Todd M. Ellis

DATA ANALYST & STATISTICAL PROGRAMMER

Greater Hobart Region, Tasmania, Australia
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PROFESSIONAL SUMMARY

I'm a data analyst and scientist with a background in forest ecology, physical geography, and higher education. I've worked as an analyst in a wide variety of laboratory, field, and office settings across the United States and Australia. Over the course of my career, I've developed novel mathematical tools and statistical models; maintained relational databases and statistical packages used for conducting data analysis and producing standardized reports; trained countless staff, students, and volunteers; and managed complex and critical projects. My research has been published in high-impact, peer-reviewed journals, and I'm also skilled at conveying complex data and information to both casual and experienced stakeholders.

EDUCATION

Doctor of Philosophy, Biological Sciences   *Sandy Bay, TAS, Australia*
UNIVERSITY OF TASMANIA   *2019 - present*
- Dissertation: Dynamic mapping and analysis of New South Wales fire regimes: Past, present, and future
- Supervisors: Drs. Grant J. Williamson and David M.J.S. Bowman

Master of Science, Geography   *Bellingham, WA, USA*
WESTERN WASHINGTON UNIVERSITY   *2013 - 2016*
- Thesis: Climatic drivers of western spruce budworm outbreaks in the Okanogan Highlands
- Supervisor: Dr. Aquila Flower

Bachelor of Science, Physical Geography / Geology   *San Marcos, TX, USA*
TEXAS STATE UNIVERSITY   *2007 - 2012*

PROFESSIONAL EXPERIENCE

Data Insights Analyst   *Sandy Bay, TAS, Australia*
UNIVERSITY OF TASMANIA: DIVISION OF FUTURE STUDENTS (FULL-TIME)   *2023-01 - present*
- Developing novel student admissions tools and processes using novel data and modelling
- Leading development and modelling on higher education programs actively improving equity of access for potential applicants
- Providing insights and consulting to university stakeholders across the institution

Adjunct Researcher   *Sandy Bay, TAS, Australia*
UNIVERSITY OF TASMANIA: COLLEGE OF SCIENCES AND ENGINEERING (FULL-TIME)   *2019-09 - 2023-03*
- Developed complex data-processing and analysis pipelines using high-performance computing and big data
- Oversaw multi-year projct design and implementation addressing wildfire and global climate change challenges
- Managed custom platform for interactive web-mapping, on-the-fly statistical analyses, and novel data visualisation
- Collaborated with national and international research teams tackling climate change risk and mitigation

Data Analyst   *Sandy Bay, TAS, Australia*
UNIVERSITY OF TASMANIA: DIVISION OF FUTURE STUDENTS (PART-TIME / FULL-TIME)   *2021-02 - 2023-01*
- Developed statistical models and tools for meeting target university milestones
- Managed design and implementation of broad-scale university ML models for directing future university marketing, funding, and course creation
- Designed and implemented programming and data analytics training seminars for institution staff
- Oversaw development of internal reporting and statistical packages
- Processed, analysed and reported data to promote and review university programs

Sustainability Analyst   *Sandy Bay, TAS, Australia*
UNIVERSITY OF TASMANIA: DIVISION OF FUTURE STUDENTS (CASUAL)   *2019-10 - 2021-02*
- Processed, analysed, and reported data to promote and review institution programmes
- Developed pipelines for automating data cleaning and collation
- Prepared data and briefings for global institution rankings
- Promoted nation-wide sustainability targets using data dashboards and reports

Data & GIS Analyst

Austin, TX, USA

APEX SYSTEMS: APPLE, INC. (CONTRACT)

2018-12 - 2019-05

- Developed and standardised data-processing methods for vector and multispectral raster datasets
- Managed and processed corporate GIS databases using data-driven software and programming languages
- Prepared statistical summaries, models, and analytical reports
- Led research and development projects to define novel methodologies for geospatial data
- Collaboratd with a global network of analysts and technicians

Faculty Research Assistant

Wenatchee, WA, USA

OREGON STATE UNIVERSITY: USDA FOREST SERVICE FORESTRY SCIENCES LABORATORY (CONTRACT)

2017-11 - 2018-06

- Converted complex data and findings into academic and government reports
- Developed explanatory models for sustainable forest management under climate change
- Created and maintained relational databases for government research
- Gathered and analysed ecological data using statistical software

