



Amazon Rainforest Workshops

Professional Development Programs

For Review

DRAFT

Modified 9.22.16

PROGRAM: EDUCATOR ACADEMY IN THE AMAZON RAINFOREST

PROGRAM DATES: JULY 1–11, 2017

LOCATION: IQUITOS, PERU

PROGRAM OVERVIEW

The Educator Academy in the Amazon Rainforest is a 10-day cross-curricular professional development workshop for educators offering the opportunity to explore one of the world's most important natural resources – the Amazon rainforest of Peru. Participants will have unparalleled access to all levels of the rainforest, including the rainforest canopy via one of the world's most extensive canopy walkways. The Educator Academy in the Amazon Rainforest is designed to engage participants in hands-on investigations, citizen science research projects, and inquiry-based learning activities to deepen understanding of the rainforest ecosystem and its global importance. In addition, participants will explore how rainforest concepts relate to 21st century instructional models such as 5E lesson design, inquiry-based exploration, STEM education, and other innovative instructional tools such as BirdSleuth K-12, Project Learning Tree, iNaturalist and more. This powerful field experience also incorporates the themes of cultural exchange, service learning, and sustainability in order to provide participants with cross curricular learning experiences to inspire classroom instruction and develop student understanding of the complexities global environmental issues.

PROGRAM CONTACT HOURS

20+ hours of pre-departure preparation via online readings, discussions, and webinars. 50 hours of active participation in daily field activities (including Project Learning Tree and BirdSleuth training) while in the Amazon.

PROGRAM OVERSIGHT

Program Directors

Christa Dillabaugh - *Director, Amazon Rainforest Workshops*

Christa has a degree in biology with emphasis in science/environmental education from Purdue University. As a middle school science teacher in Bexley, Ohio, she traveled to one of the first Amazon Rainforest Workshops for Educators in 1993. Nearly every other year since then she has teamed with other science specialists to lead groups of students and teachers in hands-on rainforest field study trips to the tropics. She has also worked as a free-lance science consultant to Pearson Education and Discovery Communications, contributing to curriculum and activity guides as well as educator in-service workshops and training materials focusing on STEM and Understanding by Design in the science classroom.

Allen (Al) Stenstrup - *Former Director of Education Programs for Project Learning Tree*

Al has more than 35 years of experience in the field of education. As Director of Education Programs for Project Learning Tree (PLT), Al directed the development and implementation of PLT's curriculum materials across the country and internationally with PLT state coordinators and other partners. Al recently published a book *Diminishing Resources – Forests* that highlights the planet's changing forests and what people are doing to manage this resource. In 2010, he received the award Outstanding Service to Environmental Education at the Global Level from the North American Association for Environmental Education for his work in 18 countries across the world.

Program Faculty

Kelly Keena, PhD – *Blue Lotus Consulting and Evaluation*

Kelly is the co-founder of Blue Lotus Consulting & Evaluation; a small firm focusing on supporting programs that engage people through the environment. Kelly's background includes field work and administration in environmental education, international study of cultural geography and the environment, formal classroom work



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as a licensed science teacher and instructional coach, two honorarium faculty positions working with pre-service teachers in science methods of instruction, and research regarding children's connection to nature in green schoolyards using participatory research methods.

Stephen (Steve) Madigosky, EdD - *Professor of Biology & Environmental Science at Widener University*

In addition to his academic teaching at Widener, Steve is also Director of Research at the Amazon Conservatory of Tropical Studies (ACTS) in Iquitos, Peru. Aspects of tropical biology and conservation have been his focus for nearly two decades. As a researcher, he has been investigating the biochemical dynamics of select compounds in tropical plants and animals. The crux of his work centers on understanding how organisms obtain chemical protection from their diets. In addition, Steve is conducting a long term study and detailed climatic profile of the forest layers surrounding the ACTS field station. Also active in science education, he has obtained nearly one million dollars in grants over the past decade to support educational programs to increase science literacy among K-16 teachers and students.

