

Role Description

Scientific Officer – Frog Bioacoustics and Machine Learning



Cluster	Department of Creative Industries, Tourism, Hospitality and Sport
Department/Agency	Australian Museum
Division/Branch/Unit	Australian Museum Research Institute / Life and Geo Sciences
Role number	51010174
Classification/Grade/Band	Scientific Officer Grade 1/2
ANZSCO Code	311413
PCAT Code	1119192
Date of Approval	January 2026
Agency Website	https://australian.museum/

Agency overview

Australian Museum (AM) is located on the homelands of the Gadigal people. The AM acknowledges and pays respect to the Gadigal people as the custodians of the land, sky and waterways, paying respect to Elders past, present.

The Australian Museum (AM) operating within the NSW Department of Creative Industries, Tourism, Hospitality and Sport cluster, is the first museum in Australia and was founded in 1827. The AM provides access, engagement and scientific research to increase our understanding of natural history and culture, particularly of the Australasian region. The AM holds more than 21 million objects of biological, geological and cultural collections and develops programs, exhibitions and school and community education initiatives onsite, online and offsite.

The AM mission is: *To ignite wonder, inspire debate and drive change.*

The AM vision is: *To be a leading voice for the richness of life, the Earth and culture in Australia and the Pacific. We commit to transform the conversation around climate change, the environment and wildlife conservation; be a strong advocate for First Nations' culture; and continue to develop world-leading science, collections, exhibitions and education programs.*

For more information, visit the [website](#).

The AM supports a diverse workforce and promotes applications from First Nation and Torres Strait Islander people. People with disabilities who meet the selection criteria are encouraged to apply; and where required, Australian Museum will implement reasonable adjustment consistent with industry standard.

Primary purpose of the role

Increase the impact of science at the Australian Museum by advancing machine learning and bioacoustic research applied to biodiversity monitoring. The role will support the Curator, Amphibian & Reptile Conservation Biology and the FrogID team in expanding machine learning capability across broader bioacoustic applications, including species identification, abundance estimation, and long-term ecological monitoring. Responsibilities include research design, scientific analysis, data preparation and annotation workflows, machine learning model development and evaluation, model monitoring, reporting, and scientific publication.

Key accountabilities

- Support and drive scientific research using machine learning to identify frog species, analyse ecological patterns and generate scientific insights from audio of calling frogs from the FrogID project, building on the Australian Museum Science Strategy.
- Under the direction from the Curator, Amphibian & Reptile Conservation Biology:
 - Develop and apply machine learning methodologies for bioacoustic analysis of audio recordings from the FrogID project.
 - Collaborate with interdisciplinary teams (i.e. biologists, data scientists), in identifying research approaches, data requirements and model development workflows.
 - Prepare and curate bioacoustic datasets to support machine learning model training, development, and evaluation.
 - Design, prepare and assist machine learning model development including training, evaluation and tuning of models.
 - Conduct scientific communication, including leading the production of scientific manuscripts.
 - Liaise with external experts and research partners to share knowledge, align approaches, and strengthen research impact regarding the use of machine learning in bioacoustic analysis.
 - Provide advice to the FrogID team on the use of machine learning in frog bioacoustics.

Key challenges

- Under direction from the Curator, Amphibian & Reptile Conservation Biology, prioritise complex tasks associated with a broad range of projects with overlapping and competing time frames.
 - Balancing immediate analytical needs with long-term strategic work, including addressing emerging scientific questions.
 - Communicate often complex scientific and technical information to varied audiences.

Key relationships

Internal

Who	Why
Head of Life & Geosciences	<ul style="list-style-type: none"> • Escalate issues, keep informed, advise and receive instructions. • Manage and provide regular updates on key administrative and operational projects, issues and priorities. • Respond to requests for input on key issues
Group Manager	<ul style="list-style-type: none"> • Negotiate overall direction on priorities in consultation with the Curator of Amphibian and Reptile Conservation Biology • Respond to requests for management, research and budget information
Curator, Amphibian & Reptile Conservation Biology	<ul style="list-style-type: none"> • Act under direction on research project activities to achieve contracted research outputs.
Director, AMRI, Chief Scientist, and Director & CEO, Australian Museum	<ul style="list-style-type: none"> • Provide expert advice, assistance and support
Museum Staff (Agency Staff)	<ul style="list-style-type: none"> • Provide services that support organisational objectives • Liaison with collections staff to ensure registration and curation of material collected for the project.

External

Who	Why
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Project Partners	<ul style="list-style-type: none"> • Liaison with project collaborators and contractors. • Assist Curator of Amphibian and Reptile Conservation Biology to deliver contractually agreed outputs.
General public	<ul style="list-style-type: none"> • Communicate importance of science and the work of the Australian Museum. • Assist Curator of Amphibian and Reptile Conservation Biology in responding to machine learning science enquiries.

Role dimensions

Decision making

This role has limited autonomy and makes decisions under their direct control and refers to the team leader decisions that require significant change to outcomes or timeframes; are likely to escalate or require submission to a higher level of management. This role is accountable for the delivery of work assignments on time and to expectations in terms of quality, deliverables and outcomes

Reporting line

Curator, Amphibian & Reptile Conservation Biology

Direct reports

Nil

Budget/Expenditure

Nil

Key knowledge and experience

- Strong background in data engineering and machine learning, with an interest in biodiversity conservation.
- Demonstrated ability to analyse and interpret bioacoustic data.
- Proven ability to prepare scientific publications and to present research to wide audiences.
- Competence in programming languages such as Python, MATLAB or R, with experience applying modern machine learning and signal processing frameworks (e.g. PyTorch, TensorFlow, scikit-learn).
- Strong and up-to-date understanding of machine learning concepts relevant to bioacoustics.
- Strong analytical and problem-solving skills.
- Experience collaborating within multidisciplinary research environments and adapting technical solutions to science-driven research questions.

