

# 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

### Forest Geospatial Lab

GRADUATE RESEARCH ASSISTANT

Michigan State University

Jan. 2019 - March 2020

- 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. Application of GPS, field computer, and Solo-Forest technologies.

## 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

## Presentations

### FIA Stakeholders Science Meeting

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

rFIA: Unlocking the FIA Database in R

Knowxville, TN

Nov. 2019

### MSU Department of Forestry Graduate Student Symposium

HUNTER STANKE, ANDREW O FINLEY, AARON S WEED

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

East Lansing, MI

Jan. 2019

### Symposium of the Ecosystem Informatics Summer Institute

HUNTER STANKE, STEVE WONDZELL, JULIA JONES, ADAM WARD

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

Corvallis, OR

Aug. 2018

### Annual Meeting of the Michigan Chapter of The Wildlife Society.

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

Connecting the Dots: A Landscape Approach for Michigan CWD

Gaylord, MI

Mar. 2018

### Michigan Boone and Crockett Club Annual Partners Meeting

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

Connecting the Dots: A Landscape Approach for Michigan CWD

Jackson, MI

Mar. 2018

### 24th International Meeting of The Wildlife Society

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

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

Albuquerque, NM

Sep. 2017

### 19th Annual University Undergraduate Research and Arts Forum

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

Connecting the Dots: A Landscape Approach for Michigan CWD

East Lansing, MI

Apr. 2017

## Awards & Honors

### NATIONAL

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

### LOCAL

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

## Skills

### FIELD SKILLS

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

### DATA SCIENCE

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

## Teaching Experience

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### 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

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### 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

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### 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

Lansing, MI

FENNER NATURE CENTER

Mar. 2017 - Present

## Select Media

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- 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

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### **Andrew Finley**

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### **David Williams**

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### **Julia Jones**

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### **Mike Walters**

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