Welcome: a research studio

Eleutherodactylus Research Studio · Fall 2026

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This is not a lecture course

- We spend **4 weeks** building a shared toolkit: R, Quarto, GitHub, bioacoustics
- Then **12 weeks** doing real research on real, unpublished data
- I am a collaborator and editor, not a lecturer
- The deliverables leave the classroom: **manuscripts and publications with your names on them**

What we're doing this semester

- Four research teams, each working toward a publishable product
- Plus one thing everyone does individually: an **AmphibiaWeb species account** — a citable publication with your name on it

Everything lives on the course site: https://ut-fri-biodiversity.github.io/eleuth-calls/

Eleutherodactylus 101

Frogs with no tadpole

- **Direct development**: eggs laid on land hatch into tiny, fully formed froglets — no pond, no tadpole stage
- That freedom from water let them go everywhere: among the **most ubiquitous and abundant amphibians in the Western Hemisphere** — and the least well known
- **1,300+ species**, southern US to northern Argentina and throughout the West Indies



E. marnockii adult and fully formed froglet — no tadpole in between.
Photo: Alex Wild

Once the largest vertebrate genus

- *Eleutherodactylus* (sensu lato) was once the **largest genus of vertebrates on Earth**
- Molecular phylogenetics split it into four geographic clades
- Ours — *Eleutherodactylus* sensu stricto — spans the **West Indies and mainland North America**: Texas through Mexico into Guatemala and Belize
- Two mainland clades: Atlantic versant (*Syrrhophus*) and Pacific versant (*Tomodactylus*)



