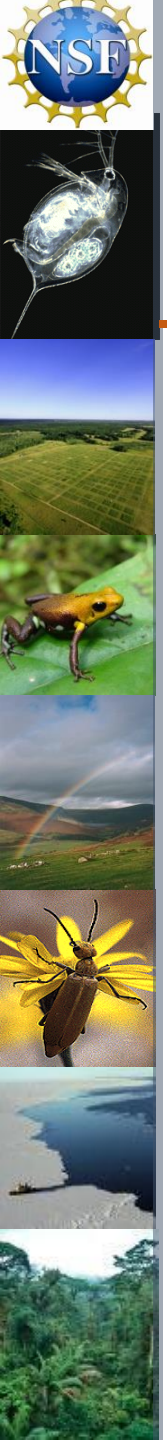


NSF Research and Training Opportunities

1. NSF-wide priorities
2. Macrosystems Biology & NEON-Enabled Science
3. BIO and Division of Environmental Biology
   a. DEB core tracks
   b. new opportunities
4. Accelnet
5. Tips & tools

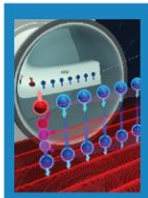
Daniel Gruner
dgruner@nsf.gov

NSF's 10 Big Ideas

Harnessing the Data Revolution

The Future of Work at the Human-Technology Frontier

Navigating the New Arctic



The Quantum Leap: Leading the Next Quantum Revolution

Understanding the Rules of Life: Predicting Phenotype

Windows on the Universe: The Era of Multi-messenger Astrophysics

Mid-scale Research Infrastructure

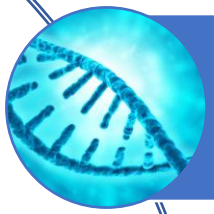
NSF 2026: Seeding Innovation

Growing Convergence Research at NSF

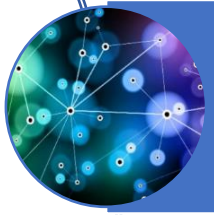
NSF INCLUDES: Enhancing STEM through Diversity and Inclusion

