

## **Summary of Xerces Conservation Biological Control Short Courses conducted through Northeast SARE Project ENE150137**

During the grant period, we conducted 16 short courses in the Northeast SARE region that were attended by a total of 452 participants, including 147 agricultural support staff and 72 farmers. The primary audiences at all of these events were staff from the USDA NRCS, Soil and Water Conservation Districts, Extension, and sustainable agricultural organizations, as well as a number of individual farmers. Other course participants included homeowners, botanists, gardeners, naturalists, beekeepers, and non-governmental conservation organization staff. While agricultural support staff were in attendance at all courses, participation by this segment of our audience varied greatly between states and was low during 2016 in particular. In 2017, we refocused our efforts to recruit more agricultural support staff to these training courses. These efforts paid off, and 35% (79 of 217) of course participants in 2017 and 2018 represented agricultural support staff.

### **2015**

On September 9, 2015, we conducted a short course at the University of Rhode Island East Farm in Kingston, Rhode Island. We targeted the NRCS staff in Connecticut, Massachusetts, and Rhode Island, as well as conservation partners at the Soil and Water Conservation Service, Cooperative Extension, and local nonprofits for this training. Thirty people attended, including 14 agricultural support staff.

As part of this short course, we conducted an in-depth field-based habitat assessment training. Other highlights included an in-field native wildflower and beneficial insect identification session and a tour of demonstration cover cropping systems that are integrating beneficial insect conservation practices into cover crop management practices.

For this course, 21 out of 30 participants completed the day-of-course evaluations, and 67% of respondents (14 of 21) reported increased understanding of the diversity of native beneficials and their lifecycles, and 76% of participants (16 of 21) reported increased knowledge conducting native plant restoration to improve populations of beneficial insects. Among the 10 agricultural support staff who responded to the day-of-course evaluation, 90% (9 of 10) said that the Conservation Biological Control Short Course changed how they would advise farmers about farm management practices to support beneficial insects. Course participants planned to advise farmers to consider pesticide impacts on beneficial insects in pest control decisions; adjust management practices to increase beneficial insect numbers; provide additional habitat resources for beneficial insects; and/or encourage enrollment in NRCS conservation programs for beneficial insects.

The course was very well received, and the Xerces Society was invited to conduct another short course at the University of Rhode Island this winter. This course is scheduled for February 11, 2016.

## **2016**

Conservation Biological Control Short Courses have been held in the following states: Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont. Details about courses in each state follow.

### ***Massachusetts***

We conducted two short courses in Massachusetts in 2016.

The first Massachusetts course was held on May 5, 2016, at the Bristol County Agricultural School in Dighton, Massachusetts. We had 23 attendees, including five agricultural support staff. We partnered with Bristol County Conservation District staff member Sue Gaducci to host this event. As part of this short course, we conducted an in-depth field-based habitat assessment training. Highlights from this event included a presentation on USDA NRCS conservation program support for habitat from guest speaker Gary Casabona, USDA NRCS State Biologist for Rhode Island.

The second Massachusetts course was held on July 11, 2016, at the New England Wildflower Society, Garden in the Woods in Framingham, Massachusetts. This event had 11 attendees. As part of this short course, we conducted an in-depth field-based habitat assessment training using the Xerces Society's Beneficial Insect Habitat Assessment Guide. Participants also practiced beneficial and pest insect identification in the field.

### ***New Hampshire***

On September 20, 2016, we held a short course at Stonewall Farm in Keene, New Hampshire. We had 28 attendees at this event. Part of this course included an outdoor training in habitat assessment for beneficial insects as well as beneficial insect and wildflower identification.

### ***New York***



Fifty people participated in the New York Conservation Biocontrol Short Course, which featured guest speakers from The Hudson Valley Farm Hub, the Hawthorne Valley Farmscape Ecology Program, Cornell Cooperative Extension and the NY USDA-NRCS. Photo by Kelly Gill, The Xerces Society.

