

**Results from the Microbial Biocontrol  
Symposium, Nov. 28 – Dec. 1, 2010,  
Shepherdstown, WV**

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# Symposium Venue - NCTC



# Dining Hall



# Lodges at NCTC each have a different theme based on past environmental legends:

- Rachel Carson
- Aldo Leopold
- John Muir

**ENVIRONMENTALIST**  
**RACHEL CARSON**

Before there was an environmental movement, there was one brave woman and her very brave book

By PETER MATTHEWS

**S**he was always a writer, and she always knew that. Her husband, Stephen, a carpenter, Miller and F.B. White. In 1907 Rachel Louise Carson, born in 1907 in the Allegheny Valley town of Springdale, Pa., was first published in the St. Nicholas literary magazine for children. A reader and lover and devotee of birds, and indeed all nature, she got of plain fare and dark early but continued writing throughout adolescence, chose an English major at Pennsylvania College for Women and continued to sub-

mit poetry to periodicals. Not until 1929, when a biology course manifested the "love of wonder" with which she had always encountered the natural world, did she switch her major to zoology, not yet aware that her literary and scientific passions might be complementary.

Graduating magna cum laude in 1930, Carson won her master's degree in zoology at Johns Hopkins, but increasing family responsibilities caused her to abandon her quest for a doctorate. For a few years she would teach zoology at the University of Maryland, continuing her studies in the summer at the Marine Biological Laboratories in Woods Hole, Mass. It was there, in her early 30s, that she first saw—and became enamored with—the enormous splendor of the sea.

In 1939 "Ray" Carson, an poet since work writing science fiction scripts for the old Blue Cross of Fisheries, a job that led, in 1939, to a full-time appointment as a junior aquatic scientist, she contributed freelance articles to the Baltimore Evening Sun, most of them related to marine zoology. Though her literary work never to be published, a strong lyrical prose was already evolving, and soon of her pieces for a government publication seemed to the editor to be elegant and unusual that he urged her to submit to the Atlantic Monthly.

"Undersea," the young writer's first publication in a national magazine (September 1951), was awarded in theme and tone to all her later writing. "Chesapeake Bay took together with an evocative Jane Harper's "The Longway Inn" ("From every shore and stream along the Atlantic Coast, with sea breathing to the..."), it was the starting point for her first book.

Under the Sea-Wind (1941), Carson's favorite among her books, would pass almost unnoticed. Meanwhile, her editorial duties in what would become the Fish and Wildlife Service (1951) had increased. In 1949 she was promoted to information specialist, and in 1949 became chief editor of publications.

In their first meeting, the naturalist Lewis Halle Brand Carson "spoke different, neat, proper and without affectation." Nothing written about her since seems to dispute this. But for all her modesty and reserve she was not grim. She

**1907** May 27, 1907, at Springdale, Pa.  
**1929** Graduate from Pa. College for Women  
**1930** Graduate from Pennsylvania College for Women  
**1932** Graduate from Johns Hopkins University  
**1939** Wins a job with the U.S. Bureau of Fisheries  
**1941** Under contract with the U.S. Government  
**1944** Wins a job with the U.S. Fish and Wildlife Service

**A 1941 MELANCHOLY EXPRESSION BELEA A POWERFUL WILL**

# Auditorium



# **Microbial Biocontrol Symposium Steering Committee:**

**Bob Nowierski, Chair, USDA-NIFA**

**Alan Dowdy, USDA-APHIS-PPQ**

**Kevin Hackett, USDA-ARS**

**Deb Fravel, USDA-ARS**

**John Lydon, USDA-ARS**

**Bill Bruckart, USDA-ARS**

**Stefan Jaronski, USDA-ARS**

**Kerry Britton, USDA-FS**

# Funding for the Symposium:

- **NIFA**
- **APHIS-PPQ**
- **ARS**

**Issue:** Microbial control of arthropods, weeds, and plant pathogens still remains underutilized, in part, due to knowledge gaps, challenging regulations, relatively limited funding opportunities for applied microbial biocontrol, perceptions of risk, and other factors.



**Intent of this Symposium:** Bring together microbial ecologists, pop. biologists, microbial geneticists, conserv. biologists, and sociologists to showcase the “state of the science” of microbial biological control, provide a balanced discussion on perceptions of risk, and identify strategies to improve public trust and support for microbial biological control.

**Position Paper:** Information from the Symposium will be used to develop a position paper to help enhance communications about the state of the science and inform regulatory policy.

# Charge to the Symposium Participants

- 1. How can we communicate more effectively with each other (researchers, regulators)?**
- 2. What is the key message the public needs to hear to increase their likelihood of accepting the use of microbes for biocontrol?**
- 3. What are the top 2-3 issues presented this week that you believe need further discussion? Please explain why.**

# Charge to the Symposium Participants

- 4. What research should be conducted to facilitate regulatory decision-making?**
- 5. What science do regulators feel is still needed?**
- 6. Based on what you learned this week, what will you do differently in your work?**

# Symposium Highlights

- **65 national and international participants from Universities, State Departments of Ag., Federal Agencies and Industry**
- **Presentations on metagenomics; the state of the science of microbial control of arthropods, weeds, and plant pathog.; regulatory issues (APHIS-PPQ, EPA, USFWS); conserv. biology/public perceptions/sociological issues; genetic structure; pre-release evaluation; issues that affect the BC process; post-release monitoring**
- **PPT. presentations will be available on the ITAP website ([www.itap.gov](http://www.itap.gov))**

## **Discussion was captured during the course of the Symposium**

**On the fifth day of the Symposium we met as Feds only and mapped out a position paper to:**

- Enhance communications about the state of the science, benefits and safety of microbial control, and inform regulatory policy.**
- Influence how people think about microbial biological control as an integral tool for a sustainable planet.**

## **Outcomes:**

- **Increase trust and improve perceptions**
  - In a declining scientific oriented society
  - In a microbe-phobic world
  - In a world where people are becoming more concerned about the environ.
  - In an environment where over-dependence on conventional control leads to more insecticide/herbicide resistant pests
- **Call to Action** – technology is here to address above concerns

# Outline of Position Paper

- I. Introduction/Background**
- II. Vision of using Microbial Biological Control**
- III. Executive Summary**
- IV. Benefits of Microbial Control**
  - Cost/Benefits
  - Examples
- V. State of the Science of Microbial BC**
- VI. The Regulatory Connection or Conundrum**

## **VII. Overarching Issues**

- Foreign exploration for microbial BC agents
- Bioengineered microbials and transgenics, paratransgenesis
- Education and outreach to the public

## **VIII. Accelerating Implementation of Microbial BC Strategies**

## **IX. Recommendations**

# Potential Audiences:

- Regulatory scientists
- Research scientists
- Policy makers (**federal agencies**)
- Grower groups
- Congress
- Professional/scientific societies
- Conservation biologists
- Organic community
- Consumers

# Possible Publication Outlets:

## I. For Scientists/Policy Makers, etc.

- a. Nature and Science
- b. Scientific American
- c. Bio-Science
- d. Farm Press Series
- e. PLOS One (**Public Library of Science!**)
- f. USDA associated web page
- g. ARS Research Magazine
- h. Agronomy Society
- i. American Biological Control Society
- j. Sustainable Ag. Research and Education
- k. Biological Control Science and Technology
- l. Biological Control

# Possible Publication Outlets:

## II. For General Audiences

- a. USA Today
- b. National Geographic
- c. Rolling Stone Magazine
- d. Washington Post
- e. New York Times
- f. Wall Street Journal

Currently in process of identifying writers for various sections.

**Thank You!**