Population Status of Mostly Traded CITES Listed Plant

(Final Draft Report)

Department of Plant Resources

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2078

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Cover Page photo: *Taxus wallichiana var. mairei* from Chulipran Community Forest, Chitlang, Makawanpur district (by Dr. Bhuvan Keshar Sharma)

This page photo: Pathibhara area, Taplejung district during field assessment (by Mr. Shikhar Rai)

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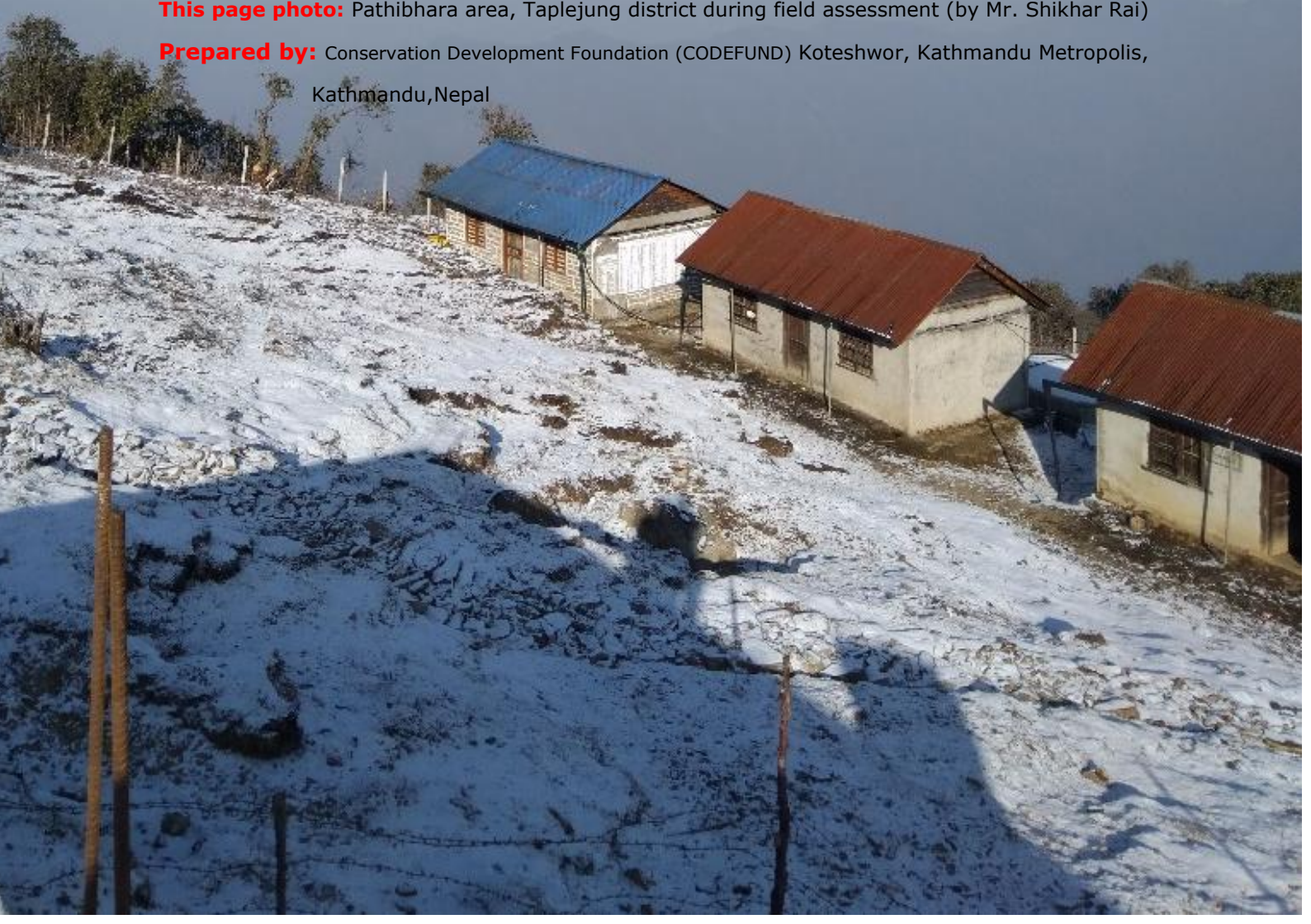

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ACCRONYMS AND ABBREVIATIONS

ACA	Annapurna Conservation Area
ACAP	Annapurna Conservation Area Project
ANSAB	Asia Network for Sustainable Agriculture and Bioresources
BCDP	Biodiversity Conservation Data Project
Bk	Bark
CA	Conservation Area
CAMC	Conservation Area Management Committee
CAMCs	Conservation Area Management Committee
CBD	Convention on Biological Diversity
CBS	Central Bureau of Statistics
DDC	District Development Committee
DFO	District Forest Office
Fl	Flower
GIS	Geographic Information System
GoN	Government of Nepal
GPS	Geographic Positioning System
HH	Households
INGO	International Non-Government Organizations
IUCN	International Union for the Conservation of Nature and Natural Resources
km	kilometer
m	meter
Lf	Leaf
MFSC	Ministry of Forests and Soil Conservation
MoEST	Ministry of Environment, Science, and Technology
NDF	Non-detrimental findings
NGOs	Non Government Organizations
NRM	Natural Resource Management
NTFP	Non-timber Forest Product
NTNC	National Trust for Nature Conservation
PA	Protected Area
PV	Prominence Value
r	Radius
RD	Relative Density
Rdo	Relative Dominance
RF	Relative Frequency
TOR	Terms of Reference
UCO	Unit Conservation Area
UNDP	United Nations Development Program
VDC	Village Development Committee

GLOSSARY

Abaxial. The side of an organ away from the axis or center of the axis; dorsal.

Acicular. Needle- shaped

Acuminate. Said of an acute apex whose sides are somewhat concave and taper to a protracted point.

Acute. Sharp, ending in a point, side of the tapered apex essentially straight or slightly convex

Adaxial. The side toward the axis; ventral.

Alternate. Any arrangement of leaves or other parts not opposite or whorled; placed singly at different heights on the axis or stem

Apex (pl. *Apices*). The tip or distal end.

Axillary. In an axil.

Axis. The main or central line of development of any plant or organ; the main stem.

Berry. Pulpy, indehiscent, few or many seeded fruits; technically, the pulpy fruit resulting from a single pistil, containing 1 or more seeds but no true stone as the tomato or grape

Blade. The expanded part of leaf or petal.

Cone. A dense and usually elongated collection of flowers or fruits comprising usually sporophylls and bracts on a central axis, the whole forming a detachable homogeneous fruitlike body; some cones are of short duration, as the staminate cones of pines, and other became dry and woody persistent parts.

Dioecious. having staminate and pistillate flowers on different plants; a term properly applied to a taxonomic unit, not to flowers.

Dorsal. Back; relating to the back or outer surface of a part or organ, as the lower side of a leaf; the opposite of ventral.

Ebracteate. Without bracts.

Evergreen. Remaining green in its dormant season; sometimes applied to plants that are green throughout the year; properly applied to plants and not to leaves, but due to the persistence of leaves

Fertilization. The union of 2 gametes resulting in a zygote.

Fruit. The ripened ovary (pistil) with the adnate parts; the seed bearing organ.

Hermaphroiditic. Bisexual.

Ovate. With an outline like that of a hen's egg, the broader end below the middle.

Pollen. Spores or grains borne by the anther containing the male element (gametophyte).

Seed. The ripened ovule; the essential part is the embryo, and this is contained within integuments.

Stigma. The part of the pistil that receive the pollen.

Terrestrial. Of the ground; a land plant, as opposed to aquatics, epiphytes, or saprophytes.

Tree. A woody plant that produce one main trunk or bole and a more or less district and elevated head.

Twig. A young woody stem; more precisely the shoot of a woody plant representing the growth of the current season and terminated basally by circumferential terminal-bud scar.

Undulate. Wavy (up and down, not in and out), as some leaf or petal margins.

SUMMARY

The CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) law of Nepal (2073) recognized the Department of Plant Resources (DPR) as the Scientific Authority of CITES Plants. International trades in CITES-listed species only occur if it is non-detrimental to the survival of the species. A Convention on International Trade in Endangered Species Scientific Authority makes this decision, which is called a non-detriment finding (NDF). Scientific Authority should give recommendations or advice to management Authority before giving trade permission for CITES listed species by Management Authority. Scientific Authority should give recommendations for trade based on scientific study.Scientific Authorities make non-detriment findings for permits on a case-by-case basis. The non-detriment findings include the export quota of the species which will not be detrimental for its survival.The three species of *Taxus*; *Taxus contorta* Griff., *Taxus wallichiana* var. *mairei* (Lemée & H. Léveillé) L. K. Fu & Nan Li, Novon and *Taxus wallichiana* Zucc. distributed in forty four districts are among mostly traded high-value species in Nepal.Collection of *Taxus* leaves and its exploitation in Nepal increased many fold after the discovery of 'Taxol', an anti-cancer chemotherapeutic drug.

Knowledge on ecology, spatial distribution, and abundance of natural resources are essential for their effective management. Inventories are the procedure to get such information fromnatural resources. Inventory also provides essential information about the quantity and quality of the resources for their management. Timber-based inventories are commonly applied procedures to quantify forest resources.

Standard methodology and tools were applied for this task. The major methods and tools used for this study were: Desk review and direct/indirect consultation; Analyses/syntheses of review work; Field planning, field assessment & stakeholder consultative meeting; Field assessment; Predictive modeling, Analysis; synthesis & triangulation of data; and preparation of reports.

Taxus species (*Taxus contorta, Taxus wallichiana var. mairei,* and *Taxus wallichiana*) are distributed in 42 districts of Nepal. *Taxus wallichiana*, which is mainly distributed in eastern floristic region of Nepal, is distributed in 96,695 ha area of 23 districts. *Taxus contorta*, confined mainly in western floristic region of Nepal, is distributed in 174,287 ha area of 18 districts. *Taxus wallichiana var. mairei* confined in 6 districts of the central floristic region of Nepal in 25,055 ha area.

The west himalayan species, *Taxus contorta,* is distributed in western Nepal, west from the Budhigandaki River. The predictive habitat area of this species is 174,287 ha with a population of 822 individuals/ha. The other Taxus species, *Taxus wallichiana var. mairei*, is distributed in the central part of Nepal, west from Koshi and east from Narayani Rivers. The predictive habitat area of this species is 25,055 ha with a population of 10 individuals/ha. The east himalayan *Taxus* species, *Taxus wallichiana*,is distributed in eastern Nepal, east from West Rapti River. The total population of this species is 176 individuals/ha and the predictive habitat area is 96,695 ha.

The available fresh leaf biomass of the west himalayan species (*Taxus contorta*)was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha.The total harvestable fresh leaf biomass of *Taxus contorta* was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree(206.8 kg/ha/ya) respectively.

The available fresh leaf biomass of *Taxus wallichiana*was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass was found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively.The total harvestable fresh leaf biomass of *Taxus wallichiana* was 1,295.6 kg/ha/year. Among the growth classes the harvestable fresh leaf biomass is found higher in the mature tree (>30 cm DBH) with 671.6kg/ha/year followed by sapling (5-10 cm DBH) with 390.1 kg/ha/year; small pole (10-20 cm DBH) with 152.4 kg/ha/year; and pole (20-30 cm DBH) with 81.5 kg/ha/year respectively.

The available fresh leaf biomass of *Taxus wallichiana var. mairei*was 4,280.6 kg/ha.Among the growth classes, the fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 2,359.5 kg/ha followed by pole (20-30 cm DBH) with 1,921.1 kg/ha.The total harvestable fresh leaf biomass of *Taxus wallichiana var. mairei* was 951.2 kg/ha/year. Among the growth class, the available harvestable fresh

leaf biomass was found higher in a mature tree (>30 cm DBH) with 524.3 kg/ha/y followed by pole (20-30 cm DBH) with 426.9 kg/ha/y.

Leaves and young twigs of *Taxus* spp.are highly valued for an amorphous substance called "Taxol". Taxol is very expensive in the international drug market; 2 gm of pure taxol is sufficient to treat one cancer patient.Almost, 10,000 kg of Taxus leaves are required to produce 1 kg of taxol.

The trade of *Taxus contorta* is reported in west Nepal, mainly in Jumla district. In far western part, in the Baitadi district, they are just planning for its marketing. In Mugu and Jumla its trade is within the district for local consumption as tea.The local traders collect the leaf from the local people and community forest. The collected leaf will be gathered in the district center as the transit point. From the transit center it is then supplied to the main collection point Nepalgunj. Ondemand, it will be supplied to India or Kathmandu.

