

Workshop on Genetically Engineered Organisms, Wildlife, and Habitats

Arnold and Mabel Beckman Center of the National Academies
Irvine, CA
November 5-6, 2007

SUMMARY

At the request of U.S. Geological Survey (USGS), the National Research Council has appointed a committee of scientists with expertise in the ecological dimensions of genetically engineered organisms (GEOs) to organize a two-day workshop to identify research activities with the greatest potential to provide scientific information and data needed to assess the ecological effects of genetically engineered organisms on terrestrial and aquatic wildlife and their habitats. USGS requested the workshop to inform its research program as the scientific advisory body to the Fish and Wildlife Service, National Park Service, Bureau of Land Management, and other federal agencies that manage natural habitats and safeguard wildlife.

The workshop will include approximately 40 scientific experts in fields of terrestrial and aquatic wildlife biology and ecology; natural habitat management; landscape ecology and ecosystem science; invasion ecology; plant, insect, and animal genetics and biotechnology, among others. Representatives of agencies with regulatory authority over GEOs, agencies responsible for managing terrestrial and aquatic wildlife and habitats, and agencies that conduct or support basic and applied research relevant to workshop goals will be active contributors to the meeting.

The workshop will focus on research needs for understanding effects of GEOs on both terrestrial and aquatic ecosystems. The intention of the workshop is to begin to identify the fundamental information needs and prioritize specific research directions and questions related to known areas of concern; it is not to produce a detailed research agenda. The workshop will also explore existing research, surveillance, and monitoring activities that might serve as a platform for research on GEOs. A report will be published after the workshop summarizing issues raised at the meeting and research ideas put forward by presenters and participants.

Steering Committee

Anne R. Kapuscinski, Chair
Professor of Fisheries, Wildlife and Conservation Biology
University of Minnesota

Norman C. Ellstrand
Professor of Genetics
University of California, Riverside

Alison G. Power
Professor of Ecology and Evolutionary Biology
Cornell University

Guy Knudsen
Professor of Microbial Ecology and
Plant Pathology
University of Idaho

Steven Strauss
Professor of Forest Science
Oregon State University

Michelle Marvier
Associate Professor of Biology
Santa Clara University

Bruce Tabashnik
Professor of Entomology
University of Arizona

LaReesa Wolfenbarger
Associate Professor of Biology
University of Nebraska, Omaha

Draft Agenda
(Revised September 10, 2007)

Monday, November 5, 2007

7:00am WORKING BREAKFAST

Session I: Introduction and Setting the Stage

8:00am Welcome and Workshop Overview – *Anne Kapuscinski, University of Minnesota*

8:15am Biological Sciences at US Geological Survey – *Robert Szaro, USGS*

8:30am GEOs and the USDA Biotechnology Risk Assessment Research Grants Program: What's here, what's coming? – *Chris Wozniak, USDA*

8:45am Panel discussion with Session I speakers

Session II: Current Research on Effects of GEOs on Terrestrial and Aquatic Wildlife and Habitats

9:10am Research on effects of GE crops on terrestrial wildlife and their natural habitats – *LaReesa Wolfenbarger, University of Nebraska*

9:30am Research on effects of GE trees on wildlife and their natural habitats – *Chung-jui Tsai, Michigan Tech University*

9:50am BREAK

10:10am Research on effects of GE fish on aquatic wildlife and their natural habitats – *Robert Devlin, Fisheries and Oceans Canada*

10:30am Research on effects of GE microbes on wildlife and their natural habitats – *Michael Allen, University of California at Riverside*

10:50am Research on effects of GE insects on wildlife and their natural habitats – *Thomas Miller, University of California at Riverside*

11:10am Panel discussion with Session II speakers

11:30am WORKING LUNCH

Session III: Fundamental and Cross-cutting Research Issues for Assessing Ecological Effects of GEOs

12:30pm Research approaches from invasion ecology – *TBD*

12:50pm Working from the gene and organism upward – *Paul Gepts, University of California at Davis*

1:10pm Strategies for detecting ecological effects of GEOs in nature – *Michelle Marvier, Santa Clara University*

1:30pm Panel discussion with Session III speakers

2:00pm BREAK

Session IV: Breakout Session by Ecosystem Type

2:15pm Overall charge to sessions: identify priority areas for research on ecological effects of GEOs

2:30pm 4 breakout groups

- Agriculture/wildland (terrestrial and aquatic) interface (2 groups)
- Silviculture/wild forest interface
- Aquaculture/aquatic habitat interface

5:00pm ADJOURN (Dinner on your own)

Tuesday, November 6, 2007

7:00am WORKING BREAKFAST

Session V: Summary and Synthesis of Session IV from Breakout Groups

- 8:00am Presentations from each Session IV breakout group
- 10 min. presentation and 5 min. discussion per group.
 - As a group, identify a combined list of 4 priorities. These 4 priorities will define the break-out groups for Session VI.

9:30am BREAK

Session VI: Breakout Session by Priority Area

- 10:00am Overall charge to sessions:
- Identify fundamental information needs and prioritize specific research directions and questions.
 - Identify existing research, surveillance and monitoring activities that might serve as platform for research on GEOs
- 10:15am Breakout groups by priority area

12:30pm WORKING LUNCH

Session VII: Summary and Synthesis of Session VI from Breakout Groups

- 1:30pm Presentations from each Session VI breakout group
- 10 min. presentation and 5 min. discussion per group.

Session VIII:

- 2:30pm Group discussion
- What were common themes among the various breakout groups?
 - How can USGS and other groups build on current activities to advance our knowledge of these effects on terrestrial and aquatic wildlife and their habitats?
- 3:30pm Concluding remarks – *Norm Ellstrand, Bruce Tabashnik, and Anne Kapuscinski*
- 4:00pm ADJOURN