



Todd M. Ellis

DATA ANALYST & STATISTICAL PROGRAMMER

Hobart, Tasmania, Australia

☎ +61 466 683 552 | ✉ toddellis.wa@gmail.com

📍 toddellis | 🌐 tmichaelellis | 🐦 tootstorm | 📞 0000-0002-4410-8676 | 📺 Todd-Ellis-4

SUMMARY

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EDUCATION

Doctor of Philosophy, Biological Sciences

Sandy Bay, TAS, Australia

UNIVERSITY OF TASMANIA

2019 - 2023

- 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

- Capstone: Wildfire hazard data for the Yellowstone National Park Ecosystem: 1987 - 1988

RESEARCH EXPERIENCE

Data Analyst

Sandy Bay, TAS, Australia

UNIVERSITY OF TASMANIA: DIVISION OF FUTURE STUDENTS

2021-02 - present

- Developing models and tools for meeting university targets and KPIs using statistical and machine learning
- Managing design and implementation of broad-scale university ML models for directing future university marketing, funding, and course creation
- Designing and implementing programming and data analytics training seminars for institution staff

Adjunct Researcher

Sandy Bay, TAS, Australia

UNIVERSITY OF TASMANIA: COLLEGE OF SCIENCES AND ENGINEERING

2019-08 - present

- Overseeing multi-year project design and implementation addressing wildfire and global climate change challenges
- Managing custom platform for interactive web-mapping, on-the-fly statistical analyses, and novel data visualisation
- Developing complex data-processing and analysis pipelines using high-performance computing and big data

Sustainability Analyst

Sandy Bay, TAS, Australia

UNIVERSITY OF TASMANIA: DIVISION OF FUTURE STUDENTS

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

Data & GIS Analyst

Austin, TX, USA

APEX SYSTEMS: APPLE, INC.

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

Faculty Research Assistant

Wenatchee, WA, USA

OREGON STATE UNIVERSITY: USDA FOREST SERVICE FORESTRY SCIENCES LABORATORY

2017-11 - 2018-06

- Converted complex data and findings into understandable figures and summary reports
- Built analytical models combining multiple statistical programming languages
- Created and maintained relational databases for government research

TEACHING EXPERIENCE

Data Analyst

UNIVERSITY OF TASMANIA

Sandy Bay, TAS, Australia

2021-02 - present

- Designing and implementing programming and data analytics training seminars for institution staff
- Overseeing and contributing weekly learning and showcasing workshops

Substitute Teacher

KELSO SCHOOL DISTRICT: BEACON HILL ELEMENTARY SCHOOL

Kelso, WA, USA

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

Teaching Assistant

WESTERN WASHINGTON UNIVERSITY: THE DEPARTMENT OF ENVIRONMENTAL SCIENCES

Bellingham, WA, USA

2013-08 - 2016-06

- Coordinated and taught laboratory classrooms for analytical GIS, remote sensing, and research methodology
- Led overnight field exercises in inclement weather and rough terrain
- Coordinated international travel and classrooms for students and participating agencies
- Created and maintained GIS geodatabases and associated topologies
- 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)

INDEPENDENT RESEARCH CONSULTING

2020-08	Frontier Development Lab	Predicting fire behaviour using historical satellite imagery	AUD\$1,000
2019-06	U.S. Forest Service	Post-fire logging effects on reburn severity	USD\$2,750
2018-08	U.S. Forest Service	Restoration treatment effects on ponderosa pine growth sensitivity to climate	USD\$2,750

PUBLICATIONS

1. Ellis, T. M., Bowman, D. M. J. S., Jain, P., Flannigan, M. D., & Williamson, G. J. (2022). Global increase in wildfire risk due to climate-driven declines in fuel moisture. *Global Change Biology*, 28(4), 1544–1559. <https://doi.org/10.1111/gcb.16006>
2. Ellis, T. M., & 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. <https://doi.org/10.1139/cjfr-2016-0399>
3. Ellis, T. M. (2016). *Climatic drivers of western spruce budworm outbreaks in the Okanogan Highlands* (A. Flower, A. Bunn, & M. Medler, Eds.; p. 69) [Master's thesis, Western Washington University]. <https://doi.org/10.25710/d4xw-5825>

