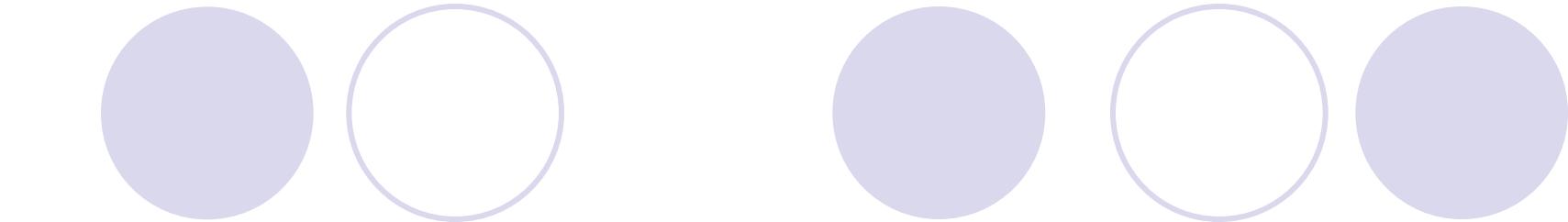


UNIT C: FOREST MANAGEMENT

Lesson 1: Identifying Forests of Afghanistan

- Archaeological studies reveal that, at least until 2000 BCE, the territory of today's Afghanistan was partially covered with deep cedar-rich forests.
- Today's mountains, rivers, forests, farmlands and pastures are the backbone of the ecosystems and economy of the country.



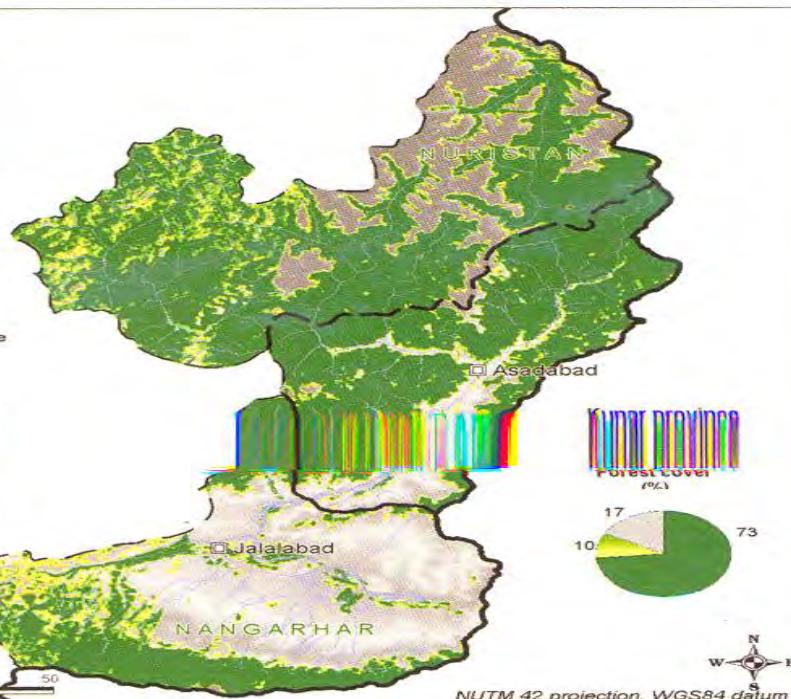
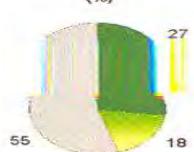
- Currently, Afghanistan's timber has been greatly depleted, and since the mid-1980s. Afghanistan has the least forest area in the neighboring countries about 2.1% of Afghanistan land is forest.

1977

Nuristan province
Forest cover (%)

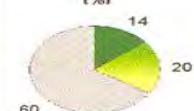


Nangarhar province
Forest cover (%)

