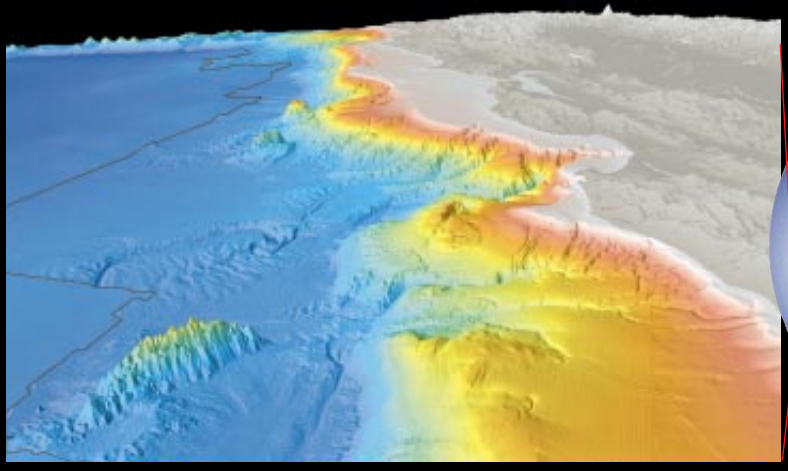
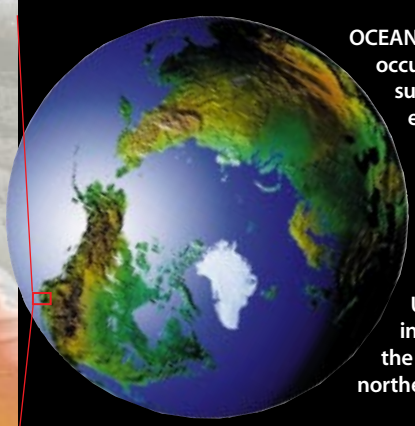
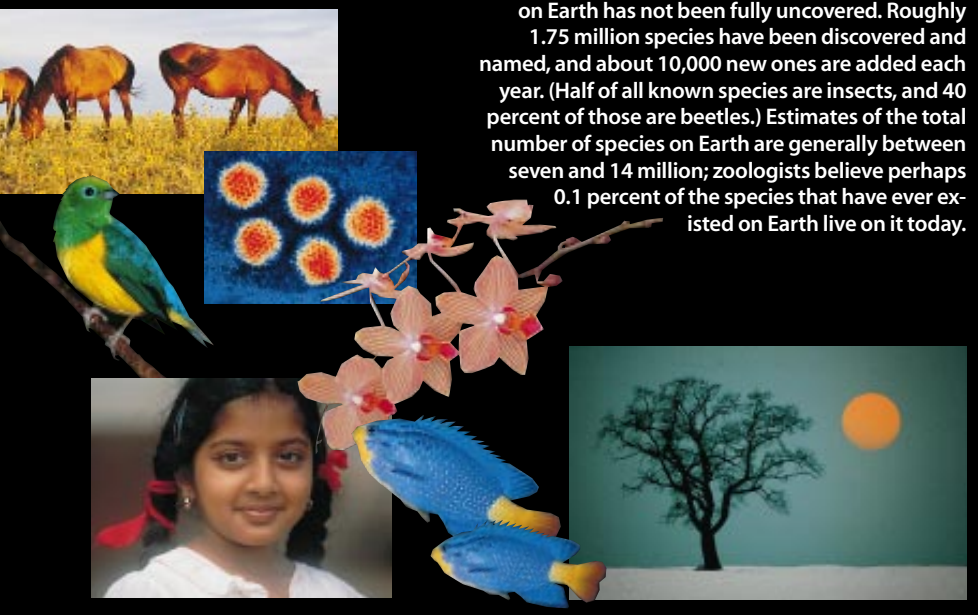
Earth





OCEANS occupy 71 percent of the surface area of the planet but remain largely unexplored. During the 1980s and early 1990s, researchers from the National Science Foundation generated images of the U.S. continental shelf, including this picture of the Monterey Bay area in northern California (*left*).

ASTROGEOLOGY TEAM, U.S. GEOLOGICAL SURVEY, FLAGSTAFF, ARIZ. (*top*); LINCOLN F. PRATSON AND WILLIAM F. HAXBY (*bottom left*); EDWARD BELL (*bottom right*)



DIVERSITY OF LIFE on Earth has not been fully uncovered. Roughly 1.75 million species have been discovered and named, and about 10,000 new ones are added each year. (Half of all known species are insects, and 40 percent of those are beetles.) Estimates of the total number of species on Earth are generally between seven and 14 million; zoologists believe perhaps 0.1 percent of the species that have ever existed on Earth live on it today.

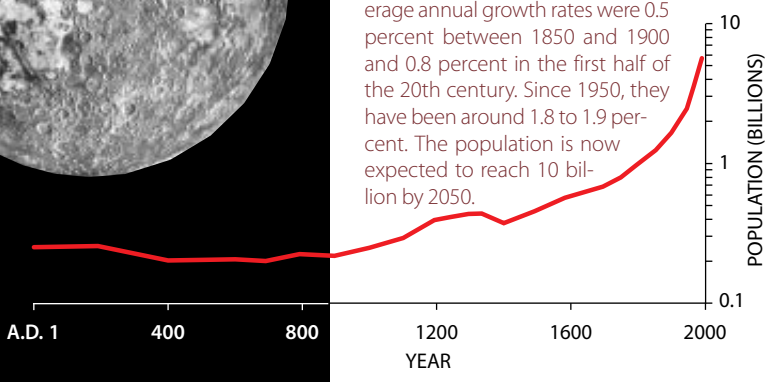
That it teems with life makes Earth a precious oddity among planets—although just how odd, scientists cannot say. Certainly the conditions that made life possible were sensitive to the planet's surface temperature and therefore to its distance from the sun.

Abundant liquid water was critical to the planet's evolution. This water moderated temperatures, eroded rocks, dissolved minerals and supported complex chemical reactions, some of which yielded single-celled life close to four billion years ago. Macroscopic animals started proliferating only around 600 million years ago, eons after photosynthesis enriched the atmosphere with oxygen.

Earth's large moon probably formed from debris after a collision between early Earth and another huge body. Because the moon and sun appear the same size from Earth, our planet is the only one to witness the beauty of the sun's corona during a total eclipse.

EARTH'S MOON has been visited by 12 people; shown here is Edwin P. ("Buzz") Aldrin, Jr., the second person to set foot on its surface. The moon orbits Earth at an average distance of 380,000 kilometers (236,000 miles) and has a diameter about one fourth that of Earth—making it an unusually large natural satellite.

HUMAN POPULATION, currently estimated at 5.8 billion, has surged in recent decades. Average annual growth rates were 0.5 percent between 1850 and 1900 and 0.8 percent in the first half of the 20th century. Since 1950, they have been around 1.8 to 1.9 percent. The population is now expected to reach 10 billion by 2050.



MAJOR ECOSYSTEMS of Earth are varied and include mountain, tropical rain forest, desert and ocean types. Urban areas, which have swelled disproportionately with population growth, are in some ways complex ecosystems in their own right.