Biological Science Technician II

Ridgefield, WA, USA

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE: REGION 5 (CONTRACT)

2017-08 - 2017-11

- Applied QA/QC to develop electronic biological data collection system and relational database
- Analysed biological fisheries data for state government research reporting
- Collected and recorded biological data for government research and both commercial and tribal fisheries
- Designed, built, and maintained department, fisheries, and commercial research equipment
- Conducted outreach to the public, providing information on fisheries research, management principles, and local regulations
- Monitord critical fish migrations using DNA sampling and the PTAGIS coordination project
- Received training in fish, plant, and organism identification, government safety procedures, boat operation, and defensive driving

Substitute Teacher

Kelso, WA, USA

KELSO SCHOOL DISTRICT: BEACON HILL ELEMENTARY SCHOOL (CASUAL)

2017-01 - 2017-08

- Taught a variety of classrooms, with a focus on K-5 primary education, special education, and LAP classrooms using specialised learning plans
- Engaged young students with an interest in scientific research, giving special outreach presentations
- Helped integrate and refine special education lesson plans as an instructional assistant

Graduate Teaching Assistant

Bellingham, WA, USA

WESTERN WASHINGTON UNIVERSITY: HUXLEY COLLEGE OF THE ENVIRONMENT (FULL-TIME)

2013-08 - 2016-06

- Conceptualised, developed, and published novel dendroecological research
- Presented research findings at national academic conferences
- Coordinated and taught laboratory classrooms for analytical GIS, remote sensing, and research methodology
- Trained and led teams of students in the safe use of field and laboratory equipment in inclement weather and rough terrain
- Scripted statistical methods for identifying complex ecological and climatological relationships
- Presided over and maintained the Huxley Tree Ring Laboratory
- Coordinated international travel and classrooms for students and participating agencies
- Edited and performed technical reviews of student research papers at the developmental, substantive, and line level
- Classes taught: Remote Sensing (ESCI 442), Introduction to GIS (ENVS 320), Computer Cartography (ENVS 321), Research and Writing (ENVS 319), Environmental Data and Information (ENVS 201), Environmental History and Ethics (ENVS 305), Physical Geography (ENVS 203), the Soil Environment and Landscapes (ENVS 427), Water Resources (ENVS 427), Agroecology and Sustainable Agriculture (ENVS 410), Food Cultures of Italy (ENVS 497), and Ecogastronomy (ENVS 110)

Research Engineer

Austin, TX, USA

THE UNIVERSITY OF TEXAS AT AUSTIN: TEXAS NATURAL SCIENCE CENTER (CONTRACT)

2013-04 - 2013-08

- Compiled, georeferences, and managed academic collections and geospatial databaes
- Contributed historial species range data to statewide virtual biodiversity museum
- Reconstructed historical biodata collections and events

Trail Management Intern

Angeles National Forest, CA, USA

STUDENT CONSERVATION ASSOCIATION: USDA FOREST SERVICE, REIGON 5 (INTERNSHIP)

2013-01 - 2013-04

- Co-managed Trails Assessment and Conditions Survey (TrACS) team
- Conducted detailed survey of fire damage to public roads and trail systems
- Assisted in infrastructure restoration projects to maximise public access benefits
- Received national government-sponsored training in defensive driving

Laboratory Assistant

Austin, TX, USA

THE UNIVERSITY OF TEXAS AT AUSTIN: TEXAS NATUAL SCIENCE CENTER (INTERNSHIP)

2012-08 - 2013-01

- Catalogued, conserved, photographed, and archived acadmic fish and fossils collections
- Maintained and updated relational database management system for institution collections
- Trained volunteers and students in laboratory safety and inventory procedures

Laboratory Assistant *San Marcos, TX, USA*
TEXAS STATE UNIVERSITY: DEPARTMENT OF GEOGRAPHY (INTERNSHIP) *2012-08 - 2012-12*

- Established geology and palaeontology laboratories for the university
- Prepared vertebrate fossils for laboratory use and public display
- Trained volunteers in laboratory procedures and sample preparation techniques
- Organised and led field exercises for sample collections and cleanings
- Captured and processed ichnological and palaeontological data using Structure from Motion
- Curated departmental fossils and rock collections

