NIMBioS

Evaluation Report
Coalitions and Alliances Working Group
Meeting 2: February 4-6, 2010

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Executive Summary

Brief Synopsis of Event

This report is an evaluation of a NIMBioS Working Group entitled "Coalitions and Alliances," which held its second meeting at NIMBioS February 4-6, 2010. NIMBioS Working Groups are chosen to focus on major scientific questions at the interface between biology and mathematics. NIMBioS is particularly interested in questions that integrate diverse fields, require synthesis at multiple scales, and/or make use of or require development of new mathematical/computational approaches. NIMBioS Working Groups are relatively small (10-12 participants, with a maximum of 15), focus on a well-defined topic, and have well-defined goals and metrics of success. Working Groups will typically meet 2-3 times over a two-year period, with each meeting lasting 3-5 days; however, the number of participants, number of meetings, and duration of each meeting is flexible, depending on the needs and goals of the group.

The second meeting of the Coalitions and Alliances group comprised nine participants, including organizer Sergey Gavrilets (University of Tennessee, Knoxville). Five participants from the first meeting of the working group were not present at the second meeting, and three participants in the second meeting did not attend the first meeting.

The first meeting of the Coalitions and Alliances Working Group brought together anthropologists, biologists, mathematicians, and physicists to identify the most promising ways for building a testable quantitative theory of coalition formation. The first meeting of the Coalitions and Alliances Working Group facilitated work on feedback between human behavior and emerging infectious disease risk. The group is employing a network motif to organize research combined with cross-cutting themes. The network motif organizes research themes to within nodes (e.g., countries, regions, or localities), on edges or pathways between nodes, and as a complex system. Cross-cutting themes include uncertainty and learning and computational issues.

At the second meeting of the Coalition and Alliances Working Group, progress continued building a testable quantitative theory of coalition formation. The working group clarified its definition of "prediction" in terms of the group's objective, which is to build models that can predict disease risk under alternative management strategies and policies. The group has also identified a modeling framework that is applicable to local, regional, national, and international scales.

Evaluation Design

An electronic survey aligned to the following evaluation questions was designed by the NIMBioS Evaluation Coordinator with input from the NIMBioS Director and Deputy Director:

1. Were participants satisfied with the Working Group overall?
2. Did the meeting meet participant expectations?
3. Do participants feel the Working Group made adequate progress toward its stated goals?
4. Do participants feel they have a good understanding about the work being done by other subgroups within the group?

5. Do participants feel they gained a better understanding of t how the work of the various subgroups will tie together to reach the working group's goals?
6. What impact has the working group had on participants' research agendas?
7. Were participants satisfied with communication between group meetings?

The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to 7 Working Group participants on February 8, 2010 (organizer Sergey Gavrilets and NIMBioS employee Erol Ackay were not included in the evaluation). Reminder emails were sent to non-responding participants on February 15, 2010. By February 22, 2010, 7 participants had given their feedback, for a response rate of 100%.

An electronic demographic survey aligned to the reporting requirements of the National Science Foundation was designed by the NIMBioS Evaluation Coordinator with input from the NIMBioS Director. The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to the three working group participants for whom NIMBioS did not have complete information on January 14, 2010. By January 21, 2010, three participants had filled out the survey for a response rate of 100%. Demographics questions regarding gender, race, and ethnicity, and disability status were optional (disability status is not reported in this evaluation report). All demographic information is confidential, and results are reported only in the aggregate. When feasible, the evaluator filled in missing demographic data from other sources (e.g. address, institution, field of study).   The evaluator did not assume race, ethnicity, or disability status for any participant who did not report this information.

Highlights of Results

- Overall satisfaction with the Working Group was high among respondents, 86% of whom indicated they either agreed or strongly agreed that the Working Group was very productive and met their expectations.

- 86% of respondents thought the presentations were useful, and all thought that the presenters were very knowledgeable about their presentation topics.

- 100% of respondents agreed that participating in the working group meeting increased their understanding of the work being done in by others in the group,

- 86% of respondents agreed that participating in the meeting increased their understanding of how everyone's work would come together to achieve the goals of the group.

- 86% of respondents agreed that the format of the Working Group was very effective for achieving its goals.

- 100% of respondents said that the Working Group made adequate progress toward reaching its intended goals.

- 71% of respondents said that participating in the working had influenced their research agendas.

