

## Biodiversity loss due to certain traditional practices prevalent among the tribals of Rajasthan

Anita Jain<sup>1</sup> & Satish Kumar Sharma<sup>2</sup>

<sup>1</sup>Department of Botany, Vidya Bhawan Rural Institute, Udaipur- 313001(Rajasthan)

<sup>2</sup>14-15, Rampura Choraha, Jhadol Road, Udaipur-313004 (Rajasthan).

Corresponding author: anitajain\_02 @rediffmail.com

### Abstract

Rajasthan, the largest state in the North-Western part of India, has sizeable(13.47%) tribal population (Census, 2011), existing in and still surviving in deciduous forests of the Aravallis. The major tribes of the state are Bhil, Meena, Garasia, Damor, Sahariya and Kathodiya. In this paper certain traditional tribals practices are highlighted, which cause loss of biodiversity (both flora and fauna) and traditional knowledge associated with in the state. Details of these practices and their consequences on biodiversity are given in the present communication.

**Key Words:** Traditional practices, Rajasthan, biodiversity loss, Tribals

### Introduction

Traditional knowledge (TK) is integral to the identity of most local communities. It is a vital constituent of a community's social and physical environment. Their rich endowment of TK and biodiversity plays a critical role in healthcare, food security, culture, religion, identity, environment, trade, and development.

This TK plays a significant role in our healthcare practices, World Health Organization (WHO) estimates that 4 billion people (80 percent of the world population) use herbal medicine for some aspect of primary healthcare. After the advent of chemical revolution, i.e. the use of chemicals in artificially manufacturing medicines- all the medicinal plants of antiquity which were once used by the primitive folk healers and traditional medicine-men have found full acceptance and a place of pride in the modern medicine after their chemical examination revealed that they possessed chemical compounds of immense biological importance. For example, 'Ephedrene' from *Ephedra gerardiana* is used for asthma, low blood pressure, and heart block; 'Reserpine' from *Rawolfia serpentina* is the leading drug to reduce high blood pressure. Some of the modern psychotomimetic drugs for psychiatry were evolved through early man's use of extracts from individual plants in religious ceremonies (Katewa & Jain, 2006).

Recently, the extracts of *Rosa nutkana* and *Amelanchier alnifolia* were found active against the coronavirus (Yadava, 2019). There are references to 'Miracle Herbs' and 'Wonder Drugs' in the ancient literature, which had magical properties. They were used to cure some of the incurable diseases, .increase longevity and even to bring the dead

back to life. Also, TK is associated with biodiversity; hence if plants or animal species are lost, the knowledge based on it will be lost over time, which would be a major loss to humankind. Globally people realized the importance of TK associated with the biodiversity. Consequently, the concerns for its protection, preservation and conservation was adequately addressed by the Convention on Biological Diversity (CBD) and later also included in Sustainable Development Goals (SDG) 2030.

Rajasthan is the largest state in the North-Western part of India and exhibits variety in physiognomy, climate, soil, and the vegetation. The state has 13.47% tribal population (Census, 2011), nearly double the average tribal population of India, existing in and still surviving in deciduous forests of the Aravallis, and Vindhyan ranges. The major tribes of the state are Bhil, Meena, Garasia, Damor, Sahariya and Kathodiya.

Living close to nature, the tribals have acquired unique knowledge about the properties and uses of wildflora and fauna, most of which are not known to the outside world. They transfer their knowledge from generation to generation orally through folklores, although it is often kept secret from the outsiders. Unfortunately, today's biodiversity of Rajasthan is facing several threats, viz. deforestation, habitat destruction, invasive alien species, mining, road construction, distancing from religious ethos, insensible-tourism, and some specific religious and cultural traditions and rituals of tribal and rural populations. Ved *et al.*, (2007) reported 38 REIT medicinal plants of Rajasthan. Although tribals and rural people have played a significant role in managing scarce natural resources such as water and



forests, but certain dogmatic rituals that form the central part of their religious and social life have adverse impact on local biodiversity and the traditional knowledge associated with it. The current research is the product of extensive field work and literature survey conducted by the authors.

