CURRICULUM VITAE

ANDREW J. DENNHARDT

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CURRENT POSITION

Institution	Title	Year
Michigan State University Department of Fisheries and Wildlife	Graduate Research Assistant	2014 – present

EDUCATION

Institution	Degree	Graduation Year
Michigan State University (MSU)	Ph.D. (Fisheries and Wildlife) Ph.D. (Ecology, Evolution Biology, and Behavior) **Current GPA:** 4.0	2018 (expected)
West Virginia University (WVU)	M.S. (Wildlife and Fisheries Resources) Cumulative GPA: 3.92, *summa cum laude*	2014
Southern Illinois University-Carbondale (SIUC)	B.S. (Zoology) Minor (Environmental Studies) Cumulative GPA: 3.92, *summa cum laude*	2010

AREAS OF SPECIALIZATION

Computational Ecology, Conservation Biology, Interdisciplinary Approaches, Landscape Ecology, Movement Ecology, Ornithology, Population Biology, Quantitative Ecology, Raptor Ecology, Wildlife Management

RELEVANT COURSEWORK

Core Principle Courses:

Diversity Invertebrates (SIUC)
Diversity Vertebrates (SIUC)
Organismal Biology (SIUC)
Animal Behavior (SIUC)
Systematic Zoology (SIUC)
Environmental Issues (SIUC)
Environmental Conservation (SIUC)
Environmental Rhetoric (SIUC)
Mammalogy (SIUC)
Ornithology (SIUC)
Principles of Ecology (SIUC)
Principles of Evolution (SIUC)
Principles of Genetics (SIUC)
Molecular Biology, Genetics, and Evolution (SIUC)
Interdisciplinary Approaches to Env. Issues (SIUC)
Wildlife Administration and Policy (SIUC)
Wildlife Biology and Management (SIUC)
Wildlife Research Techniques (SIUC)

Applied Wetland Ecology and Management (WVU)
Advanced Wildlife Population Ecology (WVU)
Animal Movement Ecology (WVU)
Landscape Ecology (MSU)
Adaptive Management of Natural Resources (MSU)
Spatial Ecology (MSU)
Evolutionary Biology (MSU)
Big Data, Values, and Interdisciplinarity (MSU)

Technical Skill Courses:

Calculus I (SIUC)
Introduction to Statistics (SIUC)
Statistical Methods I (WVU)
Statistical Methods II (WVU)
Spatial Statistics in GIS (WVU)
Introduction to GIS (SIUC)
Spatial Analysis in GIS (WVU)
Guide to Computational Analysis (WVU)
Advanced Spatiotemporal Data Analysis (WVU)
Quantitative Ecology (WVU)
Bayesian Inference and Monte Carlo (MSU)
Statistical Methods in Ecology and Evolution (MSU)
Modern Statistical Methods in Ecology (MSU)
Spatial Data Analysis (MSU)

ONGOING WORK EXPERIENCE

GRADUATE RESEARCH ASSISTANT: Michigan State University, Department of Fisheries and Wildlife in East Lansing, MI; August 2014 – present.

- Major advisor: Brian Maurer, Ph.D. (2014 – 2016), Gary Roloff, Ph.D. (2017 – present)
- Ph.D. student in the Fisheries and Wildlife and Ecology, Evolution, and Behavioral Biology degree programs.
- Professional certification: Spatial Ecology, awarded fall 2016.
- Project focus: Self-designed a project that deals with updating ecological theory with new work on species' abundance, body size, geographic range, and within-range scaling relationships. Foundational data to this project involved historic collections from the Breeding Bird Survey and other environmental data sources (e.g., PRISM, NLCD, and others). These Big Data sources were analyzed using hierarchical modeling approaches in a Bayesian inferential framework with Markov Chain Monte Carlo simulation. Committee members include: Drs. Brian Maurer, Phoebe Zarnetske, Elise Zipkin, and Gary Roloff (2014 – 2016), and Drs. Gary Roloff, Phoebe Zarnetske, Elise Zipkin, and Kendra Cheruvelil (2017 – present).
- Consulted on a project for the MSU Quantitative Fisheries Center that modeled relative abundances of Lake Huron fisheries to historic environmental data in a state-space time series model, called Dynamic Factor Analysis. Collaborators included: Drs. Travis Brenden, James Bence, William Fetzer, Brian Maurer, as well as Adam Cottrill, David McLeish, Dr. Catherine Riseng, Dr. Kevin Wehrly, and Danielle Forsyth.
- Consulted on a project for the MSU Applied Forest and Wildlife Ecology Lab that modeled rodent community responses to silvicultural practices on industrial forest properties in the Pacific Northwest using Generalized Linear Mixed Effects Models. I did not apply these models; however, I assisted with defining future study designs, interpretation of model results, and composition of the final manuscript. Collaborators included: Dr. Gary Roloff and fellow Ph.D. student, Steven Gray.
- Co-founded an extracurricular organization focused on aspects of ecological research in practice, called the Quantitative Ecology Reading Group (2015 – present). This organization allows me, and others, to mentor our peers in the use of statistical tools in ecological research. In turn, these same peers often mentor me in applying other tools and concepts that I am less familiar with. Our organization holds regular meetings to discuss opportunities for research collaboration, our ongoing research projects, and papers from current ecological literature. In addition, we host what we call a "code-in" workshop where individuals can come once a week to troubleshoot problems associated with ecological computation. Collaborators included: fellow graduate students Remington Moll, Alexander Jensen, and Matthew Vincent.
- Served as a Teaching Assistant for Dr. Brian Maurer and his Applied Multivariate Statistics (FW 850) course during spring 2016. I gave lectures on and evaluated graduate student homework and final projects using RStudio Desktop 0.99.887 to apply statistical tools to ecological data including Association (Distance) Matrices, Cluster Analysis, Principal Components Analysis, Principal Coordinates Analysis, Non-metric Multidimensional Scaling, Correspondence Analysis, Factor Analysis, Canonical Correlation Analysis, Discriminant Function Analysis, and Multivariate Analysis of Variance.
- Served on a curriculum advisory committee with Drs. Gerald Urquhart, Cheryl Murphy, and Michael Wagner as well as with fellow Ph.D. student, Rebecca Cain (2016), to develop a 2 – 3 credit hour graduate-level seminar course that focused on enriching natural resource scientists as analysts, communicators,

