

Interactions Between Arctic (*Vulpes Lagopus*) fox and its Influence on the Spread of Rabies

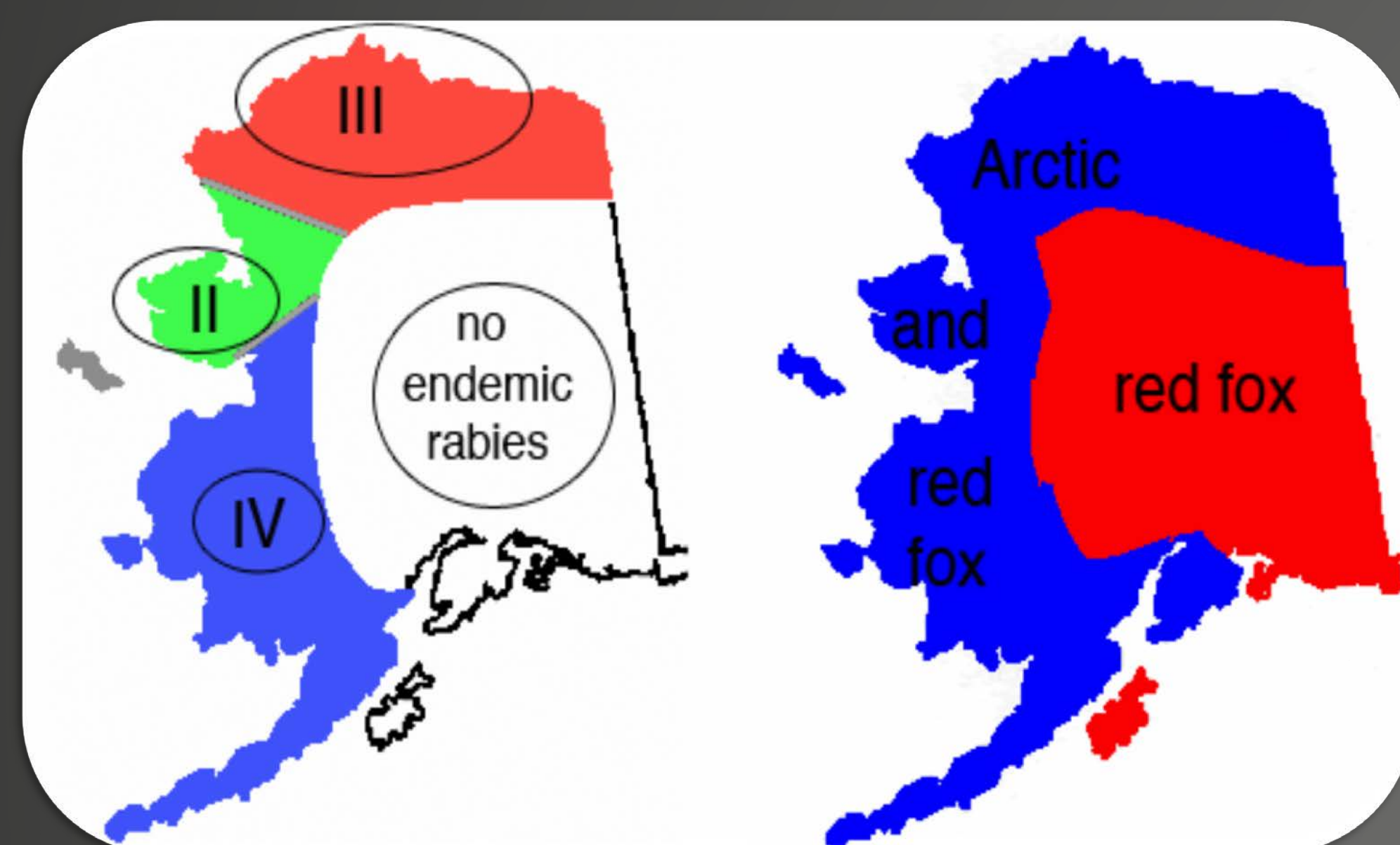
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Rural Alaska Honors Institute Research Program 2012

