

Hunter Stanke

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Education

PhD in Environmental and Forest Science

ADVISORS(S): BRIAN J. HARVEY & DAVID E. BUTMAN

University of Washington

Sep. 2020 - Present

MS in Forestry

ADVISOR(S): ANDREW O. FINLEY

Michigan State University

Jan. 2019 - Mar. 2020

BS in Forestry

HONORS COLLEGE

Michigan State University

Aug. 2016 - May 2019

Research Experience

The Harvey Lab

GRADUATE RESEARCH ASSISTANT

University of Washington

Sep. 2020 - Present

- Lead quantitative comparison of design-based (i.e., FIA), model-based (i.e., GNN), and model-assisted (i.e., FIA + GNN) estimators of forest structural restoration need across the dry and humid domains of the Pacific Northwest.
- Develop and implement design-based estimators of temporal change in forest structural stage distributions in the Pacific Northwest, and subsequently attribute temporal changes in forest restoration need to various disturbance and successional processes.

Forest Geospatial Lab

GRADUATE RESEARCH ASSISTANT

Michigan State University

Jan. 2019 - Present

- Lead comprehensive assessment of population performance of top tree species in the western US. Results indicate regional changes in forest composition and large-scale shifts in tree species distributions, driven by changing forest disturbances regimes and climate.
- Developed and released **rFIA**, an open-source R package designed to improve access to the spatial-temporal estimation capacity of the USDA Forest Inventory and Analysis (FIA) Database in R.
- Leveraged the FIA Database to assess the status and trends (2005-2016) in forest health along the Appalachian National Scenic Trail.

Boone and Crockett Quantitative Wildlife Center

RESEARCH ASSISTANT

Michigan State University

Aug. 2016 - Dec. 2018

- Designed agent-based and network-based models to assess functional connectivity of disparate white-tailed deer (*Odocoileus virginianus*) populations affected by Chronic Wasting Disease in Southern Michigan.
- Designed novel least cost path modelling framework to assess anisotropy in landscape connectivity in a fragmented agricultural-forest matrix. Model results used to inform management of Chronic Wasting Disease in Michigan white-tailed deer populations.
- Assist in capture, sedation, and GPS collaring of adult white-tailed deer using clover traps, drop-nets, and suspended net launchers.

Watershed Hydrology and Engineering Group

RESEARCH ASSISTANT

H.J. Andrews Experimental Forest

Jun. 2018 - Sep. 2018

- Carried out conservative solute tracer tests, fluorescent dye tracer tests, and Hvorslev slug tests to describe solute transport behavior and hyporheic exchange in mountain headwater streams of the Western Cascades.
- Application of hierarchical models and machine learning techniques to assess influence of three-dimensional structural heterogeneity of stream beds on solute transport behavior in mountain headwater streams.

Walters Silvicultural Laboratory

RESEARCH ASSISTANT

Michigan State University

Sep. 2016 - Jan. 2017

- Layout of experimental silvicultural treatments in sugar maple (*Acer saccharum*) dominated Northern Hardwoods stands in Michigan. Treatments include single tree selection, shelterwood, and seed tree methods.
- Independent field navigation and operation in remote terrain and inclement weather.

Publications

Over half of western United States' most abundant tree species in decline

Hunter Stanke, Andrew O Finley, Grant M Domke, Aaron S Weed, David W MacFarlane

Nature Communications, 2021. DOI: 10.1038/s41467-020-20678-z

rFIA: An R package for estimation of forest attributes with the US Forest Inventory and Analysis database

Hunter Stanke, Andrew O Finley, Aaron S Weed, Brian F Walters, Grant M Domke

Environmental Modelling & Software, 2020. DOI: 10.1016/j.envsoft.2020.104664

Advancing broad-scale forest health evaluation and monitoring with rFIA

Hunter Stanke, Andrew O Finley, Grant M Domke

Frontiers in Forests and Global Change, IN PREPERATION

Effects of long-term changes in climate suitability on populations dynamics of tree species at sub-continental scales

Hunter Stanke, Andrew O Finley, Grant M Domke

Global Change Biology, IN PREPERATION

Presentations

International Association for Landscape Ecology - North America

Reno, NV

HUNTER STANKE, ANDREW O FINLEY, GRANT M DOMKE, BRIAN J HARVEY

Apr. 2021

Advancing broad-scale forest health evaluation and monitoring with rFIA

Small Area Estimation Focus Sessions of the FIA National User Group Meeting

Washington, DC

HUNTER STANKE, ANDREW O FINLEY, GRANT M DOMKE

Oct. 2020

Small area estimation of forest variables with rFIA

FIA Stakeholders Science Meeting

Knoxville, TN

HUNTER STANKE, ANDREW O FINLEY, AARON S WEED, BRIAN F WALTERS, GRANT M DOMKE

Nov. 2019

rFIA: Unlocking the FIA Database in R

MSU Department of Forestry Graduate Student Symposium

East Lansing, MI

HUNTER STANKE, ANDREW O FINLEY, AARON S WEED

Jan. 2019

Assessing the Status & Trend in Forest Condition Along the Appalachian National Scenic Trail

Symposium of the Ecosystem Informatics Summer Institute

Corvallis, OR

HUNTER STANKE, STEVE WONDZELL, JULIA JONES, ADAM WARD

Aug. 2018

Vertical Stream Concavity as a Predictor of Solute Transport Behavior in Mountain Headwater Streams

Annual Meeting of the Michigan Chapter of The Wildlife Society.