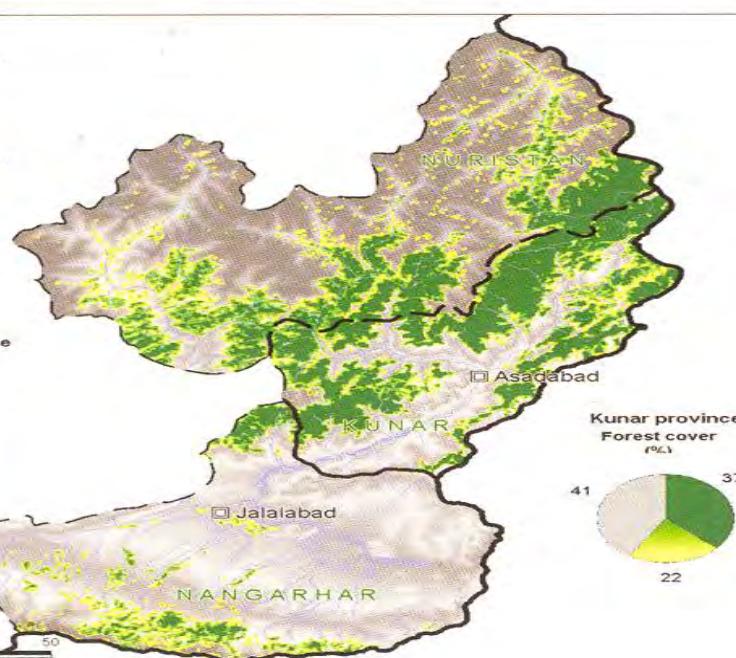
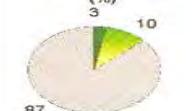


2002

Nuristan province
Forest cover (%)



Nangarhar province
Forest cover (%)



Legend

National capital

Administrative capital

International border

Province boundary

Rivers

Lakes

Forest
(tree cover > 40%)

Forest low density
(20% < tree cover < 40%)

Forest very low density
(10% < tree cover < 20%)

No forest detected
(0% < tree cover < 10%)

About the map

Changes in forest cover and density derived from Landsat MSS and ETM+ satellite imagery.

Date of image acquisitions:

17 June 1976 and

11 September 1977 (MSS)

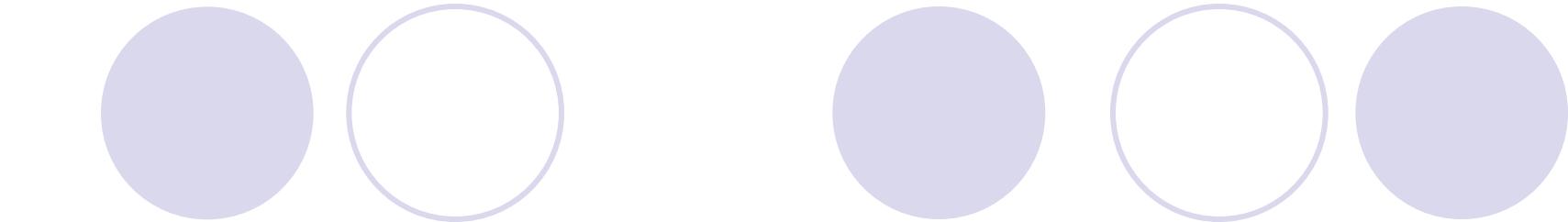
30 August 2002 and

22 September 2002 (ETM+)

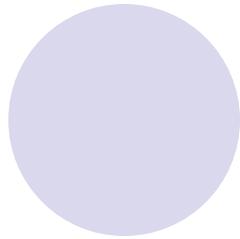
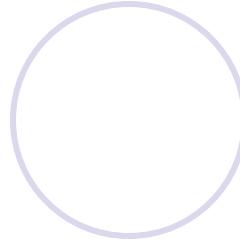
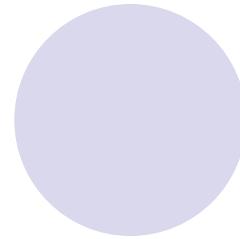
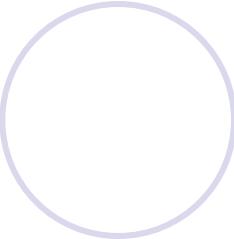
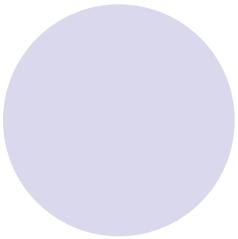
Image processing: DIGITECH



