

Chapter 22

WILDLIFE MANAGEMENT

BASIC CONCEPTS

The term wildlife generally refers to non-domesticated forms of animal life that are commonly met under natural conditions. These forms may include insects, amphibian / aquatic animals, reptiles, mammals and birds etc. Wildlife is generally not reared artificially by man although it may receive protection and active support from him.

IMPORTANCE OF WILDLIFE

The Wildlife of a country is important on account of various reasons such as (1) recreation and game, (2) income from tourists, (3) their role in the ecosystem and (4) their role as sensitive indicators of subtle environmental changes and alterations which are otherwise not noticeable by man.

The term Wildlife-Management refers to application of various biological sciences for maintaining desired levels of populations of various wildlife species. Sometimes man would like to see regular increase in the population size of certain wildlife species but on other occasions he would like to reduce the level of populations of some other wildlife species. Such a decision for the increase or decrease of the population of a wildlife species depends upon the usefulness or harmfulness of species for man and his environment.

The main anchor of Wildlife Management is protecting Wildlife itself and its natural habitat as well as rebuilding a damaged/deteriorated habitat.

Wildlife Habitat:

It is an area that has native vegetation (ecosystem) and is either permanently inhabited or is regularly visited every year for breeding etc. by one, few or many wildlife species. The native vegetation not only provides shelter, protection and housing to the wildlife but also provides feed to various wildlife species. Nowadays wildlife, habitats are generally protected with barbed wire fence or

wire netting fence. Although every wildlife species has its own specific requirement but most reputed wildlife species prefer boundary zone (ecotone) where forest ecosystem merges gradually with range or farm ecosystem.

Generalized Wildlife Habitat Essentials

Any good wildlife habitat should provide following essentials.

1. Suitable and easily accessible feed throughout the year from grasses, forage crop, cereals and fruiting shrubs etc.
2. Good quality drinking water at nearby locations.
3. Scattered but sufficiently thick pockets of woody vegetation for providing hiding places and for providing shade during hot sun.
4. Scattered blank areas for play land and for sun bath.
5. Caves & nests of different sizes and shapes.
6. Protruded sharp rocks or dead tree stumps for scratching animal bodies.
7. Sandy patches for relaxing and for having dust bath.

PRINCIPLES OF WILDLIFE MANAGEMENT

The Wildlife Manager thus influences the growth and development of a species by suitably manipulating the habitat. The following is a brief description of the principles of Wildlife Management.

1. **DETERMINING IMPORTANT WILDLIFE SPECIES TO BE MANAGED (TO BE PROMOTED OR TO BE DISCOURAGED) AND STUDYING THEIR BIOLOGY / ECOLOGY.** It includes enlisting wildlife species in the light of Government instructions, after consulting experts, farmers and other interested persons with a clear understanding as to which species are to be particularly protected and promoted and which species are to be discouraged and controlled. The main criterion in this connection will be the usefulness or harmfulness of a species for man, his crops or animals. This principle also includes the *study of the behaviour of a species* as a population and the relationship of concerned wildlife species with other organisms and environmental factors prevailing in the habit. Various aspects of *biology of individuals* such as breeding, feeding and movement etc. are also to be studied which will collectively reveal strong and weak points of a species during its life cycle. This information makes the job of wildlife manager easier and effective.

II. PROTECTING EXISTING HABITAT OR RESTOCKING/REBUILDING AND REPAIRING DAMAGED/DETERIORATED HABITAT. It includes identification/selection of a site for conserving and protecting suitable habitat of a species and it may also include rebuilding a damaged habitat back to its original normal form. Such sites are frequently referred to as "Wildlife Sanctuaries", "Game Reserves" or "National Parks". Protection of a habitat may include fencing, fire control measures, constructing flood control dykes, building water drainage system, diverting and re-routing roads and rails etc. Rebuilding of a habitat may include rerouting or diverting streams, providing small and perennial stream, developing lakes and ponds, trenching, pitting, ridging, planting and cultivation of forage shrubs and crops.

Providing suitable housing (caves, tunnels, cages, boxes, nests) and planting a variety of grain and fruit species in patches, providing sandy play areas.

III. PROTECTING WILDLIFE SPECIES IN AND AROUND THEIR HABITAT. This principle refers to providing complete or partial, all time or seasonal protection for certain wildlife species especially the endangered species. A few protection measures in this connection, for example, are as follows:

1. Banning all season shooting / hunting and introducing seasonal or rotational shooting/hunting.
2. Careful application of pesticides, insecticides in and around habitats.
3. Making alternate arrangements for drinking water, feed and shelter etc. for emergency periods.
4. Killing or controlling enemy (predatory) species of desired wildlife species through baiting, fumigation, using repellents, hounding, fire arm, shooting, stick shooting and trapping.
5. Introducing biological control measures against parasites and diseases of wildlife species.
6. Vaccination against contagious diseases.
7. Treatment (surgical, veterinary).
8. Regular culling of undesirable animals.
9. Providing extra protection and help during breeding season.