### Traditional practices in Rajasthan

One such prominent dogmatic tradition among the Bhil tribe of state is known as 'Magra Puja.' Of particular concern is the ritual of 'Magra-Snan'(bathing the hill deity in fire). Bhil considered 'magra'(hill) as a god and address it as 'Magra-Bawsi' (Hill god). They erect a small platform at a suitable place on the hill (magra). On the platform, they place a deity to worship. Among the tribals, after the fulfilment of their prayers and wishes, they worship the hill deity (Magra-puja) to express their gratitude for helping them in their hour of stress. As mentioned above, 'Magra-snan' is a crucial part of the 'magra-puja.' In 'magrasnan', they set fire near the platform. Most of the times, the fire engulfs the entire 'Magra' or 'hill' which they worship as a local deity. It results in destruction of major ground floral and faunal species, including rare and endemic species occurring on that hill (Joshi, 1995).

Another tradition of Bhil's life, which causes threat to wild animal life is 'Ahiri' or 'Aida'. According to Bhils, "Ahiri" is a tribal goddess who 'lives' in their weapons (guns and bows). They have a common belief that goddess 'Ahiri' likes offerings of fresh blood, at least once every year. Bhils have a belief that if someone fails to offer blood to Goddess, she may take blood of any family member of the defaulter. Hence, to save the family members from evil-eyes of the goddess, blood of some wild animal is offered to goddess. For this, "Aida", a sort of tribal treat is organized by the Bhils every year. It continues for five days and starts just next day of Holi. In many villages it is organized on Makarsakranti (14 January) also. Killing of wild animals during "Aida" was allowed by erstwhile rulers. Killing of four-horned antelope, sambar and wild boar was allowed but tiger and leopard shooting was strictly prohibited.

Blood of animal procured from 'Aida' was used to sprinkle on the gun and bows to please the Goddess 'Ahiri'. The flesh of animal is delivered as 'prashad' door to door. One who fails in *aida*, was not welcomed by the society, specially by the ladies. To avoid mockery by ladies, males generally do not return home unless they bag an animal. Besides, a religious hunting ceremony, 'Aida' is a way of recreation also. Due to this practice lot of wild animals were killed by the tribals leading to considerable decline in their population in forest area. Now Forest Department has stopped this century old practice under the Wildlife Protection Act, 1972.

Except Kabir panthi Bhils, all tribals and nomadic living in southern Aravalli's relish meat. Meat of either domestic/wild animals, cooked/raw, living/naturally dead

cattle is consumed. New generation is now discarding eating wild animals, though older people are still seen to indulge in these practice at many places. Carnivory is also seen in 'jogis'(Saint). They eat mammals like jackal, hyena, bats, etc., even primates like langurs; avian fauna like francolin fowls, geese, ducks, quails and buttonquails; reptiles, like monitor lizard, crocodile, etc.; fishes, non-cordates like crabs, etc. and many more species. Many indigenous methods have been invented by the local tribals for shooting, hunting, trapping and fishing. Most of the methods are of ancient origin. They use bows & arrows, slings, catapults, bamboo sticks, "Keriya" (A tapering split bamboo made channel used to divert the water of stream), axe, net, cloth, fire, stone, strings, spear, knife, noose, etc. (Sharma, 1998). A very few are relatively of recent origin like shooting by guns, use of chemical toxins, etc.

Population of tribals is increasing fast and forest cover is shrinking rapidly. These situations are not conducive for wild animals. Tribal villages are there in various sanctuaries of Rajasthan and other forest areas. Due to tribal hunting practices, herbivorous animals have reduced critically in many pockets and their revival is now becoming very difficult. Since viable population of herbivorous animals is not available in many areas, hence food chains have collapsed. As a consequence, the carnivores are also getting lost as they are moving towards human habitations, resulting into increased human-animal conflict.