Randy Morgan - *Curator Emeritus of Invertebrates for the Cincinnati Zoo & Botanical Garden*

Randy holds an M.S. in entomology from the University of Wisconsin and his work managing a Leaf-Cutting Ant Colony earned the Zoo a Significant Achievement Award issued by the American Zoo and Aquarium Association. This recognition was preceded by other awards in 1999 for Bullet Ants, in 2000 for the long-term propagation of the Peruvian Fire Stick, and two in 2001 for the long-term propagation and captive management of the Giant Water Bug. While regularly serving as faculty during Amazon Rainforest Workshops since 1991, Randy also led the JASON XV team of scientists in February, 2003 during their Rainforests at the Crossroads expedition to Panama and served as a JASON X researcher in the Amazon in March, 1999.

David (Dave) Pearson, PhD - *Research Professor, School of Life Sciences, Arizona State University*

Dave's research is focused on using the interaction of ecology, conservation, ecotourism and education to develop methods that promote sustainable use of biodiversity. He has cataloged forty-five years of research and teaching in tropical forests around the world. Dave's current research concentrates on a small group of insects—tiger beetles—in tropical lowland rain forests around the world. He also works on international environmental education exchanges for graduate students and elementary teachers and students that promote critical thinking skills and appreciation of cultural diversity. He is also the author of 11 books including the Travellers' Wildlife Guide: Peru.

Nancy Trautmann, PhD - *Director of Education, Cornell Lab of Ornithology*

Under Nancy's leadership, the Education Program at the Lab creates resources and opportunities that aim to inspire people of all ages to care about birds and the critical issues facing our environment today. The BirdSleuth Habitat Connections curriculum is one of the resources produced by this team. Nancy's interests center on curriculum development, teacher professional development, and interactive online learning opportunities that help people build closer connections with nature, learn about birds and the natural world, and participate in citizen science and conservation action. Curricula she has published include Birds Without Borders (Carte Diem Press); Citizen Science, Decay & Renewal, Assessing Toxic Risk, Invasion Ecology, and Watershed Dynamics (National Science Teachers Association), Biodiversity: The Keystone to Life on Earth (California Education and the Environment Initiative); and Composting in the Classroom (Kendall Hunt).

PROGRAM RATIONALE

The future of our planet depends on our youth becoming concerned scientists, responsible environmental policy makers and informed global citizens. Knowledge and skills in science are paramount. How do we nurture this next generation to appreciate the role of science in addressing local as well as global problems related to climate change, sustainable development, and resource conservation? Teachers and teacher educators alike need to *participate* in science themselves in order to incorporate science methods in their classrooms. They need to *use* inquiry-based techniques in order to guide students in the tools and skills of research. They need to *experience* critical ecosystems, such as the rainforest, in order to teach about their importance to global health.



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The Educator Academy in the Amazon Rainforest addresses these concerns by involving scientists who collaborate with teacher educators and naturalist guides and engage participants in hands-on investigations, citizen science research projects, and inquiry based learning activities. These authentic learning experiences are set in the upper Amazon basin of northern Peru, where the intensely rich rainforest environment, simplicity of human life, and local economic challenges are easily observable as part of one intact, interrelated system. The Educator Academy in the Amazon Rainforest uses the rainforest setting to model the importance of using authentic life experiences to teach science. The field activities are led by a professional staff, focus on core standards, and incorporate many innovative educational programs and protocols such as [BirdSleuth](#), [Project Learning Tree Forests of the World](#), [iNaturalist](#), and more.

PROGRAM GOALS

The Educator Academy in the Amazon Rainforest professional development program offers participants the opportunity to experience the Amazon rainforest as a compelling context for developing a global perspective, understanding sustainability and learning about the key elements of STEM education, including inquiry-based learning, place-based learning, and national curriculum standards to better meet the needs of a changing society and an increasingly diverse student population.