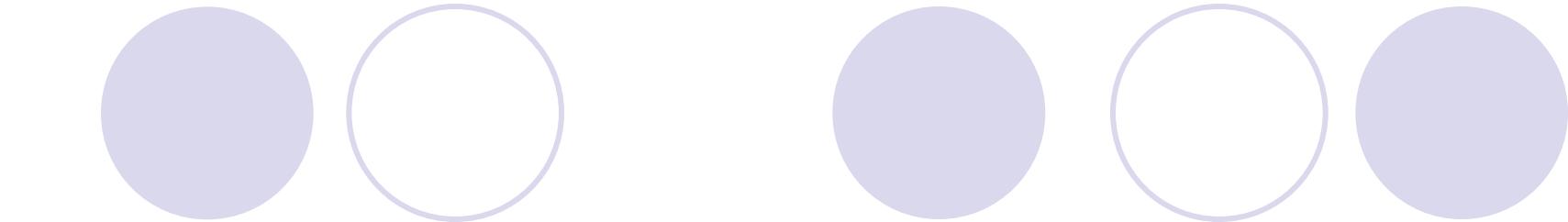
UNOSAT
satellite imagery for all



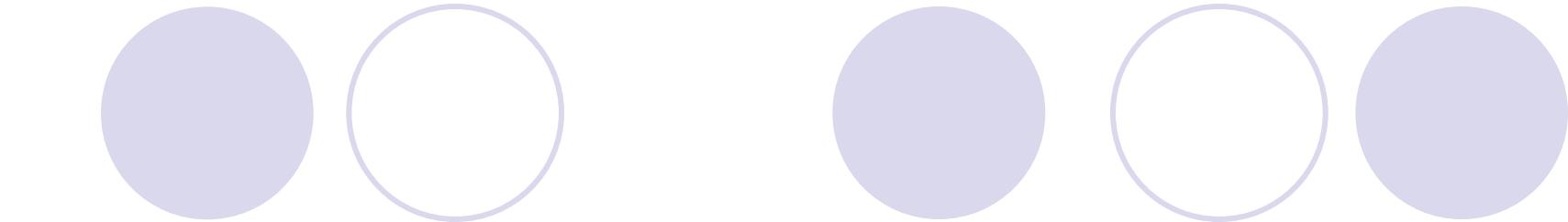
- Exploitation has been hampered by lack of power and access roads. Most of the remaining woodland is presently found only in mountainous regions in the southeast and south.



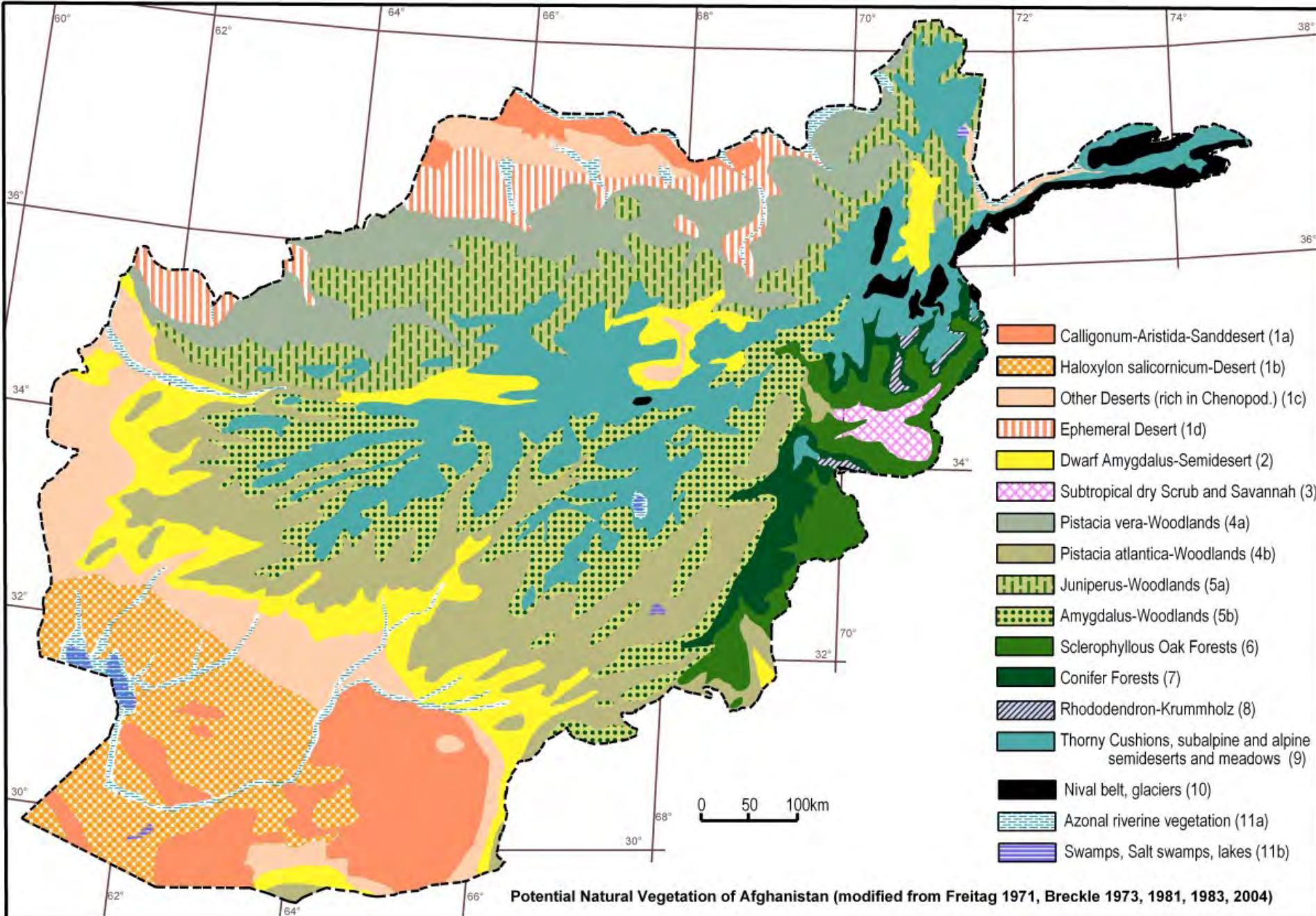
- The natural forests in Afghanistan are mainly of two types:
- Dense forests, mainly of oak, walnut and other species of nuts that grow in the southeast and on the northern and northeastern slopes of the Sulaiman ranges
- Sparsely distributed short trees and shrubs on all other slopes of the Hindu Kush.