The assessments find that there is a demand for*Taxus wallichiana var. mairei*leaf from some companies. By viewing its importance and demand for the medicine local people are also planting this species in their field.As a representative from a medicine company or large trader, the local collectors demand the quantity of *Taxus* sp leaf. Based on the demand of the local trader, the local people or Community Forest Users' Group, collected the leaf of *Taxus wallichiana var. mairei*.Currently, there is not such trade of *Taxus wallichiana var. mairei,* but was two years ago. The local market rate at that time was NRs. 140 per kg.The local traders collect the leaf from the local people and community forests. The collected leaf will be gathered in the district center as the transit point. From the transit center, it is then supplied to the main collection point Hetaunda. On demand, it will be supplied to India or Kathmandu.

The trading of *Taxus wallichiana* was not observed in the eastern region of Nepal. In the central region, local people are collecting upon the demand of some companies. But due to the lower factory price, it's trade is not frequent.

The demand of *Taxus* spp. leafy biomass in the global drugs market is growing day by day as the patients of with cancer are increasing. Collection methods and harvested quantity should not spoil the regeneration capabilities of the species. Conservation of habitats and critical minimum level of their population should be maintained during collection. A critical minimum level of plants/part is needed to be left untouched during the harvesting operation.

Two third of the fresh leaf biomass stocking for a site gave the amount of harvestable fresh leaf biomass. The rotation of leaf harvesting was fixed at three years the commercially harvestable quantity available per year is one-third of the harvestable leafy biomass. Leafy biomass of *Taxus* spp.is traded in air-dry condition so its air-dry weight was 40% of the fresh weight.

The harvesters used to cut large branches of *Taxus*sp and slash them into small twigs and dry in shade for almost 15-20 days depending upon moisture content and weather. In some areas, local people cut large branches, especially the apical parts, hang them upside down for around 5 days, then cut them into small twigs and dry (either in shade or open sun), pack them, weigh and sell to contractors.

1. BACKGROUND

The CITES law of Nepal (2073) recognized the Department of Plant Resources (DPR) as the Scientific Authority of CITES Plants. International trades in CITES-listed species only occur if it is non-detrimental to the survival of the species. A Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Scientific Authority makes this decision, which is called a non-detriment finding (NDF). Scientific Authority should give recommendations or advice to management Authority before grantingtrade permission for CITES listed species by Management Authority. Scientific Authority should recommend trade based on scientific studies[1]. Scientific Authorities make non-detriment findings for permits on a case-by-case basis[2]. It should prepare Non-detrimental finding (NDF) reports of each traded species based on the biology, conservation status, trade levels and harvest management of the species. TheNDF includes export quota of the species which will not be detrimental for its survival.

The record shows that the trade permitsfor CITES listed plant species provided from Management Authority are *Nardostachys jatamansi* and*Taxus* spp. The NDF of *Nardostachys jatamansi* is already prepared by GoN in 2019.

The three species of *Taxus;* Taxus *contorta* Griff., *Taxus wallichiana var. mairei (Lemée & H. Léveillé) L. K. Fu & Nan Li, Novon* and *Taxus wallichiana* Zucc. are distributed in forty two districts are among mostly traded high value species in Nepal (Kunwar *et al.*, 2020; Poudel *et al.*, 2012). Collection of Taxus leaves and its exploitation in Nepal increased many fold after the discovery of 'Taxol', an anti-cancer chemotherapeutic drug that was initially extracted from the leaves of its congener *'Taxus brevifolia*' which occurs naturally in north America (M. C. Wani et al., 1971; Mansukh C. Wani & Horwitz, 2014) (Box 1). Lucrative market price offered for 'Taxol' in an international market and poor harvesting measures adopted in an initial phase of the collection have caused the extinction of many rural populations and endangered all the three species of yews in areas where human activities are higher. Nevertheless, wild populations of yews in protected areas and in selective community managed forests are relatively good (Poudel et al., 2014).

Increasing international demand for 'Taxol' and report of this compound from the leaves of Himalayan species of yews has attracted multibillionaire drug manufacturing international companies in Nepal to extract taxol from the leaves of various *Taxus* species. So, the program "*Population status of mostly traded CITES listed Plant*"is envisioned by the Scientific Authority to collect scientific data useful for NDF of*Taxus* species,one of the mostly traded CITES listed plant species. Hence this proposal is developed aiming to generate data about the population status of three highly traded yews in Nepal,namely *Taxus wallichiana, Taxus wallichiana var. mairei,* and *Taxus contorta*.

This studyhas intended to generate scientific data on population structure (number of individuals plants from different growth class like mature, juveniles, and seedling per hectare); collect information about trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route, and channel,etc.); identify threats to the species, and quantify sustainable harvesting quantity (tons/yr) of each species.

1.1 Study Rationale

Knowledge on ecology, spatial distribution, and abundance of natural resources is essential for their effective management. Inventories are the procedure to get such information about natural resources. Inventory also provides essential information about the quantity and quality of the resources for their management. Timber based inventories are commonly applied procedures to quantify forest resources. Fewer attempts are provided to quantify other forest based resources. Such information is obtained from the present field study where the information was collected through various means including field level inventory data.

Local communities are motivated for forest conservation through goods and services received by them from those areas. One main tire for the management of forest resources is local participation. Local people show their interestto involve in the management when they receive some benefits fromforest

[1]In the CITES Strategic Vision: 2008-2020 last revised at CoP16 (Bangkok, 2013) in Resolution Conf. 16.3, the Parties set an objective that best available scientific information should be the basis for NDFs.

[2]The NDF of *Nardostachys jatamansi* is already prepared by GoN in 2019.

based resources. Therefore sustainable use of the highly treaded CITES listed plant isalso of utmost necessity for the long-term participation of local people. This study provides data for NDF.

Present inventory used standard scientific method such asecological survey and predictions modeling to generate population structure of *Taxus* spp. Data collected from various sources are also considered useful for this study thus areincorporated in the report.

1.2 Limitations of the study

Confirm distribution of *Taxus* sp in Nepal are in 42 districts. The inventory was conducted in 26.2% of the districts from where the *Taxus* spp. availability is confirmed. So, this report was produced providing the average data of *Taxus* sp population and fresh leaf biomass for unvisited districts.

During the field assessment the confirmed locations where the *Taxus* spp. were available were visited and conducted the inventory. This study report is prepared based on only one visit in the study area. So, the photograps of the field may include only the vegetative portions of the *Taxus* spp.

2. METHODOLOGY

Standard methodology and tools formulated in consensus between DPR and the expert teamwere applied for this task. Refer Figure 2 and 3 for the methodological framework used under this assignment. This methodological framework follows scoping guidelines provided in ToR from DPR which includes steps 1 to 12, as givenbelow.

Step 1: Formation of Expert Team (ET)

CODEFUND formed Expert Team (ET) that constituted Team Leader (TL), *Taxus* spp.Expert, and GIS Expert. Further, the team included2 graduates as '*Field enumerators*'having extensive experiences on the NTFPs and forest inventory. Similarly, 10 non-key staff were hired in the field as '*Local Resource Person*' who helped in the field and other activities.

These experts worked in a coherent team under the organogram of CODEFUND. In addition, human resources were recruited after the approval of DPR when deemed necessary.

CODEFUND provided administrative support to ET including financial and logistics arrangements. A full-time workplace has been furnished and maintained within the secretariat of CODEFUND to ensure a full-time work environment having TL as a full-time project operator, full-time 1 graduate fellow, and part-time involvement of Finance Assistants for this task.

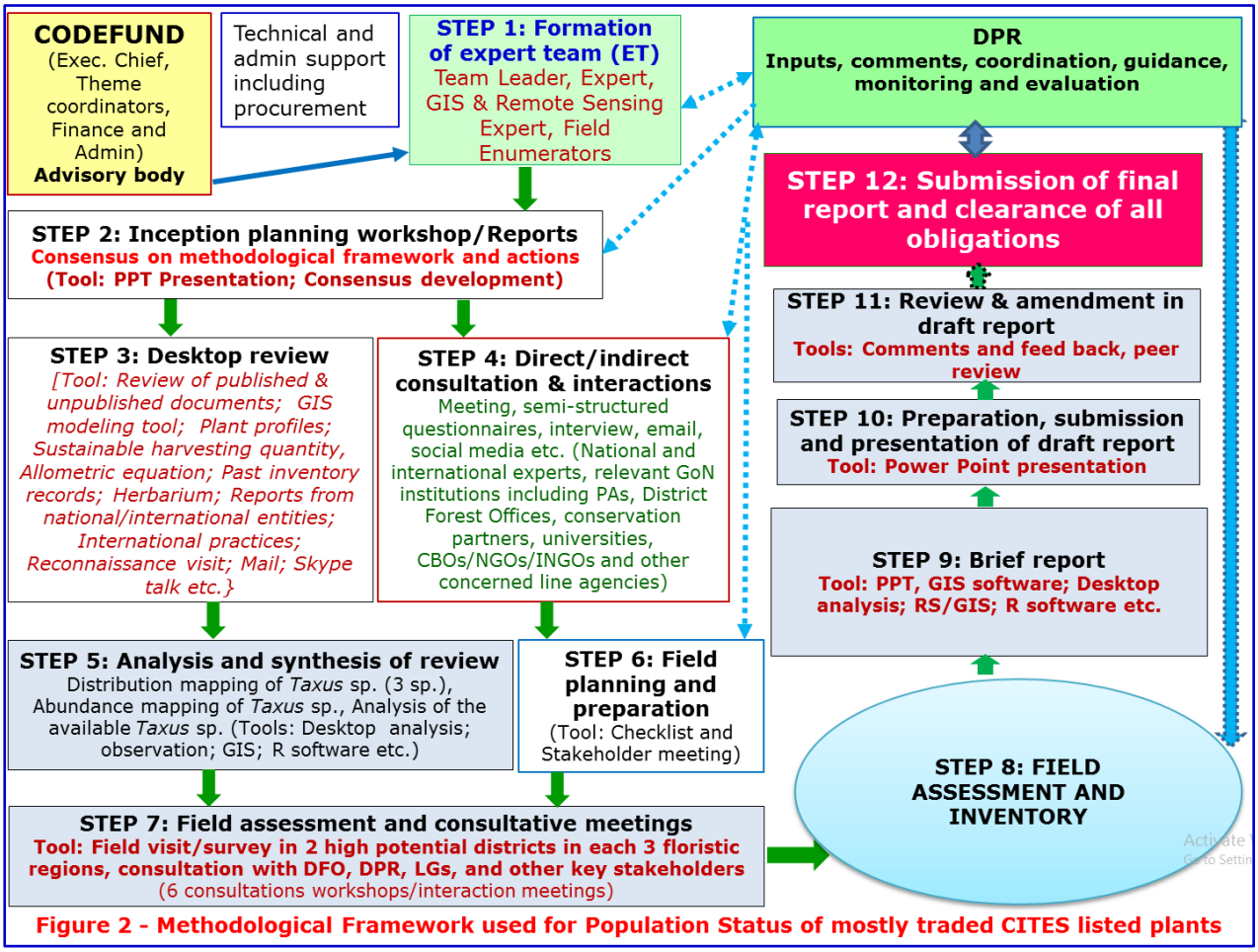

Figure 2 - Methodological Framework used for Population Status of mostly traded CITES listed plants

Step 2: Inception report & consensus on the framework of actions

This report was prepared based on the pertinent issues and requirements in process of preparing the population status of mostly traded CITES listed Plant and components of the report. Processes wererevisited with the motive of developing detail METHODOLOGICAL FRAMEWORK. A pre-assessment to explore methodology was envisaged, and the'Inception Report' wasproduced with a detailed Framework of Actions. The report with a framework of action was submitted to DPR, defended, and finalized from the consensus mechanism for further application.

Step 3, 4: Desk review and direct/indirect consultation (national & international)

ET and field enumerators conducteda desk review of relevant literature (published and unpublished) such as relevant policies; rules; regulations; herberium; RS/GIS modeling tool; assessment of Plants; map-based inventory; past inventory records; reports from national/international entities; relevant articles; international practices; and other relevant literature. Prevalent policies relevant to *Taxus* spp., and DPR annual reports were reviewed and analyzed concerningits population status, harvesting[3]; Laws/policies[4]; Grey literature[5]; and other publications.

News from media relevant to *Taxus* spp. and their population, distribution, harvesting, and recent development in inventory and collection were also considered as a source of information. Most of the news at the village or local level not considered broadcasting or publicizing at national media or newspaper was also considered as a source of information.

There was on-&-on parallel consultation among national and international entities engaged in similar causes and events. Semi-structured questionnaire; interview; email; social media etc were applied as tools with and among DPR, DNPWC, DoFSC, RFD, DFOs, IUCN; WWF; FECOFEN; other non-governmental organization; conservation experts; other key stakeholders,and so on. This step availed concerns, issues, and so on from these partners before field assessment and observation which were instrumental to fine-tuning assessment methods/process, and to identify key issues to population status of mostly traded CITES listed plant (STEP 4).

Step 5: Analysis/synthesis of review work

This step did extensive analysis and synthesis of desktop review which delivered*Proxy Finding*. This finding formed the foundation to provide further direction toward major responses for Field Assessment and Consultation. The step categorized priority issues (a component of population structure, trade status of the area and their distribution, *Taxus* sp related issues; extent of *Taxus* sp collection; and vulnerability, etc); developed and finalized questionnaire; prepared frame for consultation, Key Informant Interview (KII), and data collection matrix; and set criteria to identify target sites for field study/assessment.

