

Variety of living organisms on our planet is called biodiversity. In general, the biodiversity defined as “number of species” by a biologist. A species is, “a population whose members are able to interbreed freely under natural conditions” (Wilson, 1992). Biodiversity means the variety of life or variability among living organisms, at all levels of community, classified both by evolutionary and ecological criteria (Wilson and Peter, 1988). Biodiversity is the basic requirement for the existence of life on our planet. Anthropogenic interventions, pollution, over- exploitation and unsustainable utilization of natural resources are the main causes of rapid degradation of biodiversity. The increase in human population has caused alteration of land use pattern and resources exploitation. Conservation of biodiversity is a major goal in nature conservation but measuring of the biodiversity of a particular site or area is not possible (Heink and Kowarik, 2010). Climate change affects all levels of biology (Lepetz *et al.*, 2009). The biodiversity of India is unique because of its physiographic features. Our country secures the position in top 10 species rich countries in the world. India’s biodiversity is one of the most significant in the world (Ramakrishnan, 2003). In all 91,212 faunal and 45,500 floral species are documented in India (Goyal and Arora, 2009). Rajasthan is the largest state of India and situated in the North-West part. The state holds the unique biodiversity of the country due to its vast variety of edaphic, climatic and geographical features (Sharma and Upadhyay 2014).

Sacred groves in Rajasthan play a significant role in the conservation of valuable and threatened species. Nai-Ka-Nath sacred grove is one of the finest SG in Jaipur District and created around the Lord Shiva Temple. It is called temple grove. Three types of sacred groves, (a) Traditional SG (b) Temple SG and (C) Burial or Cremation SG were described by Pandey (Pandey, 1998). The area has a significant religious connection with Jogi and Meena communities, and hunting, logging, mining, developmental and illegal human activities are strictly prohibited in this area. The religious beliefs of people are strongly associated with the Bhagwan Shiva, Bharthari Temple and Data Mata Temple of the grove. Social, cultural and religious aspects of Sitabari SG in Rajasthan were described by Bhasin (Bhasin, 1999). The area is rich in biodiversity.

Plant species like *Commiphora wightii*, *Helicteres isora*, *Tinospora cordifolia*, *Asparagus racemosus*, *Gloriosa superba*, *Urginea indica* etc. are not found in the surrounding area but these are well protected in this area. This place also provides suitable habitat for many wild animals and birds, and 10 natural and 23 artificial water storage points are present for wildlife. People do not harm the grove in any manner, because of socio-religious traditions and fear of the presiding deity, believing that those who harm the grove may be harmed by Bhagwan Shiva, or Bharthari, Data Mata or other deities. Many cultural programmes like *Kirtan*, *Bhajan*, *Havan*, *Folklore* etc. and religious festivals like *Maha Shivaratri*, *Navaratri*, *Bharthari Anniversary* etc. are arranged and celebrated in or around the temples of the grove by local people. Every Monday and *Krishna Chaturdashi* a fair is held near the temple and a fair of grand scale is there on *Maha Shivratri* people from nearby villages come in lakhs by car, tractor, jeep, bikes, buses, camels, cycles and whatever mode of transport is available to offer their prayers to Shiva.

Ancient historic sites of Eastern Rajasthan were surveyed by A C L Carlwil (Archaeological Survey of India), including Nai-Ka-Nath. In terms of architecture, the temple is supposed to be about a one and half thousands years old. One traditional line is famous in the area is, '*Bawan kot chappan Darwaza Ja Mai basi Nai ka Raja*' (Mamodiya, 1987).

The aim of the study was to determine the biodiversity of the area, the traditional medicinal uses of floral species, utilization of floral species by the fauna of the area, anthropogenic significance, and the present methods of conservation. During the study, total of 180 floral and 155 faunal species were recorded. The floral species belong to 61 families. Of these are 44 trees of 20 families, 28 shrubs of 16 families, 83 herbs of 34 families, 18 climbers of 7 families, 5 tubers of 2 families, and 2 parasitic plants of 1 family. The dominant families of the grove are, Fabaceae with 16 species in trees, Solanaceae with 4 species in shrubs, Poaceae with 16 species in herbs, Convolvulaceae with 6 species in climbers and Liliaceae with 3 species in tubers. Fabaceae and Poaceae are the largest families of the area amongst the dicotyledons and monocotyledons. Total of 156 dicot and 24 monocot species were documented in the study. Maximum monocot species recorded are in herbs of Poaceae family. Overall dominant families of the area as follows, Fabaceae (24), Poaceae (16), Asteraceae (10), Amaranthaceae (9), Convolvulaceae (9), Solanaceae (7), Acanthaceae (5), Euphorbiaceae (5) and Tiliaceae