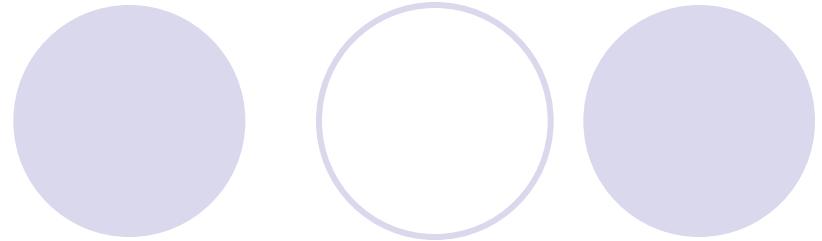
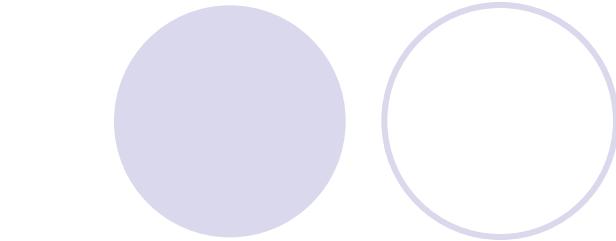


- The destruction of the forests to create agricultural land, logging, forest fires, plant disease and insect pests are all causes of the reduction in forest coverage.
- However, the most important factor in this destructive process is illegal logging and clear-cuttings by timber smugglers.



- Afghanistan has evergreen and deciduous forest and trees which make up approximately 1,337,582 hectares. The major forests of Afghanistan are located in the eastern and north eastern zone of the country. There is also a percentage in the north. These are all natural forests.



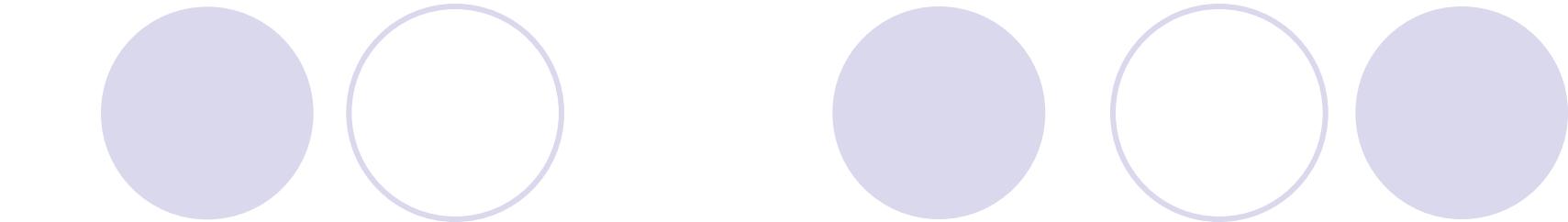


- The eastern provinces which have forests include:

- Kunar
- Nuristan
- Nangarhar
- Laghman.