VOLUNTEER EXPERIENCE

Foster Parent *Hobart, TAS, Australia*
TEN LIVES CAT CENTRE *2020-05 - present*

Animal Handler *New Braunfels, TX, USA*
HUMANE SOCIETY OF THE NEW BRAUNFELS AREA *2018-08 - 2019-01*

Animal Handler *Wenatchee, WA, USA*
WENATCHEE VALLEY HUMANE SOCIETY *2018-03 - 2018-08*

Technology Tutor *Wenatchee, WA, USA*
NORTH CENTRAL REGIONAL LIBRARY *2018-01 - 2018-08*

Geographic Information Systems Technician *Portland, OR, USA*
PORTLAND STATE UNIVERSITY *2017-01 - 2017-11*

Assistant Librarian *Kelso, WA, USA*
BEACON HILL ELEMENTARY SCHOOL *2017-01 - 2017-11*

Technology Tutor *Bellingham, WA, USA*
BELLINGHAM PUBLIC LIBRARY *2014-07 - 2016-08*

Laboratory Assistant *Austin, TX, USA*
THE UNIVERSITY OF TEXAS AT AUSTIN *2012-01 - 2012-07*

Laboratory Assistant *San Marcos, TX, USA*
TEXAS STATE UNIVERSITY *2011-03 - 2012-07*

PUBLICATIONS

JOURNAL ARTICLES

2022-10 — **Double-differenced dNBR: Combining MODIS and Landsat imagery to map fine-grained fire mosaics in lowland Eucalyptus savanna in Kakadu National Park, northern Australia**
Fire. https://doi.org/10.3390/fire5050160

2022-02 — **Global increase in wildfire risk due to climate-driven declines in fuel moisture**
Global Change Biology. https://doi.org/10.1111/gcb.16006

2017-09 — **A multicentury dendrochronological reconstruction of western spruce budworm outbreaks in the Okanogan Highlands, northeastern Washington**
Canadian Journal of Forest Research. https://doi.org/10.1139/cjfr-2016-0399

THESES

2016-06 — **Climatic Drivers of Western Spruce Budworm Outbreaks in the Okanogan Highlands**
Western Washington University. https://doi.org/10.25710/d4xw-5825

OPEN-ACCESS DATA

2022-10 — **Double-differenced dNBR: Combining MODIS and Landsat imagery to map fine-grained fire mosaics in lowland Eucalyptus savanna in Kakadu National Park, northern Australia**
figshare. https://doi.org/10.6084/m9.figshare.21259524

2021-11 — **Global ERA5 fuel moisture trends 1979 - 2019**
figshare. https://doi.org/10.6084/m9.figshare.16794727

SOFTWARE

2021-11 **utaspptx**: Simple methods for producing themed reports and presentations in Microsoft Office software
GitHub. private

2021-08 **miao**: Custom exploratory data analysis and statistical tools
GitHub. https://github.com/toddellis/miao

2021-05 **utastoolkit**: Tools for accessing and reporting internal University data from the Enterprise Data Warehouse
GitHub. private

CONSULTING

RESEARCH

2020-08 **Predicting fire behaviour using historical satellite imagery**
Frontier Development Lab
AUD$1,000

2019-06 **Post-fire logging effects on reburn severity**
USDA Forest Service
USD$2,500

2018-08 **Restoration treatment effects on ponderosa pine growth sensitivity to climate**
USDA Forest Service
USD$2,500

MANUSCRIPT REVIEWER

Earth's Future (since 2022-09)

Fire Ecology (since 2019-01)

Global Change Biology (since 2022-10)

New Phytologist (since 2022-11)

OUTREACH

CONFERENCES AND PRESENTATIONS

2022-12 **Removing Barriers and transforming access to tertiary education: The Schools Recommendation Program in Tasmania**
Australasian Association for Institutional Research Forum 2022
Macquarie Park, NSW

2022-09 **Schools Recommendation Program Overview**
University of Tasmania Lunch & Learn
Sandy Bay, TAS

2022-06 **Dynamic mapping and analysis of fire regimes, past, present, and future**
Bushfire Risk Management Research Hub Showcase 2022 (poster)
Wollongong, NSW

2022-02 **Intro to sentiment analysis in R**
University of Tasmania Lunch & Learn
Sandy Bay, TAS

