

Eastern Cottontail



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Honors Biology II,
Period 5.



Niche of *Sylvilagus floridanus* (eastern cottontail)

- The eastern cottontail has a wide variety of habitats. It lives in places like meadows, orchards, open fields, woody areas, and farm land. The rabbit prefers places it can hide, like brushy areas or farms and woods with protection. They usually hide in tall grasses, under pine trees, amongst vines, and shrubs.
- The cottontail is a herbivore. Its diet changes with the seasons. In the summer they prefer grass and garden vegetables. In the winter they rely on woody substances like bark and twigs. Since most of their diet is made up of carbohydrates and cellulose, they must use caecal fermentation to be able to digest this food.
- Cottontails are the prey to an assortment of animals including: raccoons, foxes, hawks, owls, crows, snakes, opossums, cats and dogs.
- Cottontails are mainly nocturnal, meaning they hunt at night, dawn and dusk. When being attacked, the rabbit usually runs. Although they hop to get around, they can run at fast speeds to avoid danger. While running they usually run in a zigzag formation to decrease the scent trail.



Factors which Affect Birth Rate of the Eastern Cottontail

- The mating season occurs during February and September. They usually mate after dark and have a ritual every time. The male chases the female around until she faces him. She hit him with her front paws and then one of them jumps into the air. This occurs several times before they mate.
- The mature female can have 3 to 5 litters of 3 to 8 young in a single season.
- The cottontail has a 30 day gestation period.
- There are 3 to 8 young in a single litter.
- The young rabbits only depend on their mother for food for the first two weeks of life. After that they go out and fend for themselves.
- They are sexually mature at 2 or 3 months. They usually don't live past three years.

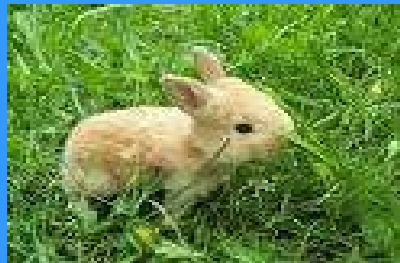
Factors Which Affect the Death Rate of the Eastern Cottontail

- **The cottontail and foxes or hawks have a predator prey relationship in which the rabbit is the prey. They outrun their predators with three ways, flush, freeze, sink. Flushing is moving fast in a zigzag pattern. Slinking is moving close to the ground with their ears back to stay undetected. Freezing is when they remain motionless.**
- **The eastern cottontail does not usually surpass three years in the wilderness.**
- **External parasites that harm them include, ticks, fleas, fly bots, lice. Internal parasites include tape worms, round worms and flukes.**
- **Over population of these rabbits would be dreadful for farmers. As it is they eat their crops, if there was an overpopulation they would have no choice except to eat the veggies.**