facilitators, networkers, leaders, and career professionals of tomorrow.
• Co-Principal Investigator with Dr. Gary Roloff on a grant through The Nature Conservancy (TNC), 2016 – 2017. Gary and I applied multivariate abundance (negative binomial) and ordination (principal coordinates and non-metric multidimensional scaling) models to relative counts of forest bird and groundcover (cover class) communities in TNC's Two-Hearted Forest in Luce County, Michigan using repeated measures on forest composition, vegetation structure, and bird populations for use in managing the property for biodiversity.
• Statistical consultant with the Center for Statistical Training and Consulting (CSTAT) at MSU (summer 2016 – present). Each semester, including summer sessions, I primarily or secondarily (i.e. alongside a senior statistician) tutored between 6 – 15 undergraduate and graduate student, research staff, and/or faculty clients once-a-week (or every other) on how to apply statistical analyses to their data, write up statistical findings in their reports, journal manuscripts, or theses/dissertations, and/or design surveys/proposals for their research projects. CSTAT also hosted staff meetings weekly, wherein student consultants and senior statisticians discussed strategies and analyses for specific client cases. This half-time appointment required that I recorded at least 20 hours per week as a student consultant, which I met easily, given the amount of across my weekly caseload. In this position, I worked with clients from MSU's Departments of Accounting and Information Systems, Counseling, Educational Psychology, and Special Education, Earth and Environmental Sciences, Engineering, Entomology, Fisheries and Wildlife, Food Science and Human Nutrition, Geography, Integrative Biology, Kinesiology, Plant Biology, Political Science, and much more. Statistical tools discussed, recommended, and/or worked with in some of my client meetings included: *t*-tests, Chi-square tests of independence, one-, two-, and three-way Analyses of Variance or Covariance, General and Generalized Linear Models (including several spatiotemporal models), hierarchical/mixed-effect/multi-level models (using Frequentist or Bayesian frameworks), Trend Surface Analysis, and various multivariate tools including Principal Component Analyses and Permutational Multivariate Analysis of Variance, and much more. I also assisted the unit with designing a new logo and recruiting new clients in my everyday conversations with fellow students and their data analyses on campus.

FORMER WORK EXPERIENCE

RESEARCH EMPLOYEE: West Virginia University, Division of Plant and Soil Science in Morgantown, WV 26506; May 2014 – August 2014.

• Relational database management and integration of various models that estimate Carbon stocks on the landscape scale in affiliation with the U.S. Department of Agriculture (USDA) and the WVU Geospatial Research Unit. Main methodology: Granger-Ramanathan Model Averaging in R Statistical Software.
• Analyzed United States' soil science data sources (i.e. STATSGO2 and SSURGO) to synthesize estimates of soil organic Carbon using Granger-Ramanathan Model Averaging. The STATSGO2 and SSURGO databases exemplify two Big Data sources due to their large archive of soil records described over nationwide spatial and multi-annual temporal scales.
• Assistance with focus groups, design, and implementation of the USDA-sponsored Carbon Data Visualization Tool.

GRADUATE RESEARCH ASSISTANT: West Virginia University, Division of Forestry and Natural Resources in Morgantown, WV 26506-6125; August 2011 – May 2014.

• Major advisor: Todd Katzner, Ph.D., West Virginia University.
• Master of Science candidate in the Wildlife and Fisheries Resources degree program.
• Project focus: Golden eagle population and migration ecology as that relates to management and conservation in eastern North America. The project includes analyses of migration count data (i.e. the HawkCount national database, a Big Data source on raptor movements), computer modeling of potential flight routes (i.e. >6,000 flight routes comprising >25,000,000 simulated eagle movements), and virtual mark-recapture based on historic counts of eagles at migration watch sites in the study region.
• Management and processing of trail-camera images for the Appalachian Eagles online forum owned and operated by my major advisor and other collaborators (http://www.appalachianeagles.org).