The Educator Academy in the Amazon Rainforest allows participants to:

1. *Experience the Amazon rainforest to develop a global perspective of the richness and interconnectedness of societies, cultures, and environments as well as an awareness of personal commitments needed to sustain them.*
2. *Deepen understanding about the rainforest system and its global importance through learning opportunities which allow participants to engage, explore, explain, elaborate, and evaluate the rainforest system and associated issues.*
3. *Apply an inquiry-based exploration model as a powerful way of learning and knowing about the rainforest, one's local environment, and the world.*
4. *Develop an understanding of how citizen science projects and hands on field studies promote an appreciation for the role of science in understanding and sustaining the rainforest, one's local environment, and the world.*
5. *Explore how the tools and protocols of scientific exploration as well as innovative science education resources can be used to deepen knowledge and understanding about the rainforest ecosystem, one's local environment and the world.*
6. *Explore how the application of an integrated STEM approach to problem solving can be used to investigate rainforest topics and find sustainable solutions to issues in the rainforest, one's local environment, and the world.*
7. *Develop an appreciation for the complexities of sustainability and the role of science in sustainability education in the Amazon and in one's local community.*
8. *Explore strategies and methods for using a global learning experience in the Amazon as a vehicle for incorporating STEM education, inquiry-based learning, and sustainability science education which address national curriculum standards in formal and non-formal learning environments.*



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PROGRAM ASSESSMENT

Pre-Assessment Tasks:

- *Participants will complete a survey which will assess their background knowledge about and attitude toward rainforest and education related topics.*

Formative Assessment Tasks:

- *Round Table Discussions will be facilitated by course instructors and are designed to help participants process daily activities and learn from one another.*
- *Small groups will use guided questions, concept maps, and other tools to share what they are learning and discuss applications and connections to their classrooms, communities, and local environments.*

Summative Assessment Tasks:

- *Participants will work in teams to create a group proposal for incorporating a citizen science/service learning project into their classroom instruction as a vehicle for meeting local, state, and/or national curriculum standards.*

Post-Assessment Tasks:

- *Participants will develop and share standards-based strategies and tools for sharing the Amazon experience with their students, colleagues, and communities.*
- *Participants will complete a program evaluation designed to assess changes in knowledge and attitudes as a result of participating in the Educator Academy in the Amazon Rainforest.*

PROGRAM FORMAT

Pre-Departure:

The rainforest is an exciting and dynamic learning environment and in order to take full advantage the opportunities available through the educator Academy in the Amazon Rainforest, participants will be provided with key background information, readings, and reflection activities prior to departure. These resources are carefully constructed to build requisite background knowledge and will be delivered in a variety of ways including print and web-based resources. In addition, participants will engage in web-based community building activities and discussions to make connections with fellow participants prior to arrival in the Amazon. In addition, in order to maximize our training time in the field, introductions to BirdSleuth, Project Learning Tree Forests of the World, and other curriculums and activities will also be introduced prior to departure.

Pre-departure preparation is a crucial element in creating an exciting and vibrant learning community. All participants are expected to take full advantage of the resources provided, complete pre-departure readings, and contribute to online interactions.

In the Field

The field component of the Educator Academy in the Amazon Rainforest professional development takes full advantage of the learning resources only the Amazon can provide – amazing biodiversity, complex ecosystem structure, indigenous cultures, and a global learning environment.

Each day offers new learning opportunities and is broken into morning and afternoon sessions. Sessions last three hours and include an introduction to the subject, a field experience in the rainforest or Amazon community, and a guided reflection activity. In addition, classroom connections will be highlighted and explored via training sessions provided by BirdSleuth, Project Learning Tree, and Amazon faculty. Field sessions are designed to actively engage participants via guided natural history explorations, inquiry-based learning activities, citizen science research projects, cultural explorations, village service projects, and more. Incorporated into each session are activities in which participants will deepen their understanding of best practices in inquiry-based learning, sustainability science,



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and STEM education. Sessions are limited in size, so there is an opportunity for interaction and one-on-one instruction. Daily sessions are facilitated by course instructors, guest faculty and researchers, and local naturalist guides.

