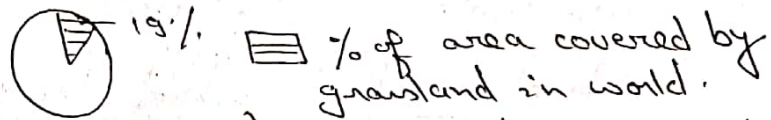


GRASSLAND ECOSYSTEM :-

A grassland possesses different type of grasses, non-graminaceous herbs & a few scattered bushes or an occasional trees.



$\Rightarrow$ Components of ~~Forest~~ Grassland ecosystem :-

Biotic Components $\rightarrow$ They include

(1) Producers $\rightarrow$ The grassland are characterised by treeless herbaceous plants, dominated by wide variety of grass species. Some bushes also work as producers.

Plant species $\rightarrow$ Cynodon dactylon, Tridax procumbens,
Sida rhombifolia.

(2) Consumers $\rightarrow$

(a) Primary Consumers $\rightarrow$ They are herbivores feeding on different parts of plants.

Eg:- Goat, sheep, cow, buffalo, deer, rabbit, mouse, insects etc.

(b) 2ndary Consumers $\rightarrow$ These are carnivores which eat primary consumers.

Eg:- Fox, snake, frog, lizard, bird etc.

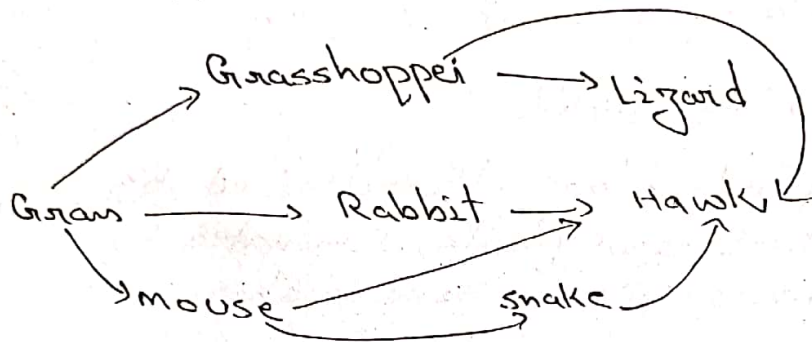
(c) Tertiary $\rightarrow$ Sometimes birds like hawk feed on 2ndary consumers occupies tertiary position in food chain.

(3) Decomposers $\rightarrow$

Microorganisms decomposes dead plants and animals & release the inorganic substances into the air & soil which are utilized by plants.

- * Fungi - Mucor, Penicillium etc
 and Actinomycetes & bacteria work as decomposers.
 ⇒ They bring about the minerals back to the soil, making them available to the producers.

Structure of Grassland Ecosystem



ABIOTIC COMPONENTS :-

- These include the nutrients present in soil & the atmosphere.
- Thus the elements like C, H, O, N, S, P etc are supplied by CO_2 , H_2O , N_2 , PO_4^{2-} & SO_4^{2-} present in air & soil of the area.

Major Grassland Types :-

1) TEMPERATE GRASSLANDS →

Extent → They includes the PRAIRIES of North America, STEPPES of Eurasia, PAMPAS of S. America & VELD T of S. Africa.

Smaller tracts occur in Australia & New Zealand.

Physical :-

Climate → It is continental with cool to cold winters and hot summers.

Precipitation → 25-75 cm.

* Day periods are long.

Flora →

- (1) A variety of grasses, herbs, plants mainly short and tall grasses
- (2) Trees only occur on steep slopes or near water.
- (3) Some areas like (Rockies) grasses are mixed with cactus & sagebrush.

Fauna →

- It includes a no. of insects, grain eating birds, herbivores and their consumer animals like, jack, rabbits, mice, bison, elk, mule, deer, bighorn sheep, antelope, wolves, prairie dogs, beavers, badgers, coyote, burrowing owl etc.
- * Productivity is $2500 \text{ kcal/m}^2/\text{yr}$.
 - * Fires occur occasionally to maintain grassland.

(2) TROPICAL GRASSLANDS (SAVANNAS) →

Extent → The savannah is found in equatorial & subtropical regions of the world especially South America, Central Africa & Australia.

Physical Characteristics :-

Climate → (1) It is a warm climate plain.

(2) Wet seasons alternate with long dry seasons.

Precipitation → It receives sufficient rainfall of 100-150 cm/yr.

- Flora →
- (a) Mainly grasses & woody species, exhibit xerophytic features.
 - (b) In dry season brown & withered short grasses appear while tall lush grasses appear at the arrival of summer rains.
 - (c) Dominant trees are Acacia savannah, Phoenix savannah, Eucalyptus savannah.

Fauna → Great variety of herbivores & carnivores indicates that the ecosystem is of considerable antiquity.

(a) Common animals are zebra, giraffe, antelope, gazelle, rhinoceros, goat, rabbit, mice, elephant, fox, wolf, tiger, lion etc.

Kangaroo occurs in the savannah of Australia.

Others :-

(1) Factors of soil, fire & grazing are imp. in maintaining the character of grasslands.

(2) Many tree species are fire resistant.

⇒ Ecosystem features :-

(a) Grasses are biennial, annual or perennial & are herbaceous.

(b) Grasses grow from their base & consequently they can tolerate grazing or burning better than most plants.

✓ Grassland ecosystem have a much smaller biomass with large % is made up of roots.

(c) Ground layer of small plants with 'rosette' forms, mosses & lichens is a consistent feature.

✓ Annual primary productivity is only about an 8th or 9th of an adjacent forest area.

(f) Surface animal species are large herbivores - bison, antelope, horse. & smaller mammals such as mice, voles & rabbits live below but feed above ground.

map - Pg. 279, source (Rupa)

+ Pg. 310-314 source (C.R.S. PWC)