RESEARCH EMPLOYEE: Green Diamond Resource Company, California Timberlands Division in Korbel, CA 95550-0068; February 2011 – August 2011.

•Raptor surveys, including those of: Bald eagle, Golden eagle, Peregrine falcon, Osprey, Northern spotted owl, and Barred owl. Diurnal raptor surveys consisted of stationary observations with optical equipment over pre-cut and post-cut timber harvest plots. Nocturnal raptor surveys consisted of audible and visual observations at survey stations while broadcasting recorded owl calls. Diurnal surveys of Northern spotted owl involved on-the-ground observations at historic or recent nesting territories. Collecting data on birds' reproductive statuses were the main objective of all raptor surveys.
•All data were collected and recorded using Garmin GPS units, Rite-in-the-Rain field notes, time-keeping units, megaphone callers (during nocturnal surveys), departmental forms, and optical devices.
•Experience with driving on logging roads, often including encounters with harvesting operations. Additional certification and experience with All Terrain Vehicles (i.e., quad runners, used on decommissioned roadways). Earned a Vehicle Safety Award in summer 2011.

RESEARCH EMPLOYEE: Forest Preserve District of DuPage County in Wheaton, IL 60189-8761; May 2010 – August 2010.

•Blanding's turtle recovery project: trapping turtles, measuring environmental variables, baiting sites, fitting individuals with radio transmitters, collecting and incubating eggs from females, building housing pens, identifying different turtle species in the field, maintaining pens of juvenile Blanding's turtles that will be reintroduced to wild (feeding captive-reared turtles, cleaning their pens, watering them), inoculating turtles with Fortaz, and traveling between field sites to check/re-bait/empty box traps in local marshes.
•Barn owl reintroduction project: releasing owls to local hack sites, feeding them rodents during hack-wild transitional period, fitting owls with federal leg bands, transporting owls between housing facility and wildlife center, maintaining pens of feeder-rodents (mice and rats), and handling owls.

RESEARCH INTERN: Student Conservation Association (SCA)/U.S. Forest Service (the Happy Camp Ranger District) Klamath National Forest in Happy Camp, CA 96039; May 2009 – August 2009.

•Mapped (in GIS), surveyed, and removed 100-1000+ invasive plant species for the Botany Department.
•Surveyed, recorded data, and monitored the following species: Northern spotted owls, Northern goshawks, Bald eagles, and Peregrine falcons during their breeding seasons for the Wildlife Department.
•Cleaned up trash and debris from the Klamath River with the River Recreation Department.
•Total hours volunteered between all three departments: 531 hours.

RESEARCH VOLUNTEER: alongside Sarah Wakamiya, Master's student in affiliation with the Cooperative Wildlife Research Laboratory at Southern Illinois University-Carbondale (IL) 62901; January 2007 – March 2007 and January 2008 – May 2008.

•Participated in measurements, observations, recording data, and data entry for Sarah's thesis work involving a landscape-based Population Viability Analysis for reintroducing peregrine falcons in southern Illinois.
•Surveyed for Great-horned owls in potential peregrine habitats.
•Research on natal dispersal behavior in peregrine falcons published in the *Journal of Raptor Research*; please see the peer-reviewed publications' section where you will see that this undergraduate research was published in 2013.

PEER MENTOR: University Honors Program at Southern Illinois University-Carbondale (IL) 62901; August 2008 – May 2009.

•Assisted new students in the Honors Program.
•Organized group excursions which focused on college experiences (i.e. community service, guest lecture programs, university athletic events).
•Helped retain students in the honors program through academic support (e.g. tutoring).
•Mentored over 10 honors' students.

PEER-REVIEWED PUBLICATIONS

6. **Dennhardt, A.J.**, A.E. Duerr, D. Brandes, and T.E. Katzner. 2017. Applying citizen-science data and mark-recapture models to estimate numbers of migrant Golden Eagles in an Important Bird Area in eastern North America. *The Condor: Ornithological Applications. In press.*

5. **Dennhardt, A.J.** 2015. Accounting for raptors beyond our sight: modeling migration and hawk-count data to estimate the golden eagle population in eastern North America. *Journal of Hawk Migration Studies* 40: 10-13.
4. **Dennhardt, A.J.**, A.E. Duerr, D. Brandes, and T.E. Katzner. 2015. Integrating citizen-science data with movement models to estimate the size of migratory golden eagle population. *Biological Conservation* 184: 68-78.
3. **Dennhardt, A.J.**, A.E. Duerr, D. Brandes, and T.E. Katzner. 2015. Modeling autumn migration of a rare soaring raptor identifies new movement corridors in central Appalachia. *Ecological Modelling* 303: 19-29.
2. **Dennhardt, A.J.** 2014. Modeling migration and citizen-science data to estimate golden eagle abundance in eastern North America (Master's Thesis). West Virginia University Press, Morgantown, West Virginia, USA. 108pp.
1. **Dennhardt, A.J.** and S.M. Wakamiya. 2013. Effective dispersal of peregrine falcons (*Falco peregrinus*) in the Midwest, USA. *Journal of Raptor Research* 47 (3): 262-270.