Our New York course was held on November 9, 2016, at the Ashokan Center in Olivebridge, New York. This course was a close collaborative effort with the Hudson Valley Farm Hub and the Hawthorne Valley Farmscape Ecology Program. We had 50 attendees at this event,

including nine agricultural support staff. Highlights for this event included a number of guest speakers presenting on topics related to conservation biocontrol. These guests included:

- Crystal Stewart, CCE Vegetable Specialist
- Jean-Paul Courtens, Hudson Valley Farm Hub
- Conrad Vispo, Hawthorne Valley Farmscape Ecology Program
- Claudia Knab-Vispo, Hawthorne Valley Farmscape Ecology Program
- Elizabeth Marks, USDA NRCS

### ***Pennsylvania***



Participants in the Pennsylvania Conservation Biocontrol Short Course discussed beneficial insects and their habitat associations observed in real-life, field conditions. Photo by Kelly Gill, The Xerces Society.

The Pennsylvania short course was held on September 9, 2016, at the Pennsylvania State University Southeast Agricultural Research Education Center in Landisville, Pennsylvania. We had 26 attendees, including three agricultural support staff. A highlight of this event was the guest presentation by Dr. David Biddinger, an entomologist and professor of tree fruits at Penn State University.

### ***Rhode Island***



Jarrold Fowler, Xerces Society's Pollinator Conservation and Biocontrol Specialist for the Northeast Region, leads a field tour during the Conservation Biological Control Short Course at the University of Rhode Island East Farm. Photo by Kelly Gill, The Xerces Society.

We held two short courses in Rhode Island during 2015 and 2016.

On September 9, 2015, we conducted the first short course at the University of Rhode Island East Farm in Kingston, Rhode Island. Thirty-two people attended, including 14 agricultural

support staff. As part of this short course, we conducted an in-depth field-based habitat assessment training. Other highlights included an in-field native wildflower and beneficial insect identification session and a tour of demonstration cover cropping systems that are integrating beneficial insect conservation practices into cover crop management.

The course was very well received, and as a result, the Xerces Society was invited to conduct another short course at the University of Rhode Island in February 2016. The second Rhode Island short course was held on February 11, 2016. We had 40 attendees at this event, including seven agricultural support staff.

### ***Vermont***

The Vermont short course was held on June 28, 2016 at Sterling College in Craftsbury Commons, Vermont. This course had 12 attendees, including one USDA NRCS staff member. A valuable component of this course was the outdoor group activities, including habitat assessment training for beneficial insects, and beneficial insect and wildflower identification activities.

### ***Day-of-Course Evaluation Results***

In assessing the day-of-course evaluations, 59% (102 out of 172) short course participants completed the day-of-course evaluations where evaluations were collected. For one course, which had 50 participants, evaluation forms were not completed by any attendees; therefore, this course is excluded from this assessment. Of the 102 evaluation respondents, 69% (70 of 102) reported increased knowledge of farm practices to promote beneficial insects, and 83% of participants (85 of 102) reported increased knowledge conducting native plant restoration to improve populations of beneficial insects.

Of the agricultural support staff who responded to the day-of-course evaluation, 63% (26 of 41) said that the Conservation Biological Control Short Course changed how they would advise farmers about farm management practices to support beneficial insects. Of this same group, 56% (23 of 41) said they would incorporate beneficial insect habitat enhancement into existing trainings on federal conservation programs. In total, these agricultural support staff estimated that they interact with 623 farmers annually. Please note that not everyone who indicated that they are agricultural support staff provided additional information regarding their specific affiliation (Extension, NRCS, etc.). In our cumulative milestone table ([Cumulative Milestone Table December 2016](#)), we have provided the information as reported.

