

Biologist interview questions

careertips.com.au: common questions and what they're really testing

What to expect

Biologist interviews test whether you can do the science and explain it. Panels want evidence of sound study design, careful data handling and the judgement to adapt when fieldwork or results do not go to plan. Expect questions that probe both your technical decisions and how you work with landholders, agencies and colleagues.

- **Technical and scientific knowledge:** Questions on study design, sampling methods, statistical choices, laboratory technique and how you interpret biological data.
- **Process and planning:** Walk-throughs of how you take a project from brief and permits through fieldwork, analysis and reporting.
- **Behavioural:** Past examples of dealing with failed experiments, competing priorities, difficult field conditions or disagreements over interpretation.
- **Scenario and judgement:** Hypothetical field or data problems where the panel is watching how you reason under pressure rather than the answer itself.
- **Communication and stakeholder:** How you explain technical findings to landholders, community groups, clients or policy staff who are not scientists.
- **Safety and compliance:** Permits, animal ethics approvals, biosecurity, PC2 containment and fieldwork risk assessment.

Most processes start with a short screening call with a recruiter or hiring manager, then move to a panel of the lead scientist, a peer and sometimes an HR or stakeholder representative. Panels typically run 45 to 60 minutes and often include a short presentation of your past research, followed by technical questions, a scenario or two, and behavioural questions. Government and consulting panels may add a written exercise or a second interview with the project team.

1. Walk us through how you plan and run a field survey, from the initial brief to the final dataset.

Why they ask

This is the core skill of the role. The panel wants to see that you plan systematically, account for permits and ethics, and build quality into data collection rather than fixing it later.

How to structure your answer

A staged walk-through: clarify the question and brief, then permits and approvals, then survey design and effort, then fieldwork logistics and data capture, then QA and handover. Close with what you check before you would call the dataset finished.

Example answer

"I start by pinning down the question the data has to answer and who will use it, because that drives everything else. Then I check what approvals are needed, which might include a permit under state biodiversity legislation, an animal ethics approval, site access agreements with land managers and a fieldwork risk assessment. From there I design the sampling: how many sites and plots, what effort, what stratification, and whether a pilot round is needed to test the method. In the field I use standardised datasheets or a mobile form, label and store samples for transport, and record conditions that might affect interpretation. Afterwards I run QA checks for missing values, duplicates and outliers before analysis. I would not call a dataset finished until someone else could reproduce the sampling from my notes and get comparable data."

2. Tell me about a time your data did not support the result you expected. What did you do?

Why they ask

Research rarely goes to plan. The panel is testing honesty, rigour and whether you can separate a genuine negative result from a design or measurement problem.

How to structure your answer

STAR: the situation and what you expected, the task of working out what was going on, the action you took to check the design, data and assumptions, and the result plus what changed in your practice.

Example answer

"On a vegetation monitoring project I expected a clear difference in regeneration between grazed and ungrazed plots, and the first analysis showed nothing. My instinct was to assume the treatment had not worked, but I went back and checked the data instead. I looked at the raw records and found that two surveyors had scored ground cover differently, which was swamping the signal. I re-ran the analysis with observer as a factor, retrained the team on the scoring guide using photo references, and re-surveyed the affected plots. The difference was there once the observer effect was accounted for. It changed how I work: now every field protocol I write includes calibration and a photo reference sheet before anyone starts collecting."

3. You are several weeks into a field season and your target species has not been detected at any site. How do you respond?

Why they ask

A scenario question testing judgement under pressure. The panel wants someone who thinks before acting, keeps the science defensible and communicates honestly with stakeholders.

How to structure your answer

Judgement under pressure: pause and diagnose before changing anything, work through the likely explanations in order, decide what evidence you need, then communicate the position and the options rather than pushing on blindly.

Example answer

"First I would resist the urge to change method mid-season, because that would break comparability across visits. I would work through the likely explanations: is the detection method suited to the species, is the timing or weather wrong, has the habitat changed, or has the species genuinely declined locally. I would review the first rounds of data for effort and conditions, check whether other observers are recording the same thing, and look at any nearby records for context. If the method looks sound, the non-detection is a result and I would report it as one, with the caveats. If there is a real design problem, I would document the change, tell the project lead and client early, and adjust the remaining visits consistently. Either way, stakeholders hear it from me before the final report, not after."

4. How do you decide which statistical approach to use for a given dataset?

Why they ask

Statistical modelling sits at the centre of the role. The panel wants reasoning about assumptions and fit, not a list of software packages.

How to structure your answer

Technical reasoning: state the biological question first, then the structure of the data, then the assumptions, then the choice and why, then how you check the model actually fits.

Example answer

"I start with the question, not the method, because whether I am estimating an effect, comparing groups or predicting distribution determines the approach. Then I look at the data structure: the response type, whether sampling is nested or repeated, sample size, and how much missing data"

there is. That usually points to a family of models, for example a generalised linear mixed model if there is repeated sampling across sites. I check assumptions with residual plots and diagnostics, and I am willing to drop to a simpler non-parametric approach if the data will not carry the assumptions. I work mostly in R because it handles the mixed and spatial models I need, and I keep the scripts documented so a reviewer or colleague can follow the decisions rather than just the output."

5. How would you explain a complex finding to a landholder or policy officer who is not a scientist?

Why they ask

Biologists in government, consulting and education all translate science for non-specialists. The panel is testing clarity and whether you respect the audience.

How to structure your answer

Communication structure: lead with the finding and why it matters to them, give one piece of supporting evidence in plain terms, be honest about uncertainty, then check what they need next.

Example answer

"I would lead with the point that affects them, not the method. For example, rather than describing a model, I would say that the survey found the vegetation is recovering more slowly in the paddocks that were heavily grazed, and that keeping stock off for another season is likely to help. I would give one concrete piece of evidence, such as the number of plots showing new seedlings, and I would be upfront about what we cannot tell yet and what would strengthen the picture. Then I would ask what they need from me, whether that is a short written summary, a map or a follow-up visit. If I have used a technical term, I explain it once and check it landed rather than assuming it did."

6. What permits, ethics approvals and safety requirements do you check before fieldwork or laboratory work begins?

Why they ask

Compliance is non-negotiable in biological work. The panel is checking you know the Australian regulatory landscape and that you would not put a project or a colleague at risk.

How to structure your answer

A checklist walk-through, grouped by fieldwork, samples and laboratory, then a short example of catching something before it became a problem.

Example answer

"For fieldwork I confirm the collection and research permits under the relevant state or Commonwealth legislation, any animal ethics approval if vertebrates are involved, landholder or park access approvals, and a site risk assessment covering remoteness, weather, first aid and communication. For sample handling I check biosecurity requirements and transport and storage conditions, plus chain-of-custody paperwork. In the laboratory I confirm the containment level the work requires, for example PC2 under AS/NZS 2243.3, any dealings that need Office of the Gene Technology Regulator approval, chemical and biological risk assessments, and current training for everyone involved. On one project I picked up that a permit covered a species but not the tissue sampling we had planned, so we amended the application before the season started rather than after. It cost a week upfront and saved the whole dataset."