Volume : 4 | Issue : 9 | Sept 2015 • ISSN No 2277 - 8179

Research Paper

Native Vegetation (Jammu & Kashmir)

Architecture

KEYWORDS : Ecosystems, biodiversity, vegetation

Ar. Vishal Bhatti — Sr.Tech. Assistant, School of Architecture & Landscape Design, Shri Mata Vaishno Devi University, Kakryal, Katra – 182320

Ar. Navin Gupta — Assistant Professor, School of Architecture & Landscape Design, Shri Mata Vaishno Devi University, Kakryal, Katra – 182320

ABSTRACT

The species in a given area interact with each other and with their environment to form complex networks known as ecosystems. These differ from place to place, thus creating ecosystem diversity. Each ecosystem differs from all others because it contains a unique combination of species (and therefore genes) and because these species interact with each other and with each environment in distinctive ways. Biodiversity is not static but is constantly changing. It is increased by genetic change and evolutionary processes and reduced by processes such as habitat degradation, a decline in flora and fauna, and the extinction of species. Diversity in all its forms (genetic, species and ecosystem) is a critical factor in the resilience of an area and its ability to respond to significant changes such as fire, food, climate and human impacts. Diversity is the key to maintaining viable populations of our native flora and fauna. This is due to three major components; loss of biodiversity can result in reduction or loss of ecosystem function. Therefore, it is very important the need for conservation of biodiversity.

There are four main reasons for preserving biodiversity: maintaining ecosystem processes, ethics, aesthetics and culture, and economics. Biodiversity has two key aspects:

• its functional value at the ecosystem level; and

• Its intrinsic value at the individual species, species assemblages and genetic levels.

Biodiversity provides the critical processes that make life possible, and that are often taken for granted. Healthy, functioning ecosystems are necessary to maintain the quality of the atmosphere, and to maintain and regulate the climate, fresh water, soil formation, cycling of nutrients and disposal of wastes (often referred to as ecosystem services). Biodiversity is essential for controlling pest plants, animals and diseases, for pollinating crops and for providing food, clothing and many kinds of raw materials.

Biodiversity refers to the living pieces that shouldn't be discarded since we use the earth's resources to sustain us. Experience suggests to us that the first rule of intelligent tinkering is to keep all of the pieces. Because of the interconnected nature of ecosystems, the loss or addition of one species has the potential to change an ecosystem.

Introduction

Biodiversity refers to the variety of life. It is seen in the number of species in an ecosystem or on the entire Earth. Biodiversity gets used as a measure of the health of biological systems, and to see if there is a danger that too many species become extinct.

"Biodiversity is the variety of all forms of life - the different plants, animals and microorganisms, the genes they contain and the ecosystems of which they form a part".

The Importance of Biodiversity

Everything that lives in an ecosystem is part of the web of life, including humans. Each species of vegetation and each creature has a place on the earth and plays a vital role in the circle of life. Plant, animal, and insect species interact and depend upon one another for what each offers, such as food, shelter, oxygen, and soil enrichment. Maintaining a wide diversity of species in each ecosystem is necessary to preserve the web of life that sustains all living things.

Species Ecosystem diversity is the effective number of different species that are represented in a collection of individual's diversity refers to the diversity of a place at the level of ecosystems. The term differs from biodiversity, which refers to variation in species rather than ecosystems. Genetic diversity, the level of biodiversity refers to the total number of genetic characteristics in the genetic.

Potential benefits of biodiversity are Maintenance of Soil fertility, Carbon sequestration and global climate change, Stabilization of land against erosion ,Detoxification of soil and sediments, Control of potential pest and disease causing species, Cycling of nutrients, Cleaning of air and water, Degradation of waste, Regulation of climate, Biological productivity, Balance of nature, Traditional value Ecological services, Education and Research, Recreation, Industrial Material Non-Consumptive Value, Batter crop varieties, Medicine, Fuel & Food/Drink

Threats to Biodiversity:

The main factor currently driving biodiversity loss is habitat destruction—on land; in streams, rivers, and lakes; and in the oceans. Human activities such as: deforestation; bottom trawling in the oceans; the damming and dredging of streams, rivers, and lakes; and the draining and degradation of wetlands, estuaries, and mangroves are responsible.