Tribals are very frolicsome. Some of the common practices on animals among the tribals are: *Haathi - ka - kbel* (play of elephant), partridge fighting, domestic fowl fighting, Grey Francolin fighting, cocoon toy making, etc. While, not all fights lead to the death of animals, the cock/Grey Francolin may sustain significant physical trauma. In 'Aida' too before killing, the animals are chased by hundreds of tribal folk causing mental trauma in animals. The tribals usually catch wild Grey Francolin (*Francolinus pondicerianus*) chicks and rear them in house. Once they grow up, they are made to fight for amusement. Now all these practices are forbidden by law.

Poaching of langurs for food and medicinal purpose is common practice among the Kathodi tribe. Because of this habit they are also known as 'monkey eating tribe' (Joshi, 1993). In Rajasthan Kathodi's are living in Jhadol and Kotra Tehsile of Udaipur district. Liver and meat of langur is given to woman at the time of child birth. The meat of langurs is even dried and stored for future use. Its skin is used as parchment of *dholak*. Limbs of animals are cut into pieces, charred in fire and kept either in earthen pots or in tin containers for future use to make soup.

Langur is a main food of leopard in Phulwari Wildlife Sanctuary, Udaipur. Besides this, they help in seed dispersal of many wild plant species. As deer and antelopes are not available in sufficient number in the forest of the sanctuary, poaching of langur is causing scarcity of food for leopards.

We have to conserve langurs to sustain the leopard population of the sanctuary and to maintain ecosystem.

Tribals are very fond of keeping wild animals as pets. They are captured and kept for entertainment, meat, trade, religious purposes, etc. Parrots are important cage pets of the area. Three species of parakeets, viz. *Psittacula krameri*, *P. eupatria* and *P. cyanocephala* are caught to keep as cage bird. A big population of fledglings of parakeets is caught from forest and non-forest areas every year. *P. eupatria*, which is the biggest in size of all the three species of Rajasthan, was once common, now its number is rapidly decreasing due to pet keeping practices. Habitat loss and decrease of fruit plants is another problem for existence of parrots. Since parrots are hole-nester species, availability of old trees is necessary for their breeding. Unfortunately, most of old and dried trees are hacked down by the locals. This practice deprives many parrots and other species from breeding and it is responsible for decrease in number of many bird species in forest areas. Decrease in parrot population will affect pollination and dispersal phenomena of many plant species in future like *Ficus benghalensis*, *F. religiosa*, *F. racemosa*, *F. virens*, *Butea monosperma*, *Albizia odoratissima*, *Ziziphus mauritiana*, etc.

Sometimes, the collection of non-wood forest products (NWFP) by traditional practices also proves harmful to entire ecosystem, viz. collection of honey, collection of 'Safed musali' (*Chlorophytum borivillianum* tubers), etc. During collecting honey from honey combs, the local people adopt the following practices:-

- 1) Smoldering near honeycomb— It involves slow-burning of broom (made from grasses and wood) to create smoke, which makes honey bees fly away from the comb. As soon as they fly, tribals follow through and collect honey from the beehives. Many times, the smokes and fire are left unattended, and the dry leaves catch fire, spreading it in the forest. In the process, wings of honey bees get destroyed.
- 2) In other practices, tribals/local people throw cold water over bee-hives. The bees get wet and fall on the ground and become unable to fly. Ultimately either they die or eaten by other animals.
- 3) Sometimes tribals/local people collect honey in the late hours because being diurnal bees become inactive in the night. It is easier to kill them or scare them away.

Honey bees are natural pollinators. Honey bees pollinate 80 % of crop plants and most of the wild species. Hence, their inability to fly due to the injuries of their wings and other body parts, ultimately hampers the process of pollination, which breaks the natural cycle of the ecosystem. Similarly, for the collection of 'Mahua' flowers, they set a fire under the 'mahua' trees, to make the ground free of leaf litter. Many times, the fire spreads to the nearby forest, resulting insignificant loss of biodiversity.

Tribals also believe in many myths that act as impediments in the preservation of TK. One such belief associated with 'Mahua' tree (*Madhuca longifolia*) is that they would invite God's wrath if they plant new 'Mahua' seedlings. Because of this, there is continuous depletion of 'Mahua' without being sufficient replenishment by planting of new trees.