All the above said findings and tools were well communicated, conversed, and settled with the Client (DPR) through discussion.

Step 6, 7: Field planning, field assessment & stakeholder consultative meeting

ET prepared field plans and make preparation based on regular consultation with DPR and relevant stakeholders; environmental institutions; and so on. Field study/assessment was conducted to verify *Proxy Finding* and generate ground information on the population status of mostly traded CITES listed plant. Such information included many titles and subtitles such as population, abundance/density, availability, collection period, etc.

For this step main tools such as FGD[6], KII[7]; Formal & Informal Discussions; Field Observation (FO)[8]; Interaction & Workshop; Transect Walk; Plot sSurvey, Direct/indirect Evidence, etc were adopted.

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3 Hard copies of most of the older publications were collected from different sources. Electronic versions of papers published in the recent years were also referred from the websites.

4 Legal documents and books about Plant assessment and inventories formulated from GoN were reviewed that relate to Convention/Obligation; Laws; Policies; Guidelines; Strategies; Operational Plans and Impact study Report.

5 This includes information produced by non-academic organization like government agencies, non-governmental organizations, and departments and consultants such as reports (annual; technical; research; and project reports); working papers; documents from DPR, DNPWC, DFO and other government organizations, and evaluation reports. Other documents include activity reports; theses; conference proceedings; working papers; newsletters; presentations; lecture notes; and evaluation reports. These were used to assess status, distribution, mapping and harvesting of the *Taxus* sp.

6 FGDs were conducted with communities of particular group interest in different locations to access groups' interests, concerns and issues into the profile.

7 People having greater knowledge normally senior citizens/person, Amchis, herbal doctor working for the *Taxus* sp. and conservation from the region were selected purposively as KI They were interviewed to know their views about the sustainable harvesting of *Taxus* sp. They were further asked about possible conservation threats of *Taxus* sp. Interview was qualitative, in-depth, and open-ended. The interviews was guided by a checklist containing topics/issues or open-ended questions. The interviewer was subtly probe the interviewee to elicit information, opinions, and experiences regarding sustainable harvesting of *Taxus* sp.

8 FO includes direct/indirect observation in the region to obtain supplementary information on different issues and themes. Informal interview was doneto gain insight into community institutions and organization.

Field level consultations in regions; district line agencies and local stakeholders were done as intimate subjects to assess their opinions; roles and responsibility; concerns including difficulties & hindrances; knots in legal instruments; foresee strategic options; and so on. This process enriched*Proxy Finding* and consolidate the population status of mostly traded CITES listed plants. Consultative meetings in these were organized to consolidate findings.

Step 8: Field assessment steps and process

This step included the following 6 sub-steps:

Sub-step 8.1: Compendium planning works

Digital information like district boundary, Road layer, Landuse, and Settlement area in digital format was collected from different sources (Topography Department, DNPWC, DFRTC). Hard copies of topographic maps covering potential sites were used as reference maps. Data sheets (questionnaire checklists, data forms, and inventory tally sheets) were prepared by the expert team. To make a consensus about the proposed methodology orientation program about participatory mapping and inventory techniques was organized among the expert team members.

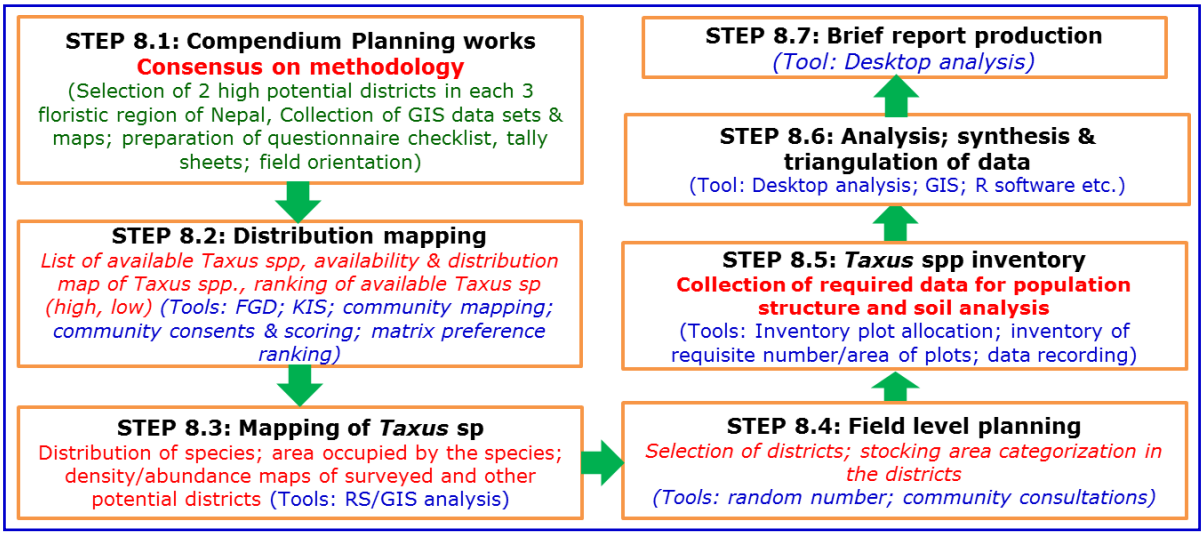

Figure 1: Field assessment and inventory framework, methodologies & steps.

Sub-step 8.2: Distribution mapping

Consultative meetings at the central and local level were organized to collect information about the distribution of *Taxus* spp. (Annex 3 for districtwise distribution), Collection quantity, collection and trading places, market chain, market custody, value chain methods, trade route, and channel, etc. The invitees for the meetings wereexperts, knowledgeable persons at a central level and collector, local trader, Amchis, local healer, other governmental and non-governmental stakeholders at the district/local level. The *Taxus* sp. distribution area in the map was stratified based on the availability (less and high).

Sub-step 8.3: Mapping of *Taxus* sp.

Distribution maps of *Taxus* species were prepared by transferring the georeferenced and delineated boundaries of topographic maps in the digital map. The area occupied by *Taxus* sp was further assessed through GIS applications.Used parameters for potential habitat area mapping of *Taxus* sp. were:

1) Should be forest area;
2) Altitudinal distribution for each *Taxus* spp.;
3) Prefered aspects by *Taxus* spp.;
4) Preferred slope by *Taxus* spp.; and
5) Districts of Nepal from where the *Taxus* spp. are reported.

Sub-step 8.4: Field level planning

Field inventory was conducted at least in threerandomly selected districts of each 3 florestic regions. The randomly selected districts proposed for the field inventory were provided in Table 1. The stratified

density/abundance locations of *Taxus* sp in selected Districts (from step 8.2) were further refined with the help of local people/resource persons.

Table 1: Selected district for the field assessment

SN	Florestic region	Districts
1	West	Baitadi, Jumla, andMugu
2	Centre	Dhading, Kathmandu, Lamjung, Makawanpur,and Manang
3	East	Bhojpur, Terathum, and Taplejung

Sub-step 8.5: *Taxus* spp. inventory

A purposive sampling method was employed for *Taxus* sp inventory. Plots in the *Taxus* sp hotspot (step 8.3) were allocated in the stratified areas based on the density/abundance locations. Requisite areas/number for sapling was considered for the inventory (Zobel *et. al.* 1987).Locations of each inventory plot were collected through GPS. Circular sampling plots measuring 20m radius for a tree, 5m radius for shrub/sapling, and square plots of 1×1m for seedlings (FRA/DFRS 2014) following relative analysis approach (Dombois and Ellenberg 1974). Specific tally sheets were used to record data in the field (Annex 4). The total numbers of sampling plots were 74 with the sampling intensity of 26.2% of *Taxus* sp available districts.

Sub-step 8.6: Analysis; synthesis & triangulation of data

ET revisited data analysis and synthesis processes and updates all information from verification and triangulation processes by incorporating inputs from the field assessment, observation, inventory, and consultative meeting. Interpretation of all data was done which also finetuned finding with a distribution map[9], stocks, and sustainable harvesting amount of *Taxus* sp.

Step 9: Brief report

The process up to 8.6 delivered a set of BRIEF REPORT ON POPULATION STATUS OF MOSTLY TRADED CITES LISTED PLANT with maps by the 10th week of the project execution period.

Step 10: Preparation, submission and presentation of draft report

ET worked further on the brief report and generatedthis draft report.Based onfield inventory and growth parameters, the annual sustainable harvesting amount[10] of *Taxus* spwas calculated. Productivity/stock of each species and production per plant and biomass (fresh weight) of harvestable parts of each species were assessed from field inventory. Sustainable harvesting amount and harvesting procedures were assessed using Rapid Vulnerability Assessment and secondary information (Parajuli 2001, SEEPORT & ANSAB 2009, Gaoue *et. al.* 2015). Dominance and other parameters of the species were assessed by using the species Importance Value Index (IVI) following (Zobel *et. al.* 1987). Population structure of the *Taxus* spp.was assessed using standard procedures of FRA/DFRS 2014.

Step 11: Review & amendment in draft report

DPR is to eyes on the draft report and provides its comments and inputs. At larger, DPR is also to distribute a draft report to many stakeholders and audiences including the steering committee, individual experts/institution for their concerns and inputs. This report shall contain:

1. *A major finding in print as basis for further discussion, and*
2. *Distribution mapping of Taxus sp in Nepal.*

ET collected inputs and comments from experts and incorporate all concerns into the draft report. This step deliveredan amended version of a draft report, the *Penultimate/Revised Report*. A virtual workshop was organized to collect feedback from the participation of national stakeholders, academia, and environmental entities including intergovernmental and non-governmental organization. This workshop

[9]Used criterion for potential habitat area are: 1. should be forest area; 2) Altitude -*Taxus contorta* (2000-3500m); *Taxus wallichiana var. mairei* (1400-2400m); and *Taxus wallichiana* (2300-3400m); 3) Prefered aspects **-** North, North-east; 4) Slope - >25 degree; and 5) Districts of Nepal from where the *Taxus* sp are reported.

[10]Leafy biomass (green weight) was calculated using *Taxus* biomass model prepared by Parajuli (2001). The followingregressionmodel (based on tree diameter) was used to calculate fresh leafybiomass of *Taxus* sp:

ln W = 1.68975 + 0.905329 ln(DBH)

Where,ln = natural logarithm; W= fresh leafy biomass in Kg; andDBH = diameter at breast height

discusses on process/methodologies and findings of the assignment and provides end feedback to further improving the penultimate report.

ET incorporated all feedback, comments, and suggestion from the national workshop into the penultimate report. A consolidated report was finally produced as the major delivery under this assignment i.e., POPULATION STATUS OF MOSTLY TRADED CITES LISTED PLANTS including all GIS maps, herbarium specimens, field data, questionnaire for stakeholder consultation data, consultation workshop/interaction meeting minute/presence, field photographs, and separate detailed report on each three species.

Step 12: Submission of final report and clearance of all obligations

CODEFUND submittedthe final report of assignment i.e., POPULATION STATUS OF MOSTLY TRADED CITES LISTED PLANTS along with all detail of financial expenses backstopped by proof/certificates; all tables and reports; photographs, etc. generated under the contract. DPR is anticipated to provide a Certificate of Accomplishment to CODEFUND. After all, these done, all obligations under this contract were considered fulfilled and terminated on mutual behalf and understanding.

3. RESULT

3.1 Distribution of *Taxus* sp

Taxus species (*Taxus contorta, Taxus wallichiana var. mairei,* and *Taxus wallichiana*) are distributed in 42 districts of Nepal. *Taxus wallichiana*, which is mainly distributed in the eastern floristic region of Nepal, is distributed in 96,695 ha area of 23 districts. *Taxus contorta*, confined mainly in western floristic region of Nepal, is distribued in174,287ha area of 18 districts. *Taxus wallichiana var. mairei* confined in 6 districts of the central floristic region of Nepal in 25,055 ha area (Annex3).

