Hare and Lynx Populations

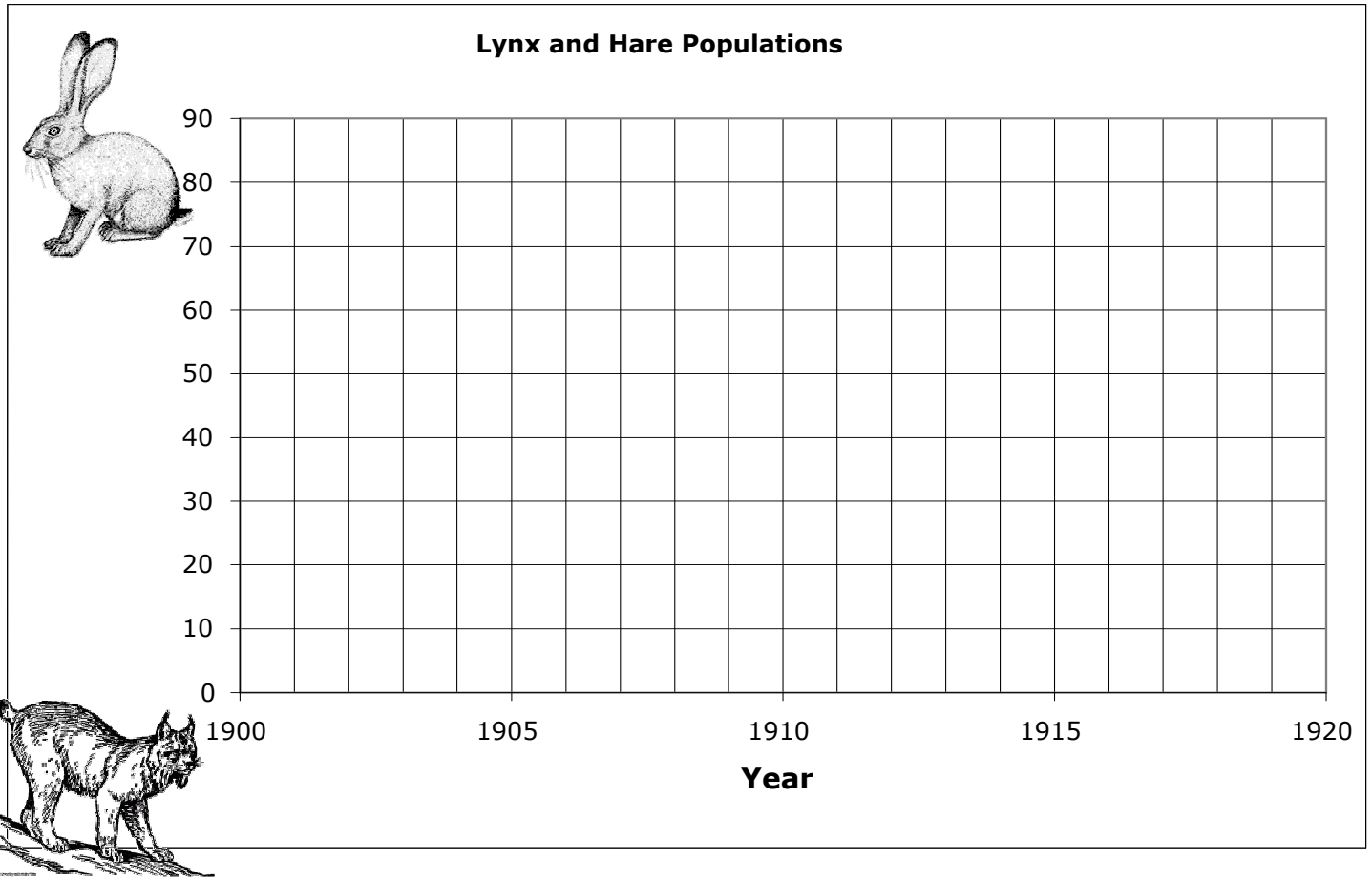
Name: _____ Date: _____

Populations are always changing. Sometimes changes are the result of humans interfering with food webs or habitats. But even when humans do not interfere, populations will still naturally shift up and down or fluctuate. For example, let us study the relationship between the Canada lynx and its primary prey, the snowshoe hare.

To understand how the population of lynx and hares changes year to year, we need to collect information about the number of individuals in a population. Unfortunately, it is impossible to count the exact number of hares in Canada in any given year. Therefore, this information must be gained by capturing a small number of individuals and then estimating the actual number out in the wild. For over 300 years, the Hudson Bay Company has been involved in the fur trade in Canada. Detailed company records list the number of snowshoe hare pelts and the number of lynx pelts collected by hunters and trappers every year since the late 1700's. A small sample of this data is presented in the table below.

