Panther Lab

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 An animal that is native to Africa, Asia, America and a member of the Big Cat family is known as the Panther. These Big Cats have the quality to adapt different habitats. Panther are considered elusive and powerful. Albeit, the classification of Panther as a separate species is something that is technically not plausible. A number of factors are responsible for the decline in Panther’s population and the most important factor is the declining population of Jaguars and Leopards. The purpose of this lab is to study and analyze the factors that are responsible for the population decline of the Panthers.

Population density is pivotal for intraspecific competition between individuals from the same species. The two patterns that we can expect from intraspecific aggression in terms of mortality are interference and exploitation. Interference is an adapted pattern and occurs when species establish hierarchies owing to their aggressive behavior. Such a pattern will give a few individuals a dominant status over others. Individuals with dominant status will prevent other individuals to reach the resources. Normaly individuals form territories restrict the admittance of other individuals to a resource. This pattern is sometimes referred to as contest competition. Another pattern is the exploitation in which the same resource is exploited by the individuals of the same species that leads to the depletion of a resource. This kind of pattern represents indirect competition between individuals.

Population decline of Panther owes both, density dependent and density independent factors. A few of the density-dependent factors that affect the Panther population are waste accumulation, predation, disease and parasites, and competition within the population. In addition, density-independent factors are also responsible for the population decline of Panthers such as wildfire, severe weather, pollution, and other natural disasters.

Roads and traffic are important factors that affect the population of the panther in a number of ways. The mitigation measures that can be taken to reduce human-related Panther mortality are; building crossing structure, fencing, noise barriers, escape ramps and dry ledges. The mitigation measure must be according to the behaviors of the species, for some of the species have similar needs and their response to any mitigation measure is also identical1.

The dispersal of Panthers towards north is critical to starting a healthy subpopulation in the Northern Swamps. The available habitat for Panther dispersing towards North is about 1,500 acres. The strategies which wildlife organization should adopt in order to manage the increasing population of Panthers are; prey control, lethal trapping, live trapping, engaging with the conservation community, preventing poaching, designing effective mitigation measures and managing habitat loss1.

The limitations for the further expansion of the Panther population are population fluctuation, habitat loss, fragmentation, conservation cost, management of habitat, and human resource management, and construction of facilities to cure injured individuals.

The occupation of habitats by coyotes northward of panther’s current range would be a significant source of interspecific competition. It is because both the species are carnivorous and require the same resource for food. In addition, domination and territory will also place a restriction on the resources to either of the species2. Moreover, the depletion of resources is also possible which will definitely affect the density population.

This lab exercise fits within the context of environmental science owing to the nature of questions discussed in the lab report. All the questions discussed above spin around the sustainability of a certain species, which in our case is Panther. The existence of Panthers, their extinction, their migration, and the cause of death of Panther, all owe environmental factors in one way or other. The environment directly or indirectly affects the population density of the Panthers.

End Notes

1. Lucas PS, de Carvalho RG, Grilo C. Railway disturbances on wildlife: types, effects, and mitigation measures. In: *Railway Ecology*. Springer, Cham; 2017:81–99.

2. Frakes RA, Belden RC, Wood BE, James FE. Landscape analysis of adult Florida panther habitat. *PloS one*. 2015;10(7):e0133044.