BIO Priorities – FY2020

Life innovates, biology integrates



Fundamental research

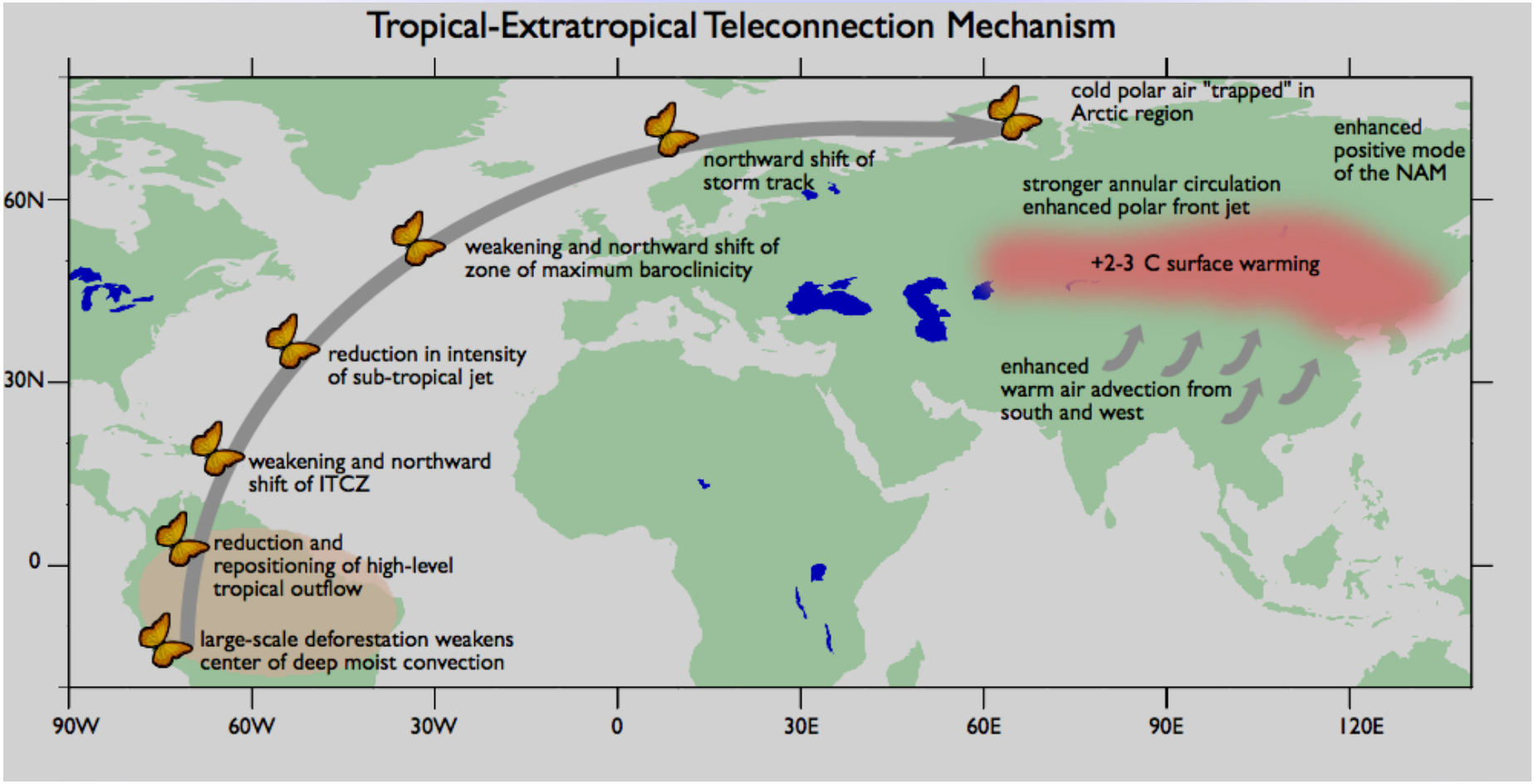


Advancing convergence opportunities

Continental scale ecosystem science

Workforce development

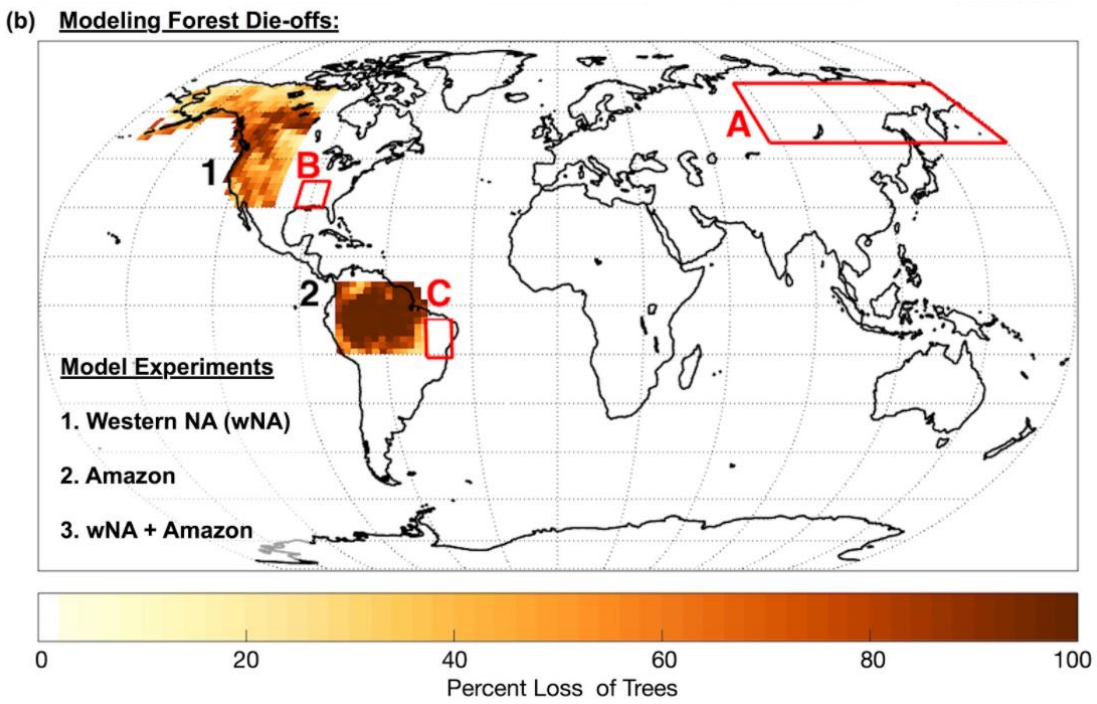
Linking the Amazon and Tibet



From NEON Presentation by BIO AD Dr. James P. Collins, to the House Committee on Science (April 2006)

Ecoclimate Teleconnections between Amazonia and Temperate North America: Cross-Region Feedbacks among Tree Mortality, Land Use Change, and the Atmosphere

(David Breshears, University of Arizona, EF-1340624; Abby Swann, U. Washington, EF-1340649)

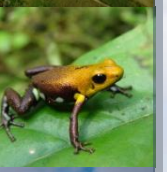


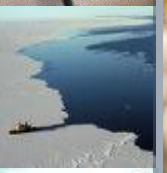
- *Modeled climate and ecological teleconnections*
- *Assessed effects of forest loss in Amazonia and Western North America on distant climate and ecology*
- *Found that forest productivity declined in Eurasia, but increased in SE US*

Garcia et al. (2016) – PLOS ONE

National Ecological Observatory Network






- NEON is revolutionary
- NEON is fully operational
- NEON is increasingly used by the community

www.neonscience.org

Macrosystems Biology & NEON-Enabled Science

(new solicitation forthcoming)