Other threats to biodiversity and to ecosystems include: the over-harvesting of plant and animal species; the introduction of non-native species; and pollution. Many types of human-caused pollution are a threat—the release of excessive amounts of nitrates and phosphates from sewage and agricultural run-off; persistent organic pollutants that can concentrate in food webs (and in our own tissues) and adversely affect hormonal and reproductive function; pharmaceuticals used by people and in livestock production that are toxic to wildlife; acid rain; heavy metals; herbicides and pesticides; and plastics.

Still further threats come from: excessive ultraviolet radiation from depletion of the stratospheric ozone layer that can damage the DNA and proteins of land-based, freshwater, and marine organisms; war and conflict that can result in habitat destruction, over-hunting, and pollution; and climate change.

Native Vegetation

Native vegetation includes all the plant species that occur naturally in a particular habitat. Species of ferns, grasses, forbs, vines, shrubs and trees which are found in the area are considered to be native species. These plants have evolved together over time to form communities that are well-suited to the particular combination of soil, temperature, nutrients, and rainfall of their region. The communities are hardy because they are adapted to the local conditions and they provide essential habitat for native insects and animals. In an area without anthropogenic influences, vegetation consisting of completely native.

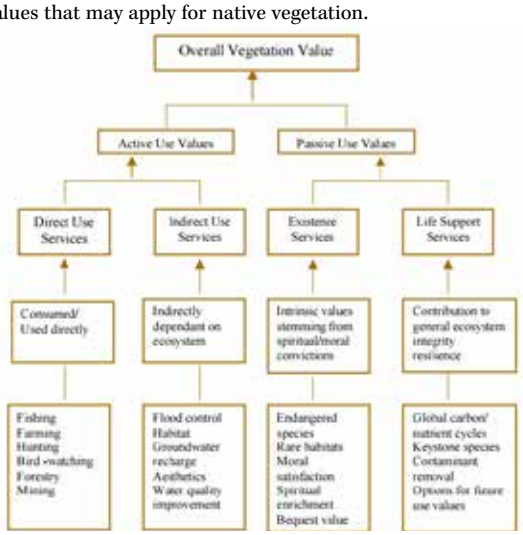
Volume : 4 | Issue : 9 | Sept 2015 • ISSN No 2277 - 8179

Native plants in geological times in a region that region-specific climate, soil, rainfall, drought and frost, depending on the physical and biotic characteristics evolve and interact with other species in that region are found in the local plant communities. In this way, the conditions under which native plants will have certain features that makes them perfectly adapted to the characteristics and landscaping, conservation and restoration projects is extremely important to provide alternatives.

The material is of great importance for landscaping with native plants and plant communities that make us the main ones are as follows: Forests, savannah, marquis, savannahs, deserts, meadows, tundra's, alpine plants, swamps. These are usually the most important plant communities that make up the earth, ecological sense, have come together and established a partnership between the livings, rather than growing the plant complied evaluated in terms of their formation and utilization conditions.

Valuing native vegetation and biodiversity

The failure to place an economic value on native vegetation and many biological resources means that they fail to compete on a level playing field with the forces that are driving their decline. Native vegetation and Biodiversity values defy easy description and quantification. One of the reasons for this is the different type of associated values. The Figure illustrates the many types of values that may apply for native vegetation.



Magnolia grandiflora

Benefits of native vegetation

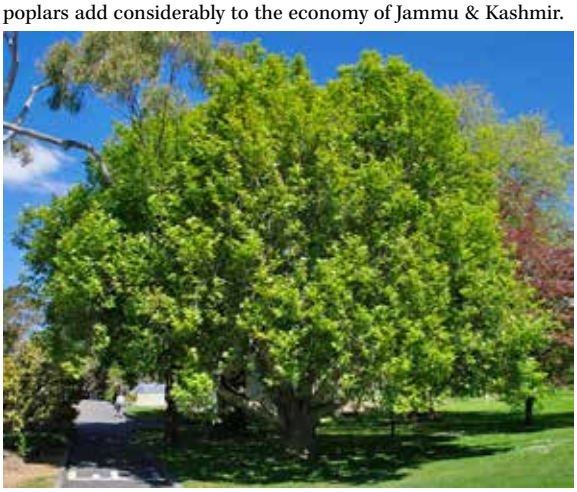
Native vegetation evolved to live with the local climate, soil types, and animals. This long process brings us several gardening advantages.