Nuristan Natural forests

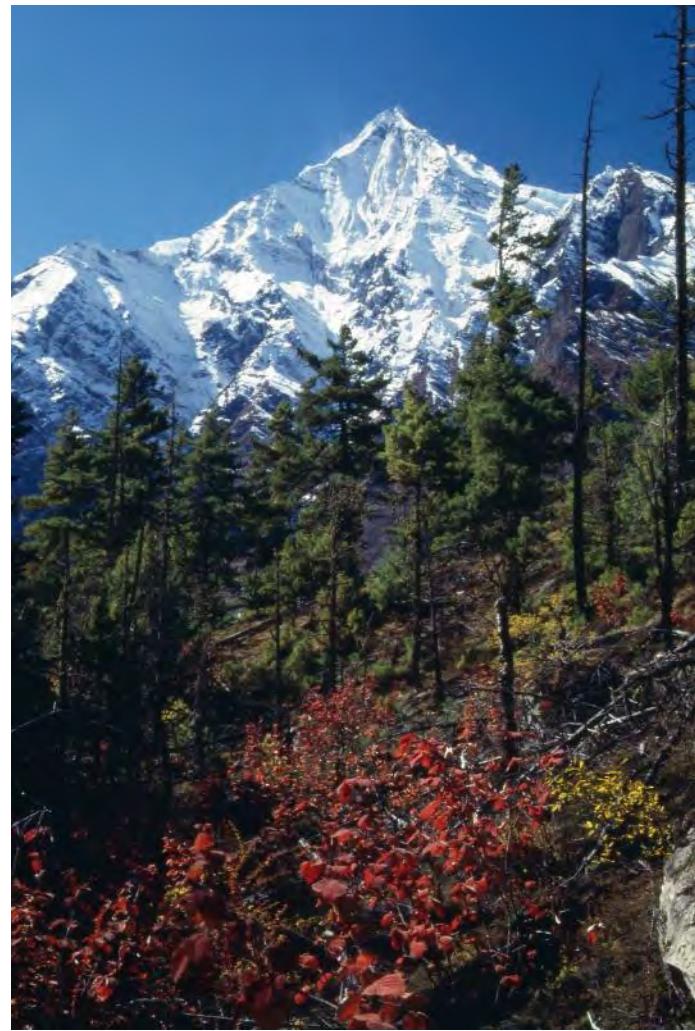


- The major forest trees of Kunar province are
 - *Cedrus deodara*
 - *Picea smethiana*
 - *Pinus wallichiana*
 - *Abies spectabilis*
 - *Pinus gerardiana*
- These trees make industrial wood for internal and export.

