



# Xylophagy: Eating Wood

Beaver Lake Nature Center Teachers' Newsletter

September 2014

Dear Teacher,

At the approach of autumn, our wildlife seems to be busier than ever. Many birds embark on bold migration journeys, and squirrels relentlessly rake the forest floor for tree nuts. Beaver not only must maintain their lodges and dams, but are also busy stocking their underwater larder with branches for winter consumption. To the human mind, the fruits and fish awaiting birds in the tropics, and the hickory nuts and acorns stashed by squirrels, seem more likely foods than tree bark or branches.



**How do beaver-- and other animals capable of consuming wood-- digest this tough material?**

## What's so tough about wood?

Woody plants contain cellulose and lignin, typically indigestible substances that give plant cells their rigid structure. Woody plants like trees have a greater proportion of cellulose than other plants, making them particularly difficult to digest.

In reasonable amounts, cellulose is a good addition to the human diet: you know it as fiber! But there's a reason we lack the teeth to turn tree trunks into pulp. It's too much fiber to be worth our while.



## Beaver and company

Beaver, however, certainly have the dental equipment to tackle a tree trunk at dinner time. And they have a digestive system to match!

Beaver harbor a secret weapon that enables them to turn wood into nutrition. Their intestines are lengthened to improve digestion and nutrient absorption, and they also house microorganisms to digest the cellulose for them. Porcupines also have such intestinal allies.



## The small take on the big

Wood-eating isn't limited to the vertebrate world. As uncommon as the ability to digest wood is in the animal world, there are quite a few invertebrates that have found a way to tap into this resource.

As with the porcupine and beaver, many invertebrates like cockroaches rely on bacteria or protozoans to break down the cellulose for them. Termites and others take a dietary supplement: fungus! Others produce on their own the enzymes needed to digest wood.

## Come see the evidence!

Did you know that you can see a beaver chew, a tree that has gnaw marks from a beaver, on the Bog Trail right here at Beaver Lake Nature Center?

Challenge your students to find and sketch 5 pieces of evidence that animals have been foraging on woody plants. In addition to a beaver chew, their search for xylophages will train their eyes to scour bark for tiny holes made by insects, and for the beautiful carvings of bark beetles.

Are your students surprised that there aren't more animals taking advantage of such an abundant resource? Or maybe they're surprised any animals bother eating wood at all. Discuss with them the advantages and disadvantages of developing wood-digesting adaptations.

**Though you won't find our trees very palatable, we hope you'll come feast your eyes on the fall colors our woods also offer you this season.**

~Beaver Lake Nature Center



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Beaver Lake Nature Center | (315) 638-2519 | 8477 E. Mud Lake Road | Baldwinsville | NY | 13027