- 71% of respondents said they left this meeting with a good idea of what their contribution will be at the next meeting.

Conclusions and Recommendations

Overall, the Working Group was successful in making progress toward its goals. Working Group respondents were satisfied with the meeting, indicating that it was a productive experience that met their expectations.

All respondents agreed that participating in the working group meeting increased their understanding of the work being done in by others in the group, and all but one agreed they better understood how everyone's work would come together to achieve the goals of the group. Most respondents indicated the most beneficial aspect of the working group was the group discussions, where details about the next steps for the group were worked out. Most respondents said they felt the expectations for the next working group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting.

All but one of the respondents indicated they had used the Wiggio for communicating with their group in some way, with the most common form of communication being uploading a file or reading a message to or from one or more group members. All respondents who had used the Wiggio indicated that it was either "Very useful" or "Somewhat useful" for the purpose of communicating and/or collaborating with other members of the working group.

Five respondents said that participating in the working had influenced their research agendas in that being part of the working group has caused them to think about incorporating research related to coalitions into their own research.

No suggestions were made regarding content, however, one participant felt the format could have been improved by the creation of subgroups working on specific modeling issues. Regarding group communications, several respondents indicated they would like for the group to make more of an effort to keep each other informed of progress between meetings. Two participants indicated they would like to see more instruction from Working Group leaders about the direction in which the group should be heading.

Based on analysis of participant response data, the recommendations to NIMBioS and/or Working Group organizers are as follows:

- The content and format of the working group appear to be on track for achieving the group's goals and do not appear to need any significant changes.
- Consider asking participants to report at regular intervals the progress on their tasks via the Wiggio or email.
- Working group organizers should continue to monitor group publications and products and encourage group members to report these to NIMBioS as they become available.

Coalitions and Alliances Working Group Evaluation Report

Background

The Coalitions and Alliances Working Group's second meeting comprised 9 participants, including organizer Sergey Gavrilets (University of Tennessee, Knoxville). Five participants from the first meeting of the working group were not present at the second meeting, and three participants in the second meeting did not attend the first meeting. Participants came from several universities in the United States, as well as Portugal (See Appendix A).

NIMBioS Working Groups are chosen to focus on major scientific questions at the interface between biology and mathematics. NIMBioS is particularly interested in questions that integrate diverse fields, require synthesis at multiple scales, and/or make use of or require development of new mathematical/computational approaches. NIMBioS Working Groups are relatively small (10-12 participants, with a maximum of 15), focus on a well-defined topic, and have well-defined goals and metrics of success. Working Groups will typically meet 2-3 times over a two-year period, with each meeting lasting 3-5 days; however, the number of participants, number of meetings, and duration of each meeting is flexible, depending on the needs and goals of the group.

The first meeting of the Coalitions and Alliances Working Group brought together anthropologists, biologists, mathematicians, and physicists to identify the most promising ways for building a testable quantitative theory of coalition formation. The first meeting of the Coalitions and Alliances Working Group facilitated work on feedback between human behavior and emerging infectious disease risk. The group is employing a network motif to organize research combined with cross-cutting themes. The network motif organizes research themes to within nodes (e.g., countries, regions, or localities), on edges or pathways between nodes, and as a complex system. Cross-cutting themes include uncertainty and learning and computational issues.

At the second meeting of the Coalition and Alliances Working Group, progress continued building a testable quantitative theory of coalition formation. The working group clarified its definition of "prediction" in terms of the group's objective, which is to build models that can predict disease risk under alternative management strategies and policies. The group has also identified a modeling framework that is applicable to local, regional, national, and international scales.

Participant Demographics

Meeting participants were college/university faculty (78%), graduate students (11%) or postdoctoral researchers (11%). Primary fields of study for the 9 participants included biological/biomedical sciences, mathematics, physics, and social sciences (Table 1).

Table 1. *Participant fields of study and areas of concentration*

Field of Study	Concentration	# Participants
Biological/Biomedical Sciences	Evolutionary Biology	1
	Mathematical Biology	1
	Zoology	2
Mathematics	Applied Mathematics	1
Physics	Physics, General	1
Social Sciences	Anthropology	2
	Social Sciences, General	1

Participants represented nine different institutions across the United States and Portugal. Within the U.S., five states were represented. Of the nine different colleges/universities, all were classified as comprehensive (having undergraduate and graduate programs).