Cedrus deodara



Picea smithiana



Pinus wallichiana

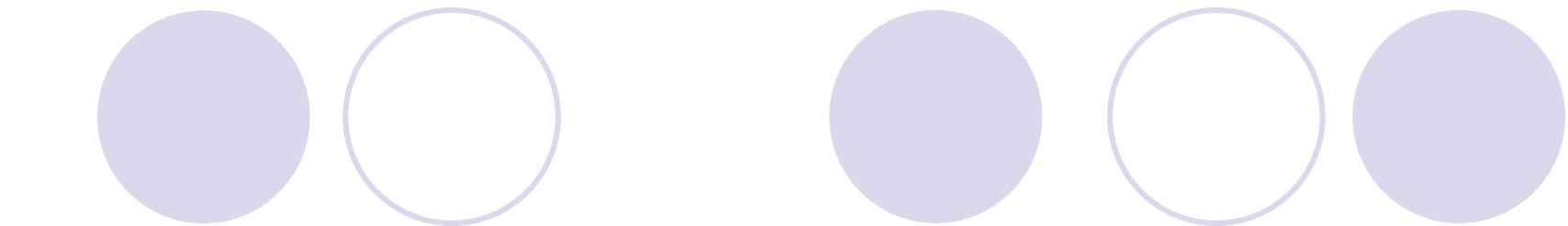


Abies spectabilis

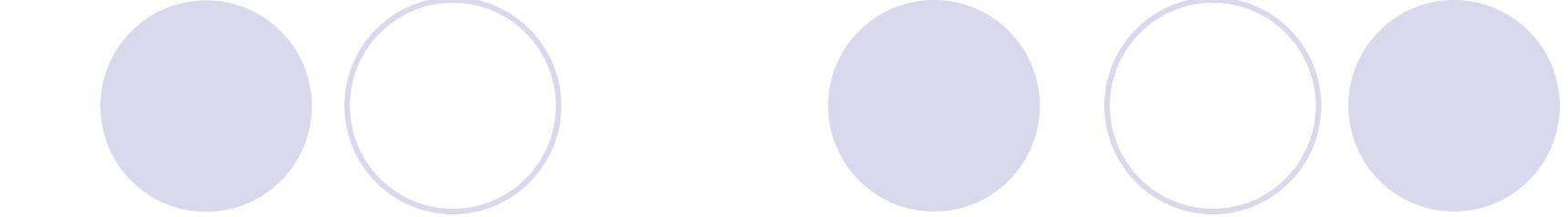


Pinus gerardiana

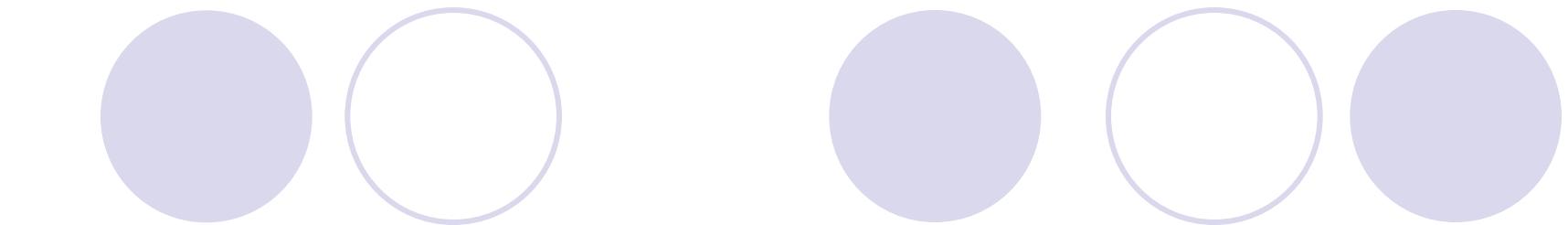




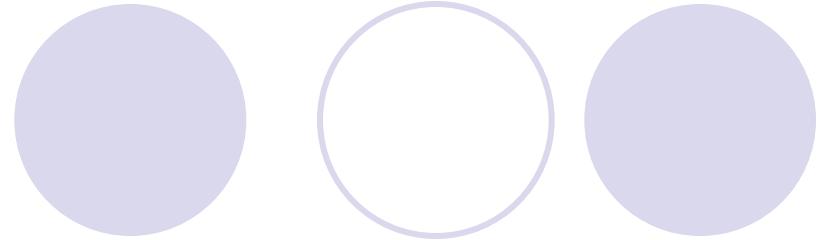
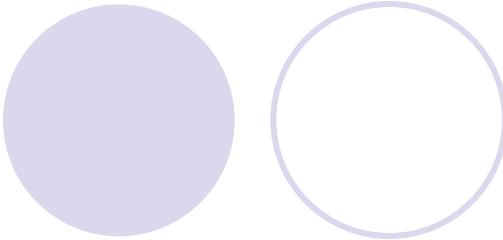
- Himalayan type Evergreen Forests in East Afghanistan
- Between 1200 and 2200 m the oak *Quercus baloot* dominates a forest which is up to 15 m high; it has a rich undergrowth and several tree species including almonds *Amygdalus kuramica* and *Pistacia khinjuk*.
- It is heavily utilized for fodder, fruits and fuelwood and large parts have been destroyed to provide fuel for the main cities.



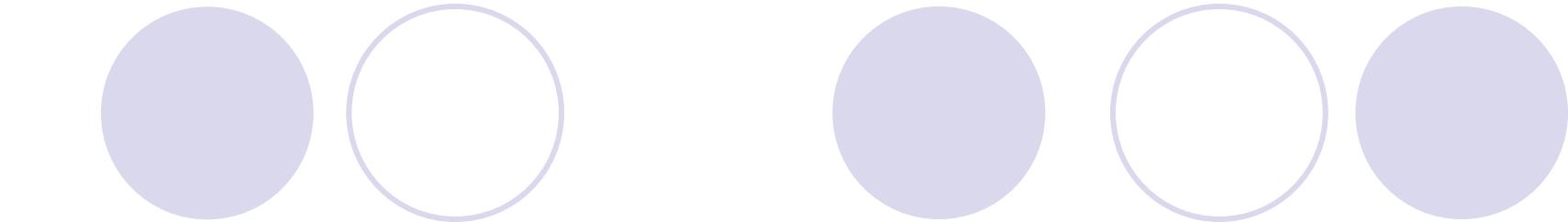
- The remnants of *Qu.baloot* forest in the Panjshir valley, northeast of Kabul, forms the westernmost extension of the Himalayan forest belt.
- A few trees were even occurring near Top Dara in the Koh-e-Daman Plain near Charikar. Formerly also at the Latahband pass (some 25km east of Kabul) there were *Qu.baloot* remnants.



