Hear the whole recording: choosing what to measure

Eleutherodactylus Research Course · Fall 2026

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Welcome, visitors

A research course in the Freshman Research Initiative: six teams of four, mostly second-year students, measuring the calls of Mexican and Texan *Eleutherodactylus* frogs.

- Each team: one shared R notebook and a folder of recordings
- Each student: one AmphibiaWeb species account



E. marnockii. Photo: Alex Wild

Today

0–15 min	Mini-lesson: look at the whole recording, grade it
15–35	Work: overview and grade your files
35–46	Stand-ups, about 2 min per team
46–50	Exit ticket

Due today: AmphibiaWeb full draft

Due Fri Oct 23, 11:59 PM: mid-semester evaluations (peer/self on Canvas, course evaluation on Qualtrics)

By the end of class you can

1. **Find the usable stretch** of a recording from a picture of the whole file, before you measure anything.
2. **Decide whether a recording is worth measuring** and write down the reason, so a teammate would reach the same decision.

Is 30 seconds enough?

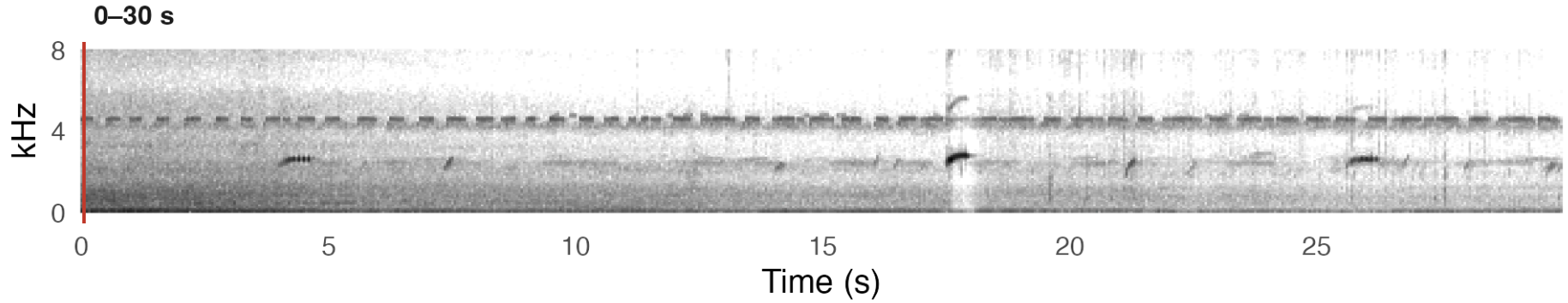
Most of our recordings run 2 to 10 minutes.

Predict

TJD 894 · *E. jamesdixoni* · the first 30 seconds

A **spectrogram** shows frequency (up) over time (across); darker means louder. **kHz** is kilohertz, thousands of cycles per second.



