

Name: _____

Date: _____

Period: _____

AP Environmental Science

Rocky Mountain National Park Elk & Vegetation Management Plan Case Study



Purpose: To restore and maintain, to the extent possible, the natural conditions and biological or physical processes that were altered in the past by human activities to reestablish a functioning of ecosystem in Rocky Mountain National Park (RMNP).

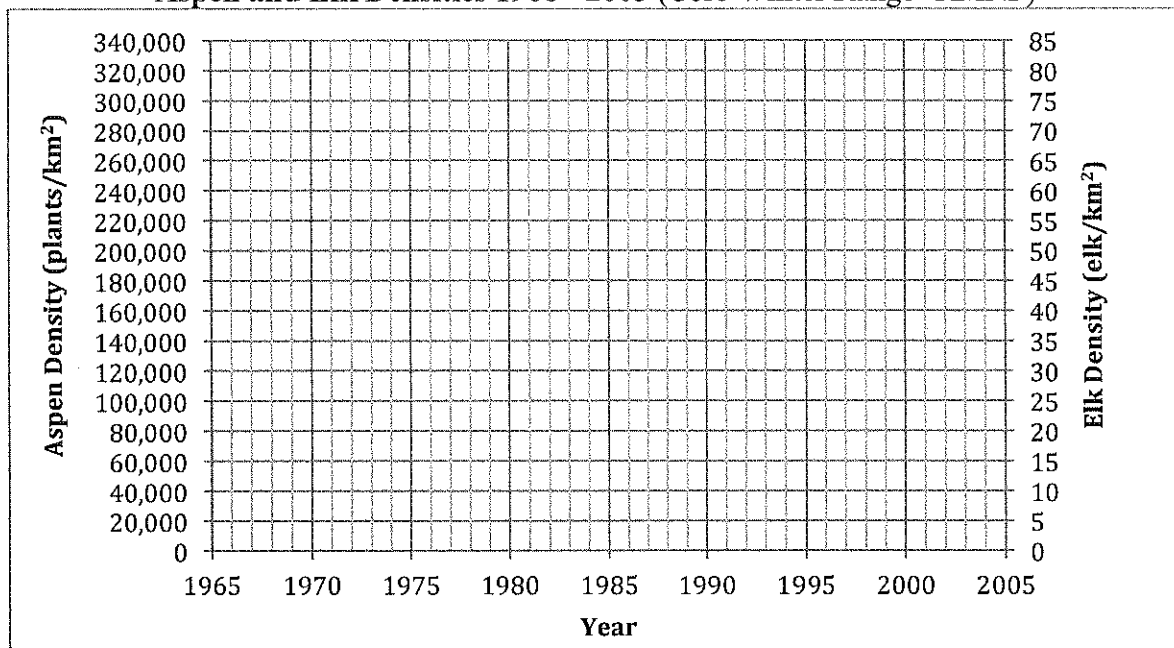
Background Information

Elk were abundant when this area was settled in 1860, but, through market hunting, were eliminated by 1875. In 1913 and 1914, before the park was established, 28 elk from the Yellowstone National Park area were reintroduced here. By that time, the gray wolf and grizzly bear no longer occurred in the area, and elk flourished in the absence of its major predator, the wolf. Concern about the size of the population first arose in the early 1930s because vegetation conditions on the elk winter range appeared to be deteriorating. From 1944 through 1968, elk populations were controlled. Since that time, elk in the park and the surrounding Estes Valley have increased, particularly during winters.

Graphing Data

The data table below shows aspen density in plants per square kilometer and elk density in elk per square kilometer in the core winter range in five-year intervals from 1968, the year RMNP stopped managing elk populations, to 2003. Plot these data on the graph below.

Year	Aspen Density (plants/km ²)	Elk Density (elk/km ²)	Key
1968	330,000	20	Aspen Density (plants/km ²)  Elk Density (elk/km ²) 
1973	275,000	24	
1978	210,000	51	
1983	190,000	69	
1988	170,000	53	
1993	130,000	41	
1998	115,000	65	
2003	60,000	72	

Aspen and Elk Densities 1968 - 2003 (Core Winter Range- RMNP)

Analysis Questions

1. Does a correlation exist between the aspen and elk populations? Explain.
2. What happened to elk density between 1983 and 1993? Why? Think in terms of what you know population ecology habitats (refer to the glossary of terms in the appendix handout).

Discussion Questions

3. If the current management plan that was implemented in 1968 were allowed to continue indefinitely, what would happen to the aspen community within the core winter range?
4. In what ways would changes in the aspen community impact the functionality of the ecosystem? Be specific. (Refer the food web in the appendix handout.)