The following is a **tentative** list of sessions and associated topics planned for the 2017 Educator Academy in the Amazon. (subject to change)

Session Title	Rainforest Connections	Education Connections / Resources
Welcome to the Amazon – Life Below the Equator	<ul style="list-style-type: none"> ◦ <i>Developing a sense of place</i> ◦ <i>People, places, and culture</i> 	<ul style="list-style-type: none"> ◦ <i>Inquiry</i> ◦ <i>Global Perspectives</i>
The Mighty Amazon - It's More than a Forest or a River, It's a Watershed	<ul style="list-style-type: none"> ◦ <i>Geography of the Amazon River</i> ◦ <i>Amazon river system</i> ◦ <i>Amazon Ecosystems</i> ◦ <i>Deforestation and habitat loss</i> 	<ul style="list-style-type: none"> ◦ <i>Inquiry</i> ◦ <i>Global Perspectives</i> ◦ <i>Geography</i> ◦ <i>Project Learning Tree</i>
Habitat Connections	<ul style="list-style-type: none"> ◦ <i>Amazon Habitats and Ecosystems</i> ◦ <i>Amazon Biodiversity</i> ◦ <i>Amazon birds</i> 	<ul style="list-style-type: none"> ◦ <i>Inquiry</i> ◦ <i>Global Perspectives</i> ◦ <i>Geography</i> ◦ <i>Cornell Lab of Ornithology</i> ◦ <i>Citizen Science</i>
Intro to Inquiry – What Makes a Rainforest a Rainforest?	<ul style="list-style-type: none"> ◦ <i>Rainforest structure & function</i> ◦ <i>Rainforest climate</i> ◦ <i>Neotropical biodiversity</i> 	<ul style="list-style-type: none"> ◦ <i>5 E Inquiry Model</i> ◦ <i>Project Learning Tree</i> ◦ <i>BirdSleuth</i> ◦ <i>iNaturalist</i>
Inquiry and Field Investigations	<ul style="list-style-type: none"> ◦ <i>Rainforest structure & function</i> ◦ <i>Rainforest climate</i> ◦ <i>Neotropical biodiversity</i> 	<ul style="list-style-type: none"> ◦ <i>Inquiry and Investigation</i> ◦ <i>Asking good questions</i> ◦ <i>Field Studies</i>
Amazon Biodiversity – Secret Lives and Complex Relationships	<ul style="list-style-type: none"> ◦ <i>cooperation and competition</i> ◦ <i>Plant adaptations & herbivory</i> ◦ <i>Medicinal plants</i> 	<ul style="list-style-type: none"> ◦ <i>5 E Inquiry Model</i> ◦ <i>iNaturalist</i> ◦ <i>BirdSleuth</i>
The Rainforest Canopy – Where all the ACTION Is	<ul style="list-style-type: none"> ◦ <i>Amazon Conservatory for Tropical Studies (ACTS)</i> ◦ <i>Canopy ecology and research</i> 	<ul style="list-style-type: none"> ◦ <i>STEM</i> ◦ <i>Project Learning Tree</i> ◦ <i>BirdSleuth</i> ◦ <i>iNaturalist</i>
The Amazon and Climate– What's the Connection?	<ul style="list-style-type: none"> ◦ <i>Microclimates in a rainforest</i> ◦ <i>Climate change and the Amazon</i> 	<ul style="list-style-type: none"> ◦ <i>STEM</i> ◦ <i>Inquiry and Investigation</i> ◦ <i>Field Studies</i> ◦ <i>Engineering Design</i>
Research in the Rainforest: Trade your Lab Coat for a Rain Poncho	<ul style="list-style-type: none"> ◦ <i>Tools and protocols of field research</i> ◦ <i>Citizen science in the rainforest</i> 	<ul style="list-style-type: none"> ◦ <i>STEM</i> ◦ <i>Project Learning Tree</i> ◦ <i>BirdSleuth</i>
The Amazon – Hotbed of Innovation!	<ul style="list-style-type: none"> ◦ <i>Rainforest structure & function</i> ◦ <i>Rainforest climate</i> ◦ <i>Neotropical biodiversity</i> 	<ul style="list-style-type: none"> ◦ <i>Biomimicry</i> ◦ <i>Inquiry and Investigation</i>
Have you touched a rainforest today?	<ul style="list-style-type: none"> ◦ <i>Neotropical biodiversity</i> ◦ <i>Rainforest resources</i> 	<ul style="list-style-type: none"> ◦ <i>Sustainable development</i> ◦ <i>Global Perspectives</i>



