

Darwin's Finches: An Example of Speciation

We can now use our understanding of evolution to explain the fascinating case of Darwin's finches, a group of 14 bird species on the Galapagos Islands. All these finch species evolved from a single ancestral species. Yet each of the 14 species exhibits body structures and behaviors that enable it to live in a different niche. For example, each species shows adaptations that allow it to feed differently. Some of the finch species eat small seeds, whereas others crack open much larger seeds or seeds with thicker shells. Some species pick ticks—small insectlike animals—off the islands' tortoises and iguanas. One finch species uses twigs or cactus spines to remove insects from inside dead wood. And some finches, often called vampire finches, drink the blood of large sea birds after pecking them at the base of their tail! How did so many strange and unusual finch species evolve on these islands? The evolution of the various species of finches on the Galapagos Islands shows how geographic and behavioral barriers and reproductive isolation eventually lead to the formation of new species.

Figure 14–18 The many kinds of finches that Darwin observed on the Galapagos Islands evolved from a single species that emigrated from the South American mainland some kilometers away. How have the shapes of these birds' beaks contributed to their survival?



Name	Vegetarian tree finch	Large insectivorous tree finch	Woodpecker finch	Cactus ground finch	Sharp-beaked ground finch	Large ground finch
Shape of Bill	Parrotlike bill	Grasping bill	Uses cactus spines	Large crushing bill	Pointed crushing bill	Large crushing bill
Main Food	Fruit	Insects	Insects	Cactus	Seeds	Seeds
Habitat	Trees	Trees	Trees	Ground	Ground	Ground



Figure 14-19 This map shows the location of the Galapagos Islands off the coast of Ecuador (left). Variation exists even among the giant tortoises that live on the Galapagos Islands. The shell of one type of tortoise is raised in the front (right), enabling it to lift its head farther off the ground than the tortoise with a shell rounded in the front (center). How does the shell shape contribute to the survival of each tortoise?