While the short course specifically targets agricultural support staff, a number of farmers attended each event. Among these farmers, all of them (100%; 17 of 17) indicated that attending the short course changed how they would support beneficial insects on their farms. Similarly, 100% (17 of 17) of responding farmers also said they would take steps to provide additional habitat resources on their farms for beneficial insects, and 35% (6 of 17) reported that they intended to enroll in USDA NRCS conservation programs for beneficial insects. Collectively, these farmers reported that they manage approximately 901 acres of land. Feedback from short course participants to date has been very positive. Examples of specific comments from this reporting period include:

"I expected to learn about the benefits native insects can provide to farms and public/private lands, and these expectations were absolutely fulfilled!" – Course participant, Kingston, RI short course 2015

"Great information for producers on alternatives besides using pesticides." – Agricultural support staff, Keene, NH short course 2016

"Many thanks for a great day of excellent useful information. Fantastic speakers. Bravo!" – Course participant, Landisville, PA short course 2016

"Great pace, knowledge and learning atmosphere. Presenter was very engaging and helpful." – Agricultural support staff, Craftsbury, VT short course 2016

"Great workshop! This could go on for a week!" – USDA NRCS staff, Kingston, RI short course 2016

## **2017**

2017 Conservation Biological Control Short Courses were held in the following five states: Connecticut, Delaware, Maine, Maryland, and West Virginia. Details about courses in each state follow.

### Connecticut

Our Connecticut course was held on June 13, 2017, at the 4-H Education Center at Auer Farm in Bloomfield. We had 35 course participants in attendance at this event, including 13 agricultural support staff and 4 farmers. Highlights of this course included a guest presentation by researcher Dr. Ana Legrand from the University of Connecticut, who spoke about insectary plantings to promote beneficial insects for pest control. This course also included outdoor field activities where course participants were able to assess outdoor habitat as well as scout and collect beneficial insects in real-life field conditions.

### Delaware

The Delaware course was the last course offered in 2017. It was given on December 13, 2017, at the St. Jones Reserve in Dover. This course was attended by 20 participants, including 13 NRCS staff. Highlights of this course included two guest speaker presentations. Faith Kuehn of Delaware's Department of Agriculture's Plant Industries gave a presentation called "Let it Bee: Pollinator Power", and Tim Garrahan, USDA NRCS Farm Bill Program Specialist for Delaware spoke about federal practices and programs for beneficial insect conservation.

### Maine

The Maine course was offered in partnership with the Maine Organic Farmers and Gardeners Association (MOFGA) on November 30, 2017, at the MOFGA Common Ground Education Center in Unity. This course was attended by 36 participants, including 9 agricultural support staff and 14 farmers. Highlights of this course include a close partnership that developed with MOFGA staff and Xerces staff during course planning and delivery. We are hoping to work with MOFGA in the future to offer similar additional trainings for their farmers. Other highlights of this course included a guest speaker presentation by Sonja Birthisel, a Ph.D. candidate from the University of Maine. She gave a very interesting talk on the value of predatory ground beetles

for weed seed control in farming. Mark Guzzi from Peacemeal Farm, a local farm in the area, spoke about his efforts to promote conservation biocontrol on his farm and what he has learned along the way.

### Maryland

The Maryland course was offered on June 13, 2017, at the Philip Merrill Environmental Education Center in Annapolis. We had 30 course participants for this event, including 1 agricultural support staff and 6 farmers. Highlights of this course included field activities for participants to improve their habitat assessment skills as well as a guest speaker presentation on federal funding for insect conservation given by Steve Strano, the Maryland State Biologist from USDA NRCS.

### West Virginia

The West Virginia course was offered on October 25, 2017, at the Quiet Dell United Methodist Church in Mt. Clare. We partnered closely with West Virginia NRCS staff to offer this course, and they showed a lot of support for this training opportunity, as was evident by the many NRCS participants in attendance. The course was attended by 40 participants, including 23 agricultural support staff (nearly all from NRCS) and 17 farmers. Additional highlights of this course included guest speaker presentations by Dr. Daniel Frank, an Extension specialist and assistant professor at West Virginia University and Jason Bladow, West Virginia NRCS State Biologist. Dr. Frank spoke about his conservation biological control research projects in West Virginia.