Year	Hares (x1000)	Lynx(x1000)
1900	30	4
1901	47.2	6.1
1902	70.2	9.8
1903	77.4	35.2
1904	36.3	59.4
1905	20.6	41.7
1906	18.1	19
1907	21.4	13
1908	22	8.3
1909	25.4	9.1
1910	27.1	7.4
1911	40.3	8
1912	57	12.3
1913	76.6	19.5
1914	52.3	45.7
1915	19.5	51.1
1916	11.2	29.7
1917	7.6	15.8
1918	14.6	9.7
1919	16.2	10.1
1920	24.7	8.6

On the graph paper provided, use one color of pencil or pen to graph the number of hares trapped each year between 1900 and 1920. Using another color, graph the number of lynx trapped. Don't forget to include a coloured legend.



Answer the following questions on a separate sheet of paper using full sentences.

1. As the number of hares *decreases*, what do you think happens to the population of grass and seeds that the hares eat? **Why?**

2. After a few years, the hare population begins to *increase*. Why?

3. In general, are there more lynx or more hares? **Why?**

4. Do the peaks in the lynx graph line up exactly with the peaks in the hare graph? Explain why or why not.

5. When the hare population increases, what happens to the lynx population? Why?

6. Think about what is happening to the hares at this time. Is the presence of more lynx helping the hares or hurting them? Why?

7. When the hare population declines, what is (are) the effect(s) on the lynx and their populations? Explain.

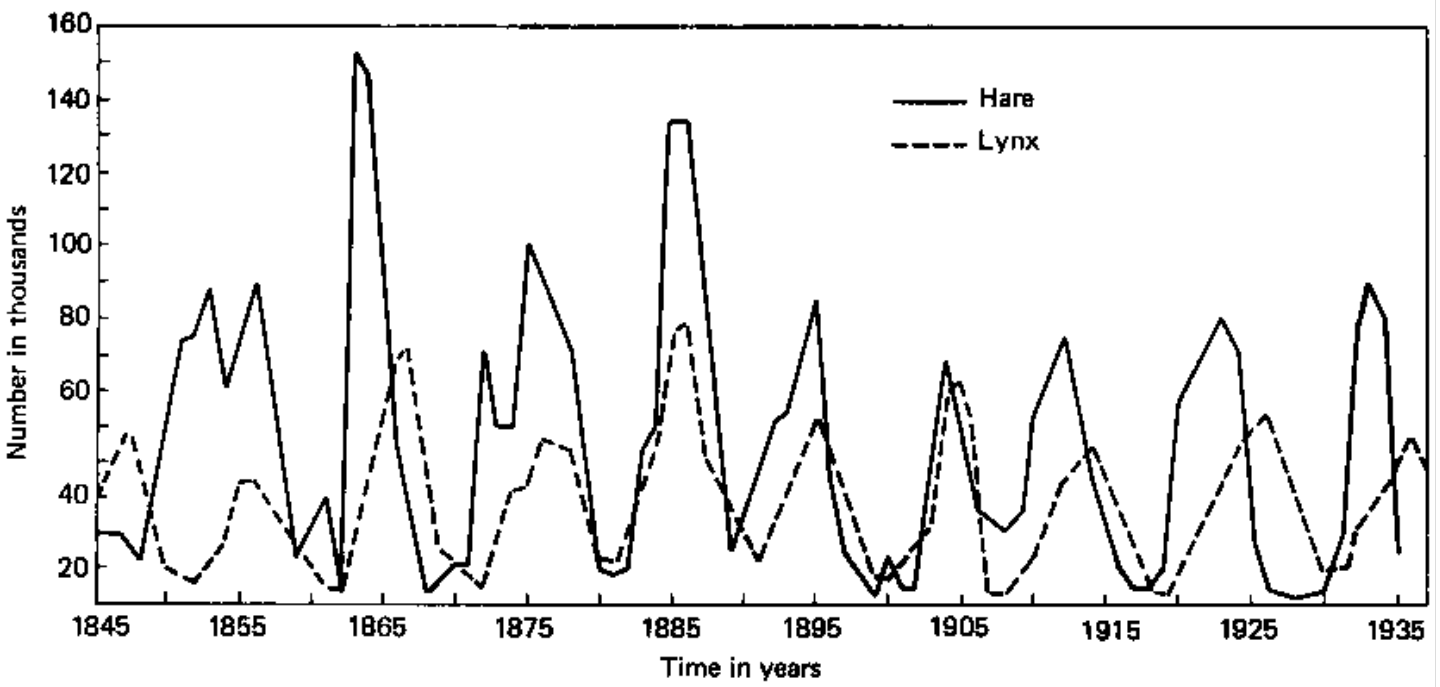


Figure 9-3. Changes in the abundance of the lynx and the snowshoe hare, as indicated by the number of pelts received by the Hudson's Bay Company. This is a classic case of cyclic oscillation in population density. (Redrawn from MacLulich 1937.)

http://www.rpdp.net/sciencetips_v2/images/l12c2/lynx-hare_cycle.gif

8. Using figure 9-3 above, write as many observations about what trends / patterns / information this graph is communicating as you possibly can.