



# ***Pullian: The traditional Pangwal snow shoe***

Harminder Singh and Puneet Kumar

## **Research**

### **Abstract**

**Background:** Traditional knowledge has played a vital role socio-economic development of rural and tribal regions of the world. The new era technical know-how coupled with traditional knowledge is paying way to sustainable use of natural resources. This study aimed to document the traditional art of making *Pullian* from wheat grass which finds its origin in one of the remotest tribal valley in the cold deserts of the Great Himalayas.

**Methods:** Data was collected from nine major villages in and around Sechu Tuan Nalla Wildlife Sanctuary (STNWLS). In each village nearly twenty members of the society comprising of both elderly and young population were interviewed for the art of *Pullian* making and its potential role in socio-economic development of the region.

**Results:** The results showed that people of villages in and around STNWLS over hundreds of years have developed unique methods to survive in this harsh and remote region of the world. *Pullian*, a kind a feet covering or a shoe is made by the people of *Pangwal* tribe inhabiting these villages. Apart from using *Pullian* for household use, this unique type of shoe is also used by the locals to walk on snow during the winters.

**Conclusions:** The present paper is an attempt to bring to light the immense potential of traditional knowledge of tribal people. This art of shoe making from wheat grass by the *Pangwal* tribe inhabiting in and around STNWLS, Pangi, Chamba, Himachal Pradesh, India can potentially contribute in setting up of small scale, non-polluting, agro-based household industries in the region. Thereby, helping in raising the per capita income of the tribal people.

**Keywords:** *Triticum*, Pangi, ethnobotany, agro-based, Sechu.

## **Background**

Traditional knowledge (TK) or traditional practice of utilization of locally available resources by the tribal community in diverse geographical regions of the world is developed, sustained, and often passed on orally, from one generation to another within a community. Ethnobotany is one such form of traditional knowledge which documents the conventional utilization of plants by various indigenous tribes (Sood *et al.* 2001). This indigenous knowledge is developed over the years by careful understanding of natural ecosystem while maintaining a delicate balance between conservation and sustainable use of biological diversity of a region. Besides playing an important role in development of modern day healthcare system and pharmacology industry, ethno-botanical studies have contributed in throwing light on traditional usage of plants that can be potentially utilized for setting up of household or small scale industries (WIPO 2017, Samant *et al.* 2001, 2017).

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**Ethnobotany Research & Applications  
18:25 (2019)**

In past few decades awareness has been created by international agencies/organizations [Food and Agricultural Organization (FAO), International Union for Conservation of Nature (IUCN), Convention on Biological Diversity (CBD), United Nation Educational, Scientific and Cultural Organization (UNESCO), United Nations Environment Program (UNEP), World Intellectual Property Organization (WIPO) *etc.*] for conserving traditional knowledge

and associated intellectual property rights. Every tribe or community has its own ethnic individuality, traditional knowledge and technical know-how to survive in the wild without disturbing the ecological balance. This knowledge, information and innovative ideas compiled with modern techniques can be used for the benefit of mankind.

Himachal Pradesh situated in the Indian Western Himalayan region is home to number of indigenous tribes who have conserved various forms of traditional knowledge over the centuries from generation to generation. An earlier report of GOHP (2018) states that 42.49% of total geographical area of the state is under Scheduled V. 71.16 % of population inhabiting these areas are tribal mainly belonging to tribes: *Gaddis*, *Gujjars*, *Kinnaras*, *Lahaulas*, *Pangwals*, *Bhotias* etc. The people of *Pangwal* tribe inhabit Pangi tehsil, a high altitudinal snowbound region of Chamba district of Himachal Pradesh. The origin of *Pangwal* tribe is unclear and disputable as to how these tribal people established themselves in this remote, rough and rugged, land-locked valley in the high Himalayas. Due to difficult terrain and adverse climatic conditions prevalent in the valley, agriculture and animal husbandry are the only sources of livelihood of the people of the valley. There is limited cultivable land and only crops required to meet the domestic need are cultivated. Chaudhry (1998) mentions one harvest in the year of the crops such as wheat and barley along with *phulan*, *elo*, *bres* and *masa* is a common practice in the valley. Recently cultivation of cash crops has also been started in the valley for economic upliftment of the people of *Pangwal* tribe. Sechu Tuan Nalla Wildlife Sanctuary and its adjoining areas situated in this tribal valley is one such region where the current study has been done.

