Group discussion: Topics and format for the group’s research output

**Ideas for topics**:

* Paul O: Plant-trait mediated effects on interactions among herbivorous biocontrol agents, interactions among parasitoids/predators – it could involve a range of community ecology oriented topics including competitive displacement, facilitation, apparent competition.
* Michal: I like Ian's idea of putting together the "X key questions in the theory of biological control". A short manuscript summarizing these questions could a first small product of these discussions.

As a second step, each member/few members can pick up a question of their choice and review the knowledge about previous models addressing it, the main predictions generated, to what extent were they tested or implemented in the field, and what else should be done. Each such review can be then used as a book chapter (electronic or not) or a manuscript in a special issue.

* Tamar: I like Ian's suggestion as well. Within this framework, I would be happy to review some of the basic questions discussed in the Heimpel & Mills book:

1. Is it better to introduce a single natural enemy or multiple species?

2. Do new predator-prey associations provide better biological control than co-evolved associations?

3. Is biological control more successful in simple ecological communities than in complex, species-rich ones?

The Heimpel & Mills book mainly reviews experiments and observations to try to answer these questions. I think it would be interesting to review the theory behind them and perhaps develop new models where the existing ones are insufficient.

Thinking more broadly (and perhaps beyond the scope of the RG), it would be cool to develop a decision-support tool for biological control practitioners who consider using a natural enemy X to control a pest Y in an environment Z. After being provided with information on the traits of X, Y and Z, the tool would estimate the potential for success in controlling Y, and the risk for non-target side effects, if X were to be released. I'm not sure if such a tool already exists.

* Bernie:  I also like Ian's idea regarding big questions. Here is another thought:  Everyone seems to be on board with the idea of Conservation BioControl - it sounds so natural (thus appealing) to conserve already-present natural enemies in their near-natural environment but what is the best way to do this?  What can theory contribute to optimizing (and articulating) this very broad concept?
* Paul A: I really like Ian’s idea of starting out the work by identifying a list of 5-10 important current (and general) questions for the theory of biological control, and having those be the framework around which subsequent workshop activities are based.   This would provide a nice focus to the work done by the group and might help prevent members from going off in their own fragmented preferred directions based on their specific research interests (too much at least).
* Moshe: I also like Ian’s X key questions… idea, to be submitted to a strong journal. Two possible topics I am interested in are (i) omnivore-prey population interactions, and (ii) evolution of omnivorous feeding habits.
* Asaf: I am particularly interested in community-level questions, e.g. Paul Ode's trophic plant-herbivore-enemy interactions, Tamar's question on community simplicity/complexity and suggested landscape framework, and Bernie's question on conservation biocontrol, as well as George's spillover conservation benefits of BC. If that would fit in, I'm hoping for opportunities to add the angle of pathogens in such community/multitrophic interactions into projects that I'd be involved in.
* Marc: I also like the idea of starting with the empirical reports in the Heimpel and Mills book and developing sequences of models to address the questions.

Given both the composition of the group and the individuals we want to reach, beginning with simple models (e.g. that use algebra or geometry only) and then moving on will, in my opinion, be a powerful approach.  An example of this approach is in Chapter 4 of Clark and Mangel (2000).

* Pamela:  Develop frameworks to use models in risk assessments, so stakeholders and decision-makers can become more familiar with models and are able to make informed decisions.
* George: I think one of the most important challenges facing biological control decision-makers is the lack of a useful framework for weithing the risks and benefits of biological control introductions. I think we should identify this as a key question and give some thoughts of how this could be achieved. Related to this are correlations (positive and negative) between risks and benefits.

**Preferred output format**:

* Paul O: Special issue in a journal.
* Michal: No strong preference between a special issue and an edited book.
* Tamar: I somewhat (but not strongly) prefer a special issue of a high-ranking journal. My next preference would be a textbook in an electronic format. My last preference would be a book that is a collection of papers (such as conference proceedings).
* Paul A: I would offer a strong vote in favour of a journal special issue.  For the main reason that it would be more likely to be read, cited, and used than the other formats and there would not be the complex negotiations associated with a book.  I could imagine the ‘forum’ paper on the 5-10 important questions could set the stage for the topics to be contained within the special issue, and articles for the issue could be developed by the workshop and invited from other researchers outside the workshop that touch on those specific questions.
* Moshe: I also vote for a special issue publication, focused on theoretical treatments of central topics of interest to our group members.
* Asaf: I also like the idea of a broad "X key questions" paper that would be followed up by a special issue in a journal.
* Marc: I like the idea of a special issue of a journal. If there are funds for it, an open access journal would be great.
* I’m in favor of a special issue for a journal too. One obvious choice could be ‘BioControl’ – the IOBC journal, although some may want to aim ‘higher’. There was a very influential set of papers on biological control in Ecology in 1996 – perhaps we use that as a guideline.