet that help them hold the slippery fish more securely. Owls also have four toes. However, just like the Osprey, one of the toes is very flexible, and can be rotated forward or backward for a two plus two or a three plus one toe arrangement. Red-tailed hawks like Pale Male capture their prey with their talons and can carry their prey to a safe place for eating such as a perch in a tree or their nest.

- **Hooked Beaks**

A raptor's beak is one feature used to set them apart from other birds. All raptors have the same basic beak design, curved at the tip with sharp cutting edges to tear apart prey. Beaks come in different sizes. For example, the American kestrel has a small beak for eating small prey, like mice and insects. Eagles have powerful, heavy beaks for tearing large pieces of meat, but snail kites have a highly specialized long, curved beak for probing inside snail shells.



- **Excellent Eyesight**

Raptors are believed to have the keenest eyesight in nature because of the size of the eyeball and the eye muscles designed for rapid focus. Diurnal raptors have full color vision and two concentrations of cones (one directed to the side and one directed forward) in each eye, which control color perception. The sharpest point of vision at these concentrations is called the fovea. When the fovea work in unison, they give raptors accurate depth perception, which is very important for birds of prey that must focus quickly when chasing moving objects.

Nocturnal raptors, the owls, have an added advantage over other raptors with their remarkable sharp night vision. Owls have a concentration of more rod cells in their eyes that are essential for seeing under low light conditions. An owl's

eyes are also located in the front of their heads giving them excellent binocular vision just like humans. Birds also have three eyelids. Humans only have two eyelids on each eye. The third eyelid is called the nictitating membrane.



* NICTITATING MEMBRANE Illustration © Zoobooks Birds of Prey by J. B. Wexo, 1996.

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This special transparent eyelid closes laterally across the eye and is used to

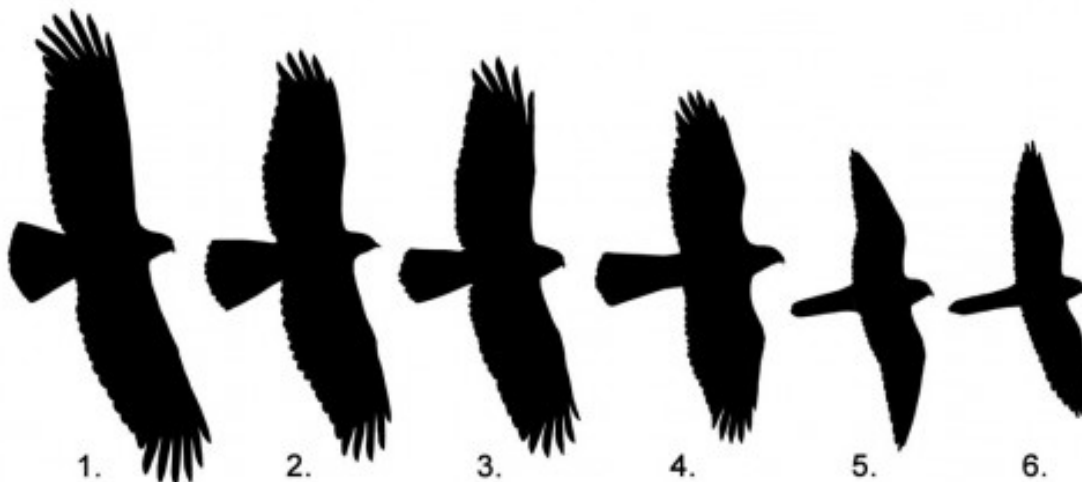
- keep the eyes moist
- protect the eyes during flight
- protect the eyes when feeding themselves or their young

An additional form of eye protection in most raptors is a bony shield that projects above the eye. The bony shield adds protection when raptors pursue prey into brush, protects the eyes from injury while hunting, and also gives raptors a menacing appearance.



- **Shape/Silhouette**

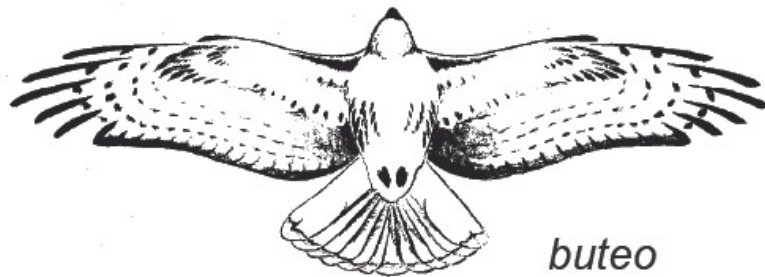
Raptors are often identified by their silhouette or shape and size. Some raptors have short wings and long tails, others have long broad wings and a broad tail for soaring. Check out these silhouettes and notice the differences:



How to Identify Hawks by their Silhouette

Birds of prey (raptors) come in many shapes and sizes. When a bird watcher identifies a bird of prey in flight, they look mainly at body shape and flight characteristics. There are three general types of raptors recognizable by body and wing shape: buteos, accipiters and falcons. The following silhouettes help identify these three basic groups of raptors.

Buteo



These soaring hawks have long, broad wings and wide, fanned tails. Buteos are built to glide effortlessly on air currents. They can soar for long periods of time without flapping their wings. During the day, the sun heats up the air on earth. Rising pockets of hot air are known as thermals. Buteo hawks, eagles, vultures and other large birds catch a ride on these thermals and can soar for long periods of time without flapping their wings. Their soaring ability lets them hunt for prey while circling over open areas. They will also perch on trees and utility poles and wait for unsuspecting prey to move below. Pale Male is a buteo.

Accipiter



With short, round wings, and long, rudder-like tails, accipiters are agile forest hawks. These birds, which are adept at maneuvering in thick woods, dart through trees, hunting birds on the wing. Although they sometimes soar like buteos, their typical flight pattern is several flaps followed by a glide. Cooper's Hawks, Northern Goshawks and Sharp-shinned Hawks are examples of accipiters.

Falcon



Falcons, the fastest birds of prey, are built for speed with streamlined bodies and long, pointed wings. Falcons most often flap continuously while in flight. The peregrine falcon can dive at speeds of over 200 miles per hour. Falcons often hunt other birds on the wing. The smallest falcon, the American kestrel, is able to hover in one place while hunting small rodents and insects. Falcons include the American Kestrel, Peregrine Falcon, and Merlin.

You can learn more about raptors by watching this special video from PBS:

<http://idahoptv.org/dialogue4kids/archive/topicPage.cfm?topicID>

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