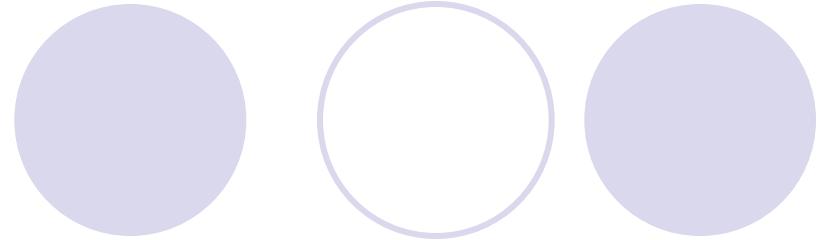
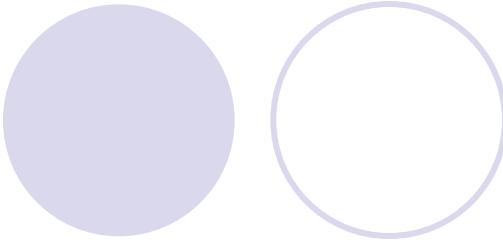
- In very humid places with high summer rainfall in the higher mountain belts *Qu. baloot* is replaced by *Qu. dilatata* and between 2400 and 2900 m by *Qu. semecarpifolia* .
- Azonal associates in river valleys are *Juglans regia*, *Acer turkestanicum* and *Pyrus pashia*.



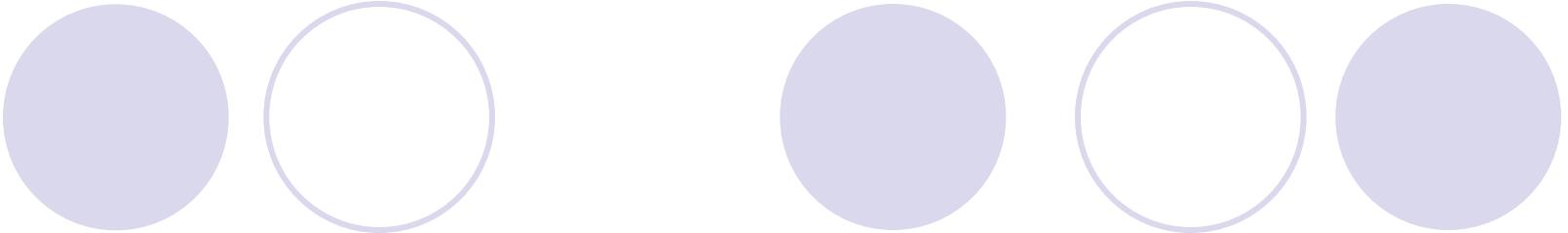
- Temperate Coniferous Forests of East Afghanistan
- The forest belt between 2200 and 2500 m in moderately humid parts is 5-12 m high *Pinus gerardiana* woodland with local stands of *Betula*.
- A thorny *Cotoneaster-Sophora-Rosa* scrubland colonizes the areas after the pine has been felled.



- Between 2500 and 3100 m *Cedrus deodara* forest is found. Depending on soil and humidity the cedars may be up to 30 m high and form a very dense forest. Large parts of the *Cedrus* forest have been exploited and replaced by a stable *Artemisia* community. Logging has now reached even the western parts of Nuristan.



- In the humid areas the upper belt of the forest, up to an altitude of 3300 m, is formed by a 20-25 m high *Picea smithiana*-*Abies webbiana* forest, varying from valley to valley.
- In the dry areas a 10 m high *Juniperus seravschanica*-*J. semiglobosa* woodland is found. However, most areas have been cut for fuelwood and mature stands are rare.



- The herbaceous ground cover, especially along the streams is heavily grazed.
- It is very interesting to note, that fossile conifer needles (similar to *Pinus roxbourgii*) and many other fossile leaves from a rather humid vegetation have been found in marl sediments at the Latahband Pass probably being from about early Quaternary.
- This is indicating that monsoonal climate has reached much far to the west.

