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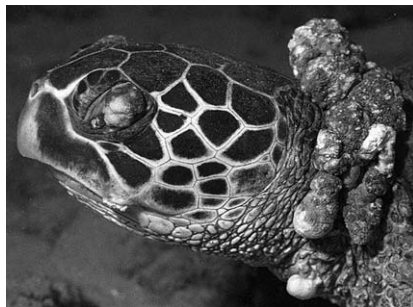
Wildlife Cancer

Cancer is not only a feared scourge for people but also a disease that can significantly reduce wildlife populations and lead some species to become endangered and perhaps even extinct, an analysis of recently published scientific studies and field reports warns. The analysis, “Wildlife Cancer: A Conservation Perspective,” was written by Denise McAloose, chief pathologist at the Wildlife Conservation Society (WCS) in New York, and Alisa Newton, WCS senior pathologist. Their report, published in the July 2009 issue of *Nature Reviews Cancer*, urges improved monitoring of wildlife health not only to enhance the conservation of species but also to benefit humans.

“Cancer can affect conservation outcomes by reducing reproductive success, altering population dynamics or directly or indirectly leading to population declines,” the WCS report states. In at least one case, the report adds, cancer threatens a species with extinction.

“Cancer is a significant cause of morbidity and mortality in several wildlife species,” the report continues. It cites the cases of Tasmanian devils and western barred bandicoots in Australia, and prairie chickens and beluga whales in North America, among others. “Cancer in wild animals is not new,” Newton says. “We’ve known that animals can get cancer for a long time. But we have not focused our attention on cancer as a conservation concern. The health of wild animals, both individuals and species, is important, especially for endangered species.”

Take the Tasmanian devil, the world’s largest living marsupial carnivore. Found naturally only on Tasmania, a large island off the southeastern coast of Australia, the devils look a little like pint-sized black bears. They are best known for their bloodcurdling cries and aggressive natures. An estimated 140,000 devils lived in the wild in the mid-1990s. Since then, their population has been nearly halved



The picture depicts fibropapillomas in the Hawaiian green sea turtle, Chelonia mydas. Photograph: U. Keuper-Bennett/P. Bennett, of turtles.org.

as a result of a grotesque malignant tumor that forms in and around the animals’ mouths, causing them to eventually starve. In some areas, the population has dropped by 90 percent. Tasmanian devils are now listed as endangered by the International Union for the Conservation of Nature.

No one knows what causes the cancer or how it started, Newton says, nor have scientists developed a treatment for it, let alone a cure. What is known is that the cancer—called devil facial tumor disease, or DFTD—spreads by contact between affected and unaffected devils, such as when fighting or biting. Such transmissible cancers are very rare. Only one other is known, in dogs. Forty-six apparently cancer-free devils have reportedly been shipped to Australia to establish a captive-breeding program. Even so, some biologists have warned that the animals could become extinct in the wild within two decades.

Similarly, intestinal cancer is now the second leading cause of death among beluga whales in Canada’s Saint Lawrence River estuary. Tumors have been found in 27 percent of dead belugas, accounting for 18 percent of all mortalities. Those numbers are strikingly similar to death rates from human cancers, Newton says.

The World Health Organization estimated that in 2007, cancer killed 7.9 million people—about 13 percent of all human deaths.

The belugas live in highly polluted waters. One pollutant, polycyclic aromatic hydrocarbons, or PAHs, is of particular concern. A recognized human carcinogen, PAHs affect a number of marine species, especially bottom-feeders like beluga whales. The afflicted belugas suffer from intestinal adenocarcinomas, a tumor that is different from those found in most other cetaceans but similar to ones found in humans. Canada lists beluga whales living in the Saint Lawrence estuary as endangered.

Beyond Tasmanian devils and beluga whales, various cancers threaten the reproductive success of several species, especially marine ones, Newton says. These include a genital papilloma in sperm whales, dolphins, and porpoises; a herpes-associated fibropapilloma in green sea turtles; a genital carcinoma in California sea lions; and hepatocellular carcinoma in bullhead catfish in Ohio’s Black River. Additionally, Attwater’s prairie chickens infected with reticuloendotheliosis virus, a common poultry pathogen, can develop lymphomas; if captive populations of the prairie chickens contract the virus, wild populations may be threatened if captive-hatched birds are released.

“Continued monitoring will be essential to determine long-term population effects, identify causes for high prevalence, and establish potential environmental cofactors that initiate or promote tumor development,” McAloose and Newton conclude.

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