Cross Timbers Master Naturalist (CTMN) Chapter - Fall 2023 Class Syllabus

Course Director: Melinda Wolfinbarger

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Fort Worth Nature Center and Refuge, Natural Science Supervisor : Michael Perez

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Meeting Times: Tuesday from 9/15/23 to 10/24/23 from 6-9pm.

Field trips occur throughout September and October on the weekends.

Field trip dates are listed below. Locations will be provided during class.

Meeting Locations: Fort Worth Nature Center 9601 Fossil Ridge Rd, Fort Worth, TX 76135

Fort Worth Botanic Garden 3220 Botanic Garden Blvd, Fort Worth, TX 76107

Locations for each date are listed below.

Attendance Requirements: On-time attendance is required for 10 of 11 classroom sessions and 4 of 5 field trips. All material is recommended learning.

Course Description:

The Cross Timbers Texas Master Naturalist training course is a multi-instructor course that is managed by a team of volunteers. The course surveys the natural history of north Texas with emphasis on Aquatic, Woodland, Prairie and Urban systems. Regional experts share knowledge on herpetology, mammalogy, ornithology, arthropods, citizen science, historic Texas naturalists, ecology and geology.

Provided Text: Texas Master Naturalist. 2015. MM Haggerty and MP Meuth, eds. Texas A & M University Press.

CLASS AND FIELDTRIP SCHEDULE:

8/15/23 Welcome to CTMN - Location Fort Worth Botanic Garden Lecture Hall

Instructor: Sam Kieschnick

Sam Kieschnick is an urban wildlife biologist with TPWD serving the east side of the DFW metroplex. He previously worked as a nature educator with the City of Mansfield at Oliver Nature Park, as a naturalist at the Fort Worth Nature Center and Refuge, as a science interpreter with the Fort Worth Museum of Science and History, as a botanist with BRIT, and as an instructor at Weatherford College. He has a master's degree from Tarleton State University studying the genetics of pocket gophers. As an urban wildlife biologist, Sam's focus will be on three a's: awareness, appreciation, and action.

Master Naturalist Textbook Units: 3 Historical Naturalists of Texas, 24 Citizen Science

Presentation Title: Historic Master Naturalists and Citizen Science

- Historic Master Naturalists
- What is a Naturalist?
- The "Master" in Master Naturalists is "Dedicated volunteer"
- Famous naturalists (just a few!)
- Some organisms named after famous naturalists (learn about these folks!)
- Naturalists has a broad range of interests
- Biodiversity in Dallas/Fort Worth
- Personal discoveries are valid!
- Addressing ecological questions with your observations
- Citizen/Community Science
- Prerequisite for becoming a citizen/community scientist: interest!
- Examples of citizen/community science:
- iNaturalist – a tool, but also a community and database!
- So what?
- Relevancy of nature? How to retain hope
- What Master Naturalists do, and why nature matters…

Tues. 8/22/23 General Ecology – Location Fort Worth Botanic Garden Rose Room

Instructor: Rachel Richter

Rachel Richter is an Urban Wildlife Biologist for Texas Parks and Wildlife in DFW. She has a bachelor's degree in Wildlife and Fisheries Science from Texas A&M and a master's degree in Wildlife Ecology from Texas State University. As an urban wildlife biologist, she focuses on making our communities more wildlife-friendly through educational outreach and providing technical guidance.

Master Naturalist Textbook Units: 5 Ecological Concepts, 6 Ecosystems Concepts and Management

Presentation Title: Ecological Concepts

- Definition of Ecology
- Levels of Biotic Organization
- Ecosystem Characteristics
- Trophic Relationships
- Energy Flow and Ecological Efficiencies
- Habitat and Niche
- Evolution
- Population Ecology
- Ecological Succession
- Ecosystem Management

8/29/23 Aquatic Systems – Location Fort Worth Nature Center and Refuge

Instructor: Kenneth Nalley

Kenneth Nalley was born in Houston, TX, but considers Fort Worth his hometown since he has lived there since he was six. He graduated with a Bachelor's degree in Wildlife, Sustainability, and Ecosystem Sciences in 2017. He relocated to Tennessee to work as an Environmental Education Apprentice at Land Between the Lakes National Recreation Area for one year. There, he developed his passion for informal education. He returned to Fort Worth and began work at the Fort Worth Nature Center as a Natural Scientist. His love for the Fort Worth Nature Center was formed when his parents would take the family there as kids and tell stories of the legendary Goatman. The Fort Worth Nature Center is truly a treasure to the city of Fort Worth and its surrounding communities. Kenneth is proud to be part of its legacy.