(5) etc. Gupta and Choudhary (2010) studied the floral diversity of Ghaziabad district and listed 948 species belonging 131 families, and also found that Fabaceae, Poaceae, and Asteraceae are the largest families. The maximum number of species was recorded in rainy season. In 1998, 612 plant species were listed in Jaipur district (Khan 1998).

The dominant tree species in grove are *Acacia senegal*, *Acacia catechu*, *Acacia ferruginea*, *Azadirachta indica*, *Butea Monosperma*, *Boswellia serrata*, *Cassia fistula*, *Diospyros melanoxylon*, *Dichrostachys cinerea*, *Acacia tortilis*, *Acacia nilotica*, *Hesperethusa crenulata*, *Holoptelea integrifolia*, *Lannea coromandelica*, *Maytenus emarginata*, *Melia azedarach*, *Prosopis juliflora*, and *Wrightia tinctoria*. In the shrubs *Adhatoda vasica*, *Barleria prionitis*, *Calotropis procera*, *Cassia occidentalis*, *Euphorbia caducifolia*, *Grewia hirsuta*, *Grewia tenax*, *Lantana indica*, *Rhus mysorensis*, *Tephrosia purpurea*, and *Ziziphus nummularia* are dominant species. The mostly found herb species of the area are *Adiantum caudatum*, *Aerva lanata*, *Amaranthus viridis*, *Actiniopteris radiata*, *Aristida adscensionis*, *Bacopa monnieri*, *Borreria articularis*, *Brachiaria reptans*, *Cynodon dactylon*, *Cassia tora*, *Cenchrus spinifex*, *Cenchrus biflorus*, *Crotalaria medicaginea*, *Commelina benghalensis*, *Desmostachya bipinnata*, *Digitaria sanguinalis*, *Dipteracanthus patulus*, *Dactyloctenium aegyptium*, *Eleusine indica*, *Echinochloa colonum*, *Lepidagathis trinervis*, *Lindenbergia muraria*, *Pupalia lappacea*, *Ocimum canum*, *Sesamum indicum*, *Saccharum bengalense*, *Tridax procumbens*, and *Urginea indica*. Similar common species were also recorded Gupta and Choudhary (2010).

Species such as *Cassia occidentalis*, *Tephrosia purpurea*, *Abutilon indicum*, *Amaranthus spinosus*, *Actiniopteris radiata*, *Bacopa monnieri*, *Borreria articularis*, *Dipteracanthus patulus*, *Euphorbia hirta*, *Heliotropium strigosum*, *Indigofera cordifolia*, *Lepidagathis trinervis*, *Portulaca pilosa*, *Pedaliium murex*, *Sesamum indicum*, *Tribulus terrestris*, and *Urginea indica* etc are common in rainy season and species such as *Adhatoda vasica*, *Barleria prionitis*, *Calotropis procera*, *Datura metel*, *Lantana camara*, *Ricinus communis*, *Tridax procumbens*, *Xanthium strumarium*, *Momordica balsamina*, *Pergularia daemia*, *Tinospora cordifolia*, and *Cuscuta reflexa* etc. were reported throughout the year.

The population in the vicinity of the grove, both human and livestock are almost fully depended on the existing ecosystems to meet their basic requirement of fodder, timber,

medicinal plants, firewood and possible food. More than 60% local population belongs to Scheduled Castes and Scheduled Tribes. Of these 63.66% people are non-workers and 42.51% are illiterate in the area. Poverty is the biggest challenge facing of these people. Economically these people are poor and unable to survive without these natural resources. They do not have to pay anything for the use of these resources. This has resulted into tremendous biotic pressure on some species like *Acacia nilotica*, *Acacia senegal*, *Commiphora wightii*, *Prosopis cineraria*, *Abutilon indicum*, *Pedaliium murex*, *Momordica balsamina* and *Asparagus racemosus* etc. People have used natural resources to fulfill their basic requirement of general medicine and health care. Substances have been derived from flora, fauna and mineral sources located both in people surroundings and in more remote areas (Lev and Amar, 2002). Many animal and plant species are used in traditional medicinal practices and therefore the discussion on the links between traditional medicine and biodiversity are imperative (Anyinam, 1995, Alves and Rosa, 2007a). Drugs of herbal origin have been used in traditional system of medicine such as Unani and Ayurveda since ancient times (Subbu and Prabha, 2009). About 80% of world population fulfill their requirement of primary health care from traditional medicines (Ekeopara and Ugoha, 2017).

