



ANNUAL REPORT 2019

State of UF Biodiversity Institute



By Flora Marynak
UF Biodiversity Institute

General Institute Information

Mission

The mission of the Biodiversity Institute is to conduct high-quality research and develop programs to advance three primary goals:

- Initiate and lead large-scale, collaborative biological surveys to document and monitor biodiversity on a global scale.
- Conduct collaborative, translational research in biodiversity informatics, education, and natural resource management, protection, and sustainability.
- Translate biodiversity information to science and society through varied and novel means, including workshops, curricula, e-learning initiatives, innovative technologies, museum exhibits and other public programs, scholarly publications, and predictive models and policies relevant to accelerating discovery of biodiversity and solving major environmental issues.

Vision

The UF Biodiversity Institute explores the world's past and present biodiversity at all levels of organization, from molecules to ecosystems, and the relationship of biodiversity to climate change and to healthy and sustainable natural and human environments. Scientists and students study and evaluate data from all relevant sources on topics of interest and distribute the newly synthesized information to individuals and organizations seeking validated biodiversity information. Analyses by UF Biodiversity scientists will lead to development of new methods, products, and technologies for accelerating the discovery of, improving the understanding of, enhancing the conservation of, and disseminating information on the planet's biological diversity.

Steering Committee

The UFBI Steering Committee serves as a board to assist the Director, Dr. Pam Soltis, in the larger scale growth and operations of the Institute. Currently, no specific board terms or elections process has been set.

Table 1: UFBI Steering Committee Members 2016-Present

Faculty Member	Department	Term
Dr. Karen Anne Bjorndal	Biology	2016-2019
Dr. David Blackburn	Herpetology, Florida Museum of Natural History	2016-2019
Dr. Brent Christner	Microbiology	2016-2019
Dr. Kent Crippen	STEM	2016-2019
Dr. Morgan Ernest	Weecology	2016-2019
Dr. Jose Fortes	Advanced Computing and Information Systems Laboratory	2016-2019
Dr. Robert Guralnick	Biodiversity Informatics	2016-2019
Dr. Janice Krieger	Journalism and STEM	2016-2019
Dr. Mathew Leibold	Biology	2016-2019

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Dr. Jeremy Lichstein	Biology	2016-2019
Dr. Bette Loiselle	Wildlife Ecology & Conservation	2016-2019
Dr. George Michailidis	Statistics and Informatics	2016-2019
Dr. David Reed	Mammalogy, Florida Museum of Natural History	2016-2019
Dr. Douglas Soltis	Biology	2016-2019
Dr. Leslie Thiele	Political Science	2016-2019
Dr. Ethan White	Wildlife Ecology & Conservation	2016-2019

Affiliate Faculty Members

Affiliate Faculty Members consist of faculty members across the UF campus from varying fields of study. These members make up our database of data related scientists and potential collaborators across the campus. This database is completely searchable and consists of the faculty member's basic information and research interests. Membership is free and open to any faculty across campus.

A searchable and continually updating list of member faculty is available on our website at <https://biodiversity.institute.ufl.edu/faculty/members/>. Members can join at any time via the "[Become an Affiliate](#)" link present on the member's page.

Table 2: Summary of Faculty Membership Demographics (by College)

College	Total No.
Agricultural & Life Sciences	8
Engineering	3
Florida Museum of Natural History	9
IFAS	24
Liberal Arts & Sciences	29
Libraries	2
Law	1
Public Health & Human Performance	4
Whitney Marine Lab	4
Total	84

Institute Major Collaborative Grants Submitted

Table 3: Grants Submitted Under UFBI

ID	Name	State	PI	Sponsor	Amount
PRO000 17605	NRT on Biodiversity (2018)	Not Funded	Michailidis / Soltis	NATL SCIENCE FOU	\$2,999,943
PRO000 11316	NRT on Biodiversity (2017)	Not Funded	Michailidis / Soltis	NATL SCIENCE FOU	\$3,000,000

Programs & Events

Programs

Table 4: UFBI Programs

UFBI Supported Programs	
Faculty Interdisciplinary SEED	
UFBI Fellowships	
Travel Award – GAs’ Research at Conferences	
Co-Sponsored Programs	Co-Sponsoring Department
UFBI/UFII SEED Awards	UF Informatics Institute

UFBI FACULTY INTERDISCIPLINARY SEED

The UF Biodiversity Institute (UFBI) Faculty Interdisciplinary SEED Funds are internal awards that the Institute awards each year to Principle Investigators (PI) across the UF campus. The purpose of the awards is to support new collaboration among our expert faculty on campus, giving them the resources needed to gather new or additional data for their “shovel ready” projects with the hope of building a better standing for submission to external sponsors.

To enhance interdisciplinary research in biodiversity-related fields, these 12-month awards will support interdisciplinary research that addresses the general goals of the Institute. Examples include but are not limited to (i) largescale, collaborative biological surveys to document and monitor biodiversity on a global scale; (ii) development and application of informatics tools for biodiversity research; and (iii) translational research in natural resource management, protection, and sustainability.