Master Naturalist Textbook Units: 18 Aquatic Systems Ecology and Management

Presentation Title: Cross Timbers Master Naturalist: Aquatics

- Properties of Water
- The Water Cycle
- Watersheds
- Lotic Systems
- Lentic Systems
- Wetlands Ecology
- GROUP EXERCISE
- Aquatics Fieldtrip Details

9/5/23 Herps – Location Fort Worth Botanic Garden Rose Room

Instructor: Michael Smith

Michael is a retired Psychological Associate with a lifelong interest in nature. He teaches herpetology for a couple of Master Naturalist chapters and writes at https://livesinnature.substack.com. He and Kayla West maintain a Facebook group for those interested in the LBJ National Grasslands (the LBJ Grasslands

Project). He has written two books on reptiles and amphibians for Texas A&M University Press and a third book (expected in 2024) is about mindfulness in nature.

Master Naturalist Textbook Units: 15 Herpetology

Additional Resources:

Field guides:
Tipton, et al. 2012. Texas amphibians: A field guide. Austin: UT Press.
Hibbitts & Hibbitts, 2016. Texas turtles & Crocodilians: A field guide. Austin: UT Press.
Hibbitts & Hibbitts, 2015. Texas lizards: A field guide. Austin: UT Press.
Dixon & Werler, 2005. Texas snakes: A field guide. Austin: UT Press.

Venomous snake bite treatment:
Lavonas, et al. 2011. Unified treatment algorithm for the management of crotaline snakebite in the United States: results of an evidence-informed consensus workshop - https://bmcemergmed.biomedcentral.com/articles/10.1186/1471-227X-11-2

Kanaan, et al. 2015. Wilderness Medical Society practice guidelines for the treatment of pitviper envenomations in the United States and Canada. https://www.wemjournal.org/article/S1080-6032(15)00220-3/fulltext

Presentation Title: Introduction to Reptiles and Amphibians of North Texas

What are they

- Phylogenetically – from the line of 4-footed creatures amphibians diverged early from the rest (which would become mammals, reptiles (and birds). Later, the tuatara, lizards and snakes diverged from the group that would include turtles, crocodilians … and birds.
- Characteristics – herpetofauna, or "herps," are all are vertebrates and ectotherms ("cold-blooded")
- Amphibians – generally have external fertilization, two-stage development, semi-permeable skin
- Examples of local amphibians
- Reptiles - amniotes, generally have internal fertilization, scaly protective skin
- Examples of local reptiles

How do they live

- Reproduction – frog calls, amplexus, tadpoles; salamander spermatophores; reptile courtship, mating, egg-laying vs. live birth, temperature-dependent sex determination
- Thermoregulation – energy benefits of ectothermy, basking, shelter, hibernation/brumation
- Feeding – species with specialized diet; examples of strategies for hunting, subduing prey, consuming
- Defense – crypsis, escape, bluff, rattling tail, biting, venom
- Home range and the problem of translocating herps

How can I find them

- Field guides, natural history books, online resources
- Capture, collect, or "hands off" (reasons for each)
- Where to go looking – know their natural history (habitats, choice of shelter, activity preferences)

- What to bring with you – appropriate clothing, water, equipment such as binoculars, gloves, etc.

Safety

- Venomous snake bite
- Alligators, snapping turtles, etc.

What is their future?

- Threats (Gibbons, et al.) – habitat loss, pollution, climate change, unsustainable use, invasives, diseases
- Amphibian declines – first to make the news but many reptiles are similarly endangered.