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<p>Traditional use Rainforest Resources: What the Yagua can teach us about the history of indigenous community and culture in the Amazon</p> <p>-OR-</p> <p>Managing Paradise: What the Maijuna can teach us about current conservation and sustainable development in the Amazon</p>	<ul style="list-style-type: none"> ◦ <i>Indigenous people and culture</i> ◦ <i>indigenous use of rainforest resources</i> ◦ <i>indigenous people and traditions</i> ◦ <i>Conservation</i> ◦ <i>sustainable harvesting of rainforest resources</i> 	<ul style="list-style-type: none"> ◦ <i>Culture and Community</i> ◦ <i>Global Perspectives</i> ◦ <i>Service</i> ◦ <i>Culture and Community</i> ◦ <i>Sustainability & Conservation</i> ◦ <i>Global Perspectives</i> ◦ <i>Service</i>
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PROGRAM ASSIGNMENTS/RESPONSIBILITIES

The Educator Academy in the Amazon Rainforest is an extraordinary professional development opportunity. In order to create a rich, rewarding, and maximized learning experience for all, it is imperative that each participant understands their individual role in the achievement of this goal. Participants are expected to:

- review and respond to all pre-departure readings and activities.
- share and apply what they learn pre-departure during the field experience.
- be positive, active, engaged team members before, during, and after, the Amazon field experience.

REQUIRED READINGS/MATERIALS/EQUIPMENT

The majority of course readings and assignments will be available on-line via our virtual Academy Classroom. Participants will have access to these materials upon the receipt of their registration form and deposit. On-line discussions related to the background readings and program pedagogy/instructional practices will begin approximately 6 weeks prior to departure.

A comprehensive optional/suggested reading list will also be provided to participants upon registration. A recommended list of field equipment/supplies will also be supplied prior to departure.

PROGRAM CONTACT INFORMATION

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FEES & REGISTRATION DETAILS

<http://www.amazonworkshops.com/educator-academy.html>

SCHOLARSHIP & FUNDING OPPORTUNITIES

<http://www.amazonworkshops.com/scholarships--funding.html>



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TENTATIVE FIELD ITINERARY

July 1–DAY 1: Depart from US and overnight in Lima Peru

Participants depart hometown • Met on arrival at the Lima airport.

July 2 – DAY 2: Lima to Iquitos and ExplorNapo Lodge

Transfer to Iquitos in the heart of the Amazon • Travel by boat on the Amazon River and deepen your understanding of this important global resource.

July 3 – DAY 3: ExplorNapo Lodge

Birding and wildlife investigations each morning • AM field workshop: Inquiry in the Amazon – What Makes a Rainforest a Rainforest? • Guided hike and inquiry-based explorations in the rainforest • PM field workshops: Connecting the Amazon to the Curriculum – with Cornell Lab of Ornithology’s Investigating Evidence and Project Learning Tree’s Forests of the World • Pre-dinner round table discussions • Evening boat ride.

July 4 – DAY 4: ExplorNapo Lodge

AM field workshop: Amazon Biodiversity • PM Field Workshop: Secret Lives of Rainforest Plants • Visit to ReNuPeru Medicinal Plant Garden and work with the shaman • Pre-dinner round table discussions
Evening Exploration: The Art of Asking Scientific Questions followed by night hike.

July 5 – DAY 5: Amazon Conservatory of Tropical Studies (ACTS)

AM field workshop: Tropical Ecology 101 with guided hike and explorations en route to ACTS field station • Orientation to ACTS field station and rainforest research • PM field workshop: The Rainforest Canopy – Where All the ACTION is • ACTS canopy walkway exploration and sunset viewing.

July 6 – DAY 6: Amazon Conservatory of Tropical Studies (ACTS)

AM/PM field Workshops: Research in the Rainforest – Trade your Lab Coat for a Rain Poncho • Small group field studies and explorations with Academy faculty • Collect micro-climate data • Conduct a vertical study of the rainforest from forest floor to canopy • Explore STEM applications of research protocols, investigation tools, and inquiry resources • Pre-dinner round table discussions • Night hike.

**July 7 – DAY 7: Explorama Lodge

Full day of community service in an Amazon village • Field Activity: The Science of Sustainability – Clean Water in the Amazon • Explore the engineering and design of small scale water treatment plants in the Amazon • Pre-dinner round table discussions • Evening Exploration: “Have You Touched a Rainforest Today?”

