

TERRY L. MASTER

CURRICULUM VITAE

1989-2019



PROFESSIONAL HONORS

1. **Earle L. Poole Award, Pennsylvania Society for Ornithology, June 1, 2013.** A single award presented annually for persons making significant contributions to Pennsylvania ornithology. Awarded for mentoring 25 graduate students at that time whose thesis research has been devoted to ornithological studies/conservation in Pennsylvania.
2. **Partner in Conservation Award, U.S. Department of the Interior, April 2010.** "Awarded for outstanding conservation achievement through collaborative and partnership with others." Specifically, for being an active member of the Cherry Valley Steering Committee whose purpose was to document the characteristics of Cherry Valley that made it suitable for designation as a National Wildlife Refuge. Cherry Valley National Wildlife Refuge was established in 2010.
3. **Who's Who Among American Teachers, 1994.** I was nominated by students for this award.

EDUCATION:

Degree	School	Year
B.S.	Muhlenberg College	1976
M.S.	East Stroudsburg University	1980
Ph.D.	Lehigh University	1989

AREAS OF SPECIALIZATION / STUDY SUBJECTS

- Ornithology:** *Foraging behavior/competition* - Snowy Egret, Great Egret, Black-crowned Night-Heron, Double-crested Cormorant, Forster's Tern
Neotropical migrant ecology - Acadian Flycatcher, Louisiana Waterthrush, Blue-headed Vireo
- Tropical Ornithology:** *Riparian songbird competitive interactions* - Louisiana Waterthrush, American Dipper, Torrent Tyrannulet
- Behavioral Ecology:** *Territoriality* - Sheepshead Minnow

TEACHING POSITIONS HELD

Adjunct Professor:	Lehigh University	1988
Adjunct Professor:	Northampton Community College	1984-1992
Instructor - Full Professor:	East Stroudsburg University	1989-present

TEACHING EFFECTIVENESS

Courses Taught at ESU

Lower Level Classes	Introductory Biology I, General Ecology, Field Zoology
Lower Level Labs	Introductory Biology I,II; Human Anatomy I, II; General Ecology, Field Zoology, Animal Biology
Upper Level Undergraduate Classes	Comparative Vertebrate Anatomy, Ornithology, Animal Behavior, Seminar I, II
Upper Level Undergraduate Labs	Comparative Vertebrate Anatomy, Ornithology, Animal Physiology
Upper Level Undergrad/Grad Classes	Predator-Prey Relationships, Behavioral Ecology, Biology of Tropical Ecosystems,
Upper Level Undergrad/Grad Labs	Behavioral Ecology

Marine Science Consortium Course (now Chincoteague Bay Field Station) - Chincoteague, Virginia

1. Behavioral Ecology - 1993
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Study Abroad Courses

Costa Rica – (1995-2001)	Tropical Ornithology taught through Estación Biologica La Suerte, ESU students and students from throughout the United States
Costa Rica – (2006, 2008)	Tropical Ornithology taught at Estación Biologica El Zota, Parc Nacional Tapanti, Parc and Nacional Volcan Poas
Costa Rica – (2009-2019)	Biology of Tropical Ecosystems course, team-taught with Dr. Tom LaDuke and Dr. Sandy Whidden, ESU and Moravian College students (taught at Estación Biologica El Zota)

Study Abroad Independent Study Offerings

Kenya 1990, 1991, 1992, 1998	3 ESU students, 2 Lehigh University Students
Kenya/Tanzania 2000, 2005	2 ESU students
Ecuador/Galapagos Is., 1992, 2002	1 Ohio University student

New Courses Developed

Animal Behavior, Animal Behavior Lab, Behavioral Ecology, Behavioral Ecology Lab, Predator-Prey Relationships, Biology of Tropical Ecosystems

Programs Developed

1. Integrative Animal Behavior - interdisciplinary concentration with Psychology Department
2. Integrative Organismal Biology

Student Evaluation Scores

1989-1993, Adjunct/Tenure/Promotion to Associate Professor. **Mean Score = 4.55** for questions 7,8,9,11,15,16,19 across 49 sections, at all class/lab levels, 503 students responding.

1994-1998, Early promotion to Full Professor. **Mean scores = 4.20 and 4.30** on questions 8 ("The instructor seems well prepared") and 19 (Overall, I rate this instructor a good teacher), respectively, across 38 sections at all class/lab levels, 737 students responding.

2009-2014 5-year review. **Mean score = 4.47** for 8 sections (General Ecology lecture, lab; Ornithology, Animal Behavior, Behavioral Ecology), for question #10, "Overall I rate this instructor a good teacher", 86 students responding

Fall 2014. **Mean Score = 4.49** for three classes, General Ecology, Behavioral Ecology and Seminar I for the question, "Overall I rate this instructor a good teacher", 60 students responding. A score of 5 was achieved with 8 students reporting from one General Ecology Lab.

2015-2019 5-year review, ongoing, student evaluation summaries not received yet

Selected Student Comments [2012 and 2013 were the only years when I had evaluations done (for my previous 5-year review) that incorporated the written questions]

1. "Overall I thought Dr. Master was a great professor and he explains the course material very well." General Ecology Lecture 2013.
2. "Information is explained well verbally." General Ecology Lecture 2013.
3. "The strongest aspect was getting to go on the field trips for labs." General Ecology Lab 2013.
4. "The lab assignments and field experience contribute to our understanding, they were stimulating." General Ecology Lab 2013.
5. "Very interesting and informative." Animal Behavior Lecture 2013.
6. "The teaching made it easy to understand." Animal Behavior Lecture 2013.
7. "One of the best classes offered at ESU, a great course that serves as a foundation for further studies in the field." Behavioral Ecology 2012.
8. "Very challenging professor, explains subject matter very well." Behavioral Ecology 2012.
9. "The strongest aspect of this course is that the professor makes it fun to learn and always keeps you interested." Ornithology 2012.
10. "The lab is much more helpful to see the birds in the field than seeing them on a power point." Ornithology 2012.
11. "I enjoyed this course very much, Drs. Master and Whidden are excellent instructors very enthusiastic and knowledgeable about subject matter." General Ecology 2012.
12. "I hope Dr. Master teaches many more bio classes." General Ecology 2012.
13. "Great balance between discussions of large and small scale ecology with relevant examples and joint field lab program. The big and small picture were shown clearly at the same time and made relevant." General Ecology 2012.
14. "The class provided such a beneficial experience for my biology career. Getting out into the field is so essential and rewarding for undergraduate students. A course like this was exactly what I was looking for. There is no better opportunity to explore the tropics than with our 3 wonderful and knowledgeable professors. It was an experience of a lifetime." Biology of Tropical Ecosystems 2012. Team taught with Drs. LaDuke and Whidden.
15. "Best class ever taken." Biology of Tropical Ecosystems 2012. Team taught with Drs. LaDuke and Whidden.
16. "This course gives the most intense hands on experience of any course I have ever had. It is not only the best experience of my college career but also one of the greatest experiences of my life. Everyone should have an experience like this one." Biology of Tropical Ecosystems 2012. Team taught with Drs. LaDuke and Whidden.

Thesis Committee Activities

1. Advised 30 graduate students, 19/23 on thesis track have completed their degree with an additional completion during spring, 2019.
2. Served on 51 other graduate committees.

External Thesis Committee

1. Served on the Ph.D. thesis defense committee of Jerome Smith as an External Examiner. "Mate Choice and Reproductive Success in the Beaugregory Damsel Fish" University of the West Indies, Kingston, Jamaica.

Mentoring Outcomes

1. 12 comments on being a positive influence by students from 2009-2014.
2. 6/20 thesis track graduate students have gone on to Ph.D. candidacies.

SCHOLARLY GROWTH – PUBLICATIONS (* w/ESU undergrad, ** w/ESU graduate)

Book Editorship

1. *Majumdar, S. K., Master, T. L., Brittingham, M. C., Ross, R. M. Mulvihill, R. S. and J. E. Huffman (Eds.). 2010. Avian Ecology and Conservation: A Pennsylvania Focus with National Implications. Pennsylvania Academy of Science, Easton, Pennsylvania. 368 pp.*

Peer Reviewed Journal/Book Chapter Publications

1. **Barnes, K. B. and **N. Ernst, **M. C. Allen, T. L. Master and *R. Lausch. 2019. Louisiana Waterthrush density and productivity in hemlock-dominated headwater streams: the influence of stream morphology. *Northeastern Naturalist* 25: 587-598.
2. **McCabe, R. A., *C. L. Baun, L. J. Goodrich, **T. L. Master** and K. L. Bildstein. 2016. Turkey vulture visits broad-winged hawk nest and consumes prey remains. *Journal of Raptor Research* 50(4):424-425.
3. **Curley, S., **T. L. Master** and G. George. 2012. Population distribution, density and habitat preference of the Cerulean Warbler (*Setophaga ruticilla*) in the Delaware Water Gap National Recreation Area. *Ornithologia Neotropical* 23: 351-357.
4. **Master, T. L.** 2012. Great Egret, Black-crowned Night-Heron, Yellow-crowned Night-Heron, Belted Kingfisher, Acadian Flycatcher, Warbling Vireo and Swamp Sparrow species account chapters. *In The Second Atlas of Breeding Birds in Pennsylvania*, A. M. Wilson, D. W. Brauning and R. S. Mulvihill, eds. Penn State University Press, University Park, Pennsylvania. 586 pp.
5. **Master, T. L.** and **M. C. Allen. 2012. Acadian Flycatcher (*Empidonax vireescens*) nest tail structure and function in temperate forests. *American Midland Naturalist* 167: 136-149.
6. **Master, T. L.** 2010. Black-crowned Night-Heron, Yellow-crowned Night-Heron, Great Egret species account chapters. *Terrestrial Vertebrates of Pennsylvania: A Complete Guide to Species of Conservation Concern*. Johns Hopkins University Press, Baltimore, MD. 507 pp.
7. **Master, T. L.** and R. S. Mulvihill. 2010. Louisiana Waterthrush species account. *Terrestrial Vertebrates of Pennsylvania: A Complete Guide to Species of Conservation Concern*. Johns Hopkins University Press, Baltimore, MD. 507 pp.
8. **Master, T. L.** 2010. Avian community characteristics and riparian habitats. *In Avian Ecology and Conservation: A Pennsylvania Focus with National Implications.*, pp. 62-74. (S. K. Majumdar, T. L. Master, M. C. Brittingham, R. M. Ross, R. S. Mulvihill and J. E. Huffman, eds.). Pennsylvania Academy of Science, Easton, PA.