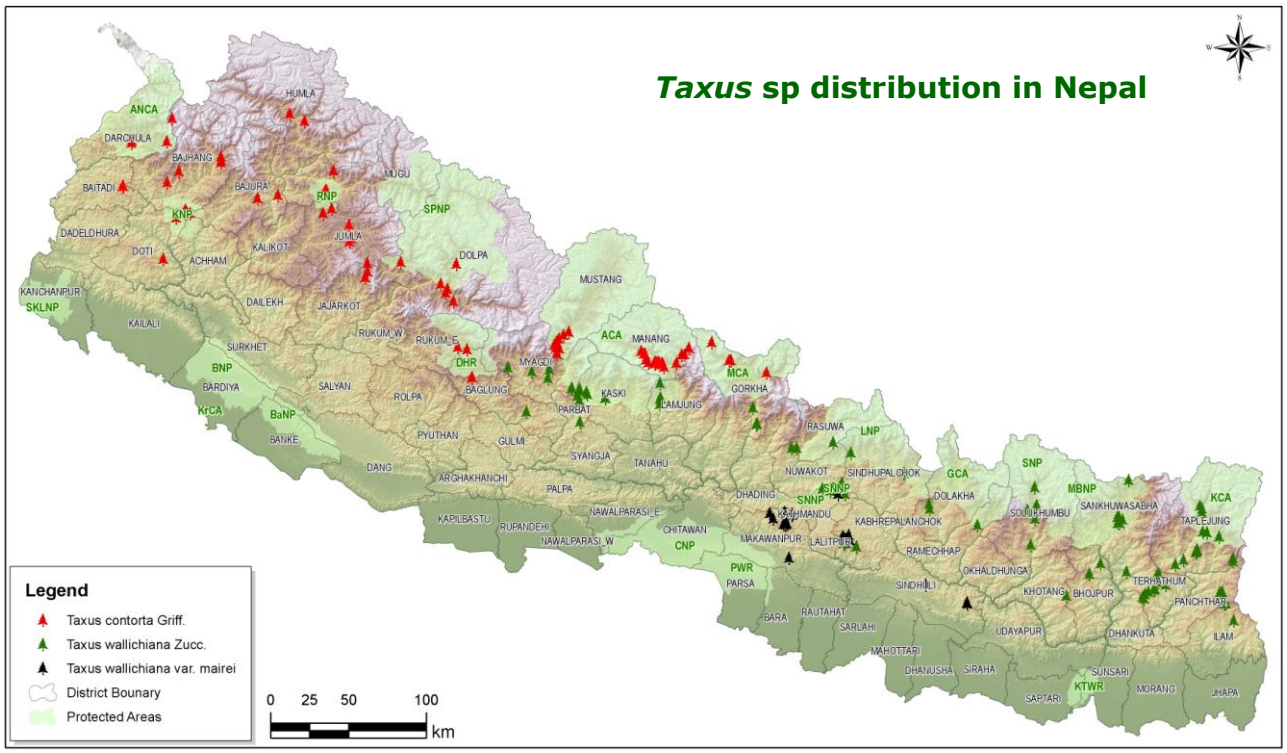

Figure 2: Taxus sp. Distribution in Nepal.

3.2 Population structure

The west Himalayan species, *Taxus contorta,* is distributed in the western Nepal, west of Budhigandaki River. The total population of this species was 822 individuals/ha. In this species, the population of seedling is found highest (608 individual/ha) followed by small pole (126 individuals/ha) than the other growth classes like sapling (70 individual/ha), pole(12 individuals/ha), and tree (6 individual/ha).

Similarly, other taxus species, *Taxus wallichiana var. mairei*, is distributed in the central part of Nepal, west from Koshi and east from Narayani Rivers. The total population of *Taxus wallichiana var. maireiin* Kabhrepalanchok district was 10 individuals/ha. Among the growth classes, the population of a pole (20-30 cm DBH) and mature tree (>30 cm DBH) are the same with 5 individuals/ha. The population of saplings (5-10 cm DBH) and small poles (10-20 cm DBH) are absent in this district.

The east Himalayan *Taxus* species, *Taxus wallichiana*,is distributed in eastern Nepal, east ofthe West Rapti River. The total population of this species is 176 individuals/ha. The population of the seedling is found highest (99 individuals/ha) than the other growth classes like sapling (50 individual/ha), small pole (12 individual/ha), tree (11 individual/ha), and pole (4 individuals/ha) respectively (Table 2).

***Table 2: Population structure of Taxus* spp.**

Growth class	**DBH**	**Individual/ha**		
		Taxus contorta	*Taxus wallichiana* var. *mairei*	*Taxus wallichiana*
Seedling	<5 cm	608	0	99
Sapling	5-10 cm	70	0	50
Small Pole	10-20 cm	126	0	12
Pole	20-30 cm	12	5	4
Mature tree	>30 cm	6	5	11
Total		**822**	**10**	**176**

3.3 Fresh leaf biomass

3.3.1 Taxus contorta

The available fresh leaf biomass of the west himalayan species (*Taxus contorta*)was 11,889.4 kg/ha.Among the growth classes the freshleaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 3).

The total harvestable freshleaf biomass of *Taxus contorta* was 2,642.1 kg/year/ha. Among the growth class the available harvestable freshleaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 3).

Table 3: Total and harvestable quantity fresh leaf biomass of Taxus contorta

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.3.2 Taxus wallichiana var. mairei

The available freshleaf biomass of *Taxus wallichiana var. mairei*was 4,280.6 kg/ha.Among the growth classes, the freshleaf biomass is found higher in mature tree (>30 cm DBH) with 2,359.5 kg/ha followed by pole (20-30 cm DBH) with 1,921.1 kg/ha (Table 4).

The total harvestable freshleaf biomass of *Taxus wallichiana var. mairei* was 951.2 kg/ha/year. Among the growth class, the available harvestable freshleaf biomass was found higher in a mature tree (>30 cm DBH) with 524.3 kg/ha/y followed by pole (20-30 cm DBH) with 426.9 kg/ha/y (Table 4).

Table 4: Total and harvestable quantity fresh leaf biomass of Taxus wallichiana* var. *mairei

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	0.0	0.0
Small pole	10-20 cm	0.0	0.0
Pole	20-30 cm	1,921.1	426.9
Mature tree	>30 cm	2,359.5	524.3
Total		**4,280.6**	**951.2**

3.3.3Taxus wallichiana

The available freshleaf biomass of *Taxus wallichiana*was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass was found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 5).

The total harvestable freshleaf biomass of *Taxus wallichiana* was 1,295.6 kg/ha/year. Among the growth classes the harvestable freshleaf biomass is found higher in a mature tree (>30 cm DBH) with 671.6kg/ha/year followed by sapling (5-10 cm DBH) with 390.1 kg/ha/year; small pole (10-20 cm DBH) with 152.4 kg/ha/year; and pole (20-30 cm DBH) with 81.5 kg/ha/year respectively (Table 5).

Table 5: Total and harvestable quantity fresh leaf biomass of Taxus wallichiana

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4Assessmentof *Taxus* spp.

This result is based on the field assessment of 11 districts (26.2% of *Taxus* spppresent districts) of Nepal. For the rest of not surveyed districts (31) we have interpolated population structure data from the surveyed districts and provided here the average value of the population structure and totalharvestable quantity of freshleaf biomass. For each district,information about the potential habitat area, population

structure according to growth classes and the both totalfresh leaf biomassand sustainable amount of fresh leaf biomass for annual harvesting are given below.

3.4.1. Achham district

Single species of Taxus (*Taxus contorta*) is recorded from Achham district. The potential habitat area of its distribution in Achham district is 1,609ha.

*Distribution site(s):*Ramaroshan

*Location:*29° 23' 12'' N; 81° 10' 8'' E

*Elevation:*2300 m

Table 6: Habitat and production potential of Taxus sp. in Achham district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	1,609	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in Achham district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in Achham district was 822 individuals/ha. Among thegrowth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table 7).

Table 7: Population structure (interpolated) of Taxus contorta in Achham district

Growth class	DBH	Individuals/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in Achham district is based on the average value collected from other districts of Nepal. The available freshleaf biomass of *Taxus contorta* in Achham district was 11,889.4 kg/ha.Among the growth classes the freshleaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 8).

The total harvestable freshleaf biomass of *Taxus contorta* in Achham district was 2,642.1 kg/year/ha. Among the growth class the available harvestable freshleaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree(206.8 kg/ha/ya) respectively (Table 8).

Table 8: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus contorta in Achham district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.2. Baglung district

Two species of Taxus (*Taxus contorta*and *Taxus wallichiana*) are recorded from Baglung district. The potential habitat area of their distribution in Baglung district is 23,022ha. Among the potential habitat area 9,700ha is of *Taxus wallichiana*and 13,322ha for *Taxus contorta*(Table 9).

Distribution site(s):

Taxus wallichiana: Kankrekhor, Harichaur

Taxus contorta: Bobang, Sai Khola, Nishi, Dho

Location:

Taxus wallichiana: 28° 15' 52'' N; 83° 24' 9'' E

Taxus contorta: 28° 27' 39'' - 28° 37' 24'' N; 83° 0' 32'' E - 83° 2' 37'' E

Elevation:

Taxus wallichiana: 2328 m

Taxus contorta: 2548 – 2770 m

Table 9: Habitat and production potential (interpolated) of Taxus sp in Baglung district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	13,022	822	11,889.4	2,642.1
2	*Taxus wallichiana*	9,700	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus contorta* in Baglung district is based on the average value collected from other districts of Nepal.Total popultion of *Taxus contorta* in Baglung district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table10).

The total population of *Taxus wallichiana*in this district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 50 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, andpole (20-30 cm DBH) with 4 individuals/ha respectively (Table10).

Table 10: Population structure (interpolated) of Taxus sp in Baglung district

Growth class	DBH	Individuals/ha	
		Taxus contorta	*Taxus wallichiana*
Seedling	<5 cm	608	99
Sapling	5-10 cm	70	50
Small pole	10-20 cm	126	12
Pole	20-30 cm	12	4
Mature tree	>30 cm	6	11
Total		**822**	**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus* spin Baglung district is based on the average value collected from other districts of Nepal. The available freshleaf biomass of *Taxus contorta* in Baglung district was 11,889.4 kg/ha.Among the growth classes the freshleaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 11).

The total harvestable freshleaf biomass of *Taxus contorta* in Baglung district was 2,642.1 kg/year/ha. Among the growth class the available harvestable freshleaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree(206.8 kg/ha/ya) respectively (Table 11).

The available freshleaf biomass of *Taxus wallichiana* in Baglung district was 5,830.1 kg/ha.Among the growth classes the freshleaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 11).

The total harvestable freshleaf biomass of *Taxus wallichiana* in Baglung district was 1,295.6 kg/ha/year. Among the growth classes the harvestable freshleaf biomass is found higher in a mature tree (>30 cm DBH) with 671.6kg/ha/year followed by sapling (5-10 cm DBH) with 390.1 kg/ha/year; small pole (10-20 cm DBH) with 152.4 kg/ha/year; and pole (20-30 cm DBH) with 81.5 kg/ha/year respectively (Table 11).

Table 11: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus sp. in Baglung district

Growth class	DBH	Total leaf biomass (kg/ha)		Harvestable leaf biomass (kg/ha/y)	
		T. contorta	*T. wallichiana*	*T. contorta*	*T. wallichiana*
Sapling	5-10 cm	2,448.7	1,755.2	544.1	390.1
Small pole	10-20 cm	7,309.2	685.8	1,624.3	152.4
Pole	20-30 cm	1,200.8	367.0	266.9	81.5
Mature tree	>30 cm	930.7	3,022.1	206.8	671.6
Total		**11,889.4**	**5,830.1**	**2,642.1**	**1295.6**

3.4.3. Baitadi district

Single species of Taxus (*Taxus contorta*) is recorded from the Baitadi district. The potential habitat area of its distribution in this district is 3,922ha.
*Distribution site(s):*Shribhawar
*Location:*29° 31' 51'' N; 80° 43' 32'' E
Elevation: 2480 m

Table 12: Habitat and production potential of Taxus sp. in Baitadi district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	3,922	1,035	11,876.5	2,639.3

Population

The total population of *Taxus contorta* in Baitadi district was 1,035 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (795 individuals/ha) followed by small pole (10-20 cm DBH) with 124 individuals/ha, sapling (5-10 cm DBH) with 99 individuals/ha, pole (20-30 cm DBH) with 11 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table13).

Table 13: Population structure of Taxus contorta in Baitadi district

Growth class	DBH	Individual/ha
Seedling	<5 cm	795
Sapling	5-10 cm	99
Small pole	10-20 cm	124
Pole	20-30 cm	11
Mature tree	>30 cm	6
Total		**1,035**

Fresh leaf biomass

The available fresh leaf biomass of *Taxus contorta* in Baitadi district was 11,876.5 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,085.6 kg/ha followed by sapling (5-10 cm DBH) with 3,103.6 kg/ha; pole (20-30 cm DBH) with 922.0 kg/ha; and mature tree (>30 cm DBH) with 765.3 kg/ha respectively(Table 14).

The total harvestable fresh leaf biomass of *Taxus contorta* in Baitadi district was 2,639.3 kg/ha/year. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,574.6 kg/ha/y) followed by sapling (689.7 kg/ha/y); pole (204.9 kg/ha/y); and mature tree (170.1 kg/ha/ya) respectively (Table 14).

Table 14: Total and harvestable quantity fresh leaf biomass of Taxus contorta in Baitadi district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	3,103.6	689.7
Small pole	10-20 cm	7,085.6	1,574.6
Pole	20-30 cm	922.0	204.9
Mature tree	>30 cm	765.3	170.1
Total		**11,876.5**	**2,639.3**

3.4.4. Bajhang district

Single species of Taxus (*Taxus contorta*) is recorded from Bajhang district. The potential habitat area of its distribution in this district is 17,741ha.
*Distribution site(s):*Dhalaun – Rasa, Launi, Khaptad, Surma Sarovar Tal
*Location:*29° 24' 14'' - 29° 55' 52'' N; 81° 0' 49'' - 81° 22' 07'' E
*Elevation:*2378 - 3730 m

Table 15: Habitat and production potential (interpolated) of Taxus in Bajhang district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	17,741	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in Bajhang district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Bajhang district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table16).