PACKAGES AND DATA

1. Ellis, T. M., Craig, S., & Wiseman, P. (2022). *UTaspptx: Simple methods for producing UTas-themed reports and presentations in Microsoft Office software (v. 0.0.5)*. <https://github.com/UTAS-analytics/utaspptx>
2. Ellis, T. M. (2022). *UTasToolkit: Tools for accessing and reporting internal UTas data from the enterprise data warehouse (v. 0.4.6)*. <https://github.com/UTAS-analytics/utastoolkit>
3. Ellis, T. M. (2021). *Miao: Simple data exploration and statistical tools (v. 0.1.8)*. <https://github.com/toddellis/miao>
4. Ellis, T. M., Williamson, G. J., Jain, P., Flannigan, M. D., & Bowman, D. M. J. S. (2021). *Global ERA5 fuel moisture trends 1979 - 2019*. Figshare. <https://doi.org/10.6084/m9.figshare.16794727.v3>

MANUSCRIPT REVIEWER

- Fire Ecology

HONOURS

2021-10	Australian Museum	NSW Environment, Energy and Science (DPIE) Eureka Prize for Applied Environmental Research	AUD\$10,000
2021-09	University of Tasmania	Sustainability Award	
2021-08	Ten Lives Cat Centre	Certi-Cat of Appreciation	
2020-08	Frontier Development Lab	Bushfire Data Quest 2020	AUD\$1,000
2019-09	NSW Bushfire Risk Management Research Hub	Tasmania Graduate Research Scholarship	AUD\$98,000
2019-09	NSW Bushfire Risk Management Research Hub	NSW Bushfire Risk Management Research Hub Top-Up	AUD\$17,500
2018-06	Washington Department of Fish and Wildlife	Best Fish and Wildlife Science	
2017-10	Washington Department of Fish and Wildlife	Conservation Award	
2016-04	Western Washington University	Dean's Fund for Sustainability Studies	USD\$500
2016-04	Western Washington University	Dean and Sandy Blinn Travel and Research Fund	USD\$450
2014-07	North American Dendroecological Fieldweek	North American Dendroecological Fieldweek research fellowship	USD\$3,000
2014-05	Association of Washington Geographers	Award for Outstanding Poster Presentation by a Graduate Student	USD\$125

PRESS

- 2021-10-12: Bushfire research team awarded prestigious Eureka Prize. University of Tasmania.

CONFERENCES AND PRESENTATIONS

- **Ellis, T.M.** 2021-10. Tasmania Analytics Project. Department of Education Lunch and Learn. Sandy Bay, Tasmania, Australia.
- **Ellis, T.M.** 2020-03. Changes in moisture availability drive fire risk. Bushfire Risk Management Research Hub Researchers Meeting 220. Wollongong, New South Wales, Australia.
- **Ellis, T.M.** 2016-06. Climatic Drivers of western spruce budworm outbreaks in the Okanogan Highlands. Western Washington University. Bellingham, Washington, USA.
- **Ellis, T.M.**, and Flower, A. 2016-04. Controlling factors of spruce budworm outbreaks in the Okanogan Highlands. American Association of Geographers. San Francisco, California, USA.
- Pettit, J., Stachowiak, L., Sala, A., Pinnell, S., Sykora, J., & **Ellis, T.M.** 2014-07. Climate responses of *Pseudotsuga menziesii* and *Pinus flexilis* in the Greater Yellowstone (USA). North American Dendroecological Fieldweek. Cody, Wyoming, USA.
- **Ellis, T.M.** 2014-05. Mapping alpine treeline: A comparative analysis of Structure-from-Motion and LiDAR techniques using digital aerial imagery. Western Washington University. Bellingham, Washington, USA.
- **Ellis, T.M.**, Huling, D., and McGee, C. 2014-04. Perceptions of risk in Bellingham, Washington. Association of Washington Geographers. Seattle, Washington, USA.
- **Ellis, T.M.** 2013-12. Biogeographic implications of Structure-from-Motion imagery. Western Washington University. Bellingham, Washington, USA.
- **Ellis, T.M.** 2012-05. Wildfire hazard data for the Yellowstone National Park Ecosystem: 1987-1988. Texas State University. San Marcos, Texas, USA.
- **Ellis, T.M.** 2012-04. Cretaceous-aged fossiliferous outcrops of the Big Bend region. Texas State University. San Marcos, Texas, USA.
- **Ellis, T.M.**, and McDonnell, R. 2011-12. Predator-prey relations in the Greater Yellowstone Ecosystem. Texas State University. San Marcos, Texas, USA.