



## GEOGRAPHY FORM 2 NOTES



## VEGETATION

### Specific Objectives

By the end of the topic, the learner should be able to:

- a) define vegetation
- b) discuss the factors influencing the distribution of vegetation
- c) identify and describe the characteristics of major vegetation regions of Kenya and the world
- d) discuss the significance of vegetation
- e) identify different types of vegetation and their uses within the local environment.

# VEGETATION

Plant cover on the earth's surface.

## Types of Vegetation

### 1. Natural Vegetation

Which grows by natural means of seed dispersal without interference and modification by man.

### 2. Semi-Natural/Derived Vegetation

Natural vegetation which is in the process of recovering from interference by man.

### 3. Planted/Cultivated Vegetation

Vegetation planted by people e.g. forests of exotic trees, trees in Agroforestry and plants used as hedges e.g. cypress.

## Factors Influencing Types and Distribution of Vegetation

### Topographical Factors

#### 1. Altitude

Coniferous trees are found at high altitudes because they are adapted to cool conditions.

There is no vegetation on mountain tops because there are very low temperatures which inhibit plant growth.

#### 2. Terrain

Gentle slopes which have deep and well drained soils are best suited for plant growth than steep slopes which have thin soils due to severe erosion and less soil water to sustain plant growth due to high runoff.

Flat areas have poor drainage hence are swampy and can only support swamp plants.

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### 3. Aspect

There are a wide range of plants on the slope facing the sun and in the direction of rain bearing winds as they are warm and wetter. Grass lands are dominant on the leeward side because they are drier.

### 4. Drainage

There is a large variety of plants on well drained soils while water logged soils have swamp plants such as reeds and papyrus.

## Climatic Factors

### 1. Temperature

Plants in warm areas are large in number and grow faster e.g. in the tropical lands. Also there are deciduous trees which shed leaves to reduce the rate of transpiration.

In areas with low temperatures there is slow growth of plants and coniferous forests are found there.

### 2. Precipitation

There are a large number of plants in areas with high precipitation and these areas are dominated by forests which are broad leaved to increase the rate of transpiration.

Areas with moderate rainfall are dominated by grasslands and those with little rainfall have scanty vegetation of scrub and desert types.

### 3. Sunlight

There is large number of plants in areas experiencing long sunshine duration.

There is little undergrowth in tropical rain forests because the canopy prevents sunlight from reaching the ground.

### 4. Wind

There is heavy rainfall in areas where warm moist blow to and hence a large number of plants which may be broad leaved to increase the surface area for transpiration.

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## Edaphic/Soil Factors

Fertile soils have a larger number of plants while infertile soils have scanty vegetation.

Soil pollution e.g. oil spillage cause drying up of plants.

Deep soils have deep rooted plants such as trees while shallow rooted soils have shallow rooted plants such as grasses and shrubs.

## Biotic/Biological Factors

### 1. Living Organisms

Bacteria, earth worms and burrowing animals improve soil fertility resulting into more vegetation growth.

Insect and birds pollinate plants enhancing their propagation.

Bacteria and insects cause plant diseases of plants resulting in death of some e.g. aphids which affected cypress in late 80s.

Large herds of wild animals can destroy vegetation through overgrazing and can turn grasslands into deserts.

### 2. Human Activities

Clearing of natural vegetation for settlement, agriculture etc. can lead to desertification.

Bush fires such as burning grasslands for the grass to sprout can cause extinction of some plant species.

Overstocking can lead to overgrazing turning grasslands into deserts.

Rehabilitation of deforested areas can stop the spread of deserts.

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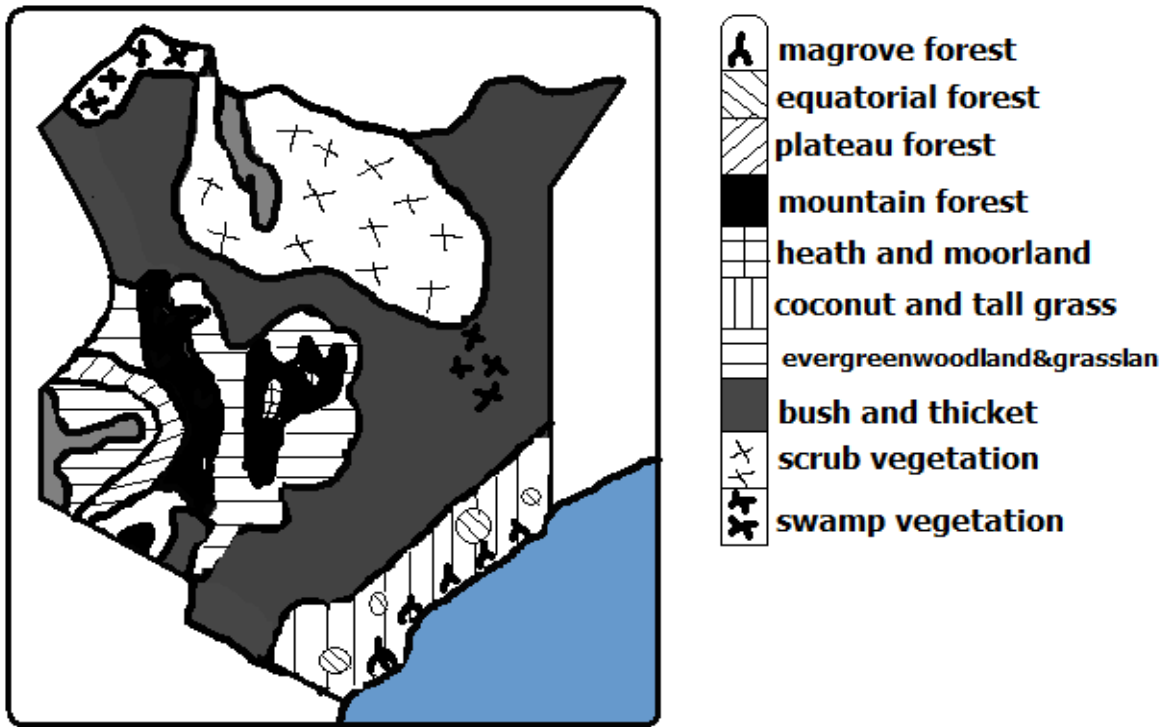
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## Vegetation in Kenya



### 1. Forests

The area under forest is less than 7%.

