

# DDT and the Osprey

## Silent Spring and Rachel Carson

Rachel Carson was a biologist with the Bureau of Fisheries and the US Fish and Wildlife Service. She was also an author and an editor. In 1962 she published a book, *Silent Spring*, about the harm pesticides were doing to wildlife. One of the chemicals she was especially concerned about was Dichlorodiphenyltrichloroethane or **DDT**.



## History of DDT

DDT was first synthesized in 1874, but it wasn't until 1939 that Dr. Paul Muller discovered that DDT was extremely effective in killing insects. DDT was first used as an **insecticide** during World War II when it was used to kill mosquitoes. It was introduced for agricultural use in 1945 to help control pests like tobacco budworms, potato beetles and other insects that damaged crops.



## Problems Accumulate

One of the reasons DDT caused so much harm to some animals was because the chemicals in it didn't break down over time in the animals that ingested the DDT. Every time an animal ingested DDT, the DDT just continued to build up in the animal. Accumulation of DDT leads to **biomagnification**.



Biomagnification is when the amount of a substance found in an animal at the bottom of the food chain accumulates in higher levels in animals higher on the food chain. So a bird of prey, like the **bald eagle, osprey,** and **peregrine falcon,** that ate a lot of animals that had ingested DDT, had more DDT in their system. This was because its body had stored the DDT from all of the animals that it ate.

## Thinning Shells

DDT made it difficult for birds to absorb calcium and the lack of calcium made their egg shells thinner and many eggs broke before they could hatch. Because birds like eagles and osprey typically only lay 1-3 eggs at a time, losing one or two eggs due to shell thinning could have a dramatic impact on their populations.



## A Movement is Born

In her book Rachel Carson asked that research be conducted to ensure that pesticides were used safely. Congressional hearings were held, studies were ordered, and DDT was banned in 1972 by the Environmental Protection Agency after studies found that the chemical led to the thinning of eggs in some birds. Many people think that the publishing of *Silent Spring* marks to beginning of the modern environmentalist movement.

## Populations Increase

Since the ban on DDT, the population of bald eagles has improved. In 1963 there were 417 nesting pairs of bald eagles in the continental United States. Today there are more than 8,000 nesting pairs. In 1981 there were 8,000 breeding pairs of ospreys, by 1994 that number had risen to 14, 246 pairs.

