STREAMING SCIENCE



Eco Invaders

Educator Guide

UF IFAS UNIVERSITY of FLORIDA
AGRICULTURAL EDUCATION AND COMMUNICATION

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NOVEMEBER 5: 10:00 AM & 3:00 PM

NOVEMEBER 19: 10:00 AM & 3:00 PM



Introduction

Welcome to the streaming science, Electronic Field Trip (EFT)! During this experience, you can connect your students with scientists from UF/IFAS. Students will learn the difference between invasive and noninvasive plants and explore how aquatic plants are managed. We will hear from Dr. Eli Russell and his team at the Center for Aquatic and Invasive Plants, as well as Dr. Luke Flory and his team at the Flory Lab.

During the sessions, we will learn

- What invasive plants are
- How invasive plants spread
- The impact invasive plants have on native plants
- The effects of invasive plants on ecosystems
- The different management practices applied to control invasive plants

The Streaming Science Project is produced in partnership with graduate students and Dr. Jamie Loizzo in the Department of Agricultural Education and Communication (AEC) at the University of Florida.
EFTs are aligned with national and state science education standards. Please use this Teacher's Guide to help plan and prepare for implementing a successful Streaming Science LIVE interactive web-stream experience for your students.

Background

The Flory Lab

The Flory Lab is located at the University of Florida in Gainesville. The lab studies community, ecosystem, and global change ecology, with a primary focus on nonnative and invasive plants. Its researchers examine how invasive plants interact with factors such as climate change, plant diseases, urbanization, and fire, as well as how these interactions affect ecosystems.

UF/IFAS Center for Aquatic and Invasive Plants

The UF/IFAS Center for Aquatic and Invasive Plants (CAIP) is a research, teaching, and Extension unit located just north of the University of Florida's main campus in Gainesville. The center studies aquatic and invasive plants and develops science-based approaches for their identification and management. It also provides educational resources to help researchers, land managers, educators, and the public understand these plants and their effects on Florida's ecosystems.

Logistics

We recommend treating your (EFT) just like you would a traditional field trip, step away from the daily routine, create some excitement, and give students the opportunity to engage with UF scientists through the magic of technology! A little preparation beforehand can make a big difference in how much your students enjoy and learn.
Here are a few tips to help you get ready:

- **Build the excitement!** Talk about the EFT with your students before the livestream. Introduce the topic, share a few fun facts, or tease some of the questions they will get to explore.
- **Gather students together.** Reserve a space that is large enough for your group to participate comfortably. Whenever possible, have students experience the EFT together rather than watching individually.
- **Test your technology ahead of time.** Check your internet connection, speakers, projector, cameras, and microphones before the day. Make sure the livestream platform works on your school's network and that any necessary websites are accessible.
- **Plan for two-way communication.** Place laptops or tablets around the room, or provide access at individual desks, so students can interact with the presenters.

Logistics

- **Prepare questions in advance.** Encourage students to think of questions they would like to ask before the livestream. You can even create a class “question parking lot” where students add questions throughout the week.
- **Know how questions will be submitted.** At the end of each segment of the 45-minute EFT, our presenters answer questions submitted by participating classrooms through the livestream platform. Have your students submit questions throughout the program so your class has the opportunity to hear from the scientists directly.
- **Have a backup plan.** Technology doesn't always cooperate! Have a backup device available if possible, know who to contact if you experience technical difficulties, and consider having a related activity students can work on if the livestream is interrupted.

Most importantly...

Have fun! The goal of an EFT is to give students an experience they might not otherwise have: the chance to interact with UF scientists, explore real-world science, and see how what they learn in the classroom connects to the world around them. Encourage your students to be curious, ask questions, and make the most of their EFT!

Timeline

A successful Electronic Field Trip starts before the livestream! Use this timeline to help you and your students prepare, participate, and make the most of the experience.

- **Register your students for the EFT!**

Complete the registration form to reserve your spot and provide the best contact information for your classroom. When you register, you can also indicate your interest in participating in the EFT research and post-program evaluation.

- **2+ Weeks Before the EFT**

Work with your school's technology specialist to make sure your classroom is ready for the livestream. Test your internet connection, speakers, projector or screens, and any devices students will use to participate.
The EFT will be delivered through an online video platform. We will send the direct livestream link to the email address provided during registration before the event.