- Soil and water protection (e.g. prevention of salinity, soil erosion or acidification).
- Low Maintenance
- Pesticide Freedom
- Tourism, recreation and wildlife visual amenity
- Support Local Ecology
- Fodder; food; seeds; wildflowers and plants; medicines; timber, including for fencing and firewood; shade; shelter; honey production; pollination and pest control services .
- Carbon sinks and/or storage

The native vegetation is directly related to land use and environmental change and is the most easily visible and perceived part of the landscape**.** It is important in relation to visual effects. However, without detailed studies cannot be understood fully the relationship between other landscape elements.

Native vegetation of Jammu & Kashmir ,India

Trees and bushes are perennial source of greenery, sometimes evergreen, sometimes leaf less, sometimes colourful, sometimes laden with snow. Flowering trees of J&K are many but majestic grandeur of Chinar trees is distinct in the green landscape of Kashmir . Botanically identified as *Plantanus orientalis* (Oriental Plane) ,Chinar tree changes moods in changing seasons, colourful to lush green, sometimes laden with sheen (snow) . It stands planted in some locations of Jammu as well, it is seen planted in Kishtwar, Bhaderwh, Udhampur and even in Jammu. Willows and poplars also add to the charm, standing as sent inels all along roads, highway and canal banks. Locally called Veer and Frast in Kashmiri and Bedda and Safeda in Dogri, Willows and poplars add considerably to the economy of Jammu & Kashmir.



Plantanus orientalis

Mughal gardens of Kashmir Srinagar in particular boast of the appealing evergreen trees like *Magnolia grandiflora* which gets decorated with snow-white blooms of matchless grandeur during summer months. Jammu city has also added Magnolias in the parks and gardens *Magnolia liliflora /soulangena* is another shrubby plant bearing maroon flowers during early spring months. Magnolias are exotic to Kashmir but are nicely naturalized.

Sheepberries are wild as well as cultivated shrubs which are important source of wild food for our wildlife. These shrubs and small trees belong to Genus Viburnum. *Viburnum grandiflorum*, commonly called Kulmaansh in Kashmiri, Teldi or Tyond in Dogri and Guchh in Gojri is common in Shankracharya, Zabarwan, Dachigam, Doda, Poonch, Udhampur forests. When snow is about to melt, these bushes get decorated with fragrant pink blooms at traching all kinds of bees and insects. Its garden relative seen in

Srinagar Colonies and parks is *Viburnum opulus*, commonly called as snowball or Guelder Rose of great handsome beauty. Its grandeur is exhilarating. *Viburnum mullaha* is also seen in Jammu forests, it is called Sallalan in Dogri, its fruits are blood red in colour. *Viburnum cotinifolium* is seen in Trikuta hills.

Roses are common shrubs with historic antiquity. Nurjahan who used to adore rose beauty is credited with the discovery of At tar of Roses. Several garden varieties have been naturalized over the years but our wild species are equally important as they decorate wilderness. *Rosa brunonii* commonly called "Musk Rose" is quite abundant in J&K hills and Kishtwar or Dachigam National Park. It is climbing rose with highly fragrant white blooms. Honey bees get attracted in thousands to add flavour to the honey collected. Department of Floriculture has added *Syringa persica* (Persian Lilac) , *Syringa vulgar* is and *Syringa laciniata* to add colour and charm to the city landscape. Hydrangea is most popular garden shrub which bears pink and blue flower clusters ar ranged as attractive balls to attract visitors. Buddlejas is a group of Butterfly bushes fondly growing in city landscape of Kashmir . *Buddleja davidii* is most attractive and is seen throughout . *Buddleja asiatica* with white fragrant blooms and *Buddleja crispa* with mauve pink blooms are seen in the wild and are native to Himalayas.

Magnolia liliflora

False witch Hazel, Parrotiopsis jacquemontiana commonly called as Pohu or Hatab in Kashmiri grows wild in coniferous forests. It is most common in places like Bhaderwah, Bani, Poonch, Padder , Machel, Machhil, ,Dachigam, Kupwara, Pahalgam. Its utility in Kangri making makes this shrub important for Kashmir economy. Indigofera heterantha is also prized for Kangri making and grows throughout hills in J&K.

Juglans regia

Wild walnut , *Juglans regia* is unique to J&K forests, seen commonly in Padder , Dachigam, Gurez forests. Along with its wild germplasm, walnuts are cultivated throughout Kashmir . Many cultural traditions are intimately linked with Walnut , commonly called Dun in Kashmir i. Another fascinating tree locally called Hundun or Handoon in Kashmiri, Bankhodi in Pahadi, Goon or Guggu in Dogri is Horse Chestnut Tree which is quite common in mountains. This tree has palmately lobed foliage fondly eaten by Kashmir Red Deer , Hangul, hence its name Handun means Walnut of Hangul. Trees are seen planted at few locations along highway between Khannabal to Batwara and Chashmashahi environs.