Species like *Acacia nilotica*, *Acacia senegal*, *Prosopis cineraria*, *Anogeissus pendula*, *Dalbergia sissoo*, *Phoenix sylvestris*, *Leptadenia pyrotechnica*, *Capparis decidua*, *Moringa oleifera*, *Capparis sepiaria* etc. are over-exploited by local people for fuel, fodder, fencing and in the construction of their huts. Many species like *Gloriosa superba*, *Asparagus racemosus*, *Tinospora cordifolia*, *Momordica balsamina*, *Ocimum sanctum*, *Pedaliium murex*, *Citrullus colocynthis*, *Abutilon indicum*, *Aloe vera*, *Commiphora wightii*, *Balanites aegyptiaca* etc. are under serious threat of extinction.

*Acacia nilotica*, *Acacia tortilis*, *Acacia catechu*, *Butea Monosperma*, *Prosopis juliflora*, and *Adhatoda vasica* etc. are dominant sp. in lower part, and *Acacia ferruginea*, *Anogeissus pendula*, *Dichrostachys cinerea*, *Hesperethusa crenulata*, *Euphorbia caducifolia*, and *Ocimum canum* in middle part and *Acacia leucophloea*, *Boswellia serrata*, *Butea Monosperma*, *Melia azedarach*, *Sterculia urens*, *Tephrosia purpurea*, and *Urginea indica* are the dominant species in upper part of the grove.

Because of faith and belief of people, traditional medicine is being practiced by the village elders, vaidis, hakims and folk healers in the rural areas of Jaipur, Rajasthan.

Traditional medicine system plays a significant contribution to primary health care programmes in rural areas of Rajasthan. The success rate of these treatments is very high. Even with the availability of modern medical facilities, the documentation and preservation of these practices are essential (Khan *et al.*, 2010). Description of 16 sacred plant species in different groves along with their associated religious beliefs and taboos was studied (Khumbongmayum *et al.*, 2004).

Another important observation of the study was that literate people were also showing tremendous interest towards the traditional medicinal system. Majority of medicinal plants in or around the grove are used as drug in the form of decoction, paste, juice, or powder etc. Various parts like leaves, root, stem, bark, flowers, fruits and whole plant were used for making medicines. The mixture of two or more plants were also used to treat diseases. These medicinal plants were used to treat diseases like cold, cough, fever, body pain, body swelling, skin problems, dysentery, diarrhoea, wounds, burn, asthma, diabetes, snake bites, insect bite, scorpion bite, stomach problems, eye disease and other various disorders.

The issue of medicinal plants conservation has been focused in the last two decades and many methods of conservation were mentioned by researchers and various environmentalists. The rapid degradation of forest areas has resulted in the depletion of natural resources. Due to the over-exploitation of natural resources, the traditional way of life has become difficult and this situation has been forcing people to discard such life and adopting the urbanized practices. The grove has tremendous biotic pressure due to over-exploitation and unsustainable utilization of natural resources of the area. Many ethno-medicinal plants of the area are on the verge of extinction.

Total 314 sp. (35 Tree sp., 26 Shrub sp., 84 Herbs sp., 16 Climber sp., 4 Tuber sp., 2 Parasitic plant sp., 31 arthropod sp., 2 amphibian sp., 12 reptile sp., 77 bird sp., and 25 mammal sp.) in North and North-East zone, 325 sp. (40 Tree sp., 26 Shrub sp., 83 Herb sp., 18 Climber sp., 5 Tuber sp., 2 Parasitic plant sp., 31 arthropod sp., 2 amphibian sp., 13 reptile sp., 79 bird sp., and 26 mammal sp.) in middle zone, 294 sp. (30 Tree sp., 21 Shrub sp., 80 Herb sp., 11 Climber sp., 4 Tuber sp., 2 Parasitic plant sp., 31 arthropod sp., 2 amphibian sp., 14 reptile sp., 79 bird sp., and 20 mammal sp.) in south and south-east zone and 271 sp. (22 Tree sp., 17 Shrub sp., 77 Herb sp., 9 Climber sp., 3 Tuber sp., 2 Parasitic plant sp., 31 arthropod sp., 2 amphibian sp., 13 reptile sp., 76 bird sp.,

