

Periodic Research

Spatial distribution of Biodiversity in Nagaur District of Rajasthan, India

Abstract

The aim of the paper is biological diversity include pressing for the early entry into forces of the convention on biological diversity with the widest possible participation the development of national regional strategies for the conservation of biological diversity. Biodiversity is the term applied to the variety of the genes, species and ecosystems found in respect to their geographical condition on planet. It embraces all the life forms plant and animal life in micro organism and the water land and air in which they live and interact this richness the earth's living wealth provides an abundant and essential supply of indispensable goods and services.

Geographical Biodiversity- Much of our understanding about the relationship between biodiversity and environment has come studies in land bio-geography. These studies have revealed the power influence of two geographic factor area and distance, on species diversity.

Keyword: Ecosystem, Biodiversity

Introduction

Geographical Introduction of the Area

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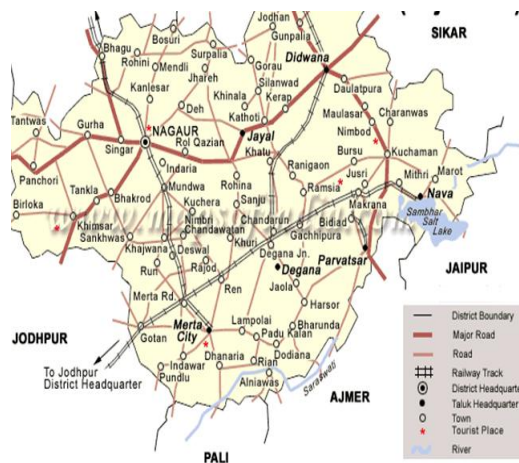
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The district is located between latitude $26^{\circ}25'$ and $27^{\circ}40'$ N and longitude $73^{\circ}10'$ and $75^{\circ}15'$ E. The district is irregular in shape. Four of its eight tehsils Nagaur, Jayal, Ladnun and Didwana, Merta, Degana, Parvatsar, Nawa.

A paper discussed a richness of biodiversity, geographical distribution, factors affecting uniqueness of the area. The ecology of rural India is on the verge of collapse the reason behind it is the non-satisfaction of man's ego which is infinite. He treats the earth like his parental property. The faculty approach of development under the model of modernism and industrialism, stadia, fly overs, highways, metro-rails and urban infrastructural construction at the cost of rural resources are creating the situation bad to worse and fareing the country towards ecological holocrust. The people of the Nagaur are very knowledgeable about their environment around the villages are no exception to this situation. By and large, the people of these villages are quite conscious of their biodiversity richness and its genetic variability, and consider them as unique repositories of their subsistence. In spite of lack of scientific literature on people's science and biodiversity repositories, a fairly good knowledge on flora and fauna exists in the form of oral tradition and desert ethos in the study area.

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Locational map of Nagaur 1

The topography is fairly even but for some scattered hills, generally wooded in the north and the east, near Makrana. There are only a few seasonal streams and hullahs which rise and disappear in the district itself.

Lakes – Sambhar, Lunkaransar, Didwana, Nawa, Kuchaman.

Minerals – The district has large deposits of the following minerals of economic importance. Gypsum, Wolfram, Marble, Lime Stone, Sand stone, Salt and sodium sulphate.

Climate

On an average there are 22 rainy days in a year in the district and 10° to 48° temperature.

Objectives of the research

- (i) Identify potential area for vegetation type, land use, land cover to endemic plants, birds and larger animal distribution.
- (ii) An evaluation of status of habitats areas all forest division of the area.
- (iii) A geographical analysis of selected endemic plant species distribution.
- (iv) Investigate the relationship between forest fragmentation and density of Animal.

Methodology

The present study will be micro level study of Nagaur District.

- (i) Primary data – The primary source of data to be used in the present investigation is field work, field survey, observation, questionnaire etc.
- (ii) Secondary data related to birds and animal, forest are also collected from concerned department and they are properly tabulated and computer in order to find and result. Interviews – The surveys has supplemented by developing simple questionnaire to elicit information through peoples knowledge of the area. Like land cover, institutional farms, biodiversity, riches, subsistence practices, land use practices, grazing and browsing pressures, soil types agriculture practices and soon. These random interviews

numbering 360 were contended to 6 tehsil and was conducted during Jan 2008 to Jan 2009.