9. **Master, T. L.** 2010. Section I: Breeding Birds of Pennsylvania and their habitats. *In Avian Ecology and Conservation: A Pennsylvania Focus with National Implications*, pp. 12-13. (S. K. Majumdar, T. L. Master, M. C. Brittingham, R. M. Ross, R. S. Mulvihill and J. E. Huffman, eds.). Pennsylvania Academy of Science, Easton, PA.
10. **Schreffler, L., J.K. Leiser and **T. L. Master.** 2009. Costs and benefits of foraging alone or in mixed-species aggregations for Forster's Terns. *Wilson Bulletin* 122: 95-101.
11. **Allen, M. C., **J. Sheehan, **T.L. Master** and R. S. Mulvihill. 2009. Acadian Flycatcher responses to Hemlock Woolly Adelgid infestation in Appalachian riparian forests. *The Auk* 143: 543-553.
12. **George, G. and **T. L. Master.** 2008. Foraging behavior of the Torrent Tyrannulet (*Serpophaga cinerea*) in Costa Rica. *Ornithologica Neotropical* 19: 595-598.
13. **Master, T.L., R.S. Mulvihill, R. Leberman, J. Sanchez and E. Carman.** 2006. A Preliminary Study of Riparian Songbirds in Costa Rica with Emphasis on Wintering Louisiana Waterthrushes. *In C. John Ralph and T. D. Rich (eds.). Bird Conservation, Implementation and Integration in the Americas: Proceedings of the Third International Partners In Flight Conference*, volume 1. General Technical Report PSW-GTR-191, Pacific Southwest Research Center, Albany, CA.
14. **Master, T., J. Leiser, *K. Bennett, *J.K. Bretsch and *H.J. Wolfe.** 2005. Patch selection by Snowy Egrets. *Waterbirds* 28: 220-224.
15. *Mulvihill, R. S., A. Cunkelman, L. Quattrina, T. O'Connell and T. L. Master.* 2002. Opportunistic polygyny in the Louisiana Waterthrush. *Wilson Bulletin* 114: 106-113.
16. *Sanchez, J., R.S. Mulvihill and T. L. Master.* 2000. First description of the nest and eggs of the Green-crowned Brilliant (*Heliodoxa jacula*), with some behavioral notes. *Ornithologica Neotropical* 11: 189-195.
17. *Parsons, K. C. and T. L. Master.* 2000. Snowy Egret (*Egretta thula*). *The Birds of North America*, Inc. The Academy of Natural Sciences, Philadelphia; The American Ornithologist's Union, Washington, D.C
18. **Master, T. L.** 1999. Predation by Rufous Motmot on Black-and-Green Poison Dart Frog. *Wilson Bulletin* 111: 439-440.
19. **Master, T. L.** 1998. *Dendrobates auratus*-Predation. *Herpetological Review* 29: 164-165.
20. **Master, T. L.** 1995. A summary of ecological and behavioral characteristics of Pennsylvania's piscivorous birds in relation to attraction to aquaculture facilities. *Pennsylvania Birds* 9: 11-13.
21. *Brauning, D. W., M. C. Brittingham, D. Gross, R. C. Leberman, T. L. Master and R. S. Mulvihill.* 1994. Pennsylvania breeding birds of special concern: a listing rationale and status update. *Pennsylvania Academy of Science* 68:3-28.
22. ***Master, T.L., M. Frankel and *M. Russell.** 1993. Benefits of foraging in mixed-species wader aggregations in a southern New Jersey salt marsh. *Colonial Waterbirds* 16: 149-157.
23. **Master, T.L.** 1992. Composition, structure, and dynamics of mixed-species foraging aggregations in a southern New Jersey salt marsh. *Colonial Waterbirds* 15: 66-74.
24. **Master, T. L.** 1992. Green Heron, Mute Swan, Turkey Vulture, Short-eared Owl, Downy Woodpecker, Hairy Woodpecker, Northern Flicker, Eastern Kingbird, Purple Martin, European Starling, Yellow-throated Vireo, Warbling Vireo, Kentucky Warbler, Song Sparrow, Purple Finch and House Finch species accounts. *In Atlas of Breeding Birds in Pennsylvania*. D. W. Brauning, ed. University of Pittsburgh Press, Pittsburgh, PA. 484 pp.
25. **Master, T.L.** 1991. Use of tongue-flicking behavior by the Snowy Egret. *Journal of Field Ornithology* 62: 399-402.

Peer Reviewed Online Publications

1. *Allen, M. C.**, M. Napoli**, J. Sheehan**, T. L. Master, Peter Pyle, D. R. Whitehead and T. Taylor.* 2017. Acadian Flycatcher (*Empidonax virescens*), version 2.0. *In The Birds of North*

America (P. G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca, New York, USA.
<https://doi.org/10.2173/bna.acaflly.02>

2. **Master, T. L.** 2011. Rufous Motmot (*Baryphthengus martii*), Neotropical Birds Online (T. S. Schulenberg, Editor). Ithaca: Cornell Lab of Ornithology; retrieved from Neotropical Birds Online: http://neotropical.birds.cornell.edu/portal/species/overview?p_p_spp=286296
3. **Master, T. L.** 2011. The Legacy of the Louisiana Waterthrush. WebExtra online article accompanying a printed article in Birding Magazine Vol. 43(3), May 2011. <http://aba.org/birding/v43n3p5w1.pdf>
4. **Mattsson, B., T. L. Master, R. S. Mulvihill and W. Douglas Robinson.** 2008. Louisiana Waterthrush (*Parkesia motacilla*). The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/151>

Peer Reviewed Technical Reports

1. **Master, T.L., **S. Cannon, D. Gross and P. Barber.** 2015. Management of the Osprey (*Pandion haliaetus*) in Pennsylvania. Pennsylvania Game Commission, Harrisburg, PA.
2. ****Sheehan, J. and T.L. Master.** 2010. Birds of Wetland Habitats in Delaware Water Gap National Recreation Area. Technical Report NPS/NER/ERMN/NRTR-2010/152. National Park Service, U.S. Dept. of the Interior, Northeast Region, Philadelphia, PA. 99 pp.
3. **Master, T. L., **J. Sheehan, **G. George, **B. Swartzentruber and **S. Hawk.** 2006. Birds of early successional habitats in the Delaware Water Gap National Recreation Area: Distribution, Abundance and Management. Technical Report NPS/NER/NRTR-2006/039. National Park Service, U.S. Dept. of the Interior, Northeast Region, Philadelphia, PA. 140 pp.
4. ****Sheehan, J., **B. Swartzentruber and T. L. Master.** 2005. Effects of hemlock woolly adelgid infestation on songbird populations in and around the Delaware Water Gap National Recreation Area. Wild Resource Conservation Program, PA DCNR, Harrisburg, PA. 71 pp.
5. **O'Connell, T.R., R. Brooks, R.S. Mulvihill, and T.L. Master.** 2003. Using bioindicators to develop a calibrated index of regional ecological integrity for forested headwater ecosystems. Final report to U. S. Environmental Protection Agency, STAR Grants Program, Report Number 2003-1. Penn State Cooperative Wetlands Center, Penn State University, University Park, PA. 95 pp.

Published Photographs

1. **Birding Magazine 2011.** Louisiana Waterthrush photograph, published in vol. 43(3).
2. **Oxford University Press. 2005.** Cattle Egret, Capped Heron, Yellow-crowned Night-Heron and Rufescent Tiger Heron photographs published in Kushlan, J. and J. Hancock. 2005. The Herons. Oxford University Press, Oxford, U.K. 433 pp.

SCHOLARLY GROWTH – UNPUBLISHED REPORTS (w/ESU graduate student)**

1. **T. L. Master.** 2004. Current Status and Management Options for Double-crested Cormorants on Wade Island. Wade Island Management Committee, Pennsylvania Game Commission.
2. **T. L. Master.** 2001. Threat Assessment and Management Recommendations for Wade Island. A management plan submitted to the Pennsylvania Game Commission.