IV. CREATING AWARENESS AMONG GENERAL PUBLIC IN FAVOUR OF WILDLIFE CONSERVATION and

seeking active help and cooperation of local people and general public in this connection. The importance of the role of people towards Wildlife Conservation cannot be over exaggerated. Hostile and indifferent local people can easily make all positive efforts ineffective and can undo all previous achievements in a moment. A favourable general public opinion will invariably lead to liberal allocation of funds and promulgation of effective wildlife laws.

V. **STRENGTHENING WILDLIFE DEPARTMENTS OR AGENCIES**

The Wildlife Departments or Agencies should be strengthened and made effective by

1. increasing the number of technically trained field workers,
2. providing better professional education and training to field staff, regular inservice training at all levels.
3. providing better transport and other facilities,
4. providing more funds such as hardship allowance etc. to field staff,
5. giving more powers/authority to Wildlife Department,
6. conducting field and laboratory research and holding demonstrations etc.

Game Sanctuary

It is a sizeable (say 5000-10000 acres) protected area having natural vegetation that is suitable as habitat for certain wildlife species. Area is managed by wildlife experts with the objective of protecting and promoting certain endangered wildlife species. Suitable niches, sites for drinking water and feeding places are provided to the wildlife.

Management of Wildlife, steps being taken:

Management of Wildlife is the responsibility of Provincial Forest Departments who have established separate wings for this purpose. Management of Wildlife includes:

1. Creating interest and awareness among the common people for wildlife through education and propaganda movies etc.
2. Enforcing necessary protective laws, banning shooting / killing of certain species especially during the breeding season.
3. Enforcing complete ban on shooting of certain endangered species.

4. Establishing wildlife sanctuaries, game reserves or National Parks, Zoo Gardens which provide suitable environment and protection for development of wildlife. These sanctuaries provide necessary vegetation cover for wildlife.
5. Providing drinking water and feed at proper places and providing suitable feed through out the year.

Wildlife of Pakistan

Pakistan is a land of contrasts and holds excellent diversity of habitats ranging from high snow covered mountains and plateaus in the north to vast lush green irrigated cultivated fields and great deserts of Cholistan and Tharparker in the middle and a lengthy sea shore in the south. These mountains, plateaus, plains, deserts, rivers, lakes and sea shores support a beautiful wildlife legacy. Many birds species like Ducks, Geese, Bustard, Growse, Quails, Sparrows, and many birds of preys regularly visit the water reservoirs and ranges as wintering grounds every year. Many species of ungulates also enter in Pakistan through eastern (India) border when wheat crop is to be harvested.

This shows that excellent assorted habitats in this country not only serve the resident wildlife but also have attraction for migratory animals.

Diversified habitats of the country like marshy and swampy areas, desert ranges, high hill forests and pastures, sub-mountain scrub forests and plateaus, agricultural areas, riverian scrub and irrigated forest plantations inhabit a wide variety of fauna as well as flora (feed).

Animals like Marcopolo's sheep, Markhor, Himalayan Ibex and birds like Monal Pheasant, Cheer Pheasant, Kalij Pheasant, Koklas Pheasant, and Chukor partridges are found in the high hill forests and Trans-Himalayan ranges. While Barking Dear, Porcupine, Urial, See See Partridge, Brown and Black Partridge are found in abundance in the sub-mountain areas.

Desert ranges support Black Buck, Chinkara, Desert hare, Caracal, Fox, Brown Partridge, Great Indian bustard, Himalayan bustard and Sand Growse.

Riverain tracts and irrigated forest plantations are important to inhabit Hog Deer, Blue Bull, Wild Boar, Wolf, Wild Ass, Pea Fowl and Partridges.

Fauna of agricultural areas is Wild Boar, Jackal, Rabbits Mongoose, Parakeet, Coves, Crows, Maynas and Brown Partridges.

Wet lands of Pakistan are famous for providing ideal habitat to different animal like Minks, Otters, Turtles, Fish, Ducks, Geese, Coots, Rails, Carmorents, More Hens, and other marshy species.

