

IPM ILTrip Report

Country(s) Visited: Ethiopia

Dates of Travel: May 11 to 21, 2016

Travelers' Names and Affiliations: Dr. Wondi Mersie, Virginia State University

Purpose of Trip: To participate in a training workshop at Wollenchiti bioagent rearing site and confer with Ethiopian partners on the implementation of the USAID IPM IL-funded Parthenium Project.

Specific objectives of the trip were to:

- (i) Train Ethiopian project partners about mass rearing techniques for approved bioagents, *Zygogramma* and *Listronotus* for field release against parthenium;
- (ii) To assess the progress made in mass rearing *Zygogramma* and *Listronotus* at Ambo University's Guder campus, and Wollenchiti;
- (iii) To discuss graduate student projects with Ambo University faculty members;
- (iv) To identify potential field sites for releasing parthenium biocontrol agents.

Sites Visited:

Wollenchiti, Bioagent rearing site

Ambo University, Guder Campus, Guder

Description of Activities/Observations:

All trip objectives were achieved

Itinerary:

May 11: Travel from U.S.A. to Addis Ababa, Ethiopia

May 12: On the air travelling

May 13: Arrived in Addis Ababa, Ethiopia. Discussed project progress with Dr. Kassahun Zewide from Ethiopian Institute of Agricultural Research (EIAR), Million Abebe from Virginia State University (VSU) Parthenium Project and Dr. Samuel Assefa formerly at Oromia Agricultural Bureau (OAB).

May 14: Travelled to Wollenchiti to meet Million Abebe and Lidya (Sintu) Alemayehu formerly at EIAR's Ambo Plant Protection Research Center (APPRC) and other workers at the rearing site. Spent the day preparing for May 15 training.

May 15: Slide presentations were made to participants on parthenium stock production, culturing of *Zygogramma* and *Listronotus*. Dr. Samuel Assefa formerly at OAB discussed the adverse impacts of parthenium on Ethiopian farmers, Dr. Kassahun Zewide explained the role of EIAR in the project. Participants from Project partners in Ethiopia also spoke on the challenges they faced in rearing *Zygogramma* and *Listronotus*. Details of the presentations are as follows;

Dr. Wondi Mersie gave a slide presentation on:

- (i) Objectives of the project and implementation plan for the coming year. He also summarized the accomplishments of the project.
- (ii) Procedures that need to be followed in growing quality parthenium stock at the required quantity and growth stage for rearing *Zygogramma* and *Listronotus*.
- (iii) Procedures that need to be adhered in selecting release sites for both bioagents.

Ms. Lidya (Sintu) Alemayhu gave presentation on:

- (i) The life stages of *Listronotus setosipennis*.
- (ii) Results of host-range evaluations she conducted while she was at EIAR's APPRC
- (iii) Mass rearing techniques of *Listronotus setosipennis* for release.

Mr. Million Abebe in his presentation covered the following;

- (i) The life stages of *Zygogramma bicolorata*

- (ii) Mass rearing techniques of *Zygogramma bicolorata*
- (iii) Pests and predators of *Zygogramma bicolorata*

The following project participants also made presentations at the training session;

Mr. Alebel Eskzia from the Amhara Regional Agricultural Research Institute (ARARI), gave a slide presentation on progress made at the Kobo rearing site. He described the challenges he faced in rearing *Zygogramma*. He reported that they started with eighty adult pairs of *Zygogramma bicolorata* and now they have 950 adults. Mr Alebel said that the number of the bioagents vary from month to month depending on the availability of quality parthenium stock. He also indicated that personnel turnover, weather fluctuation and occurrence of insect pest on parthenium were the major challenges they have encountered during the mass rearing of *Zygogramma*.

Mr. Tesfaye Amare from Ambo University (AU) gave a presentation on the preparation made at the Guder sub-station to receive *Zygogramma bicolorata* and *Listronotus setosipennis* for mass rearing. He indicated that they can grow quality parthenium stock suitable for both bioagents and AU is ready to rear the insects in mass. He indicated that they need additional pots that fit inside the holes of the breeding cages.

