

Unit E: Urban Forestry

Lesson 2: Selecting Trees for Urban Growing Conditions

Terms

- Cultivar
- Deciduous
- Evergreen
- Genus
- Hardiness
- Multi-stem trees
- Ornamental trees
- Plant Heat-Zone Map
- Shade Tree
- Species
- Tree
- Hardiness Zone Map
- Variety

What are the types of trees available?

- A **tree** is a single-stem, woody, perennial plant reaching the height of 12' or more.
- Some trees, such as Birch and Elders, are **multi-stem trees**, they grow from more than one trunk.
 - Some trees do not reach 12', but are still classified as trees.
 - Some trees have limbs to the ground (Beech, Fir, and Pine).

What are the types of trees available?

- Some trees are *deciduous*.
- These trees drop their leaves in the fall season.



What are the types of trees available?

- **Evergreen** trees keep leaves throughout the year.
 - Maintain green leaves throughout the year.
 - The situation may call for deciduous evergreen trees.



What are the types of trees available?

- ***Shade trees*** are large trees with spreading canopies.



What are the types of trees available?

- ***Ornamental trees*** have an aesthetic value in terms of flowers, fruit, bark, color, and growth habit.
- These trees are smaller in size.



Plant Nomenclature

- All trees have both a Botanical name (scientific) and Common name.
- The confusion in tree names lies with:
 - A tree may have more than 1 common name.
 - Yet, a tree has only 1 botanical name.
 - A botanical name is based on a binomial system , that is, the plant has 2 Latin names.

Plant Nomenclature

- Botanical names are: Genus and species.
 - **Genus**: a closely related group of plants comprised of one or more species.
 - **Species**: composed of plants that show characteristics that distinguish them from other groups.

Plant Nomenclature

- Some trees have been selected for outstanding characteristics and given a variety or cultivar name.
 - A **variety** is a group of plants within a species that has a significant difference from other plants in the species.
 - **Cultivars** are trees with a distinguishing characteristic that does not transfer to the offspring through sexual reproduction.

Plant Nomenclature

- Writing Botanical Names
 - The genus is always capitalized.
 - A species is always lower-cased.
 - A variety name is written in lower case and italics or underlined.
 - A cultivar name is capitalized and placed in single quotations.

Plant Nomenclature

- Example: A variety of common honeylocust is written as *Gleditsia triacanthos* var. *inermis*.
- Example: The cultivar, October Glory Red Maple would be written as *Acer rubrum* ‘October Glory’.

How does climate influence tree selection?

- Extremes in regional temperatures can limit the species of trees that can be grown.
- **Hardiness** refers to the ability to withstand cold temperatures.
- Hardiness is measured using a plant hardiness zone map. Each area of the world is assigned a zone numbered from one to thirteen. Hardiness zones are derived from the average coldest temperatures for the year.

Hardiness Zone

1. The 13 hardiness zones are defined as followed:

Zone 1: below -46 C (below -50 F)

Zone 2: -46 to -40 C (-50 to -40 F)

Zone 3: -40 to -34 C (-40 to -30 F)

Zone 4: -34 to -29 C (-30 to -20 F)

Zone 5: -29 to -23 C (-20 to -10 F)

Zone 6: -23 to -18 C (-10 to 0 F)

Zone 7: -18 to -12 C (0 to 10 F)

Zone 8: -12 to -7 C (10 to 20 F)

Zone 9: -7 to -1 C (20 to 30 F)

Zone 10: -1 to 4 C (30 to 40 F)

Zone 11: 4 to 10 C (40 to 50 F)

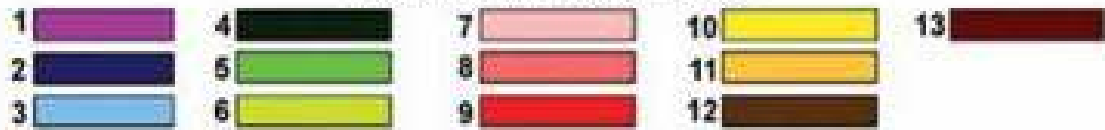
Zone 12: 10 to 15 C (50 to 60 F)

Zone 13: above 15 C (above 60 F).

