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## Review of *Nature Wars: People vs. Pests* by Mark L. Winston

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**Nature Wars: People vs. Pests.** Mark L. Winston. Cambridge: Harvard University Press, 1997. x+210 pp. References, index. \$24.95 cloth (ISBN 0-674-60541-1), \$15.95 paper (ISBN 0-674-60542-X).

Mark Winston draws much on case histories of pest control issues in the Pacific Northwest to argue for fundamental changes in the way we contend with pests. Quoting extensively from Rachel Carson's monumental *Silent Spring*, he outlines how balanced her view of pest control and environmental protection has proved to be and adopts that view in developing the thesis of *Nature Wars*.

The first case history involves efforts in Vancouver to control gypsy moths with *Bacillus thuringiensis*, a widely used bacterium that selectively controls only butterfly and moth larvae. Gypsy moths defoliate all green things in their path, denuding a landscape of its trees in short order. Winston documents the spread of this menace and the chemical and cultural methods used to try to control it during the past century. In Vancouver, despite opposition to spraying by some extreme environmental groups, the control campaign has so far succeeded in holding the moth at bay. Winston uses this incident to demonstrate the necessity of public involvement in pest control programs if they are to succeed. He also points out that complete control is bound to fail, whereas approaches that contain a pest at an economic threshold level often succeed.

Other case histories include attempts at cockroach control. Chemical methods aimed at eradication seldom succeed, but integrated pest management (IPM) approaches usually do. One is likely to learn more about cockroaches and their control reading this excellent account than from studying a pest control manual.

In his "Weeds" chapter, Winston, using a catholic definition of the term, covers the many animals that are pests when they get too close to humans, such as deer, raccoons, and especially birds. Rats are a special case and given full credit for the misery they bring to humankind and their propensity to thrive in urban environments. The chapter finally does get around to discussing plant weeds, but largely from an urban perspective.

Another fascinating case history, the attempt to control the codling moth in commercial apple orchards, actually reverts back to the Sterile Insect Release (SIR) approach that worked so well in controlling the screw-worm. Canadian agricultural scientists, deciding more on a political than a scientific basis, proceeded with an SIR plan that proved to be a colossal, expensive failure that has reflected badly on all biological pest control methods in the Okanagan Valley.

In an engrossing chapter devoted to pheromones, the chemicals that attract insects to each other when emitted in minute amounts, Winston reports that these materials, dubbed semiochemicals, work well but so far are not commercially viable compared with pesticides. His discussion of bees shows a true paradox of pest control: insect sprays eliminate native bees. Thus farmers must pay beekeepers to move hives around the US to ensure the pollination of critically important economic plants including almost all of the fruits, nuts, and vegetables in grocery stores. Winston offers compelling examples of other beneficial organisms that have suffered as a result of complete pest control by pesticides. He also discusses genetically engineered plants, mostly favorably, although reserving his opinion on herbicide-tolerant crop plants that actually increase the amount of herbicide used.

"Moving Beyond Rachel Carson," the final chapter, is a masterpiece. Offering a balanced discussion of the costs and benefits of biological control as opposed to pesticides, Winston calls for more responsible pest management and a new pest management ethic. It is hard to imagine how any reasonable person, after reading this book, could disagree.

*Nature Wars* has taught me much about pests in ways that relate their ecology to the problems — real and imagined — they may pose, along with the most effective ways they may be controlled. A more readable book dedicated to pest control would be hard to find. It had a great impact on me and gave me a renewed appreciation of the problems of pest control. Nature will win the war; humankind, therefore, must find some way of at least gaining a stalemate. **Dennis Keeney**, Director, Leopold Center for Sustainable Agriculture, Iowa State University.