The two females and seven males (none of whom self-identified as being of Hispanic/Latino ethnicity) mostly self-identified racially as white (Figures 1 & 2).

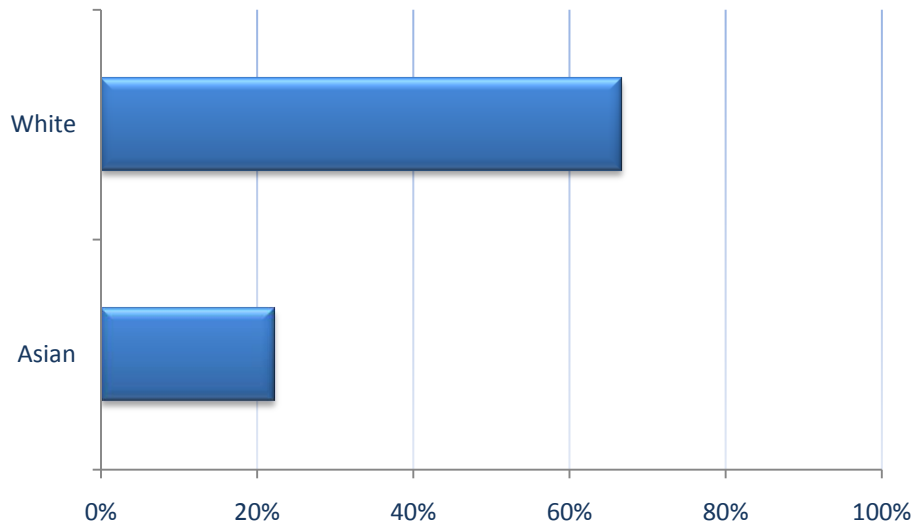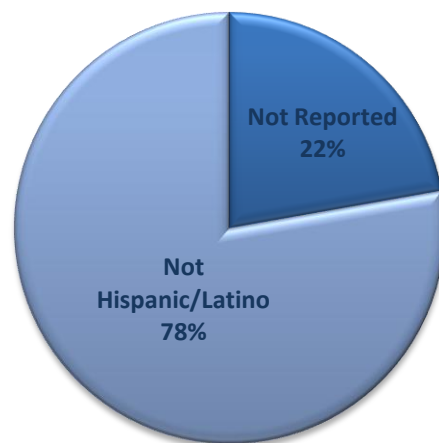**Figure 1. Racial composition of program participants (n=9)**

Figure 2. **Ethnic composition of program participants (n=9)**

Evaluation Design

Evaluation Questions

The evaluation of the meeting was both formative and summative in nature, in that the data collected from participants was intended to both gain feedback from participants about the quality of the current Meeting and also to inform future meetings. The evaluation framework was guided by Kirkpatrick's Four Levels of Evaluation model for training and learning programs (Kirkpatrick, 1994[1]). Several questions constituted the foundation for the evaluation:

1. Were participants satisfied with the Working Group overall?
2. Did the meeting meet participant expectations?
3. Do participants feel the Working Group made adequate progress toward its stated goals?
4. Do participants feel they have a good understanding about the work being done by other subgroups within the group?
5. Do participants feel they gained a better understanding of t how the work of the various subgroups will tie together to reach the working group's goals?
6. What impact has the working group had on participants' research agendas?
7. Were participants satisfied with communication between group meetings?

Evaluation Procedures

An electronic survey aligned to the evaluation questions was designed by the NIMBioS Evaluation Coordinator with input from the NIMBioS Director and Deputy Director. The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey

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[1] From Kirkpatrick, D.L. (1994). *Evaluating Training Programs: The Four Levels.* San Francisco, CA: Berrett-Koehler.

were sent to seven Working Group participants on February 8, 2010 (organizer Sergey Gavrilets and NIMBioS employee Erol Ackay were not included in the evaluation). Reminder emails were sent to non-responding participants on February 15, 2010. By February 22, 2010, seven participants had given their feedback, for a response rate of 100%.