Food Chain



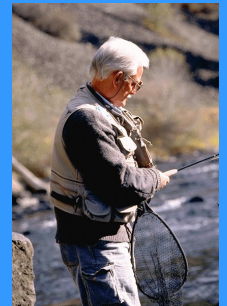
Producer
Autotroph



Primary Consumer
Herbivore

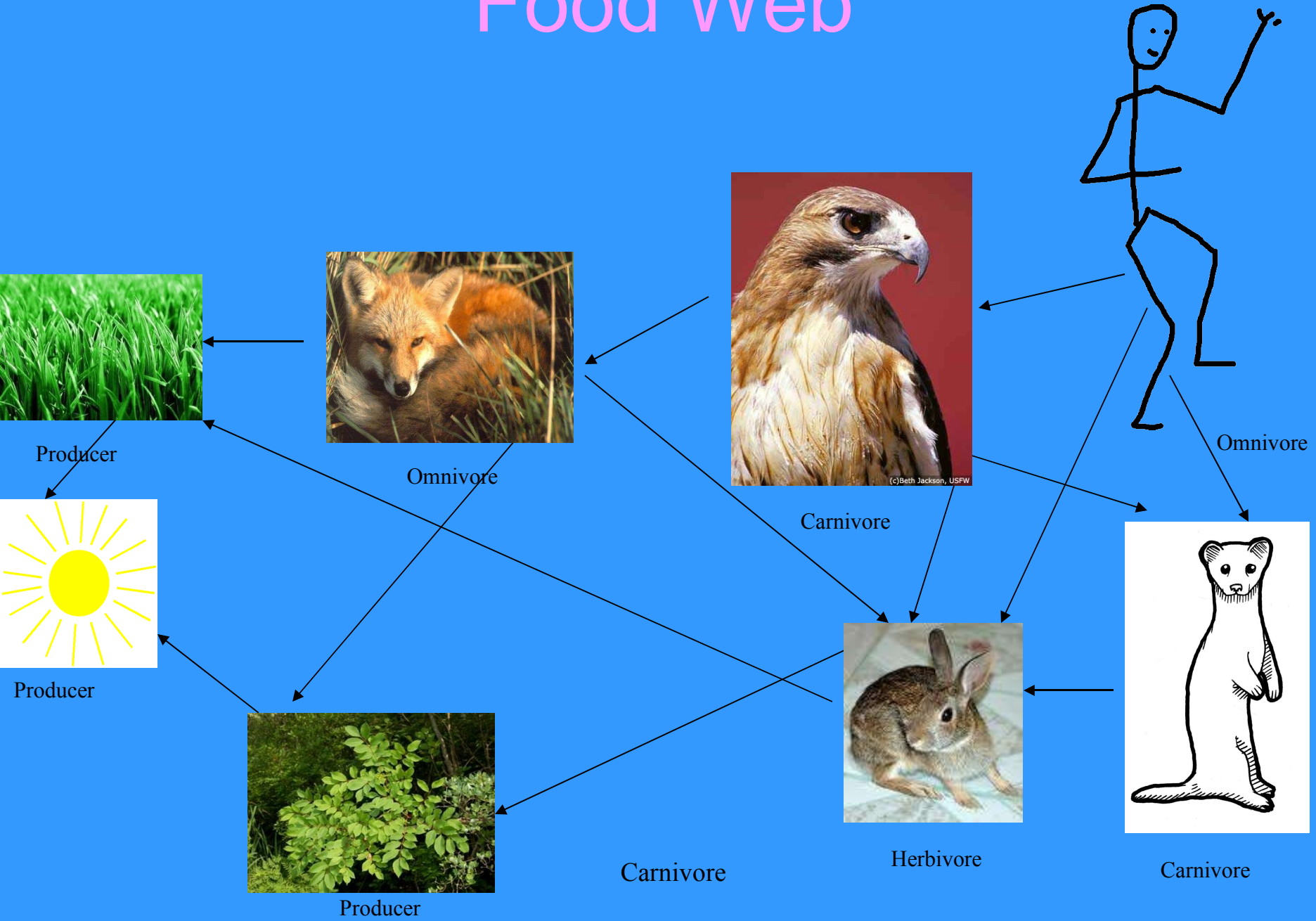


Secondary Consumer
Carnivore



Tertiary Consumer
Omnivore

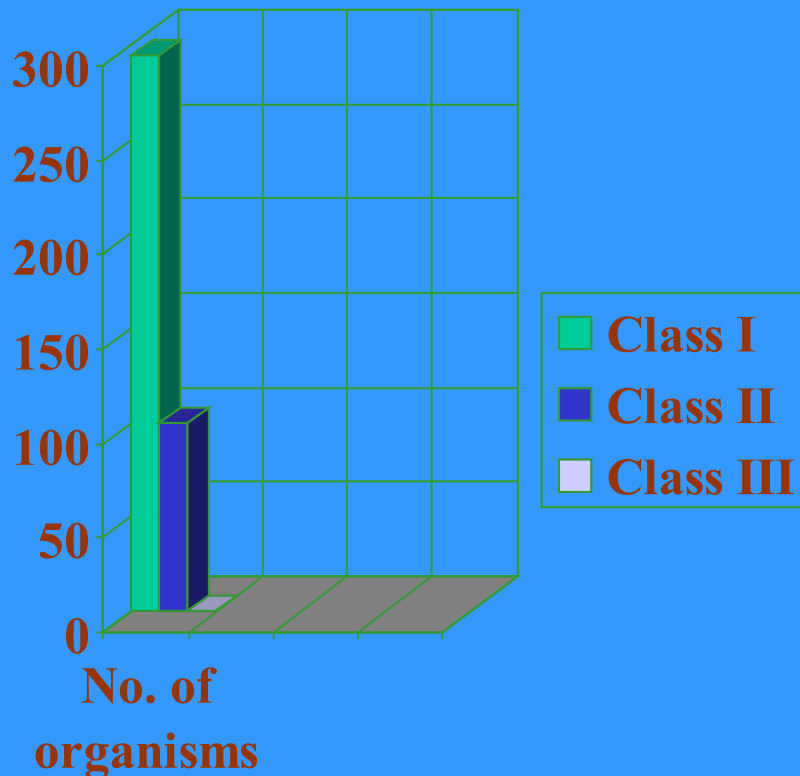
Food Web



Population Sampling Techniques

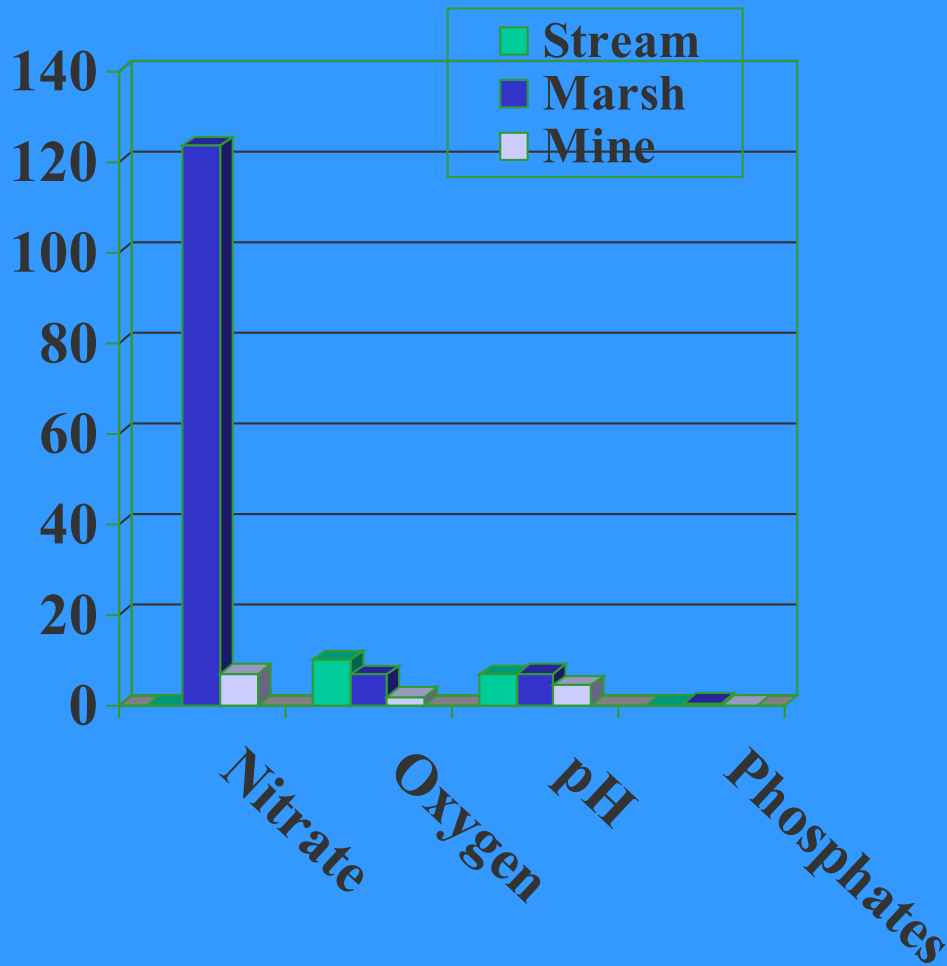
- Mark and recapture is a sampling technique that requires you to capture some organisms mark them and then send them back into their natural habitat. The next day you should repeat the process.
- To estimate the population size of the cottontail rabbit researchers use the mark and recapture method.