The Village Sub habitats

Survey and interviews helped considerably to demarcate variety of sub habitats or institutional areas each representing a sub ecosystem in itself. Studies were attempted in these sub habitats or village institution to understand the biodiversity and variations thereof. These village institution are –

- (1) Gaucher – Defined as Gram Panchayat controlled grazing Landi.
- (2) Oran – Defined as areas where tree cutting is barred by community consent and divine control and where such restraint is actively observed.
- (3) Follow lands – Defined as Khatedari (Private agricultural) lands with usually 'Kharif' crops. At least 2-3 years in follow managed as closed fodder fields during the growing season and there after as community wide open grazing.
- (4) Plough Fields – These are of two types (i) Traditional – Those in which ploughing is done by animals to avoid destruction of useful species in the fields during tilling. (ii) Disc – In which mechanized method are used wherein massacre of species takes place.
- (5) Sand dunes – Defined as natural sand masses either stationary or stabilized or shifting usually with good moisture.
- (6) Forest enclosures – Defined as land under the present control of the forest department for plantation.
- (7) Gravel Lands – Defined as low productive.
- (8) Wastelands – Defined as area provided with mixture of characteristics with low productivity.
- (9) Water (salt) Lakes – Defined as a conservation area of saline water organism.

These villages institutions or sub ecosystems encompasses all kinds of major land forms of the study area.

Nagaur has sufficient potential for conservation of resources and biodiversity of the area. Availability of water resources in less and conservation of water resource and bio-diversity is necessary of the area and local people of survival. All this may lead to the bright future of the biodiversity in Rajasthan, if little more care and attention is provided to them by the government capitalists and local people in right manner. If the present condition of the area is not improved. The future generation will bear the blunt of controlled and illogical use of resources.

Not much work has been done by Indian geographer's on such an important resource as forest and there is hardly any significant research contribution in systematic study of state fauna and flora.

Present paper were contribute a lot to resource and biogeography.

Geographical Biodiversity

Today the scale of human impacts on the global biosphere is increasing dramatically due to activities that arise from the rapid growth in human population and increasing rates of consumption

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systems are being altered and destroyed; while species in same groups of plants and animals are going extinct rates some fifty to a hundred times higher than they otherwise would and others are having their populations depleted.

The genetic resources essential for agriculture forestry and other continue to be lost. This tragic loss and degradation of biodiversity holds serious economic, ethical and cultural consequences for humanity and evaluation of life on earth.

If we look at a map of a vast tract of semi arid region of Rajasthan under going destruction you find that patterns is usually very patchy. As clearing progresses many of these forest patches disappear, but some survive because they are protected by rough terrain, land ownership or cultural religious factor or same factor.

Biological Diversity of the Study Area

There is a strong relationship between the presence of certain tree species and animals, tree species with understory, herb and grasses. This relationship is important for village biodiversity. Along with village forests, fallow fields, are an important ecological regime. Ecological the vegetation of the study area fall under the category of "thorn forest type". Some changes are seen due to cultivation and changes in the soil-climate condition. Nevertheless, the natural vegetation has a substantial contribution to the productivity of the trees like, khejri, khimp, keeker, rahedra, kar, neem, prosopis, cineraria, which are highly valued and conscientiously maintained. Besides this a lot of shrubs and grasses are found growing in fallow as well as crop lands of course in grazing lands. These are deep rooted, tenacious enough to survive expanded droughts and get efficient in pulling up a good biomass.

A variety of animals are found in study area. The area spectacular biodiversity because of its evolutionary history and geographical location. Some biota possesses saharian affinities (Hollyxylon, gazelladorcas) while other are malayan (Ficus Mangifers pteropus gigantcus) while certain elements are Deceanean (Rattus cutchicus, cyolunda ellioti), quite a few are macro endemic (stenodactylus orientalis, gerbillus geadavi) and micro endemic taxa (Bangarus caeruleus sindanus, felis silvertris ornate).