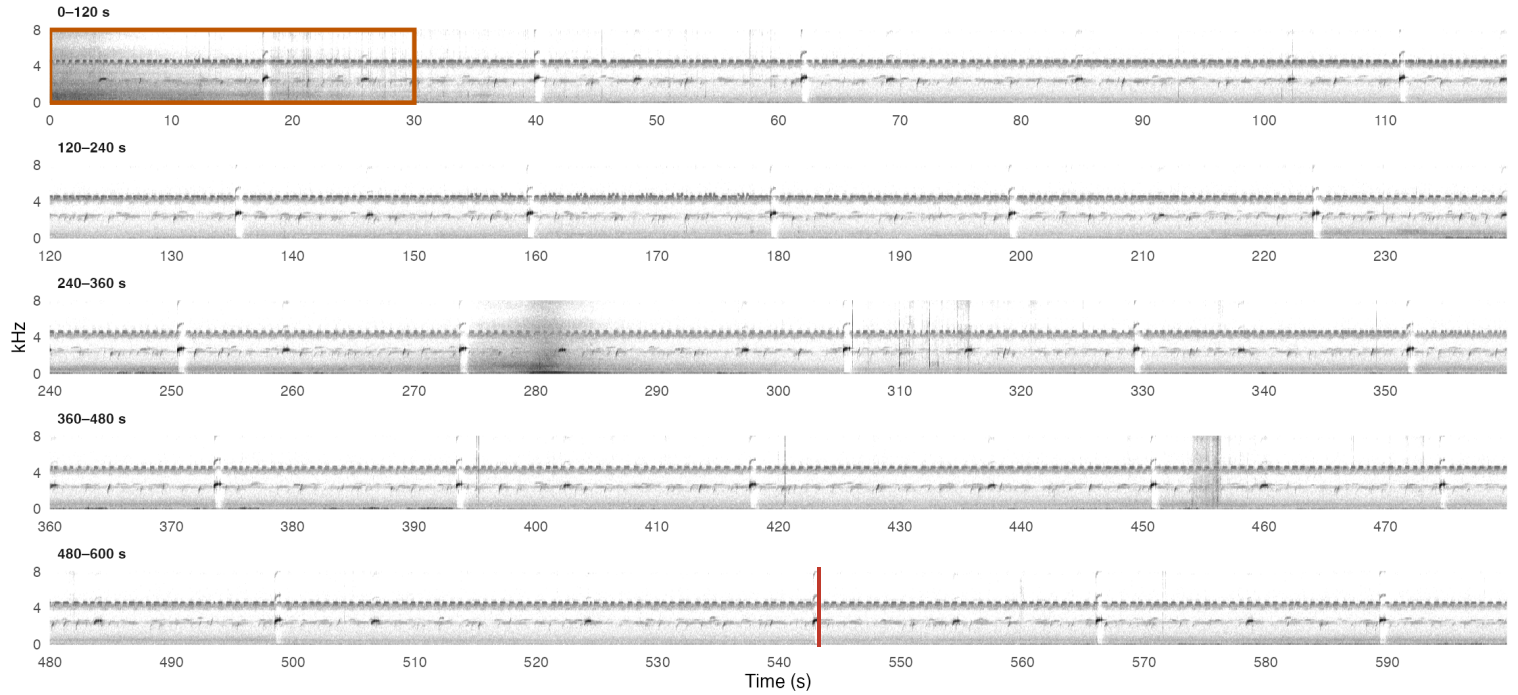


▶ play speed 1× ½× ¼× ⅛× 0.0 / 30.0 s

Turn to a neighbor (1 min): how many calls could you measure here? What would you write about this frog?

The whole file

TJD 894 · all 10 minutes · one row per two minutes · orange box = what we looked at



▶ play speed 1× ½× ¼× ⅛× 540.0 / 555.0 s

How to read an overview

What you see	What it is
Marks repeating at one frequency	**Frog calls**
A band across a whole row	Insects or electrical hum
A dark streak, bottom to top	A click or handling noise
A dark smear along the bottom	Wind or traffic

Four steps, in this order

1. Look at the whole file

```
overview(file)
```

2. Pick the clearest stretch

Write down its start and end (seconds)