9/9/23 Fieldtrip 1 Aquatics
Saturday 9am-3pm approximate
Location Fort Worth Nature Center – further directions will be provided

9/12/23 Forest Systems – Location Fort Worth Nature Center and Refuge
Instructor: Laura Veloz
Laura Veloz is a naturalist with over 20 years of experience in various nature-related roles at the Fort Worth Nature Center & Refuge, a vast 3,600-acre park. Laura places great importance on the connection between park visitors and nature, believing that exploring and enjoying nature leads to a deeper appreciation of the natural world. She has a particular interest in herpetology, entomology, and botany, incorporating her knowledge into presentations, community events, and park tours to raise awareness of the significance of these subjects for nature. Laura holds a bachelor's degree in biology from Texas Christian University (TCU).

Master Naturalist Textbook Units: 17 Forest Ecology and Management

Presentation Title: Forest Systems

9/19/23 Mammals and Birds - Location Fort Worth Botanic Garden Camellia Room
Instructor: Nick Griffin
Nick joined the Marine Corps right out of high school. Afterward, he attained a bachelor's degree in Wildlife Sustainability and Ecosystem Science from Tarleton State University. He started with an internship at the Fort Worth Nature Center and Refuge and was then employed there full-time for a couple of years. He currently works for the Texas Parks and Wildlife in the Inland Fisheries Division.

Master Naturalist Textbook Units: 16 Mammalogy

Additional Resources:

Feldhamer, GA, Drickamer, LC, Vessey, SH, Merritt, JF, and C. Krajewski. 2015.Mammology: Adaptation, Diversity, Ecology. 4th ed. Johns Hopkins University Press.

Schmidly, DJ and Bradley, RD. 2016. The Mammals of Texas. 7th ed. University of Texas Press.

Presentation Title: Mammology

- What is a Mammal?
- Mammal taxonomy
- Mammal origins
- Dentition
- Adaptations
- Locomotion
- Reproduction
- *BONUS* Skull Identification

Instructor: Charley Amos
Charley Amos is a 2015 graduate of the Texas Master Naturalist Program. He has been birding for almost 30 years and has always spent time in nature. He is a two-time past president of the Fort Worth Audubon society and has led birding trips all over the state. Despite birding trips to Costa Rica, Ecuador, Europe, and Canada, his favorite destination is Big Bend National Park. Charley volunteers at several local parks leading nature walks for children and adults. As a Master Naturalist, he also regularly volunteers at local native plant gardens including the Fielder House Garden, Knapp Heritage Park pollinator garden, the greenhouse for the Molly Hollar Wildscape, and the gardens at River Legacy Science Center. He holds bachelor's and master's degrees from the University of Texas at Arlington.

Master Naturalist Textbook Units: 12 Ornithology

Additional Resources:

Ackerman, Jennifer. 2020. *The Bird Way.* Penguin Press.

Beadle and Rising. 1996. *Sparrows of the United States and Canada.* Academic Press. New York.

Dunn and Alderfer. 2017. *National Geographic Field Guide to the Birds of North America,* 7th ed. Disney Publishing Group.

Dunne, Pete. 2013. *Pete Dunne's Essential Field Guide Companion.* Houghton Mifflin Harcourt.

Dunne, Sibley and Sutton. 2012. *Hawks in Flight.* 2nd ed. Mariner Books.

Grant, PJ. 1997. *Gulls: a Guide to Identification,* 2nd ed. Princeton University Press.

Harrison, Peter. 1991. *Seabirds, an Identification Guide.* Houghton Mifflin Harcourt.

Kaufman, Kenn. 2011. *Kaufman Field Guide to Advanced Birding*. Mariner Books.

Kerlinger, Paul. *2008. How Birds Migrate,* 2nd ed. Stackpole Books.

Lee, Cin-Ty. 2023. *Field Guide to North American Flycatchers: Empidonax and Pewees.* Princeton University Press.

Liguori, Jerry. 2011. *Hawks at a Distance: Identification of Migrant Raptors.* Princeton University Press.

O'Brien, Crossley and Karlson. 2006. *The Shorebird Guide.* Collins Reference.