Table 16: Population structure (interpolated) of Taxus contorta in Bajhang district

Growth class	DBH	Individual/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Bajhang district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in Baghang district was 11,889.4 kg/ha. Among the growth classes the leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 17).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Bajhang district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 17).

Table 17: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus contorta in Bajhang district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.5. Bajura district

Single species of Taxus (*Taxus contorta*) is recorded from Bajura district. The potential habitat area of its distribution in the Bajura district is 18,757ha.
*Distribution site(s):*Baba Ashram, Khaptad National Park – Kande, Khaptad Daha
Location: 29° 23' 10'' - 29° 28' 45'' N; 81° 08' 14'' - 81° 36' 55'' E
Elevation: 2600 - 3221 m

Table 18: Habitat and production potential (interpolated) of Taxus in Bajura district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	18,757	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in Bajura district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Bajura district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table19).

Table 19: Population structure (interpolated) of Taxus contorta in Bajura district

Growth class	DBH	Individuals/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in Bajura district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Bajura district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 20).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Bajura district was 2,642.1 kg/year/ha. Among the growth class the available harvestablefresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree(206.8 kg/ha/ya) respectively (Table 20).

Table 20: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus contorta in Bajura district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.6. Bhojpur district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Bhojpur district. The potential habitat area of its distribution in this district is 2,420ha.

*Distribution site(s):*Suntale

*Location:*27° 21' N; 87° 8' E

*Elevation:*500 m

Table 21: Habitat and production potential (interpolated) of Taxus in Bhojpur district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxuswallichiana*	2,420	544	7,939.7	1,764.4

Population

The total population of *Taxus wallichiana*in the Bhojpur district was 544 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (398 individuals/ha) followed by sapling (5-10 cm DBH) with 99 individuals/ha,small pole (10-20 cm DBH) with 37 individuals/ha, mature tree (>30 cm DBH) with 6 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha respectively (Table22).

Table 22: Population structure (interpolated) of Taxus wallichiana in Bhojpur district

Growth class	DBH	Individual/ha
Seedling	<5 cm	398
Sapling	5-10 cm	99
Small pole	10-20 cm	37
Pole	20-30 cm	4
Mature tree	>30 cm	6
Total		**544**

Fresh leaf biomass

The available fresh leaf biomass of *Taxus wallichiana*in the Bhojpur district was 7,939.7 kg/ha. Among the growth classes the fresh leaf biomass is found higher in sapling (5-10 cm DBH) with 3,908.9 kg/ha followed by small pole (10-20 cm DBH) with 1,898.3 kg/ha;mature tree (>30 cm DBH) with 1,820.8 kg/ha; pole (20-30 cm DBH) with 311.7 kg/ha respectively (Table 23).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Bhojpur district was 1,764.4 kg/ha/year. Among the growth classes the harvestable fresh leaf biomass is found higher in sapling (5-10 cm DBH) with 868.6 kg/ha/year followed by small pole (10-20 cm DBH) with 421.9 kg/ha/year;mature tree (>30 cm DBH) with 404.6kg/ha/year; and pole (20-30 cm DBH) with 69.3kg/ha/year respectively (Table 23).

Table 23: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus wallichiana in Bhojpur district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	3,908.9	868.6
Small pole	10-20 cm	1,898.3	421.9
Pole	20-30 cm	311.7	69.3
Mature tree	>30 cm	1,820.8	404.6
Total		**7,939.7**	**1,764.4**

3.4.7. Dailekh district

Single species of Taxus (*Taxus contorta*) is recorded from the Dailekh district. The potential habitat area of its distribution in the Dailekh district is 2,424 ha.

*Distribution site(s):*NA

*Location:*NA

*Elevation:*NA

Table 24: Habitat and production potential (interpolated) of Taxus in Dailekh district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	2,424	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in the Dailekh district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Dailekh district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table 25).

Table 25: Population structure (interpolated) of Taxus contorta in Dailekh district

Growth class	DBH	Individuals/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Dailekh district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Dailekh district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 26).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Dailekh district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 26).

Table 26: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus contorta in Dailekh district

Growth class	DBH	Total Leaf Biomass(kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.8. Darchula district

Single species of Taxus (*Taxus contorta*) is recorded from the Darchula district. The potential habitat area of its distribution in the Darchula district is 12,231ha.

*Distribution site(s):*Sitola, Ratamati, Chheti

Location: 29° 47' 03'' - 29° 47' 55'' N; 80° 46' 16'' - 81° 00' 17'' E

Elevation: 2664 - 2780 m

Table 27: Habitat and production potential (interpolated) of Taxus in Darchula district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	12,231	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in the Darchula district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Darchula district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table28).

Table 28: Population structure (interpolated) of Taxus contorta in Darchula district

Growth class	DBH	Individuals/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Darchula district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Darchula district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 29).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Darchula district was 2,642.1 kg/year/ha. Among the growth class the available harvestablefresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 29).

Table 29: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus contorta in Darchula district

Growth class	DBH	Total Leaf Biomass(kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.9. Dhading district

Two species of Taxus (*Taxus wallichiana var. mairei, Taxus wallichiana*) are recorded from the Dhading district. The potential habitat area of their distribution in this is 7,897 ha. Among the potential habitat area, 2,636 ha is of *Taxus wallichiana* and 5,261 ha for *Taxus wallichiana var. mairei*.

Distribution site(s):

Taxus wallichiana: NA

Taxus wallichiana var. mairei: Kaphalchaur

Location:

Taxus wallichiana: NA

Taxus wallichiana var. mairei: 27.41611 N; 85.11138 E

Elevation:

Taxus wallichiana: NA

Taxus wallichiana var. mairei: 1599 m

Table 30: Habitat and production potential of Taxus in Dhading district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	2,636	176	5,830.1	1,295.6
2	*Taxus wallichiana var. mairei*	5,261	42	4,559.3	1,013.2

Population

The total population of *Taxus wallichiana var. mairei*in the Dhading district was 42 individuals/ha. Among the growth classes,only the pole (20-30 cm DBH) is recorded from this district (Table 31).

Data on the population structure of *Taxus wallichiana*in the Dhading district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Dhading district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table31).

Table 31: Population structure of Taxus sp. in Dhading district

Growth class	DBH	Individual/ha	
		Taxus wallichiana var. mairei	*Taxus wallichiana*
Seedling	<5 cm	0	99
Sapling	5-10 cm	0	50
Small pole	10-20 cm	0	12
Pole	20-30 cm	42	4
Mature tree	>30 cm	0	11
Total		**42**	**176**

Fresh leaf biomass

The available fresh leaf biomass of *Taxus wallichiana* var. *maireiin* the Dhading district was 4,559.3 kg/ha. Among the growth classes the fresh leaf biomass recorded in pole (20-30 cm DBH) only6 (Table 32).

The total harvestable fresh leaf biomass of *Taxus wallichiana var. mairei* in the Dhading district was 1,013.2 kg/ha/year. Among the growth class, the available harvestable fresh leaf biomass was found in pole (20-30 cm DBH) only(Table 32).

Data on the fresh leaf biomass of *Taxus wallichiana*in the Dhading district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in this district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 32).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Dhading district was 1,295.6 kg/ha/year. Among the growth classes the harvestable fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 671.6kg/ha/year followed by sapling (5-10 cm DBH) with 390.1 kg/ha/year; small pole (10-20 cm DBH) with 152.4 kg/ha/year; and pole (20-30 cm DBH) with 81.5 kg/ha/year respectively (Table 32).

Table 32: Total and harvestable quantity fresh leaf biomass of Taxus sp. in Dhading district

Growth class	DBH	Total leaf biomass (kg/ha)		Harvestable leaf biomass (kg/ha/y)	
		T. wallichiana var. mairei	*T. wallichiana*	*T. wallichiana var. mairei*	*T. wallichiana*
Sapling	5-10 cm	0.0	1,755.2	0.0	390.1
Small pole	10-20 cm	0.0	685.8	0.0	152.4
Pole	20-30 cm	4,559.3	367.0	1,013.2	81.5
Mature tree	>30 cm	0.0	3,022.1	0.0	671.6
Total		**4,559.3**	**5,830.1**	**1,013.2**	**1295.6**

3.4.10. Dhankuta district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Dhankuta district. The potential habitat area of its distribution in this district is 2 ha.

*Distribution site(s):*Bilbatay Bhanjyang - Hati Sar;Tute - Dor Pani - Tinjure Phedi

Location: 27° 09' - 27° 13’ N; 87° 24' - 81° 33' E

Elevation: 2640 - 2700 m

Table 33: Habitat and production potential (interpolated) of Taxus in Dhankuta district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	2	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana* in the Dhankuta district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in Dhankuta district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha, small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table34).

Table 34: Population structure (interpolated) of Taxus wallichiana in Dhankuta district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana*in the Dhankuta district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Dhankuta district was 5,830.1 kg/ha. Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 35).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Dhankuta district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 35).

Table 35: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus wallichiana in Dhankuta district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.11. Dolakha district

One species of Taxus (*Taxus wallichiana*) is recorded from the Dolakha district. The potential habitat area of its distribution in the Dolakha district is 6,114 ha.

*Distribution site(s):*Suspa Chhemawati

*Location:*27° 38' 23'' - 27° 42' 57'' N; 86° 01' 31'' - 86° 13' 48'' E

*Elevation:*2340-2607 m

Table 36: Habitat and production potential (interpolated) of Taxus wallichiana in Dolakha district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	6,114	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Dolakha district is based on the average value collected from other districts of Nepal.The total population of *Taxus wallichiana* in the Dolakha district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha, small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table 37).

Table 37: Population structure (interpolated) of Taxus wallichiana in Dolakha district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana*in the Dolakha district is based on the average value collected from other districts of Nepal.The totalfresh leaf biomass of *Taxus wallichiana*in this district was

5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 38).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Dolakha district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 38).

Table 38: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus wallichiana in Dolakha district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.12. Dolpa district

Single species of Taxus (*Taxuscontorta*) is recorded from the Dolpa district. The potential habitat area of its distribution in this district is 8,375ha.

*Distribution site(s):*Lukhor – Bange, Rimi, Dunai – Lukhor, Suligad, Rachi - Ankhe

*Location:*28° 54'- 29° 07' 30'' N; 82° 52' - 82° 56' E

*Elevation:*2960 - 3000 m

Table 39: Habitat and production potential (interpolated) of Taxus in Dolpa district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxuscontorta*	8,375	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in the Dolpa district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Dolpa district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table40).

Table 40: Population structure (interpolated) of Taxus contorta in Dolpa district

Growth class	DBH	Individual/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Dolpa district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Dolpa district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 41).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Dolpa district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 41).

Table 41: Total and harvestable quantity fresh leaf biomass (interpolated) of Taxus contorta in Dolpa district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.13. Doti district

Single species of Taxus (*Taxus contorta*) is recorded from the Doti district. The potential habitat area of its distribution in the Doti district is 3,773 ha.

*Distribution site(s):*Bichapani

Location: 29° 21' 27'' N; 81° 04' 42'' E

Elevation: 3090 m

Table 42: Habitat and production potential (interpolated) of Taxus in Doti district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	3,773	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in the Doti district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Doti district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table43).

Table 43: Population structure (interpolated) of Taxus contorta in Doti district

Growth class	DBH	Individual/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Doti district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Doti district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 44).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Doti district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/y) respectively (Table 44).

Table 44: Total and harvestable quantityfresh leaf biomass (interpolated) of Taxus contorta in Doti district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3

Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.14. Gorkha district

Two species of Taxus (*Taxus contorta, Taxus wallichiana*) are recorded from the Gorkha district. The potential habitat area of their distribution in the Gorkha district is 18,210 ha. Among the potential habitat area 8,075ha is of *Taxus wallichiana* and 10,135ha for *Taxus contorta*.

Distribution site(s):

Taxus wallichiana: Uhiya, Lasingpal, Sibrang

Taxus contorta: Lö, Namrung – Lho, Lihi, Tumje

Location:

Taxus wallichiana: 28° 11' 16'' - 28° 17' 02'' N; 84° 53' 07'' - 84° 54' 40''E

Taxus contorta: 28° 29' 18'' - 28° 40' N; 84° 37' E - 84° 58' 29'' E

Elevation:

Taxus wallichiana: 2144 - 2500 m

Taxus contorta: 2580 – 3300 m

Table 45: Habitat and production potential (interpolated)of Taxus sp in Gorkha district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	10,135	822	11,889.4	2,642.1
2	*Taxus wallichiana*	8,075	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus* spin the Gorkha district is based on the average value collected from other districts of Nepal.

The total population of *Taxus contorta* in the Gorkha district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table46).

The total population of *Taxus wallichiana*in this district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table46).