Wheat (*Triticum aestivum* L.) is a widely cultivated species of tribe Triticeae of family Poaceae. FAO (2006) mentions wheat as an important cereal crop with a high consumption rate. The primary use of *T. aestivum* is for bread manufacture and human consumption (Grewal & Goel 2015). However, wheat flour is also used to make biscuits, confectionery products, wheat gluten, noodles etc. Besides the above mentioned uses of wheat, an earlier report by OTGR (2008) also states that it is used as feed to livestock, litter for pets, in production of manure, for bedding and thatching, in alcohol, beer and cosmetic industries. Wheat grass other than serving its basic purpose of cultivation is also utilized by *Pangwal* tribal community inhabiting this distant region of the

Indian Himalayas in their traditional and cultural practices.

During plant exploration surveys in and around the Sechu Tuan Nalla Wildlife Sanctuary the authors came across a least documented traditional use of *T. aestivum*. The *Pangwal* tribal population living here uses the leftover straw after the removal of grains for making snow shoes locally called *Pullian*, which are chiefly used in winter for walking on snow. This paper documents the traditional use of shoe making from *T. aestivum* in and around Sechu Tuan Nalla Wildlife sanctuary and the potential of this traditional art in socio-economic development of the region.

## Materials and Methods

### Study area

The Sechu Tuan Nalla Wildlife Sanctuary (STNWLS) lies in Sechu valley, a minor sub-valley of major Pangi valley, is located at the extreme North West end of Chamba district of Himachal Pradesh (Fig. 1 & 2). The wildlife sanctuary covers an area of 390.29 square kilometers and is one of the interior most valleys of Great Himalayas (Fig. 3). The region is drained by Sechu Nalla and its tributaries. The sanctuary is also a part of cold deserts region of Trans-Himalayas. The area is rough and rugged with narrow valleys, steep slopes and deep gorges. The climatic conditions are extreme with 5-6 months of snow cover and temperature falls below the freezing point. Singh and Kumar (2017) in their study mention the altitudinal range varies from 2800 meters to 6400 meters, providing a wide range of habit and habitat for floral and faunal elements. The wildlife sanctuary is home to vulnerable *Panthera uncia* commonly known as snow leopard.

The eco-sensitive zone of the sanctuary covers an area of 46.45 square kilometers with five villages (*Hilu*, *Tuan*, *Chiroty*, *Kallichow* and *Sindhari*) under its zonal range, whereas *Chasakh Bhattori*, *Chasakh*, *Sechu*, *Udeen*, *Shoon*, *Sali*, *Mojhi*, *Leo* are located near the boundary of eco-sensitive zone. As per GOI (2011) the region has a total population of more than 1700 persons. Due extreme geographical and climatic conditions, limited resources, poor infrastructural facilities life here is very difficult. The region is much neglected due lack of basic infrastructure facilities.