Climate features of study village

The major climatic components which influence the biodiversity of the area like temperature, rainfall, relative humidity were considered for Molasar, Kolia, Thanwala villages shown in Table No. 1.

Table : 1

Climatic components	2006		2007		2008	
	Min	Max.	Min.	Ma x.	Min.	Max.
Temperature	70	470	8300	480	9.8	49.7
Rainfall	324		278		218	
Rainy days	22		21		13	
R.H.	47	62	43	67	32	51

*During study period

There is a strong relationship between the presence of certain tree species and animals between tree species with understory herbs and grasses. This relationship is important for village biodiversity. Alongwith village forests, fallow fields, are an important ecologies regime.

Interviews

The field surveys were supplemented by developing simple questionnaire to elicit information through peoples knowledge of the area, like land cover, institutional forms, biodiversity niches, substance practices, land use practices, grazing and browsing pressures, soil types, agriculture practices and so on. these random interviews numbering 660 were confined to 17 villages and were conducted during Jan. 2008 to Jan 2009.

These interviews provided basic biodiversity related issues of the Nagaur and with more insight of past, present and future scenario of the biodiversity.

List of surveyed villages

1. Nagaur	1. Sankhwas, 2.Kheenwsar 3. Nagaur
2. Jayal	1. Deh 2. Jayal
3. Merta	1. Gotan 2. Merta
4. Degana	1. Degana 2. Khuri Kalan
5. Parvatsar	1. Makrana 2. Peelwa
6. Nawa	1. Nawa 2. Kuchaman
7. Didwana	1. Molasar 2. Didwana
8. Ladnun	1. Ladnun 2. Nimji Jodha

Soil characteristics of study villages

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Table : 2 Soil Characteristics of Study Villages

Soil Type	Kator	Ratili	Murad	Average
pH	8.24	8.54	9.05	8.5
Sample Variance in pH	7%	4%	1%	11%
Organic Carbon	0.45	0.25	0.31	0.31
Sample variance	2%	1%	2%	2%
Texture	Fine	Coarse	Coarse/stony	NA
Color	Yellow/grey	Yellow	Yellow	NA
(n) Number of samples	31	29	14	64

Biocommunity

The dominant species encountered in the study villages reflect typical desert flora and fauna. Limited for the most part by moisture availability the predominate adaptations follow the "pulse response" (Nov-Meir, 1973) patterns of arid vegetation; perennials retreat or with stand long dry seasons and drought years, while annuals have short, productive growing periods. On the other hand, the wild animal taxa and the domesticated breeds have over the ages nature selected having physical, physiological and thermoregulatory properties making them successful in this habitat. All these animals from small rodents who live in tunnel and burrows to large mammals surviving in the open have had great deal of adaptive radiation.

The community dynamics and relationship between plants and animals and between trees and understory in an important feature of village ecology, especially the "orans" or village forests. The ecological dynamics of human planting and follow patterns also effect the large areas under long-fallow cultivation.

Flora

Botanical Divisions

The flora of the district is richer to its geographical situation. Its western portion presents a dreary look as it is devoid of any natural vegetation cover except the low shrubs or grasses grown on the low sand-dunes, which too turn pale due to intense heat during the summer. The south-eastern areas including a part of the northern tehsils of Merta, Degana, Jayal, Kuchaman and Didwana, are much greener than the north-west region of the district.

Table 3 : Plant Species Found in the Study Area
(Abbreviations : All = Annual herb, T = Tree, S = Shrub, AG = Annual Grass; PH = Perineal Herb; PG = Perineal Grass.