An electronic demographic survey aligned to the reporting requirements of the National Science Foundation was designed by the NIMBioS Evaluation Coordinator with input from the NIMBioS Director. The final instrument was hosted online via the University of Tennessee's online survey host mrInterview. Links to the survey were sent to the three working group participants for whom NIMBioS did not have complete information on January 14, 2010. By January 21, 2010, three participants had filled out the survey for a response rate of 100%. Demographics questions regarding gender, race, and ethnicity, and disability status were optional (disability status is not reported in this evaluation report). All demographics information is confidential, and results are reported only in the aggregate. When feasible, the evaluator filled in missing demographic data from other sources (e.g. address, institution, field of study). The evaluator did not assume race, ethnicity, or disability status for any participant who did not report this information

Data Analysis
Data from the electronic survey included both forced-response and supply-item questions. All data were downloaded from the online survey host into the statistical software package SPSS for analysis. Quantitative data were analyzed using SPSS, while qualitative data were analyzed in SPSS Text Analysis for Surveys. Qualitative responses were categorized by question and analyzed for trends.

Findings

Participant Satisfaction

Overall Satisfaction
Overall satisfaction with the Working Group was high among respondents, 86% of whom indicated they either agreed or strongly agreed that the Working Group was very productive and met their expectations. Some participant comments:

> *"Wonderful group, comfortable setting, very exciting topics.*

> *"Great to meet such incredible scientists!"*

Eighty-six percent of respondents thought the presentations were useful, and all thought that the presenters were very knowledgeable about their presentation topics (Table 2).

Table 2. *Satisfaction with various aspects of the Working Group*

	n	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I feel the Working Group was very productive.	7	43%	43%	14%	0%	0%
The Working Group met my expectations.	7	57%	29%	14%	0%	0%
The presenters were very knowledgeable about their topics.	7	71%	29%	0%	0%	0%
The presentations were useful.	7	29%	57%	14%	0%	0%
The group discussions were useful.	7	57%	29%	14%	0%	0%

Progress Toward Goals

Eighty-six percent of respondents felt the format for the second meeting was effective for meeting its goals, and that the group made adequate progress toward reaching its intended goals. One respondent had this suggestion for improving the format of the next meeting:

> *"Fewer presentations and more active discussion about the kinds of papers expected to be produced and their content."*

All respondents agreed that participating in the working group meeting increased their understanding of the work being done in by others in the group, and all but one agreed they better understood how everyone's work would come together to achieve the goals of the group (Table 3).

Table 3. *Understanding of working group structure and function*

As a result of participating in this Working Group, I have a better understanding of:	n	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
the work being accomplished by the other subgroups within the Working Group.	7	29%	71%	0%	0%	0%
how the work of the various subgroups will tie together for the Coalitions and Alliances group's concept paper	7	14%	71%	14%	0%	0%

Most Useful Aspects

Most respondents indicated the most beneficial aspect of the working group was the group discussions, where details about the next steps for the group were worked out:

> *"The discussions were more useful than the talks, in most cases."*

"Discussions with the whole group where the Working Group organizer took charge to lay out a concrete plan of what to do."

Clarity of Expectations

Most respondents said they felt the expectations for the next working group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting (Figure 3). One participant who said he/she felt the expectations were unclear, however, had this to say:

"I have some clear goals for what I would like to do -- but this will entail some further discussions with Sergey & Erol."

Figure 3. Clarity of expectations for the next working group meeting
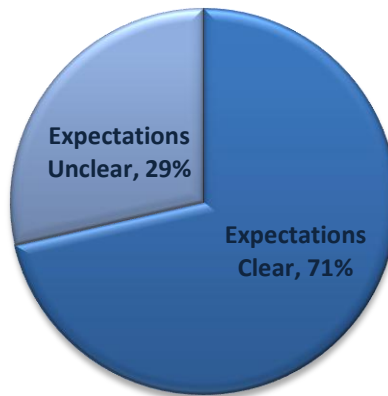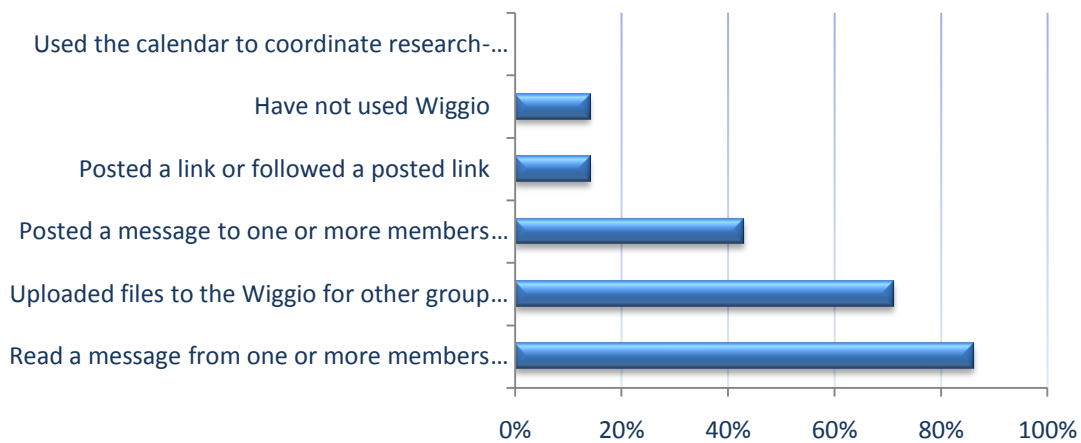