**July 8 – DAY 8: Explorama Lodge

AM field Workshop: Traditional Use of Rainforest Resources – What the Yagua Can Teach Us • Hands-on exploration of rainforest resources used by the indigenous Yagua people • Science Day at the CONAPAC Amazon Library.

July 9 – DAY 9: Cieba Tops Resort

Trading with the Yagua • Meet with Dr. Linnea Smith and discuss the realities of life in the Amazon and the impact of improved healthcare • Academy wrap up and planning for next steps • Awards ceremony and celebration!

July 10 – DAY 10: Iquitos to Lima and return flights to US

Visit to giant Ceiba tree • Transfer to Iquitos for return flight to Lima and int’l flights or overnight at Lima hotel for Machu Picchu Extension. **Note:** Participants **not** continuing on to Machu Picchu will return to the U.S. on an overnight flight, arriving home on July 11, DAY 11.

****NEW for 2017! Day 7 & 8 Alternative Option:** Participants will have the option of remaining at ExplorNapo/ACTS and working with the Maijuna indigenous group on field research and sustainable development projects in the newly formed Maijuna-Kichwa Conservation Area. This is an ideal option for MS and HS educators who want more time for field research!



REFLECTIONS FROM EDUCATOR ACADEMY ALUMNI

"After 20 years in the educational field, this was the best professional development program I have ever participated in. As I reflect, I compare it to the workings of a balanced ecosystem. A program of excellent design, instructors with effective niches, diverse teachers with similar interests, and total immersion in the Amazon Rainforest environment...these components created interrelationships that benefited each other, and will sustain themselves for a long time. I feel grateful to have shared this experience of a lifetime with a set of dynamic, inspiring teachers from across the country." – Judy Graziano, Edgar Middle School, NJ

"Amazing. I had high expectations, but overall this experience surpassed them on so many levels. The combination of the people involved, the organization and structure, and one of the most astounding places on Earth made this incredible." – Joan Bachynsky, Cristo Rey High School, NY

"Every component of the academy can be integrated into my classroom, my curriculum and my teaching philosophy. The faculty provided high quality experiences and resources to help me do this! Most professional development programs regurgitate the same resources, strategies and ideas without much inspiration. They lack the ability to connect the content to our lives! This program not only provided a life changing experience, they provided the human connection to that content. It provided the answer to, "Why should I care? What can I do? How can I get others involved?" The best program I have EVER had the privilege of attending!" – Melissa Jordan, Sarah Scott Middle School, Terra Haute, IN

"This experience changed my life. I am looking at my daily habits and life style choices and comparing them to the people whose village we visited. I now look at the choices I make (for example turning on the AC or not) and think about its impact on others with whom we share this planet. The experience is also changing my teaching practice as I develop new lessons that connect my students with the rainforest and the issues we share in common. I left feeling inspired and renewed, excited about what I will share with my students and peers. I was learning every hour of the day and evening. Not a minute of this trip was wasted. It was run by people who really know what they are doing and have spent a considerable amount of time planning and perfecting the trip. The faculty and guides were all very friendly, professional, and very knowledgeable, each an expert in their field and very willing to share their knowledge." – Jenny Murphy, Sullivan Middle School, Lowell, MA

"This has been the best professional development program I have ever participated in. The workshop was way more than just an awesome Amazon adventure. The teachers became part of a close knit team which have been encouraged to continue to collaborate long after the workshop ends. Thank you so much for keeping the online resources open for us to continue the journey together. Together with the quality staff presentations, shared experiences, hands-on activities, long term online resources, and the comradery of our group members, I am confident I will be able to share what I have learned with my students. Further more I feel that I have what I need to continue to learn." – Phil Kahler, Tualatin Valley Academy, Forest Grove, OR

"It was truly a life changing...both from a science perspective as well as a cultural perspective. Because of this experience, I will never teach the same again as I strive to inspire my students to become problem solvers in an ever-changing world that we must protect." – Jennifer Richardson, recipient of the 2012 Presidential Award for Excellence in Mathematics and Science Teaching, Wooster Elementary School, Conway AR