

MISSISSIPPI DELTA WILDLIFE

DEVELOPING RESISTANCE TO PESTICIDES

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Mosquito fish from places having a history of treatment with pesticides were found to be resistant to **DDT**. **S**ome of these are **considerably** more toxic than **DDT**. **S**ome of these, **C**onsequently, have been in use for **many** years.

Cricket frogs from areas heavily treated with **DDT** were found to tolerate concentrations which caused 100 per cent **mortality** in frogs having no prior contact with **DDT**. These **DDT** resistant frogs were later found to be quite **resistant** to aldrin.

DDT did not cause resistance to appear. However in the presence of **DDT**, the resistance is a matter of survival or **extinction**. Resistant fish and frogs were able to survive and, therefore, produce a larger **proportion** of the **succeeding** generations.

If vertebrate resistance proves to **be** wide-spread, it is suspected, this will certainly lessen anxiety for the welfare of wildlife in a world of **increasing** **pesticides**.

When **R**achel **C**arson's book, **Silent Spring**, was published it climbed to a place at the top of the best seller list and became a subject of intensive discussion and controversy. The book turned out to be a **strongly-worded indictment** of modern agricultural chemicals and of the people who make and use them. The influence of the book can be measured by the fact that President **Kennedy** appointed a special advisory committee to prepare a report on pesticide **problems**, and as many as seven Congressional committees have taken **testimony** from a parade of **witnesses**, exploring possible needs for new and more stringent legislation governing the manufacture, distribution, and use of pesticides.

It is not my intention to take issue with all that is said in **Silent Spring**, for there is certainly no denying that agricultural chemicals have often been **sold**, handled, and **used** in an irresponsible **manner**. However, Miss Carson, in reporting her concern, has made some very serious accusations, many of which appear to **have** little basis in fact. For example, she has expressed great anxiety for the **welfare** of wildlife in a world of extensive chemical use. **In** fact, the very **title** of her book, **Silent Spring**, alludes to a hypothetical **community** having no **birds, insects,** or other animals as the catastrophic consequence of insecticide **treatments**.

Now, anyone who has witnessed the teeming abundance of life in the **cotton** producing area of the Mississippi Delta must wonder about the extent of **harm** to wildlife, for here is one of the most heavily treated areas **in** the **entire** world. **It** has been quite literally drenched with organic insecticides for nearly 20 years. **Yet**, the area supports some of the best quail, turkey, **waterfowl**, deer, and fish populations to be found in North **America**.

Wildlife. Coastal Louisiana is a vast and dynamic tapestry of forests, swamps, marshes, river channels, estuaries and islands. The region provides habitat for countless wildlife, including birds, fish, mammals, amphibians and unfathomable multitudes of smaller organisms that support the entire food web of this region. Taken together, these habitats make up one of the largest and most productive wetland ecosystems in North America. Where the Mississippi River meets the Gulf of Mexico, the deposition of rich sediments and co-mingling of fresh river water and warm salt water gives rise to a spectacular flowering of life – a veritable frenzy of biological productivity. More than 400 species of birds call coastal Louisiana home. Pesticide resistance is a genetically based, statistically significant increase in the ability of a population to tolerate one or more pesticides. In most cases, resistance is documented with laboratory bioassays showing that a population with a history of extensive exposure to pesticides has a significantly greater LC50 or LD50 (concentration or dose of pesticide that kills 50%) compared with a conspecific population that has had less exposure to pesticides. Resistant pest populations can attract immediate attention when pesticide treatments fail to control them. Resistance in natural enemies, however, does not create problems and may go unnoticed.

Introduction to Pesticide Resistance. Pesticides are substances that control various types of pests, such as weeds, harmful insects, and disease-causing organisms like bacteria and fungi. Pesticides oftentimes are the most effective and efficient pest control tools available. Resistance to pesticides is a serious, and growing, problem. Worldwide, more than 600 species of pests have developed some level of pesticide resistance. This module will explain how resistance develops, the factors that contribute to it, and how it can be avoided or managed.

Understanding Resistance – What is pesticide resistance? Preventing Resistance – Ways to stop the spread of resistance. Heritage tourism development, which seeks to expand and revitalize urban and rural economic development opportunities through the preservation, management, and utilization of natural, historic, cultural, and recreational resources, presents one opportunity for achieving economic gain in the Delta. This volume II of the Lower Mississippi Delta Region Heritage Study is a companion document to volume I, which was released to the public in March 1998. Together the volumes represent one of the National Park Service's responses to Title XI – Mississippi Delta Region Initiatives passed by Congress in The "Mississippi Delta" is actually the delta of the Yazoo River, in the eastern floodplain of the lower Mississippi River. It is sixty miles at its widest point from the Yazoo to the Mississippi, in what poet William Alexander Percy called "a badly drawn half oval." Elevation goes from 205 above sea level below Memphis to eighty feet at Vicksburg, averaging 125 feet in height from Greenwood to Greenville. Flooding has been endemic, as formative as any factor in shaping the life and culture of the Delta. Native Americans lived on the land that became known as the Delta from