PEER-REVIEWING ACTIVITY

Reviewing (2017): Proceedings of the Royal Society – B, Canadian Field Naturalist.
Reviewing (2016): PeerJ, Journal of Raptor Research (2), The Auk: Ornithological Advances.
Reviewing (2015): PLoS ONE, Journal of Field Ornithology, Journal of Raptor Research.
Reviewing (2013): Journal of Raptor Research.

BOOKS, BOOK CHAPTERS, BOOK EDITING

2. **Dennhardt, A.J.**, M.E.K. Evans, A. Dechner, L.E.F. Hunt, and B.A. Maurer. 2016. Chapter 16: Macroecology and the theory of island biogeography: abundant utility for applications in restoration ecology. *In*: Foundations of Restoration Ecology, second edition; Palmer, M.A., J.B. Zedler, and D.A. Falk (Eds.). Island Press, Washington, D.C., USA.
1. **Dennhardt, A.J.** and T.E. Katzner. 2013. The golden eagle. World Book Encyclopedia Online. Available at: http://www.worldbookonline.com/academic/article?id=ar755278andst=golden+eagle.

HONORS

WVU
7. Hawk Migration Association of North America Research Award (2012)
6. $250.00 1st place award: Master's Oral Presentation Award, Graduate Student Research Competition, Davis College, West Virginia University (2012)
5. $168.00 travel award, Wilson Society for Ornithology annual meeting (2013)
4. $150.00 2nd place award: Master's Oral Presentation Award, Graduate Student Research Competition, Davis College, West Virginia University (2013)
3. Outstanding Graduate Student Award, Division of Forestry and Natural Resources, West Virginia University (2013)
2. 1st runner-up: William C. Andersen Memorial Award for Graduate Student Oral Presentations, I Worldwide Raptor Conference, Raptor Research Foundation (2013)
1. $500 award, Robert H. Maxwell Travel Endowment, Davis College, West Virginia University (2013)

SIUC
7. University Honors Program (2006 – 2010)
6. SIU Environmental Ambassador (2009 and 2010, Office of Student Development and the Center for Environmental Health and Safety)
5. Lead orator, Student Speaker's Forum (2009, Department of Speech Communications and the Environmental Studies Program)
4. SIU 25 Most Distinguished Seniors Award (2010, SIU Alumni Association)
3. National Civic Service Award (2010, Office of the President of the United States)
2. 2nd place award for research presentation (2010, Undergraduate Research Forum)
1. USA Today's All-USA, All-College Academic Team—Honorable Mention Team (2010, USA Today)

FELLOWSHIPS AND SCHOLARSHIPS

MSU

3. Department of Fisheries and Wildlife Graduate Fellowship (2017)
2. Department of Fisheries and Wildlife Graduate Fellowship (2016)
1. Department of Fisheries and Wildlife Graduate Fellowship (2015)

WVU

1. Hoyt Scholarship, Division of Forestry and Natural Resources, West Virginia University (2013)

SIUC

8. Southern Illinois University Dean's Scholarship (2006, College of Science)
7. Fred A. Seaton Memorial Scholarship (2007, Beta Theta Pi Fraternity)
6. Goldwater Scholarship nomination (2008, 2009 SIUC)
5. Charles L. Foote Memorial Scholarship (2009, Department of Zoology)
4. Michael W. Wolff Memorial Scholarship (2009, College of Science)
3. Jan Martan Undergraduate Scholarship (2010, Department of Zoology)
2. Service to Southern Award (2010, Student Development at SIUC)
1. Phi Kappa Phi Chapter Scholarship and national fellowship nomination (2010, SIUC Phi Kappa Phi)

GRANTS AND RESEARCH FUNDING

MSU

5. $5,000.00 research grant, The Nature Conservancy (2016)
4. $400.00 research grant, Department of Integrative Biology (2016)
3. $75.00 travel grant, Department of Fisheries and Wildlife (2016)
2. $700.00 travel grant, The Graduate School, College of Agriculture and Natural Resources, and Department of Fisheries and Wildlife (2015)
1. $150.00 travel grant, Fisheries and Wildlife Graduate Student Organization (2015)

WVU

4. $2,500.00 travel grant, College of Agriculture, Natural Resources, and Design, Dean's Office, and Division of Forestry and Natural Resources (2013)
3. $1,000.00 research grant, Hawk Migration Association of North America Research Grant (2012)
2. $1,000.00 research grant, Virginia Society of Ornithology (2012)
1. $1,000.00 research grant, Highlanders for Responsible Development (2012)

SIUC

1. $1,250.00 research grant, Research Enriched Academic Challenge (REACH) Award, Office of Research Development and Administration (2008)

WORK PRESENTED, MEETINGS ATTENDED, AND INVITED SYMPOSIA

MSU

8. Annual meeting, International Association for Great Lakes Research, Detroit, MI (summer 2017)
   - Oral presentation: Dennhardt, A., B. Maurer, J. Bence, T. Brenden, W. Fetzer, A. Cottrill, D. McLeish, C. Riseng, K. Wehrly, and D. Forsyth. Spatiotemporal factors and their impacts to Lake Huron fish communities.