SCHOLARLY GROWTH—ORAL PRESENTATIONS (*ESU ugrad., **ESU grad. presenting)

International Professional Presentations

1. *IX Neotropical Ornithological Congress, Cusco, Peru, November 8-14, 2011.* **Shannon Curley and **T. L. Master**, "Population Distribution, Density and Habitat Preference of the Cerulean Warbler (*Setophaga cerulea*) in the Delaware Water Gap National Recreation Area."
2. *IX Neotropical Ornithological Congress, Cusco, Peru, November 8-14, 2011.* Nicholas **Ernst and **T. L. Master**, "The Louisiana Waterthrush (*Parkesia motacilla*) as a bioindicator of hemlock habitat productivity: a Preliminary Comparison of Hemlock Benches and Ravines."
3. *Fourth International Partners In Flight Conference – Tundra-to-Tropics, Connecting Birds, Habitats and People, McAllen, Texas, February 13-16, 2008.* **Michael Allen, **Jim Sheehan and **T. L. Master**. "Potential Effects of Hemlock Decline on Acadian Flycatcher (*Empidonax virescens*) Populations in the Northeastern U. S."
4. *Waterbird Society, Barcelona, Spain, Oct. 30 – Nov. 3, 2007.* **Lisa Schreffler and **T. L. Master** and "Ecology and Behavior of Forster's Terns (*Sterna forsteri*) in Mixed-species Aggregations."
5. *VII Neotropical Ornithological Congress / VII Congress of the Chilean Ornithologists' Union, Termas de Puyehue, Chile, October 5-11, 2003.* **Greg George and **T. L. Master**. "Habitat Use and Competitive Interactions Among a Guild of Obligate and Migrant Riparian Songbirds in Costa Rica."
6. *Waterbird Society Meeting, Palazzo Congressi, Grado, Italy. 1999.* **T. L. Master**. "Snowy Egret Population Dynamics in Southern New Jersey from 1986-1989."
7. *Waterbird Society Meeting, Palazzo Congressi, Grado, Italy. 1999.* **Heather Wallace and **T. L. Master**. "Estimating the Size of a Heronry Based on Direct and Indirect Information."
8. *Colonial Waterbird Society, Palais de Congres, Arle, France. 1993.* **T. L. Master**. "Aggressive Interactions in Mixed-Species Foraging Aggregations."

Invited Professional Presentations

1. *National Aviary, Pittsburgh, Pennsylvania, 2011.* **T.L. Master**. "Birds of the Rift Valley and Beyond: An Ornithological Safari to East Africa".
2. *Eastern Bird Banding Association, Shawnee, Pennsylvania. 2011.* **T.L. Master**. "A River Runs Through It: History and Bird Research in the Delaware Water Gap National Recreation Area."
3. *Ecological Society of America, Pittsburgh, Pennsylvania. 2010.* **T.L. Master** Symposium - Another Challenge to Eastern Forests of North America; Hemlock Woolly Adelgid, Climate Change and the Loss of Hemlock: "Responses of Eastern Hemlock Dependent Songbirds to Hemlock Woolly Adelgid Infestation in Appalachian Riparian Forest."
4. *American Ornithologist's Union, Philadelphia, Pennsylvania, 2009.* **T.L. Master**. Symposium on Environmental Challenges for Colonial Waterbirds of the Northeastern Seaboard, "Potential Response of Colonially Nesting Riparian Bird Species to Climate Change."
5. *Waterbird Society, South Padre Island, Texas, 2008.* **T. L. Master**. "The Potential Effect of Global Warming on Stream-Dependent Birds."
6. *University of West Virginia, Morgantown, Conservation Biology Seminar, 2007.* **T.L. Master**. "The Role of Private Landowners in Tropical Forest Conservation."
7. *Richard Stockton College, Pomona, New Jersey, Biology Seminar Series, 2006.* **T.L. Master**. "Aliens Attack: Hemlock Woolly Adelgids – a Story about the Birds and the Trees."
8. *Pennsylvania Wild Resource Conservation Program, Annual Board Meeting, Fish and Boat Commission, Harrisburg, Pennsylvania, 2006.* **T.L. Master**. "Wading Birds in the City: Habitat Use and Competition in the Susquehanna River in Harrisburg, PA."

9. **Richard Stockton College, Pomona, New Jersey. 1993. T.L. Master.** "Foraging Behavior of Herons and Egrets."
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National Professional Presentations

1. *American Ornithological Society, Tucson, Arizona, 2018.* **Brandon Swayser, **Jennifer Kutch and **T. L. Master.** "Hooded Warbler habitat use in the Delaware Water Gap National Recreation Area and an association with Japanese Barberry."
 2. *Waterbird Society, South Padre Island, Texas, 2008.* **Don Detwiler, **Brad Romano and **T. L. Master.** "Foraging Habits, Movements and Behavioral Interactions of a Mixed-species Heronry in Pennsylvania."
 3. *Wilson Ornithological Society, Boston, Massachusetts, 2007.* **Michael Allen, **Jim Sheehan and **T. L. Master.** "Comparing Acadian Flycatcher (*Empidonax virescens*) Breeding Biology in Healthy vs. Adelgid Infested Hemlock Stands."
 4. *Waterbird Society, Plymouth, Massachusetts. 2000.* **T. L. Master.** "A Survey of Riparian Passerine Birds of the World with Emphasis on Species in the Western Hemisphere."
 5. *Waterbird Society, Plymouth, Massachusetts. 2000.* **T. L. Master,** **Gregory George, Robert Mulvihill, **James Sheehan, Robert Brooks and Timothy O'Connell. "A Comparison of Louisiana Waterthrush (*Seiurus motacilla*) Foraging Behavior on Pristine, Fragmented and Acid Polluted Streams Across Pennsylvania."
 6. *Colonial Waterbird Society, North Miami, Florida, 1998.* **William Hobbs and **T. L. Master.** "Foraging Success of the Great Blue Heron."
 7. *Colonial Waterbird Society, Charleston, South Carolina, 1996.* **William Hobbs and **T. L. Master.** "Foraging Efficiency of the Great Blue Heron."
 8. *Colonial Waterbird Society, Williamsburg, Virginia, 1991.* **T. L. Master.** "Patch Selection and Formation of Mixed-Species Foraging Aggregations on Salt Marsh Pools."
 9. *Colonial Waterbird Society, Key Largo, Florida, 1989.* **T. L. Master.** "Predation on Fish Populations in Salt Marsh Pools."
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National Council on Undergraduate Research (NCUR) Annual Meeting Presentations

1. *Karena Lloyd-Knight and T. L. Master. 2005.* "Recognition of Microhabitat Features and Implications for Territorial Economics in the Sheepshead Minnow (*Cyprinodon variegatus*)."
Virginia Military Institute and Washington and Lee University, Lexington, Virginia.
2. *Lloyd Lisk and T. L. Master. 2004.* "Caching Behavior in Red-headed Woodpeckers."
University of Indiana, April 15-17.
3. *Dolly Lesniak and T. L. Master. 2004.* "Allocation of Parental Care in Acadian Flycatchers."
University of Indiana, April 15-17.
4. *Rebecca Rigo and T. L. Master. 2001.* "The Effects of Dear Enemy Recognition on Defense Priorities in the Sheepshead Minnow (*Cyprinodon variegatus*): Neighbors vs. Intruders."
University of Kentucky at Lexington, April.
5. *Gregory George and T. L. Master. 2000.* "Foraging Behavior of the Louisiana Waterthrush (*Seiurus motacilla*) on Pristine and Impacted Streams."
The University of Montana, Missoula, April 27-29.
6. *Rebekah Richards and T. L. Master. 1998.* Why Do Fiddlers Fiddle Around: "Mud Fiddler Response to Potential Avian Predators."
Salisbury State University, Salisbury, Maryland, April.
7. *John Leiser and T. L. Master. 1996.* Prior Residency and Territorial Defense in the Sheepshead Minnow.
University of North Carolina at Asheville, April 18-20.
8. *Christine Laskowsky and T. L. Master. 1996.* Territorial Dynamics and the Resource Holding Potential of the Sheepshead Minnow.
University of North Carolina at Asheville, April 14-16, 1996.

9. *Heather Wolfe, Jennifer Bretsch and T. L. Master.* 1995. Aggressive Interactions in Mixed-Species Aggregations." Union College, Schenectady, New York, April 20-22.
10. *Jennifer Bretsch and T. L. Master.* 1994. Patch Selection and Foraging Behavior of Mixed-Species Wader Aggregations on Salt Marsh Pools. Western Michigan University, April 14-16.
11. *Michael Russell and T. L. Master.* 1993. Foraging Success and Aggressive Encounters in Mixed-Species Foraging Aggregations. University of Utah, March 25-27.
12. *Collette Palamar and T. L. Master.* 1993. Testing the Function of Male Coloration in the Sheepshead Minnow (*Cyprinodon variegatus*). University of Utah, March 25-2.