and 19 mammal sp.) are found in West zone of the area. There are two main reasons behind the variation in the number of species found in these zones. First socio-religious tradition, sacredness and religious beliefs of local people and second is topography. Daath Mata temple is situated in North and North-East Zone, Nai-ka-Nath temple is in Middle Zone and Bharthari Temple is in the South and South-East Zone, because of the sacredness of these temples the rate of anthropogenic interventions is low. There is no temple in West zone, and the rate of illegal human activities is high in this zone. Most part of the West Zone and the upper part of South and South-East Zone harbour infertile sand dunes. The infertility of these sand dunes reduces the number of species in these zones.

In tree species *Acacia senegal*, *Acacia tortilis*, *Acacia ferruginea*, *Azadirachta indica*, *Dichrostachys cinerea*, *Prosopis juliflora*, and *Wrightia tinctoria* are dominant. *Ficus benghalensis*, *Ficus religiosa*, *Ficus racemosa* and *Prosopis cineraria* are the sacred plants and used in the Havan worship. A bark of *Acacia nilotica* is boiled with milk or water and used in the treatment of a cough and cold. Dried pods or paste of *Helicteres isora* is used in children stomach problems and also in fever and dysentery, leaf or bark paste in skin problems. All parts of *Azadirachta indica* are used to treat various diseases. It is called mini medical store by villagers. Paste form of leaves and abstract of bark are used to treat skin problems. Fresh leaves are eaten for treating mouth smell and stomach problems. Twigs are used as tooth brush. The fruit of *Aegle marmelos* is used to treat stomach problems and bark and root is used in fever. *Azadirachta indica* and *Aegle marmelos* used in treatment of stomach worms (Mishra, *et al.*, 2014). The bark paste of *Balanites aegyptiaca* is used to treat dog bite. Fruits and leaves of *Ficus racemosa* are used in abortions, urinary problems and diarrhea. The bark and latex decoction is used to treat ulcers, cough, boils and skin problems. Bark and leaves of *Holoptelea integrifolia* are used to treat skin disorders. Root powder of *Ziziphus mauritiana* and *Ziziphus nummularia* are used by the female after pregnancy for better and fast recovery.

Hot leaves of *Datura inoxia* and *Ricinus communis* are used to treat body pain and swelling, it also used in dog-bites and poisonous insect bites. Latex of *Calotropis procera* is used to treat skin problems. Roots of *Sida cordifolia* are used to treat paralysis and wounds. According to Kapoor and Lakhera (2013) Root juice used to treat wounds and the bark of root with Sesamum oil and milk is used in facial paralysis. Juice

of *Aloe vera* is used in body pain and the leaves paste is applied on the skin for fairness and smoothness. Whole plant of *Bacopa monnieri* is used for improving memory. Local vaidas prescribe the decoction of plant as a nerve tonic (Kapoor and Sharma, 2013). Leaf and oil of *Argemone mexicana* is used to treat skin problems and ulcers. Leaves of *Abutilon indicum* are used to treat piles and stomach problem. *Citrullus colocynthis* is used in the treatment of diabetes, arthritis, snakebite and urogenital disorders. Leaf and roots decoction and fruit powder of *Pedaliium murex* is used to treat sexual diseases and general weakness. The use of *Pedaliium murex* is very effective in checking the free discharge of semen with urine (Kapoor and Lakhera, 2013). Juice of the leaf and fruits of *Solanum nigrum* are used to treat cough, asthma, fever and liver diseases. One similar observation about the uses of *Solanum nigrum* also quoted (Kapoor and Sharma, 2013). *Ocimum canum* is used to treat colds, headaches, stomach problems, asthma, fever etc. *Ocimum canum* is used to reduce stress, decrease fever and cold, and improve lung and digestion issues (Agarwal *et al.*, 2013). Leaves of *Tridax procumbens* are used to treat various skin injuries. *Tinospora cordifolia* is used to treat body pain, arthritis, fever, and jaundice etc. Roots of *Asparagus racemosus* are used for improving physical stamina and sexual power. *Asparagus racemosus* is used in lactation problems, piles, body strength etc. (Mishra, *et al.*, 2014). *Gloriosa superba* is used to treat snake and insect bites. Root and seeds of *Withania somnifera* are hypotonic and used to treat sexual and general weakness. Root powder is mixed with goat milk and used to treat arthritis. (Awan and Murtaza, 2013).