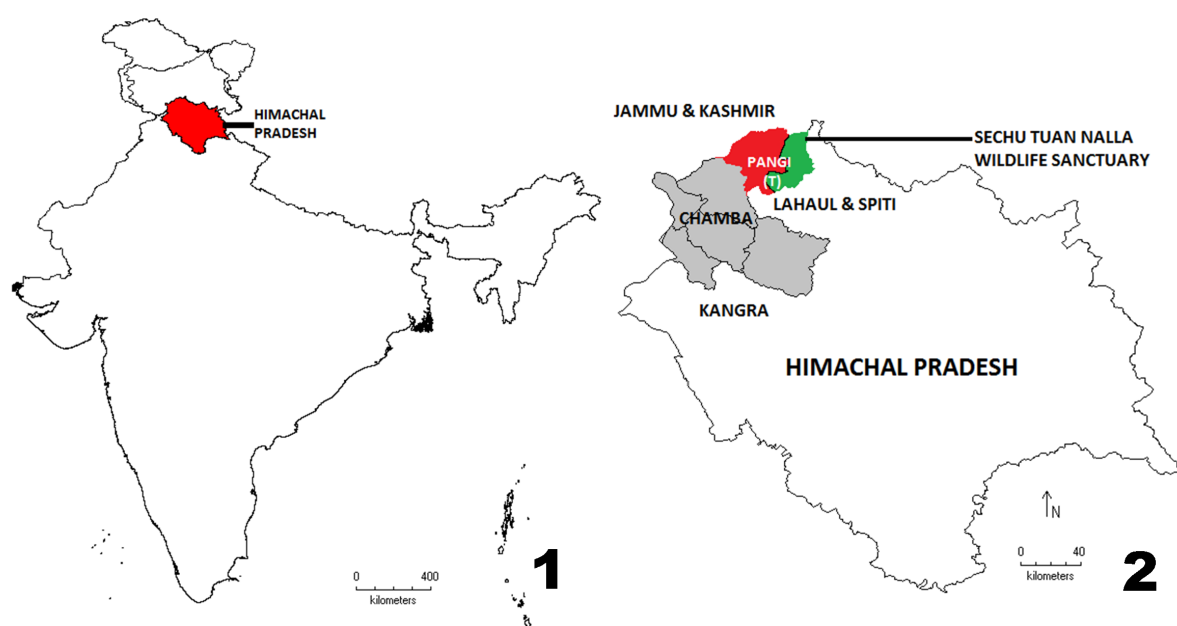


Fig. 1-2. Map showing 1) Himachal Pradesh (Red); 2) Pangi tehsil (Red & Green) and Sechu Tuan Nalla WLS (Green) in Chamba district (Grey) of Himachal Pradesh.

### Methods

Surveys for data collection were conducted from 2016 to 2018 for documentation of plant diversity of the sanctuary and the ethnobotanical uses of the plants growing in the region. Qualitative research methods were used in this research for collection of data mostly by social interaction, interviews and in depth study of cultural practices of *Pangwal* tribe. For thorough understanding of traditional usage of *T. aestivum* and art of *Pullian* making in the valley, the elderly/young people, mostly female members of the community were interviewed (Fig. 4). The questions in interview pertained to the objectives of the study. The list of villages surveyed, area and population size are given in Table 1. The information and data so generated was analyzed and documented in the form of current research.

### Results and Discussions

*T. aestivum* is a cultivated grass species in the eco-sensitive zone and the villages around the sanctuary. It is sowed in the months of April/May and harvested towards the start of September. Wheat grown here is of both tall and dwarf variety. Traditionally long variety of wheat was grown which is now slowly being replaced by dwarf variety. Wheat is a *Rabi* crop of plains, but here in Sechu it is grown as a *Kharif* crop owing snow cover of more than 5-6 months during winters. Towards the end of August the crop is ready for harvest. There is a lack of modern day

machinery for harvesting the wheat crop in the valley and it is done by the manually by the farmer and his family members. After harvesting the hulk is separated from the plant by threshing. Once the grain and chaff is removed the leftover is called straw (Fig. 5). Straw comprises of nearly half of the wheat produce and this wheat grass by product can be sustainably used. The straw is packed in form of bundles and stored for multipurpose use in winters, mostly as fodder for livestock.

The technical know-how of making *Pullian* (*puyal* or *puli*) from straw involves a series of steps and labour. The straw is first soaked in water overnight to make it soft so as to prevent breaking of natural polymer fibre. Wheat grass straw has a high water absorption coefficient. Then it is threshed against a hard rock or beaten against a wooden block. After this, it is pressed under a heavy log of wood for one or two days. Thereafter rope is made from it. The procedure for making rope is simple and the straws are twisted with hands. The straw is made into ropes of different lengths and diameters. These ropes are braid in two or three stranded ropes. Once the rope is ready, these are moistened and are hand woven into *Pullian* mostly by the female members of the tribe. The art of making *Pullian* need patience, labour and experience. It takes a day or two to make a pair of *Pullian*. The beauty of these pair of shoes is further enhanced by leaving marks of traditional hand

embroidery using dyed wool against yellowish golden background of wheat straw (Fig. 5-8).

Table 1. Table showing villages surveyed, location of tribal village from STNWLS, area and population size.

Villages surveyed	Location of tribal village from WLS	Area of village* (ha)	Population*
Chasakh	Within Eco sensitive zone	570.5	417
Chasakh Bhatori	Within Eco-sensitive zone	1120.8	121
Leo	Near Eco-sensitive zone	330.9	164
Mojhi	Near Eco-sensitive zone	220.7	78
Sali	Near Eco-sensitive zone	243.3	269
Sechu	Near Eco-sensitive zone	357	294
Shoon	Near Eco-sensitive zone	480.6	267
Tuan	Within Eco-sensitive zone	604.2	222
Udeen	Near Eco-sensitive zone	598.4	272

\*GOI 2011

Wheat straw is a natural polymer fibre. Natural polymer fibres have become an important substitute for synthetic fibres owing to its biodegradable nature. Straw is an agricultural by-product which is biodegradable and is being used for various purposes from conventional house construction, roofing and thatching to development of modern day thermoplastics. *Pullian* is a sustainable approach of using agricultural by-product by the Pangwal tribal community.

