Citizen Science: Everyday People Doing Extraordinary Science

Bringing Research Experiences into Your Classroom

Massachusetts Association of Biology Teachers
Annual Meeting and Conference
http://www.massbioteach.blogspot.com/
Saturday, March 11, 2017 at
Framingham State University

Directions can be found on the Framingham State College web site:
https://www.framingham.edu/about-fsu/map-and-directions.

Park in the Normal Hill Lot (behind Larned Hall), the Conference is in Hemenway Hall. See Campus Map:
https://www.framingham.edu/Assets/uploads/about-fsu/_documents/campus-map2015.pdf

	Time	Topic	
Registration Coffee & pastries	8:00 - 8:30	***Mingle with colleagues from surrounding schools Hemenway Hall Lobby***	
Welcome	8:30 - 9:00	***Welcome to the annual MABT Conference Introduction to Citizen Science*** Brian Dempsey - Acton Boxborough Regional H.S.	
Morning Workshops	9:00 - 10:30	***HHMI at the Movies - The Guide Featuring E. O. Wilson Introduction to the Gorongosa Trail Cams*** Loreen Meyer - King Philip Regional H.S. Kerry Lynch - Medfield H.S.	
	10:30-11:30	**A.** ***Wildlife Observation Stations: Collecting Data vie Field Observations for the Classroom*** Nick Glabicky - Biology Teacher, King Philip Regional H.S.	**B.** ***Student Sentinel Sites: A Student-Centered Monitoring Program Based on Work at the National Estuarine Research Reserves*** Joan Muller - Education Coordinator, Waquoit Bay National Estuarine Research Reserve
Lunch & MABT Annual Meeting	11:45-12:30	**College Center Forum**	
Afternoon Workshops	12:40-1:40	**C.** ***The Art & Science of Kites*** Glenn Davison- kitingUSA	**D1.** ***Garlic Mustard Challenge*** Malin Clyde - UNH Cooperative Extension - Project Manager
	1:40-2:40		**D2.** ***iNaturalist City Nature Challenge - Getting Started with Citizen Science in the Classroom*** Colleen Hitchcock, Ph.D., Assistant Professor Brandeis University Marie Studer, Ph.D., Learning and Education Director, EOL, Harvard U Amy Lorenz, Project Coordinator, EOL, Harvard University Jill Stutz, Middle School Math&Science Teacher, North Shore Christian School
Keynote Address	2:45-3:45	**Dr. Koen Hufkens, Harvard University** **Public Engagement in Ecological Research: Past, Present and Future**	

Keynote Speaker and Workshop Descriptions:

Afternoon Keynote - Dr. Koen Hufkens
Koen Hufkens holds a PhD in ecology from the University of Antwerp, Belgium. He currently is a research associate at Harvard University studying feedbacks between a changing climate and seasonal vegetation development. He has a particular interest in seasonal patterns in tropical forest ecosystems, and a latent passion for wood biology.

Public Engagement in Ecological Research: Past, Present and Future
Citizen science is broadly defined as a partnership between citizens and professional scientists. This public participation in research goes back numerous decades. More so, before the late 19th century most (ecological) research was conducted by dedicated citizens. Although scientific research professionalized over the past century, public participation remained ever-present.

In recent years, due to internet connectivity, citizen science has gained widespread traction, reaching many million at a click of a button. These new projects big and small contribute to science on a daily basis. Not only do these projects support, they also provide ample educational outreach potential. Here, I'll summarize the history of citizen science in ecology and how my research into historical ecological data has benefitted from this public engagement.

Workshops:

HHMI at the Movies - The Guide and Gorongosa Trail Cams
Join us as we view the HHMI Biointeractive short film, "The Guide".
Set against the restoration of war-torn Gorongosa National Park in Mozambique, *The Guide* tells the story of a young man from the local community who discovers a passion for science after meeting world-renowned biologist E.O. Wilson. This will be followed by a demonstration of Wildcam Gorongosa, a citizen science platform to identify animals in trail camera images from Gorongosa National Park, Mozambique. Learn how these resources can be used in your classroom to explore trail camera data to answer ecological questions and analyze data.
Loreen Meyer - AP Biology Teacher, King Philip Regional H.S.
Kerry Lynch - APES Teacher, Medfield H.S.

A. *Wildlife Observation Stations: Collecting Data vie Field Observations for the Classroom*
Field observations are great tools for students to better understand the world around them. Pairing outdoor activities with classroom content can have a great effect on the student's ability to make connections and inspire future scientists. A variety of different field studies can be used to enhance content that can be utilized for classroom purposes. This workshop will focus on creating ethograms for wildlife observing stations; how to conduct transect censuses to show regional populations; and requirements for plot counts of secondary and primary growth forests.
Nick Glabicky - Biology Teacher, King Philip Regional H.S.