Botanical Name	Common Name	Nature	Collected at Village, Dhani
1. Acacia nilotica	Deshi Babul	T	Kolia
2. Acacia Jacquemonti	Nimbica	S	Daulatpura
3. Acacia Senegal	Khumbat	T	Badao
4. Acacia Tortilis	Israeli Babul	T	Kuchaman
5. Aerva Persica	Bui	S	Parbatsar
6. Albizia lebbeek	Sares	T	Nagaur
7. Aristida adscensionis	Lamp	AG	Merta
8. Aristida funiculata	Lamp	AG	Kuchaman
9. Aristida hirtigluma	Delio-Lamp	PG	Chord
10. Aristida mutabilis	Lamp	AG	Kolia
11. Arnebia hispidissima	Rambus	AH	Badao
12. Azadirachta indica	Neem	T	Badao
13. Blepharis sindica	Bhangri	AH	Badao
14. Boerhavia diffusa	Chinavari	AG	Rasulr
15. Calligonum polygonoides	Phog	S	Kuchaman
16. Calotropis procera	Aak	S	Nagaur
17. Capparis deciduas	Ker	T	Common
18. Celosia argentea	Imarti	AH	Nevara
19. Cenchrus biflorus	Bhurat	AG	Commo
20. Cenchrus ciliaris	Dhaman	PG	Kolia
21. Cenchrus pricurii Labio	Bhurat	AG	Ladnun
22. Cenchrus setigerus	Dhamanio	AG	Merta
23. Citrullus lanatus	Matira	AH	Common
24. Citrullus colocynthis	Tumba	PH	Degana
25. Cleome Viscosa	Bagara	S	Common
26. Clerdendrum phlomidis	Arna	S	Common
27. Coccinia grandis	Shivlingi (Golan)	T	Badao

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28. <i>Cocculus pendulus</i>	Pilwan	S	Nagaur
29. <i>Commiphora wightii</i>	Gugal	T	Bidasar
30. <i>Convolvulus microphyllus</i>	Sinter	T	Common
31. <i>Corchorus depressus</i>	Chom-gas	S	Kolia
32. <i>Cordia gharaf</i>	Goondi	T	Parbatsar
33. <i>Cressa cretica</i>	Rudenti	AG	Nawa
34. <i>Crotalaria burhia</i>	Sunniya	AG	Common
35. <i>Cucumis callosus</i>	Kaehri	PG	Kuchaman
36. <i>Cyamopsis tetragonoloba</i>	Guar	AG	Common
37. <i>Cymbopogon jawarncusa</i>	Burada	AH	Badao
38. <i>Cynodon dactylon</i>	Dub	T	Common
39. <i>Cyperus arenarius</i>	Motha	AH	Parbatsar
40. <i>Cyperus bulbosus</i>	Mogara	AG	Merta
41. <i>Cyperus rotundus (tuberosus)</i>	Kal-Ghas	S	Common
42. <i>Dactyloctenium indicum</i>	Ghantiya	S	Mokhab
43. <i>Desmostachya bipinnata</i>	Dab	T	Mokhab
44. <i>Dichanthium annulatum</i>	Khad Ghas	AH	Common
45. <i>Digera Muricata</i>	Lelru	AG	Kuchaman
46. <i>Ephedra foliata</i>	Sua phagoro	PG	Parbatsar
47. <i>Eragrostis tremula</i>	Chiria Ket	AG	Common
48. <i>Euphorbia caducifolia</i>	Thor	AG	Nawa
49. <i>Euphorbia granulata</i>	Dudhili	AH	Nawa
50. <i>Fagonia schweinfurthii</i>	Dhamasa	PH	Peeh
51. <i>Fasretia hamiltonii</i>	Kag-Pilang	S	Degana
52. <i>Gisckia pharnacioides</i>	Sareli	S	Kuchaman
53. <i>Glossonema varians</i>	Dodh	PS	Common
54. <i>Grewia tenax</i>	Gangani	S	Merta
55. <i>Heliotropium marifolium</i>	Rawa	S	Salasar
56. <i>Heliotropium rariflorum</i>	Karsunniya	PH	Merta