Another ritual prevalent among Bhils of 'Jhadol' and 'Kotra' tehsil having a detrimental effect on the preservation of Traditional Medicinal Knowledge pertains to the plant species of *Pueraria tuberosa*, locally known as 'Vidarikand.' As per the ritual, the spinster girls of the village collect the tubers of the plant on 14 January, on the occasion of local festival 'Makar Sankranti' to prepare special delicacy for themselves. It results in massive depletion of this plant species. Similarly, the collection of new leaves of *Butea monosperma* in the month of June for the sowing of the tuberous crops is one of the significant damaging factor to the trees decrease in the number of trees of this species (Sharma, 2009). Similar selective destruction is reported for 'Semal' tree (*Bombax ceiba*). Cutting of hundreds of 'Semal' trees on the occasion of Holi festival for 'Holi Pole' results in the sharp depletion in number of this species in the wild (Jain, 2009).

Encroachment of land by tribal and local people leads to the habitat destruction of certain floral species occurring in the southern part of Rajasthan. One such practice, 'Walra Kasth', which is prevalent in the 'Mewar' region of Rajasthan, is just like 'Jhum cultivation'. A forest official said that the tribal community is using this practice for the encroachment of forest area. Encroachment of land near the riverbank results in loss of biodiversity of riparian strips. Unscientific culling of trees for collection of 'tadi' from *Phoenix sylvestris*, gum and resin from *Senegalia catachu*, *Boswellia serrata* and *Commiphora wightii*, and overharvesting of wild plant for food, medicine, fuel, and timber render many species vulnerable. It was also observed that in the event of no- or less-availability of species, other species replace it, which makes the loss of TK based on that particular species forever (Joshi, 1995).

Methods of fish capturing by tribals/local people have a determinantal effect on native species of fish and other fauna of the aquatic ecosystem. They capture fish by using cotton cloths (which act as fine net). As a result, both adults, as well as fries, are captured, leaving no young one in the ecosystem for regeneration. They also use fish stupefying substances extracted from stem bark of *Senegalia pennata*, *Holoptelea integrifolia*; fruits of *Casearia tomentosa*, *Catunaregam spinosa*; leaves of *Chrozophora rottleri*; dendron of *Euphorbia nerriifolia* etc. in the freshwater body to capture fish. It results in the poisoning of the whole ecosystem of the local water body and effect of fish stupefying substance is more determinantal especially in summer, when water spread is minimum. Such Water bodies cannot be used as holes and wild animals also face problem of drinking water during summer. Material thrown as fish poison makes

water source lifeless. The 'Kathodis' tribals capture fishes by using *Euphlyctis cynophlyctis*, a species of frog and earthworm, as a bait. This practice not only threatens the existence of the fishes but also the *Euphlyctis cynophlyctis* and other aquatic fauna used as a bait.

For the protection of crop from bird traditionally Rose-ringed Parakeet, Plum-headed Parakeet, House Crow, Large-billed Crow or any available raptor are poached, killed and hung in the field to keep away or frighten other birds while to protect domestic poultry, Black-shouldered Kite (*Elanus caerulus*) and Shikra (*Accipiter badius*) are killed and hung.

Haats (local markets) are weekly held at many places in the tribal areas of Rajasthan. Besides economic activities, haats are the center for many socio-cultural activities too (Joshi, 1995). Many animals and animal products are generally sold in the tribal *haats* are: Honey, Wax, Peafowl feathers, Vulture feathers, Parrot fledglings, Grey francolin, Domestic fowl and eggs of domestic hen, Hide of animal, *Morika* (ornament made of peafowl feather, only sold just before Deepawali), *Tant* (dried nerves of cattle carcasses), Fish (fresh caught or dried salted), Cattle, lesser ruminants, *Ghee*, Wild caught harelings etc. Animal products sold in the Haat are variously used by the tribals to prepare mask, arrow, musical instruments etc.