The bulk is found in Central Highlands

#### (a) Plateau Forests

It used to cover extensive areas around L. Victoria but today there are few patches around the lake in Maragoli, Kakamega, Kaimosi, Malava, Turbo and Tinderet forests.

They are tropical rain forests with tall trees standing among shorter trees intertwined with creepers.

#### (b) Lowland Forests

Found along the Kenyan coast.

The main types are:

- Mangrove forests which grow in shallow waters and
- Tropical rain forests in Shimba hills in Kwale District and Arabuko Sokoke in Kilifi.

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### (c) **Highland/Mountain Forests**

Found on the slopes of Mt. Kenya, Aberdare forests, Iveti, Mbooni, Kilala and Marsabit forests.

Indigenous hardwoods are olive, Meru oak, mvule, Elgon teak and camphor while indigenous softwoods are podocarpus and African pencil cedar and bamboo.

They have been planted with exotic hard wood trees e.g. eucalyptus and silver oak and exotic softwoods such as pines, cypress, fir and wattle.

## 2. **Savanna**

Most widespread vegetation covering about 65% of the total area.

### a) **Wooded/Tree Grassland**

Found along the coastal strip and on the plateau bordering highlands east of rift Valley.

Consists of grass of 1m mixed with thorny acacias.

Where rain decreases trees become fewer and shorter and the grassland becomes more open.

There are many large trees along water courses due to abundant moisture (riverine or gallerie forests).

The trees shed leaves during the dry season to reduce the loss of water by transpiration.

### b) **Bushland and Thicket**

Covers about 48% of savannah.

Found between coastal land and Machakos and extends into Kitui, Mwingi, Garissa, Wajir and Mandera districts.

Consists of a mixture of thorny acacias and shorter thorny shrubs between forming thorn bush with gaps between bushes which are bare or covered by scattered varieties of grasses.

Plants are adapted by:

- Having thin leaves and hard cuticle to reduce transpiration rate.
- Baobab has large trunk to store water for use during long dry period.
- Shedding of leaves to conserve water.

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### c) **Highland Grassland**

Found on the undulating slopes of grasslands.

Grasses are such as red oat, wire, Manyatta and Kikuyu grass where forests have been cleared.

Clover grows along kikuyu grass where rainfall is over 1000mm.

### 3. **Semi-Desert and Desert Vegetation**

Covers about 21% of Kenya.

It's found on the parts of N.E and N Kenya including Marsabit and Turkana districts.

It receives insufficient rainfall of less than 380mm annually.

It has mainly scrub type of vegetation (covered with underdeveloped trees or shrubs). A shrub is a plant lower than a tree with a small woody stem branching near the ground.

The shrubs are up to 1m and grasses are up to 3m and in between there is bare ground.

Tree species are acacia and comiphora.

Real deserts hardly have any vegetation.

#### **Adaptations plants (Xerophytes)**

- Some have thick leaves to store water.
- Long tap roots to access water from rocks below.
- Needle like leaves to conserve water.
- Shedding of leaves to conserve water (deciduous).

### 4. **Heath and Moorland**

Vegetation found towards the mountain tops.

- a) At lower altitudes there is groundsel, lobelia and heather.
- b) Where there is poor drainage there is mountain swamp vegetation referred to as bogs.
- c) At high altitudes there is tussock grasses, flowering plants and alchemilla shrubs.  
This vegetation is adapted to cold windy conditions towards the summit.

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## 5. Swamp Vegetation

Vegetation found in areas with flat relief in wet areas along river courses and areas experiencing periodic flooding e.g. along the course of R. Tana, Lorian swamp in Isiolo, Wajir and Garissa and the mangrove belt along the coast.

Vegetation found there are marshes, grasses with smooth surfaces and long blades and papyrus which is dominant.

## Vegetation Zones of the World

### A. Forests

A forest is a continuous growth of trees and under growths covering large tracts of land.

#### 1. Tropical Rain Forests

Known as Selvas in S. America.

It's found in the following areas:

1. Congo Basin
2. Amazon Basin
3. Western sides of India, Burma and Vietnam.
4. Coastal land of Queensland Australia.

#### Characteristics

- i) Closely set trees with three distinct canopies.
- ii) There is less undergrowth on the forest floor due to light being obstructed by canopies.
- iii) Trees take long time to grow.
- iv) Trees have large trunks with buttress roots (radiating wall like roots).
- v) Trees have broad leaves to increase the surface area for efficient transpiration due to high precipitation.
- vi) There is varied number of plants species over a small portion.
- vii) Trees are tall, have smooth stems and straight trunks.
- viii) Some trees are evergreen shedding a few leaves at a time while others shed leaves and are left bare.
- ix) Some trees are very heavy and don't float on water.

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- x) Trees take very long time to mature between 70-100years.

Types of trees present are mahogany, ebony, ironwood, rose wood, camphor and Sapele.

Tree creepers and parasites are found around tall main trees.

### Uses of tropical rain Forests

- a) Trees are valuable sources of timber for furniture, building and construction.
- b) Oil palms are for production of palm oil.
- c) Cacao crops for production of cocoa beans used to make cocoa used to make chocolates and beverages.
- d) Chicle from the bark of Zabote tree is used to make chewing gum.
- e) Ivory nuts are used for making buttons.
- f) Fibres from torquilla palm are used for making hats, mats, baskets and thatching materials.
- g) Cinchona tree's bark contains quinine used in malarial treatment.

