

OUR WILDLIFE IS DISAPPEARING

By Gary Antonides



We have all heard about how certain species of wildlife have declined in number over the years, but a recent study, looking at wildlife numbers in general, came to a startling conclusion. The WWF (World Wildlife Fund) issues a report every two years on the state of the planet and its wildlife. In their “Living Planet Report 2018,” they say that between 1970 and 2014, only 44 years, 60% of the world’s wild mammal, bird, fish, reptile, and amphibian populations have disappeared. Only 40% remains. Since humans’ own lives depend on the health of the planet and the biodiversity of both plant life and animal life, it’s disturbing that so little has been done about it. These monumental changes in wildlife and the planet’s health are generally being ignored or even exacerbated by the present administration.

The Convention on Biological Diversity is an international treaty dating from 1992, composed of 196 countries (including the U.S.) that is working on goals for the future. Almost 40 universities, conservation and intergovernmental organizations are now trying to understand the trade-offs in the path forward and to model our ecosystems to provide guidance to governments. The results of this effort will be discussed in a future edition of WWF’s “Living Planet Report.” The 2018 WWF report says there has been a “Great Acceleration,” which is an explosion in human activity, socially, economically, and ecologically, and which has affected the Earth’s “life support system” (clean air, clean water, forests, food sources and more). They consider that the Great Acceleration started in 1950, but, the data indicate that, since 1970, the world population has almost doubled, the world’s GDP has more than tripled, energy use has doubled, fertilizer use has doubled, and water use is about 50% higher. At the same time, carbon dioxide is up 17%, methane is up 29%, ozone has more than tripled, surface temperature is up 0.9 degrees F, ocean acidification is up 14%, and fish harvests are up 40%.

The report stresses that the 60% decline in wildlife cited is the overall decline. In places, the decline of wildlife is much worse. It is 89% in Central and South America. Freshwater species worldwide have declined 83%.

On a positive note, the *Washington Post*’s daily email *PowerPost – The Energy 202* on Jan. 9 reported that the Center for Biological Diversity intends to sue the Trump Administration for failing to protect 26 animal and plant species under the Endangered Species Act.

In the December issue of the *Bay Journal*, Joel Dunn, President & CEO of the Chesapeake Conservatory, advocates that we consider a Native American philosophy of planning and acting with the next seven generations in mind. He also advocates a plan proposed by conservationist E. O. Wilson, author of “Half-Earth,” that we save half of the surface of the Earth, land and water, to maintain nature. Applying this to the Chesapeake Bay watershed, where 22 percent of the land is now conserved, and 11 percent is fully developed, we could still develop 39 percent for future growth and other needs of society. A number of government and private organizations are setting aside land for conservation, but 28 percent still needs to be conserved (which should exclude hunting). As development continues, we need to set goals of this nature to keep development in check.

Even though this article basically considers what has happened during our lifetimes, that is only a continuation of what’s been happening for hundreds of years. “An Environmental History of the Chesapeake Bay with Victor Kennedy” (<https://www.press.jhu.edu/news/blog/environmental-history-chesapeake-bay-victor-kennedy>) talks about the Bay being an immense protein factory 150 years ago. It says if we are unfamiliar with the extent of the changes over the longer time frame, our reference point, or baseline, for restoring the Bay may be set too low. Ecosystems can deteriorate so gradually that each human generation affected by the changes takes its present situation as the norm or baseline.

Up until the late 1800s, the Bay fed multitudes and supported an extensive infrastructure of boats, harvest gear, processing facilities, many trades, and transportation networks – very much more so than it does now. As the fisheries were over-exploited, the bounty was squandered, so it is now necessary to ban the harvesting of shad, river herring, sturgeon, and terrapins and set strict limits for waterfowl. Kennedy, an emeritus professor at the University of Maryland Center for Environmental Science, urges us to consider the Bay from way back then as well as our own frames of reference when setting goals for cleaning up the Bay.



The next 40 or 50 years are likely to have an even more deleterious effect on wildlife. In addition to the habitat destruction and overharvesting that has been occurring, wildlife will also have to contend with increasing climate change. There are already many examples of how warming has affected wildlife populations, sometimes helping, but more often hurting them.