7. Annual meeting, Michigan Chapter of The Wildlife Society, Gaylord, MI (spring 2017)
   - Oral presentation: Dennhardt, A., G. Roloff, D. Pearsall, P. Doran, and C. Hall. Forest community dynamics and northern hardwoods silviculture: a longitudinal analysis of the Two Hearted River Forest System.

6. Attendee, Workshop, "Third Annual Graduate Workshop on Environmental Data Analytics," National

Center for Atmospheric Research and University Corporation for Atmospheric Research, Boulder, CO (summer 2016)

5. Annual meeting, Midwest Fish and Wildlife Conference, Grand Rapids, MI (spring 2016)
   - Oral presentation: Dennhardt, A., J. Bence, T. Brenden, B. Maurer, W. Fetzer, C. Riseng, K. Wehrly, and D. Forsyth. Assessing Factors Influencing Population Dynamics in Lake Huron Fish Communities Using Dynamic Factor Analysis.

4. Monthly meeting, Thursday Inter-Lab Quantitative Seminar Series, East Lansing, MI (fall 2015)
   - Oral presentation: Dennhardt, A., J. Bence, T. Brenden, B. Maurer, W. Fetzer, C. Riseng, K. Wehrly, and D. Forsyth. Assessing Factors Influencing Population Dynamics in Lake Huron Fish Communities Using Dynamic Factor Analysis.

3. Annual meeting, Ecological Society of America, Baltimore, MD (fall 2015)
   - Oral presentation; Citation: Dennhardt, A., A. Duerr, D. Brandes, G. Merovich, Jr., and T. Katzner. 2015. Integrating Citizen-Science Data with Movement Models to Estimate Raptor Populations: A Case Study with Golden Eagles in Eastern North America.
   - Poster presentation; Citation: Maurer, B.A., Dechner, A., Dennhardt, A.J., and L.E.F. Hunt. 2015. Statistical thermodynamics of photosynthesis predicts increasing order of size distributions with increasing primary production.

2. Fisheries and Wildlife Graduate Student Research Symposium, East Lansing, MI (spring 2015)
   - Oral presentation; Citation: Dennhardt, A., A. Duerr, D. Brandes, G. Merovich, Jr., and T. Katzner. 2015. Integrating Citizen-Science Data with Movement Models to Estimate Raptor Populations: A Case Study with Golden Eagles in Eastern North America.

1. Attendee, Workshop, "Big Ecological Questions, Diverse Data, and New Methods," Berkeley, CA (fall 2014)
   - Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich, and D. Brandes. 2014. Integrating Citizen-Science Data with Movement Models to Estimate Population Size of Migratory Raptors: A Case Study with Golden Eagles in Eastern North America.

WVU

15. Annual (joint) meeting, Wilson Ornithological Society and Association of Field Ornithologists, Newport, RI (spring 2014)
   - Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2014. Modeling Migration and Citizen-Science Data to Estimate Golden Eagle (*Aquila chrysaetos canadensis*) Abundance in Eastern North America: Are Present Estimates Too High or Low?

14. Master's thesis defense, Division of Forestry and Natural Resources, WVU, Morgantown, WV (spring 2014)
   - Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2014. Modeling Migration and Citizen-Science Data to Estimate Golden Eagle Abundance in Eastern North America.

13. Davis College-Graduate Student Research Competition, WVU, Morgantown, WV (spring 2014)
   - Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2014. Modeling Migration and Citizen-Science Data to Estimate Golden Eagle Abundance in Eastern North America.

12. Invited symposium, Department of Biology, Westminster College, New Wilmington, PA (spring 2014)
   - Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2014. Modeling Migration and Citizen-Science Data to Estimate Golden Eagle Abundance in Eastern North America.

11. Annual meeting, I Worldwide Raptor Conference, San Carlos de Bariloche, Argentina (fall 2013)
- Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2013. Modeling Migration Counts to Estimate Abundance: a Population Estimate for Golden Eagles (*Aquila chrysaetos canadensis*) in eastern North America.

10. October meeting, Mountaineer Audubon Society, Morgantown, WV (fall 2013)
- Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2013. Golden Eagles (*Aquila chrysaetos*) in eastern North America: natural history, knowledge gaps, and regional conservation priorities.

9. August meeting, Highland County Bird Club, Monterey, VA (fall 2013)
- Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2013. Golden Eagles (*Aquila chrysaetos*) in eastern North America: natural history, knowledge gaps, and regional conservation priorities.

8. Annual meeting, Virginia Society for Ornithology, Leesburg, VA (spring 2013)
- Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2013. Modeling migratory flight routes of Golden Eagles (*Aquila chrysaetos*) in variable meteorological and topographic landscapes.

7. Davis College-Graduate Student Research Competition, Morgantown, WV (spring 2013)
- Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2013. Modeling migratory flight routes of Golden Eagles (*Aquila chrysaetos*) in variable meteorological and topographic landscapes.