### 2. Mangrove Forests

Found in low lying muddy coasts of tropical seas with shallow salty waters.

#### Areas

- 1. Along the east coast of Africa.
- 2. Near the estuary of Amazon River in S. America.

#### Characteristics

- Dominated by mangrove trees and 30 other species of trees.
- Mangrove trees have special roots which are partly aerial to aid breathing. Some grow horizontally and then vertically downwards into mud while some grow horizontally in mud and bend upwards to aid breathing and others have net work of roots resembling stilts.

#### Uses of mangrove Forests

- i) Mangrove trees provide tannin used for tanning leather.
- ii) Mangrove poles are used for building and construction because they are very strong.
- iii) Mangrove trees are also used for firewood.
- iv) Mangrove forests are habitats for marine life used for tourist attraction.

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### 3. Tropical Monsoon Forests

#### Location

- 1) S.W and S coast of Mexico
- 2) parts of India, Bangladesh, Burma, Vietnam and Indonesia
- 3) Monsoon lands of Australia

#### Characteristics

- Most trees shed leaves during dry season and grow during hot wet season.
- Smaller number of tree species than tropical rain forests.
- Tall species of trees rising up to 30m.

Trees don't grow together.

- Trees have more branches because of light penetrating at lower levels.
- Denser undergrowth than tropical rain forests.
- Particular species of trees dominate an area (pure/definite stands) e.g.

Leak in Burma

Sal in India

Eucalyptus in Queensland Australia

Bamboo in S.E Asia

- Dominant tree species are leak, bamboo, acacia, camphor, ebony, Sapele and Pyinkaido.

#### Uses of tropical Monsoon Forests

- a) Teak in Burma and Thailand is used for building houses and boats because it's hard and resistant to termites.
- b) Bamboo and rattan creeper are used for making furniture, baskets and weaving.
- c) Young tender shoots of bamboo are consumed as vegetables.

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## 4. Mediterranean Forests

### Areas

- i) S. Europe and N. Africa areas bordering Mediterranean Sea.
- ii) Around Cape Town on S.W end of Africa.
- iii) Central coast of California.
- iv) Around Perth in S.W Australia.

### Characteristics

- i) Forests are open woodlands.
- ii) Many trees are deciduous.
- iii) Some trees are evergreen e.g. oak
- iv) There is woody scrub vegetation in areas which are dry and with poor soils which is called maquis in France, Chaparral in California and Machia in Italy.
- v) Many plants are sweet smelling (aromatic) e.g. rosemary, lavender, oleander, broom and myrtle.
- vi) Many trees are xerophytes e.g.

Trees have long tap roots to reach the water deep below during long dry spells.

Waxy leaves to reduce transpiration

Storing water in their thick leaves or stems

Small spiny leaves

- vii) Types of trees are olive, sweet chestnut, beech, cedar, cypress, sequoia, eucalyptus

### Uses

- i) Cork oak is used to make corks for bottling wine.
- ii) Olive tree fruits are used for cooking and extraction of olive oil.
- iii) Timber from sweet chest nut, beech, cedar, cypress and pine is used for building houses and making furniture.
- iv) Shrubs and grasses are used as pasture for goats.

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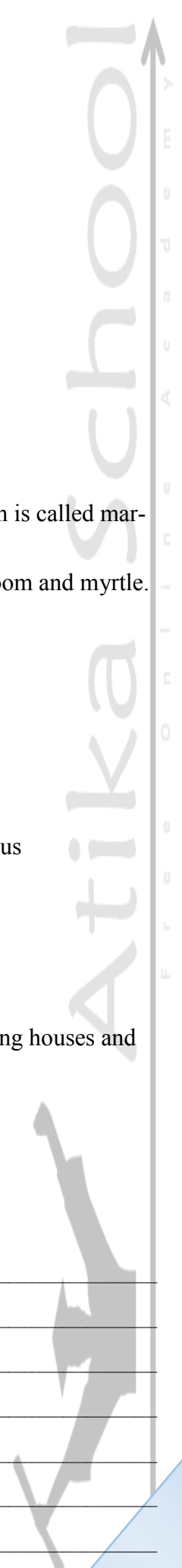
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## 5. Temperate Evergreen Forests

Found in areas experiencing warm temperate eastern margin or China Climate.

### Areas

- 1) Along Natal coast in S. Africa
- 2) S. china and S. Japan
- 3) S.E Australia
- 4) S.E and S. states of U.S.A.

### Characteristics

- a. Evergreen because of abundant rainfall throughout the year.
- b. Most trees have broad leaves to increase the surface area for efficient transpiration.
- c. Many evergreen trees are hardwoods.

### Uses

- i) Hard woods such as oak and iron wood are used for furniture and building materials
- ii) Soft woods such as cypress and pines are used for furniture.
- iii) Wattle trunks are used in the coal mines of natal.
- iv) Bamboo is used for making furniture and building in China and Japan.
- v) Walnuts provide nuts used for making chocolate.
- vi) Ivory nuts are used for making buttons.
- vii) Young shoots of bamboo are eaten as vegetables in china and Japan.

## 6. Temperate Deciduous Forests

Found in areas experiencing cool temperate western marginal climate.

### Location

- a) Central and W. Europe.
- b) Most of E. states of U.S.A.
- c) Chile in S. America.

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## Characteristics

- a. Trees are deciduous and shed leaves in autumn and become green in summer.
- b. Individual species of trees are scattered and their density per unit area is small.
- c. Trees are smaller in size.
- d. Trees are broad leaved.
- e. Most of the trees are hardwoods
- f. There is rich undergrowth because of being fairly open.
- g. Trees grow in pure stands in some regions and at others they are mixed.
- h. Trees are easier to exploit than tropical hardwoods.