Peterson, RT. 2020. *Peterson Field Guide to Birds of North America.* 5th ed. Mariner Books.

Sibley, David. 2014. *The Sibley Guide to Birds.* 2nd ed. Alfred A. Knopf.

Sibley, David. 2021. *The Sibley Guide to Bird Life and Behavior.* Alfred A. Knopf.

Stephenson, T and Whittle, S. 2013 *The Warbler Guide.* Princeton University Press.

Williamson, Sheri. 2002. A Peterson Field Guide to *Hummingbirds of North America.* Mariner Books.

Presentation Title: Birds

- The importance of birds
- What makes a bird a bird?
- Tips for identification of birds
- Tools for birding
- Bird migration

9/23/23 Fieldtrip 2 Forest Field Trip

Saturday 9am – 3pm approximately

Location Fort Worth Nature Center

9/26/23 Prairie Ecology – Location Fort Worth Botanic Garden Rose Room

Presenter: Michelle Villafranca

Michelle Villafranca is a Park Operations & Natural Resource Planner position in Park Operations where she reviews plans, makes policy recommendations, & advises on natural resource management planning. She serves on the City's Open Space Conservation Program planning committee & is currently co-managing a $150,000 grant for Tandy Hills/Broadcast Hill that includes forestry mulching, invasive species management, interpretive signage, trail construction, & an intern program. Prior to this, she served 11 years as the Natural Resource Specialist for the Fort Worth Nature Center & Refuge. In that role, she was responsible for the Restoration Greenhouse & Seed Collection Program, which incorporated volunteers to produce native plant material for restoration, landscaping, & public programming. She coordinated the Native Neighborhoods program, which provided native plants to Fort Worth residents. Michelle also kick-started the Refuge's Fire Effects Monitoring Program by establishing biological surveys & photo points to determine baseline data to monitor habitat restoration activities; especially prescribed burning. Michelle started with the City of Fort Worth in 2004 as a Forester where she organized tree-planting events and coordinated volunteer projects. Before the City, she worked for various conservation & land management agencies in Texas & beyond.

Textbook Units: Unit 4 pp. 142-145; Unit 7 pp. 257-259

Additional Resources:

Chris Helzer's blog (https://prairieecologist.com)

Native Prairies Association of Texas https://texasprairie.org

Presentation Title: Prairie Ecosystem

- Introduction
- Factors that Define Prairies
- Prairie Adaptations
- Evolution of Prairies
- Our Prairie History
- North Central Texas Prairies
- Prairie Management
- Threats to Prairies
- Make a Difference
- Additional Information

10/3/23 Invertebrates and Dragonflies- Location Fort Worth Botanic Garden Azalea Rm

Instructor: Laura Veloz

Laura Veloz is a naturalist with over 20 years of experience in various nature-related roles at the Fort Worth Nature Center & Refuge, a vast 3,600-acre park. Laura places great importance on the connection between park visitors and nature, believing that exploring and enjoying nature leads to a deeper appreciation of the natural world. She has a particular interest in herpetology, entomology, and botany, incorporating her knowledge into presentations, community events, and park tours to raise awareness of the significance of these subjects for nature. Laura holds a bachelor's degree in biology from Texas Christian University (TCU).

Master Naturalist Textbook Units: 13 Entomology

Presentation Title: Invertebrates

Instructor: Omar Bocanegra

Omar Bocanegra coordinates the Branch of Environmental Review, Classification, and Recovery for the U.S. Fish and Wildlife Services's Arlington, TX Field Office. The Arlington Field Office serves 112 counties in Texas and is the lead office for the endangered peppered chub, sharpnose shiner, and smalleye shiner; as well as the recently recovered black-capped vireo and several at-risk species currently under review. Omar has worked for the Service for over 20 years on endangered species issues, as well as fish and aquatic insect studies, coordination of terrestrial wind energy projects and development of national guidance on compensatory mitigation under the Endangered Species Act. He received both his Bachelor of Science in Environmental Biology and Master of Science in Biology from the University of Texas at Arlington. His master's research focused on sexual selection in the desert firetail damselfly.