Catalpa bignonioides is another flowering tree seen planted in the city Environment of Srinagar. Judas tree is unique in bearing dense clusters of pink purple blooms when it is completely leaf less. I t has been introduced in Kashmir University Campus and at several places in Nishat , Shalimar and Chashmashahi Gardens of Srinagar . Hawthorn is another tree which grows in Kashmir and is introduced in gardens for decoration. Botanically called *Crataegus songarica*, its Kashmiri name is Ringkul or Ring. It is a spiny tree of Rose family *Rosaceae* and produces white blooms and red fruits. It's another garden variety introduced in Chashmashahi Garden produces deep pink flowers during summer time. Cotoneaster bacillar is locally called Reu, Reunsar is another useful timber tree but also seen under worship at Jyodeaayan Mata Temple at Bani in J&K. *Prunus cornuta* and *prunus cerasoides* are wild species in Jammu forests, wood of latter is aromatic and used in religious and medicinal purposes. *Prunus tomentosa* locally called Bushkand is seen growing wild in Dachigam Nat ional Park, its fruits tastes like cherry and are useful for kidney ailments.

Threats to native vegetation in Jammu & Kashmir are :

The pressures exerted by increasing human and animal populations over the period of time coupled with unsustainable modes of development have taken their toil, seriously degrading the natural resource base of the State. Keeping in view the progressively worse situation there is an urgent need to take remedial steps to conserve the natural resources of the State so that these are utilised sustainably and can serve the society in perpetuity.

Conservation issues in J& K arise from the interface of the people with their environment, and these issues need to be tackled at policy and grass root level.

Some of the important issues are highlighted as under:

- Commercialisation of biomass based subsistence resources.
- Threat to existing Protected Areas.
- Grazing pressure.
- Threat to Wetlands.
- Loss of genetic Resources
- Construction of roads in hilly areas.
- Adverse effects of increasing use of Chemical fertilizers/ Pesticides in horticulture / Agriculture.
- Impact of Tourism.
- Breakdown of Traditional Systems.
- Biodiversity information Management
- The need for setting up of Centres of Ecology.
- Awareness – raising and Education Programmes
- Commitment of the Government
- Invasive species

This is interesting to note that even conservative estimates describe that for just construction of one km road entails a loss of about 40,000 to 80,000sqm of debris from the mountain slopes. Road construction is at the cost of Natural vegetation on either side of road. The break of natural vegetation further leads to landslides and soil erosion from the embankments of the roads.

Volume : 4 | Issue : 9 | Sept 2015 • ISSN No 2277 - 8179

Erosion of a single hectare of land on either side of road leads to loss of about 143gms of nitrogen, 628gms of Potassium, 1377gms of Calcium and 1316gms of Carbon through topsoil run off. The biodiversity is also subjected to some erosion through road construction as many populations of unique or rare threatened species also inhibit the vegetation clad slopes.

Conclusion

Native plants create beautiful landscapes that provide native wildlife with the best habitat and food they need to survive. Native plants also help to protect watersheds and maintain the unique natural heritage of an area. In J&K, our native plants lend a sense of place that is recognized and enjoyed by citizens and visitors from all over the world. If our native plants continue to be replaced with species from other places, J&K will lose the natural beauty and resources that define the state. Not only do native plants provide benefits to the environment as a whole, they also provide value to you and your backyard. Because Pennsylvania's native plants are meant to grow here, they thrive with less maintenance in the right conditions, thereby reducing the need to water and fertilize them. They also serve as pollinators and attract wildlife.

How can we help?

- Learn more about native plants.
- Landscape with native plants.
- Buy nursery-propagated native plants.
- Practice responsible landscaping techniques.
- Protect your property against invasive plants.
- Do not remove native plants from the wild.
- Protect native plant communities and minimize habitat destruction.

Trees are great asset to our surroundings as they add to aesthetic charm, fight vehicular pollution, act as green lungs and do carbon sequestration. Trees when in bloom attract birds, bees, butter flies and beetles for accomplishing pollination to effect seed product ion for perpetuating their progeny. Trees keep surroundings clean, green and healthy for human beings and add glory and charm to our survival mileu, God' s greatest gifts indeed.

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