

Principles of Ecology

BSc. Course 2024 – 2025

Lecture – 9

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The Biomes الأقاليم الحياتية

They are Regions of the world with similar physical environments, indistinct Boundaries and named for the most common types of vegetation and Climate factors such as:

- **Rainfall (precipitation)**
- **Temperature**
- **Altitude**
- **Latitude**

The Major Biomes of the World

1. Tropical Rain Forests

2. Grassland

- Tropical/Subtropical Grassland
- Temperate Grassland

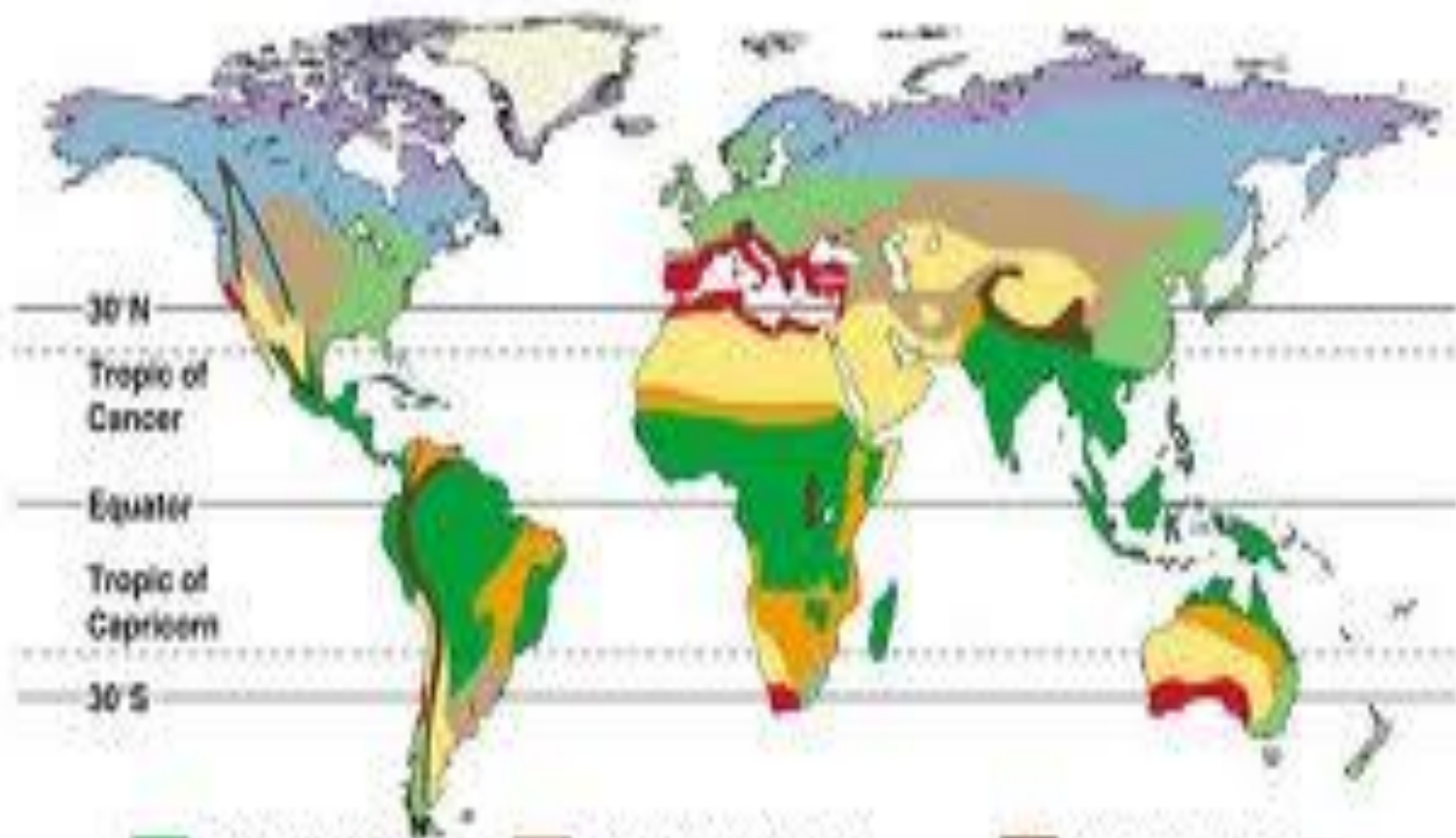
3. Desert

4. Temperate





- Temperate Deciduous Forest
- Temperate Rain Forest



5. Taiga

6. Tundra



 Tropical forest
 Savanna
 Desert
 Chaparral

 Temperate grassland
 Temperate broadleaf forest
 Coniferous forest
 Tundra

 High mountains
 Polar ice

Biome	Climate	Dominant plants	Examples of common animals
Tundra	Extremely cold, dry; permanently frozen subsoil	Lichens, low shrubs, sedges	Arctic foxes, lemmings, polar bears, caribou, wolves, many migratory birds
Boreal forest (taiga)	Cold winters, short growing season	Coniferous evergreen trees, chiefly balsam fir, black spruce, jack pine, and white spruce	Bears, moose, wolves, ducks, loons
