

ADVANCING GLOBAL BIODIVERSITY MODELS THROUGH LESSONS LEARNED FROM CLIMATE MODELS

NASA Biodiversity and Ecological Forecasting Team Meeting

Wednesday, May 24, 1:30 PM

Project PIs: Doug Beard (USGS NCCWSC), Mike Harfoot (UNEP WCMC), Steve Jackson (DOI SW CSC), Derek Tittensor (UNEP WCMC), Gabriel Senay (EROS/ NC CSC)

Coordinators: Bonnie Myers and Sarah Weiskopf, USGS National Climate Change and Wildlife Science Center (NCCWSC)



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GLOBAL CLIMATE AND BIODIVERSITY MODELING SOME SIMILARITIES AND DIFFERENCES

- **UNFCCC** and **CBD** opened for signature in 1992
- IPCC and **IPBES**
- Still **lack a global monitoring system**
- **Equivalent** agreed upon **scenarios** (e.g., GCMs)
- **Threat to biodiversity** and associated ecosystem services is **comparable** to climate change



Hope for models as sophisticated and useful as climate models

AICHI BIODIVERSITY TARGETS

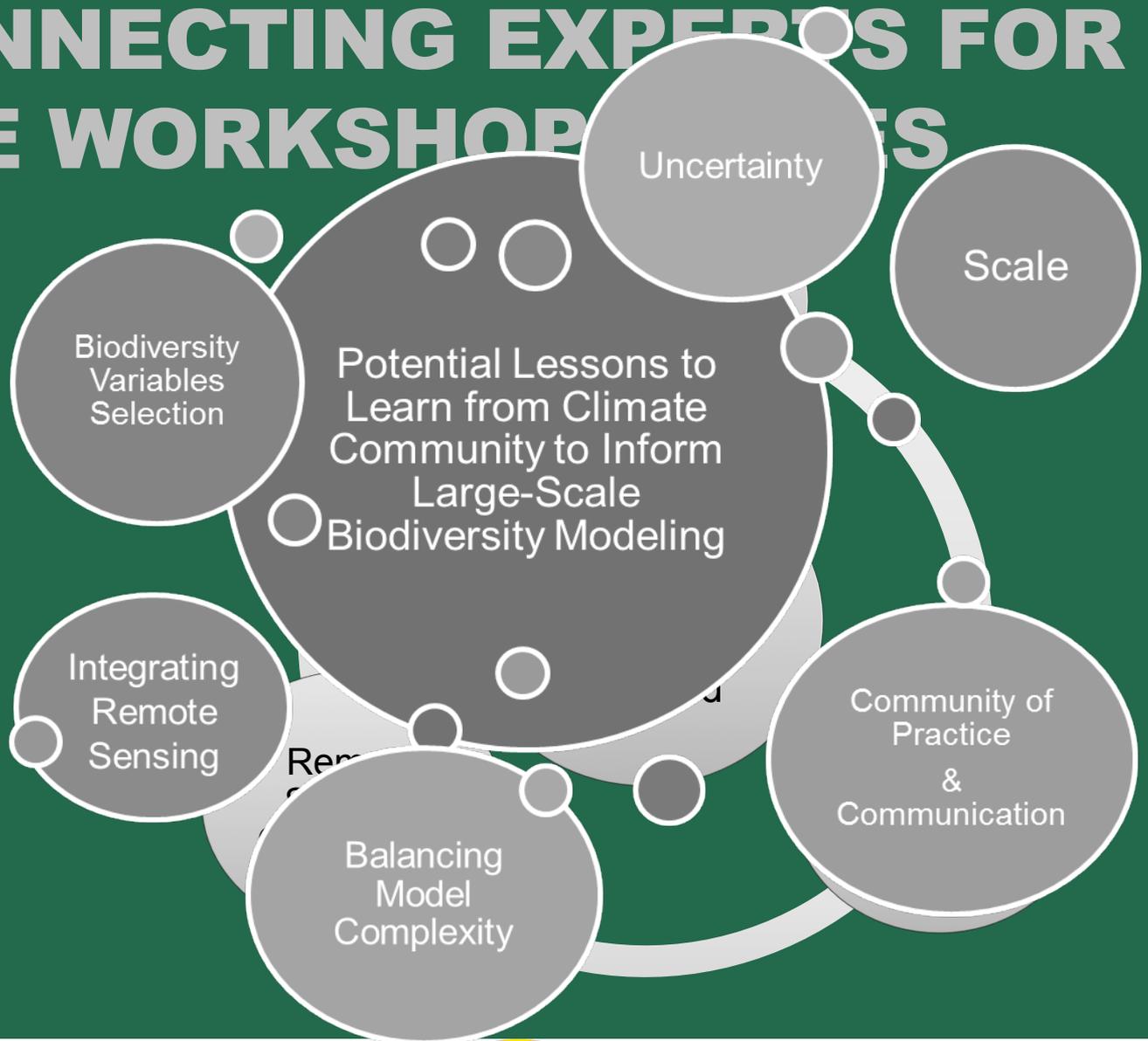


The Madingley Model

THE GLOBAL GOALS For Sustainable Development



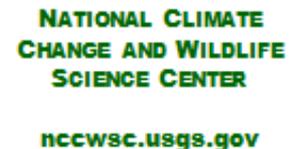
CONNECTING EXPERTS FOR THE WORKSHOPS



WORKSHOP LEADS

- **Douglas T. Beard**, National Climate Change and Wildlife Science Center
- **Derek Tittensor**, UNEP World Conservation Monitoring Centre
- **Mike Harfoot**, UNEP World Conservation Monitoring Centre
- **Gabriel Senay**, EROS, North Central Climate Science Center
- **Steve Jackson**, DOI Southwest Climate Science Center

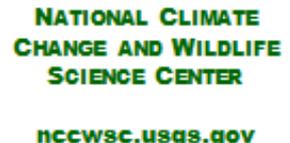
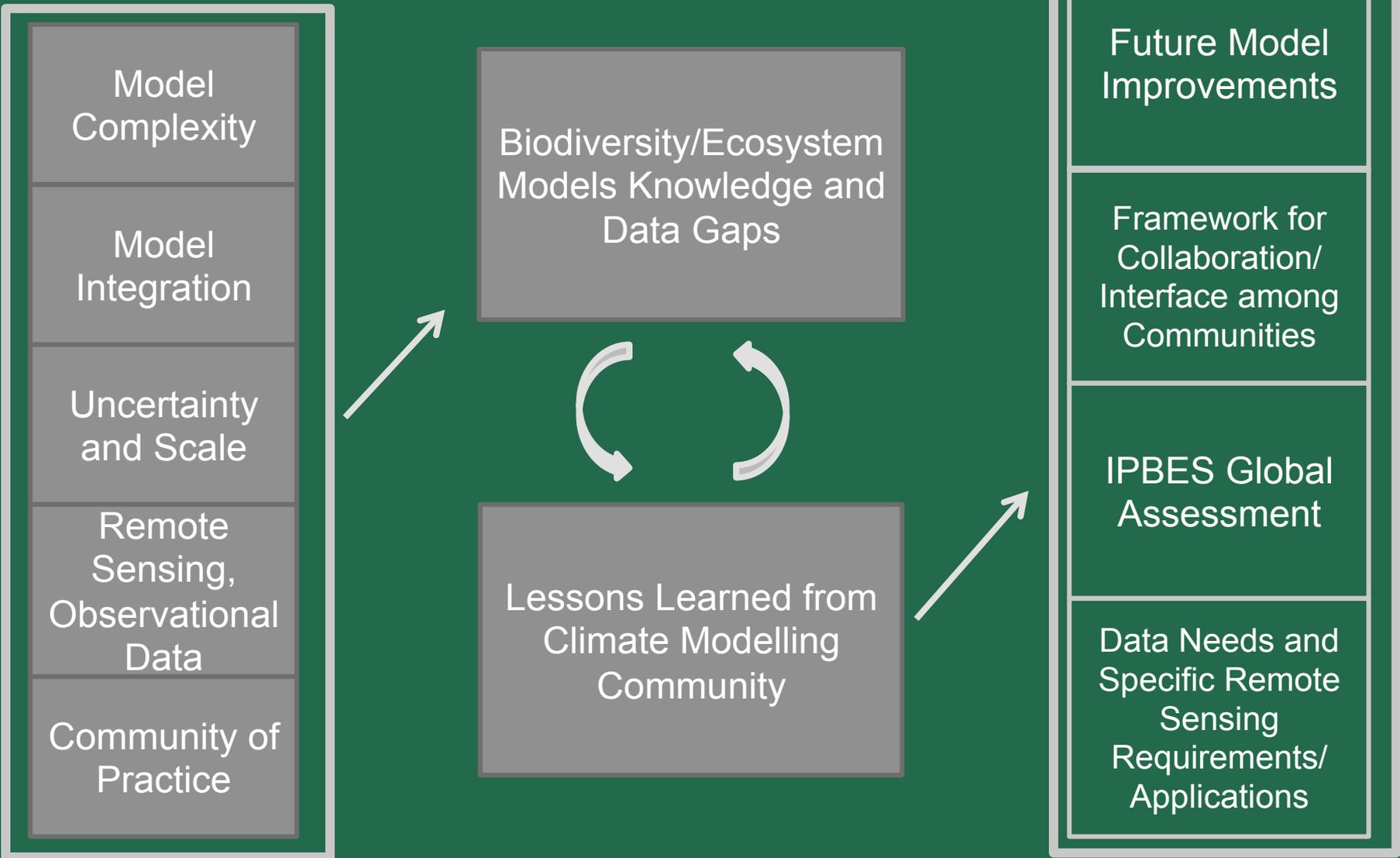
Coordinators: Bonnie Myers and Sarah Weiskopf, USGS NCCWSC