### ***Day-of-Course Evaluation Results***

In assessing the day-of-course evaluations, 66% (239 out of 363) short course participants in twelve short courses completed the day-of-course evaluations and had their data included in this assessment. For the most recent course (offered on December 13, 2017, with 20 participants, 13 of whom were agricultural support staff) evaluation forms were not yet available for assessment, so this course's 20 participants are excluded from the analysis below. Of the agricultural support staff who responded to the day-of-course evaluation, 72% (63 of 87) said that the Conservation Biological Control Short Course changed how they would advise farmers about farm management practices to support beneficial insects. Of this same group, 57% (50 of 87) said they would incorporate beneficial insect habitat enhancement into existing trainings on federal conservation programs. In total, these agricultural support staff estimated that they interact with 3,165 farmers annually.

While the short course specifically targets agricultural support staff, a number of farmers attended each event. Among these farmers, 88% (51 of 58) indicated that attending the short course changed how they would support beneficial insects on their farms. In addition, 78% (45 of 58) of responding farmers also said they would take steps to provide additional habitat resources on their farms for beneficial insects, and 59% (34 of 58) reported that they intended to enroll in USDA NRCS conservation programs for beneficial insects. Collectively, these farmers reported that they manage approximately 3,415 acres of land.

## 2018

2018 Conservation Biological Control Short Courses were held in the following three states: Massachusetts, New Hampshire, and New Jersey. Details about courses in each state follow.

### New Jersey

We partnered with the New Jersey USDA NRCS to offer a short course in Bordentown, New Jersey on April 26, 2018. The course was instructed by Xerces Society Pollinator Conservation Specialist Kelly Gill and was attended by 20 enthusiastic participants, including 7 agricultural support staff and 4 farmers. A highlight of the course was a guest presentation by Betsy McShane from NRCS New Jersey.

### New Hampshire



**Xerces Society Farm Bill Conservation Planner Eric Venturini, guest speaker at the 2018 New Hampshire short course, presented on beneficial insect conservation in hoop houses. Photo by Thelma Heidel-Baker, the Xerces Society**

We held a second short course in New Hampshire in late 2018 due to a high level of interest from our partners. The course was offered in partnership with the Cheshire County Conservation District and was held at the Cheshire County Department of Corrections on December 13, 2018. An enthusiastic group of 32 people were in attendance, which included 17 agricultural support staff and 2 farmers. Guest speakers included Xerces Society Farm Bill Conservation Planner Eric Venturini who presented on beneficial insect conservation in hoop houses. Kelly Bolland, state biologist for New Hampshire NRCS, presented on Farm Bill support for insect conservation.

### Massachusetts

We also held another short course in Massachusetts on December 15, 2018, in partnership with NOFA Massachusetts at the Ames Library in North Easton, Massachusetts. We had 13 course participants that included four farmers and a diverse group of master gardeners, homesteaders, and land managers. Xerces Society Conservation Biocontrol Specialist Thelma Heidel-Baker instructed the course and Dave Jaffe from the New England Wild Flower Society gave a guest

speaker presentation on the many benefits of utilizing native plants in a farming and garden landscape.

### ***Day-of-Course Evaluation Results***

In assessing the day-of-course evaluations, 65% (285 out of 439) of short course participants from 15 short courses completed the day-of-course evaluations and had their data included in this assessment. For the most recent course offered on December 15, 2018, evaluation forms were not yet available for assessment, so this course's 13 participants are excluded from the analysis below.

Of the agricultural support staff who responded to the day-of-course evaluation, 72% (78 of 108) said that the Conservation Biological Control Short Course changed how they would advise farmers about farm management practices to support beneficial insects. Of this same group, 58% (63 of 108) said they would incorporate beneficial insect habitat enhancement into existing trainings on federal conservation programs. In total, these agricultural support staff estimated that they interact with 5,772 farmers annually.

While the short course specifically targets agricultural support staff, a number of farmers attended each event. Among these farmers, 86% (55 of 64) indicated that attending the short course changed how they would support beneficial insects on their farms. In addition, 73% (47 of 64) of responding farmers also said they would take steps to provide additional habitat resources on their farms for beneficial insects, and 55% (35 of 64) reported that they intended to adjust their management practices where possible for beneficial insects. Collectively, these farmers reported that they manage approximately 3,309 acres of land.