Table 46: Population structure (interpolated)of Taxus sp. in Gorkha district

Growth class	DBH	Individual/ha	
		Taxus contorta	*Taxus wallichiana*
Seedling	<5 cm	608	99
Sapling	5-10 cm	70	50
Small pole	10-20 cm	126	12
Pole	20-30 cm	12	4
Mature tree	>30 cm	6	11
Total		**822**	**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus* spin the Gorkha district is based on the average value collected from other districts of Nepal.

The available fresh leaf biomass of *Taxus contorta* in the Gorkha district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 47).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Gorkha district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 47).

The availablefresh leaf biomass of *Taxus wallichiana*in the Gorkha district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 47).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Gorkha district was 1,295.6 kg/ha/year. Among the growth classes the harvestable fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 671.6kg/ha/year followed by sapling (5-10 cm DBH) with 390.1 kg/ha/year; small pole (10-20 cm DBH) with 152.4 kg/ha/year; and pole (20-30 cm DBH) with 81.5 kg/ha/year respectively (Table 47).

Table 47: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus sp in Gorkha district

Growth class	**DBH**	**Total leaf biomass (kg/ha)**		**Harvestable leaf biomass (kg/ha/y)**	
		T. contorta	*T. wallichiana*	*T. contorta*	*T. wallichiana*
Sapling	5-10 cm	2,448.7	1,755.2	544.1	390.1
Small pole	10-20 cm	7,309.2	685.8	1,624.3	152.4
Pole	20-30 cm	1,200.8	367.0	266.9	81.5
Mature tree	>30 cm	930.7	3,022.1	206.8	671.6
Total		**11,889.4**	**5,830.1**	**2,642.1**	**1295.6**

3.4.15. Humla district

Single species of Taxus (*Taxus contorta*) are recorded from the Humla district. The potential habitat area of its distribution in the Humla district is 9,553ha.

*Distribution site(s):*Simikot, Durpa

Location: 29° 38' 58'' - 29° 58' 26'' N; 81° 55' - 82° 6' 53'' E

Elevation: 2990 - 3150 m

Table 48: Habitat and production potential (interpolated)of Taxus in Humla district

SN	**Scientific name**	**Potential habitat area (ha)**	**No/ha**	**Wt/ha (kg)**	**Sustainable amount to harvest (kg/ha)**
1	*Taxus contorta*	9,553	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in the Humla district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Humla district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table49).

Table 49: Population structure (interpolated)of Taxus contorta in Humla district

Growth class	**DBH**	**Individual/ha**
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Humla district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Humla district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small

pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 50).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Humla district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree(206.8 kg/ha/ya) respectively (Table 50).

Table 50: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus contorta in Humla district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.16. Ilam district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Ilam district. The potential habitat area of its distribution in this district is 467 ha.

*Distribution site(s):*Jamuna

Location: 27° 0' N; 87° 59' E

Elevation: 2730 m

Table 51: Habitat and production potential (interpolated)of Taxus in Ilam district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	467	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Ilam district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Ilam district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table52).

Table 52: Population structure (interpolated)of Taxus wallichiana in Ilam district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Ilam district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Ilam district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 53).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Ilam district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 53).

Table 53: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Ilam district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.17. Jajarkot district

Single species of Taxus (*Taxus contorta*) is recorded from Jajarkot district. The potential habitat area of its distribution in the Jajarkot district is 12,146ha.

*Distribution site(s):*Chakhure Lekh, Dhotbas

*Location:*29° 2' - 29° 6' 56'' N; 82° 20' - 82° 20' 53'' E

Elevation: 2730 - 2880 m

Table 54: Habitat and production potential (interpolated)of Taxus contorta in Jajarkot district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	12,146	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in the Jajarkot district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Jajarkot district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table55).

Table 55: Population structure (interpolated)of Taxus contorta in Jajarkot district

Growth class	DBH	Individual/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Jajarkot district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Jajarkot district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 56).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Jajarkot district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 56).

Table 56: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus contorta in Jajarkot district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9

Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.18. Jumla district

Single species of Taxus (*Taxus contorta*) is recorded from the Jumla district. The potential habitat area of its distribution in this district is 13,277ha.

*Distribution site(s):*Ranga Chauthaka, Depalgaun, Depalgaun, Garjigoth, Chautha, Chautha - Gurchi Lagna

Location: 29° 2' - 29° 6' 56'' N; 82° 03' - 82° 21' E

Elevation: 2420 - 3030 m

Table 57: Habitat and production potential of Taxus in Jumla district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	13,277	685	15,278.3	3,395.1

Population

The total population of *Taxus contorta* in the Jumla district was 685 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (398 individuals/ha) followed by small pole (10-20 cm DBH) with 174 individuals/ha, sapling (5-10 cm DBH) with 99 individuals/ha, and pole (20-30 cm DBH) with 14 individuals/ha respectively (Table58).

Table 58: Population structure of Taxus contorta in Jumla district

Growth class	DBH	Individual/ha
Seedling	<5 cm	398
Sapling	5-10 cm	99
Small pole	10-20 cm	174
Pole	20-30 cm	14
Mature tree	>30 cm	0
Total		**685**

Fresh leaf biomass

The available fresh leaf biomass of *Taxus contorta* in the Jumla district was 15,278.3 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 10,510.4 kg/ha followed by sapling (5-10 cm DBH) with 3,394.4 kg/ha; and pole (20-30 cm DBH) with 1,373.5 kg/ha respectively (Table 59).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Jumla district was 3,395.1 kg/ha/year. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (2,335.6 kg/ha/y) followed by sapling (754.3 kg/ha/y); and pole (305.2 kg/ha/y)respectively (Table 59).

Table 59: Total and harvestable quantity fresh leaf biomass of Taxus contorta in Jumla district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	3,394.4	754.3
Small pole	10-20 cm	10,510.4	2,335.6
Pole	20-30 cm	1,373.5	305.2
Mature tree	>30 cm	0.0	0.0
Total		**15,278.3**	**3,395.1**

3.4.19. Kabhrepalanchok district

Two species of Taxus (*Taxus wallichiana var. mairei, Taxus wallichiana*) are recorded from the Kabhrepalanchok district. The potential habitat area of their distribution in the Kabhrepalanchok district is 7,319 ha. Among the potential habitat area, 1,211ha is of *Taxus wallichiana* and 6,108ha for *Taxus wallichiana var. mairei*.

Distribution site(s):

Taxus wallichiana: Jagriti Community Forest, Sola Community Forest, Patnebhanjyang Community Forest, Narayanstan

Taxus wallichiana var. mairei: Patnebhanjyang Community Forest, Bharkhethanti, Chalal Ganesh Sthan, Chyalte Khola, Dhungkharka, Narayanstan

Location:

Taxus wallichiana: 27° 28' 25'' - 27° 30' 44'' N; 85° 27' 27'' - 85° 33' 03''E

Taxus wallichiana var. mairei: 27° 30' 46'' - 27° 32' 33'' N; 85° 27' 51'' - 85° 30' 33'' E

Elevation:

Taxus wallichiana: 2144 - 2500 m

Taxus wallichiana var. mairei: 2050 – 2159 m

Table 60: Habitat and production potential (interpolated)of Taxus in Kabhrepalanchok district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana var. mairei*	6,108	10	4,280.6	951.2
2	*Taxus wallichiana*	1,211	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus* spin Kabhrepalanchok district is based on the average value collected from other districts of Nepal.

The total population of *Taxus wallichiana* in Kabhrepalanchok district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha, small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table61).

The total population of *Taxus wallichiana var. mairei*in Kabhrepalanchok district was 10 individuals/ha. Among the growth classes, the population of a pole (20-30 cm DBH) and mature tree (>30 cm DBH) are the same with5 individuals/ha. The population of sapling (5-10 cm DBH) and small poles (10-20 cm DBH) are absent in this district (Table 61).

Table 61: Population structure (interpolated)of Taxus sp. in Kabhrepalanchok district

Growth class	DBH	Individual/ha	
		Taxus wallichiana	*Taxus wallichiana* var. *mairei*
Seedling	<5 cm	99	0
Sapling	5-10 cm	50	0
Small pole	10-20 cm	12	0
Pole	20-30 cm	4	5
Mature tree	>30 cm	11	5
Total		**176**	**10**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus* spin the Kabhrepalanchok district is based on the average value collected from other districts of Nepal.

The available fresh leaf biomass of *Taxus wallichiana*in this district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 62).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in Kabhrepalanchok district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 62).

The totalfresh leaf biomass of *Taxus wallichiana var. mairei*in this district was 4,280.6 kg/ha.Among the growth classes, the fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 2,359.5 kg/ha followed by pole (20-30 cm DBH) with 1,921.1 kg/ha(Table 62).

The total harvestable fresh leaf biomass of *Taxus wallichiana var. mairei* in Kabhrepalanchok district was 951.2 kg/ha/year. Among the growth class, the available harvestable fresh leaf biomass was found higher in mature trees (>30 cm DBH) with 524.3 kg/ha/y followed by pole (20-30 cm DBH) with 426.9 kg/ha/y(Table 62).

Table 62: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus sp. in Kabhrepalanchok district

Growth class	DBH	Total leaf biomass (kg/ha)		Harvestable leaf biomass (kg/ha/y)	
		T. wallichiana	*T. mairei*	*T. wallichiana*	*T. mairei*
Sapling	5-10 cm	1,755.2	0.0	390.1	0.0
Small pole	10-20 cm	685.8	0.0	152.4	0.0
Pole	20-30 cm	367.0	1,921.1	81.5	426.9
Mature tree	>30 cm	3,022.1	2,359.5	671.6	524.3
Total		**5,830.1**	**4,280.6**	**1,295.6**	**951.2**

3.4.20. Kalikot district

Single species of Taxus (*Taxus contorta*) is recorded from the Kalikot district. The potential habitat area of its distribution in this district is 14,919 ha.

*Distribution site(s):*NA

Location: NA

Elevation: NA

Table 63: Habitat and production potential (interpolated)of Taxus in Kalikot district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	14,919	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in Kalikot district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Kalikot district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table64).

Table 64: Population structure (interpolated)of Taxus contorta in Kalikot district

Growth class	DBH	Individual/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Kalikot district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Kalikot district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 65).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Kalikot district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree(206.8 kg/ha/ya) respectively (Table 65).

Table 65: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus contorta in Kalikot district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8

Total	11,889.4	2,642.1

3.4.21. Kaskidistrict

One species of Taxus (*Taxus wallichiana*) are recorded from the Kaski district. The potential habitat area of its distribution in the Kaski district is 2,743 ha.

Distribution site(s):

Taxus wallichiana: Lalka Danda, Banthanti, Bhainsi Kharka - Misal Kharka, Ulleri, Panchase, Ghandruk Deorali, Ghandruk, Thulo Kharka - Ban Thanti, Upallo Lalka

Location:

Taxus wallichiana: 28° 12' 18'' - 28° 24' N; 83° 44' 44'' - 83° 55' 04''E

Elevation:

Taxus wallichiana: 2280 - 2700 m

Table 66: Habitat and production potential (interpolated)of Taxus wallichiana in Kaski district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	2,739	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Kaski district is based on the average value collected from other districts of Nepal.The total population of *Taxus wallichiana*in the Kaski district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table67).

Table 67: Population structure (interpolated)of Taxus wallichiana in Kaski district

Growth class	DBH	Individual/ha
		99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana*in the Kaski district is based on the average value collected from other districts of Nepal.The available fresh leaf biomass of *Taxus wallichiana*in the Kaski district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 68).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Kaski district was 1,295.6 kg/ha/year. Among the growth classes the harvestable fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 671.6kg/ha/year followed by sapling (5-10 cm DBH) with 390.1 kg/ha/year; small pole (10-20 cm DBH) with 152.4 kg/ha/year; and pole (20-30 cm DBH) with 81.5 kg/ha/year respectively (Table 68).

Table 68: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Kaski district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1295.6**

3.4.22. Kathmandu district

Two species of Taxus (*Taxus wallichiana var. mairei, Taxus wallichiana*) are recorded from the Kathmandu district. The potential habitat area of their distribution in the Kathmandu district is 1,507 ha. Among the potential habitat area,142 ha is of *Taxus wallichiana* and 1,365 ha for *Taxus wallichiana var. mairei*.

Distribution site(s):

Taxus wallichiana: Shivapuri, Shiwapuri - Borlang Bhanjyng, Manichur

Taxus wallichiana var. mairei: Sundarijal, Masine

Location:

Taxus wallichiana: 27° 46' 50'' - 27° 48' 51'' N; 85° 23' - 85° 28' 57''E

Taxus wallichiana var. mairei: 27° 46' 49'' N; 85° 26' 6'' E

Elevation:

Taxus wallichiana: 2300 - 2700 m

Taxus wallichiana var. mairei: 1550 – 1933 m

Table 69: Habitat and production potential of Taxus in Kathmandu district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana var. mairei*	1,365	30	4,095.6	910.2
2	*Taxus wallichiana*	142	176	5,830.1	1,295.6

Population

The total population of *Taxus wallichiana var. mairei*in the Kathmandu district was 30 individuals/ha. Among the growth classes, the population of a mature tree (>30 cm DBH) was reported higher (16 individuals/ha) followed by pole (20-30 cm DBH) with 14 individuals/ha. The population of saplings (5-10 cm DBH) and small poles (10-20 cm DBH) are absent in this district (Table 70).