IPBES SCENARIOS AND MODELS: SOME GUIDANCE POINTS

- “The **scientific community** may want to **give priority to addressing gaps in methods for modelling impacts of drivers [...]** on biodiversity and ecosystem services.”
- “[...] **developing practical and effective approaches to evaluating and communicating levels of uncertainty** associated with scenarios and **models[...]**”
- “**Human and technical capacity for scenario development and modelling may need to be enhanced, [...]** as well as to the **data required for the development and testing of such scenario and modelling tools.**”

OVERALL OBJECTIVES



WORKSHOP PARTICIPANTS



German Centre
for Integrative
Biodiversity Research



Australian National
University



An Institute of
SENCKENBERG
world of biodiversity



National Aeronautics and Space Administration
Goddard Institute for Space Studies



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DELIVERABLES AND PRODUCTS

- **Peer-reviewed publications**
- **Conference Presentation (s) - 7th International Conference on Biodiversity and Conservation**
- **Side event at CBD SBSTTA**
- **Add paper and recommendations to IPBES Catalogue of Policy Support Tools**

TIMELINE

Date	Event	Location
February 2017	1 st E-discussion	Online
June 6-8 2017	1 st In-person Workshop	Reston, VA
November 2017	2 nd E-discussion	Online
February 2018	2 nd In-person Workshop	Tucson, AZ