Gaylord, MI

HUNTER STANKE, SONJA CHRISTENSEN, JONATHAN COOK, WILLIAM PORTER, DAVID WILLIAMS

Mar. 2018

Connecting the Dots: A Landscape Approach for Michigan CWD

Michigan Boone and Crockett Club Annual Partners Meeting

Jackson, MI

HUNTER STANKE, SONJA CHRISTENSEN, JONATHAN COOK, WILLIAM PORTER, DAVID WILLIAMS

Mar. 2018

Connecting the Dots: A Landscape Approach for Michigan CWD

24th International Meeting of The Wildlife Society

Albuquerque, NM

HUNTER STANKE, SONJA CHRISTENSEN, JONATHAN COOK, WILLIAM PORTER, DAVID WILLIAMS

Sep. 2017

Connecting the Dots: A Landscape Approach for Michigan CWD (*Awarded Best Student Poster*)

19th Annual University Undergraduate Research and Arts Forum

East Lansing, MI

HUNTER STANKE, SONJA CHRISTENSEN, JONATHAN COOK, WILLIAM PORTER, DAVID WILLIAMS

Apr. 2017

Connecting the Dots: A Landscape Approach for Michigan CWD

Awards & Honors

NATIONAL

2019	Graduate Research Fellowship , National Science Foundation	\$138,000
2018	Honorable Mention , Goldwater Scholarship	
2018	Institutional Nominee , Udall Scholarship	
2017	Best Student Poster , 24th International Meeting of The Wildlife Society	

LOCAL

2017	Distinguished Presenter , Red Cedar Undergraduate Research Journal	
2017	Humphrey Scholarship , MSU Department of Forestry	\$8500
2017	Sanctuary Essay Award , Rajendra Neotropical Migrant Bird Sanctuary Endowment	\$1000
2016	STATE Scholarship , MSU Honors College	\$20,000
2016	Professorial Assistantship , MSU Honors College	\$5000
2016	Emil Schmeling Award , Cass County Conservation Club	\$1000

Skills

FIELD SKILLS

Ecological Restoration	Prescribed burn planning and operations, oak savanna and tall grass prairie restoration
Forest Management	Forest inventory & mensuration, silvicultural planning, timber sale preparation & administration
Certifications	Wildland Firefighter Type II (S-130, S-190, S-212), Pesticide Application (MI #C005160375)
Other	Forest harvest systems and logging operations, heavy equipment operation and maintenance

DATA SCIENCE

Programming	R, R Shiny, Python, LaTeX, Hugo, Linux CLI
Statistics	Bayesian hierarchical modeling, spatial statistics, machine learning (SVM, BRT)
Other	Agent-based modeling, QGIS, STELLA, PHREEQC, Libre Office Suite, Microsoft Office

Teaching Experience

Forestry Field Skills

Michigan State University

CO-INSTRUCTOR

Aug. 2019 - Oct 2020

- Lead instructor for approximately 20 undergraduate students on the topics of chainsaw safety, chainsaw operations, tree felling, and bulldozer operation.
- Co-instructor on the topics of tractor safety and tractor operations.

Forestry Field Studies

Michigan State University

CO-INSTRUCTOR

May 2019

- Co-instructor for approximately 15 upper-level undergraduate forestry students in 3 week immersive field course in Northern Michigan.
- Topics include: habitat classification systems (Kotar); soil and landform geomorphology; silvicultural planning; wetland ecology and hydrology; logging operations; GPS and mapping (Trimble and Nomad); forest inventory systems; and others.
- Developed R **Shiny** application to guide student's summary of forest inventory data they each collected.

Work Experience

H & S Ecological Consulting

Burr Oak, MI

FOUNDER/ OWNER

Mar. 2017 - Present

- Provide clients with technical services and expertise related to natural resource planning and ecological restoration.
- Services include: tall grass prairie design and implementation; timber sale preparation and administration; contract negotiation; reforestation planning and monitoring; development of forest management plans.
- Lead small-scale logging operations on private land.

Bureau of Land Management

Cottonwood, ID

FORESTRY INTERN

May 2017 - Aug. 2017

- Implemented silvicultural prescriptions and forest inventory in high and low-elevation forest types across north-central Idaho.
- Administered green-tree and fire salvage timber sales, planting, spraying and other site preparation operations.
- Served as wildland firefighter with Coeur d'Alene River Ranger District
- Worked independently and in small groups to carry out forestry and firefighting operations in remote, difficult terrain.

Michigan Department of Natural Resources

Jones, MI

WILDLIFE ASSISTANT

Apr. 2016 - Aug. 2016

- Implemented habitat management plans on state game areas in southern Michigan, including oak savanna restoration, invasive species management, food plot installation and maintenance.

Service

Academic Reviewer

Washington, DC

JOURNAL OF FORESTRY

October. 2020 - Present

President

East Lansing, MI

MICHIGAN STATE FORESTRY CLUB

Dec. 2017 - Dec. 2018

Forestry Instructor

Ionia, MI

MICHIGAN FUTURE FARMERS OF AMERICA

Mar. 2019 - Present

Volunteer Consultant

FENNER NATURE CENTER

Lansing, MI

Mar. 2017 - Present

Select Media

- 2018 **MSU TODAY**, Senior's conservation efforts span from MSU across the country
- 2018 **MSU CANR News**, Undergrad aims to make an impact in ecology & conservation
- 2018 **FOX 47 News**, Four students nominated for national stem scholarship
- 2018 **MSU Nat. Sci News**, NatSci student nominated for elite national scholarship
- 2017 **The Wildlife Society**, Student research project: CWD spreads east in Michigan

References

Andrew Finley

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(517) 432 - 7219

David Williams

Department of Fisheries and Wildlife
Michigan State University
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Julia Jones

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Oregon State University
Corvallis, OR 97330
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Mike Walters

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