3. Read that stretch and zoom in

```
w <- read_any(file, 30, 60)
spectro(w, tlim = c(2, 3.5))
```

4. Listen to it

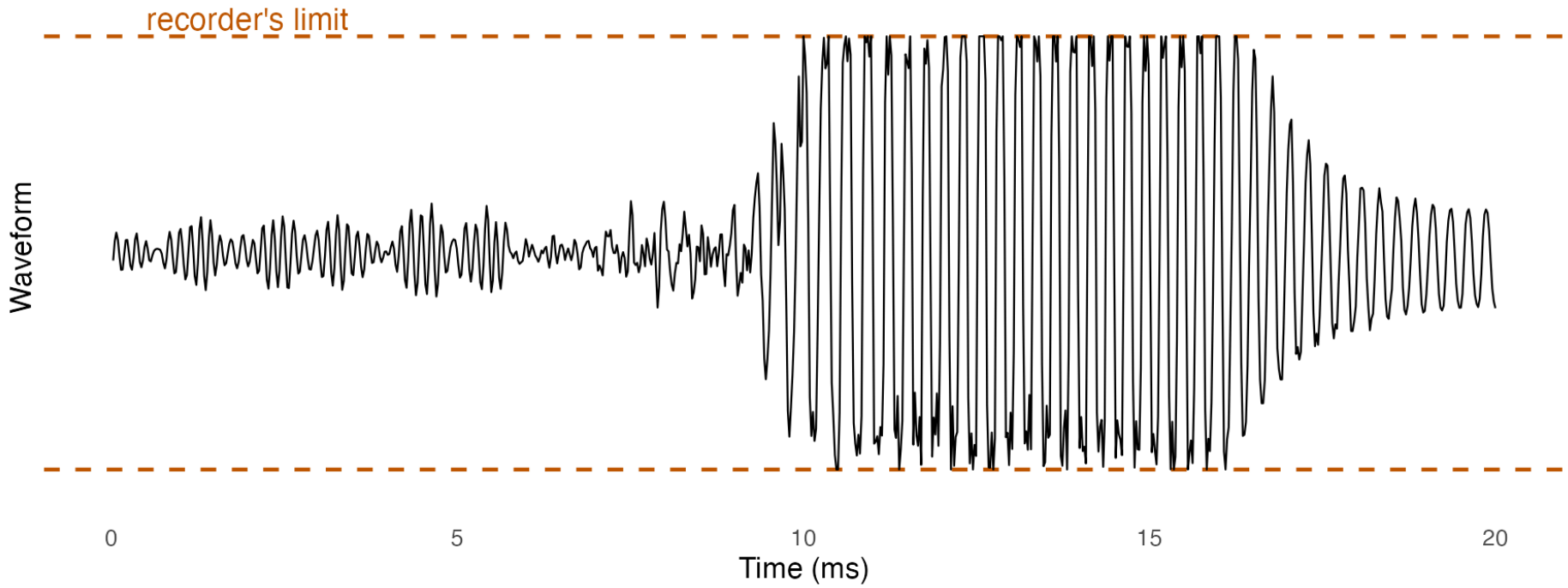
```
play_wave(w, 2, 3.5)
```

Plays in the Viewer pane

Is this recording worth measuring?

Grade it before you measure it.

What makes a call usable



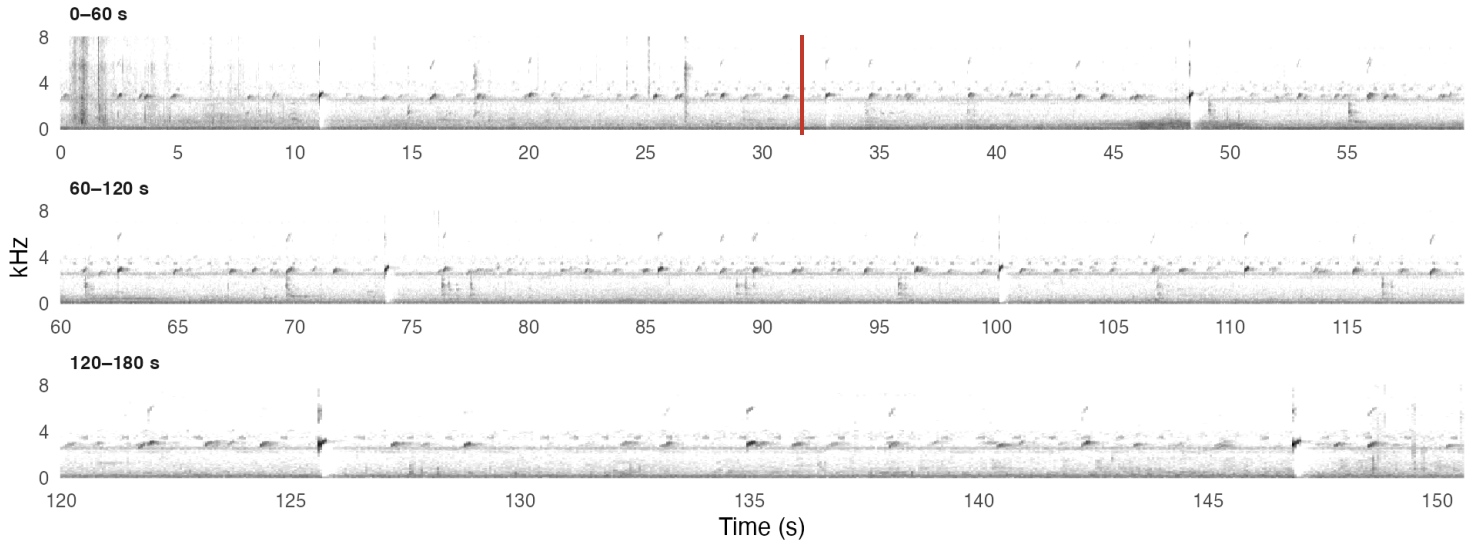
Clipped: too loud for the recorder, so the peaks are cut flat. **Exclude** it.