*Pullian* (Fig. 8) have been traditionally used for walking on snow as it provides friction against snow and a person wearing those does not slip on snow. It can sustain longer period of wear and tear as wheat straw in form of braid ropes has a high tensile strength. The straw after processing consists of natural polymer fibre which also acts as a good heat insulating agent. These shoes are also worn inside the house. It is of ethnic and cultural value to the *Pangwal* tribe. The priest of the temple while worshipping the local deity during festivals, wear these handmade grass shoes. These shoes are not made for selling to outsiders or even in interior

regions of the valley. It is made to cater the domestic need. If one wishes to purchase a pair, on request it cost about 500-1000 Indian rupees. With the much invading commercial made shoes of rubber and leather this traditional art of shoe making now restricts itself to the elderly people of the region. Another emerging threat to this traditional art form is plastic. It now invades in the deep roots of Himalayan culture and makes its presence felt. The traditional dyed ropes used for decorating the shoes are being replaced by plastic ropes for durability and fancy colours.

*Pangwals* are simple people. The standard of living is low due lack of basic infrastructural facilities like roads, transport, healthcare and medicine, primary and higher education *etc.* There is no ambiguity in this regard that such an art of shoe making finds its origin in this region of the country. In older times, when Pangi was not connected by road, only salt was imported in the valley from outside and rest all requirements of sustaining life were met by using natural resources available there. A number of government agencies and non-governmental organizations have come up for improving the economic and social conditions prevalent in the valley. Collective Efforts for Voluntary Actions (CEVA), a non-profit organization has significantly contributed in development of the region by creating women self-help groups under the name '*Pangi Hills*'. These self-help groups are involved in making of handloom and handicraft products.

However to cater the demand of customers in future, there is a need to develop agro-based or white category industries in the region which are ecofriendly and can help in socio-economic development of people of this region. These agro-based white industries will prove to be eco-friendly and are allowed under the law for benefit of local people living in and around the eco-sensitive zone of the sanctuary. The government policy makers can play a significant role here by providing funds and encouragement to the local tribal people through established mechanisms for setting up of these industries. Such establishments will not only benefit in economic development of region but also will help in conserving the traditional knowledge of people in and around Sechu Tuan Nalla Wildlife Sanctuary.





Fig. 3-8. 3. Sechu Tuan Wildlife Sanctuary, Pangti, Chamba, Himachal Pradesh; 4. Interviewing elderly female member of *Pangwa*/tribe for documentation of process of *Pullian* making; 5. *Pullian* or snow shoes with raw material 'straw'; 6. Used *Pullians*; 7. Rope made from straw; 8. *Pullian*.

## Conclusions

*Pullian* is a traditional indigenous art of shoe making developed, conserved and sustained by the people of *Pangwal* tribe. This art is a unique example of using the agricultural waste in sustainable and productive way for the community. However, with time and modernization, things have changed. Pangi is now heading towards development. The traditional knowledge is being lost to modernization. Immediate efforts need to be taken to conserve this traditional art of *Pullian* making.

## Recommendations

It is recommended that this traditional knowledge of *Pullian* making from wheat should be conserved and should be brought to limelight by combined efforts of community, non-governmental organizations and governmental agencies. Setting up of small scale agro-based rope or shoe making industry in this region can provide additional source of household income, generate self-employment and conserve the traditional knowledge of the *Pangwals*.

## Declarations

### List of abbreviations

STNWLS: Sechu Tuan Nalla Wildlife Sanctuary

**Ethics approval and consent to participate:** All participants provided oral prior informed consent.

**Consent for publication:** Not applicable.

**Availability of data and materials:** The data was not deposited in public repositories.

**Competing interests:** The authors do not have any competing interests.

**Funding:** This study was funded by Department of Science and Technology–Science and Engineering and Research Board (wide SERB sanction No. SB/YS/LS-182/2014 dated 8th September 2015) for field work.

**Authors' contributions:** Both authors have engaged actively in proposal drafting, field data collection, data analysis and drafted manuscript.

## Acknowledgements

The authors wish to thank the Director, Botanical Survey of India, Kolkata and Head of Office, Botanical Survey of India, Northern Regional Centre,

Dehradun for providing necessary facilities. The authors are thankful to the people of the Sechu valley, Pangi for providing the valuable information and Forest & Wildlife departments for cooperation.

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