6. Annual meeting, Wilson Ornithological Society, Williamsburg, VA (spring 2013)
- Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2013. Modeling migratory flight routes of raptors in variable meteorological and topographic landscapes.

5. September meeting, Mountaineer Audubon Society, Morgantown, WV (fall 2012)
- Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2012. Modeling migration counts to estimate the size of the population of Golden Eagles (*Aquila chrysaetos*) in Eastern North America.

4. Annual meeting, Eastern Golden Eagle Working Group, Ste. Anne des Monts, Quebec (summer 2012)
- Oral presentation; Citation: Dennhardt, A., T. Katzner, A. Duerr, G. Merovich and D. Brandes. 2012. Modeling migration counts to approximate abundance: a population estimate for Golden Eagles (*Aquila chrysaetos canadensis*) in eastern North America.

3. Davis College-Graduate Student Research Competition, Morgantown, WV (spring 2012)
- Oral presentation; Citation: Dennhardt, A. and S. Wakamiya. 2012. Effective dispersal in midwestern Peregrine Falcons (*Falco peregrinus*).

2. Attendee, Annual Meeting, Northeast Association of Fish and Wildlife Service Agencies (spring 2012)
1. Attendee, Annual meeting, Raptor Research Foundation (fall 2011)

SIUC

4. Annual meeting, St. Louis Area Undergraduate Research Symposium, Makanda, IL (spring 2010)
- Oral presentation; Citation: Dennhardt, A. 2010. Dispersal characteristics of an American raptor population: the peregrine falcon (*Falco peregrinus*) in the Midwestern United States.

3. Annual meeting, Undergraduate Research Forum, Carbondale, IL (spring 2008 and spring 2010)
- Poster presentation; Citation: Dennhardt, A. and M. Eichholz. 2008. Ultraviolet radiation perception in nocturnal raptor species: recommendations for future studies.
- Poster presentation; Citation: Dennhardt, A. and S. Wakamiya. 2010. Dispersal characteristics of an American raptor population: the peregrine falcon (*Falco peregrinus*) in the Midwestern United States.

2. Annual meeting, Posters on the Hill, Council for Undergraduate Research, Washington, DC (spring 2009);
   - Poster presentation; Citation: Dennhardt, A. and S. Wakamiya. 2009. Dispersal characteristics of an American raptor population: the peregrine falcon (Falco peregrinus) in the Midwestern United States.

1. Annual meeting, National Collegiate Honors Council, San Antonio, TX (fall 2009)
   - Poster presentation; Citation: Dennhardt, A. and S. Wakamiya. 2009. Dispersal characteristics of an American raptor population: the peregrine falcon (*Falco peregrinus*) in the Midwestern United States.

SERVICE RELATED ACTIVITIES

MSU

12. 2017 American Ornithological Society (AOS) and Society of Canadian Ornithologists (SCO) Joint Annual Meeting, spring 2017.
   - Excursion coordinator.
   - Alongside fellow Ph.D. students, Andrew Carlson and Steve Roels, I helped organize the AOS-SCO softball game by setting up the registration for teams, reserving space at a local park to host the game, gaining necessary permits for using the space, and purchasing and distributing beverages for participants.

11. 2017 Ecology, Evolutionary Biology, and Behavior (EEBB) Inaugural Research Symposium, spring 2017.
   - Oral presentation judge.

10. 2017 Fisheries and Wildlife Departmental Spring Picnic Organizing Committee, spring 2017.
   - Fundraising committee chairman: helped raise $700 toward supporting the Graduate Student Organization for the Department of Fisheries and Wildlife.
   - Organizing committee chairman: helped facilitate the picnic's potluck (food and drinks), prize raffle, and pie throwing contest.
   - In honor of their donation to the symposium, our committee helped the local chapter of Pheasants Forever (no. 467) host their 2017 annual banquet and raise >$50,000 toward their organization's habitat conservation activities.

9. 2017 Fisheries and Wildlife Graduate Student Research Symposium Organizing Committee, summer 2016 – spring 2017.
   - Fundraising committee chairman (2016): helped raise $7,000 toward supporting symposium expenses.
   - Event photographer (2017).
   - Alongside my organizing committee co-chairwoman, Rebecca Cain, I helped organize all of the supporting documentation (e.g., chair responsibility descriptions, donor contact information archives, past donation request letters and sponsorship applications, event photos, etc.) on our group's Google webpage in order to assist new (and subsequent) chairs toward leading future symposium committees and help make the group's data archiving process more efficient (2016).