What does the program fund?

- ✓ Substantively NEON-related projects
- ✓ Macrosystem Biology = fundamental science questions
- ✓ Theory development, prediction, forecasting
- ✓ Scaling theory: e.g. teleconnections, non-linearities, cross-scale interactions, emergence
- ✓ Quantitative, interdisciplinary, mechanistic projects
- ✓ Scaling of local and global knowledge to regional/continental levels
- ✓ Planning, training, and development activities

- ***More than extrapolation, aggregation, replication, or simply large***
- ***If it fits snugly within a core program (e.g., ESC, PCE, IEP), it probably does not fit MSB***

The DEB Core Solicitation (NSF 18-587)

DEB Core: no-deadline submission of full proposals to the core programs:

- ***Ecosystem Science (ES)***
- ***Evolutionary Processes (EP)***
- ***Population and Community Ecology (PCE)***
- ***Systematics and Biodiversity Science (SBS)***

- Within the core program solicitations
  - Rules of Life (RoL) track
  - Bridging Ecology & Evolution (BEE) track

Life innovates, biology integrates

Molecular & Cellular Biosciences (MCB)

Integrative Organismal Systems (IOS)

Environmental Biology (DEB)

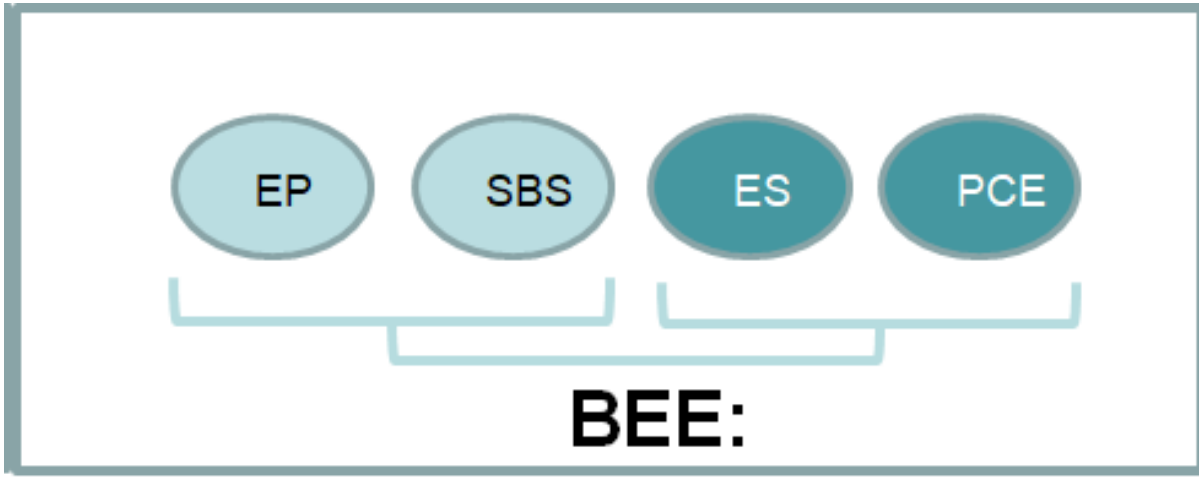
Biological Infrastructure (DBI)

