Bioacoustics and Passive Pollinator Monitoring

Worksheet

Part 1: Insect sounds in research

4 points

Follow Part 1 of the instructions and read the news article on buzzdetect here: https://entomologytoday.org/2026/02/24/buzzdetect-open-source-bioacoustics-listening-pollinators/

Question 1.1

4 points

Address the following in a *minimum* of four sentences total:

- Why is passive acoustic monitoring useful? What issue does this solve for researchers?
- What sorts of research questions can be answered with acoustic bee monitoring?
- Outside of academic research, how could bioacoustic monitoring tools like this be useful?

Part 2: Sound analysis

4 points

Try out the “buzzdetect live!” webapp. Read through the walkthrough (compass button in the top right corner) and try out the demo file.

Question 2.1

Follow Part 2 of the instructions to compare different samples of field recordings in *buzzdetect live!*. Fill out the table below with your answers.

File chosen	What do you hear?	What do you see in the spectrogram?	How did buzzdetect do?

Part 3: False positives

10 points

Follow Part 3 of the instructions to complete the steps for both sections below.

Field recording

Question 3.1 1 point

What location did you choose to record at? Why did you choose this location?

Question 3.2 2 points

Did your recording produce any false positives? If so, what sounds produced the detections? If not, what came the closest? Did these sound like bee buzzing to you? Would these events be likely to show up in field recordings?

Question 3.3 2 points

Attach your screenshot of your recording below or as an additional file with your submission.

Buzz like a bee

Question 3.4 1 point

On a scale of 1–5 (1 being very easy, 5 being very hard), how easy was it to trick the model into producing positives? Describe your approach.

Question 3.5 1 point

As you modulated your bee imitation, how did it affect the ins_buzz value? Did higher or lower buzzes score stronger? Raspier or softer buzzes?

Question 3.6 1 point

What was the furthest you could get from sounding like a bee while still triggering detections? Why do you think the model behaved this way?

Question 3.7 2 points

Attach your screenshot of your buzz imitation producing false positives below or as an additional file with your submission.

Note: it is technically possible to reconstruct the source audio from a screenshot of a spectrogram. Consider submitting this screenshot equivalent to submitting the raw audio - don't say anything you'll regret!