One of over 4,600 mammalian species living throughout the world today, the polar bear is a remarkably well-adapted inhabitant of an often frigid and hostile arctic environment. Many physiological, morphological, and behavioral characteristics enable this species to survive in snow, ice, and freezing temperatures. The polar bear is one of the world's largest terrestrial predators and is closely related to the brown or grizzly bear. As large predators, polar bears are atop a food web feeding primarily on seals, either by stalking them or waiting by the edge of the water or breathing holes. Walruses and small whales, usually eaten as carrion, or small mammals and vegetation also may be consumed as part of the polar bear's diet.

Morphologically, polar bears are ideally suited for their harsh arctic conditions. The bear's white pelage serves as camouflage against the snow and ice; their large size (males may be over 3.4 m long and weigh over 540 kg) helps retain body heat; and a nictitating membrane shields the eyes against the glare of the sun on snow. Polar bears are closely tied to the seasonal movements of ice floes, are very strong swimmers, and travel many hundreds of kilometers yearly. The polar bear also serves as a conservation success story. Not long ago, expanding human development in the arctic and increased hunting pressure seriously reduced populations of the species throughout much of the range. Today, international cooperation protects polar bears and their habitats while allowing for native use of this traditional resource.

The polar bear serves as a wonderful example of many aspects of mammalian structure and function, phylogeny and adaptative radiation, behavioral and ecological relationships, and conservation issues. These and many other topics make up the subject matter of modern mammalogy—and the coverage of *Mammalogy: Adaptation, Diversity, and Ecology.*