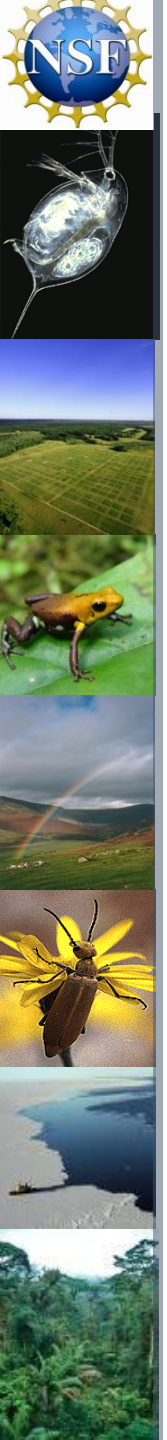
Biology Rules of Life Track:

- Integrative research on questions linking levels of biological organization
- Understanding general principles governing key properties of living systems

BEE track: Bridging Ecology & Evolution

- Applies to DEB core programs
- Targets research that spans ecology and evolution
  - Must reciprocally address hypotheses in both disciplines





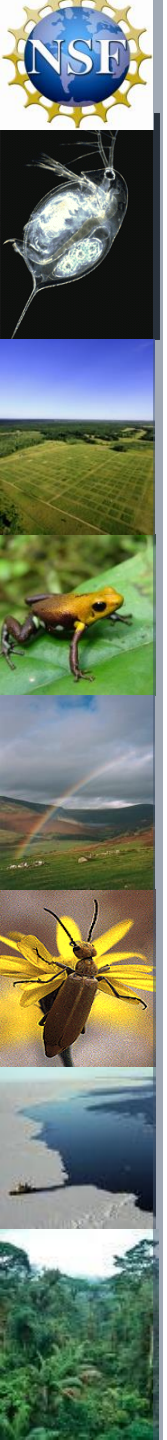
Postdoctoral Research Fellowships in Biology (PRFB - NSF 19-597)

(1) Broadening Participation of Groups Underrepresented in Biology;

(2) Interdisciplinary Research Using Biological Collections;

(3) National Plant Genome Initiative (NPGI) Postdoctoral Research Fellowships;

(4) Integrative Research Investigating the Rules of Life Governing Interactions Between Genomes, Environment and Phenotypes.

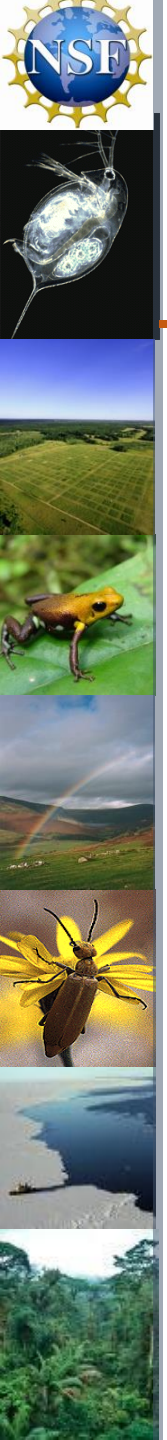


Accelerating Research through International Network-to-Network Collaborations -- **AccelNet**