## Uses

- i) Hardwoods such as oak and birch are used for timber, wood fuel and charcoal.
- ii) Chestnut and walnut nuts are edible.
- iii) Oak tree fruits are used for feeding pigs.
- iv) Tung tree yields oil for making paint and furnish.
- v) Maple sap is used for making maple syrup.

Trees include eucalyptus (blue gum), olive, birch, walnut, elm and ash.

## Coniferous Forests

It's dominant in cool climates. It's known as Taiga and Boreal in Russia.

## Location

- a. W. coast of Canada.
- b. Scandinavia across Russia to the Pacific coast.

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## Characteristics/of soft woods in Canada

- i) Their seeds are cone shaped.
- ii) Most trees are softwoods and are light in weight.
- iii) Trees mature faster than hardwoods of tropical regions.
- iv) Trees have big proportion of stem compared to leaves.
- v) Most tree species are evergreen with few shedding leaves e.g. larch and fir.
- vi) Tree species occur in big pure stands.
- vii) Very little undergrowth due to acidic humus from leaf fall.
- viii) Trees have straight trunks.
- ix) Trees mature after a long period of time (50-70 years) due to the cold conditions especially in winter.
- x) Species of trees found here are pines, Fir, spruce, larch and Hemlock.

## Adaptations

- Needle-like leaves to reduce transpiration.
- Leaves with tough waxy skin to protect them from winter cold.
- Tree crowns are cone shaped and flexible crowns to allow snow to slide off to prevent it from accumulating on the branches.
- Trees are evergreen to have maximum utilisation of sunlight during the short summers.
- Flexible tree trunks to allow swaying so as to allow swaying so as not to break during strong winter winds.
- Widely spread root system for maximum utilisation of moisture from top soil because sub soil is permanently frozen.

## Used

Soft woods such as spruce, fir, pine and larch are used for construction, wood pulp used in paper manufacture.

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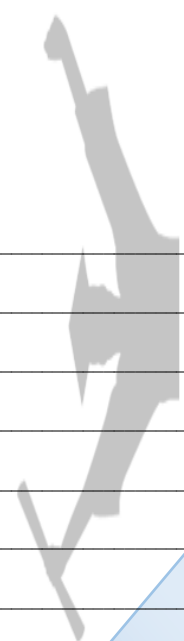
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## 7. Mixed Forests

Found at the zone of transition between temperate deciduous and coniferous forests.

### Location

- a. Saskatchewan and Alberta provinces of Canada
- b. Scottish regions in Europe
- c. low lying Mediterranean regions

### Characteristics

A mixture of broadleaved deciduous and coniferous trees.

### Uses

- i) Cedar and hazel are used for fencing posts.
- ii) Grazing activities are carried out where forests are open.
- iii) Softwoods such as spruce, fir and pine are used to make wood pulp used for paper manufacture.
- iv) Hardwoods such as oak and birch are valuable sources of timber, wood fuel and charcoal.
- v) Maple tree syrup is used for making maple syrup.

## B. Grasslands

Found in climatic regions where a seasonal pattern occurs with a prolonged drought of about 5-7 months.

### Tropical Grasslands/ Savanna

Found in areas experiencing tropical continental climate.

### Areas

- a) N and S of Congo Basin.
- b) Between Sahel and equatorial forests in E. Africa plateau.
- c) N.E of Australian Desert.
- d) Brazilian highlands

It's divided into:

- i) Open grasslands where grass is dominant and
- ii) Woodlands in areas which receive more rainfall.

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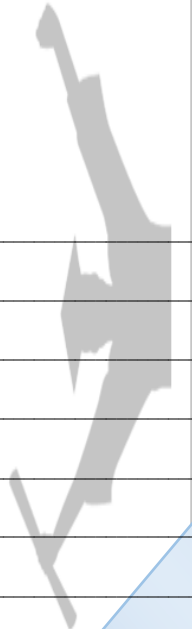
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## Characteristics

- i) Grasslands with widely spaced trees such as acacias.
- ii) Grasses die in dry season and sprout quickly when it rains.
- iii) Grasses are tall (up to 3m with stiff blades and elephant grass is tallest reaching up to 4m).
- iv) Trees are of medium size up to 13m
- v) Tree crowns are umbrella shaped to provide shade around roots to reduce evaporation.
- vi) Most trees are deciduous and shed leaves during dry season.
- vii) Trees have small leaves and thick barks to reduce transpiration.
- viii) Trees have long tap roots to reach the water deep below during long dry spells.

## Uses

- (a) Grass is for grazing and commercial ranching though it's of low nutritional value due to lack of phosphorous.
- (b) Cereals e.g. wheat farming because the soil is rich in humus resulting from the grass cover.
- (c) Vegetation acts as soil cover to reduce soil erosion.
- (d) Homes of wild animals which attract tourists e.g. E. and C. African savannas.
- (e) Trees are habitats for bees which provide honey.
- (f) Some shrubs and herbs are used for medicine.
- (g) Trees such as acacia provide fuel wood and charcoal.

## Temperate Grasslands

Found in continental interiors of temperate grasslands where rainfall isn't sufficient to sustain forests.

### Location

### The Prairies

### Areas

Canadian provinces of Alberta, Saskatchewan, Manitoba and neighbouring states of U.S.A.

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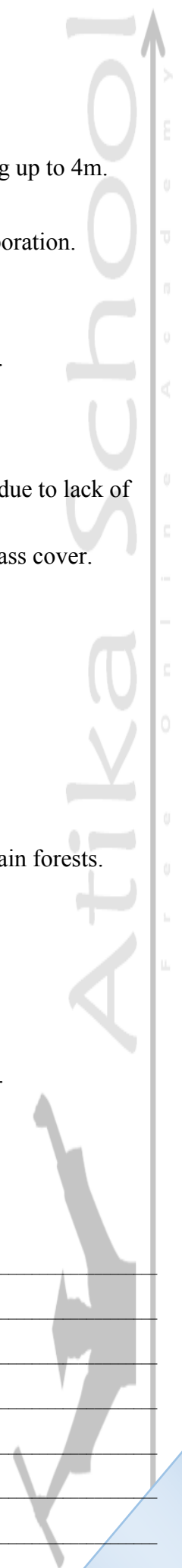
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**Characteristics**

- Continuous tuft grass
- Grasses are nutritious.
- Grass is short
- Grass is interspersed with bulbous and leguminous plants.
- Grass is mixed in some areas with species such as stipa, buffalo and gamma grasses.
- Tall grasses in areas with rainfall of over 500mm.