As an example, a November 2018 article in National Geographic by Craig Welch, "A Crack in the World," talks about the effects of warming on the 800-mile-long Antarctic Peninsula, where humans are almost nonexistent, but many changes are nevertheless happening. The Antarctic Peninsula is the most temperate part of Antarctica, is home to teeming wildlife, and along with the Arctic, is heating up faster than almost anywhere else -- more than 10 degrees F in the winters since the 1950s. The ice-free season here is 90 days longer than it was in 1979. The warming is changing what the animals eat, where they rest, how they raise their young, and how different species interact.

Humans are affecting the situation by harvesting the shrimplike krill that form huge swarms and sustain nearly all Antarctic wildlife. Norway, South Korea, China, Chile, Ukraine and others participate in that fishery. In the past humans also harvested fur seals, elephant seals, sei whales, blues, fins, and humpbacks, and most of those populations are significantly depleted. The krill is arguably the most important now since it is the base of the food chain for most wildlife in the area. The 2-inch-long krill become dietary supplements, pharmaceuticals, and fish food for fish farms and aquariums. So far, the amount of krill fished from Antarctic waters is a small fraction of the total krill population, but there is growing concern that they're being harvested in the same areas where wildlife feeds. There is talk about restricting fishing in some areas such as near penguin breeding grounds.

Warmer ocean currents are melting the ice shelves and glaciers on the Antarctic Peninsula, and they are losing six times as much ice as they were four decades ago. Without the ice, the sun warms the ocean even more. Warmer air temperatures often bring rain instead of snow, which used to be very unusual.

The effects of warming on wildlife include a 90% decline in Adelie penguins on the western side of the peninsula. They are acclimated to freezing weather, and now melting ice and rain drown the eggs in their nests and soak the downy fur of babies before they develop water resistant feathers, so they freeze. Adelies used to eat the sardine-like Antarctic Silverfish, but they are almost gone now, and they rely mostly on krill. Ice provides a place for Adelies to avoid being eaten by leopard seals. (Elsewhere on the peninsula, Adelies are doing well.) On the other hand, a different species, Gentoos penguins are acclimated to milder conditions, have a more varied diet, and are thriving.

Humpback whales are also thriving in the area because there is more ice-free ocean which they need to feed on krill. Minke whales, however, are at a disadvantage because they feed on krill under the ice, and the ice cover protects them from orcas. Seals also need the ice -- they climb on to escape killer whales.

The Washington Post's daily email "PowerPost – The Energy 202" on Jan. 9 also reported that all of the **world's oceans are warming** at a faster rate than was previously thought. A new analysis published in the journal *Science* found oceans are warming on average 40 percent faster than what a United Nations panel estimated just five years ago. Oceans have broken records several years in a row, says the report.

Species will respond to climate change by: (1) adapting to a warmer climate, (2) moving to a colder climate, or (3) perishing. Certainly ecosystems will be forever altered, but it is difficult to predict which species will be harmed and which will not.

Climate change not only affects animal wildlife directly, but it affects the plant life they depend on. Some organizations are studying how to adapt to changes that can wipe out entire species of trees or bushes in an area. Only recently have scientists started to seriously consider "assisted migration" as warmer weather encourages pest invasions and tree die-offs in many national parks. Rather than take a chance on what types of plants will take hold, they feel that choosing what species to move into damaged areas may be smarter. This is very tricky because, among other things, different tree species will host different animal species. There have always been changes due to fires, acid rain, pest invasions and other factors. And there continues to be migration of plant life that keeps forests generally healthy. But studies and projections are beginning to show that the expected climate change will be too rapid for successful migration of certain species. The Jan/Feb 2019 issue of "Sierra" from the Sierra Club reports on experiments in Acadia National Park in Maine. Studies project that red spruce, northern white cedar, and balsam fir will forfeit large portions of their ranges, and tamarack, white and black spruce, and balsam poplar may be extinct by the end of the century. Experimental plots of tulip tree, sweet gum, black locust and others have been studied to provide a basis for possible future assisted migration.

There are some drastic adaptations being discussed for when the climate gets to the point where things like crop failures and heatstroke threaten the lives of millions of people. "Solar Radiation Management" is the injection of small particles into the upper atmosphere to have the same effect as a volcanic eruption, cooling global temperatures. Another measure is the large-scale removal of carbon dioxide from the air. These will probably happen only when humans are directly threatened. By then, there is no telling what the state of wildlife on the planet will be. As that issue of "Sierra" states: "There is no Planet B."