

years in advance. For example, the Lynx population in the McKenzie River district of Canada cycles with a period of approximately ten years, closely following cyclic changes in the population of Snowshoe Hares (Figure 35-5). Because the Hare is the principle prey of the Lynx, many ecologists have hypothesized that fluctuations in the two species are intimately tied together, and further, that the predator-prey interaction is actually the cause of the cycling. The model is a simple one: an increase in the Hare population is followed by an increase in the Lynx population, which eventually becomes so dense that the Hare population can no longer sustain the predation rate and crashes. Lynx follow suit as their food supply de-

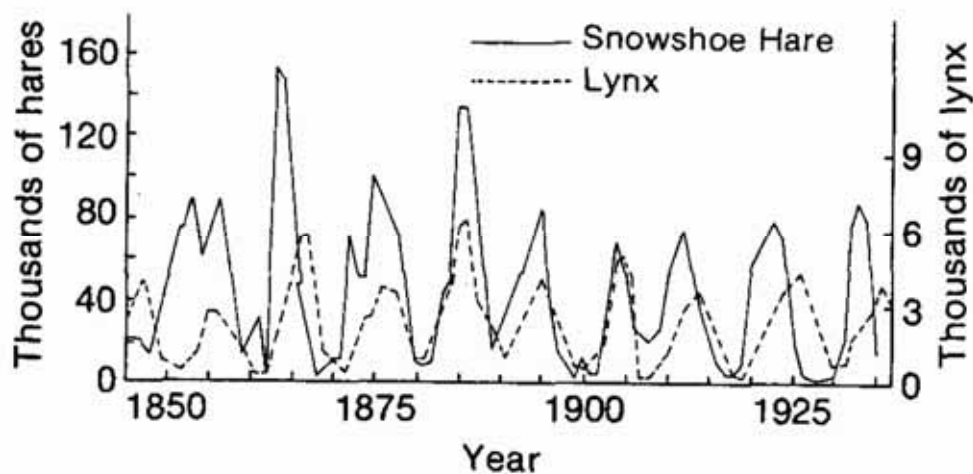


Figure 35-5. Population cycles of the Lynx (*Lynx canadensis*) and the Snowshoe Hare (*Lepus americanus*) in the Hudson's Bay region of Canada, as indicated by fur returns to the Hudson's Bay Company (after MacLulich 1937).

(Figure 1)

The "classic" prey and predator growth rate graph.



Approximately how many hare are needed to support one lynx?

(some where between 25 and 30. If you look at the line when lynx is 3 thousand, the number of hare are often around 80 thousand. The 3 thousand line is a good choice because it is not the maximum population. Exact answer not as important as thinking about what information you might get from this graph.)

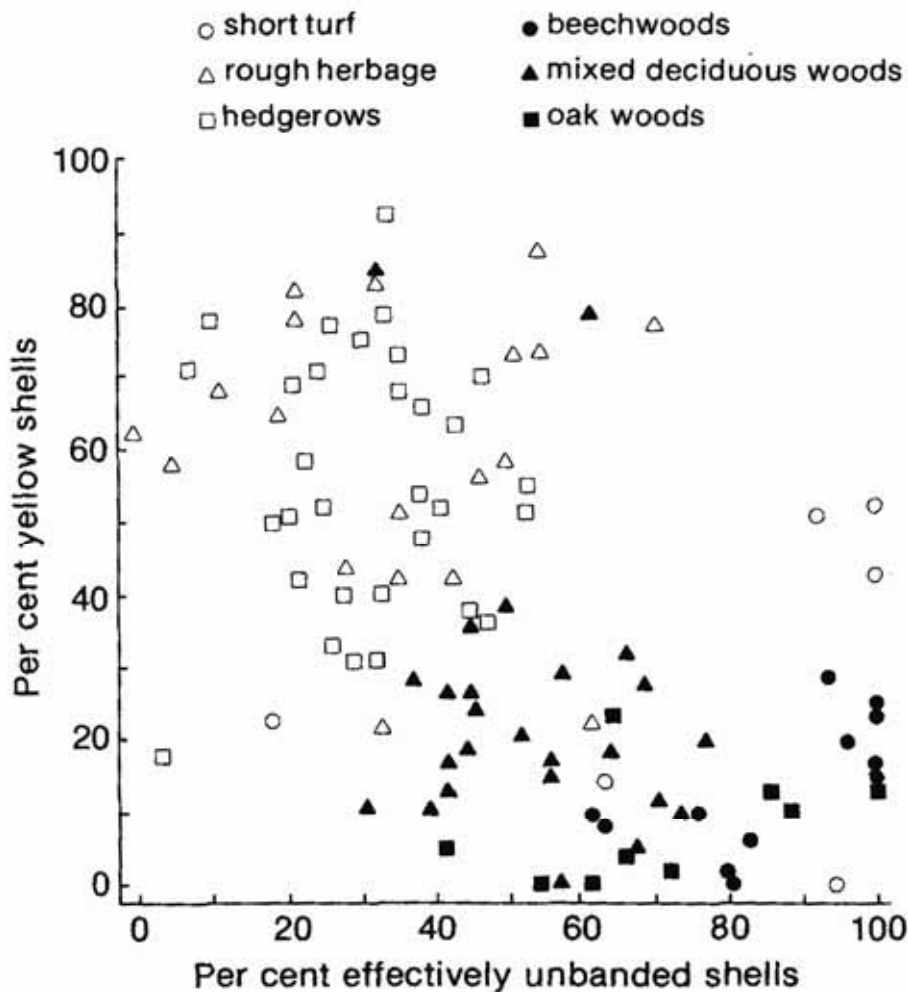


Figure 27-10. Correlation between habitat and the proportion of shell color and pattern morphs in the land snail, *Cepaea nemoralis*, near Oxford, England (after Cain and Sheppard 1954).

Figure 2

Does the appearance of snails influence where you will find them?
 (yes, in wooded areas -- black indicators -- almost never see more than 30% unbanded.)

Offer explanation why yellow snails are at low percentage in wooded areas.
 (color might make them more easily seen by predators. Yellow may not stand out as much in grassy area -- white markers.)

What seem like inconsistencies in the graphs?
 (Consider the open circles on the right side of the graph. They represent 100% unbanded shells and at the same time 40-50% yellow shells. Perhaps there are other characteristics studied but not mentioned in the graph.)