Master Naturalist Textbook Units: 13 Entomology

Presentation Title: An Introduction to Dragonflies and Damselflies in the U.S. and Texas

- Diversity of dragonflies and damselflies in the US and Texas
- Differences in dragonflies and damselflies
- Life History
- Reproductive Strategies
- Habitat types
- Common Texas species

10/7/23 Fieldtrip 3 Prairies

Saturday 9am to 3 pm

Location TO BE ANNOUNCED

Tues. 10/10/2023 Urban Systems Location Fort Worth Botanic Garden Rose Room

Presenter: Rachel Richter

Rachel Richter is an Urban Wildlife Biologist for Texas Parks and Wildlife in DFW. She has a bachelor's degree in Wildlife and Fisheries Science from Texas A&M and a master's degree in Wildlife Ecology from Texas State University. As an urban wildlife biologist, she focuses on making our communities more wildlife-friendly through educational outreach and providing technical guidance.

Master Naturalist Textbook Units: 21 Urban Ecosystems

Additional resources:

Green Cities: Good Health, Urban Forestry/Urban Greening Research, University of Washington, US Forest Service, Urban and Community Forestry. Green Cities Good Health website: https://depts.washington.edu/hhwb/

Crompton, John L., The Proximate Principle: The Impact of Parks, Open Space and Water Features on Residential Property Values and the Property Tax Base. 2nd Ed.

Israel, Jessie and Kathleen L. Wolf. Outside Our Doors: The Benefits of Cities Where People and Nature Thrive. The Nature Conservancy, Wash DC. Feb 2016.

Urban Nature for Human Health and Well-Being: A Research Summary for Communicating the Health Benefits of Urban Trees and Green Space. US Forest Service, FS-1096. Feb 2018

https://rpts.tamu.edu/wp-content/uploads/2020/11/The-Proximate-Principle-Table-of-Contents.pdf

https://static1.squarespace.com/static/5602e09be4b053956b5c8d3a/t/60c26b0073cac55ee78d8b01/1623354133665/TNC_OutsideOurDoorsReport_Redesign_FINAL.pdf

https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/urbannatureforhumanhealthandwellbeing_508_01_30_18.pdf

Presentation Title: Urban Wildlife; Nature in the Backyard

- Urbanization in Texas
- Urban Ecosystems
- Synurbization
- DFW Urban Wildlife Project
- Human-Wildlife Interaction Management
- Creating Habitat
- The Proximate Principle
- Benefits of Nature for Humans

10/14/23 Field Trip 4 Urban Systems

Saturday 9am to 3 pm

Location TO BE ANNOUNCED

10/17/23 Volunteer Opportunities Location Fort Worth Botanic Garden Camellia Room

Presenter: Multiple presenters will give a brief summary of volunteer opportunities within our chapter

Master Naturalist Textbook Units: 23 Volunteers as Teachers

10/22/23 Fieldtrip 5 Land Stewardship; Sunday 9am to 3 pm

Location TO BE ANNOUNCED

Master Naturalist Textbook Units: 21 Urban Ecosystems

Additional resources:

Education & Research — Friends of Tandy Hills

1946 Monograph written by Dr. E.J. Dyksterhuis characterizing the vegetation of the Fort Worth Prairie: The Vegetation of the Fort Worth Prairie, by E.J. Dyksterhuis, 1946 — Friends of Tandy Hills

1989 Environmental Assessment of Tandy Hills by former Nature Center Manager, Wayne Clark: First Annual Report, Environmental Assessment of Tandy Hills Park, 1989 — Friends of Tandy Hills

1993 Prospectus by Wayne Clark with recommendations for land management actions at Tandy Hills: Prospectus, 1993 — Friends of Tandy Hills

2008 Strategic Master Plan for Tandy Hills: Microsoft Word - Final Master Plan July 08 PACS EDITS.doc (fortworthtexas.gov)

10/24/23 Geology Location Fort Worth Botanic Garden Rose Room

Presenter: Dr. Omar Henry, Texas Christian University

Master Naturalist Textbook Units: 7 Geology and Soils