Due to the technological advancement, (use of pesticides, fertilizers, and machinery) in the field of agriculture and increasing population pressure, most of the wilderness areas have been encroached upon and cleared for agricultural purpose. Streams, swamps, and lakes have been polluted on account of large scale industrialization and urbanization.

All these factors have greatly contributed towards decline of wildlife population in the country. An other major pest of wild life is man himself. In fact, in past two decades, illegal shooting, netting and trapping have damaged our wildlife to such an extent that its rehabilitation is now seen as a gigantic task. Though it is not impossible to restock our natural heritage but still there is need to combine persistent efforts to make our country more beautiful.

Decline of Wildlife in Pakistan

The number and variety of wildlife of Pakistan is alarmingly decreasing. The major reason is that suitable environmental conditions for various species are fast disappearing due to increased population and rapid development i.e. road construction, urbanization, industrialization and extensive irrigated agriculture with heavy use of insecticides. Brown partridge, Hedge Hog, Civit Cat, Indian Roller and common Shikra etc. are at the verge of extinction in the districts of Sahiwal and Multan, the famous cotton growing areas of Punjab. An other very important reason for the decline of wildlife is the excessive and indiscriminate shooting of wildlife. Illegal shooting of wildlife is increasingly becoming common because wildlife department, inspite of its best efforts, has so far failed to arrest the decrease of wildlife in the country. The reason might be that the department is under staffed, the lower staff is immobile, untrained and inefficient. Similarly illegal export of wildlife is also becoming frequent.

Reason for Decline of Wildlife in Pakistan

There are numerous reasons which have led to the destruction of wildlife in Pakistan. Most important reason is destruction of habitat for various wildlife species in the country. Wildlife species no longer get sufficient protection and feed especially during breeding season and during early stages of their growth. These are no longer able to breed and grow at normal rates. The destruction of their habitats has been caused by rapidly growing human population and unplanned urbanization and industrialization. The second most important reason for the destruction of wildlife is active and reckless pursuit by a sizeable number of people in this society in killing almost all wildlife species irrespective of their age and size. People of Pakistan in general are indifferent to the importance of wildlife and they show little concern for its betterment and defy wildlife

conservation laws openly and frequently. Government efforts undertaken to promote wildlife are will-fully nullified and are unfortunately made ineffective by a large cross section of the society.

Measures to Improve Wildlife Situation

Improvement of wildlife, like any other biological phenomenon, is an expensive, time consuming, multidisciplinary and persistent process. To cut a long story short, following two steps will provide a base for wildlife improvement and will show positive results in a short span of time.

1. Establishing wildlife sanctuaries in various climatic zones of Pakistan. These sanctuaries be scientifically managed and effectively protected against illegal shooting and habitat destruction.
2. Research, professional education and public awareness. Very little is known about the life cycles and behaviour of numerous wildlife species. Their weak and strong points are not so well known. The basic knowledge about biology and ecology of these species is a prerequisite for their management. There is urgent need to discover cheap and effective methods for promoting various endangered wildlife species. The importance of wildlife has to be made public and sympathies of the common man for the wildlife must be won through mass education, film shows, hoarding boards and lectures etc.

Important Wildlife Species of Different Provinces.

Balochistan:	Markhor, See See Chakor, Partridge.
Punjab:	Chinkara Deer, Jackal, Jungle Cat, Dove, Parakeet, Nilgai.
K.P.K:	Bear, Leopard, Monal pheasant, Chakor, Partridge, Bear, Leopard.
Sind:	Sind ibex, Markhor, Black buck, Brown and Black Partridge.

Important birds and animals at the verge of extinction

Birds: Great Indian Bustard, Green pigeon and Pea cock.

Mammals: Blue Bul, Black Buck and Panther.

Management of Wildlife in Pakistan

Management of Wildlife is the responsibility of Provincial Forest Departments who have established separate "wings" for this purpose. Management of Wildlife includes:

1. Creating interest and awareness among the common people for wildlife through education and documentary movies etc.

- Initiating enactment of wildlife laws, and their judicious enforcement.
2. Enforcing necessary protective laws banning shooting/killing of certain species especially during their breeding season.
 3. Enforcing complete ban on shooting of certain endangered species.
 4. Establishing wildlife sanctuaries or National Parks, Zoo Gardens which provide suitable environment and protection for development of wildlife. These sanctuaries provide necessary vegetation cover for wildlife.
 5. Providing drinking water and feed at proper places and providing suitable feed through out the year.