Mr Teshale Daba from EIAR's APPRC reported on the status of the three bioagents *Zygogramma bicolorata*, *Listronotus setosipennis* and *Smicronyx lutulentus* housed in the quarantine facility. He indicated that they are waiting for adults of *Smicronyx* to emerge from pupation boxes. Larva of this weevil were transferred to pupation boxes in mid-January and early February 2016 but adults are yet to emerge. APPRC is also maintaining the cultures of *Zygogramma* and *Listronotus* at the quarantine facility.

Mr. Dejene Aynew from Haramaya University (HU) summarized the progress made in rearing *Zygogramma*. He reported that they now have about a 1000 adults and 1400 larvae of *Zygogramma*. They will release this bioagent after they fence plots within HU campus. In the coming weeks they will also make the necessary preparation to receive *Listronotus* for mass rearing.

May 16, 2016

The whole day was devoted to hands-on training of culturing *Zygogramma* and *Listronotus*. After the demonstration each participant was asked to recover larva of *Listronotus* from stems of parthenium and transfer it to pupation boxes filled with sterilized soil.

At this training session emphasis was given to the field implementation phase (insect and plant culturing techniques, mass-rearing, releases, evaluation) of the biocontrol component of this project. Discussions were held with researchers and technicians about the proper techniques that need to be used to grow parthenium and rearing of *Zygogramma* as well as *Listronotus*. Participants also talked about methods to accelerate the rearing and release of the two bioagents before the rainy season ends in September.

Discussion was also held on the importance of informing the public on the host specificity of the bioagents. All participants need to participate in this effort by explaining host-range evaluations conducted at APPRC that showed the safety of the two bioagents to non-target plants. Participants also agreed to release the two bioagents on plots that have parthenium and composite crops such as noog and sunflower to show the host-specificity of the insects to the weed.

Dr. Mersie met two graduate students from Ambo University, Ms. Tinsae Eshetu and Mr. Gizachew Grima who are recruited to conduct their M.S. theses research on parthenium while being supported by the project. Tinsae is expected to work on the effects of soil type and moisture level on the establishment of the two bioagents while Gizachew will evaluate the establishment of the insects after release.

May 17: Further discussion on parthenium biocontrol research, and rearing techniques for *Listronotus setosipennis* was held with participants. The importance of carefully selecting sites for release was also discussed in the morning. It was agreed to identify and fence plots before releasing the bioagents. This will ensure that parthenium will not be cut for at least two seasons to allow the bioagents establish themselves.

May 18: Spent the day in Addis Ababa identifying vendors who sell key supplies for the rearing sites.

May 19: Traveled to Guder where Ambo University's College of Agriculture is located. Two walking-cages were established at Guder campus and parthenium in pots have been

produced there in the last several months. Cultures of *Zygogramma* and *Listronotus* were transferred from Wollenchiti to Guder on May 17 and are now being reared in small cages.

Mersie along Tesfay, Fulea and Lidya toured the campus to identify sites for bioagent release. Several sites within the campus that have good parthenium stand were identified. A plan was developed to fence these plots and use them for release and a follow-up evaluation.

A meeting was also held with Dr. Mulugeta Negeri, Dean College of Agriculture and Veterinary Science. The discussion included graduate student projects, sites for release of bioagents and scaling-up project activities.

May 20: Mersie met with Dr. Brahane Gebre Kidan and briefed him on the progress of the project. Mersie also held final discussion with Dr. Kassahun, Mr. Million and Ms. Lydia (Sintu).

Mersie left for Washington DC in the evening.

Training Activities Conducted:

Program type (workshop, seminar, field day, short course, etc.)	Date	Audience	Number of Participants		Training Provider (US university, host country institution, etc.)	Training Objective
			Men	Women		
Workshop	May 15 to 18, 2016	Partners from Research centers & Universities in Ethiopia	11	5	Organized by Virginia State University	To build capacity in rearing bioagents at different locations in Ethiopia

Field visit	May 19, 2016		1	1	Organized by Virginia State University	Field visit to Ambo University Guder campus to view secured areas for release of parthenium biocontrol agents
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Suggestions, Recommendations, and/or Follow-up Items:

Please see above.

List of Contacts Made:

Name	Title/Organization	Contact Info (address, phone, email)
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