Temperate coniferous forest	Cool, moist mountain slopes; coastal areas with mild winters and heavy rainfall	Coniferous evergreen trees, including cedar, hemlock, pine, and redwood	Bears, elk, mountain lions, wolves
Temperate deciduous forest	Cold winters, warm summers, moist	Broadleaf deciduous trees, such as elm, maple, and oak	Deer, raccoons, squirrels, many kinds of small birds
Chaparral	Rainy, mild winter, hot, dry summer; fires common	Shrubs with hard leaves, such as scrub oak and manzanita	Coyotes, mule deer, many species of lizards
Desert	Extremely dry	Cacti, sparse grasses, small-leaved shrubs	Lizards, snakes, many small rodents, such as kangaroo rats
Grassland	Temperate, subhumid	Grasses and other herbaceous plants	Antelope, pronghorn, bison, wolves, coyotes
Savanna	Long dry season	Grasses and scattered clumps of trees, such as acacia and baobab trees	Giraffes, zebras, jackals, lions
Tropical seasonal forest	Warm, with wet and dry seasons	Broadleaf deciduous trees, palm trees, bamboo and other grasses	Monkeys, frogs, spiders
Tropical rain forest	Warm and wet all year	Broadleaf evergreen trees, some palms and tree ferns, climbing vines	Bats, colorful birds, lizards, monkeys, snakes