8. Professional and research mentorship of two undergraduate students, Audrey Boike and David Heit, Department of Fisheries and Wildlife, fall 2016 – present.
   - Research co-supervisor alongside Dr. Dan Hayes.
   - Audrey and David independently approached me in fall 2016, asking about opportunities to work with me on my dissertation research. After meeting with them individually and learning more about their research interests and career goals, I decided to bring them together toward working on two different research projects, while collecting the same avian community data. In spring 2017, I helped them independently formulate their own research grant proposals, which I also helped them revise before they subsequently submitted grant applications to the Wilson Ornithological Society, American Ornithological Society, and MSU's Undergraduate Research Program in the College of Agriculture and Natural

Resources (CANR). MSU CANR jointly awarded them $2,000 in March 2017 toward completion of their summer 2017 fieldwork and subsequent data analysis and travel necessary for disseminating their research findings in 2018. We are scheduled to repeat this process to support a second field and analysis season for Audrey and David during spring 2018 – 2019.

7. MSU Extension 4-H Great Lakes Natural Resources Camp, spring – summer 2016.
- Co-coordinator.
- Served on the camp curriculum committee, alongside fellow Ph.D. student Kim Fake-Douglass and volunteer Kirsten Johnson, and helped formulate a week-long series of morning workshops for campers called, "Become the Ornithologist." Across all of the workshops, we taught >50 (pre-teenaged) campers, and shared knowledge with them about the basic biology, mist-net capture, data processing and analysis, outdoor viewing and checklist recording and reporting, associated values, threats, and conservation of birds in North America, emphasizing Michigan wildlife. This activity satisfied my degree program's outreach requirement at MSU.

6. Curriculum advisory committee, Department of Fisheries and Wildlife, spring – fall 2016.
- Graduate student representative.
- Served on the committee with Drs. Gerald Urquhart, Cheryl Murphy, and Michael Wagner as well as with fellow Ph.D. student, Rebecca Cain to develop a 2 – 3 credit hour graduate-level seminar course that focused on enriching natural resource scientists as analysts, communicators, facilitators, networkers, leaders, and career professionals of tomorrow.

5. MSU Quantitative Ecology Reading Group, spring 2015 – present.
- Leading co-chair.
- Regularly provide advice and assistance to peers on applying tools in R Statistical Software 3.2.3 via our group's weekly code-in workshops.

4. 2016 Fisheries and Wildlife Departmental Spring Picnic Organizing Committee, spring 2016.
- Fundraising committee chairman: helped raise $400 toward supporting the Graduate Student Organization for the Department of Fisheries and Wildlife.
- Organizing committee chairman: helped facilitate the picnic's potluck (food and drinks), prize raffle, and pie throwing contest.
- In honor of their donation to the symposium, our committee helped the local chapter of Pheasants Forever (no. 467) host their 2016 annual banquet and raise >$50,000 toward their organization's habitat conservation activities.

3. 2016 Fisheries and Wildlife Graduate Student Research Symposium Organizing Committee, summer 2015 – spring 2016.
- Leading co-chair: helped raise $8,000 toward supporting symposium expenses.
- Co-led supporting events comprising Undergraduate Week wherein our graduate students presented professional workshops on career building, getting graduate school appointments and technician jobs, formulating résumés, and how to analyze ecological data using R Statistical Software 3.2.3 and RStudio Desktop 0.99.887 to undergraduate students in the Department of Fisheries and Wildlife.
    - Undergraduate Week, evening no. 1: co-led a panel discussion on career building with local professionals from the U.S. Fish and Wildlife Service, Michigan Department of Natural Resources (e.g., Parks and Recreation, Wildlife Divisions), Ducks Unlimited, and The Nature Conservancy.
    - Undergraduate Week, evening no. 2: co-led a panel discussion, with fellow graduate students from our department, on getting into and working in graduate school, finding and securing technician jobs, and formulating résumés.
    - Undergraduate Week, evening no. 3: co-led a panel discussion on conducting basic operations for ecological analyses using R Statistical Software 3.2.3 and RStudio Desktop 0.99.887.

2. 2015 Fisheries and Wildlife Departmental Spring Picnic Organizing Committee, spring 2015.
   - Fundraising committee chairman: helped raise $600 toward supporting the Graduate Student Organization for the Department of Fisheries and Wildlife.
   - Organizing committee chairman: helped facilitate the picnic's potluck (food and drinks), prize raffle, and pie throwing contest.

1. 2015 Fisheries and Wildlife Graduate Student Research Symposium Organizing Committee, fall 2014 – spring 2015.
   - Fundraising committee chairman (2014): helped raise $7,000 toward supporting symposium expenses.
   - Registration committee chairman (2015).
   - Participated in supporting events comprising Undergraduate Week wherein our graduate students presented professional workshops on career building, getting graduate school appointments and technician jobs, and formulating résumés to undergraduate students in the Department of Fisheries and Wildlife.
     - Undergraduate Week, evening no. 1: did not participate in the career building panel discussion.
     - Undergraduate Week, evening no. 2: participated in a panel discussion, with fellow graduate students from our department, on getting into and working in graduate school as well as finding and securing technician jobs.
     - Undergraduate Week, evening no. 3: participated in assisting undergraduates with their résumés in terms of their format, content, and structure among many other components.