E. marnockii. Photo: Alex Wild

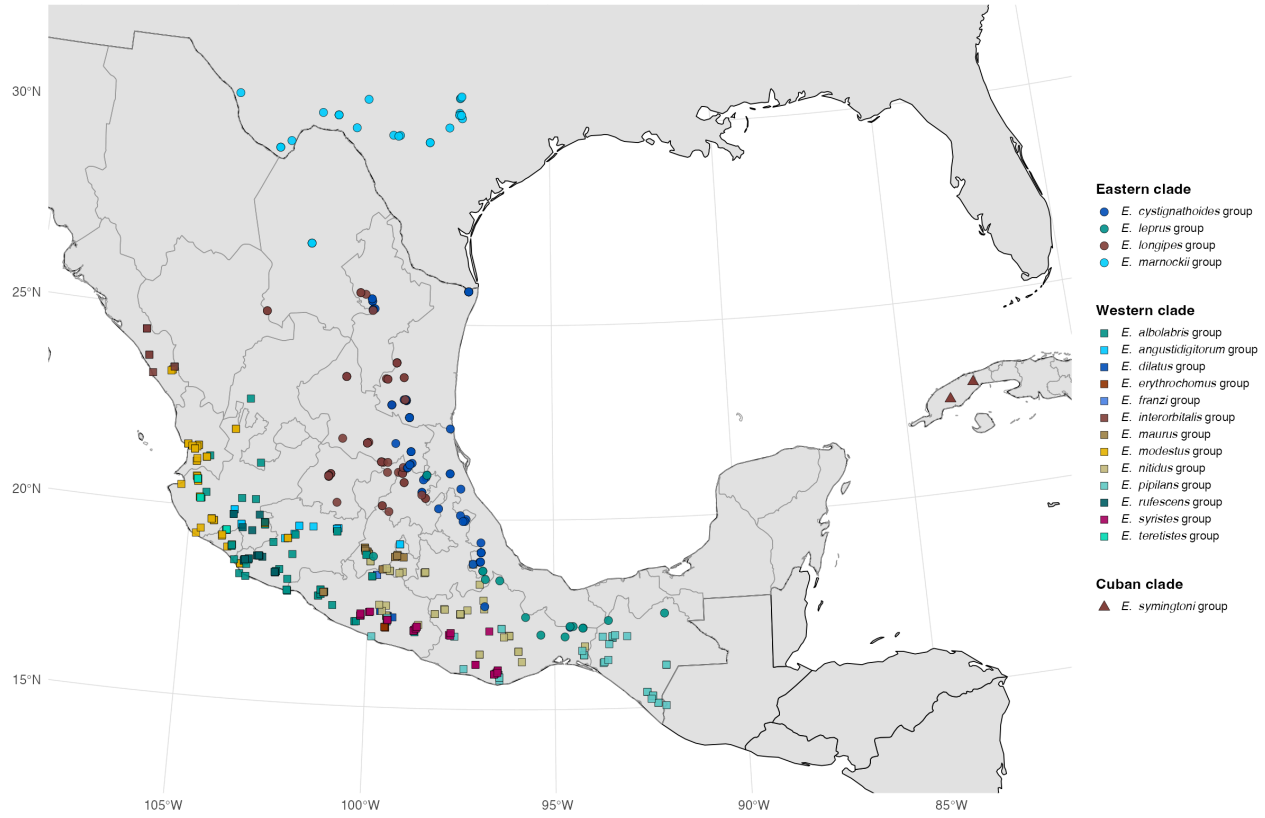
We are still discovering them

- Tiny ranges (**microendemism**) + cryptic looks = diversity that taxonomy has badly underestimated
- **16 new species** described from Mexico since 2015
- Our lab's work finds evidence for **at least 11 more** — nine described in a paper in the works right now, including an Oaxacan species one of our teams will work on
- When frogs all look alike, **the call is often the character that tells species apart** — that's why this class exists



E. marnockii. Photo: Alex Wild

The sampling behind the science



Topotypic populations for most Mexican species — your teams' groups (*nitidus*, *albolabris*, *pipilans*, *dilatus*, *maurus*, *marnockii*) are all on this map

What they sound like

▶ Video: youtu.be/zLjuSkn8Zss

The Cliff Chirping Frog

Eleutherodactylus marnockii

- Limestone country of central Texas — including **Brackenridge Field Lab**, 10 minutes from this room
- Jameson (1954) described its social structure — but what does that look like *acoustically*? Nobody knows.



E. marnockii. Photo: Alex Wild

The gap we're filling

- **No formal acoustic description of *E. marnockii* exists** in the published literature
- The same is true for many Mexican relatives — species known to science, calls never described
- We have the recordings. Nobody has done the work. **That's the project.**

This is what you'll be describing

▶ Video: youtu.be/pXCmK4PVy3o

The data

- Passive acoustic monitoring (PAM): AudioMoth recorders at BFL running continuously
- Handheld field recordings of Mexican species — unpublished, from museum-vouchered animals
- Audio lives on the EDU Pod server (it’s big); analysis code lives on GitHub

The four teams

Team 1: PAM / *E. marnockii* (~7 people)

- When do cliff chirpers call, and what predicts it?
- Detection data + weather covariates → calling phenology
- Also owns the *E. marnockii* call description

Product: analysis + figures feeding the ongoing BFL manuscript, plus the call description

Team 2: *nitidus* complex (~6 people)

- Geographic variation in advertisement calls across **Puebla, Guerrero, and Oaxaca**

Product: a near-submittable manuscript on call variation across the complex

Teams 3 & 4: multi-species call descriptions

Guerrero / Morelos (~5)

E. albolabris E. pipilans E. dilatus E. maurus

Oaxaca (~5)

An undescribed species and neighbors

Product: near-submittable manuscripts describing these species' calls

How teams work

- Four named roles on every team: **data steward, literature lead, measurement lead, writing lead**
- A role means you *own* that domain — not that you do it alone
- Optional role rotation at mid-semester
- Details: Teams page

Individual: AmphibiaWeb species account

- Claim one Mexican *Eleutherodactylus* species that has no account
- Research, write, and **submit it to AmphibiaWeb** — a real, citable contribution
- Claimed by **Wed Sep 2** · full draft **Oct 21** · second draft **Nov 18** · final **Nov 30**

How this course runs

The rhythm

Phase	Weeks	What happens
Bootcamp	1–4	Short lectures + hands-on worksheets
Data	5–9	Studio: micro-lessons Mondays, work sessions Wednesdays
Analysis & writing	10–14	Figures, drafts
Revision & delivery	15–16	Final presentations; deliverables shipped

Grading

Component	Weight
Team milestones	30%
AmphibiaWeb account (individual)	20%
Participation & stand-ups	15%
Final product & presentation	35%

Evaluations (peer + self + course) at mid-semester and finals — see the Evaluations page

This week

- **Wednesday:** bring a laptop — we meet R, RStudio, Quarto, and GitHub on the CNS EDU Pod, and everyone renders a Quarto doc to PDF and submits it to Canvas
- **Team preferences due Mon Aug 31** (form/instructions on the site)
- Team assignments announced **end of week 2**, based on preferences + the recording inventory
- Start thinking about which AmphibiaWeb species you want — claiming closes **Wed Sep 2**

Everything is on the site

https://ut-fri-biodiversity.github.io/eleuth-calls/

- Schedule · Projects · Teams · Evaluations · Resources
- Bookmark it; it is the syllabus



E. marnockii. Photo: Alex Wild

Questions?

Alt text added with Claude Code (Claude Opus 5.5; Anthropic).