Three grades

Grade	What you see	What to do
good	10+ usable calls, a clean band	Measure
usable	3–9 usable calls, or some noise near the band	Measure; flag dominant frequency
exclude	No readable edges, overlap, unclear focal male, or clipped	Write down why

Grade it: file A

TJD 868 · *E. maurus* · 2.5 min

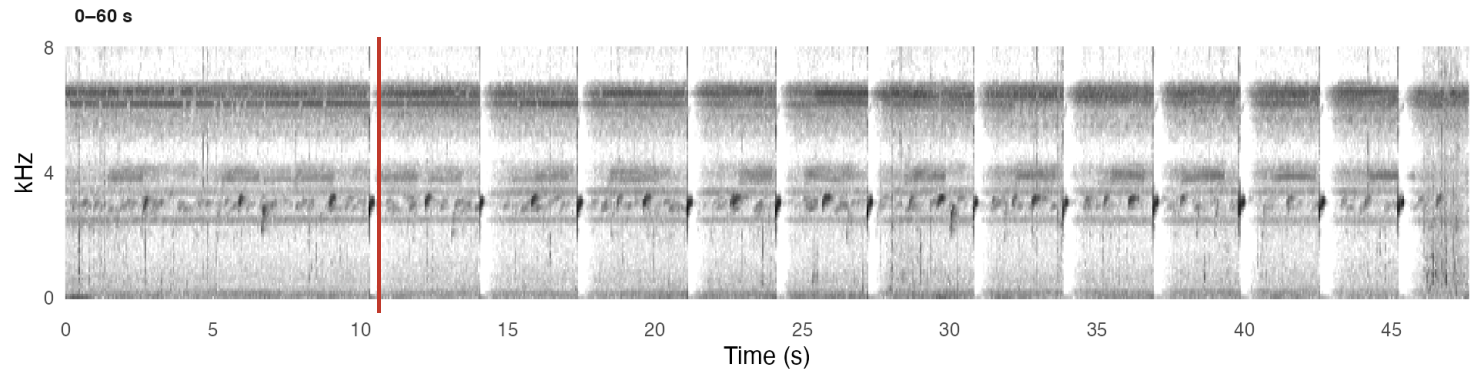


▶ play speed 1× ½× ¼× ⅛× 30.0 / 45.0 s

1 good · **2** usable · **3** exclude

Grade it: file B

TJD 836 · *E. albolabris* · 47 s

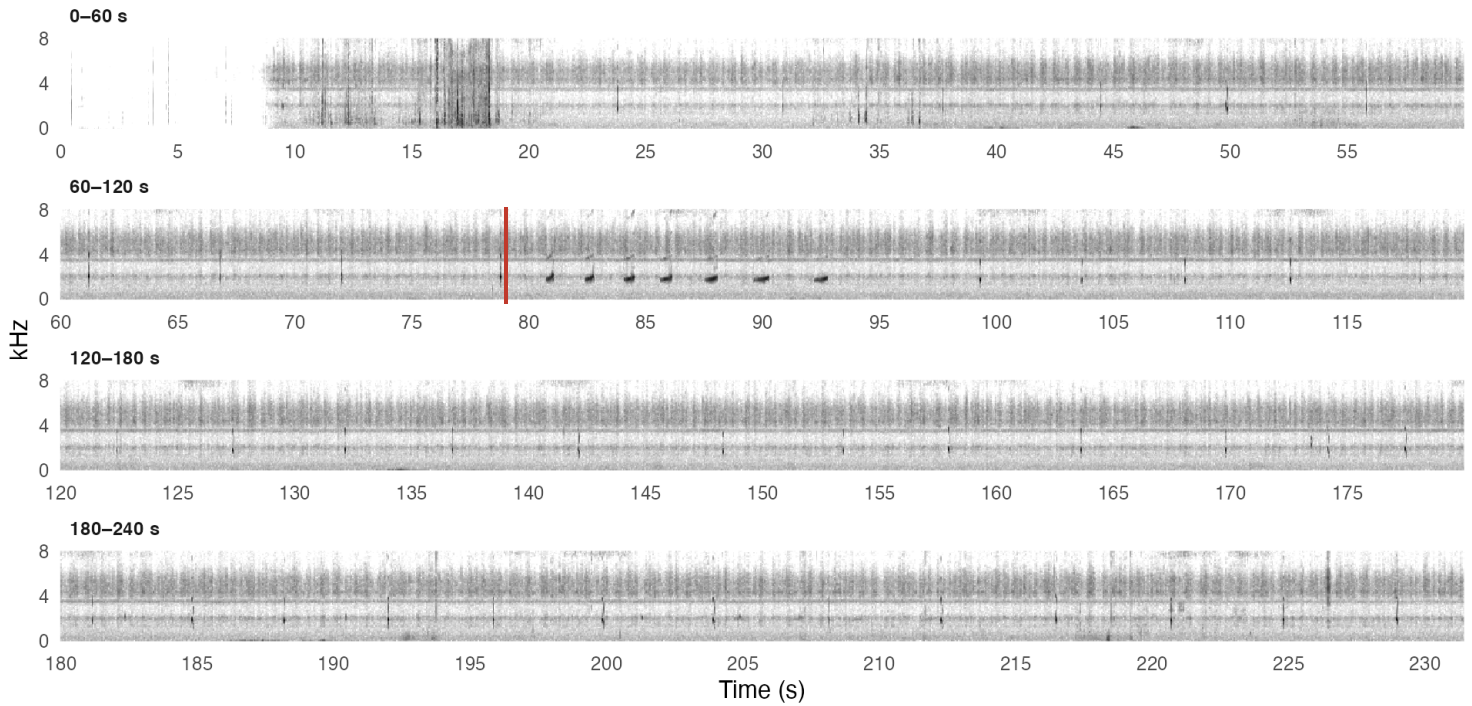


▶ play speed 1× ½× ¼× ⅛× 10.0 / 25.0 s

1 good · **2** usable · **3** exclude

Grade it: file C

TJD 981 · *E. gaigeae* · 4 min



▶ play speed 1× ½× ¼× ⅛× 78.0 / 93.0 s

1 good · **2** usable · **3** exclude

Write the grade down

One row per file in your `quality_<initials>.csv`, excluded files too.

column	what goes in it
`grade`	`good`, `usable`, or `exclude`
`n_usable_calls`	a rough count
`best_stretch`	e.g. `120–180` (seconds)
`reason`	one sentence, unless `good`
`second_grader`	a teammate who agrees with an `exclude`

One bad call inside a good file

Test each call. A call that fails ends the run.

Your team's window rule from Step 1: don't skip over a bad call.

The overview lets you pick a run that won't need to end early.

Work time

Teams 2–6, each member

1. Paste `play_wave()` and `overview()` into Setup (Tuesday's announcement)
2. `overview()` each of your files
3. Grade each one in `quality_<initials>.csv`

Team 1: keep labeling; `play_clip()` in Step 3

Stewards: check that Setup runs for everyone

Stand-ups

Two minutes per team: done, doing, stuck.

Team 1 → 6. Include how many of your files you graded, and one you'd exclude.

Exit ticket

Name one file you graded today, its grade, and the reason in one sentence.

Credits

Recordings: TJD field recordings of vouchered males. The sound pages on the site are adapted, with permission, from Araya-Salas 2025, *Bioacoustic analysis in R. E. jamesdixoni* photo: Tom Devitt.

Prepared with Claude Code (Claude Opus 5.5, Anthropic): figure script, play-along player, and first draft of the deck; Nov 3 species correction.