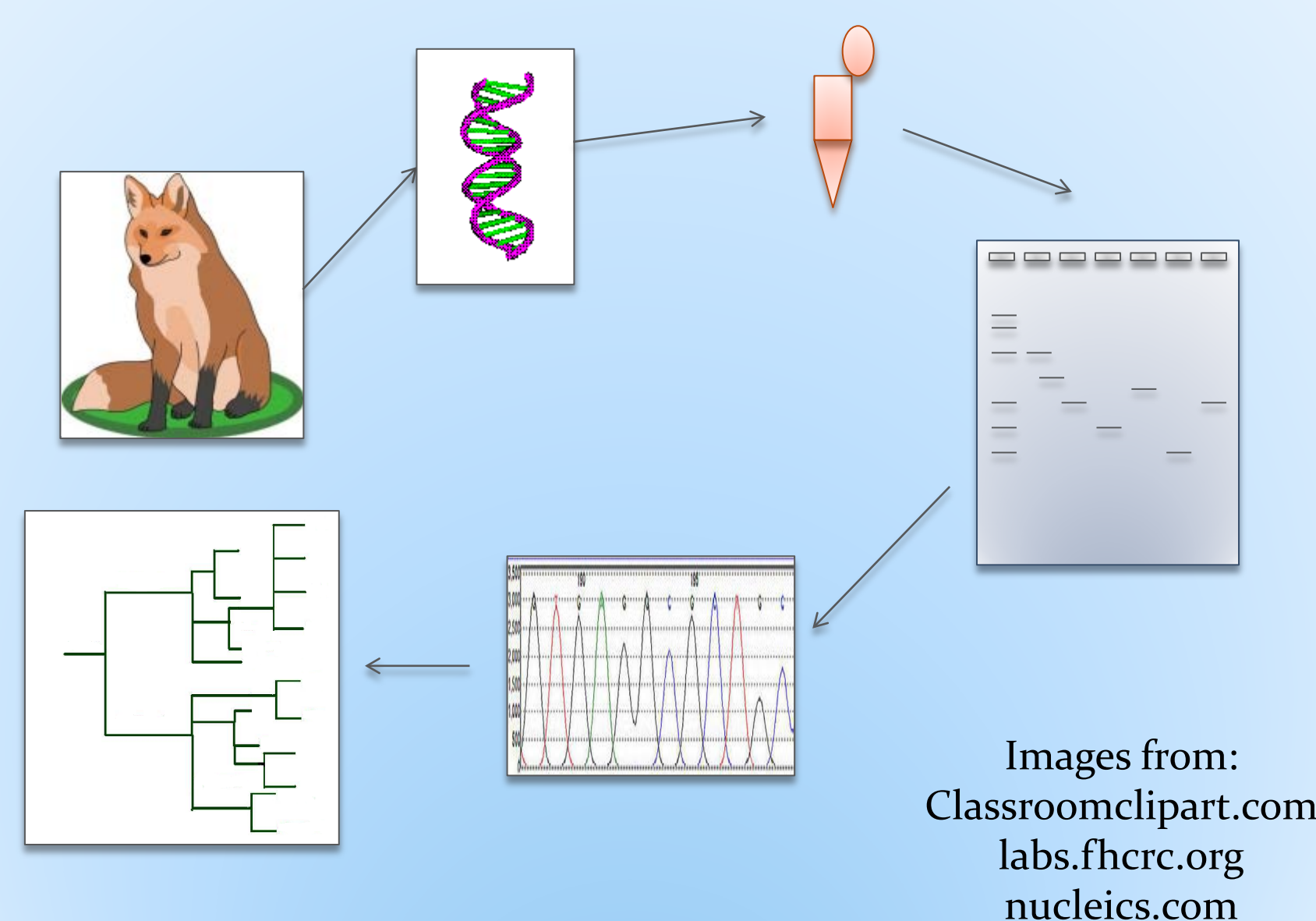
Introduction

Three types of rabies are found in Alaska within the Arctic fox territory. Recent climate change is causing a reduction in Arctic fox territory. This could alter infectious disease dynamics. By looking at the population structure and how fox from each region interact we should be able to better understand the distribution of rabies within Alaska.

