

Our Ocean Backyard — *Santa Cruz Sentinel* columns by Gary Griggs, Director, Institute of Marine Sciences, UC Santa Cruz.

**#132 May 18, 2013 The Next Five Years
Peregrines, Pelicans, and Pesticides**

The pelican and the peregrine falcon are each rather amazing and unusual coastal birds. We almost lost both of them several decades ago due to the side effects of a chemical that saved millions of lives from malaria. These birds both have interesting stories to tell, and fortunately, due to the work of a number of scientists and conservationists, these two species are both still here to watch and appreciate.

But, I need to set the stage a bit here. Why did we almost lose these unique birds from a chemical that was saving millions of lives around the world?

We live on a planet where malaria is extremely widespread. It might not seem that way from the perspective of a wealthy country, where malaria is usually thought of as a problem that has mostly been eradicated.

Although progress is being made, malaria is still endemic to over 100 nations, threatening millions of people. In 2010, there were an estimated 220 million cases of this disease and between 660,000 and 1.2 million people died, most of them children, the vast majority living in Africa. The actual number of deaths is not known with certainty as accurate data is unavailable in many rural areas, and many cases are simply not documented.

Malaria today is a disease of the poor and easy to overlook. Only in the past few years has malaria captured the full attention of aid agencies and donors. The World Health Organization has made malaria reduction a high priority.

The word malaria had its origin in the Italian word, mal'aria, or "bad air", because the disease was often associated with marshes and swampy areas and was thought due to the air in these damp locations. It wasn't until the late 1800s that scientific and medical studies discovered that the culprit wasn't the damp air at all, but a mosquito that carried a parasite, which laid its eggs in stagnant water.

The parasite and the mosquito that transmits it have been around for a long time, in fact during our entire history as a species. Some Egyptian mummies even have signs of the disease. Throughout history, only a few civilizations have escaped

malaria. Alexander the Great likely died of it, leading to the unraveling of the Greek Empire. Malaria may have also stopped the armies of both Attila the Hun and Genghis Khan.

Malaria was so pervasive in ancient Rome that it was known as Roman fever. Those areas of Rome where the population was most susceptible to the disease were all marshy, swampy or irrigated.

At least three US presidents suffered from it, George Washington, Abraham Lincoln and Ulysses S. Grant. In the late 1800s, malaria was so bad in Washington, D.C., sometimes known as foggy bottom, that one well known doctor proposed erecting a gigantic wire net around the entire city.

A million Union Army casualties in the U.S. Civil War are attributed to malaria, and during World War II, casualties from the disease in the Pacific exceeded those from combat. Some scientists believe that as many as one-half of the humans who have ever lived on the planet died of malaria.

Dichlorodiphenyltrichloroethane, or DDT, was the miracle chemical that was going to eradicate the mosquito and rid us of malaria, but it also had some unanticipated negative impacts. That story is going to have to wait, however.

I do want to thank all of you who emailed me last week after reading the column and who provided me with five more years of suggestions for future stories.