Data on the population structure of *Taxus wallichiana*in the Kathmandu district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana* in the Kathmandu district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha, small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table 70).

Table 70: Population structure of Taxus sp. in Kathmandu district

Growth class	DBH	Individual/ha	
		Taxus wallichiana var. mairei	*Taxus wallichiana*
Seedling	<5 cm	0	99
Sapling	5-10 cm	0	50
Small pole	10-20 cm	0	12
Pole	20-30 cm	14	4
Mature tree	>30 cm	16	11
Total		**30**	**176**

Fresh leaf biomass

The totalfresh leaf biomass of *Taxus wallichiana var. mairei*in the Kathmandu district was 4,095.6 kg/ha.Among the growth classes, the fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 2,555.5 kg/ha followed by pole (20-30 cm DBH) with 1,540.1 kg/ha(Table 71).

The total harvestable fresh leaf biomass of *Taxus wallichiana var. mairei* in this district was 910.2 kg/ha/year. Among the growth class, the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 567.9 kg/ha/y followed by pole (20-30 cm DBH) with 342.3 kg/ha/y(Table 71).

Data on the fresh leaf biomass of *Taxus wallichiana* in the Kathmandu district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Kathmandu district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 71).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Kathmandu district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 71).

Table 71: Total and harvestable quantity fresh leaf biomass of Taxus sp in Kathmandu district

Growth class	DBH	Total leaf biomass (kg/ha)		Harvestable leaf biomass (kg/ha/y)	
		T. wallichiana var. *mairei*	*T. wallichiana*	*T. wallichiana* var. *mairei*	*T. wallichiana*
Sapling	5-10 cm	0.0	1,755.2	0.0	390.1
Small pole	10-20 cm	0.0	685.8	0.0	152.4
Pole	20-30 cm	1,540.1	367.0	342.3	81.5
Mature tree	>30 cm	2,555.5	3,022.1	567.9	671.6
Total		**4,095.6**	**5,830.1**	**910.2**	**1,295.6**

3.4.23. Khotang district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Khotang district. The potential habitat area of its distribution in the Khotang district is 930 ha.

*Distribution site(s):*NA

*Location:*NA

*Elevation:*NA

Table 72: Habitat and production potential (interpolated)of Taxus in Khotang district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	930	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Khotang district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Khotang district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher with 99 individuals/hafollowed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table73).

Table 73: Population structure (interpolated)of Taxus wallichiana in Khotang district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Khotang district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*inthe Khotang district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 74).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Khotang district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a

mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 74).

Table 74: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Khotang district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.24. Lalitpur district

Single species of Taxus (*Taxus wallichiana var. mairei*) is recorded from the Lalitpur district. The potential habitat area of its distribution in this district is 2,579 ha.

*Distribution site(s):*Lele

*Location:*NA

*Elevation:*NA

Table 75: . Habitat and production potential (interpolated)of Taxus in Lalitpur district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana var. mairei*	2,579	10	4,280.6	951.2

Population

Data on the population structure of *Taxus wallichiana var. mairei*in the Lalitpur district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana var. mairei*in Lalitpur district was 10 individuals/ha. Among the growth classes the population of a pole (20-30 cm DBH) and mature tree (>30 cm DBH) are the same with 5 individuals/ha. The population of sapling (5-10 cm DBH) and small poles (10-20 cm DBH) are absent in this district (Table 76).

Table 76: Population structure (interpolated)of Taxus wallichiana var. mairei in Lalitpur district

Growth class	DBH	Individual/ha
Seedling	<5 cm	0
Sapling	5-10 cm	0
Small pole	10-20 cm	0
Pole	20-30 cm	5
Mature tree	>30 cm	5
Total		**10**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana var. mairei*in Lalitpur district is based on the average value collected from other districts of Nepal. The totalfresh leaf biomass of *Taxus wallichiana var. mairei*in this district was 4,280.6 kg/ha.Among the growth classes, the fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 2,359.5 kg/ha followed by pole (20-30 cm DBH) with 1,921.1 kg/ha(Table 77).

The total harvestable fresh leaf biomass of *Taxus wallichiana var. mairei* inthe Lalitpur district was 951.2 kg/ha/year. Among the growth class, the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 524.3 kg/ha/y followed by pole (20-30 cm DBH) with 426.9 kg/ha/y(Table 77).

Table 77: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana var. mairei in Lalitpur district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)

Sapling	5-10 cm	0.0	0.0
Small pole	10-20 cm	0.0	0.0
Pole	20-30 cm	1,921.1	426.9
Mature tree	>30 cm	2,359.5	524.3
Total		**4,280.6**	**951.2**

3.4.25. Lamjung district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Lamjung district. The potential habitat area of its distribution in this district is 2,725 ha.

*Distribution site(s):*Bhujung, Rambrong, Rambrong ridge

Location: 28° 18′ 28′′ - 28° 25' 46'' N; 84° 16' 25′′ - 84° 16' 37′′ E

*Elevation:*1950 - 3030 m

Table 78: Habitat and production potential of Taxus in Lamjung district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	2,725	21	3,018.1	670.7

Population

The total population of *Taxus wallichiana*in Lamjung district was 21 individuals/ha. Among the growth classes, the population of a mature tree (>30 cm DBH) with 14 individuals/ha was reported higher followed by pole (20-30 cm DBH) with 7 individuals/ha (Table79).

Table 79: Population structure of Taxus wallichiana in Lamjung district

Growth class	DBH	Individual/ha
Seedling	<5 cm	0
Sapling	5-10 cm	0
Small pole	10-20 cm	0
Pole	20-30 cm	7
Mature tree	>30 cm	14
Total		**21**

Fresh leaf biomass

The available fresh leaf biomass of *Taxus wallichiana*inthe Lamjung district was 3,018.1 kg/ha.Among the growth classes, the fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 2,224.3 kg/ha followed by pole (20-30 cm DBH) with 793.8 kg/ha respectively (Table 80).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Lamjung district was 670.7 kg/year/ha. Among the growth class, the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 494.3 kg/ha/y followed by pole (20-30 cm DBH) with 176.4kg/ha/y respectively (Table 80).

Table 80: Total and harvestable quantity fresh leaf biomass of Taxus wallichiana in Lamjung district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	0.0	0.0
Small pole	10-20 cm	0.0	0.0
Pole	20-30 cm	793.8	176.4
Mature tree	>30 cm	2,224.3	494.3
Total		**3,018.1**	**670.7**

3.4.26. Makawanpur district

Single species of Taxus (*Taxus wallichiana var. mairei*) is recorded from the Makawanpur district. The potential habitat area of its distribution in this district is 5,949 ha.

*Distribution site(s):*Tistung, Siddakali Community Forest, Chulipran Community Forest, Mahakal Community Forest, Loshapakha, Risheshor Community Forest, Dandabas, Loshapakha, Karunabhumi Community Forest, Chulipran Community Forest

Location: 27° 36′ 27′′ - 27° 40' 26'' N; 84° 59' 20′′ - 85° 08' 02′′ E

Elevation: 1654 - 2311 m

Table 81: Habitat and production potential of Taxus wallichiana* var. *maireiin Makawanpur district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana var. mairei*	5,949	31	4,233.9	940.8

Population

The total population of *Taxus wallichiana var. mairei*in Makawanpur district was 31 individuals/ha. Among the growth classes, the population of a mature tree (>30 cm DBH) ishigh with 24 individuals/ha followed by pole (20-30 cm DBH) with 7 individuals/ha. The population of seedling (<5cm DBH), sapling (5-10 cm DBH),and small pole (10-20 cm DBH) are absent in this district (Table 82).

Table 82: Population structure of Taxus wallichiana* var. *mairei in Makawanpur district

Growth class	DBH	Individual/ha
Seedling	<5 cm	0
Sapling	5-10 cm	0
Small pole	10-20 cm	0
Pole	20-30 cm	7
Mature tree	>30 cm	24
Total		**31**

Fresh leaf biomass

The totalfresh leaf biomass of *Taxus wallichiana var. mairei*in the Makawanpur district was 4,233.9 kg/ha.Among the growth classes, the fresh leaf biomass is found higher in a mature tree (>30 cm DBH) with 3,441.3 kg/ha followed by pole (20-30 cm DBH) with 792.6 kg/ha(Table 83).

The total harvestable fresh leaf biomass of *Taxus wallichiana var. mairei* inthe Makawanpur district was 940.8 kg/ha/year. Among the growth class, the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 764.7 kg/ha/y followed by pole (20-30 cm DBH) with 176.1 kg/ha/y(Table 83).

Table 83: Total and harvestable quantity fresh leaf biomass of Taxus wallichiana var. mairei in Makawanpur district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	0.0	0.0
Small pole	10-20 cm	0.0	0.0
Pole	20-30 cm	792.6	176.1
Mature tree	>30 cm	3,441.3	764.7
Total		**4,233.9**	**940.8**

3.4.27. Manang district

One species of Taxus (*Taxus contorta*) is recorded from Manang district. The potential habitat area of its distribution in the Manang district is 1,916 ha.

Distribution site(s):

Taxus contorta: Jhanchok – Chame, Gho, Bardang (near Pisang) – Chame, Pisang – Chame, Bardang (near Pisang), Temang, Suggi Khola, Pisang – Bhratang, Bimtang – Tilche, Thanchok – Chame, Chame, Bimtang – Gho

Location:

Taxus contorta: 28° 31' 27'' - 28° 38' N; 84° 09' 11'' - 84° 28' E

Elevation:

Taxus contorta: 2264 - 3000 m

Table 84: Habitat and production potential of Taxus contorta in Manang district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
2	*Taxus contorta*	1,913	4,546	6,715.3	1,492.2

Population

The total population of *Taxus contorta* in Manang district was 4,546 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (4,455 individuals/ha) followed by small pole (10-20 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 11 individuals/ha, and mature tree (>30 cm DBH) with 10 individuals/ha respectively (Table85).

Table 85: Population structure of Taxus contorta in Manang district

Growth class	DBH	Individual/ha
Seedling	<5 cm	4,455
Sapling	5-10 cm	0
Small pole	10-20 cm	70
Pole	20-30 cm	11
Mature tree	>30 cm	10
Total		**4,546**

Fresh leaf biomass

The totalfresh leaf biomass of *Taxus contorta* in the Manang district was 6,715.3 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 4,118.6 kg/ha followed by mature tree (>30 cm DBH) with 1,489.5 kg/ha; and pole (20-30 cm DBH) with 1,107.2 kg/ha respectively (Table 86).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Manang district was 1,492.2 kg/ha/year. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (915.2 kg/ha/y) followed by a mature tree (331.0 kg/ha/ya), and pole (246 kg/ha/y)respectively (Table 86).

Table 86: Total and harvestable quantity fresh leaf biomass of Taxus contorta in Manang district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	0.0	0.0
Small pole	10-20 cm	4,118.6	915.2
Pole	20-30 cm	1,107.2	246.0
Mature tree	>30 cm	1,489.5	331.0
Total		**6,715.3**	**1,492.2**

3.4.28. Mugu district

Single species of Taxus (*Taxus contorta*) is recorded from the Mugu district. The potential habitat area of its distribution in this district is 14,667ha.

*Distribution site(s):*Rara National Park

Location: 29° 32' 07'' N; 82° 04' 04'' E

Elevation: 2964 m

Table 87: Habitat and production potential (interpolated)of Taxus in Mugu district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	14,667	1,662	14,981.2	3,329.1

Population

The total population of *Taxus contorta* in Mugu district was 1,662 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (1,392 individuals/ha) followed by small pole (10-20 cm DBH) with 149 individuals/ha, sapling (5-10 cm DBH) with 99 individuals/ha, pole (20-30 cm DBH) with 14 individuals/ha, and mature tree (>30 cm DBH) with 8 individuals/ha respectively (Table88).

Table 88: Population structure (interpolated)of Taxus contorta in Mugu district

Growth class	DBH	Individual/ha
Seedling	<5 cm	1,392
Sapling	5-10 cm	99
Small pole	10-20 cm	149
Pole	20-30 cm	14

Mature tree	>30 cm	8
Total		**1,662**

Fresh leaf biomass

The available fresh leaf biomass of *Taxus contorta* in Mugu district was 14,981.2 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 8,319.9 kg/ha followed by sapling (5-10 cm DBH) with 3,908.9 kg/ha; pole (20-30 cm DBH) with 1,24.0 kg/ha; and mature tree (>30 cm DBH) with 1,328.4 kg/ha (Table 89).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Mugu district was 3,329.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,848.9 kg/ha/y) followed by sapling (868.6 kg/ha/y); pole (316.4 kg/ha/y); and mature tree(295.2 kg/ha/ya) respectively (Table 89).