Communications

Each research group coordinated through NIMBioS is provided access to an online collaborative group site called "Wiggio." Wiggio's interface includes six basic tools:

- Calendar — A fairly simple shared calendar that allows users to manage group events.
- Folder — Users can upload most file types to Wiggio groups, where they can edit documents and spreadsheets within Wiggio and get automatic version-tracking. Group members also can download the file, change it and re-upload it.
- Meeting —Three types of meetings are available for users: in-person, conference call and chat rooms.
- Poll —Allows users to get a quick consensus from group members. Users ask questions, and get the responses back aggregated in a chart format.
- Messages — Through Wiggio, users can send and receive text, email, and voice messages. Each group has its own email address. When anyone in the group sends mail to that address, it gets redistributed to everyone in the group, according to their delivery preference.

- Links — Users can use the link tool to paste in links so that the group has a shared set of bookmarks, videos and/or resources.

To evaluate its effectiveness, respondents were asked several questions about their use of the Wiggio as a communication tool, as well as their opinions of its usefulness.   All but one of the respondents indicated they had used the Wiggio for communicating with their group in some way, with the most common form of communication being uploading a file or reading a message to or from one or more group members (Figure 4). The one participant who did not use the Wiggio indicated he/she could not access it, but gave no further explanation.

Figure 4. **Wiggio use**

Respondents who had used the Wiggio rated its usefulness. All respondents who had used the Wiggio indicated that it was either "Very useful" or "Somewhat useful" for the purpose of communicating and/or collaborating with other members of the working group (Figure 5).

Figure 5. **Usefulness of the Wiggio for communicating with research group members**
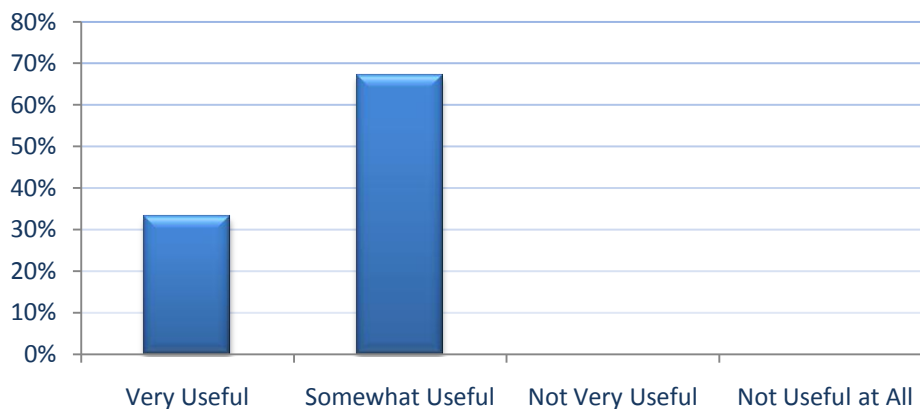
Working Group Impact

Participant Research

Five respondents said that participating in the working had influenced their research agendas. Respondents said that being part of the working group has caused them to think about incorporating research related to coalitions into their own research:

> *"I've started to think of possible grant proposal topics related to coalitions and have sketched out some ideas for a paper."*

> *"It has stimulated me to take a closer look at my own data on coalitionary behavior."*

> *"Started work on a list of unique aspects of human coalitions. Thinking in new ways about how to incorporate math models into other projects."*