**The Steppes**

Found in Eurasia- temperate interiors of Europe and Asia.

**Characteristics**

True Steppes-rich carpet of grass and some flowering plants.

Desert steppes-Coarse grass growing in tufts

- Grass doesn't form a continuous cover on the ground.
- Short grass which grows very close to the ground.

**The Pampas**

Found in Argentina.

**Characteristics**

- i) Feather-like grass
- ii) Grass forms individual tussocks with patches of bare soil.
- iii) Forests are present in some areas due to increased moisture.
- iv) Xerophytic or drought resistant plants are present in some areas.

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## Desert Vegetation

### Tropical Desert Vegetation

Found in tropical deserts.

#### Characteristics

- a) Vegetation is present except in bare rock and sand covered areas.
- b) There are more plants on oasis e.g. date palms and a variety of shrubs.
- c) Some plants are succulent to have high water storage capacity.
- d) Some have spines to protect them from animals.
- e) Some have thorn-like leaves to reduce rate of transpiration.
- f) Some have long roots to enable them to tap water from deeper parts of rocks.
- g) Some shed leaves during dry season and grow new leaves during wet periods to reduce water loss.
- h) Some are salt tolerant (halophytic) by having many water storing cells to counter soil salinity or alkalinity.

### Temperate and Arctic Desert Vegetation

Found in warm temperate deserts and arctic climates.

#### Characteristics

- i) Grasses and woody plants.
- ii) Woody plants which are Xerophytic and halophytic.
- iii) Shrubs have shallow roots due to permafrost.
- iv) Plants flower and produce fruits within short wet season.
- v) There is scarce vegetation in Tundra.
- vi) Plants present in arctic deserts are such as lichens, mosses and flowering plants such as anemones and marsh marigold.

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## The Veldt

Found in S. Africa.

### Characteristics

- i) Grasses are extensively spread.
- ii) There is little or no mixture of trees or shrubs.
- iii) There is a uniform cover of grass on high plateaus.

## The Downs

Found in Australia and New Zealand.

### Characteristics

- a) Tall grass mixed with trees.
- b) Semi desert areas have patches of dominant grass.
- c) Mixture of temperate and tropical grass species.
- d) Grass is nutritious and nutritious for livestock. □ Natural grasses of Argentina have been replaced by Alfalfa and in New Zealand British meadow grasses now dominate.

## Uses of Temperate Grasslands

- 1. For grain cultivation e.g. wheat which requires as low as 325mm of rainfall.
- 2. For cultivation of other crops e.g. oil seeds, Soya beans, vegetables and millet and sorghum widely grown in the Veldt.
- 3. For livestock farming e.g. cattle, sheep, goats and horses. There are scientifically managed ranches called Estancias in Argentina.

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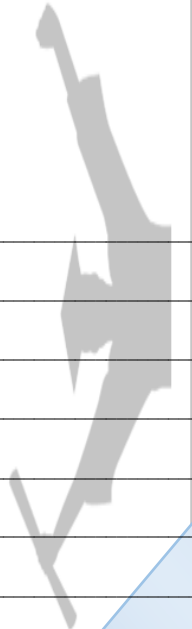
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## Uses of Desert Vegetation

- i) Bilberries in temperate deserts bear edible fruits.
- ii) Small trees are source of fuel for Eskimos who live in arctic region.
- iii) Vegetation in tropical deserts is important in arresting sand dunes to prevent them from burying oases and settlements.
- iv) In tropical deserts fringing vegetation is valuable food for animals.
- v) Date palm is cultivated for its fruit.

## Mountain Vegetation

Vegetation found towards the top of the mountain.

### Uses of Mountain Vegetation

1. Grasslands are used for grazing.
2. Alpine meadows in temperate regions provide summer grazing pastures.
3. Mountain forests provide timber, building materials, fuel wood and charcoal.
4. Mountain forests are habitats for wild animals e.g. elephants.
5. Mountain vegetation makes mountains to be water catchment areas.
6. Mountain forests help to purify air by absorbing carbon dioxide and providing oxygen.
7. Mountain vegetation is used for research.