- Paktia, Paktika, and Khost are found in the north eastern province.
- The major forest trees of the Paktai are
 - *Pinus geradiana*
 - *Pinus wallichiana*
 - *Cedrus deodara*
 - *Picia smethiana*
 - *Abies spectabi*
 - *Olea ferruginea*
 - *Quercus dilatata*
 - *Qurcus semicarpofulalia*
 - *Quercus balout*



Quercus balout



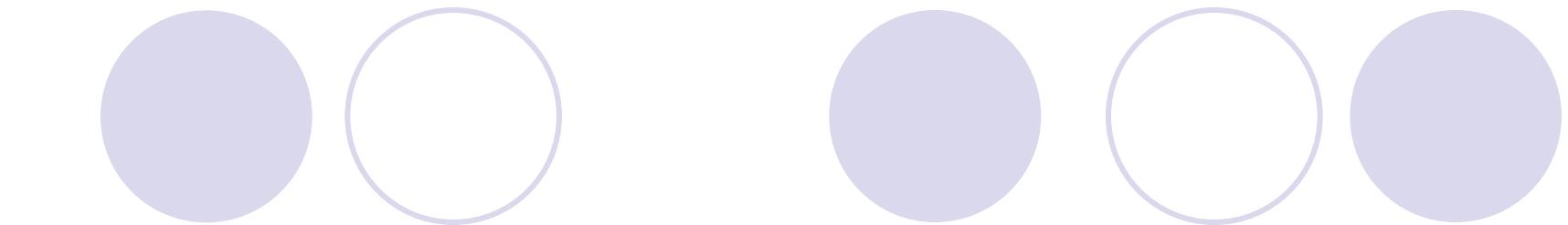
–Quercus semicarpofulvia



–Olea ferruginea



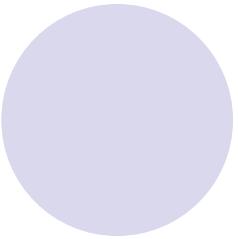
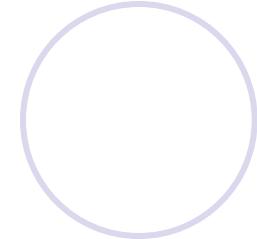
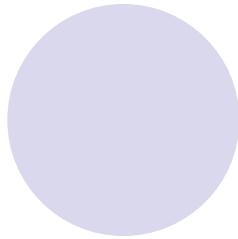
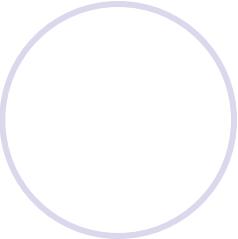
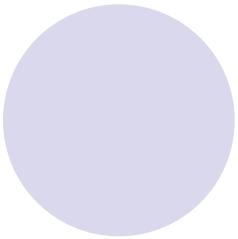
Quercus dilatata



- Major forests in Northern Afghanistan starts from Badakhshan then goes through the Badghis and ends in the Herat province.
- The *major forest tree of the Badghis is Pistacia vera* which is the most important production (Pasta nuts) of this area

Pistacia vera





- The average precipitation is 200-400 millimeters (mm).
- Temperatures vary from -12 degrees Celsius ($^{\circ}\text{C}$) to 40 $^{\circ}\text{C}$.
- The soil in the north is made up of clay substrate covered with coarse gravel, small stones or rocks, and organic detritus. South, the ecoregion has a bedrock of sedimentary limestone, and soils on the flat lands are sandy loam.

Other Trees in Afghanistan



Pinus nigra



Morus spp



Thuja orientalis



Fraxinus spp



Cercis griffithii



Populus pyramidalis



Juglans regia

Other Trees in Afghanistan



Robinia pseudoacaia



Ulmus campestris



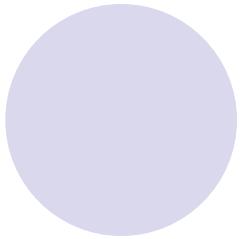
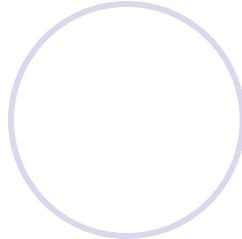
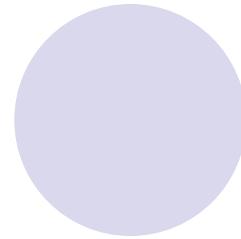
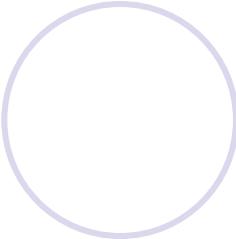
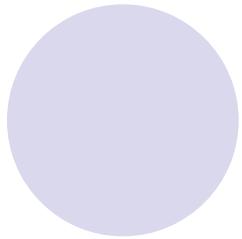
Populus afghanica



Eucalyptus camaldolensis



Amygdalus communis



Review/Summary

- Explain the history of the forests in Afghanistan
- Identify the different forests in Afghanistan