- International "networks of networks", or 'meta-RCNs'
- Aligned with NSF Big Idea or a community-identified scientific challenge with international dimensions.
- Supports connections among research networks

e.g., Nancy Grimm, PI: Nature-Based Solutions for Urban Resilience in the Anthropocene (NATURA)

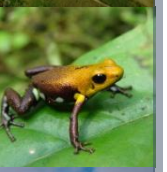
NSF 19-501 and NSF 19-034 (Frequently Asked Questions)
Letter of Intent: October 30, 2019
Full Proposal: January 31, 2020

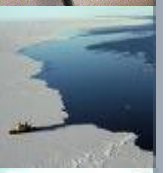


Tips & Tools: Get good info

- Follow NSF updates
  - Google “NSF updates subscribe” and look for a service.gov delivery option
- Follow NSF blogs
  - http://DEBBlog.nsfbio.com
- Watch for new programs or ‘DCLs’
- Once you’ve read a solicitation carefully, email/call the program officers with questions


NSF

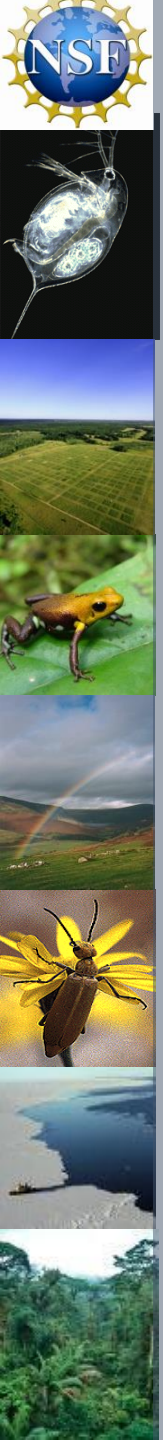

No Deadlines: Common Questions

How will proposals be reviewed?

- Same process as always:
  - Written panel and ad hoc reviews
  - Panel discussion

When should I submit?

- Submit when your proposal is ready!
- No best time of year to submit…
  - Funding and review are not tied to fiscal year (1 Oct. - 31 Sept.)
  - Frequent, smaller panels occur throughout the year
- Why rush a proposal to make some "next" panel rumored on the Internet?



DIRECTORATE FOR BIOLOGICAL SCIENCES

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Deputy Assistant Director: Alan Tessier

Emerging Frontiers (EF)

Division of Biological Infrastructure (DBI)

Acting Division Director: Lisa Clough*
Deputy Division Director: Jim Deshler

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- Research Resources
- NEON & Centers

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Acting Deputy Division Director: George Gilchrist

- Ecosystem Science
- Evolutionary Processes
- Population and Community Ecology
- Systematics & Biodiversity Science

Division of Integrative Organismal Systems (IOS)

Division Director: Donal Manahan
Deputy Division Director: Michelle Elekonich

- Behavioral Systems
- Developmental Systems
- Neural Systems
- Physiological & Structural Systems
- Plant Genome Research Program

Division of Molecular and Cellular Biosciences (MCB)

Division Director: Basil Nikolau
Deputy Division Director: Theresa Good

- Cellular Dynamics & Function
- Genetic Mechanisms
- Molecular Biophysics
- Systems & Synthetic Biology

**Patricia Soranno starts as DD on August 19th*

Special Programs

- Ecology and Evolution of Infectious Disease (EEID): NSF 19-592
- Dimensions of Biodiversity: NSF 19-535
- Macrosystems Biology and NEON-Enabled Science (MSB-NES): NSF 19-538
- Opportunities for Promoting Understanding through Synthesis (OPUS): NSF 19-584
- Long-term research in environmental biology (LTREB): NSF 18-597
- Faculty Early Career Development Program (CAREER): NSF 17-537
- Research Coordination Networks (RCN): NSF 17-594
- Dynamics of Integrated Socio-Environmental Systems (CNH2): NSF 19-528