Grace Smith

Ecological genetics | Illustration | Science communication
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I'm a PhD researcher in ecological genetics, using genetic data to answer ecological questions. My thesis project looks at K'gari's peatland ecosystems, using eDNA metabarcoding, population genetics, and transcriptomics to document their invertebrate assemblages. I genuinely enjoy the challenge of distilling complex information and have exhibitions and awards in both visual and verbal communication. I tutor at the University of the Sunshine Coast in climate change, environmental economics, invertebrate biology, and evolution, and am involved in several science outreach and education programs for school, university, and community groups. I'm interested in the overlap between science, education, and communication.

Teaching Philosophy

Education should be accessible and engaging to people of all backgrounds. I focus on a down-to-earth, student-driven approach, fostering a space where students feel safe to engage, ask questions, and build confidence.

Student testimonials:

"Hands down, Grace was the one of the best things about the course. She was absolutely brilliant; were highly knowledgeable about the content and presented it engagingly. She really cared about helping the students and making sure every student was able to achieve their goal for the course. 10/10, I would love to have her be my tutor again for another course."
Climate change adaptation and mitigation student, 2024

"Grace did a fantastic job teaching the course materials and was great at explainging when things didnt make sense the first time around. She put in a lot of effort to make sure that everyone despite differences in skill level were comfortable."
Environmental economics student, 2025

Relevant Work History

Sessional academic, University of the Sunshine Coast **2022-current**

- Leading weekly seminars, tutorials, and laboratory classes for Climate Change Adaptation and Mitigation (ENS204) and Environmental Economics (ENS300).
- Demonstrating weekly seminars, laboratory classes, and field trips for Invertebrate Biology and Ecology (ENS213) and Animal Form, Function and Evolution (ANM104).
- Marking assignments and exams for all above courses.

Presenter, MindSET-do **2022-current**

- Designing, developing and presenting various lessons on citizen science, ecology, brain health, chemistry and robotics at high schools between Gympie, Goomeri, and Brisbane.
- Developing and running an 8-month STEM course homeschool students, covering 10 independent programs on robotics, citizen science, machine learning and more.
- Running incursion days with students grades 2-5 at primary schools between Maryborough and Caboolture, teaching about coding, game design and jobs in STEM.
- Delivering PD sessions and support training to other staff in the delivery of the programs I've developed or helped to develop, including programming, virtual reality and citizen science.

Science Illustration Commissions **2022-current**

- Commissions via environmental groups including the Ecological Society of Australia, Birdlife Australia, Oceanic Chondrichthyan Society, Frontier Labs, Wildlife SEQ and others.
- Works exhibited in *Wildflowering by Design* local artist contribution, Caloundra Regional Art Gallery, celebrating the local diversity of wildflowers on the Sunshine Coast.
- Leading science nature journalling workshops with community groups via *Wild/flower Women*.
- Digital illustrations for two educational Instagram reels for Birdlife Australia the podcast Death by Birding, which received over 1.2 million and 71 thousand views respectively.

Intern, Noosa Parks **2024-2025**

- Monitoring the recovery of Noosa heathland's flora and aquatic macroinvertebrates following routine planned burns.
- Constructing a technical report to provide support for burning practices, as well as public communications (brochures and community engagement days) to raise support and awareness of the importance of conducting routine burns.

Contractor, Mary River Catchment Coordinating Committee **2025**

- Contract presenting for citizen science outreach program, Find a Frog in February
- Presenting information sessions at rural primary schools and community groups in the Mary River region and running nighttime "Find a Frog" citizen science events.

Laboratory Technician, University of the Sunshine Coast **2020-2022**

- Regular maintenance, feeding and cleaning of the freshwater aquaculture facilities at UniSC.
- Training other staff to maintain the facilities.

Education, Training and Certificates

Doctor of Philosophy (Ecology), University of the Sunshine Coast **2023-2026**

- Using biomolecular tools (eDNA, population genetics, transcriptomics) to answer ecological questions of inter- and intra-species diversity in the pyrophilic peatlands of southeast QLD.
- Threatened species/national parks permit applications, organising and conducting intensive fieldwork, lab skills across a range of molecular techniques, statistics and graphing in R.

Conferences and awards:

- Recipient of the Rotary Postgraduate Scholarship for Excellence in Science Research.
- People's choice and overall winner of three-minute thesis (3MT) 2024; Asia-Pacific finalist.
- International and local conference presentations including the Crustacean Society's Summer Meeting, 2025; Australian and New Zealand Society for Comparative Physiology and Biochemistry, 2025; Voices of K'gari, 2025, University of the Sunshine Coast Research Showcase 2023, 24, & 25, and Australian Ecological Society, 2024 & 25.
- Australian Ecological Society poster competition 1st place 2024 and 2nd place 2025.

Bachelor of Science (Honours), University of the Sunshine Coast **2022**

- Graduated with first class honours in biotechnology
- Thesis published in open access Q1 journal.
- Presented at the 2022 Australian Marine Science Association conference in Cairns.

Bachelor of Animal Ecology, University of the Sunshine Coast **2021**

- Graduated with a cumulative GPA 6.4 and received University Commendation for Academic Excellence.
- Recipient of the Vice Chancellors Merit Scholarship.

CPR, First Aid, Mental Health First Aid, Working with Children (Blue Card)
Open C-class license, 4WD Certified and PADI open water dive licence
Certificate III in Outdoor Recreation, Certificate I in Business

Volunteering positions and presentations

Team leader, Cooloola Bioblitz **2024-2025**

- Delivering workshops on local fauna and identifying species during the annual Cooloola Bioblitz citizen science event and running science experiments at the night market scientist petting zoo.

Coolum Art Project **2025**

- Developing animations and projection art to be used in local art exhibitions showcasing work by students at local high schools.
- This was a volunteer role creating stop-motion animations with students to use in the event.

Wildlife HQ Zoo **2021-2022**

- Volunteer position preparing diets, photographing animal encounters and cleaning enclosures.

Other Guest Presentations

- EcoLaboration: careers day events
- Noosa Parks Association: Australian Crayfish and Where to Find Them
- Animal Ecology Seminar Series: The Molecular Biologist's Guide to the Peat Swamps of SEQ
- 7 Local News, ABC Local Radio and other local news outlets – Threatened Species Week, Find a Frog in February citizen science program, local crayfish discoveries, etc.

Publications

Smith, G.; Glendinning, S.; Ventura, T. Transcriptomic Changes Following Induced De-Masculinisation of Australian Red Claw Crayfish Cherax quadricarinatus. Int. J. Mol. Sci. 2023, 24, 3292. https://doi.org/10.3390/ijms24043292 (Impact factor 6.2)

Yule, C.; Chalmers, G.; … **Smith, G**.; et al. Unique Australian Fire Adapted Peatlands. Annual Meeting of The Association for Tropical Biology and Conservation. 2024

Yule, C.; **Smith, G.**; Toh, E.; Altieri, P.; Scully, O.; Elliott, B. Carbon sequestration in subtropical regional peat swamps and the impact of fires. University of the Sunshine Coast. 2023. ID 991044298502621

Papers for submission/under review:

Grace Smith, C. Yule. T. Ventura. Review: Biodiversity and functional ecology of the pyrophilic subtropical peatlands of Eastern Australia

Grace Smith, C. Yule. T. Ventura. eDNA metabarcoding reveals invertebrate diversity in the blackwater pools of southeast Queensland peatlands

Grace Smith, C. Yule. T. Ventura. Pleistocene legacies in the contemporary population genetic structure of an acid-specialised crayfish, the threatened sand yabby *Cherax robustus*.

Referees

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