Essential requirements

- Postgraduate degree in Biological or Mathematical Sciences or Engineering or equivalent experience and strong background relevant to the Museum's [research priorities](#)

Capabilities for the role

The [NSW public sector capability framework](#) describes the capabilities (knowledge, skills and abilities) needed to perform a role. There are four main groups of capabilities: personal attributes, relationships, results and business enablers, with a fifth people management group of capabilities for roles with managerial responsibilities. These groups, combined with capabilities drawn from occupation-specific capability sets where relevant, work together to provide an understanding of the capabilities needed for the role.

The capabilities are separated into focus capabilities and complementary capabilities



Focus capabilities

Focus capabilities are the capabilities considered the most important for effective performance of the role. These capabilities will be assessed at recruitment.

The focus capabilities for this role are shown below with a brief explanation of what each capability covers and the indicators describing the types of behaviours expected at each level.

Focus capabilities






Capability group/sets	Capability name	Behavioural indicators	Level
 <p>Personal Attributes</p>	<p>Display Resilience and Courage</p> <p>Be open and honest, prepared to express your views, and willing to accept and commit to change</p>	<p>Be flexible and adaptable and respond quickly when situations change</p> <p>Offer own opinion and raise challenging issues</p> <p>Listen when ideas are challenged and respond appropriately</p> <p>Work through challenges</p> <p>Remain calm and focused in challenging situations</p>	Intermediate
 <p>Relationships</p>	<p>Communicate Effectively</p> <p>Communicate clearly, actively listen to others, and respond with understanding and respect</p>	<p>Focus on key points and speak in plain English</p> <p>Clearly explain and present ideas and arguments</p> <p>Listen to others to gain an understanding and ask appropriate, respectful questions</p> <p>Promote the use of inclusive language and assist others to adjust where necessary</p> <p>Monitor own and others' non-verbal cues and adapt where necessary</p> <p>Write and prepare material that is well structured and easy to follow</p> <p>Communicate routine technical information clearly</p>	Intermediate
 <p>Relationships</p>	<p>Commit to Customer Service</p> <p>Provide customer-focused services in line with public sector and organisational objectives</p>	<p>Focus on providing a positive customer experience</p> <p>Support a customer-focused culture in the organisation</p> <p>Demonstrate a thorough knowledge of the services provided and relay this knowledge to customers</p> <p>Identify and respond quickly to customer needs</p> <p>Consider customer service requirements and develop solutions to meet needs</p> <p>Resolve complex customer issues and needs</p> <p>Cooperate across work areas to improve outcomes for customers</p>	Adept
 <p>Relationships</p>	<p>Work Collaboratively</p> <p>Collaborate with others and value their contribution</p>	<p>Build a supportive and cooperative team environment</p> <p>Share information and learning across teams</p> <p>Acknowledge outcomes that were achieved by effective collaboration</p> <p>Engage other teams and units to share information and jointly solve issues and problems</p> <p>Support others in challenging situations</p> <p>Use collaboration tools, including digital technologies, to work with others</p>	Intermediate






	<p>Deliver Results Achieve results through the efficient use of resources and a commitment to quality outcomes</p>	<p>Seek and apply specialist advice when required Complete work tasks within set budgets, timeframes and standards Take the initiative to progress and deliver own work and that of the team or unit Contribute to allocating responsibilities and resources to ensure the team or unit achieves goals Identify any barriers to achieving results and resolve these where possible Proactively change or adjust plans when needed</p>	Intermediate
	<p>Technology Understand and use available technologies to maximise efficiencies and effectiveness</p>	<p>Demonstrate a sound understanding of technology relevant to the work unit, and identify and select the most appropriate technology for assigned tasks Use available technology to improve individual performance and effectiveness Make effective use of records, information and knowledge management functions and systems Support the implementation of systems improvement initiatives, and the introduction and roll-out of new technologies</p>	Adept

Complementary capabilities

Complementary capabilities are also identified from the Capability Framework and relevant occupation-specific capability sets. They are important to identifying performance required for the role and development opportunities.

Note: capabilities listed as 'not essential' for this role are not relevant for recruitment purposes however may be relevant for future career development.

Capability group/sets	Capability name	Description	Level
	Act with Integrity	Be ethical and professional, and uphold and promote the public sector values	Foundational
	Manage Self	Show drive and motivation, an ability to self-reflect and a commitment to learning	Foundational
	Value Diversity and Inclusion	Demonstrate inclusive behaviour and show respect for diverse backgrounds, experiences and perspectives	Foundational
	Influence and Negotiate	Gain consensus and commitment from others, and resolve issues and conflicts	Foundational
	Plan and Prioritise	Plan to achieve priority outcomes and respond flexibly to changing circumstances	Intermediate

	Think and Solve Problems	Think, analyse and consider the broader context to develop practical solutions	Foundational
	Demonstrate Accountability	Be proactive and responsible for own actions, and adhere to legislation, policy and guidelines	Foundational
	Finance	Understand and apply financial processes to achieve value for money and minimise financial risk	Foundational
	Procurement and Contract Management	Understand and apply procurement processes to ensure effective purchasing and contract performance	Foundational
	Project Management	Understand and apply effective planning, coordination and control methods	Foundational