57. <i>Heliotropium subulatum</i>	Kala-Bui	PH	Badao
58. <i>Indigofera cordifolia</i>	Bhekar	T	Nevera
59. <i>Indigofera hochstetteri</i>	Adio-Bekario	AG	Common
60. <i>Indigofera linifolia</i>	Lutya-Bhekar	S	Nawa
61. <i>Indigofera oblongifolia</i>	Jhil	PH	Ladnun
62. <i>Indigofera sessiliflora</i>	Phaliwala Bekar	C	Nawa
63. <i>Iomoca darnea</i>	Kuti	PG	Merta
64. <i>Justicia implex</i>	Makhnia	PG	Nagaur
65. <i>Lasiurus sindicus</i>	Sevan	PH	Common
66. <i>Leptadenia pyrotechnica</i>	Khemp	PH	Bidasar
67. <i>Lycium barbarum</i>	Morali	AG	Badao
68. <i>Maytenus emarginatas</i>	Kankero	PG	Merta
69. <i>Mimosa hamata</i>	Jhinjani	PG	Nagaur
70. <i>Mollugo cerviana</i>	Adeka Ket	PG	Common
71. <i>Panicum turgidum</i>	Murat	AH	Badao
72. <i>Phyllanthus maderaspatensis</i>	Khejaria-Khad	S	Parbatsar
73. <i>Protulaca oleracea</i>	Mamamoli	AG	Kuchaman
74. <i>Prosopis cineraria</i>	Khajari	S	Common
75. <i>Prosopis juliflora</i>	Angrezi Babul	AH	Merta
76. <i>Pulicaria angustifolia</i>	Sonila	S	Common
77. <i>Rivea hypocrateriformis</i>	Rata bell	S	Nagaur
78. <i>Rhynchosia minima</i>	Chiri-Motio	AG	Ladnun
79. <i>Salvadora olocoides</i>	Mitha Jal	T	Degana
80. <i>Salvadora persica</i>	Khari Jal	T	Kuchaman
81. <i>Seetzenia lanata</i>	Dakdi	AH	Merta
82. <i>Sesamum indicum</i>	Til	C	Common
83. <i>Tamarindus indica</i>	Imli	T	Ladnun
84. <i>Tecomella undulata</i>	Rohida	T	Kuchaman
85. <i>Tephrosia pupurea</i>	Bioni	PH	Common
86. <i>Tephrosia strigosa</i>	Jhino-Biyono	AH	Parbatsar

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87. <i>Trianthema portulacastrum</i>	Sata	AH	Common
88. <i>Trianthema triquetra</i>	Lakryo	AH	Common
89. <i>Tribulus terrestris</i>	Kanti	AH	Badao
90. <i>Urochloa panicoides</i>	Kuri-Ghas	AG	Ladnun
91. <i>Zaleya redimita</i>	Sunavri	AH	Common
92. <i>Ziziphus jujuba</i>	Vad-Ber	AH	Merta
93. <i>Ziziphus nummularia</i>	Bordia	T	Common

Table 4 : Selected Natural Vegetation of Nagaur District

Scrub	Anogeissus pendula	Main flora
Woodland and Thorny scrub	Acacia catechu Acacia sengal	
	Prosopis cineraria Capparis deciduas Acacia nilotica Zizyphus nummularia	Associated shrub
	Balanites aegyptica Salvadora persica Salvadora oleoides Acacia nilotica Ephedra foliata	Other flora
Arid Sandy Vegetation	Calligonum procera (on dune) Haloxylon salicornicum (Interdune)	

Table 5 : Important Economic plants of Nagaur District

Product	Plant Species
Fibre, Mats, Baskets	Acacia jacquemontii (Bacoli) Leptadenia pyrotechnica (Khimp) Saccharum bengalensis
Gum	Acacia Senegal (Kumta) Acacia nilotica (Deshi Babul)
Dyes	Betea monosperma (Dhak) Lawsonia alba (Mahendi)
Non-edible oil	Salvadora oleoides (Jal) Citrullous colocynthis (Tumba)
Medicinal	Nagauri Methi Plantago ovata (Isubgol) Commiphora wightii (Gugal) Aswagandha Gokhru (small & large) Amla Kaith Bhrangraj Ker

Fauna Wild Animals

There is no big game in the district. Chinkaras and black bucks which are seen in this area, are protected species under the Rajasthan Wild Animals and Birds Protection Act (1951). Among the small game only titars (partridges) are found. Other fauna of the district consists of deer, hare, jackal, pig and wild cat, Nagaur Ox, Cow, Marwari Horse and Sheep goat.