Suggestions for Future Working Group Meetings

Respondents were asked several questions soliciting ideas for improving working group meetings with regard to content, format, and communications. No suggestions were made regarding content, however, one participant felt the format could have been improved by the creation of subgroups working on specific modeling issues:

> *"Need to have specific modeling examples that we are working on. Probably could benefit from breaking into subgroups that then report back accomplishments to whole group."*

Regarding group communications, several respondents indicated they would like for the group to make more of an effort to keep each other informed of progress between meetings:

> *"...it did seem that there were hardly any postings and communications between meetings."*

> *"We have a lot of work to do! We all need to keep in touch."*

Finally, two participants indicated they would like to see more instruction from Working Group leaders about the direction in which the group should be heading:

> *"A bit more communication about specific plans and goals."*

> *"More direction and leadership from Working Group organizers."*

Conclusions and Recommendations

Overall, the Working Group was very successful in making progress toward its goals. Working Group respondents were satisfied with the meeting, indicating that it was a productive experience that met their expectations.

All respondents agreed that participating in the working group meeting increased their understanding of the work being done in by others in the group, and all but one agreed they better understood how everyone's work would come together to achieve the goals of the group. Most respondents indicated the most beneficial aspect of the working group was the group discussions, where details about the next

steps for the group were worked out. Most respondents said they felt the expectations for the next working group meeting are clear, in the sense that they were leaving this meeting with a good idea of what they needed to accomplish before the next meeting.

All but one of the respondents indicated they had used the Wiggio for communicating with their group in some way, with the most common form of communication being uploading a file or reading a message to or from one or more group members. All respondents who had used the Wiggio indicated that it was either "Very useful" or "Somewhat useful" for the purpose of communicating and/or collaborating with other members of the working group.

Five respondents said that participating in the working had influenced their research agendas. Respondents said that being part of the working group has caused them to think about incorporating research related to coalitions into their own research.

No suggestions were made regarding content, however, one participant felt the format could have been improved by the creation of subgroups working on specific modeling issues. Regarding group communications, several respondents indicated they would like for the group to make more of an effort to keep each other informed of progress between meetings. Two participants indicated they would like to see more instruction from Working Group leaders about the direction in which the group should be heading.

Based on analysis of participant response data, the recommendations to NIMBioS and/or Working Group organizers are as follows:

- The content and format of the working group appear to be on track for achieving the group's goals and do not appear to need any significant changes.
- Consider asking participants to report at regular intervals the progress on their tasks via the Wiggio or email.
- Working group organizers should continue to monitor group publications and products and encourage group members to report these to NIMBioS as they become available.

Appendix A

List of Participants

Participants

Last name	First name	Institution
[†]Ackay	Erol	NIMBioS
[†]Flinn	Mark	University of Missouri, Columbia
*Gavrilets	Sergey	University of Tennessee
Gravner	Janko	University of California, Davis
Mitani	John	University of Michigan
Pacheco	Jorge	University of Lisbon
Perry	Susan	University of California, Los Angeles
Skyrms	Brian	University of California, Irvine
[†]Suchak	Malinia	Emory University

* Organizer of Working Group
[†]Not present at first working group meeting

Participants who attended the first working group meeting, but not the second

Last name	First name	Institution
Barrett	Louise	University of Lethbridge
Duenez-Guzman	Edgar	University of Tennessee, Knoxville
Mesterton-Gibbons	Mike	Florida State University
Patton	John	California State University, Fullerton
*De Waal	Frans	Emory University

* Organizer of Working Group

Appendix B

Coalitions and Alliances Working Group Survey, Meeting Two

Coalitions and Alliances Working Group Survey
Second Meeting

Thank you for taking a moment to complete this survey. Your responses will be used to help measure the progress of your Working Group, and to improve future Working Groups hosted by the National Institute for Mathematical and Biological Synthesis. Information you supply on the survey about your opinions of the Working Group will be confidential, and results will be reported only in the aggregate.

Please check the appropriate box to indicate your level of agreement with the following statements about the second Working Group meeting: (Strongly agree, Agree, Neutral, Disagree, Strongly disagree)

I feel the meeting was very productive.
The meeting met my expectations.
The presenters were very knowledgeable about their topics.
The presentations were useful.
The group discussions were useful.

How do you feel about the format of the working group?