Regional Professional Presentations

1. *Harbor Herons Annual Conference, Staten Island, New York City, New York. November 2016. T.L. Master.* "Pennsylvania has Herons Too: Status and Distribution of Colonial Waders in the Keystone State".
 2. *Northeast Fish and Wildlife Conference, Portland, Maine, April 2014. **Megan Napoli and T. L. Master.* "Using Louisiana Waterthrush (*Parkesia motacilla*) to Gauge Productivity in Two Eastern Hemlock Habitats."
 3. *Northeast Fish and Wildlife Conference, Portland, Maine, April 2014. Megan Napoli** and T. L. Master.* "A Comparison of Hemlock Woolly Adelgid Infestation Levels and Acadian Flycatcher Nesting Success in the Delaware Water Gap National Recreation Area and Delaware State Forest."
 4. *Harbor Herons Subcommittee, NY-NJ Harbor Estuary Program, Staten Island, New York, 2010. T. L. Master,* "History and Status of Colonially Nesting Birds in Pennsylvania".
 5. *Harbor Herons Subcommittee, NY-NJ Harbor Estuary Program, Lyndhurst, New Jersey, 2008. **Brad Romano, **Don Detwiler and T. L. Master.* "Ecology and Behavior of Great Egrets on Wade Island in the Susquehanna River."
 6. *Harbor Herons Subcommittee, NY-NJ Harbor Estuary Program, Fort Wadsworth, Staten Island, New York, 2006. Master, T. L., **Don Detwiler and **Brad Romano.* "Wading Birds in the City: Habitat Selection and Competition on the Susquehanna River in Harrisburg, Pennsylvania."
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Invited State Presentations

1. *Pennsylvania Society for Ornithology, Wilkes-Barre, Pennsylvania, June 2, 2013. T.L. Master,* "The Effects of Hemlock Woolly Adelgid (*Adelges tsugae*) on Dependent Songbirds."
 2. *Bucknell University Biology Department Seminar Series, 1997. T.L. Master,* "Neotropical Migrants as Bioindicators."
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State-wide Professional Presentations

1. *Pennsylvania Academy of Science, Kings College, Wilkes-Barre, Pennsylvania. March 31-April 2, 2017. **Brandon Swayser and T. L. Master.* "Monitoring Habitat Use of Hooded Warblers (*Setophaga citrine*) in Three Understory Types in the Delaware Water Gap National Recreation Area."
2. *Pennsylvania Academy of Science, Kings College, Wilkes-Barre, Pennsylvania. March 31-April 2, 2017. *Melanie Quain, T. L. Master and T. LaDuke.* "Territorial Aggression between captive *Panthera leo* and *Panthera tigris amovensis*."
3. *Pennsylvania Academy of Science, Delaware Valley University, Doylestown, Pennsylvania. April 1-3, 2016. **Rebecca McCabe, Laurie Goodrich, David Barber, Kieth Bildstein and Terry Master.* "Migration and Habitat Use of Migrating Broad-winged Hawks."
4. *Pennsylvania Academy of Science, University of Pittsburgh, Bradford Campus, Bradford, Pennsylvania. April 5-7, 2013. **Katie Barnes and T. L. Master,* "Using Louisiana Waterthrush

- (*Parkesia motacilla*) and Insect Biodiversity to Gauge Productivity in Two Hemlock Habitats in Northeastern Pennsylvania.”
5. *Pennsylvania Academy of Science, University of Pittsburgh, Bradford Campus, Bradford, Pennsylvania. April 5-7, 2013. **Jennifer Vranicar and T. L. Master.* "Habitat Preference of the Hooded Warbler (*Setophaga citrina*) within Delaware Water Gap National Recreation Area."
 6. *Pennsylvania Academy of Science, Cedar Crest College, Allentown, Pennsylvania. March 30-April 1, 2012. **Jennifer (Vranicar) Kutch and T. L. Master,* "Habitat Preference of the Hooded Warbler within Delaware Water Gap National Recreation Area."
 7. *Pennsylvania Academy of Science, Harrisburg, Pennsylvania. March 31 – April 2, 2012. **Nicholas Ernst and T. L. Master.* "The Louisiana Waterthrush as a Bioindicator of Hemlock Habitat Productivity: a Preliminary Comparison of Hemlock Ravines and Benches".
 8. *Pennsylvania Academy of Science, Harrisburg, Pennsylvania. April 1-3, 2011. **Jennifer Vranicar and T. L. Master.* "Hooded Warblers and Japanese Barberry Is There a Relationship Between the Two?"
 9. *Pennsylvania Academy of Science, Harrisburg, Pennsylvania. April 1-3, 2011. **Shannon Curley and T. L. Master.* "Population Density and Habitat Preferences of the Cerulean Warbler (*Dendroica cerulea*), in the Delaware Water Gap National Recreation Area."
 10. *Pennsylvania Academy of Science, Harrisburg, Pennsylvania. April 1-3, 2011. **Nicholas Ernst and T. L. Master.* "The Louisiana Waterthrush as a Bioindicator of Hemlock Habitat Productivity: a Preliminary Comparison of Hemlock Ravines and Benches."
 11. *Commonwealth of Pennsylvania University Biologists Meeting, ESU, April 17-18, 2010. **Shannon Curley and T. L. Master.* "Population Density and Habitat Preferences of the Cerulean Warbler (*Dendroica cerulea*) in the Delaware Water Gap National Recreation Area."
 12. *Commonwealth of Pennsylvania University Biologists Meeting, ESU, April 17-18, 2010. **Matt Bouboulis and T. L. Master.* "A Comparison of Avian Community Characteristics of Grassland and Wetland Ecotones in the Delaware Water Gap National Recreation Area."
 13. *Pennsylvania Academy of Science, Harrisburg, Pennsylvania. April 10-11, 2010. T. L. Master.* "Use of Riparian Birds as Bioindicators."
 14. *Pennsylvania Academy of Science, Harrisburg, Pennsylvania. April 10-11, 2010. **Matt Bouboulis and T. L. Master.* "A Comparison of Avian Community Characteristics of Grassland and Wetland Ecotones in the Delaware Water Gap National Recreation Area."
 15. *Pennsylvania Academy of Science, Harrisburg, Pennsylvania. April 10, 11, 2010. **Joe Yuhas, Master, T. L. and Brady Mattsson.* "Streamside Bird Community Integrity with Emphasis on the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area."
 16. *Pennsylvania Academy of Science, Harrisburg, Pennsylvania. April 1-2, 2009. **Shannon Curley and T. L. Master.* "Population Density and Habitat Preferences of the Cerulean Warbler, (*Dendroica cerulea*), in the Delaware Water Gap National Recreation Area."
 17. *Pennsylvania Academy of Science, Grantville, Pennsylvania, April 4-6, 2008. **Brad Romano, **Don Detwiler, and T. L. Master.* "Foraging Behavior of Great Egrets (*Ardea alba*) on the Susquehanna River in Harrisburg, Pennsylvania in Relation to Environmental Characteristics."
 18. *Pennsylvania Academy of Science, Grantville, Pennsylvania, April 4-6, 2008. **Don Detwiler, **Brad Romano and T. L. Master.* "Foraging Success, Habitat Selection and Reproductive Activities of Black-crowned Night-Herons (*Nycticorax nycticorax*) at Pennsylvania's Largest Mixed-species Heronry."
 19. *Pennsylvania Academy of Science, Grantville, Pennsylvania, April 4-6, 2008. **Michael Allen and T. L. Master.* "Is There Adaptive Significance to Nest Tails in Acadian Flycatchers?"