PRIORITY AREAS IDENTIFIED THROUGH THE E-DISCUSSION FOR THE 1ST IN-PERSON WORKSHOP

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E-DISCUSSION TAKE-AWAYS

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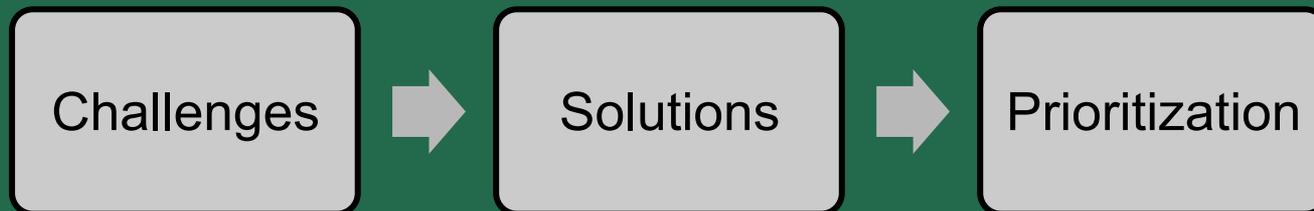
 Zeenatul Basher	 Doug Beard	 Shawn Carter	 William Cheung	 Simon Ferrier	 Matt Fitzpatrick
 Michael Harfoot	 Thomas Hickler	 Nancy Kiang	 Allison Leidner	 Tim Lenton	 Hiroyuki Matsuda
 Bonnie Myers	 Nathalie Pettorelli	 Isabel Rosa	 Alex Ruane	 Gabriel Senay	 Shawn Serbin
 Alexey Shiklomanov	 Josh Tewksbury	 Derek Tittensor	 Sarah Weiskopf	 Ensheng Weng	

- Clear, easy way to collaborate
- Created a nice record of responses
- Real-time chat would be useful
- Engaged facilitator is key

TOPICS FOR 1ST IN-PERSON WORKSHOP

Model Complexity and Uncertainty

- How to increase complexity while balancing additional uncertainty and surprises?



TOPICS FOR 1ST IN-PERSON WORKSHOP

Model Complexity and Uncertainty

Species Adaptation



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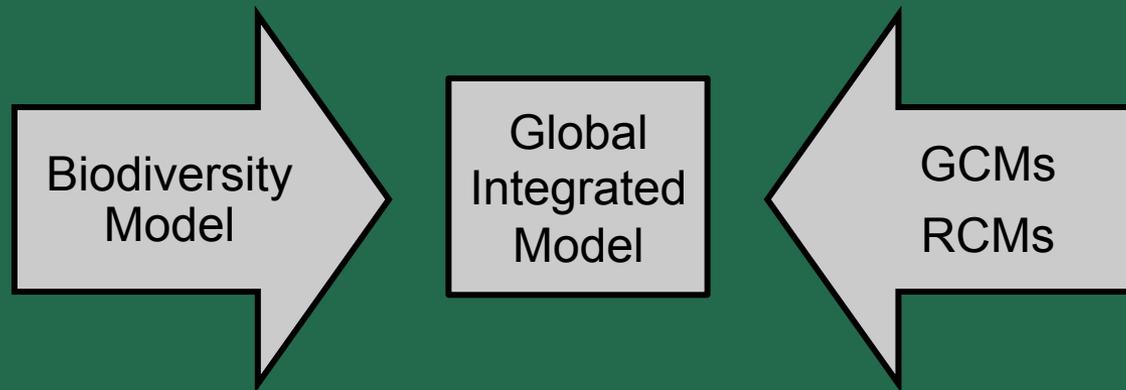
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TOPICS FOR 1ST IN-PERSON WORKSHOP

Model Complexity and Uncertainty

Species Adaptation

Model Integration: Case study/ Proof of Concept



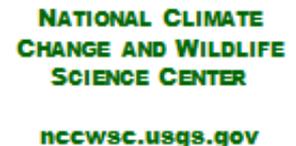
TOPICS FOR 1ST IN-PERSON WORKSHOP

Model Complexity and Uncertainty

Species Adaptation and Evolutionary Processes

Model Integration: Case study/ Proof of Concept

Community of Practice



NEXT STEPS

- 1st In-Person Workshop: June 6-8, 2017
- **Model Complexity and Integration Manuscript Development**
- Proof of Concept
- **Follow-up E-discussions – Fall 2017**
- 2nd In-Person Workshop – February 2018
- **Summary and Recommendations Manuscript**



QUESTIONS??

Please direct any questions to Sarah Weiskopf (sweiskopf@usgs.gov) or Bonnie Myers (bjmyers@usgs.gov).