Organization of Arid Wild Lands in Pakistan

Arid wildlands can be organized to some extent by giving due consideration to following points:

- (I) Establishing suitable vegetation in pockets at least by promoting harvesting of run off of water and collecting (conserving) it in small pockets. By adopting this method of promoting harvesting local water run off, one can increase the amount of available water in nearby pockets tremendously and can establish very good vegetation in these pockets and strips. Preference should be given to fruit bearing shrubs such as Mallah (*Zizyphus nummularia*).
- (II) Fencing of wild lands in order to prevent outside animals from entering and destroying recently established scanty vegetation in question.
- (III) Keeping the number of wild animals at a level which is less than the carrying capacity of the area. Culling out of undesirable individuals and sale of normal individuals should be a regular feature and a source of income.
- (IV) Developing stock water ponds etc. at suitable locations.
- (V) Undertaking limited cultivation (both rain fed and irrigated) of coarse cereals and forage crops. Limited irrigation water may be available from large ponds or tube wells.
- (VI) Adopting drip irrigation for forage shrubs wherever possible.
- (VII) Arrangements must be made for the supply of drinking water and feed from out side during emergency.

Developing wildlife habitat in Cholistan or in any desert, Proposed changes

A few important changes are suggested as follows:

1. Forage crops, cereal crops, grasses and fruiting & forage shrubs should be planted in pockets and patches of variable sizes at convenient sites.
2. Tall and shade trees to be planted at convenient points in groups for providing shade, hiding and for nesting place.
3. Water tobas (ponds) are to be developed for drinking and bathing purposes.
4. Effective protection against unnecessary disturbance and excessive illegal killing and shooting especially during breeding season.
5. Availability of experts services such as nutritionist, biologist/ecologist or wildlife expert and veterinarian.

Promoting wildlife in dense timber forests, proposed changes

A number of changes are required in a dense timber forest for the promotion of wildlife. It must be recalled that a dense tall timber forest no doubt provides shade, shelter and hiding places to variety of wildlife but it is very poor in providing feed to these species. Dense timber forests have little grasses, herbs and forage shrubs etc., which are required by herbivores which in turn are required by carnivores; hence the food chain is incomplete.

In order to convert a dense timber forest into habitat favourable for wildlife, following changes are proposed.

1. Groups of timber trees should be felled for creating numerous small pockets here and there in the forest. These pockets should be planted with forage and feed crops and forage / fruit shrubs of various types. Such as corn, chick pea, sorghum, millet, grasses, guava, ipil ipil, and mallah ber etc.
2. Drinking water points and bathing sites such as stream diversion, pond, tubewells etc. must be developed.
3. Hiding and breeding places such as caves, nests of various sizes and shapes be provided.
4. Sandy play grounds be provided.
5. This area must be fenced and watchfully guarded against disturbance and illegal hunting etc.
6. Wildlife manager must make available the services of a nutritionist or biologist and veterinarian for general sanitation and preliminary treatment.

Wildlife of Punjab

Important wildlife of Punjab in various ecological regions is as follows.

- A. Temperate Moist Coniferous Forests of Murree Hills: Leopard Cat, Himalayan Black Bear, Rhesus Monkey, Yellow Throated Marten, Cheer Pheasant, Kaleej Pheasant and many kinds of snakes.
- B. Subtropical semi moist Evergreen Scrub Forests of Margalla Hills, Kalachitta, Salt Range (Kallar Kahar) and Suleiman Range: Urial Deer, Chakor, Seesea, Grey Partridge, Black Partridge Wild Boar in Margalla Hills and many kinds of snakes.
- C. Sub-tropical Moist/Semi-moist Deciduous Forests of North-Eastern Punjab: Grey Goral, Barking Deer, Caracal Cat, Yellow Throated Martin, Kaleej Pheasant, Chakor, Grey Partridge and many kinds of snakes.
- D. Tropical-Subtropical Thorn Forests of Central and Southern Punjab: Chinkara Deer, Black Buck Deer, Neel Gai, Wild Boar (along rivers and in waterlogged sites), Jungle Cat, Wolf, Black Partridge, Grey Partridge, Scaly Ant Eater and many kinds of snakes.
- E. Tropical-Subtropical Dry Deserts of Thal and Cholistan interspersed with moving sand dunes and interdunal flats: Black Buck Deer, Neel Gai, Chinkara Deer, Hyaena Wild Dog, Desert Fox, Wolf, Caracal Cat, Jungle Cat, Black Partridge, Grey Partridge, Great Indian Bustard, Houbara Bustard, Sand Grouse and many kinds of snakes.
- F. Rivers and especially Indus: Blind Dolphin, Crocodile, Graviat, Otter, Fishing Cat.

Note: The above mentioned wildlife is mostly at the verge of extinction and many of the above species bear "Endangered Status."