- **1–2 Days Before: Get your students ready!**

Use the information and activities in this Teacher's Guide to introduce your students to the EFT topic. Build excitement by giving students a preview of what they will see and encouraging them to start thinking about questions they want to ask the UF scientists.

Timeline

- **Day of the EFT: It's field trip day!**

Gather your students, connect to the livestream, and get ready to explore! Encourage students to actively participate throughout the 45-minute experience by responding to prompts, making observations, and asking questions.
If you aren't able to attend the live event, don't worry! You can view the recording and experience the EFT with your students at a time that works for your classroom.
Don't forget: The best field trips involve curiosity! Give your students opportunities to submit questions and hear directly from the UF scientists.

- **After the EFT: Keep the learning going!**

Take a few minutes to talk with your students about their experience. Ask what surprised them, what they learned, and what questions they still have.
Students can also complete the post-survey to share their thoughts about the EFT.
Want to help us improve future EFTs? Educators can participate in our research and evaluation efforts. You can indicate your interest when you register for the program.

Meet The Scientists!

Flory Lab
3127A McCarty Hall B
University of Florida
Gainesville, FL 32611
(352) 294-1581



Luke Flory's research focuses on the mechanisms and impacts of non-native species invasions with the goal of understanding mechanisms and impacts of invasions, and the long-term consequences of interactions between invasive species and other global change drivers.



Seokmin Kim (postdoc) oversees using literature-based assessment tools to evaluate the invasion risk of non-native species that occur in the state, new species proposed for introduction, and novel agricultural and horticultural selections, hybrids, and cultivars.



Yukti Taneja (Ph. D. student) has been fascinated with the persistence of highly abundant local populations and the species interactions that enable it. She will be exploring the role played by the acquisition, maintenance, and reorganization of mutualisms in aiding the success of invasive plants and decline of natives.

Meet The Scientists!

UF/IFAS Center for Aquatic and Invasive Plants (CAIP)
7922 NW 71st Street
Gainesville, FL 32653
Phone: (352) 392-6807



Dr. Russell is an Assistant Professor for aquatic plant management at the UF/IFAS Center for Aquatic and Invasive Plants (CAIP). Dr. Russell's research program will focus on developing integrated weed management tactics for addressing problematic aquatic plants. Dr. Russell loves studying weeds and can often be found looking for them everywhere he goes.



Abi Schulken is a Master's student with the Russell Lab in the Center for Aquatic and Invasive Plants at the University of Florida. Abi's interests lie at the intersection of ecology and agriculture, with experience spanning agroecology, food systems, environmental conservation, and weed science.



Cayla Romano-Freeman is the Communications Manager for the Center for Aquatic and Invasive Plants and graduate from the Department of Agricultural Education and Communication at the University of Florida.

Learning Objectives

Eco-Invaders is designed for middle and high school students and aligns with the Next Generation Science Standards and Florida's State Academic Standards for Science.

- Define invasive plants and what makes a species invasive
- Define native and invasive plants in florida
- Explain impacts of invasive plants
- Understand the management practices of invasive plants



Supplemental Learning Activities

- Take a virtual tour of the CAIP Facility!
- Printable worksheet, coloring sheet, and word search (UF/IFAS)
- Invasive Species Relay Race (UF/IFAS).
- Invasive Species Wanted Poster
    - Students independently research an invasive species and create a “Wanted” poster using the template to identify its characteristics, how it spreads, where it is found, the environmental “crimes” it causes, and what people should do if they encounter it.
- Pre-EFT Discussion Questions:
    - What do you think the term invasive species means?
    - Can a species be harmful without being invasive?
    - Should people try to eliminate invasive species? Why or why not?
    - What responsibilities do people have to prevent invasions?
    - What is one question you have for our EFT scientists?

Streaming Science Crew (2026)

Dr. Jamie Loizzo
Kaitlin Robb Price
Maegan Beatty
Anelise Bullard
Matilyn Chancey
Lauren Cook
Emma Davies
Rola Jiang
Kamila Koralasbayev
Chase Ritten
Stella Ruber



Resources

Center for Aquatic and Invasive Plants

UF/IFAS Flory Lab

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Questions?

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