

# Understanding our Forests: Benefits, threats, and challenges.

## Course Description:

Forests are the dominant ecosystem of the Earth's land area and play important roles in many processes that affect human society and our global economy. Forest structure and function are being altered by human activity, most critically by climate change. In this course we will examine the variety of the Earth's forests and woodlands and the characteristics they exhibit. We will discuss many of the ways in which forests and humans are connected including fire, carbon storage, deforestation, wood production, biological diversity, recreation, health and well-being, and water quality and volume.

The course will involve primarily lectures and demonstrations. Ideally, there will also be many opportunities for discussion. Often, student questions are incorporated into following lectures. There will not be assigned reading.

## Outline:

1. What's a tree?
2. What's a forest?
3. Where are forests?
4. What do forests do?
  - a. Storage of carbon
  - b. Providing habitat and supporting biological diversity
  - c. Affecting water supply and quality
  - d. Contributing to human well-being
5. What are we doing to forests?
  - a. Disruption of fire regimes and fire management
  - b. Deforestation and land conversion
  - c. Generation of forest products
6. What is the future of forests?

## Optional readings:

- Lewis, Daniel. 2024. *Twelve Trees. The Deep Roots of Our Future.* Simon & Schuster.
- Manning, William J. 2020. *Trees and Global Warming: The Role of Forests in Cooling and Warming the Atmosphere.* Cambridge Univ. Press.
- Mapes, Lynda V. 2019. *Witness Tree: Seasons of Change with a Century-Old Oak.* Bloomsbury.
- Perlin, John. 2005. *A Forest Journey: The Story of Wood and Civilization.*
- Pyne, Stephen J. 2019. *Fire. A brief history.* 2<sup>nd</sup> Ed. Univ. Washington Press.
- Pyne, Stephen J. 2020. *To the Last Smoke. An Anthology.* Univ. Arizona Press.
- Seymour, Francis and Jonah Busch. 2016. *Why Forests? Why Now? The Science, Economics, and Politics of Tropical Forests and Climate Change.* Center for Global Development.
- Simard, Suzanne. 2021. *Finding the Mother Tree: Discovering the Wisdom of the Forest.* Penguin Random House.

Wohlleben, Peter. 2023. The Power of Trees: How Ancient Forests Can Save Us if We Let Them. Greystone Books.

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Steve Smith is an Associate Professor in the School of Renewable Natural Resources and the Environment at the University of Arizona where he has been on the faculty since 1984. His research interests reflect both his training in application-oriented plant improvement and his fascination with plant adaptation in natural plant communities in arid environments. Dr. Smith teaches undergraduate courses in biology, field botany, and natural resources management. He received the Bart Cardon Sustained Excellence in Teaching Award from the College of Agriculture and Life Sciences at the University of Arizona, and the Ted and Shirley Taubeneck Superior Teaching Award from the Humanities Seminar Program.