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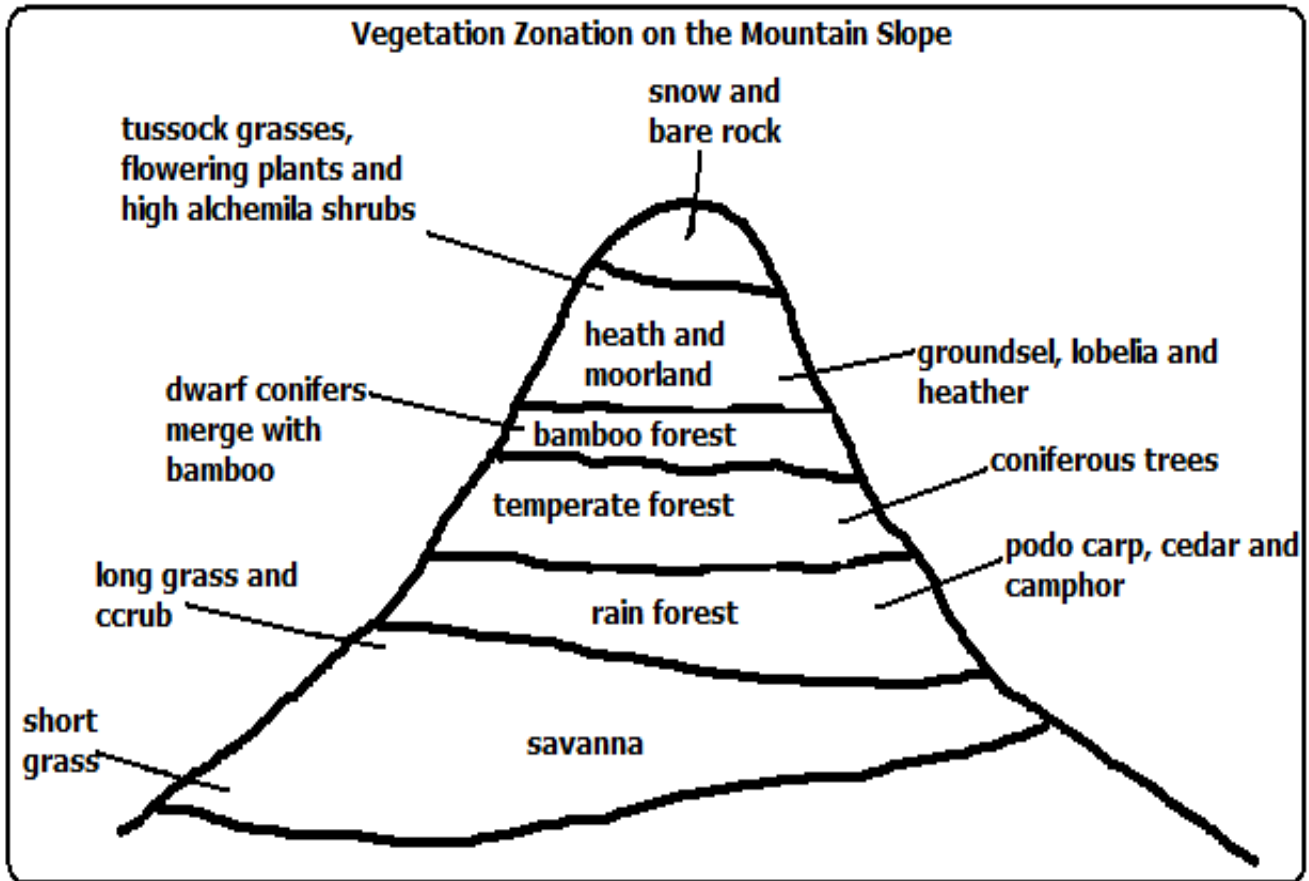
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### Significance of Vegetation

1. Forests add beauty to country's landscape.
2. Vegetation protects soil from erosion by wind and rainwater.
3. Vegetation partly decays forming humus making the soil fertile.
4. Some plants roots, barks and leaves are used for medicine.
5. Forests modify the climate of the surrounding area by increasing rainfall and reducing temperatures.
6. Some plants such as bamboo shoots and wild fruits are consumed as food.
7. Some fibrous plants such as sisal and jute are used for making ropes, sacks, mats, etc.
8. Latex from rubber tree is used for manufacture of rubber used in tire manufacture.

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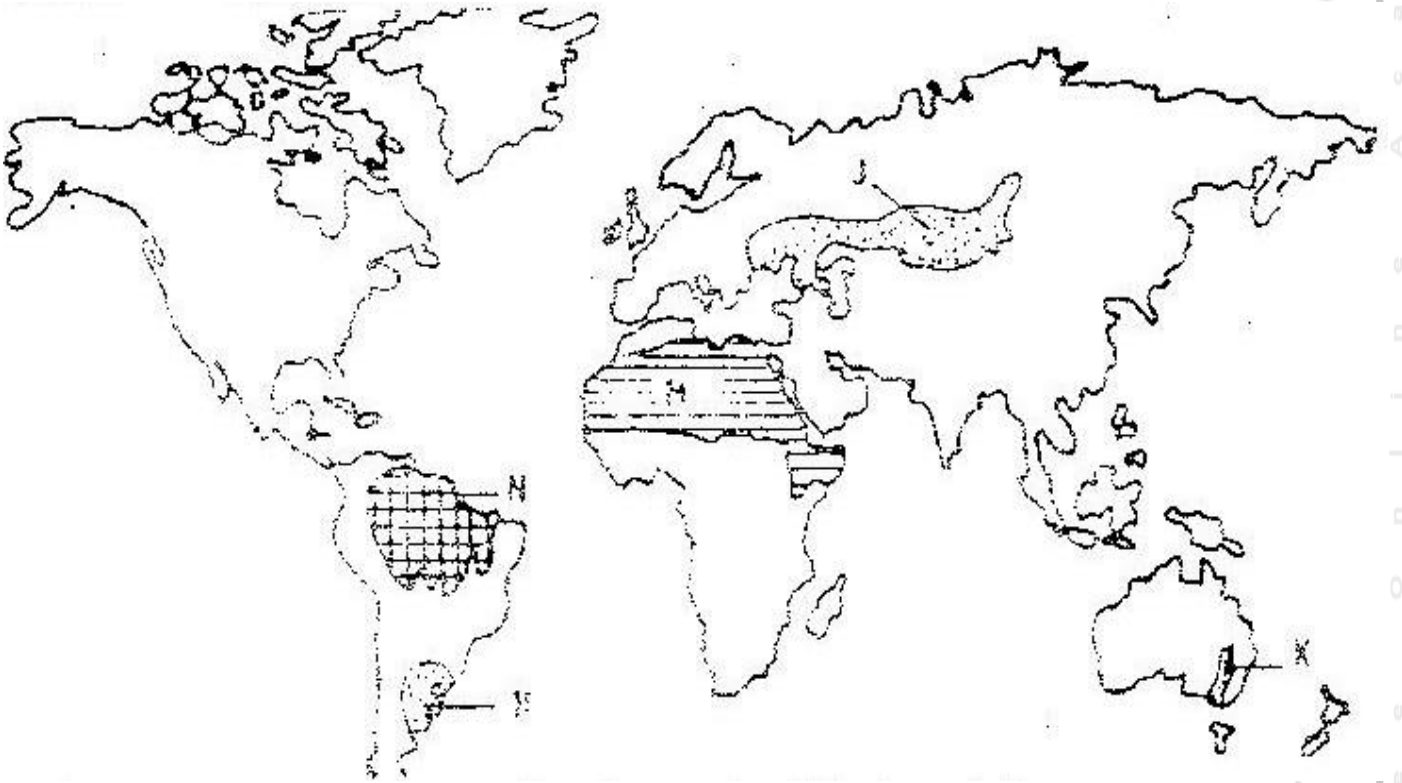


