

"IN THE WETLANDS, IT IS ALL ABOUT THE FLOW" Part 5

The wetland market place part A

by Larry Eichert 5/15



Spring has come and with it comes a rebirth of wetland activity. This is a complex process and will cover two months because we are limited to one page. To understand what is happening we must enter the world of bacteria and fungi that decompose dead organisms recycling their nutrients back into the environment. Remember the green pond scum (various algae) that covered our wetlands last summer and the dead plants found in the water and around the banks? They provide the food source that starts this cyclic reaction. Now that the temperatures are rising with the coming of spring these are being decomposed by the bacteria. The warm temperature and the available dead organic

matter allow the bacteria to proliferate, increasing the decomposition rate. This places a variety of available nutrients into the water changing the pH of the water. One of the most common compounds formed is tannic acid.

At the same time the temperature of the water is increasing making the fish population more active increasing their metabolism and respiration. Then add some rain to stir up the water increasing its dissolved oxygen content and this makes both the bacteria and fish become even more active. This in turn sets off a chain reaction in enzyme activity in all living organisms. (Enzymes can only function at specific temperatures and pH ranges.) Putting this all together you produce a shift in the available nutrient supply which becomes the food for various organisms. This has a profound effect on the fish population. The change in pH stimulates the fish to breed and lay eggs. You can see their nests along the shore line below the water level. They look like hollowed out baskets in the sand. At the same time the bacteria population is exploding.

With the increase in temperature of the water the eggs from last year's zoo plankton begin to hatch and the photo plankton begin to reproduce. The zoo plankton population begins to consume the bacteria and the photo plankton uses the dissolved nutrients provided by the bacteria and fungi as a food source increasing their rate of photosynthetic reproduction with the increase in the temperature of the water. This in turn begins to decrease the over production of the bacteria and fungi activity keeping the system in check. Now there is more photo and zoo plankton than the system can support. But don't be alarmed because at the same time the fish eggs are beginning to hatch and these organisms become the food supply of the fish fry.

While all of this is going on the increase in temperature and the availability of rain coupled with wind activity now allow the dormant seeds from last year's plants to be blown around and settle in the soil along with the seeds that have already been deposited and they begin to germinate. The humus (dead organic matter) content of the soil and the mineral nutrients provided from the decomposition of rock and sand provide the nutrients for plants to grow. This can be seen by how fast the native vegetation takes hold in our yards, getting a head start over the grasses and plants that we feel should be planted there. These plants want to reproduce as fast as they can to take advantage of the available food supply and sun light.

The plants put all of their energy in the development of their reproductive systems producing flowers. The flowers become the landing pads for a vector (insect, bird or other animal) to fertilize their seeds (female sex cell) and scatter pollen (male sex cell). If the plant possesses a superior flower, with the stigma (male reproductive sex organ) being taller than the style (female reproductive organ) then the plant can self-fertilize. If the reverse is true then the plant needs some other method to propagate its own species. These other methods include transmission by wind or vectors. The plants that are growing in the literal zones around the water's edge are also attracting insects to the water by flowering and producing fat molecules (nectar) that attract insect vectors which also serve as a food supply for fish and small birds. Next month we will look at the developing food chain in the web of life of a wetland community.