20. *Pennsylvania Academy of Science, Monroeville, Pennsylvania, March 30 – April 1, 2007.* **Lisa Schreffler, **T. L. Master** and *John Leiser. "Ecology and behavior of Forster's Terns (*Sterna forsteri*) in Mixed-species Aggregations."
21. *Pennsylvania Academy of Science, Monroeville, Pennsylvania, March 30 – April 1, 2007.* ***Michael Allen, **Jim Sheehan and **T. L. Master**. "Comparing Acadian Flycatcher (*Empidonax virescens*) Breeding Biology in Healthy vs. Adelgid Infested Hemlock Stands."
22. *Pennsylvania Academy of Science, Monroeville, Pennsylvania, March 30 – April 1, 2007.* **Brad Romano, **Don Detwiler and **T. L. Master**. "Dining on the Susquehanna: A Look at Foraging Behavior of Great Egrets (*Ardea alba*) near Harrisburg, PA."
23. *Pennsylvania Academy of Science, Grantville, Pennsylvania, March 31-April 2, 2006.* **Lisa Schreffler, *John Leiser and **T. L. Master**. "The Role for Forster's Terns (*Sterna forsteri*) in Feeding Aggregations."
24. *Pennsylvania Academy of Science, Grantville, Pennsylvania, March 31-April 2, 2006.* **T. L. Master**, **Jim Sheehan, **Gregory George and **Beth Swartzentruber. "A Point Count Survey of Birds of Early Successional Habitats in the Delaware Water Gap National Recreation Area."
25. *Pennsylvania Academy of Science, Grantville, Pennsylvania, March 31-April 2, 2006.* **T. L. Master** and **Don Detwiler. "Foraging Success and Habitat Use by a Population of Great Egrets (*Ardea alba*) on the Susquehanna River."
26. *Pennsylvania Society for Ornithology Meeting, Carnegie Museum of Natural History, Powdermill Avian Research Center, Rector, Pennsylvania, May 19, 2006.* **T. L. Master**. "Birds and Hemlock Woolly Adelgids."
27. *Pennsylvania Academy of Science Meeting, Grantville, Pennsylvania, March 31-April 2, 2006.* **T. L. Master**. "Birds of Successional Habitats in the Delaware Water Gap National Recreation Area."
28. *Pennsylvania Academy of Science, Grantville, Pennsylvania, April 4-6, 2003.* **Beth Swartzentruber, and **T. L. Master**. "Habitat Use of Blue-headed Vireos."
29. *Pennsylvania Academy of Science, Grantville, Pennsylvania, April 4-6, 2003.* **Steven Hawk and **T. L. Master**. "Habitat Use of Black-throated Green Warblers."
30. *Commonwealth of Pennsylvania University Biologists (CPUB), Shippensburg University, Shippensburg, Pennsylvania, April 11-13, 2003.* **Jim Sheehan, **T. L. Master** and R. S. Mulvihill. "The Nesting Ecology of Acadian Flycatchers (*Empidonax virescens*) in Eastern Hemlock (*Tsuga canadensis*) Riparian Habitat."
31. *Pennsylvania Academy of Science, Pocono Manor, Mt. Pocono, PA. 1999.* **William Hobbs and **T. L. Master**. "Foraging Success of the Great Blue Heron."
32. *Pennsylvania Academy of Science, Pocono Manor, Mt. Pocono, PA. 1999.* **T. L. Master**. "Louisiana Waterthrush Nesting Success on Pristine and Impacted Streams."
33. *Pennsylvania Academy of Science, Reading, PA. 2000.* **Gregory George, **Jolie Chylack, **Frederick Terranova and **T. L. Master**. "Foraging Behavior of the Louisiana Waterthrush (*Seiurus motacilla*) on Pristine and Impacted Streams."
34. *Pennsylvania Academy of Science, Reading, PA. 2000.* **T. L. Master**, Robert Mulvihill and Robert Brooks. "Louisiana Waterthrush (*Seiurus motacilla*) Productivity on Pristine and Impacted Streams."
35. *Commonwealth of Pennsylvania University Biologists (CPUB) Meeting, ESU, 1997.* **T. L. Master**. "Productivity and Nesting Success of the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area."
36. *Symposium on the Biology of Vertebrates in Pennsylvania, Shippensburg University, Shippensburg, Pennsylvania, 1997.* **T. L. Master**. "Habitat Use and Nesting Success of the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area."
37. *Pennsylvania Society for Ornithology, Penn St. Hazleton campus, Hazleton, Pennsylvania 1995.* **T. L. Master**. "Birds of the Delaware Water Gap."

38. *Pennsylvania Academy of Science, Mt. Pocono, 1992.* **Jeffrey Edwards and **T. L. Master.** "Bird/Habitat Relationships and Songbird Population Trends in the Delaware Water Gap National Recreation Area."
39. *Symposium on Scholarship Reconsidered: Implications for State System Universities, Harrisburg. 1992.* **T. L. Master.** "The Status of Neotropical Migrant Songbird Populations in the Delaware Water Gap National Recreation Area."
40. *Pennsylvania Academy of Science, Wyomissing, 1991.* **T. L. Master.** "Bird/Habitat Relationships and Distribution Patterns Along a Modest Elevational Gradient."

Local Presentations

1. *ESU 2nd Annual Research and Scholarly Symposium, ESU, April 3, 2014.* **Megan Napoli and **T. L. Master.** "A Comparison of Hemlock Woolly Adelgid Infestation Levels and Acadian Flycatcher Nesting Success in Northeastern Pennsylvania."
2. *FDR-Funded Faculty Research Symposium. December 1, 2010,* **Shannon Curley and **T. L. Master.** "The Distribution and Abundance of Cerulean Warblers in the Delaware Water Gap National Recreation Area."
3. *ESU Sigma Xi Research Forum, April 9, 2009.* **Matt Bouboulis, **T. L. Master,** **Jim Sheehan, **Greg George and **Beth Swartzentruber. Avian Edge Communities: A Comparative Analysis between Wetland and Grassland Edge Habitats in Delaware Water Gap National Recreation Area."
4. *Sigma Xi Research Forum, ESU, 2007.* *Michael Perry, **T. L. Master** and James Hunt. "Aggression in Sheepshead Minnows (*Cyprinodon variegatus*) Based on Number of Females Present."
5. *Sigma Xi Research Forum, ESU, 2007.* **Brad Romano, **Don Detwiler and **T. L. Master.** "Dining on the Susquehanna: A Look at Foraging Behavior of Great Egrets (*Ardea alba*) Near Harrisburg, PA."
6. *Sigma Xi Research Forum, ESU, 2007.* **Don Detwiler, **Brad Romano and **T. L. Master.** "Spatial Analysis of Foraging Behavior and Colony Departure Vector Variation in a Population of Great Egrets (*Ardea alba*) in Harrisburg, PA."
7. *Sigma Xi Research Forum, ESU, 2004.* **Don Detwiler and **T. L. Master.** "Foraging Success and Habitat Use by a Population of Great Egrets (*Ardea alba*) on the Susquehanna River."
8. *Sigma Xi Research Forum, ESU, 2004.* *Beth Swineford and **T. L. Master.** "Vigilance Behavior in Antelopes in Relation to Social and Environmental Conditions." (data collected on 2005 tour to Kenya/Tanzania).
9. *Lehigh Valley Ecology and Evolution Society Meeting, Lehigh University, 2006.* **T. L. Master.** "Effects of Hemlock Woolly Adelgid Infestation on Songbird Populations."
10. *Sigma Xi Research Forum, ESU, 2004.* *Lloyd Lisk and **T. L. Master.** "Caching Behavior in the Red-headed Woodpecker."
11. *Sigma Xi Research Forum, ESU, 2004.* *Karena Lloyd-Knight, *Christopher Valdez and **T. L. Master.** "Recognition of Microhabitat Features and Implications for Territorial Economics in the Sheepshead Minnow (*Cyprinodon variegatus*)."
12. *Sigma Xi Research Forum, ESU, 2004.* **Beth Swartzentruber and **T. L. Master.** "The Effects of Hemlock Woolly Adelgid (*Adelges tsugae*) on Breeding Populations of Eastern Hemlock (*Tsuga canadensis*) Dependent Song Birds."
13. *Sigma Xi Research Forum, ESU, 2004.* *Dolly Lesniak, *Errin Shoop and **T. L. Master.** "Allocation of Parental Care in Acadian Flycatchers (*Empidonax virescens*)."
14. *Sigma Xi Research Forum, ESU, 2004.* **Jim Sheehan and **T. L. Master.** "A Survey of Grassland Bird Abundance and Distribution in the Delaware Water Gap National Recreation Area."
15. *Sigma Xi Research Forum, ESU, 2004.* **Gregory George and **T. L. Master.** "Niche Partitioning Among a Guild of Obligate Riparian Songbirds in Costa Rica."
16. *Sigma Xi Research Forum, ESU. 2003.* **Beth Swartzentruber and **T. L. Master.** "Habitat Use of Blue-headed Vireos."

17. *Sigma Xi Research Forum, ESU, 2003.* **Steven Hawk and **T. L. Master.** "Nesting Density and Habitat Use of the Black-throated Green Warbler."
18. *Sigma Research Forum, ESU, 2003.* **Jim Sheehan and **T. L. Master.** "Acadian Flycatcher (*Empidonax virescens*) Nesting Behavior and Habitat Selection in Eastern Hemlock."
19. *Sigma Xi Research Forum, ESU, 2003.* **T. L. Master.** "Observations of a Guild of Obligate Riparian Songbirds on Headwater Streams in Costa Rica with Emphasis on the Louisiana Waterthrush (*Seiurus motacilla*)."
20. *Provost's Colloquium, ESU, 1997.* **T. L. Master.** "Changes in the Populations of Selected Neotropical Migrant Birds in the Delaware Water Gap National Recreation Area."
21. *Sigma Xi Research Forum, ESU, 1997.* **T. L. Master.** "Habitat selection and Population Status of the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area."
22. *Delaware Water Gap National Recreation Area 30th Anniversary Symposium, ESU, 1995.* **T. L. Master.** "Neotropical Migrant Songbird Population Research in the Delaware Water Gap National Recreation Area."
23. *Sigma Xi Research Forum, ESU, 1995.* **T. L. Master.** "Avian Use of an Abandoned Quarry Wetland."
24. *Hemlock Woolly Adelgid Symposium, Delaware Water Gap National Recreation Area, 1994.* **T. L. Master.** "Louisiana Waterthrush Research."
25. *Sigma Xi Research Forum, ESU, 1991.* **T. L. Master.** "Patch Selection and Formation of Mixed-Species Foraging Aggregations on Salt Marsh Pools."
26. *Third Annual Organismal Biology Symposium, Villanova University, 1991.* **T. L. Master.** "Patch Selection and Formation of Mixed-Species Foraging Aggregations on Salt Marsh Pools."
27. *Sigma Xi Research Forum, ESU, 1990.* **T. L. Master.** "Dynamics of Snowy Egret Predation on Fish Populations in Salt Marsh Pools."