During the study, 78 families were surveyed and found that 22% of fuel wood requirement, 15% of timber, 40% of livestock fodder, and 45% of other NTFPs were met from the grove. People of Shekhala village in Jodhpur district of Rajasthan are depend on the grove for 10% of fuel wood requirement, 20% of livestock feed, and 40% of other NTFPs. (Singh & Saxena, 1988) 75% local people of the area are depended on local traditional medicinal system to meet their primary health care requirements. In Nai Ka Nath Sacred Grove, Listed 155 faunal species belong to 87 families. Of these 31 arthropod species of 19 families, 2 amphibian species of 2 families, 14 reptile species of 10 families, 82 bird species of 41 families and 26 mammal species of 15 families are present. In Rajasthan 87 mammals, 140 fish, 477 birds, 14 amphibians and 67 reptile species were listed. (Sharma *e. al.*, 2013).

Formicidae (06 sp.) and Nymphalidae (05sp.) are the dominant families in arthropods. Colubridae (03 sp.) in reptiles, Muscicapidae (07 sp.), Sturnidae (06 sp.), Cisticolidae (05 sp.), Accipitridae (04 sp.), and Columbidae (04 sp.) in birds, Muridae (05 species), and Canidae (04 species) are the dominant families in mammals. In arthropods, 2 species of honey bees, 6 species of ants, 7 species of butterflies, 2 species of beetles, 2 species of spiders, 2 species of dragonflies are present. In amphibian, 2 frog species are present. In reptile, 7 species of snakes, 4 species of lizards are present. In birds, 6 species of mynas, 4 species of Prinia, 3 species of bee-eaters, 3 species of dove, 3 species of babblers, 2 species of owls are present. In mammals, 5 species of rat, 4 dog species, 4 bat species, 3 cat species, and 2 species of monkeys are present in the area.

Sharma identified 16 species of lizards, 8 species of snakes and 1 species of tortoise from Ajmer Aravalis region Rajasthan (Sharma 2016). Of these 4 lizard and 3 snake species are present in this grove. 14 butterfly and 21 moth species are listed in western Rajasthan. Of these butterflies, 6 species are present in this grove. About 85% reptiles of the area are also found in Thar Desert (Das, 2007). 90% mammalian species of the area were also recorded in Aravalli Mountain (Prakash and Singh, 2001). Bat species *Ptesropus giganteus*, and *Rhinopoma hardwickii* are also documented in Sariska National park (Joshi et al, 2015).

The grove is a great shelter for wildlife; it provides suitable habitats for birds, reptiles, mammals and other fauna of the area. Because of minimum human interference in deep area of middle zone, is preferred by *Canis lupus pallipes*, and *Canis aureus* for roosting. A quill of *Hystrix indica* is found on a mountain, about 0.5 km away from the Lord Shiva temple. *Hystrix indica* inhabits rocky habitats (Prakash, 1997). The habitat of *Hyaena hyaena* is found in deep riffles of middle zone and North and North-East zone of grove. *Macaca mulatta* are roosting in or around the Lord Shiva temple. *Boselaphus tragocamelus* chooses such an elevated place for shelter to keep an eye on the surrounding area. *Eptesicus serotinus* roosted in the cracks of *Ficus benghalensis*, and *Pteropus giganteus* roosted on the branches of *Ficus religiosa* and *Ficus racemosa* in the grove. *Felis catus* is roosting in the open scrub area (middle zone) of the grove. Jungle cat inhabits the drier areas, grasslands, scrub jungle, and reedy banks of rivers etc. (Prater, 1971). The fort of the area is the niche of *Rhinopoma hardwickii*. Old buildings, forts and deep wells are inhabited by micro-chiropteran bats (Prakash, 1997). Sand dunes are the favorite territory of *Vulpes bengalensis*, *Lepus nigricollis*, *Meriones*