## PAST KCSE TESTED QUESTIONS

### VEGETATION.

1. The map below shows some vegetation regions of the world.

Use it to answer questions (a) to (c).



a) Name the temperate grasslands marked H, J and K.

b) Describe the characteristics of the natural vegetation found in the shaded area marked N.

c)

i) Explain four ways in which the vegetation found in the area marked M adapts to the environment conditions of the region.

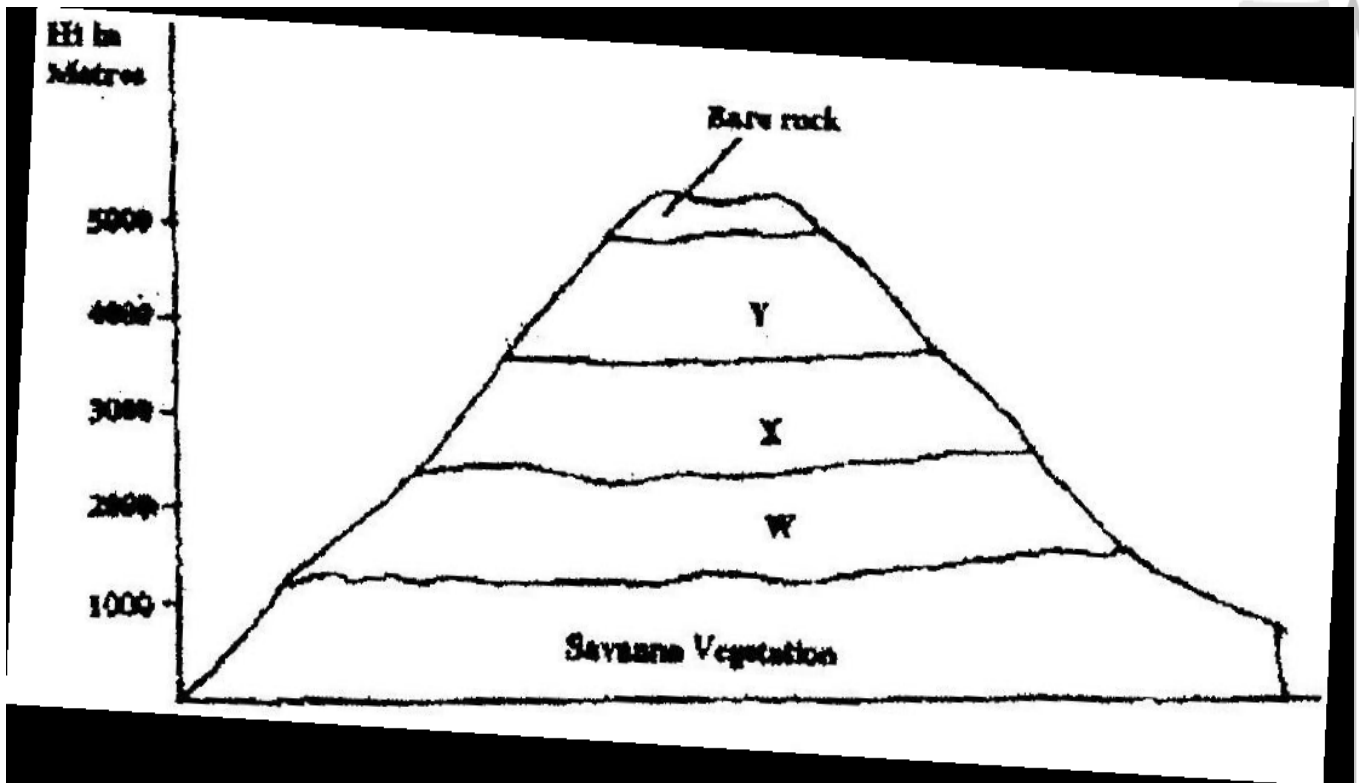
d) You are required to carry out a field study of the vegetation within the local environment:

i) A part from identifying the different types of plants, state three other activities you will carry out during the field study.

ii) How will you identify the different types of plants?

2. The diagram below represents zones of natural vegetation on a mountain in

Africa. Use it to answer question (a) (i) and (ii)



a)

(i) Name the vegetation zones marked W, X and Y. (3mks)

(ii) Describe the characteristics of the savanna vegetation. (6mks)

(iii) Name the temperate grasslands found in the following countries:

- Canada (1mk)
- Russia (1mk)
- Australia (1mk)

b) Explain three causes of the decline of the areas under forest in Kenya. (6mks)

c) You are supposed to carry out a field study on the uses of vegetation in the area your school.

(i) State three reasons why it would be necessary to visit the area before the day of the study. (3mks)

(ii) Give four uses of you are likely to identify during the study (4mks)

3.