SCHOLARLY GROWTH – POSTERS (* ESU undergrad.,** ESU grad. presenting)

International Poster Presentations

1. ***Waterbird Society, Barcelona, Spain, Oct. 30 – Nov. 3, 2007.* **Don Detwiler, **Brad Romano and **T. L. Master.** "Foraging Success, Habitat Use and Reproductive Activities of Black-crowned Night-Herons (*Nycticorax nycticorax*) at an Inland Riparian Mixed-species Heronry on Wade Island, Harrisburg, Pennsylvania."
2. ***Waterbird Society, Barcelona, Spain, Oct. 30 – Nov. 3, 2007.* **Brad Romano, **Don Detwiler and **T. L. Master.** "What's for Dinner? Insight into the Foraging Behavior and Habitat Selection of Great Egrets (*Ardea alba*) from a Mixed-species Nesting Colony on the Susquehanna River in Harrisburg, Pennsylvania."
3. ***North American Ornithological Conference, Veracruz, Mexico, 2006.* **Brad Romano, **Don Detwiler and **T. L. Master.** "Great Egrets in the City: Habitat Use and Competition on the Susquehanna River in Harrisburg, PA."
4. ***Waterbird Society, Cuiaba, Brazil, 2003.* **Renninger, H. and **T.L. Master.** "Foraging Behavior of Snowy Egrets."
5. ***Third International Partners In Flight Meeting, Asilomar, CA. 2002.* **James Sheehan and **T. L. Master.** "Acadian Flycatcher (*Empidonax virescens*) Nesting Behavior and Habitat Selection in Eastern Hemlock (*Tsuga canadensis*) Riparian Habitat."
6. *VI Neotropical Ornithological Congress, Monterrey/Satillo, Mexico, 1999.* Robert Mulvihill, **T. L. Master,** Robert Leberman and Julio Sanchez. "Ornithological Notes from Costa Rica: Winter Ecology of the Louisiana Waterthrush; First Nest Description of the Green-crowned Brilliant."

National Poster Presentations

1. *Waterbird Society, New Bern, North Carolina. 2016. T. L. Master.* "Historical Perspective on the Status and Distribution of Colonial Wading Birds in Pennsylvania".
 2. ***American Ornithologists' Union, Universite Laval, Quebec QC, Canada, August 16-21, 2004. **Gregory George and T. L. Master.* "Resource Partitioning and Habitat Use Among a Guild of Resident and Migratory Riparian Passerines in Costa Rica."
 3. ***American Ornithologists' Union, Universite Laval, Quebec QC, Canada, August 16-21, 2004. **Jim Sheehan and T. L. Master.* "Acadian Flycatcher Nesting Ecology in a Threatened Eastern Hemlock Ecosystem."
 4. ***American Ornithologists' Union, Universite Laval, Quebec QC, Canada, August 16-21, 2004. **Beth Swartzentruber and T. L. Master.* "The Effects of Hemlock Woolly Adelgid on Breeding Populations of Three Species of Eastern Hemlock Dependent Songbirds."
 5. ***Waterbird Society, Plymouth, Massachusetts. 2000. **Lara Gooding and T. L. Master.* "An Experimental Study of Nest Predation Rates for the Louisiana Waterthrush."
 6. ***Wilson Ornithological Society Meeting, Cape May, New Jersey, 1996. **Jeanette Rilling. T. L. Master.* "Habitat Selection and Population Status of the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area."
 7. ***Partners In Flight Conference, Cape May, New Jersey, 1995. **Jeanette Rilling and T. L. Master.* "Population Status and Demography of the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area."
 8. ***Colonial Waterbird Society, Wilmington, North Carolina, 1994. *Jennifer Bretsch, Heather Wolfe and T. L. Master.* "Effects of Fish Activity on the Attractiveness of Salt Marsh Pools to Snowy Egrets and Other Herons."
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State-wide Poster Presentations

1. ***Pennsylvania Academy of Science, Monroeville, Pennsylvania, March 30 – April 1, 2007. **Don Detwiler and T. L. Master.* "Spatial Analysis of Foraging Behavior and Colony Departure Vector Variation in a Population of Great Egrets (*Ardea alba*) in Harrisburg, PA."
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Local Poster Presentations

1. **Bright Lights at ESU Celebration, April 13, 2005. *Karena Lloyd-Knight and T. L. Master.* "Microhabitat Features and Territorial Economics in the Sheepshead Minnow."
2. ***Lehigh Valley Ecology and Evolution Symposium, Muhlenberg College, Allentown, Pennsylvania, April 7, 2005. **Beth Swartzentruber and T. L. Master.* "The Effects of Hemlock Woolly Adelgid Infestation on Breeding Populations of Three Species of Eastern Hemlock Dependent Songbirds in the Delaware Water Gap National Recreation Area."

SCHOLARLY GROWTH– TV PRESENTATION (with **ESU graduate student)

TV Appearance

1. *Greenlife Pennsylvania, Episode 3, "An Unlikely Place for a Nest"*, produced by WVIA-TV, Scranton/Wilkes-Barre, PA. Shown on TV originally in 2009, can be viewed at <https://www.youtube.com/watch?v=ldTF0mRIV0g>. Terry L. Master, **Don Detwiler (ESU) and Douglas Gross (Pennsylvania Game Commission).

SCHOLARLY GROWTH—GRANTS—\$1,098,680.29 TO ESU/\$1,736,180.29 W/COLLABORATORS

Federal Grants – \$1,092,720.64

1. **\$56,986.64, National Park Service, 2009-2010.** Development of a Louisiana Waterthrush and other Riparian Birds Monitoring Protocol for the Eastern Rivers and Mountains Network of the National Park Service.
2. **\$74,441.00, U.S. National Park Service, 2004-2005.** “A Survey of Wetland Birds of the Delaware Water Gap National Recreation Area Using Point Counts.”
3. **\$47,568.00, U.S. National Park Service, 2002-2003.** “A Survey of Grassland Birds of the Delaware Water Gap National Recreation Area Using Point Counts.”
4. **\$1,725.00, U.S. National Park Service, 2002.** Updating of NPSpecies database for birds within the Delaware Water Gap National Recreation Area.
5. **\$850,000.00 (shared with collaborators from the Carnegie Museum, Penn State; ESU share = \$212,500.00), U.S. Environmental Protection Agency, 1998-2001.** “Use of Bioindicators to Develop a Calibrated Index of Regional Ecological Integrity for Forested Headwater Ecosystems.” Co-principle investigator with Dr. Rob Brooks (Penn State) and Robert Mulvihill (Carnegie Museum).
6. **\$62,000.00, National Science Foundation ILI Grant, 1996-1997.** “Integration of the MacLab Physiographic Recording System into the biology curriculum”. Co-principle investigator with Dr. Richard Pekala and Dr. Jane Huffman.

State Grants - \$556,850.00

1. **\$4,200.00, Pennsylvania Game Commission, 2013-2014.** Writing Osprey Management Plan.
2. **\$500,000.00, Mellow-Pennsylvania Department of Education Grant, 2008.** Provided funding to implement Schisler Museum of Wildlife and Natural History design, displays and educational programming. Co-Principle Investigator with Drs. Michael Lieberman and James Hunt.
3. **\$36,500.00, PA-DCNR Wild Resource Conservation Program, 2006-2008.** “The Influence of Resource Requirements and Competitive Interactions on Productivity and Survivorship of Great Egrets, Black-crowned Night-Herons and Double-crested Cormorants at the Wade Island heronry.”
4. **\$10,000.00, PA-DCNR Wild Resource Conservation Fund, 2002.** “Habitat Use of Hemlock Dependent Songbirds in Relation to Hemlock Woolly Adelgid Infestations.”
5. **\$2,900.00, Pennsylvania Game Commission, 2001.** Management Plan for the Wade Island Heronry.
6. **\$3,000.00, PA DCNR Wild Resource Conservation Fund, 1995.** “Habitat use and Population Status of the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area.”
7. **\$250.00, Pennsylvania Academy of Science, 1993.** Funding for graduate student Jeanette Rilling for “Habitat use and Population Status of the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area.”

FDR/FPDC/ESU Foundation Grants – \$55,099.65

1. **\$7,781.00, FDR, 2014-2015. Major Leveraging Grant.** “Nesting and Migratory Behavior of Broad-winged Hawks on the Pocono Plateau.”
2. **\$5,564.80, FDR/FPDC. 2012-2013.** “Riparian Birds as Indicators of Climate Change.”
3. **\$840.00, FDR Mini Grant, 2012.** Page charges for publication of " Master, T. L. and M. C. Allen. 2012. Acadian flycatcher (*Empidonax virescens*) nest tail structure and function in temperate forests. American Midland Naturalist 167:136-149.