*hurrianae* and *Mus* species of the area. *Felis chaus* prefer to roost on the upper part of the grove. Habitat of *Lepus nigricollis* were found in the Clump *Euphorbia caducifolia*. These plants are also utilized for camouflage by *Lepus nigricollis*. *Euphorbia caducifolia* provides shelter to desert here in rocky habitats (Prakash, 1997). Roosting of *Herpestes edwardsii* found in the shadow of *Ziziphus nummularia*. Prater (1971) also observed habitat interactions among Indian animals. Spatial marking are seen on the hood of *Naja naja*. Daniel (1983) also observed spatial marking in Indian Reptiles. The roosting of *Calotes versicolor*, *Walterinnesia morgani* and *Ptyas korros* are observed on *Prosopis cineraria*, *Acacia nilotica* and *Ficus benghalensis*. The habitat of *Eryx johnii*, and *Echis carinatus* is found in sand dunes. Clay dunes in the lower part of middle zone and West zone are the preferred territory of *Varanus bengalensis*. The colony of *Wasmannia auropunctata* and *Solenopsis invicta* were also spotted near this area. *Varanus bengalensis* feed on beetles, ants, grass-hoppers, termites and some vegetable matter (Sharma and Vazirani 1977).

Upper part of middle zone and lower part of North and North-East zone is the favorite territory of *Pavo cristatus*. Most of butterfly species make their territory in the upper and open areas of the grove. Roosting of *Anthia sexguttata* and *Mylabris pustulata* are found on plants. A habitat of *Neocurtilla hexadactyla* found in the shadow of stones and litter, it also found in sandy soil. A habitat of *Ropalidia marginata* is found in Ruins of the area. It was observed that *Milvus migrans* perch on the high hills and trees like *Eucalyptus camaldulensis* and *Melia azedarach*. Roosting behavior of *Milvus migrans* were described (Mahawal and Mathew, 1985). *Accipiter badius* perch on the upper canopy plants. Nest of *Athene blewitti* found in hole of *Prosopis cineraria*. The habitats of *Francolinus pondicerianus* are found in the bushes. Habitat of *Francolinus pondicerianus* are studied in Aligarh (Abhasi and Khan, 2004). Roosting of *Turdoides malcolmi* are observed on *Azadirachta indica* (Sharma, 2003b). *Anas crecca* and *Amaurornis phoenicurus* were seen roosting around the water body (Bharthari anicut). The habitat of *Pycnonotus cafer* was found on *Diospyros melanoxylon*. The nest of *Prinia inornata* was spotted on the *Zizyphus* species. Habitat of *Prinia inornata* were also found on *Zizyphus* sp. (Ali and Ripley, 1983). *Circus aeruginosus* sets up its territory in the open areas of the grove. *Turdoides striata* and *Psittacula cyanocephala* are seen in pairs or small groups whereas *Sturnus roseus* seen in large groups. The perching of *Melophus lathami* was observed on ground and near dead fallen bushes. It

was observed studied that the nest of *Melophus lathami* is either on the ground, under a rock or a bush (Roberts, 1992, Byers, *et al.*, 1995).

It has been observed that the woodpecker species *Upupa epops*, *Dendrocopos mahrattensis*, and *Dinopium benghalense* used the trees *Acacia nilotica*, *Acacia tortilis*, *Azadirachta indica*, *Anogeissus pendula*, *Diospyros melanoxylon*, *Prosopis juliflora*, and *Prosopis cineraria* etc. for nesting, and they also feed on the bark of these plants. *Turdoides striatus*, *Orthotomus*, *Cercomela fusca*, *Saxicoloides fulicatus*, *Phoenicurus hodgsonii* and *Copsychus saularis* were observed mostly feeding on insects on lower canopy of plants. These birds were also observed in the lower canopy (Ali, 1941).