Table : 6 Animal Profile

Protoza	30 species, 26 genera 34 species, 25 genera
Sponges	5 species, 4 genera
Leeches	6 species, 5 genera
Mollusca	28 species, 21 genera
Crustacea	45 species, 18 genera
Termites	19 species, 12 genera
Aquatic beetles	22 species, 13 genera

Table 7 : common taxa : lizards, birds and Mammals found in the study area

Zoological Name

Lizards

1. *Stenodactylus orientalis*
2. *Cyrtodactylus scaber*
3. Spotted Indian House gecko, *Hemidactylus brooki*
4. *H. triendrus*
5. Bark gecko, *Hemidactylus leschenaulti*
6. Yellow Bellied house gecko, *Hemidactylus flaviviridis*
7. *Calotes versicolor*
8. Brilliant Agama, *Agama agilis* and *Agama minor*
9. *Phrynocephalus laung walensis*
10. Indian spiny-tailed lizard, *Uromastix hardwicki*
11. Indian Sand Skink, *Ophiomorus tridactylus*
12. Indian fringe-toed sand lizard, *Acanthodactylus cantoris cantoris*
13. Cobra Snake-eyed lizard, *Ophisops microlepis*
14. Golden Striped lizard, *Ophisops Jerdoni*
15. Monitor lizard, *Varanus bengalensis*

Snakes

1. Blind Snake, *Ramphotyphlops bramina*
2. Beaked Thread Snake, *Leptotyphlops macrorhynchus*
3. Indian Sand Boa, *Eryx johni johni*
4. Dhaman, *Ptyas mucosus*
5. Glossy-bellied racev, *Argyrogena Ventromaculatus*
6. Rajat bansi, *Sphalerosophis diadema diadema*
7. Indian Krait, *Bungarus Caculcus*
8. Cobra, *Naja naja naja*
9. Russell's viper, *Vipera russelli russelli*
10. Viper, *Echis carinatus*

