



# Todd M. Ellis

DATA ANALYST & STATISTICAL PROGRAMMER

Greater Hobart Region, Tasmania, Australia

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## PROFESSIONAL SUMMARY

I'm a data analyst and early career researcher with a varied background in forest ecology, pyrogeography, climate change, geospatial science, and higher education. I've worked as an analyst and researcher in a variety of laboratory, field, and office settings throughout 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 in institutional policies and procedures, as well as methodological approaches to statistical analysis; and managed both complex and transformative projects for higher education, government agencies, and private industry. 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.

As at 2023-09-04, I have 3 peer-reviewed publications including 2 first-author publications. I have received a total of 48 or 63 citations with an h-index of 3 or 2 based on Scopus and Google Scholar, respectively.

## 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 and 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

- Managing the development and implementation of a transformative statewide program to improve equity of access to higher education
- Leading the development of statistical models and reporting tools for managing offers and course quotas
- Streamlining and automating the higher education admissions system for school leavers
- Providing insights and consultations to institutional and external stakeholders

### 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 project 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
- Collaborated 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
- Monitored 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, georeferenced, and managed academic collections and geospatial databases
- Contributed historical 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, REGION 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 NATURAL SCIENCE CENTER (INTERNSHIP)

2012-08 - 2013-01

- Catalogued, conserved, photographed, and archived academic 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

## PUBLICATIONS

### JOURNAL ARTICLES

- Williamson, G.J., **Ellis, T.M.**, and Bowman, D.M.J.S. (2022). 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*, 5(5), 160. [doi:10.3390/fire5050160](https://doi.org/10.3390/fire5050160) 3 citations
- Ellis, T.M.**, Bowman, D.M.J.S., Jain, P., Flannigan, M.D., and Williamson, G.J. (2022). Global increase in wildfire risk due to climate-driven declines in fuel moisture. *Global Change Biology*, 28(4), 1544-1559. [doi:10.1111/gcb.16006](https://doi.org/10.1111/gcb.16006) 40 citations
- Ellis, T.M.**, and Flower, A. (2017). A multicentury dendrochronological reconstruction of western spruce budworm outbreaks in the Okanogan Highlands, northeastern Washington. *Canadian Journal of Forest Research*, 47(9), 1266-1277. [doi:10.1139/cjfr-2016-0399](https://doi.org/10.1139/cjfr-2016-0399) 5 citations

### THESES

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

### OPEN-ACCESS DATA

- 2023-08 **Ecoregion flammability thresholds: The global pyrogeography of dead fine fuel moisture content as a driver for wildfire activity**  
*University of Tasmania*. [doi:10.25959/rbk3-5d65](https://doi.org/10.25959/rbk3-5d65)
- 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*. [doi:10.6084/m9.figshare.21259524](https://doi.org/10.6084/m9.figshare.21259524)
- 2021-11 **Global ERA5 fuel moisture trends 1979 - 2019**  
*figshare*. [doi:10.6084/m9.figshare.16794727](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

**Climatic Change** (since 2023-06)

**Earth's Future** (since 2022-09)

**Fire Ecology** (since 2019-01)

**Global Change Biology** (since 2022-10)

**New Phytologist** (since 2022-11)

## HONOURS

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### AWARDS

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

### GRANTS AND SCHOLARSHIPS

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

## OUTREACH

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### CONFERENCES AND PRESENTATIONS

2022-12	<b>Removing Barriers and transforming access to tertiary education: The Schools Recommendation Program in Tasmania</b> Australasian Association for Institutional Research Forum 2022	<i>Macquarie Park, NSW</i>
2022-09	<b>Schools Recommendation Program Overview</b> University of Tasmania Lunch & Learn	<i>Sandy Bay, TAS</i>
2022-06	<b>Dynamic mapping and analysis of fire regimes, past, present, and future</b> Bushfire Risk Management Research Hub Showcase 2022 ( <a href="#">poster</a> )	<i>Wollongong, NSW</i>
2022-02	<b>Intro to sentiment analysis in R</b> University of Tasmania Lunch & Learn	<i>Sandy Bay, TAS</i>
2021-10	<b>Tasmanian Analytics Project</b> University of Tasmania and Department of Education Lunch & Learn	<i>Sandy Bay, TAS</i>
2021-05	<b>Fuel moisture trend tool</b> Bushfire Risk Management Research Hub Researchers' Meeting 2021 ( <a href="#">poster</a> )	<i>Wollongong, NSW</i>
2020-03	<b>Changes in moisture availability drive fire risk</b> Bushfire Risk Management Research Hub Researchers' Meeting 2020 ( <a href="#">presentation</a> )	<i>Wollongong, NSW</i>
2016-04	<b>Controlling factors of spruce budworm outbreaks in the Okanogan Highlands</b> American Association of Geographers Annual Meeting 2016 ( <a href="#">presentation</a> )	<i>San Francisco, CA</i>
2014-07	<b>Climate responses of <i>Pseudotsuga menziesii</i> and <i>Pinus flexilis</i> in the Greater Yellowstone (USA)</b> North American Dendroecological Fieldweek 2014 ( <a href="#">presentation</a> )	<i>Cody, WY</i>
2014-04	<b>Perceptions of risk in Bellingham, Washington</b> Association of Washington Geographers Spring Meeting 2014	<i>Seattle, WA</i>

## PRESS

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

## COURSEWORK

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

## VOLUNTEER EXPERIENCE

<b>Foster Parent</b> TEN LIVES CAT CENTRE	<i>Hobart, TAS, Australia</i> 2020-05 - present
<b>Animal Handler</b> HUMANE SOCIETY OF THE NEW BRAUNFELS AREA	<i>New Braunfels, TX, USA</i> 2018-08 - 2019-01
<b>Animal Handler</b> WENATCHEE VALLEY HUMANE SOCIETY	<i>Wenatchee, WA, USA</i> 2018-03 - 2018-08
<b>Technology Tutor</b> NORTH CENTRAL REGIONAL LIBRARY	<i>Wenatchee, WA, USA</i> 2018-01 - 2018-08

**Geographic Information Systems Technician**

PORTLAND STATE UNIVERSITY

*Portland, OR, USA*

*2017-01 - 2017-11*

**Assistant Librarian**

BEACON HILL ELEMENTARY SCHOOL

*Kelso, WA, USA*

*2017-01 - 2017-11*

**Technology Tutor**

BELLINGHAM PUBLIC LIBRARY

*Bellingham, WA, USA*

*2014-07 - 2016-08*

**Laboratory Assistant**

THE UNIVERSITY OF TEXAS AT AUSTIN

*Austin, TX, USA*

*2012-01 - 2012-07*

**Laboratory Assistant**

TEXAS STATE UNIVERSITY

*San Marcos, TX, USA*

*2011-03 - 2012-07*