Through this program, the Biodiversity Institute works to fulfill its goal to build new collaborative relationships among our faculty as well as bring more research dollars to further the University’s research initiative. In prior years of funding, the Institute has awarded two to six awards per year up to \$50,000 per award.

Submitted projects are reviewed based on their innovation and their support in the mission and goals of the Biodiversity Institute, as well as their relation to the act of information representation/analysis/mining in any discipline of research. They also are reviewed in relation to the following three UFBI thematic areas:

- ❖ Discovery of Biodiversity;
- ❖ Using big data – informatics, modeling, computation of heterogeneous data – to describe, understand, explain, and predict patterns of biodiversity and the processes that generated those patterns;

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- ❖ Translating knowledge on biodiversity into action – conservation, policy, law, education, etc. – through relevant partnerships with journalists, social scientists, education specialists, lawyers, representatives of state and federal agencies, and others.

Since 2017, UFBI SEED has awarded a total of \$460,000 to PIs in various STEM and science disciplines across the UF campus.

Table 5: UFBI SEED Statistics

Year	# of Submissions	# of Awardees
2017	*	4
2018	8	4
2019	9	6
Total	22	14

*Information not available

Table 6: UFBI SEED Fund Awards Granted

PI	Title	Funding Amount	Years Granted
Robert Guralnick	Bridge Tree: A toolbox to mobilize big biodiversity data to understand and communicate pattern and process	\$25,000	2017-2018
Doug Soltis	Integrative Resources for Trait-Based Evolutionary Synthesis: Uncovering hidden enablers of nitrogen fixation in a major clade of flowering plants	\$20,000	2017-2018
Mark Martindale		\$30,000	2017-2018
Bette Loiselle	Incorporating Traditional Ecological Knowledge and Biocultural Diversity Into Policy-Making for Infrastructure Development Across the Amazon	\$30,000	2017-2018
Brian Stucky	Biodiversity Data from Insect Songs: New hardware and software for monitoring insect bioacoustics and new opportunities for public outreach (co-funded by UFII)	\$4,000 + \$4,000(UFII)	2018-2019
Hartwig Hochmair	Does Citizen Science Contribute to Biodiversity Research? (co-funded by UF Informatics Institute)	\$20,000 + \$20,000(UFII)	2018-2019
Ben Baiser	A Comprehensive Everglades Food Web Network	\$40,000	2018-2019

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Brent Christner	MICROFLORA: Microbial Communities that Remain Obscure in the FLORidian Aquifer	\$40,000	2018-2019
Daniel Maxwell	The Data Story as a Biodiversity Learning Tool	\$25,000	2019-2020
Denis Valle	Novel Extensions and Applications of Bayesian Mixed Membership Models to Quantify the Effect of Global Change on Tropical Forest Biodiversity	\$40,000	2019-2020
Jeremy Lichstein	Informatics Tools for Studying Functional and Phylogenetic Diversity of Forests (co-funded by UF Informatics Institute)	\$35,000 + \$8,000(UFII)	2019-2020
Joseph Ryan	Developing a Genomic Foundation to Assess the Biodiversity and Evolutionary Dynamics of Sea Cucumber Across the Marine Biosphere	\$40,000	2019-2020
Raelene Crandall	The Synergistic Effects of Seasonal Weather Patterns and Fire Regimes on Evolutionary Patterns of Assembly in Understory Plant Communities in a Hotspot of Biodiversity	\$25,000	2019-2020
Robert Ahrens	Integrating Biodiversity Informatics and Dimensions of Shark Biodiversity in the Pelagic Realm	\$35,000	2019-2020
Total Funded For		\$460,000	

UFBI GRADUATE STUDENT FELLOWSHIPS

In an effort to further our mission to develop and nurture interdisciplinary biodiversity research and training at the University of Florida, the Biodiversity Institute offers a 9 month Fellowship award to support a graduate student in furthering his/her training and education in research in an UFBI thrust area at the University of Florida. The Fellowships are geared toward mid-PhD students whose dissertation projects could particularly benefit from interdisciplinary opportunities with faculty, post-docs, and students outside their departments or programs.

Fellows will be provided with office space at the UFBI (CSE Building, Rms. E251-268; shared with the UF Informatics Institute) and will be expected to participate in UFBI activities, including seminars, discussions, and other events, and to spend on average one day per week at UFBI. Applicants may propose specific synergistic activities at UFBI that are relevant to their work.

Submission Eligibility Requirements: (1) Graduate Student must be currently enrolled in a Doctoral program. (2) Student is currently selected to be employed or is employed by their college/department/mentoring PI. (3) Student is nominated by their department's doctoral program. (4) If a fellowship is offered and accepted, the student will not be assigned any teaching or other departmental duties that would require a significant time commitment during the fellowship period.

Table 7: Fellowship Submissions

Year	# of GA Submission	# of GA Awardees
2016-17	*	4
Summer 2017	5	3
2017-18	13	4
Summer 2018	10	5
2018-2019	17	4
2019-2020	13	4
Total	58	24

*Information not available

TRAVEL AWARDS

UFBI Travel Awards (Scholarships) are awarded to UF STEM or Biology major graduate students on the basis of a demonstrated interest in:

- Conducting collaborative biological surveys, documenting and monitoring biodiversity on a global scale.
- Participating in scholarly publications, predictive models, and policies relevant to accelerating discovery of biodiversity and solving major environmental issues.
- Conducting collaborative, translational research in biodiversity informatics, education, and natural resource management, protection, and sustainability.

