## Lynx-Hare Cycles

Look at the graph. It illustrates the relationship between the size of the hare population and the size of the lynx population. Notice how each population has a boom (when there are too many lynxes or hares for the available resources) and a bust (when many hares or lynxes die and very few are left) pattern. Look at the pattern in the graph. Notice how the lynxes' pattern closely follows the hares' pattern, but that the lynxes' peaks and valleys happen a bit after the hares' peaks and valleys. Why do you think the lynx population so closely follows the hare population?



What is happening is complex. The lynx and hare populations have a predator-prey relationship. Disease, food supply and other predators are variables in this complex relationship. The flux in this cyclic relationship is what allows for the ecosystem dynamic to work. Without flux, vegetation wouldn't have a chance to recover from the hare population's continuous eating, and without vegetation, the hare population could no longer exist in its habitat, and therefore neither could the lynx population that depends upon the hare population for food.

Every ten years or so, the hares' reproduction rate increases. As more hares are born, they eat more of their food supply. They eat so much food that they are forced to supplement their diet with less desirable and nutritious food. As the hare population size grows, the lynx population size begins to increase in response. Because there are so many hares, other predators opportunistically begin to hunt them along with the lynxes. The hares' less nutritious and varied diet begins to have an effect, the hares begin to die due to illness and disease. Fewer hares are born because there is less food. The hare population size begins to go into a steep decline. Therefore, the lynx population also begins to decline. Some lynxes starve and others die due to disease. Both the lynx and hare populations have fewer babies and this decrease in population gives the vegetation a chance to recover. Once there is enough vegetation for the hares to begin to increase their population the whole cycle begins again.

Graph taken from the following website: <u>http://www3.gov.ab.ca/srd/fw/watch/rabb\_cycles.html</u> 9/30/02 Courtesy of Alberta Sustainable Resource Development © 2002 <u>Government of Alberta</u>