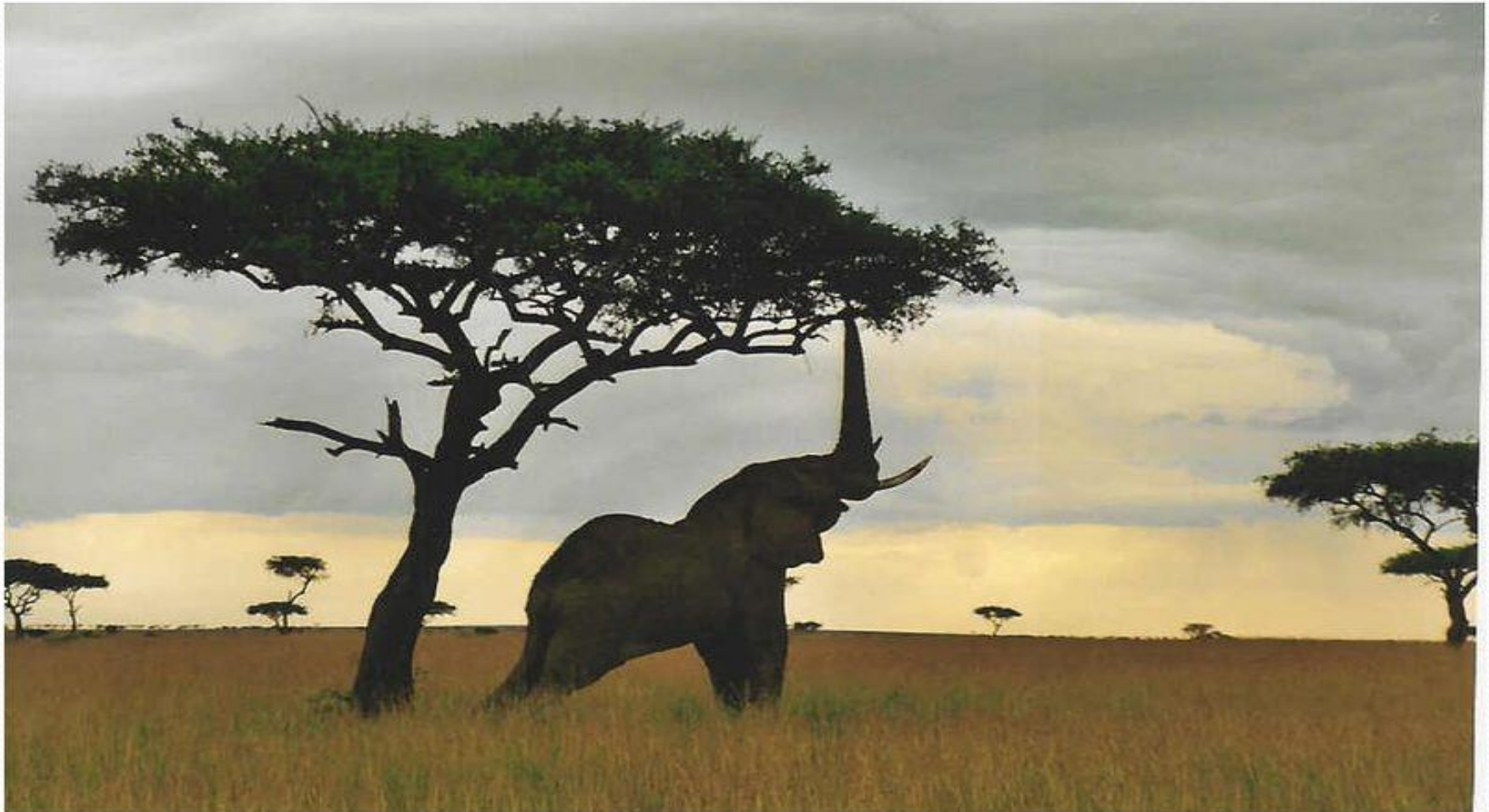
Tropical Rain Forests

- They are Equatorial lowlands with Constant temperature and abundant rainfall all year long.
- It accommodates Many arboreal animals and Few terrestrial animals.



Tropical and Subtropical Grassland

They are characterized by Warm temperatures throughout the year, Well defined dry season and rainy season, Large herbivores, High grasses, Scattered trees and shrubs.



The Temperate Grassland

They are characterized by:

1. Hot, humid summer and cold winter.
2. Precipitation as winter snow, and heavy spring and summer rain.
3. Short and tall grasses; trees found only near streams.
4. Wide variety of animal life.



The Deserts

They are characterized by :

- 1.** lack of precipitation.
- 2.** Deserts can be cold or hot.
 - Antarctica is a cold desert
- 3.** Nocturnal animal life in hot deserts.
- 4.** Plants are well adapted to short water supply



The Temperate Deciduous Forests

The Deciduous forests of mid-latitude regions, they are characterized by:

1. Cold winters and hot summers
2. Abundant rain and snowfall
3. Wide variety of animal life



The Temperate Rain Forests

- They are characterized by:
 1. Cold winters and hot summers
 2. Abundant rain and snowfall
 3. Conifers (redwood, firs, pines, spruce) retain their needles.
 - Needles conserve water in dry summer and shed snow in cold winter
 4. Wide variety of animal life



The Taiga (Boreal Forest)

They are characterized by:

1. Coniferous (**Evergreen**) Forests
2. Found at high elevations and/or far northern latitudes
3. Snow accounts for most of the precipitation
4. Animals are adapted to long, cold winters



The Tundra

1. The are Areas with continuously frozen ground (**permafrost**)
2. Near polar regions
3. Small plants limited by frozen soil and prolonged dark season
4. Animals adapted to extreme cold; birds often migrate