4. **\$6,940.00, FDR/FPDC. 2010-2011.** The Louisiana Waterthrush as a Bioindicator of Hemlock Habitat Productivity: Comparing Hemlock Ravines and Benches.
5. **\$6,000.00, FDR/FPDC. 2009-2010.** Population Density and Habitat Preferences of the Cerulean Warbler in the Delaware Water Gap National Recreation Area.
6. **\$600.00, ESU Foundation, 2005.** Purchase of a Nikon digital slide scanner.
7. **\$1,000.00, FDR, 2003.** "Affect of Eastern Hemlock (*Tsuga canadensis*) Woolly Adelgid (*Adelges tsugae*) Infestations on Site Fidelity of the Acadian Flycatcher (*Empidonax vireescens*).
8. **\$371.00, FDR, 1998-1999.** Two grants, for page charges and travel to Waterbirds Meeting, Cuiaba, Brazil, September 24-27, 2003.
9. **\$500.00, ESU Foundation, 1997.** Purchase of binoculars for Ornithology class.
10. **\$2,484.85, FDR. 1994-1996.** Five grants for research equipment, conference travel and page charges.
11. **\$3,050.00, ESU Foundation, 1994-1996.** Three grants for classroom AV equipment, Tropical Biology Studies Fund
12. **\$15,000.00, PASSHE Minority Development Program. 1993.** Funding to bring 3 minority scientists to campus for 2 weeks each to offer seminars, interact with students and give Biocolloquium presentations. Co-Principle Investigator with Dr. Jane Huffman.
13. **\$900.00, ESU Foundation, 1992-1993.** Deer skeleton reconstruction and funding for our Biocolloquium series.
14. **\$600.00, ESU Foundation, 1992.** Nikon slide scanner purchase.
15. **\$1,655.00, FPDC, 1991.** "Long-term Comparison of Migrant Neotropical Songbird Populations in the Delaware Water Gap National Recreation Area."
16. **\$1,813.00, FDR, 1991-1993.** Four grants for conference travel and for continuing studies of mixed-species foraging aggregations in southern New Jersey.

NGO Grants - \$26,500.00

1. **\$12,000.00, Pennsylvania Audubon/PA-DCNR, 2014.** Co-principle investigator with Dr. Diane Husic, Moravian College. "Kittatinny Ridge Pilot Monitoring Project".
2. **\$6,000.00, Rea Internship in Applied Ecology, Powdermill Avian Research Center, Carnegie Museum of Natural History, 2006.** "Investigation of Habitat Use and Productivity of Acadian Flycatchers in a Pristine Eastern Hemlock Environment."
3. **\$2,000.00, Wetlands Institute, 1999.** Supervision of interns and bird research projects.
4. **\$1,500.00, Wetlands Institute, Summer Research Fellowship, 1993.** "Continuing Investigation of the Sturgeon Island Environment."
5. **\$1,000.00, Wetlands Institute, Beach Biology Project, 1995.** Ornithological portion of beach research project.
6. **\$1,000.00, Wetlands Institute, 1994.** For research on "Patch Selection in Foraging Egrets."
7. **\$3,000.00, Wetlands Institute, 1992.** "Environmental Study of Sturgeon Island." Co-Principle Investigator with Dr. Daniel Klem, Jr. of Muhlenberg College.

Other Grants - \$5,010.00

1. **\$5,010.00, Warnell School of Forestry, University of Georgia, 2007.** National Park Service Riparian, Ecological Monitoring Program using Songbirds in the Delaware Water Gap National Recreation Area.

Unsuccessful Grant Activity – \$285,045.12

1. **\$23,000.00, Wild Resource Conservation Program, 2014.** Surveys of Forest-Interior Birds and Habitat Quality along the Eastern Kittatinny Ridge.

2. **\$75, 526.00. Wild Resource Conservation Program, 2012-2013.** "Bridging the Gaps: A Model for Conserving the Kittatinny Ridge and Corridor in Eastern Pennsylvania"
3. **\$25,000.00. ESU President's Grant, 2010.** "Riparian Passerine Birds: Useful Bioindicators of Headwater Stream Condition Throughout the World".
4. **\$18,967.12. PA-DCNR Wild Resource Conservation Fund, 2006.** "Acadian Flycatcher Nesting Success and Breeding Ecology in Hemlock and Deciduous Forests".
5. **\$47,500.00. PA Game Commission, State Wildlife Grant, Pennsylvania Game Commission, 2006.** "Acadian Flycatcher Nesting Success and Breeding Ecology in Hemlock and Deciduous Forests."
6. **\$71,400.00, PA Game Commission, State Wildlife Grant, Pennsylvania Game Commission, 2005.** "Wade Island Waders: A Study of Habitat Use, Productivity, Survivorship and Competitive Interactions with Double-crested Cormorants."
7. **\$9,872.00, Association of Field Ornithologists, Pamela and Alexander Skutch Research Fund. 2002.** "Habitat Use and Competitive Interactions Among a Guild of Resident and Neotropical Migrant Riparian Songbirds in Costa Rica."
8. **\$19,280.00, National Geographic Society. 2001.** "Neotropical Migrant and Resident Songbirds as Bioindicators of Anthropogenic Stressors on Costa Rican Streams."
9. **\$3,500.00, FPDC, 1995.** Population Dynamics and Habitat Use of the Louisiana Waterthrush (*Seiurus motacilla*) in the Delaware Water Gap National Recreation Area."

SCHOLARLY GROWTH – PROFESSIONAL ACTIVITIES

Collaborations

1. **Warnell School of Forestry, University of Georgia, Athens, Georgia. 2006-2010.**
(Eastern Rivers and Mountains Section, National Park Service Vital Signs Program - riparian bird population monitoring).
2. **The Nature Conservancy, Pennsylvania Chapter, Harrisburg, Pennsylvania. 2007-2008.** The Upper Delaware Habitat Connectivity Project. (provided input on one of their target species, the Louisiana Waterthrush. Project designed to determine habitat quality and extent for bioindicator species in northeastern Pennsylvania).
3. **Carnegie Museum of Natural History, Powdermill Avian Research Center, Rector, PA. 2006-2007.** Research Associate.
4. **Bronx Zoo. 2000-present.** Kathleen LaMattina, Collections Manager, offers up close and personal interactions with education animals for Mammalogy Class during the fall semester and Ornithology Class during the spring semester and allows our classes free admittance to the zoo.
5. **The Wetlands Institute, Stone Harbor, NJ. 1989-2006.** Maintained a relationship begun during research on my Ph.D. Dissertation. Various programs at the Institute provided opportunities for many undergraduate internships, graduate student research/room/board (Heather Wallace, Lisa Schreffler) and collaborations (Dr. Daniel Klem, Jr., Muhlenberg College). Several grants were also obtained to support these activities (see NGO grant section above). My major contact there is Professor Emeritus Dr. Roger Wood, recently retired from Richard Stockton College, Pomona, NJ.

Positions at Professional Organizations

1. **Pennsylvania Biological Survey, Ornithological Technical Committee Chair, 2016-present.**
(OTC advises Pennsylvania Game Commission on avian conservation/management issues, member since 1990, secretary from 2010-2015).

2. **Cherry Valley National Wildlife Refuge Study Team, 2007-2010.**
(successfully implemented creation of 20,000 acre Cherry Valley National Wildlife Refuge).
3. **Monroe County Open Space Advisory Committee 2004-2013** (Open Space Bond Issue, reviewed and recommended property purchase/conservation easements in Monroe County, 17,000 acres preserved).
4. **Regional Coordinator, Region 54/55 & Publication Committee member, Second Pennsylvania Breeding Bird Atlas, 2004-2009.** Powdermill Avian Research Center, Carnegie Museum of Natural History.
5. **Councilor, Governing Board of the Waterbird Society, 1997-2000.**
6. **Manuscript referee** – Pennsylvania Academy of Science, Wilson Ornithological Society, American Ornithological Society, Association of Field Ornithologists, Waterbird Society.

Society Memberships

1. Wilson Ornithological Society
 2. American Ornithologists' Union
 3. The Pennsylvania Academy of Science
 4. The Waterbird Society
 5. The Neotropical Bird Club
 6. Northeastern Naturalist
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Meetings/Symposia Organized

1. **Pennsylvania Academy of Science, Harrisburg, April 10-11, 2010.** Symposium on Avian Ecology and Conservation, Pennsylvania Focus with National Implications. Invited authors of chapters in the Academy sponsored/published book of the same name.
 2. **Pennsylvania Society for Ornithology. May 17-19, 2002.** Hosted and assisted in organization of annual meeting held at ESU.
 3. **Waterbird Society, Manomet Center for Conservation Sciences, Plymouth, MA. Nov. 1-5, 2000.** Symposium III: Riparian Birds as Indicators of Riparian Ecosystems, Organizer, T. L. Master.
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Workshops Attended

1. **Council on Undergraduate Research (CUR) Workshop, March 14-16, 1997.** “How to Institutionalize
 2. Undergraduate Research.” University of North Carolina at Asheville.
 3. **The ESU Undergraduate Research Workshop. 1997.**
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Consultantships

1. **Gannett-Fleming, Inc., Harrisburg, PA, 2004-2005.** Wyoming Valley Inflatable Dam Project. Completed bird surveys for Susquehanna River shorelines potentially impacted by the dam. A final report was submitted entitled, “A Survey and Analysis of the Riparian Avian Community along the Susquehanna River, Wilkes-Barre, Pennsylvania.”
2. **Gannett-Fleming, Inc., Harrisburg, 1992.** “Site Survey Report, Ecological Studies, Hartz Mountain Development Corporation Villages at Mill Creek.” Environmental impact statement for development including studies of wetland mitigation areas that Hartz Mountain would need to restore to compensate for wetlands destroyed by their proposed development in the Hackensack Meadowlands, NJ.

3. **Alcyon Environmental, EnCAP Environmental Planners and Consultants, Elgin, IL. 1992.** “Final Report: Ecological Inventory of a Proposed Landfill Site.” Consulting on feasibility of moving an established Great Blue Heron rookery away from a proposed landfill site.
4. **External reviewer**, along with Dr. Jane Huffman, of the Richard Stockton College Department of Biology, Pomona, New Jersey.

