

Check your understanding

- 1 Explain how the change in selective pressures led to the evolution of small snow voles?
- 2 How would the vole population respond if winters started later and later due to climate change?
- 3 Why did the average body size of the population remain unchanged?
- 4 Why is it important to predict evolutionary responses of a population?

1 Change in the snow fall pattern led to natural selection of small voles. Body size genes are negatively related to the development time: Large body size requires longer development time. Small body size requires shorter development time. When winter started early, young voles with large body size genes didn't have enough time to develop, therefore couldn't survive. That gave an advantage to the young voles with small body size genes, and these spread through the population.

2 Shorter winters would give voles with large body size gene enough time to develop. Then they would have increased fitness, and the population would start evolving towards larger body size.

3 Throughout the same decade, number of voles in the population decreased. Remaining voles had more food per animal, and put on weight. Despite the evolution towards smaller bodies on the genetic level, their phenotype (body size) remained unchanged.

4 Due to human induced climate change, selective pressures are changing. Animals and plants need to adapt to their changing environments. If we know the underlying causes, and dynamics of evolutionary responses, we can protect species from extinction. Predicting the evolution or lack of evolution, and results of evolution may help us to maintain biodiversity of our planet.