2021-10 **Tasmanian Analytics Project**
University of Tasmania and Department of Education Lunch & Learn
Sandy Bay, TAS

2021-05 **Fuel moisture trend tool**
Bushfire Risk Management Research Hub Researchers' Meeting 2021 (poster)
Wollongong, NSW

2020-03 **Changes in moisture availability drive fire risk**
Bushfire Risk Management Research Hub Researchers' Meeting 2020 (presentation)
Wollongong, NSW

2016-04 **Controlling factors of spruce budworm outbreaks in the Okanogan Highlands**
American Association of Geographers Annual Meeting 2016 (presentation)
San Francisco, CA

2014-07 **Climate responses of *Pseudotsuga menziesii* and *Pinus flexilis* in the Greater Yellowstone (USA)**
North American Dendroecological Fieldweek 2014 (presentation)
Cody, WY

2014-04 **Perceptions of risk in Bellingham, Washington**
Association of Washington Geographers Spring Meeting 2014
Seattle, WA

PRESS

2021-10 **Bushfire research team awarded prestigious Eureka Prize**
University of Tasmania (article)

COURSEWORK

2020-07	**Dynamic mapping and analysis of New South Wales fire regimes: Past, present and future**	*Sandy Bay, TAS*
	University of Tasmania Graduate Seminars	
2016-06	**Climatic Drivers of western spruce budworm outbreaks in the Okanogan Highlands**	*Bellingham, WA*
	Western Washington University Graduate Defense (presentation)	
2014-05	**Controlling factors of spruce budworm outbreaks in the Okanogan Highlands**	*Bellingham, WA*
	Western Washington University Graduate Seminars	
2014-05	**Mapping alpine treeline: A comparative analysis of Structure-from-Motion and LiDAR techniques using digital aerial imagery**	*Bellingham, WA*
	Western Washington University EGEO 504: Geographic Methods & Techniques (presentation)	
2013-12	**Biogeographic implications of Structure-from-Motion imagery**	*Bellingham, WA*
	Western Washington University EGEO 501: History and Philosophy of Geography (paper)	
2012-05	**Wildfire hazard data for the Yellowstone National Park Ecosystem: 1987-1988**	*San Marcos, TX*
	Texas State University GEO 4412: Digital Remote Sensing (presentation)	
2012-04	**Cretaceous-aged fossiliferous outcrops of the Big Bend region**	*San Marcos, TX*
	Texas State University GEO 4310: Regional Field Studies (paper)	
2011-12	**Predator-prey relations in the Greater Yellowstone Ecosystem**	*San Marcos, TX*
	Texas State University GEO 4316: Landscape Biogeography (presentation)	

HONOURS

AWARDS

2022-11	**Future Students Staff Excellence 2022 Sustainability Award**	*AUD$50*
	University of Tasmania	
2021-10	**NSW Environment, Energy and Science (DPIE) Eureka Prize for Applied Environmental Research**	*AUD$10,000*
	Australian Museum	
2021-09	**Future Students Staff Excellence 2021 Sustainability Award**	
	University of Tasmania	
2021-08	**Certifi-Cat of Appreciation**	
	Ten Lives Cat Centre	
2018-06	**Best Fish and Wildlife Science**	
	Washington Department of Fish and Wildlife	
2017-10	**Conservation Award**	
	Washington Department of Fish and Wildlife	
2014-05	**Award for Outstanding Poster Presentation by a Graduate Student**	*USD$125*
	Association of Washington Geographers	

GRANTS AND SCHOLARSHIPS

2020-08	**Bushfire Data Quest 2020**	*AUD$1,000*
	Frontier Development Lab	
2019-09	**Tasmania Graduate Research Scholarship (3.5x)**	*AUD$28,000 p.a.*
	NSW Bushfire Risk Management Research Hub	
2019-09	**NSW Bushfire Risk Management Research Hub Top-Up (3.5x)**	*AUD$5,000 p.a.*
	NSW Bushfire Risk Management Research Hub	
2016-04	**Dean and Sandy Blinn Travel and Research Fund**	*USD$450*
	Western Washington University	
2016-04	**Dean's Fund for Sustainability Studies**	*USD$500*
	Western Washington University	
2014-07	**North American Dendroecological Fieldweek research fellowship**	*USD$3,000*
	North American Dendroecological Fieldweek	