Diurnal Encyclopedia Article

Diurnal

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Diurnal

Diurnal organisms are those that are active mainly during the day. When activity patterns of an organism occur in cycles of about twenty-four hours, the pattern is called a circadian rhythm. Diurnal animals, which sleep during the night and are active during the day, or, conversely, nocturnal animals, which sleep during the day and are active at night, follow a circadian rhythm. Scientists believe that circadian rhythms are controlled by an internal timing mechanism called a biological clock. The exact nature of this internal timing is not known, but varying levels of hormones are thought to play a role.

Scientists generally concur that the evolution of species on Earth has proceeded in the direction to take full advantage of all possible niches (the specialized role of an animal in its environment). Thus some organisms have evolved to be better suited for nighttime, which is relatively darker, cooler, and more humid. Other creatures have become more specialized for daytime, which is lighter, warmer, and drier. In a sense, then, organisms work in "shifts" so as to use the environment at all times. This allows a greater number of organisms to occupy the same area without excessive competition for space and food at any one time. The day shift includes animals such as humans, dogs, songbirds, elephants, squirrels, gorillas, deer, hawks, lizards, butterflies, honeybees, and chimpanzees. The night shift includes such animals as owls, bats, and mice.

Some animals have both nocturnal and diurnal species. In the tropics, mosquitoes transmit two serious human illnesses, malaria and dengue fever. The *Aedes aegypti* mosquito, which carries dengue fever, is diurnal. The *Anopheles* mosquito, which carries malaria, is nocturnal.

Adaptations of animals to diurnal activities are evidenced by the differing properties of some animals' eyes. For example, nocturnal birds like the owl generally have larger eyes than do diurnal birds like the hawk, for which more light is available. Larger eyeballs assist the nocturnal species in getting as much light as possible to the retina.

See Also

Nocturnal.

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