The ecosystems of the grove are well managed. All the required biotic and abiotic components for a healthy ecosystem are found in the area. Abiotic components like sunlight, air, water, soil and minerals are abundant in the area. Plants like *Acacia leucophloea*, *Acacia senegal*, *Acacia tortilis*, *Acacia catechu*, *Anogeissus pendula*, *Butea Monosperma*, *Dichrostachys cinerea*, *Prosopis juliflora*, *Amaranthus spinosus*, *Bacopa monnieri*, *Sesamum indicum* and Grasses like *Aristida adscensionis*, *Cynodon dactylon*, *Cenchrus biflorus*, *Dactyloctenium aegyptium* are the dominants producers in the area. *Poekilocerus pictus*, *Boselaphus tragocamelus*, *Bos taurus indicus*, *Lepus nigricollis*, *Meriones hurrianae*, *Mus musculus*, *Streptopelia decaocto*, *Macaca mulatta*, and *Funambulus pennantii* etc. are included in primary consumers. Species like *Turdoides striata*, *Canis aureus*, *Canis lupus pallipes*, *Canis lupus familiaris*, *Felis chaus*, *Vulpes bengalensis*, *Lycodon aulicus*, and *Ptyas korros* are the dominant secondary consumers, and the dominant tertiary consumers are *Hyaena hyaena*, *Herpestes edwardsii*, *Athene brama*, *Athene blewitti*, *Accipiter badius*, *Circus aeruginosus*, and *Milvus migrans* etc. *Anthia sexguttata*, *Odontotermes obesus*, *Scolopendra cingulata* and microorganisms species are the main decomposers of the area. Many food chains and food webs are playing a significant role in maintaining the energy flow through different trophic levels in the grove.

According to Saxena *et al.* (1998) and Singh *et al.* (1998) sacred groves of our country are degraded due to various anthropogenic interventions like an increase in human population, urbanization, exploitation of resources, developmental activities and scarcity of land. They also mention that some sacred groves of Himalayan region are now being exploited because the economic forces are influencing the traditional

communities to discard the community-oriented protection to these groves. Myths and beliefs associated with these groves followed strictly in earlier days, but have been eroded during the last few decades and the groves no longer enjoy the same status and privilege they used to in the past. Posey (1983) found that the cultural changes among the young people are so rapid that they no longer believe in the methods followed by their ancestors to maintain this fragile ecosystem. According to Khumbongmayum “with the disappearance of each indigenous group, the world loses an accumulated wealth of millennia of human experience and adaptation” (Khumbongmayum, 2004).

Total population of these 11 villages was 24,252. Of these, 3433 schedule tribe (ST) and 12483 schedule caste (SC) candidates, about 65% of the total population. Out of total population 42.26% (10251) people are Illiterates and 63.29% (15361) people are Non-workers in the area. Due to the high number of Illiterate and Non-working people the biodiversity of the grove is facing the serious risk of degradation. Biodiversity-rich areas could have the particularly strong human impact (Singh, 2002). According to wildlife protection act, 1972 the plant species are categorized in 6 Schedules. In all 14 floral species of the area are listed in the IUCN Red List of Threatened Species. Of these 3 tree, 7 herbs, 1 climber, and 3 tuber species are included. Name of these species are as follows, *Acacia ferruginea* (VU), *Commiphora wightii* (CR), *Dichrostachys cinerea* (LC), *Alternanthera sessilis* (LC), *Bacopa monnieri* (LC), *Commelina benghalensis* (LC), *Desmostachya bipinnata* (LC), *Eleusine indica* (LC), *Eclipta prostrata* (LC), *Sesbania bispinosa* (LC), *Rhynchosia minima* (LC), *Cyperus rotundus* (LC), *Cyperus compressus* (LC), *Gloriosa superba* (LC). Faunal species are listed in 5 schedules. *Lissemys punctata*, *Varanus bengalensis*, *Athene blewitti*, *Pavo cristatus*, and *Canis lupus pallipes* are listed in schedule I. From the schedule II 7 species, *Naja naja*, *Canis aureus*, *Felis chaus*, *Herpestes edwardsii*, *Macaca mulatta*, *Presbytis entellus*, and *Vulpes bengalensis* are present in the area. *Boselaphus tragocamelus* and *Hyaena hyaena* are listed in schedule III. Six reptile, 79 bird and 2 mammal species listed in schedule IV, and 1 bird and 10 mammal species of the area are listed in schedule V. A total of 110 faunal species of the area are listed in the IUCN Red List of Threatened Species. Of these 1 arthropod sp., 2 amphibian sp., 6 reptile sp., 80 bird sp., and 19 mammal sp. are LC. *Hyaena hyaena* is listed as NT and *Atheneblewitti* included in the list of CR species.