(a) What is a natural vegetation? (2mks)

(b) State three characteristics of Mediterranean vegetation (3mks)

4. Explain three measures that the Kenyan government has taken to reduce the decline of natural vegetation cover. (6mks)



5. How do the following factors influence distribution of vegetation in Kenya.

- (i) Variation in rainfall
- (ii) Variation of temperature
- (iii) Variation of altitude/relief.
- (iv) Aspect
- (v) Soil
- (vi) Human activities (10mks)

6. State two reasons why mountain tops have no vegetation. (2mks)

7. Define vegetation. (2mks)

8. Name areas where coniferous forests are found. (3mks)

9. State characteristics of temperate grassland. (5mks)

10. Distinguish between secondary vegetation and planted vegetation. (4mks)

11. State two ways in which vegetation is significant to human and physical environment. (5mks)



(a) Name the type of photograph and type of vegetation. (2mks)

(b) Describe how the vegetation is adapted to climatic conditions of the region. (3mks)





## MARKING SCHEME

1. a) (i) Measure distances/estimation of heights of plants (iii)

- Collect sample of plants
- Draw sketches/transects
- Record/take notes
- Take photographs of plants/area
- Count plants
- Feeling the leaves
- Conduct interview

(ii) How to identify different types of plants

- By appearance
- Their colour
- By their leaf size/patterns/type
- By their age
- By the nature of their bark
- By texture of their leaves
- By their system of the roots
- The type of fruits.

2. a) (i)

W- Rainforest

X- Bamboo

Y-Health and moorland

(ii)

- Savanna vegetation consists of trees and grass
- Wetter areas/near forests the vegetation consists of tall trees similar to those found in forests and woodlands
- Wetter areas have tall thick grass.
- Gradually away from the forest, the trees become fewer and shorter
- Grass is shorter in drier areas
- In drier areas the trees are short and more scattered.
- Some trees are deciduous type
- Most trees are umbrella shaped
- Most common trees are acacia and other thorny trees.
- Where the rainfall is lowest grass is tufted and coarse/ trees scrub
- There are scattered baobab trees and other drought resistant trees.
- Along river valleys there is riverine vegetation and thick bush.

Canada-Prairies

Russia- Steppe

Australia-Downs

b)

- Fire- Often large areas of forests are destroyed by fires and take long to recover.
- Diseases and pests attack mainly the planted forests causing many trees to die.
- Human activities/settlements/charcoal burning/logging have destroyed many forest areas.
- Over exploitation leads to depletion of certain tree species such as Meru oak, Campor and Elgon teak. These trees take long to manure.
- Government policy of degazetting of some forests made people free to clear many forested areas.
- Prolonged drought leads to degeneration of forest some of which take long to recover.

3.

a) Natural vegetation is the plant cover which is growing wild on its own.

b)

- The vegetation is adapted to long, hot dry summers.
- Some plants are evergreen
- Grasses dry up during summer and germinate during winter.
- Woody scrub is common in very dry areas.
- Some plants have small, spiny leaves while others have thick skinned or leathery leaves.
- Some plants have long roots.
- Some plants have thick barks
- Some plants have large and fleshy bulbous roots.
- Some trees are deciduous.

- 4.
- i) Campaigns against indiscriminate cutting down of trees/educating people/ reducing overgrazing.
  - ii) Establishment of vegetation/forest reserves
  - iii) Restriction on cutting down of trees
  - iv)
  - v) Development of energy saving technology to reduce high consumption of wood fuel
  - vi) Use of alternative sources of energy
  - vii) Encouraging the planting of more trees to reduce reliance on existing ones
  - viii) Establish Nyayo tea zones to act as buffer zone.
- 5.

- (i) Variation in rainfall
- (ii) Variation of temperature
- (iii) Variation of altitude/relief.
- (iv) Aspect
- (v) Soil
- (vi) Human activities

• **Variation of rainfall**

Areas that receive high rainfall are forested while those receiving low rainfall have grassland vegetation.

• **Variation of altitude/relief**

Vegetation varies with height above sea level (e.g. montane in high altitude) as altitude influence climate and soil.

• **Aspect**

Areas on leeward slopes of Mountains have different vegetation from thick growth of vegetation in the windward side because they receive different amounts of sunshine and rainfall.

• **Soil**

Sandy soil/swamp soil/saline soil influence growth of different types of vegetation. Vegetation on slopes is determined by soil catena.

• **Drainage**

Vegetation is as luxuriant along water courses/along coastal flats because surface water supply is reliable/ waterlogged areas support swamp vegetation.

• **Human activities**

Settlement/mining/ farming interferes with the original vegetation leading to growth of secondary / derived vegetation/desertification.

• **Wild animals**

Destroy vegetation leading to secondary type/ desertification. They aid in seed dispersal.

6. State two reasons why mountain top have no vegeta-

tion.

- i) Temperatures are too low to support plant growth.
- ii) There is no soil to support plant growth/bare rock.
- iii) Water is in frozen state.

7. Vegetation refers to plant life on earth surface.

8. Areas where coniferous forests are found.

- i) Cool temperate continental climate/Siberian type.
- ii) Cool temperate eastern margin- Laurentian type.
- iii) West coast of Canada.
- iv) Scandinavian region

9. Characteristics of temperate grasslands

- i) Trees are scarce except along water courses.
- ii) In moist areas the grass is tall.
- iii) Where it is drier there is short tough grass
- iv) Grass withers in autumn and dries up in winter but sprouts during spring.
- v) Presence of scattered trees
- vi) Common trees are acacia

10. Secondary vegetation comprises natural processes colony on a place which is in the process of receiving due to interference by man while planted vegetation comprises of plants grown in a place by people e.g. agro-forestry.

11. Two significance of vegetation to physical and human environment.

- i) Vegetation is of aesthetic value as it adds beauty to landscape.
  - ii) Vegetations roots binds soil together protecting soil against erosion
  - iii) Plant decay to form humus adding fertility to soil.
- a)
    - Ground close-up
    - Acacia vegetation
  - b)
    - i) Thorny like leaves to reduce rate of water loss.
    - ii) Have long tap root to tap underground water
    - iii) Plant seeds remain dormant awaiting short rains.