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Birds

1. Cattle Egret, *Bubulus ibis*
2. Little Egret, *Egretta gazetta*
3. White-eyed Pochard, *Aythya nyroca*
4. Tufted Duck, *Aythya fuligula*
5. Demoiselle Crane, *Anthropoides virgo*
6. Common Crane, *Grus grus*
7. Black-shouldered Kite, *Elanus caeruleus*
8. Black Kite, *Molvus migrans govinda*
9. Kind Vulture, *Sarcogyps calvus*
10. Cinereous Vulture, *Aegyptius monachus*
11. Indian Longbilled Vulture, *Gyps indicus*
12. White backed Vulture, *Gyps bengalensis*
13. Egyptian Vulture, *Neophron percnopterus*
14. Pale Harrier, *Circus macrourus*
15. Mohtagu's Harrier, *Circus pygargus*
16. Marsh Harrier, *Circus acrogenosus*
17. Short-toed Eagle, *Circus gallicus*
18. Longlegged Buzzard, *Buteo rufinus*
19. Desert Buzzard Buteo, *Buteo buteo vulpinus*
20. Tawny Eagle, *Aquila rapax vindhiana*
21. Steppe Eagle, *Aquila rapax nipalensis*
22. Lesser Spotted Eagle, *Aquila pomarina*
23. White-eyed Buzzard-eagle, *Aquila pomarina*
24. Laggar Falcon, *Falco biarmicus jugger*
25. Redheaded Merlin, *Falco chicquera*
26. Kestrel, *Falco tinnunculus*
27. Grey Partridge, *Francolinus pondicerianus*
28. Grey Quail, *Coturnix coturnix*
29. Rain Quail, *Coturnix coromandelica*
30. Great Indian Bustard, *Choriotis nigriceps*
31. Houbara, *Chalmydotis undulata*
32. Redwattled Lapwing, *Vanellus indicus*
33. Creamcoloured Courser, *Cursorius cursor*
34. Indian Courser, *Cursorius coromandelicus*
35. Collared Pratincole, *Glarcola Pratincola*
36. Stone Curlew, *Burhinus oedicnemus*
37. Temminck's Stint, *Calidris temminckii*
38. Little Ringed Plover, *Charadrius dubius*
39. Kentish Plover, *Charadrius alexandrinus*
40. Lesser Sand Plover, *Charadrius mongolus*
41. Indian Sandgrouse, *Pterocles exustus*
42. Spotted Sandgrouse, *Pterocles senegallus*
43. Imperial Sandgrouse, *Pterocles orientalis*
44. Blue Rock Pigeon, *Columba livia*
45. Indian Ring Dove, *Streptopelia decaocto*
46. Little Brown Dove, *Streptopelia senegalensis*
47. Pled Crested Cuckoo, *Clamator jacobinus*
48. Shorteared Owl, *Asio flammeus*
49. Spotted Owllet, *Athene brama*
50. Green Bee Eater, *Merops orientalis*
51. Blue-Cheeked Bec-eater, *Merops supercoliosus*
52. European Roller, *Coracias garrulous*
53. Indian Roller, *Coracias benghalensis*
54. Hoopoe, *Upupa epops*
55. Wryneck, *Jynx torquilla*
56. Yellow fronted Pied Woodpecker, *Picoides maharattensis*
57. Redwinged Bush Lark, *Mirafraga erythroptera*
58. Ashycrowned Finch Lark, *Eremopterix grisea*
59. Blackcrowned Finch Lark, *Cremopterix nigriceps*
60. Rufoustailed Finch Lark, *Ammomanes phoenicurus*
61. Hoopoe Lark, *Alaemon alaudipes*
62. Short-toed Lark, *Calandrella brachydactyla* (Leisler)
63. Eastern Calandra Lark, *Melanocorypha bimaculata*
64. Crested Lark, *Galerida cristata*
65. Swallow, *Hirundo rustica*
66. Whitecheeked Bulbul, *Pycnonotus leucogenys leucotis*
67. Redvented Bulbul, *Pycnonotus cafer*
68. King Crow, *Dicrurus leucophaeus*
69. House Crow, *Corvus splendens*
70. Raven, *Corvus corax*
71. Common Babbler, *Turdoides caudatus*
72. Large Grey Babbler, *Turdoides malcolmi*
73. Bluethroat, *Erithacus svecicus*
74. Rufous Chat, *Erythrophylgia galactotes*
75. Black Redstart, *Phoenicurus ochruros*
76. Stoliczka's Bush Chat, *Saxicola macrorhyncha*
77. Collared Bush-Chat, *Saxicola torquata*
78. Pied Bush Chat, *Saxicola caprata*
79. Isabelline Chat, *Oenanthe isabellina*
80. Desert Wheatear, *Oenanthe deserti*
81. Pied Chat, *Oenanthe picata*
82. Red-tailed Wheatear, *Oenanthe xanthopyrma*
83. Plain Wren-warbler, *Prinia gracilis*
84. Steaked Wren-warbler, *Prinia gracilis*
85. Orphean Warbler, *Sylvia hortensis jerdoni*
86. Desert Lesser Whitethroat, *Sylvia curruca minula*
87. Desert Warbler, *Sylvia nana*
88. Streaked Fantail Warbler, *Cisticola juncidis*
89. Booted Warbler, *Hippolais caligata*
90. Chiffchaff Phylloscopus, *Collybita tristis*
91. Grey Shrike, *Lanius excubitor*
92. Baybacked Shrike, *Lanius vittatus*
93. Pale Brown Shrike, *Lanius collurio* or Isabelline Shrike *Lanius isabellinus*
94. Tawny Pipit, *Anthus campestris*
95. Brown Rock Pipit, *Anthus similis*
96. Yellow Wagtail, *Motacilla flava*
97. Rosy Pastor, *Sturnus roseus*
98. Starling, *Sturnus vulgaris*
99. Bank Myna, *Acridotheres ginginjanus*
100. Common Myna, *Acridotheres tristis*
101. Purple Sunbird, *Nectarinia asiatica*
102. Whitetroated Munia, *Lonchura malabarica*
103. Green Munia, *Amandava formosa*
104. House Sparrow, *Passer domesticus*
105. Spanish Sparrow, *Passer hispaniolensis*
106. Yellowthroated Sparrow, *Petronia xanthocollis*