Two-three decades back poaching of vulture for feather was a common practice of tribals of southern Rajasthan. Feathers of Long-billed Vultures (*Gyps indicus*) and White-rumped Vulture (*Gyps bengalensis*) are used in making of arrows. If vultures are not available, feathers of peafowl are also used as alternatives. Twenty to twenty five years back, feathers of vulture were sold in the tribal haats, but now they are not seen there due to decline in vulture population.

Parchment of Musical instruments 'dholak' is procured from hide of goat by the Bhils and Garasias while from Hanuman langur (*Presbytis entellus*) by Kathodis. Another famous musical instrument of Kathodis known as 'tarpi', which is made by horns of cattle. An attractive mask is worn by the Bhils during Gavri dance. Teeth of this mask are made by feather of Peafowl.

Helmet staged nest of *Ploceus philippinus* is used as "fun cap" by the children during play. Once "Tailed fun caps" were used to be prepared from the hide of flying squirrels. These fun caps were in vogue in Umariya area before 1960 (Rao H.S. Solanki, pers. com.).

### Conclusion and Recommendation

The tribals have been following these practices for generations. However, earlier, it was done in a sustainable manner allowing nature to replenish. The tribal community had the least urban influences, and they had ethics of respecting nature. Besides, due to overpopulation, the

exploitation of natural resources has increased manifold, leaving little scope for natural replenishment.

Tribals still follow their customary laws and regulations. They think, many of their acts are not unlawful and they readily and happily involve in them. 'Aida' (communal hunting retreats), parrot fledgeling collection, burning the forest to appease the diety, fishing with the help of poison and explosion and many others are now cannot be said good things. Wildlife Protection act 1972 and Rajasthan Forest ct 1953 also do not permit them these acts. Many of tribals are annoyingly involving in the crime. Hence, we have to make the tribal communities aware that such practices are ultimately destroying their biological wealth and knowledge associated. One can educate the tribal community about the immense medicinal and heritage value of TK and motivate them to abandon these practices or modify them in such a manner that satisfies both the need to protect their TK and observance of their rituals. Besides, the protection of tribal areas, population, and culture from external influences can also be helpful. Indiscriminate exposure to the modern urban lifestyle erodes their environmental concerns and sensibilities.

### References

- Jain, V. 2009. Myths, traditions and fate of multipurpose *Bombax ceiba* L. - An appraisal. *Indian J. Tradit. Know.* 8(4):638-44.
- Joshi, P. 1995. *Ethnobotany of primitive tribes in Rajasthan*. Printwell, Jaipur
- Joshi, P. 1993. Ethnobotany of the Kathodis - A monkey eating tribe in Rajasthan. In: Singh V.K. & Govil, R.J.V. (eds.) *Glimpses in plant research Vol. X. Medicinal plants- New Vistas in Research*. Today and Tomorrow's Printers and Publishers, New Delhi. pp 23-30.
- Katewa, S.S. & Jain, A. 2006. "Traditional folk Herbal Medicines" Apex Publishing House, Jaipur, Rajasthan.
- Sharma, S.K. 2009. *Study of Biodiversity and Ethnobiology of Phulwari wildlife Sanctuary Udaipur, (Rajasthan)*. Ph. D. thesis, Department of Botany, M.L.S.U, Udaipur.
- Sharma, S.K. 1998. *Ethno-Zoology* (Hindi). Himanshu Publication, Jaipur and Delhi, pp1-147.
- Sullivan, A.M. 2016. Cultural heritage and new media: A future for the past. 15:604 ([www.repository.jmls.edu](http://www.repository.jmls.edu)).
- Ved, D.K., Kinhol, G.A. Kumar, R., Jain, S.K., Sankar, R.V. & Sumathi, R.O. 2007. *Conservation Assessment & management Prioritization for the medicinal, plants of Rajasthan*. Forestry Training institute, Jaipur, Rajasthan & FRLHT Bangalore, India. pp1-14.
- Yadava, R.N. 2019. Significance of Medicinal plants as antiviral agents. *Everyman's Science* LIV(4): 215-16.