B. *Student Sentinel Sites: A Student-Centered Monitoring Program Based on Work at the National Estuarine Research Reserves*

Join the Education Coordinator at Waquoit Bay Reserve to find out about two new curricula that support student-centered citizen science projects. The Student Sentinel Site learning modules include activities focusing on sea level rise, changes in the landscape, plant quadrats and setting up student sentinel sites (areas monitored over time) and stewardship projects. *Bringing Wetlands to Market: STEM Curriculum Linking Salt Marshes and Climate Change* focuses on the values of salt marshes and impacts due to sea level rise, and includes engineering design and "Adopt-a-Wetland" activities. Learn about related real world research happening at New England research reserves, gain an overview of the resources in the two curricula and try out a sampling of the activities.

Joan Muller - Education Coordinator, Waquoit Bay National Estuarine Research Reserve

C. *The Art & Science of Kites*

Kites are a perfect example of Science, Technology, Engineering, and Math (STEM). Engaging topics include: lift, drag, dihedral angle, angle of attack, respecting symmetry, and including elements that add stability. Glenn will show how birds have influenced flight in both design and function. Examples and demonstrations bring this topic to life with dramatic clarity.

Glenn Davison- kitingUSA

D1 *Garlic Mustard Challenge -*

Join staff from the University of New Hampshire's Stewardship Network: New England to learn about how you can connect citizen science and conservation action. We'll share materials and information about the Garlic Mustard Challenge, a national effort to record efforts to pull invasive plants across New England and the Midwest. We'll provide information about how identify garlic mustard, an invasive plant that is taking take over natural areas in Massachusetts and beyond. You'll learn about apps and resources to map populations of garlic mustard using mobile technology, and how to organize (or join existing efforts in your area) for springtime volunteer pulling efforts, advertised through the Stewardship Network: New England website (newengland.stewardshipnet This is a fun, tangible, and action-oriented way to involve your students in real-world conservation efforts that are informed by citizen science data.

Malin Clyde - UNH Cooperative Extension - Project Manager, The Stewardship Network: New England

D.2 *iNaturalist City Nature Challenge - Getting Started with Citizen Science in the Classroom*

This workshop will introduce educators to the Boston City Nature Challenge (CNC) being hosted on iNaturalist (http://www.inaturalist.org/projects/city-nature-challenge-2017-boston-area) this April 14- 18, 2017. Centered around National Citizen Science Day the City Nature Challenge brings together citizen scientists and nature enthusiasts to focus on defining biodiversity baselines in urban areas across the US. We begin the workshop with an introduction to citizen science theory and application in the classroom and then demonstrate the education opportunities afforded through participation in the Boston CNC. Next, we explore the open education resources available through Encyclopedia of Life (http://eol.org/) to meet learning objectives before, during and after the challenge period. The CNC offers a discrete, short-term, place-based opportunity for educators to introduce citizen science in their classrooms while simultaneously gaining experience with a citizen science platform where future classroom projects can be hosted. Finally, we will close with a teacher's experience integrating the iNaturalist platform in the middle school classroom.

Colleen Hitchcock, Ph.D., Assistant Professor Brandeis University, Biology Department and Environmental Studies Program (hitchcock@brandeis.edu)

Marie Studer, Ph.D., Learning and Education Director, Encyclopedia of Life, Harvard University (mstuder@eol.org)

Amy Lorenz, Project Coordinator, Encyclopedia of Life, Harvard University (alorenz@eol.org)

Jill Stutz, Middle School Math and Science Teacher, North Shore Christian School (jstutz@nschristian.org)

Please print and complete **THIS PAGE ONLY** and send with payment to:

Shelly Pagnotta, MABT Treasurer, 15 Crosswoods Path, Walpole, MA 02081.

Please send your registration form by March 1st. A **five dollar** late fee will be assessed for all registrations postmarked after March 1st and for on-site registrations.
Make checks payable to: **MABT**

Name_____ Phone _____

e-mail (Please Print Clearly) _____

Address_____

City/Town_____State_____ Zip_____

School _____ School city/town_____

Workshop Selection:

Please select workshops in order of preference (workshops are listed by letter above). Choose two morning and two afternoon workshops.

Morning Workshop 2: ____Workshop A _____ OR Workshop B _____

Afternoon Workshop 1: Workshop C _____ OR Workshop D1/D2 _____

Select Level:

_____Conference (with membership by 3/1/2016) = $60

_____Registration at Door (with membership) = $65

_____New teachers (within first 3 years with membership) = $35

_____Student teachers (with membership) = $25

Total Enclosed: _____

*** Morning Coffee and Lunch are included in conference registration fee.*