

BIRD NOTES

"It is related that Alexander Wilson, the father of American ornithology, was led to study birds by the sight of a Red-headed Woodpecker soon after his arrival in America."

Alexander Skutch from Life of the Woodpecker

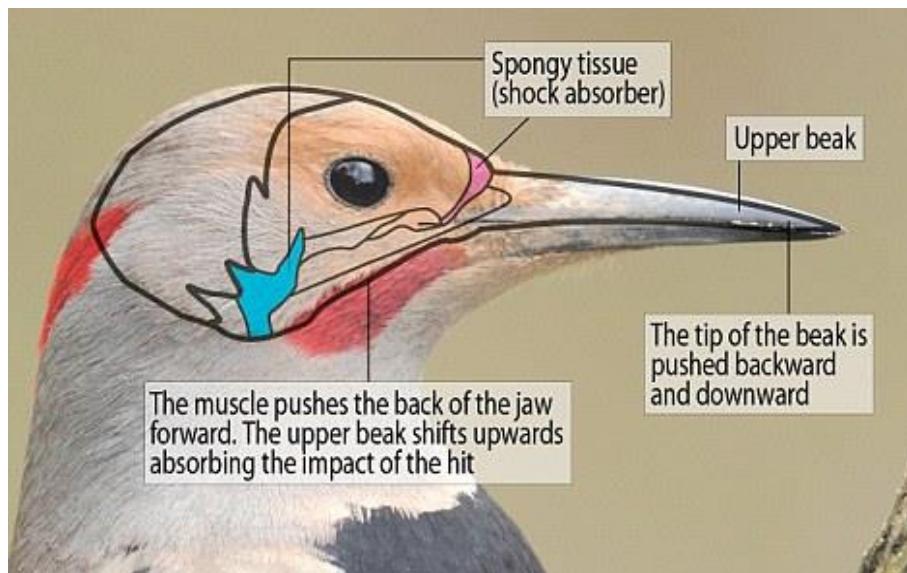
"Were I required to choose from all birds the single family that has afforded me the greatest amount of pleasure, my choice would fall upon the woodpeckers."

Althea Sherman, a researcher of Flickers in Iowa

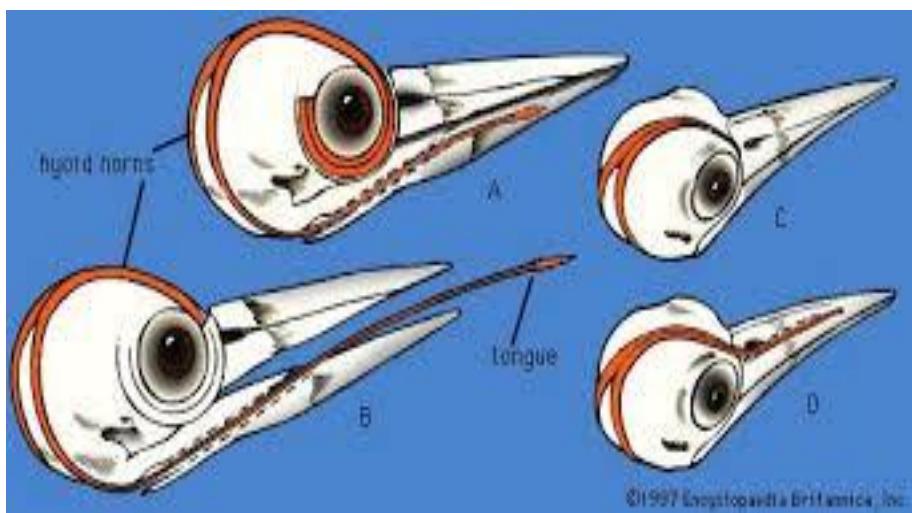
Woodpeckers are a fascinating group of birds. They are placed in the taxonomic order, Piciformes, and the woodpecker family, Picidae. There are over 250 species of true woodpeckers worldwide except for New Guinea, Madagascar, New Zealand, Australia and the Polar Regions, and they are found, with few exceptions, in areas with trees. They fill an ecologic niche shared only superficially with wood creepers, feeding as they circle up a tree trunk or branch. Their large chisel shaped bill enables them to chip away at the bark to get at grubs and insects living in the layers of wood beneath. Its bill is, also, the first line of defense against developing any trauma to the brain. It is made of a very hard material which is flexible and lined with struts of bone, called trabeculae, which absorb the stress of the bill pounding against the wood. It is estimated that the bill of a woodpecker hits a tree trunk at speeds of 13-15 miles per hour with a force of 1000 times gravity. In comparison, humans cannot survive a force much above 40 times gravity.

As you can see in the first picture below, the outer tissue layer of the upper beak is slightly longer than the lower beak. The bone structure of the lower beak, however, is longer and stronger than the upper beak. It is felt that this uneven structure of the bill dissipates the force of the blows against the wood. A band of sponge-like tissue at the base of the bill absorbs a lot of the shock.

The skull is made of very hard bone which also has lots of trabeculae especially in the front and back of the skull where the force of the blows from the bill is the greatest. When compared to the human skull the woodpecker skull has much less room between the skull and the brain. Less room to move inside the head means less likelihood of injury. Woodpeckers have very strong neck muscles and thick ribs which absorb a lot of stress.



Perhaps the most unique feature of woodpeckers is its tongue. It can be protruded as much as 4 inches in some species. Refer to the second picture below. The tongue starts around the right orbit where it picks up the support of the hyoid bone, curves over top of the head where it splits into two branches which continue around the back of the head to be reunited at the base of the right nostril. The tongue, coated with sticky saliva, which along with a spear-shaped tip and lateral barbs, is well designed to extract soft larvae and insects from its excavated hole. Because the woodpecker's tongue is so efficient at procuring insects, the bird has to do a lot less head banging to get a good meal.



In order for the woodpecker to deliver its hammer-like blows, it needs a good base of support. Two anatomic attributes fulfill this necessity. First the arrangement of the woodpecker's toes, two digits pointing forward and two backward, permits easy climbing and clinging to vertical surfaces. This arrangement is unique to the woodpeckers. Second

the rigidity of the tail feathers help keep the body of the bird off the tree surface while providing the necessary support. The picture below nicely shows both of these adaptions.



With all the wood chips around, the eyes and nostrils of woodpeckers need protection. Feathers covering the nostrils fulfill this function. Eye protection is provided by a horizontal membrane which covers the eye while the bird is excavating the tree. It is called the nictitating membrane.

When a 10 year old asks about the occurrence of headaches in woodpeckers you now have enough information to answer the question. This is a great time of year to see the 6 species of regularly occurring woodpeckers in the Southern Appalachians.

If you have any questions or comments about this issue (or any issue) of **Bird Notes**, please Email me at eapyeritz@gmail.com.