

The Coyote and Sheep Problem—Basic Ecology

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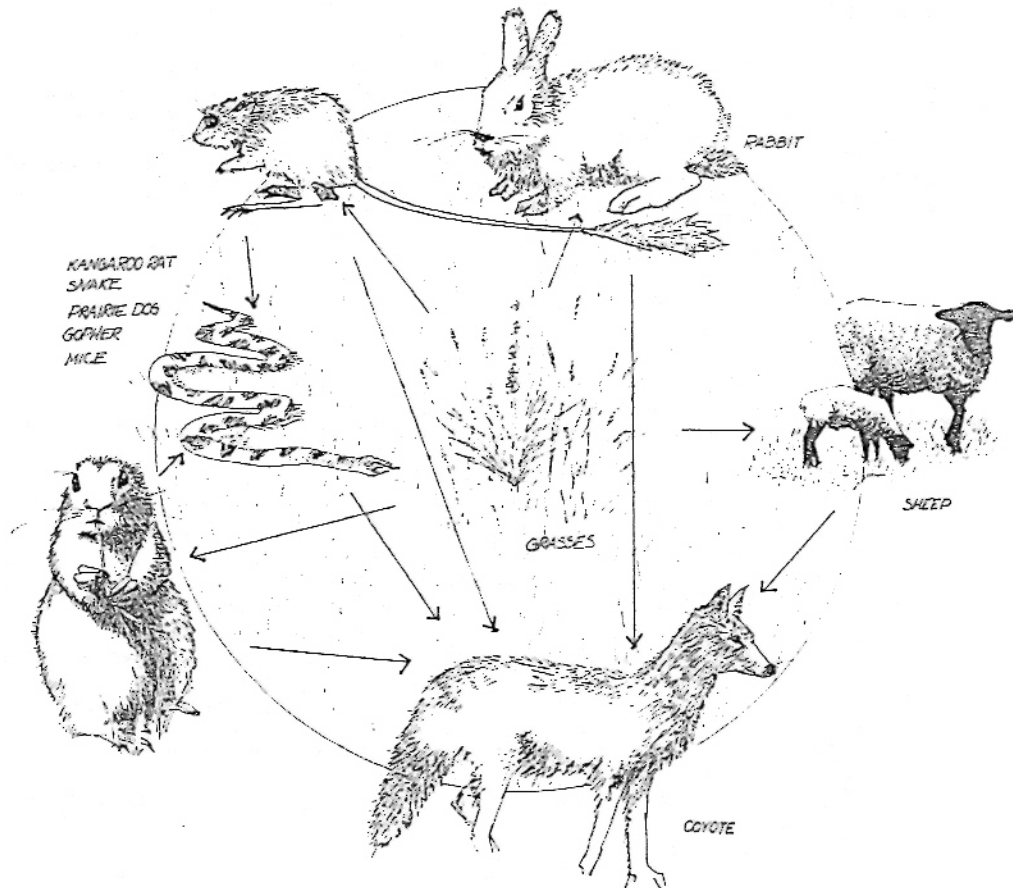


Fig. 1 Grassland Food Web

Introduction: Coyotes are supposedly a major problem to sheep raisers. They do eat young lambs during lambing season and take adult sheep at other times. Sheep ranchers complain that many sheep are lost yearly to these prairie hunters causing a loss of profits. Some sheep farmers want the complete elimination of the coyotes in order to protect their economic investments in their sheep.

Problem: Is extermination of the coyote going to be helpful or harmful to the rancher and the prairie ecosystem in the long run?

Questions: (answer on separate paper please)

1. Are sheep a natural part of the prairie ecosystem?
2. Which animal is the major predator in the prairie ecosystem?
3. If this predator is eliminated what will be the long term effects on the prey populations that survive?
4. If the sheep are introduced into this prairie ecosystem, what affects will they have (a) the grass population (b) the prairie dog population (c) the snake population (d) the rodent/rabbit populations ? Explain your answers for each section.
5. If the coyote were exterminated, what effect would it have on the rodent/rabbit population? Explain your answer.
6. If the coyote population is eliminated, what will the rabbit/rodent populations use for food?
7. How does the coyote, whose main diet is rodents and rabbits, actually help the sheep farmer?
8. If the rabbit population goes through a rapid increase, what effect will that have on the (a) grass population (b) rodent population (c) prairie dog population (d) snake population? Explain your answers for each section.
9. A farmer poisons all of the rats and rabbits in his area. The coyote is smart enough to not eat the dead carcasses of these animals. What animals will the coyote turn to as their food supply?
10. Devise a plan to solve the problem that has living room and ecological rights for the sheep, coyote and the other grassland inhabitants.
11. Which population would have the biggest effect in the overall ecosystem if it were to disappear? Explain your answer.