This was a very effective format for achieving our goals.
This was not a very effective format for achieving our goals.
The working group format would have been more effective if:

Please check the appropriate box to indicate your level of agreement with the following statements. As a result of participating in this working group, I have a better understanding of:
(Strongly agree, Agree, Neutral, Disagree, Strongly disagree)

The work being accomplished by the other subgroups within the Working Group.
how the work of the various subgroups will tie together for the working group's publication(s) and/or product(s)

Do you feel the Working Group made adequate progress, for its second meeting, toward reaching its intended goals?
Yes
No
Comments:

Do you feel the expectations for the next working group meeting are clear (in the sense that you are leaving this meeting with a good idea of what you need to accomplish before the next meeting)?

     Yes

     No

     Comments:

What aspect of this meeting of the Working Group did you feel was the most beneficial in advancing the group's research agenda? (e.g. discussions with the whole group/small groups, opportunity to resolve technical difficulties, or a particular activity)

What, if anything, would you change about the Working Group meeting?

How has participating in the Working Group influenced your research agenda thus far?

Communications

In what ways have you used the Wiggio for communicating/collaborating with other members of your Working Group?

     Posted a message to one or more members of the group

     Read a message from one or more members of the group

     Used the calendar to coordinate research-related activities

     Uploaded files to the Wiggio for other group members to read

     Posted a link or followed a posted link

     I have not used the Wiggio

          Why did you not use the Wiggio?

How useful do you feel the Wiggio has been for the purpose of communicating and/or collaborating with other members of your Working Group?

     Very useful

     Somewhat useful

     Not very useful

     Not useful at all

Please use this space for any comments you have about the Wiggio:

What, if anything, do you feel your Working Group organizers can do to better facilitate communication/collaboration among group members between meetings?

Appendix C

Open-ended Survey Responses

Open-ended responses, by question and response category

Do you feel the Working Group made adequate progress, for its second meeting, toward developing its concept paper on modeling risks associated with EIDs? Comments: (n=0)

How has participating in the Working Group influenced your research agenda thus far? (n=5)

I've started to think of possible grant proposal topics related to coalitions and have sketched out some ideas for a paper.

It has stimulated me to take a closer look at my own data on coalitionary behavior.

thinking about primate coalitions

I have made steady progress in this area

Do you feel the expectations for the next working group meeting are clear (in the sense that you are leaving this meeting with a good idea of what you need to accomplish before the next meeting)? Comments: (n=1)

I have some clear goals for what I would like to do -- but this will entail some further discussions with Sergei & Erol.

What, if anything, would you change about the Working Group meeting? (n=5)

Everything worked fine.
The meeting was fine -- I don't think many of us spent a lot of time working on these issues between the meetings though.
More direction and leadership from Working Group organizers.

The working group format would have been more effective if: (n=1)
Fewer presentations and more active discussion about the kinds of papers expected to be produced and their content.

Please indicate any changes NIMBioS can make to improve the resources and/or accommodations available to Working Group participants: (n=0)

Please provide any additional comments about your overall experience with the working group: (n=2)

I would like to thank the organizers, esp. Sergey Gavrilets for putting the group together. Also special thanks to Ms. Jennifer Thomas for taking care of the many organizational details.

Wonderful group, comfortable setting, very exciting topics.

What aspect of this meeting of the Working Group did you feel was the most beneficial in advancing the group's research agenda? (e.g. discussions with the whole group/small groups, opportunity to resolve technical difficulties, or a particular activity) (n=6)

Impressive expertise of the participants, atmosphere of collegiality.

The discussions were more useful than the talks, in most cases.
Discussions with the whole group where the Working Group organizer took charge to lay out a concrete plan of what to do.

discussions with the whole group

to get together and agree on concrete steps towards publishing the result of our studies

Great to meet such incredible scientists!

What, if anything, do you feel your Working Group organizers can do to better facilitate communication/collaboration among group members between meetings? (n=5)

Everything is OK, but Wiggio is a little slow.
Not sure...but it did seem that there were hardly any postings and communications between meetings.
A bit more communication about specific plans and goals.
I think they are doing fine.
We have a lot of work to do! We all need to keep in touch.

Why did you not use the Wiggio? (n=1)
Because I cannot access it.

Please use this space for any comments you have about the Wiggio: (n=0)