UNIVERSITY SERVICE

Schisler Museum of Natural History

1. **2003 – 2015.** Played major role in establishment of the Schisler Museum of Wildlife and Natural History over a period of 12 years. Responsibilities included visits/consultation with the Oakes Museum at Messiah College, collection documentation and measurement, exhibit design, text/wording/content of signage, moving collection to ESU, consulting on exhibit installation and content and hiring of museum curator. Interacted with design and exhibit construction firms (MKSD architects, DesignMinds, Blue Rhino and Explus), subcontractors (mural design/installation and taxidermy) and especially donors Arthur and Fannie Schisler throughout the implementation, design and construction of the museum.

Interim Chair, Department of Biological Sciences

1. Spring 2017 – thru Fall 2017
Routine duties plus supervising/writing 5-year departmental review with external reviewers from Centenary University, hiring a full-time secretary and hiring of a full-time Laboratory Technician.
2. Summer 2008 thru Spring 2009
Routine duties plus supervising transition to the Science and Technology Building and associated space re-allocation in STC and Moore Biology Hall

Department of Biological Sciences Graduate Program Director

1. Fall 2014 thru summer 2016, Spring 2019 onward
Responsible for acceptance decisions, advising graduate students, awarding of Graduate Assistantships/Graduate Worker positions and Graduate Program assessment as chair of the Departmental Graduate Committee.

University-wide Committees

1. 2005-2006. ESU Bright Lights Celebration Committee Member.
2. 2010. Search committee member for International Studies Director, hired Michael Laffey.
3. 1997-2000. Member, East Stroudsburg University Animal Care and Use Committee.
4. 1997. Chair, Undergraduate Research Committee.
5. 1996-1997. Co-chair Undergraduate Research and Creative Activities Committee.
6. 1992. Member, International Education Committee.

Departmental Committees

1. 1994-present, all faculty search and screen committees (entire department is the committee always)
2. 2016-2018 - Chair of Laboratory Technician Committee
3. 2005-2009, 2010-2012. Chair, Departmental Promotion Committee chairperson.
4. 2004. Physics Department promotion committee outside evaluation member.

5. 2003. Co-Chair, search committee for Marine Science Director.
6. 1997, 2000, 2003-2009, 2018-2019. Departmental Evaluation Committee member.
7. 1996 – 2005, 2018-2019. Departmental Biocolloquium Series organizer.
8. 1995-1997. Graduate Application Review Committee.
9. 1994-1997. Articulation Review Committee.

Other Departmental Activities

1. 2008. Implemented re-keying of all rooms in the Moore Biology Hall.
2. 2006. Organized and contributed to renovation of room 110 as a specimen collections and lecture facility in Moore Biology.

COMMUNITY SERVICE (w/ESU graduate student)**

Community Presentations/Field Trips

1. ***Delmarva Ornithological Society, American Birding Association Headquarters, Delaware City, DE, November 15, 2017.*** “What is a Bioindicator that is Unique and Not Especially Common in Louisiana: The Louisiana Waterthrush of Course!”
2. ***Delaware Water Gap Nat’l. Recreation Area Lecture Series, Shawnee Inn, Shawnee, PA, Sept. 23, 2017.*** “Acadian Flycatchers and the Eastern Hemlock: If Only They Ate Adelgids”.
3. ***Lehigh Valley Audubon Society, Wildlands Conservancy Education Building, Emmaus, PA, Sept. 8, 2017.*** “Acadian Flycatchers and the Eastern Hemlock: If Only They Ate Adelgids!”
4. ***Centenary University, Hackettstown, NJ, April 2017.*** Bird walk for Earth Day celebrations.
5. ***Lehigh Valley Audubon Society, Emmaus, PA. May 2016.*** Bird walk on the Freeman Tract Road, Delaware Water Gap National Recreation Area and at Cherry Valley National Wildlife Refuge.
6. ***Centenary University, Hackettstown, NJ, April 2016.*** Bird walk for Earth Day celebrations.
7. ***Lehigh Valley Audubon Society, Emmaus, PA. May 2015.*** Bird walk through the Tannersville Cranberry Bog and Cherry Valley National Wildlife Refuge.
8. ***Pocono Environmental Education Center, September 2014.*** Fall warbler identification program
9. ***Lehigh Valley Audubon Society, Emmaus, PA. May 2014.*** Bird walk on the Freeman Tract Road, Delaware Water Gap National Recreation Area and at Cherry Valley National Wildlife Refuge.
10. ***Lehigh Valley Audubon Society, Emmaus, PA. January 12, 2013.*** “Riparian Songbirds: Canaries in an Aquatic Coal Mine.”
11. ***Lehigh Gap Nature Center, Slatington, PA. September 17, 2011.*** “Waterthrush Research: From the Delaware Water Gap to the Tropics.”
12. ***Mariton Nature Center, Rieglesville, PA. February 18, 2011.*** “Stream Dwelling Songbirds of the World: The Louisiana Waterthrush and Beyond.”
13. ***Mariton Nature Center, Rieglesville, PA. February 19, 2010.*** “Costa Rica from Sea to Summit.”
14. ***Lycoming Audubon Society, Williamsport, PA. November 19, 2008.*** “Stream Dwelling Songbirds of the World.”
15. ***Susquehanna Watershed Working Group, Geisinger Medical Center, Danville, PA. July 2008.*** “The Louisiana Waterthrush as a Bioindicator of Headwater Stream Ecological Integrity” & “Wading Birds in the City: Habitat Use and Competition on the Susquehanna River in Harrisburg, PA.”
16. ***** Wildwood Lake Sanctuary & Benjamin Olewine III Nature Center, Dauphin County Parks and Recreation, Harrisburg, PA. July, 2008.*** Presentation and discussion, along with graduate students Brad Romano and Don Detwiler, on Wade Island in the Susquehanna River to a canoe outing sponsored by Wildwood Sanctuary.”
17. ***AirPro General Meeting, Air Products Retiree Organization, Air Products and Chemicals Incorporated, Trexlertown, PA, June 11, 2008.*** “Birds, People, Climate and Geography of Costa Rica.”

18. ***Friends of the Delaware Water Gap National Recreation Area, Bushkill Visitor Center, July 12, 2008.*** Presented program on hemlock dependent songbirds, focusing on the dependence of Acadian flycatchers on the declining hemlock ecosystem. The presentation was part of a symposium on "Ecosystem in Peril – Saving the Hemlocks."
19. ***PA Department of Conservation and Natural Resources, Employee kayak tour on the Susquehanna River. 2007.*** Presentation with Brad Romano and Don Detwiler at the Wade Island Heronry on grant-funded work investigating habitat use, competition and reproduction of the herons and egrets to a visiting group of professional women employees of DCNR, including the Governor's wife, Marjorie Rendell.
20. ***Friends of the Delaware Water Gap National Recreation Area, Bushkill Visitor Center, July 2007.*** Presented program on "Birds of Successional Habitats in the Recreation Area."
21. ***3rd Annual Wild Resource Festival, Pennsylvania Department of Conservation and Natural Resources, French Creek State Park, June 9, 2007.*** Booth/Program informing public about the management and conservation of the state's largest heronry located on Wade Island in the Susquehanna River in Harrisburg, PA.
22. ***Wildwood Lake Sanctuary & Benjamin Olewine III Nature Center, Dauphin County Parks and Recreation, Harrisburg, PA. January 30, 2007.*** Graduate students Don Detwiler and Brad Romano presented a program on the wading birds of the Susquehanna River.
23. ***Summer Nature Week, Mohunk Mountain House, New Paltz, NY. June 20-24, 2005.*** Invited by Pocono Record Nature Columnist John Serrao to participate in a week-long series of nature programs and activities. Conducted bird walks and gave a presentation on, "Louisiana Waterthrush Ecology and Behavior."
24. ***Lehigh Valley Audubon Society Field Trip Leader. May 2005, 2007.*** Conducted bird walk in the Delaware Water Gap National Recreation Area and Pocono Environmental Education Center.
25. ***Cape Henlopen State Park, Delaware. 1997.*** "A Safari to Kenya and Tanzania."
26. ***J.M. Hill School, Mrs. James 1st Grade Class, 1994-1995.*** Presentations on the "Biology of Cats", "Local Wildlife Ecology" and "Hibernation."
27. ***Penn State Chapter, The Wildlife Society, 1994.*** "A Kenyan Safari."
28. ***Highlands Audubon Society, Newfoundland, NJ, 1994.*** "Plight of Neotropical Migrants."
29. ***Lehigh Valley Audubon Society, Emmaus, PA, 1994.*** "Costa Rican Adventure."
30. ***Wetlands Institute, Delaware Bay Estuary Program, 1994.*** "Plight of Neotropical Migrants"
31. ***Pennsylvania Alliance for Environmental Education, Reflections of a River, 1993.*** Conducted early morning bird walk.
32. ***Upward Bound Program, July 1992.*** Instructed students in songbird surveys along transects on Kittatinny Ridge in the Delaware Water Gap National Recreation Area for Drs. Richard Pekala and Michael Dougherty who were in charge of the program.
33. ***ESU Elderhostel Program, June 1-5, 1992.*** Presented course on "North American Wildlife: Indian Perspectives/Modern Realities."