Mammals

1. *Hemiechinus auritus callaris*
2. *Paracchinus micropus micropus*
3. *Suncus murinus sindesis*
4. *Suncus stoliczkanus*
5. *Pteropus giganteus giganteus*
6. *Cynopterus Sphinx Sphinx*
7. *Rhinopoma microphyllum kinneari*
8. *Rhinopoma hardwickei hardwickei*
9. *Taphozous perforatus perforatus*
10. *Taphozous melanopogon melanopogon*
11. *Taphozous nudiventris kachhensis*

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12. *Megaderma lyra lyra*
13. *Rhinolophus lepidus lepidus*
14. *Hippisideros fulvous pallidus*
15. *Tadarida aegyptica thomasi*
16. *Pippistrellus mimus*
17. *P. ceylonicus indicus*
18. *Scotozous dormeri*
19. *Manis crassicaudata*
20. *Canis aurcus aurcus*
21. *Canis lupus pallipes*
22. *Vulpes Vulpes pussilla*
23. *Lutrogale perspicillata*
24. *Viverricula indica deserti*
25. *Herpestes auropunctatus = H. javnicus*
26. *H. edwardsi (nyula)*
27. *H. smithi*
28. *Hyaena hyaena hyaena*
29. *Felis silvestris ornate*
30. *Felis caracal*
31. *Sus scrofa cristatus*
32. *Boselaphus tragocamelus*
33. *Antilope cervieapra raiputani*
34. *Gazella bennetti*
35. *Lepus nigricollis*
36. *Hystrix indica indica*
37. *Gerbillus nanus*
38. *G. gleadouri*
39. *Tatera indica indica*
40. *Meriones hurrianac*
41. *Mus musculus*
42. *Mus booduga*
43. *Mus saxicola*
44. *M. Platythrix*
45. *Rattus rattus*
46. *Millardia meltada pallidior*
47. *Millardia gleadowi*
48. *Cremnmus cutchicus*
49. *Golunda ellioti gujerati*
50. *Vandeleuria oleracca*
51. *Bandicota bengalensis*
52. *Nesokia indica*
53. *Funambulus pennanti*

Phystodiversity shaping pature, fallow and scrub forests in Nagaur

Three important aspects related to biodiversity and regional ecology were studied in the study villages. First, the community dynamics of plant species, interrelationship between plant species and the relationship between trees and under strong. Second, the ecological dynamics of human planting and fallow patterns which effect large areas of the district under long fallow cultivation. Third, the graphical braving patterns of dominant domesticated fauna which sculpt the village ecology in a definitive way.

Over 93 species which includes common and uncommon ones were encountered. The common species are found in nearly all the survey villages and most play an important role in the human ecology of the region. The most common of these are divided into 4 groups : 1) trees and shrubs, 2) Annual herbs and grasses, 3) Perennial herbs and grasses, 4) domesticates.

The common names given here are the ones used dominantly in the study villages. The brief description discusses the plants adaptations and significance in human ecology. The information is derived from field observation, conservation with locale people.

Conclusion

Biodiversity is being destroyed in the present time by human activities at unprecedented rates. The adverse effects of human impact on biodiversity are increasing dramatically and threatening the very foundation of sustainable development. Loss of biological resources and their diversity threatens our sustained food supplies, resources of wood medicines and energy opportunities for recreation and tourism and interfaces with essential ecological function. The semi area region in Rajasthan is very important from the point of view of its biodiversity.

The increasing agriculture and are creasing follow have brought down biodiversity quantum in Nagaur leading to dissemination of taxa and whipping out of several useful native species which provide survival support of the people of Nagaur.

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