Other contributing factors for awards include academic performance, and appropriateness of the chosen program to the student's long-term goals and financial need. Summer Scholarships typically award up to \$1,000.00, while Academic Year Scholarships typically award up to \$2,000.00.

The actual award amounts may vary; based on the number of applicants, and/or availability of funds.

Table 9: Travel Awards Granted

Year	Event	Location	# of Awardees
2018	Congressional Visits Day	Washington, D.C.	4
2018	Caribbean Roots Biodiversity	Gainesville, FL	1
2018	AIBS Boot Camp	Washington, D.C.	3
Total	3		8

Events

Lecture Series

Table 10: Invited Seminar Speakers

Date	Invited Seminar Speakers	Institution
10/31/2017	Dr. Gildas Gateble	Institut Agronomique neo-Caledonien
11/13/2017	Naziha Mestaoui	Electronic Shadow, Paris, France
1/19/2018	Dr. Mark Chase	Kew Royal Botanical Gardens
2/01/2018	Dr. Bruce Miller	Wildlife Conservation Society
3/12/2018	Farah Carrasco-Rueda	University of Florida
4/04/2018	Manuel Lima	Parsons School of Design
4/10/2018	Dr. E. T. York	Missouri Botanical Garden
7/24/2018	Dr. Anders Hansen	University of Copenhagen
1/10/2019	Dr. Kim Valenta	Duke University
3/01/2019	Dr. Jim Hines	Patuxent Wildlife Research Center

Workshops

Table 11: Workshops and Events Sponsored or Co-Sponsored by UFBI

Date	Workshop Name
3/24/2016	Data Carpentry Workshop
8/17-18/2016	Software Carpentry Workshop
10/17-18/2016	Data Carpentry Workshop
2/6-7/2017	Software Carpentry Workshop
5/22/2017	Data Carpentry Workshop Instructor Training
5/22-23/2017	Data Carpentry Instructor Series
5/25/2017	Software Carpentry Workshop Offer Research Help with Computing Skills
5/25-26/2017	Software Carpentry Workshop
8/14/2017	Carpentries Workshops on R and Python
9/07/2017	UFBiolink Awards Ceremony
10/30-31/2017	ADBC Pre-Summit Workshop
11/13-18/2017	Tree of Life Digital Art
2/01/2018	Bat Acoustics Workshop: Bats Equal Big Data Challenges
3/5-6/2018	Carpentries Instructor Workshop
5/08-09/2018	Spatial Ecology Workshop
6/25-26/2018	Data Carpentry Workshop
8/15/2018	Carpentries Workshops on R and Python Summer 2018
10/4/2018	UF Carpentries Club One-Day R Workshop
10/23/2018	Carpentries Club October 2018 Geospatial Workshop
12/08/2018	Bark Beetle Workshop
2/11-12/2019	Carpentries-Inspired Workshop in R, the Unix Shell, and Git
3/28/2019	NRM Research in Africa Symposium

Other Events

Joint UFBI, IFAS, and Ordway-Swisher Annual Symposium

For the past three years the University of Florida Biodiversity Institute (UFBI), Institute of Food and Agricultural Sciences (IFAS), and Ordway-Swisher Biological Station have hosted the *UFBI/IFAS Symposium: Collaborations in Biodiversity Research* during the spring semester. Students, researchers, faculty, and industry professionals from across the nation join together to interact, share research, and collaborate.

Table 12: UFBI/IFAS Annual Symposium Invited Speakers

Symp Year	Speaker Name	Institution
2017	Dr. Michael Kaspari	University of Oklahoma
2017	Dr. Doug Soltis	University of Florida
2018	Dr. Michael Binford	National Ecological Observatory Network (NEON)
2018	Guy Fausnaught	NEON
2018	Dr. Hilary Swain	Archbold Biological Station
2018	Dr. J. Morgan Varner	USDA Forest Service
2019	Dr. James S. Clark	Duke University

Table 13: UFBI/IFAS Annual Symposium attendance by Year

Year	# of attendance
2017	105
2018	111
2019	109

UF Biolink: Creative Interdisciplinary Connections via Biodiversity

The future of humanity hinges on more meaningful public engagement regarding the importance of biodiversity, which is embodied in the concept of the Tree of Life (ToL). Biolink promotes cross-disciplinary teaching and establishing a dynamic and accessible project archive to share student and other work inspired by biodiversity.

Fourteen (14) undergraduate students were awarded a total \$5,750.00. To see examples of awardees' work and to learn more about UF Biolink, go to www.ufbiolink.org.

Staff

Dr. Pamela S. Soltis, Founding Director of Biodiversity Institute and Distinguished Professor and Curator, Florida Museum of Natural History

Hampton Glover, Office Manager and Administrative Services Specialist II

Flora Marynak, Administrative Support Assistant