

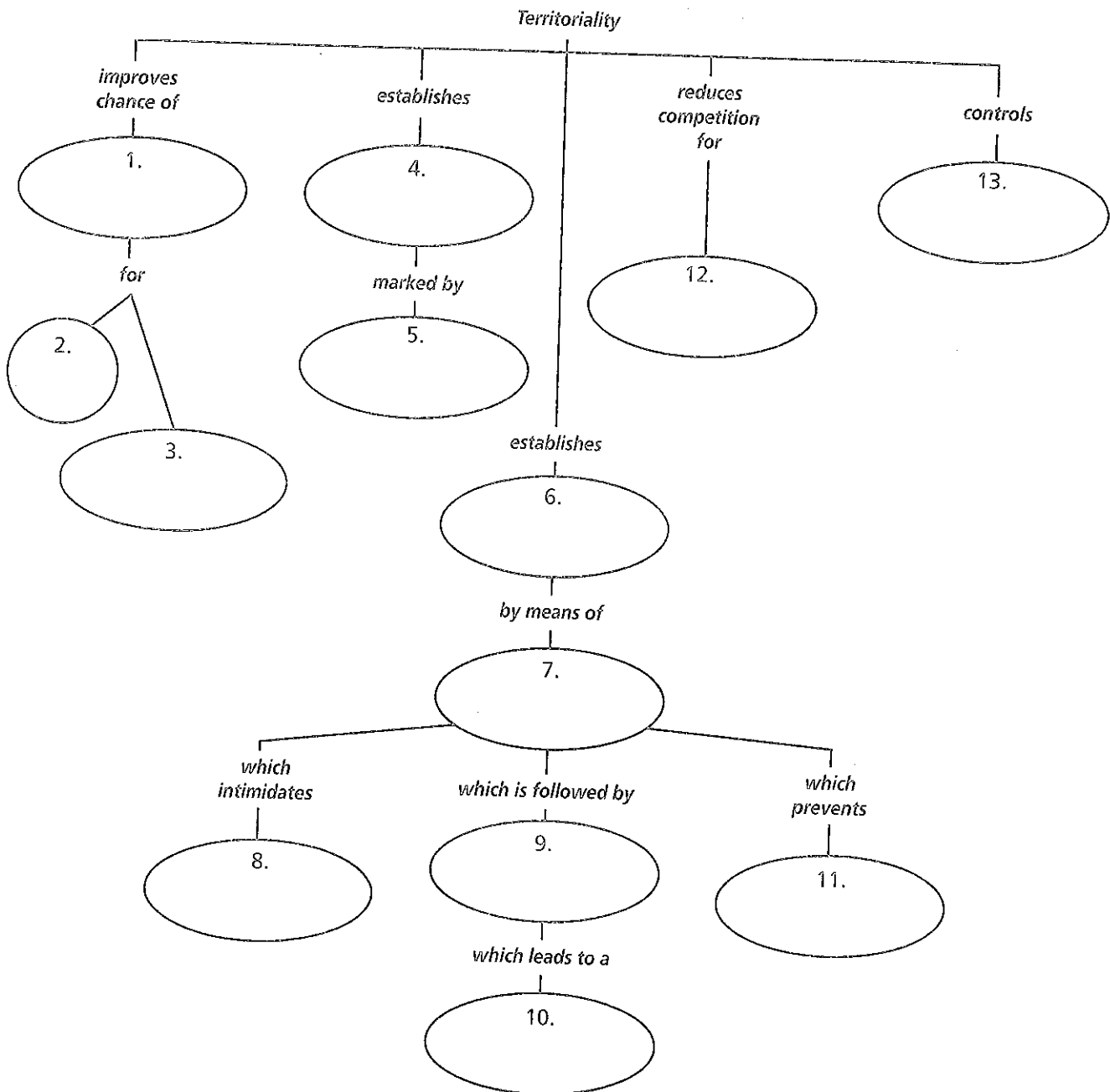
Chapter
33 Animal Behavior

Concept Mapping

Use with Chapter 33, Section 33.1

Territoriality

Complete the concept map of the role played by territoriality in the survival of species. Use these words or phrases once: *dominance hierarchy, population growth, survival, injury to either male, other animals, aggressive behavior, species as a whole, limited resources, dominance, submission of the weaker male, young, pheromones, territories.*



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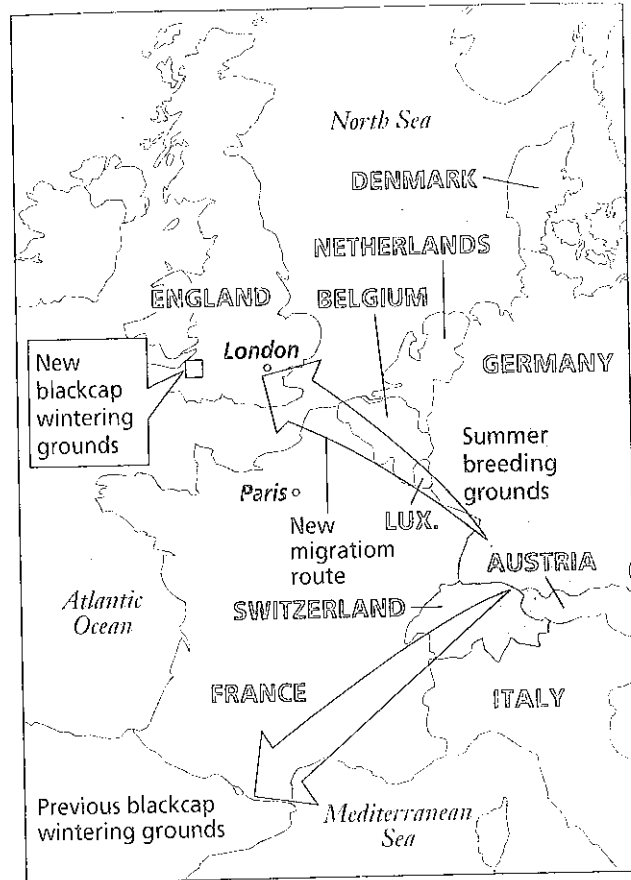
Chapter 33 Animal Behavior

Use with Chapter 33, Sections 33.1, 33.2

Is Migration Learned or Inherited?

As you probably know, many birds migrate to warmer climates during winter, sometimes to avoid excessive cold, but largely to find food. Migration is an adaptation that increases their chances of survival. Starting in the 1960s, an unusual behavior pattern occurred in some German and Austrian blackcap birds. Instead of following their normal migratory route south to the warm climate of the Mediterranean, about 10 percent of the birds headed north to England. Researchers wanted to know if this new migratory behavior was learned or inherited. They devised the following experiment.

In England, the researchers collected a sample of birds that had flown north for the winter. For the experiment, these birds were taken to Germany and were bred to produce about 40 young birds. A second, separate group of offspring was bred from birds caught in Germany. Thus, none of the offspring in either group had ever been out of Germany and were subject to the same environmental factors. The birds' preferred migratory path was tested by putting them in cups lined with typewriter correction paper. As the birds tried to take off, their feet scratched out their preferred direction. Researchers observed that the offspring of birds that had wintered in England made tracks in a northwesterly direction towards England. The offspring of birds that had been caught in Germany made tracks in the standard southwesterly direction.



1. Why did researchers use offspring of the birds in each group rather than the birds they had collected?

2. What did the experiment prove about northern migration?

3. If migration is genetically programmed, what hypothesis might researchers propose to explain why the first few blackcaps went to England?

4. What do you think would happen if the offspring of the two experimental groups were allowed to interbreed? Can you predict where the next generation of birds would migrate?
