

Grassland Ecosystem

In a grassland ecosystem, the vegetation is dominated by grasses and herbs. Temperate grasslands, savanna grasslands are some of the examples of grassland ecosystems. Grassland ecosystems are important mechanisms of ecological communities on Earth, and perform key functions in carbon (C) cycling, climate regulation, and the maintenance of biological diversity. However, since the middle of the 20th century, these ecosystems have been subjected to major environmental fluctuations because of climate change and strengthened human activities. These ongoing changes have affected grass growth and the functioning of constituent ecosystem. In this context, net primary productivity (NPP) is one key indicator that can be used to measure the ability of a grassland ecosystem to maintain a level of sustainable development, recorded via the net amount of C captured by land plants annually through photosynthesis. Variations in NPP are therefore indicative of relationships between vegetation growth and the surrounding environment; it is therefore critical to better understand the responses of grassland NPP to both climate change and human activities.

Types of Grassland in India:

Grasslands form a diversity of ecosystems that are situated in different climatic conditions ranging from near desert conditions, to patches of **shola grasslands** that occur on hill slopes alongside the extremely moist evergreen forests in **South India**. In the Himalayan mountains there are the high cold **Himalayan pastures**. There are tracts of **tall elephant grass** in the low-lying **Terai belt south of the Himalayan foothills**. There are **semi-arid grasslands** in **Western India**, parts of **Central India**, and in the **Deccan Plateau**.

Uses of grasslands:

Grasslands are the grazing areas of many rural communities. Farmers who keep cattle or goats, as well as shepherds who keep sheep, are highly dependent on grasslands. Domestic animals are grazed in the 'common' land of the village. Fodder is collected and stored to feed cattle when there is no grass left for them to graze in summer. Grass is also used to thatch houses and farm sheds. The thorny bushes and branches of the few trees that are seen in grasslands are used as a major source of fuelwood. Overgrazing by huge herds of domestic livestock has degraded many grasslands. Grasslands have diverse species of insects that pollinate crops. There are also predators of these insects such as the small mammals like shrews, reptiles like lizards, birds of prey, and amphibia such as frogs and toads. All these carnivorous animals help to control insect pests in adjoining agricultural lands.

What are the threats to grassland ecosystems?

- Sustained global warming could turn current marginal grasslands into deserts as rainfall patterns change.
- Land once incompatible with row-crop agriculture, but which provided a living to ranching families and habitat for prairie wildlife, is being converted to row-crops.
- Development of urban areas is increasingly cutting into grassland habitat.
- Where only one crop is grown, pests and disease can spread easily, creating the need for potentially toxic pesticides.

Why are our grassland species vanishing?

Most people feel that it is only our forests and its wildlife that is disappearing. However, other natural ecosystems such as grasslands

are disappearing even more rapidly. Many of the grassland species have disappeared from several parts of India in which they were found 50 or 60 years ago. The Cheetah is extinct in India. The Wolf is now highly threatened. Blackbuck and chinkara are poached for meat. Birds such as the beautiful Great Indian Bustards are vanishing. Unless grassland species are protected they will vanish from their shrinking habitat, as natural and undisturbed grasslands are left in very few locations. If these animals and birds are killed or their habitat is reduced further, their extinction will rapidly follow.