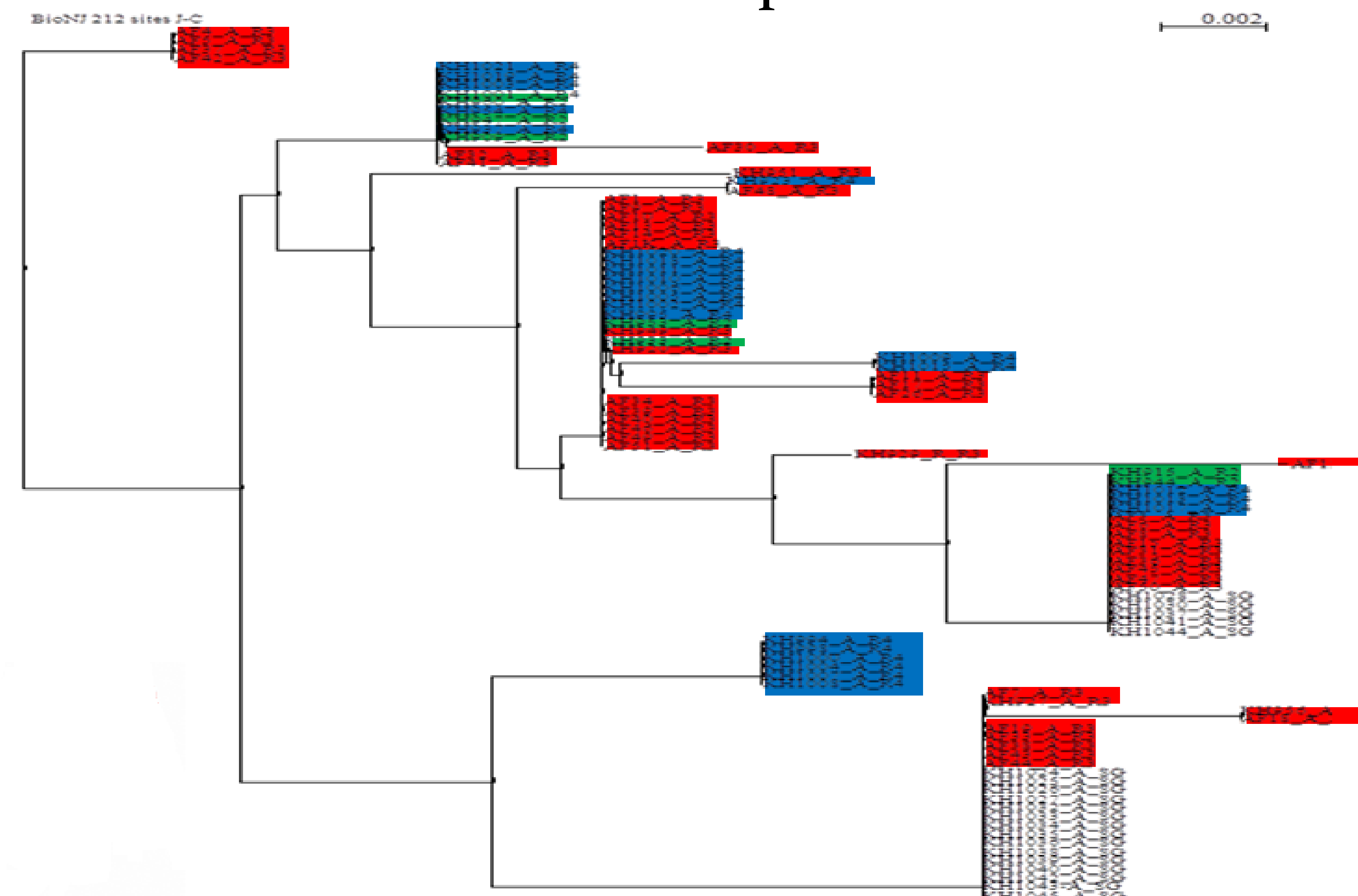


Adapted off data from the State of Alaska Epidemiology section, Kusmin et al 2008, and IUCN by Karsten Hueffer.