Stream Quality Data & Analysis



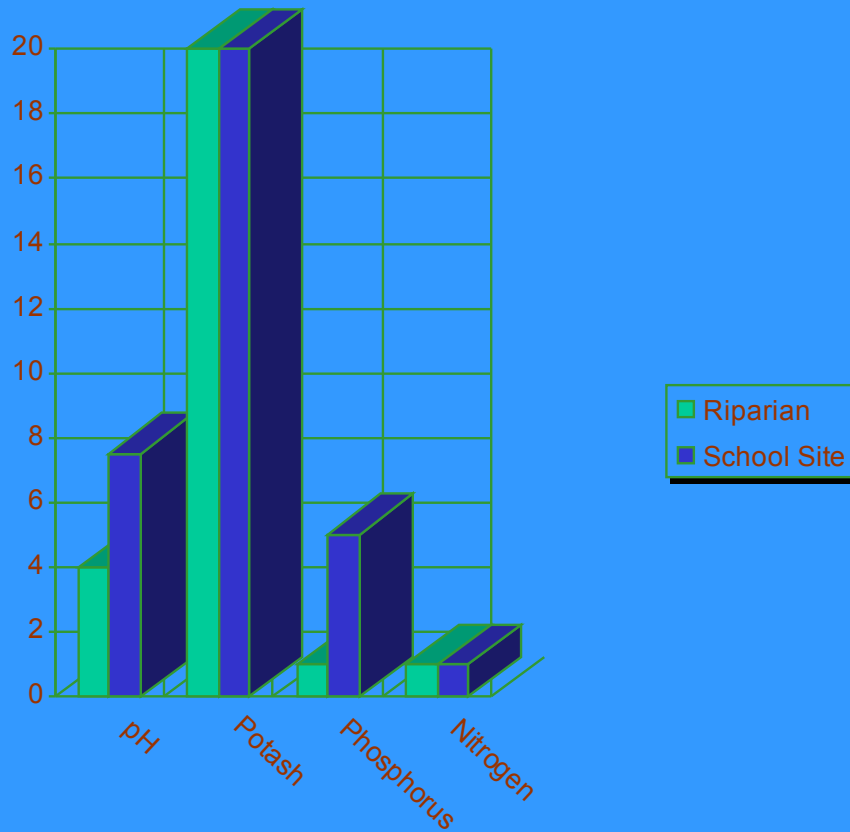
- The graph shows that there are many more class one organisms in powder mill run.
- Class one organisms are pollution intolerant. Since we had the most there, it shows there is not much pollution.
- These stream conditions would be good for the cottontail rabbit because it needs water and it should not drink polluted water.
- The cottontail rabbit should not drink from a stream with only level three organisms because that means it is very polluted. Since it is so polluted the whole stream could die.

Water Testing Data & Analysis



- It is good that the stream has low nitrates and phosphates. It also has a 10 for dissolved oxygen which is excellent, so that the animals can breathe. The turbidity is also low which is good because it doesn't hurt the animals.
- Ideal pH is 6.5-7.5. Ideal nitrogen and phosphate is low and potash is high. Ideal oxygen is 10-15.
- The cottontail rabbit would be healthier if he lived near the stream instead of the marsh or the mine because he has cleaner water to drink.
- Turbidity can cause stuff to clog fish gills or make it hard to see. Photosynthetic plants can also suffocate due to turbidity.
- Colder water holds more oxygen so it's easier for more animals.

Soil Testing & Analysis



- Plants need the correct pH level, it controls how well plants utilize the nutrients available in your soil.
- Potash stimulates flowering and is needed in photosynthesis to make sugars.
- Phosphorus is needed for ATP and nucleic acids. It is also the most important nutrient in root formation.
- Nitrogen is essential to proper functioning of plant metabolism. It also increases the protein content.
- pH: 4-7.5
Potash: High
Nitrogen: Trace
Phosphorus: Trace
- Describe how chemical levels which are out of their ideal range can damage the ecosystem

Positive and Negative Factors

- It would be unhealthy for the cotton tail rabbit to drink from the marsh or abandoned mine drainage water. Although it would be healthy for him to drink from the stream.
- Since cottontail rabbits eat a lot of vegetation it is important for the soil to be healthy where they are eating.
- Farmland run off and Abandoned mine drainage are the leading causes of pollution in PA streams. Farmland runoff is when excess fertilizers get washed into a waterway. This increases the phosphorus in the water and can be harmful. Abandoned mine drainage is when water goes through a mine and it raises the acidity in the water. To avoid farmland runoff, farmers should plant many plants around the waterway so the chemicals don't get into the water. With abandoned mine drainage, setting up limestone ponds works to take out some of the acidity in the water.

Conclusion

- I didn't realize how bad farmland runoff really was.
- The predator prey relationships.
- I think I would enjoy researching the tropical rainforest.



Works Cited

- *Cottontail Rabbit*. N.p., n.d. Web. 13 May 2010. <<http://www.ndi4all.org/grade45/CottontailRabbit-c.html>>.
- Rosenblum, Edwin E. "Rabbit." *Grolier Multimedia Encyclopedia*. 2010. Grolier Online. 12 May 2010 <<http://gme.grolier.com/article?assetid=0240850-0>>.
- *Cottontail Rabbit*. World Book Student, n.d. Web. 13 May 2010. <<http://www.worldbookonline.com/student/article?id=ar456460&st=cottontail+rabbit>>.