

2024-2025 North Dakota Envirothon Forestry Resources

Key Topic #1: Forest Landscapes in North Dakota

1. Explain the forest resources found in North Dakota, including the different forest types (upland, riparian, western coniferous, conservation tree plantings, community forests, etc.) and how North Dakota's climate and topography affect forest succession and locality
2. Understand the challenges and threats to North Dakota's forest resources, and strategies to mitigate these threats
3. Explain how fire has an impact on managing forests and grasslands, historically and in today's management strategies

Resources:

[North Dakota Forest Action Plan](#), North Dakota Forest Service, 2020

[Forestry Fridays](#)

[Forest Resources of North Dakota](#)

[Challenges of Growing Trees in North Dakota](#)

[Right Tree, Right Place](#)

Key Topic #2: Field Skills and Identifications

4. Identify common trees of North Dakota forests (common and scientific name) by leaves, bark, branching patterns, buds, fruit, and other characteristics with and without the use of a key.
5. Apply common forestry tools and procedures to field scenarios.
6. Utilize and make common forestry measurements in field scenarios.

Resources:

[North Dakota Tree Handbook](#)

[Key \(Leaf\) to Identifying Trees and Shrubs](#)

[Deciduous Tree Identification](#), ND Envirothon Wednesday Webinar, April 19, 2023 (start at 3:50)

[Conifer Identification](#), ND Envirothon Wednesday Webinar, March 22, 2023

[Forestry Tools](#), ND Envirothon Youtube

[Forest Inventory Tools Playlist](#), University of California Agriculture and Natural Resources

Tree Measurement Tools

Using a Clinometer to Measure Tree Height

Plot Establishment Tools

Plot Layout and Inventory System

Key Topic #3: Forest Management

7. Apply Forest Management planning and the incorporation of treatment methods to meet landowner objectives.
8. Evaluate stand conditions utilizing stand and stocking tables.

Resources:

[North Dakota Forest Best Management Practices](#), *North Dakota Forest Service*, 2010

[Forest Ecology](#), *ND Envirothon Wednesday Webinars*, March 27, 2024

[Aspen Management for Wildlife](#), *Forestry Fridays*, 2023

[Forest Management](#), *National Association of State Foresters*

[Monitoring Forest Health Activity](#), *Project Learning Tree*

[Woodland Stewardship: A Guide for Midwestern Landowners](#)

[Upland Central Hardwoods Stocking Chart](#)

[American Forest Foundation My Land Plan The woodland owner's resource](#)

[Managers Handbook for Northern Hardwoods in the North Central States](#)

[Landscape Forest Stewardship Plan Turtle Mountain Landscape](#)

Key Topic #4: Economic Benefits and Ecosystem Services of Forests and Urban Trees

9. Describe the ecosystem services provided by forests and urban trees, including benefits to water quality and wildlife.
10. Describe the social and communal benefits of trees and forests to humans.
11. Describe management strategies for non-timber Forest Products including wild foods, maple products, wildlife, and recreation.

Resources:

[Benefits of Trees](#), *International Society of Arboriculture*, 2021

[The Healing Powers of Trees](#), *Arbor Day Foundation*, 2014

[North Dakota Tree Inventory and Planning Tool \(ND TIP Tool\)](#)

[Ojibwe Ethnobotany](#), *Voyagers National Park*, 2023

[Forest Literacy Framework](#), *Project Learning Tree*

Key Topic #5: Forest Pests, Diseases, and Invasive Species

12. Identify common North Dakota forest pests and diseases, and describe their impact to forest health and local ecosystems (including the Emerald Ash Borer, Oak Wilt and Dutch elm disease).
13. Explain prevention and treatment options for controlling North Dakota pests and diseases.
14. Identify the impacts of climate change on forests.
15. Describe the ways in which forests help mitigate the effects of climate change.

Resources:

[Forest Health Highlights](#), *North Dakota Forest Service*, 2023

[Emerald Ash Borer: Biology and Integrated Pest Management in North Dakota](#), *NDSU Extension*, 2023

[Where to Look for Emerald Ash Borer](#), *Forestry Fridays*, 2023

[Trees in Trouble Activity](#), Project Learning Tree

[Forest Ecology](#), *ND Envirothon Wednesday Webinars*, March 27, 2024 (start at 24:17 for climate change information)

[Changing Climate, Changing Forests](#), *USDA Forest Service*, 2014

[Forests and Climate Change Curriculum Activities](#), *Project Learning Tree*

[Climate Change](#), *USDA Forest Service*

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