WVU

2. Graduate Young Professionals of St. John University Parish, fall 2011 – 2014.
   - President (2012 – 2014).
   - Summer CSI (summers 2012 and 2013).
   - Taste of Africa Dinner (fall 2012): raised $2,823.[31] for ChildVoice International.
   - Irish Bash Fundraiser (spring 2012 and 2013): helped raise $3,400.[00] for service trips to Jamaica.
   - Fall Elimination Dinner and Fundraiser (2013): helped raise $2,317.[64] for Monongalia County Habitat for Humanity.
   - Evening dinner service (2013): donated ingredients, prepared meals, and served clients of the local humanitarian shelter, Bartlett House Inc.
   - Christian Religious Education instructor (fall 2013 – spring 2014): teaching 7th and 8th grade students about Catholic Christian ethics, beliefs, practices, and principles.
   - Christmas Toy Drive (2013): collected and donated 30+ toys/games to families at one of the local homeless shelters, Bartlett House, Morgantown, WV.
   - Morning breakfast service (2014): donated ingredients, prepared meals, and served clients of the local humanitarian shelter, Clarksburg Mission Inc.
   - Open Mic Night and Hydrate with Harmony Concert fundraisers (spring 2014): helped raise $1,564.[82] for Aqua Viva Inc. (www.aquavivawv.org) .

1. Morgantown Migratory Bird Day, Avian Conservation Center of Appalachia, spring 2012.
   - Coordinated children's activities related to migratory birds in North America, especially raptors.

SIUC

5. 2010 St. Louis Area Undergraduate Research Symposium (StLAURS) Planning Committee, summer 2009 – spring 2010.
   - Committee chairman (2010).

4. Saluki Volunteer Corps, fall 2006 – spring 2010.
   - Total hours volunteered for various service activities: 821.25.

3. Beta Theta Pi Fraternity, fall 2006 – spring 2008.

- Recruitment chair (2007).
- Member-accountability chair (2007).
- Academics chair (2008).
- Ritual chair (2008).

2. Volunteer animal-caretaker, Free Again Wildlife Rehabilitation Center, fall 2007 – spring 2010.
1. Newman Center Student Ministry Team, spring 2008 – fall 2008.
   - Community service chair (2008).
   - Social activities committee (2008).

PROFESSIONAL ORGANIZATIONS AND ACTIVITIES

MSU

12. International Association for Great Lakes Research, summer 2017 – present.
11. National Wild Turkey Federation, spring 2016 – 2017.
    - Hunter-safety certified through their Learn to Hunt Turkey Program in spring 2016.

10. Pheasants Forever, spring 2016 – 2017.
9. The Wildlife Society student membership, spring 2016 – present.
   - Member of Michigan Chapter of the Wildlife Society, spring 2017 – present.

8. Ecological Society of America student membership, spring 2016 – 2017.
   - Member of Statistical Ecology, Student, and Theoretical Ecology sections.

7. Ducks Unlimited, spring 2015 – 2016.
6. MSU Quantitative Ecology Reading Group, summer 2015 – present.
5. Neotropical Raptor Network membership, fall 2013 – spring 2014.
4. Raptor Research Foundation student membership, spring 2013 – fall 2014.
3. Wilson Ornithological Society student membership, spring 2013 – fall 2014.
2. Experience with statistical analytics using R Statistical Software 3.2.3, spring 2012 – present.
1. Experience with computer programming using Microsoft Visual Studio 2010 (Visual C#), fall 2011 – present.

WVU

8. WVU Wildlife Society, fall 2011 – spring 2014.
7. WVU Wildlife and Fisheries Reading Group, fall 2011 – spring 2014.
6. Eastern Golden Eagle Working Group (EGEWG), fall 2011 – spring 2014.
   - Wings Across the Americas Award (2013), presented to the research team by the U.S. Forest Service.
     - An annual award recognizing individuals and groups that provide outstanding contributions to international conservation of important bird species.

5. Appalachian Eagles website, spring 2012 – spring 2014.
   - Image processing: using Adobe Photoshop CS5.1 to process trail camera photos for Appalachian Eagles (http://www.appalachaineagles.org).

4. Experience with nocturnal surveys of *Caprimulgid* birds (e.g., whip-poor-wills) in southern West Virginia, alongside a colleague in the Katzner Laboratory, summer 2012.
3. Experience with performing necropsies on 3 Black vultures at WVU, alongside a colleague in the Katzner Laboratory, fall 2012.
2, Experience with surveying for raptors on migration (both spring and fall) at watch sites throughout West Virginia, Maryland, Pennsylvania, and Minnesota, fall 2011 – spring 2014. I also have experience with supervising undergraduate volunteers on my project, which involves surveys for migratory raptors.
1. Experience with professional training for trapping raptors and harnessing raptors with transmitters (fall 2013) through workshops at the I Worldwide Raptor Conference in Bariloche, Argentina—sponsored by the Early Career Raptor Researchers program of the Raptor Research Foundation.

SIUC

3. SIUC Leadership Council, fall 2006 – spring 2007.
2. SIUC Zoology Club, fall 2006 – spring 2010.
   - Extracurricular activities committee (2007 – 2008).

1. Alpha Lambda Delta National Honor Society, spring 2007 – spring 2010.
   - Community service committee (2007).

PROFESSIONAL REFERENCES*

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