Plant Hardiness Map



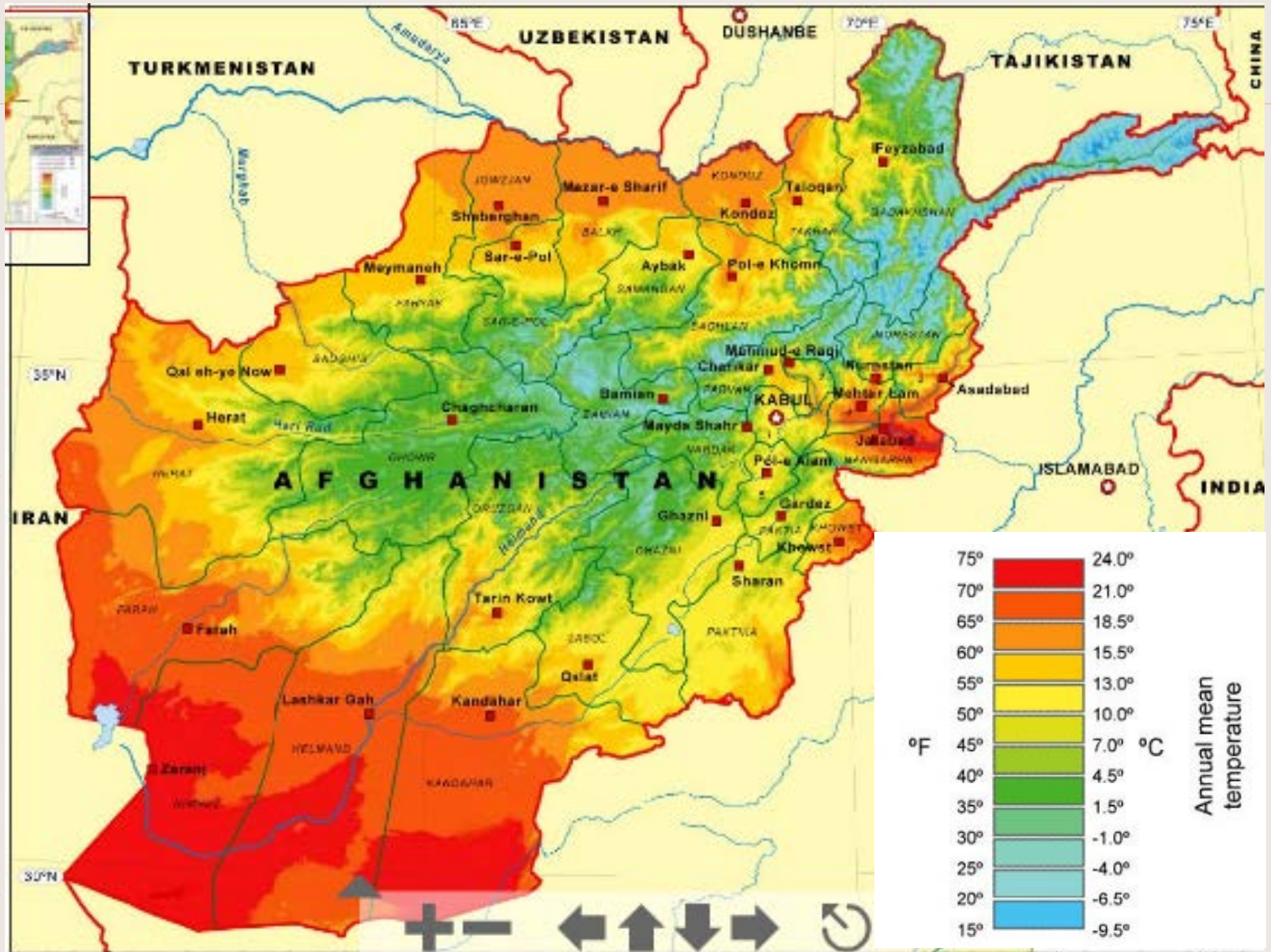
Plant Hardiness Zone



How does climate influence tree selection?

- Heat Tolerance has received increased attention in recent years.
- There is a ***Plant Heat-Zone Map*** showing the heat zones of Afghanistan. Some trees are more sensitive to heat than others, so the map aids in proper tree selection. The health of a tree species would suffer if in a zone warmer than the recommended zone.

Heat Zone Map



Factors in selecting trees for the urban environments

1. Urban areas have particular problems not often found in rural areas.
 - One problem is air pollution. Ginkgo, Red Oak, and Lindens are very tolerant of air pollution.
2. Soils in urban areas are usually altered.
 - Subsoil is brought to the surface, drainage patterns changed, and soil compacted.
 - Tree species tolerant of these conditions are good selections.

Factors in selecting trees for the urban environments

3. Salt, used to melt ice, damages trees.
 - In locations of heavy salt use, select trees that are tolerant to salt. Ex.) Honeylocust.
4. Safety is a consideration since some trees have thorns and need to be avoided.
5. Some trees are messy in terms of fruit, twigs, or exfoliating bark that drop on the ground.
 - The mess on the ground can be unsightly and labor may be required for clean-up.

Factors in selecting trees for the urban environments

6. Life expectancy is important.
 - Some trees live for years, while others are much shorter lived & faster growing.
 - Short-lived trees have weaker wood than older lived.
7. Trees cast heavy shade inhibit grass growth.
8. A root system that grows near the surface is a characteristic of some trees.
 - The roots can interfere with turf grass.

Factors in selecting trees for the urban environments

9. Resistance to problems associated with pests and disease organisms is considered because trees resistant to such problems require less care.
10. Some trees may suffer from physiological disorders that are often soil related.
 - Drainage factors can cause disease.
 - For example, Pin Oaks develop iron chlorosis or yellowing of the leaves when growing in alkaline soils. The pH of the soil restricts the absorption of iron.

Review and Summary

- What is a tree?
- Compare and contrast the different types of trees.
- Explain how climate influences tree selection.
- Identify factors in selecting trees for the urban environment.