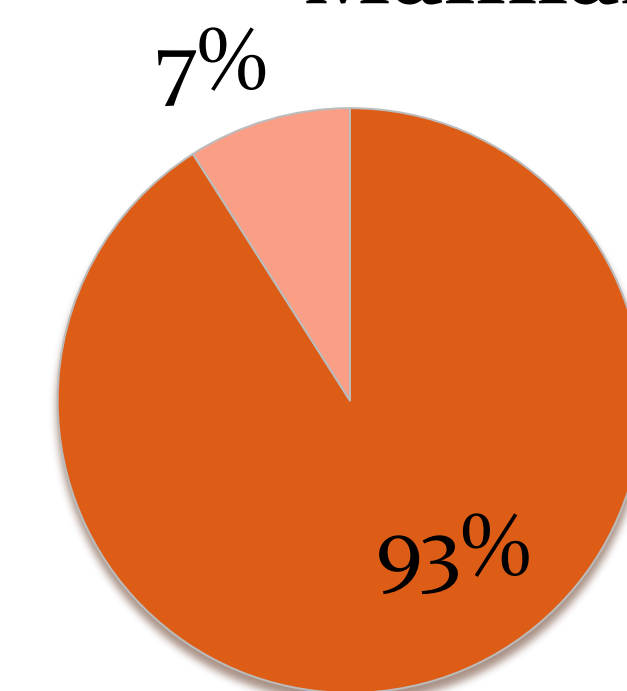
Methods



Arctic Fox Population

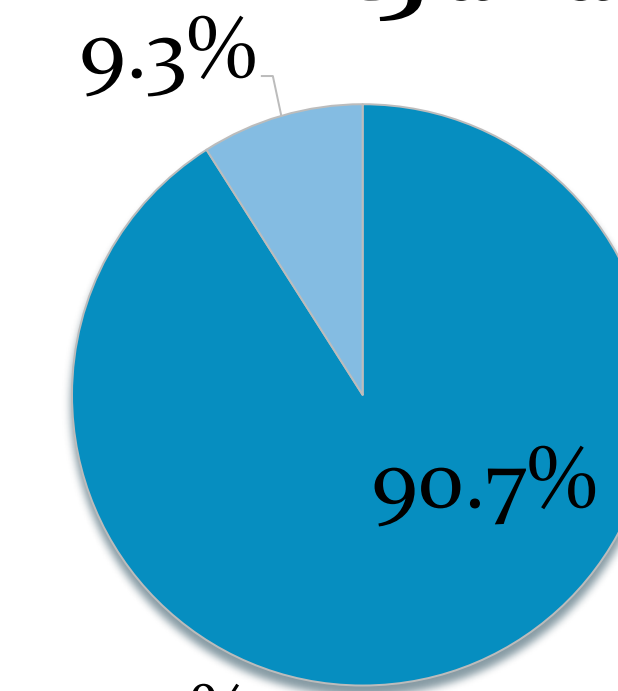


Mainland fox



■ Differences Within Populations
■ Differences between Populations

R3 and R4 fox



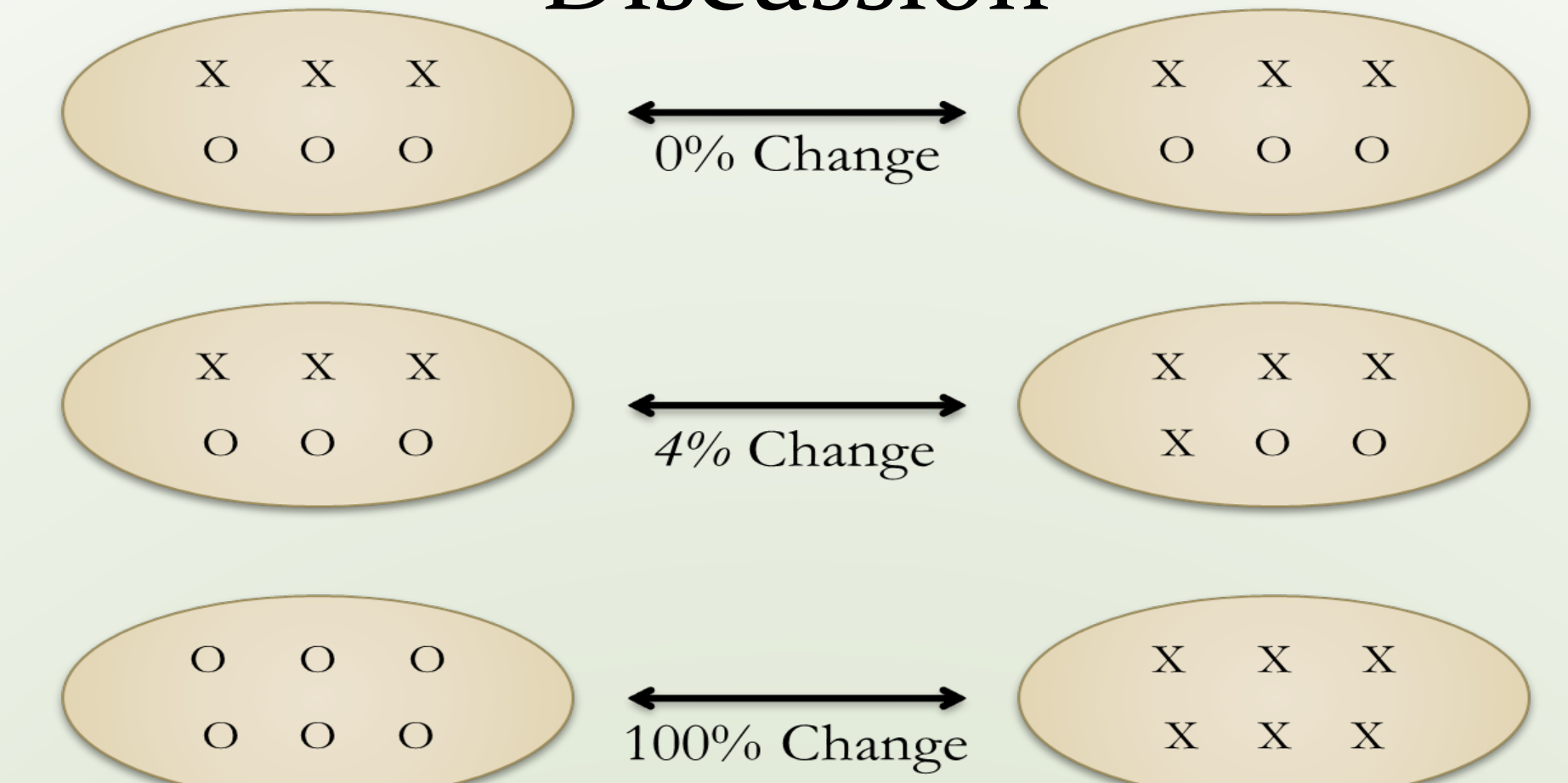
■ Differences Within Populations
■ Differences between Populations

Each region is separated by color, fox from the region with rabies strain III are red, region II are green, region IV are blue, and fox from St. George Island are without color. The pie charts show differentiation data.

Results

Within the phylogenetic tree there is genetic grouping of regional foxes. This is supported by the analysis of diversity shown in pie charts. The differences between the three Mainland fox populations are statistically significant, and the differences between Region 3 and Region 4 foxes are highly significant.

Discussion



- Diversity within fox populations are expected to be high, because of high genetic variation within the populations.
- The differences between fox populations means that there is little interaction between the different populations.

These data suggest a correlation between the rabies and fox populations. It also raises the possibility, that Arctic fox behavior causes the distribution of rabies strains in Alaska.

Acknowledgements

This publication was funded by the National Center for Research Resources and the Division of Program Coordination, Planning, and Strategic Initiatives of the National Institutes of Health through grant number 8R25D011159-5.

Special thanks to Karsten Hueffer, and the RAHI Staff.