Table 89: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus contorta in Mugu district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	3,908.9	868.6
Small pole	10-20 cm	8,319.9	1,848.9
Pole	20-30 cm	1,424.0	316.4
Mature tree	>30 cm	1,328.4	295.2
Total		**14,981.2**	**3,329.1**

3.4.29. Mustang district

Single species of Taxus (*Taxus contorta*) is recorded from the Mustang district. The potential habitat area of its distribution in this district is 1,573 ha.
*Distribution site(s):*Kalopani – Larjung, Chimgaon, Larjung, Lete, Tukuche, Ghasa - Tukche
Location: 28° 36' - 28° 43' 38'' N; 83° 35' 49'' - 83° 40' 45'' E
Elevation: 2420 – 3030 m

Table 90: Habitat and production potential (interpolated)of Taxus in Mustang district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	1,573	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in the Mustang district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in the Mustang district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table91).

Table 91: Population structure (interpolated)of Taxus contorta in Mustang district

Growth class	DBH	Individual/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30 cm	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Mustang district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in the Mustang district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 92).

The total harvestable fresh leaf biomass of *Taxus contorta* in the Mustang district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 92).

Table 92: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus contorta in Mustang district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.30. Myagdi district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Myagdi district. The potential habitat area of its distribution in this district is 9,026ha.

*Distribution site(s):*Dharamdhunga, Chimkhola, Ghorepani, Lumsum, Kuinekhani

Location: 28° 24' - 28° 31' 12'' N; 83° 16' 46'' - 83° 41' 59'' E

Elevation: 2270 – 3050 m

Table 93: Habitat and production potential (interpolated)of Taxus in Myagdi district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	9,026	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Myagdi district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Myagdi district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table94).

Table 94: Population structure (interpolated)of Taxus wallichiana in Myagdi district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Myagdi district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in this district was 5,830.1 kg/ha. Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 95).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Myagdi district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 95).

Table 95: Total and harvestable quantity fresh leaf biomass(interpolated) of Taxus wallichiana in Myagdi district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.31. Nuwakot district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Nuwakot district. The potential habitat area of its distribution in this district is 1,070 ha.

*Distribution site(s):*Salme, Pati Bhanjyang - Shvapuri Danda

Location: 27° 50' 39'' - 28° 03' N; 85° 08' - 85° 27' 31'' E

Elevation: 2400 – 2700 m

Table 96: Habitat and production potential (interpolated)of Taxus in Nuwakot district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	1,070	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Nuwakot district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in Nuwakot district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table97).

Table 97: Population structure (interpolated)of Taxus wallichiana in Nuwakot district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Nuwakot district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Nuwakot district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 98).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Nuwakot district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 98).

Table 98: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Nuwakot district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.32. Panchthar district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Panchthar district. The potential habitat area of its distribution in this district is 2,978 ha.

*Distribution site(s):*Chintapu, Bhuspate Danra, Jamle, Sidin, Batasay - Bhuspate Danda

Location: 27° 05' 49'' - 27° 10' N; 87° 54' - 87° 56' 06'' E

Elevation: 2600 – 2880 m

Table 99: Habitat and production potential (interpolated)of Taxus in Panchthar district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	2,978	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Panchthar district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Panchthar district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table100).

Table 100: Population structure (interpolated)of Taxus wallichiana in Panchthar district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Panchthar district is based on the average value collected from other districts of Nepal. The availablefresh leaf biomass of *Taxus wallichiana*in Panchthat district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 101).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Panchthar district was 1,295.6 kg/year/ha. Among the growth class the available harvestablefresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 101).

Table 101: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Panchthar district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.33. Parbat district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Parbat district. The potential habitat area of its distribution in this district is 468 ha.

*Distribution site(s):*Bhuka Tangle, Deurali, Ramja Deurali, Kyang, Chitre

*Location:*83.66597-83.798714 N; 28.2287615-28.33242 E

*Elevation:*1650-2824 m

Table 102: Habitat and production potential (interpolated)of Taxus in Parbat district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	468	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Parbat district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in Parbat district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table103).

Table 103: Population structure (interpolated)of Taxus wallichiana in Parbat district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Parbat district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Parbat district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 104).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Parbat district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 104).

Table 104: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Parbat district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.34. Ramechhap district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Ramechhap district. The potential habitat area of its distribution in this district is 2,451ha.

*Distribution site(s):*Bamti, Deorali

Location: 27° 35' 17" N; 86° 20' 17'' E

Elevation: 2906 m

Table 105: Habitat and production potential (interpolated)of Taxus in Ramechhap district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	2,451	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Ramechhap district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Ramechhap district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table106).

Table 106: Population structure (interpolated)of Taxus wallichiana in Ramechhap district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Ramechhap district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Ramechhap district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 107).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Ramechhap district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 107).

Table 107: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Ramechhap district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.35. Rasuwa district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Ramechhap district. The potential habitat area of its distribution in this district is 5,275 ha.

*Distribution site(s):*Basthalo, Bhairav Kund

Location: 28° 02' 57" - 28° 04' 48" N; 85° 10' 06"- 85° 24' 28" E

Elevation: 2383 - 3200 m

Table 108: Habitat and production potential (interpolated)of Taxus in Rasuwa district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	5,275	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Rasuwa district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Rasuwa district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table109).

Table 109: Population structure (interpolated)of Taxus wallichiana in Rasuwa district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Rasuwa district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Rasuwa district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 110).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Rasuwa district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 110).

Table 110: . Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Rasuwa district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.36. RukumEast district

Single species of Taxus (*Taxus contorta*) are recorded from the Rukum district. The potential habitat area of its distribution in this district is 13,945ha.

*Distribution site(s):*Ghustung Khola

*Location:*28° 38' 15'' N; 82° 56' 59'' E

*Elevation:*2880 m

Table 111: Habitat and production potential (interpolated)of Taxus in Rukum district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus contorta*	13,945	822	11,889.4	2,642.1

Population

Data on the population structure of *Taxus contorta* in Rukum East district is based on the average value collected from other districts of Nepal. The total population of *Taxus contorta* in Rukum East district was 822 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (608 individuals/ha) followed by small pole (10-20 cm DBH) with 126 individuals/ha, sapling (5-10 cm DBH) with 70 individuals/ha, pole (20-30 cm DBH) with 12 individuals/ha, and mature tree (>30 cm DBH) with 6 individuals/ha (Table112).

Table 112: Population structure (interpolated)of Taxus contorta in Rukum East district

Growth class	DBH	Individual/ha
Seedling	<5 cm	608
Sapling	5-10 cm	70
Small pole	10-20 cm	126
Pole	20-30 cm	12
Mature tree	>30	6
Total		**822**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus contorta* in the Rukum East district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus contorta* in Rukum East district was 11,889.4 kg/ha.Among the growth classes the fresh leaf biomass is found higher in small pole (10-20 cm DBH) with 7,309.2 kg/ha followed by sapling (5-10 cm DBH) with 2,448.7 kg/ha; pole (20-30 cm DBH) with 1,200.8 kg/ha; and mature tree (>30 cm DBH) with 930.7 kg/ha (Table 113).

The total harvestable fresh leaf biomass of *Taxus contorta* in Rukum East district was 2,642.1 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in small pole (1,624.3 kg/ha/y) followed by sapling (544 kg/ha/y); pole (266.9 kg/ha/y); and mature tree (206.8 kg/ha/ya) respectively (Table 113).

Table 113: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus contorta in Rukum East district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	2,448.7	544.1
Small pole	10-20 cm	7,309.2	1,624.3
Pole	20-30 cm	1,200.8	266.9
Mature tree	>30 cm	930.7	206.8
Total		**11,889.4**	**2,642.1**

3.4.37. Sankhuwasabha district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Sankhuwasabha district. The potential habitat area of its distribution in this district is 11,666ha.

*Distribution site(s):*Popti La, Hatiya, Bhainsi Kharka - Danda Kharka (Dhari Kharka), Tamaphok, Syakim – Khiraunle, Gupha Pokhari, Sedua, Bhainsi Kharka - Danda Kharka - Unshisa Kharka – Khongma, Tashigaon, Hati Sar - Minchin Dhap

Location: 27° 13' - 27° 37' N; 87° 15'- 87° 30' 22'' E

Elevation: 2510 - 2850 m

Table 114: Habitat and production potential (interpolated)of Taxus spp. in Sankhuwasabha district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	11,666	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Sankhuwasabha district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Sankhuwasabha district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table115).

Table 115: Population structure (interpolated)of Taxus wallichiana in Sankhuwasabha district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Sankhuwasabha district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Snakhuwasabha district was 5,830.1 kg/ha. Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 116).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Sankhuwasabha district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 116).

Table 116: Total and harvestable quantity fresh leaf biomass(interpolated)of T. wallichiana in Sankhuwasabha district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.38. Sindhuli district

Single species of Taxus (*Taxus wallichiana var. mairei*) is recorded from the Sindhuli district. The potential habitat area of its distribution in the Sindhuli district is 3,793 ha.

*Distribution site(s):*Majh Kharka, Ratanchura, Damar Chauki

Location: 27° 08' 05'' - 27° 14' 55'' N; 85° 59' 44'' - 86° 15' 47'' E

Elevation: 1450 - 1870 m

Table 117: Habitat and production potential (interpolated)of Taxus wallichiana var. mairei in Sindhuli district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana var. mairei*	3,793	10	4,280.6	951.2

Population

Data on the population structure of *Taxus wallichiana var. mairei*in the Sindhuli district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana var. mairei*in the Sindhuli district was 10 individuals/ha. Among the growth classes, the population of a pole (20-30 cm DBH) and mature tree (>30 cm DBH) are the same with 5 individuals/ha. The population of saplings (5-10 cm DBH) and small poles (10-20 cm DBH) are absent in this district (Table 118).

Table 118: Population structure (interpolated)of Taxus wallichiana var. mairei in Sindhuli district

Growth class	DBH	Individual/ha
Seedling	<5 cm	0
Sapling	5-10 cm	0
Small pole	10-20 cm	0
Pole	20-30 cm	5
Mature tree	>30 cm	5
Total		**10**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana var. mairei*in the Sindhuli district is based on the average value collected from other districts of Nepal. The totalfresh leaf biomass of *Taxus wallichiana var. mairei*in this district was 4,280.6 kg/ha.Among the growth classes, the fresh leaf biomass is found higher in mature trees (>30 cm DBH) with 2,359.5 kg/ha followed by pole (20-30 cm DBH) with 1,921.1 kg/ha(Table 119).

The total harvestable fresh leaf biomass of *Taxus wallichiana var. mairei* inthe Sinduli district was 951.2 kg/ha/year. Among the growth class, the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 524.3 kg/ha/y followed by pole (20-30 cm DBH) with 426.9 kg/ha/y(Table 119).

Table 119: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana var. mairei in Sindhuli district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	0.0	0.0
Small pole	10-20 cm	0.0	0.0
Pole	20-30 cm	1,921.1	426.9
Mature tree	>30 cm	2,359.5	524.3
Total		**4,280.6**	**951.2**

3.4.39. Sindhupalchok district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Sindhupalchok district. The potential habitat area of its distribution in this district is 7,357 ha.

*Distribution site(s):*Helambu, Listi

Location: 27° 53' 45'' - 27° 01' 06'' N; 85° 31' 20'' - 85° 51' 57'' E

Elevation: 2370 - 2558 m

Table 120: Habitat and production potential (interpolated)of Taxus in Sindhupalchok district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	7,357	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Sindhupalchok district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in Sindhupalchok district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table121).

Table 121: Population structure (interpolated)of Taxus wallichiana in Sindhupalchok district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Sindhupalchok district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Sindhupalchok district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 122).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Sindhupalchok district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 122).

Table 122: Total and harvestable quantity fresh leaf biomass (interpolated)of T. wallichiana in Sindhupalchok district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.40. Solukhumbu district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Solukhumbu district. The potential habitat area of its distribution in the Solukhumbu district is 8,697 ha.

*Distribution site(s):*Dudh Kosi, Chaunri Kharka, Kharte, Lukla – Chheplung, Lukla, Namche

Location: 27° 36' 59'' - 27° 48' N; 86° 40' - 86° 43' 50'' E

Elevation: 2620 - 2900 m

Table 123: Habitat and production potential (interpolated)of Taxus in Solukhumbu district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	8,697	176	5,830.1	1,295.6

Population

Data on the population structure of *Taxus wallichiana*in the Solukhumbu district is based on the average value collected from other districts of Nepal. The total population of *Taxus wallichiana*in the Solukhumbu district was 176 individuals/ha. Among the growth classes, the population of seedling (<5 cm DBH) were reported higher (99 individuals/ha) followed by sapling (5-10 cm DBH) with 70 individuals/ha,small pole (10-20 cm DBH) with 12 individuals/ha, mature tree (>30 cm DBH) with 11 individuals/ha, and pole (20-30 cm DBH) with 4 individuals/ha (Table124).

Table 124: Population structure (interpolated)of Taxus wallichiana in Solukhumbu district

Growth class	DBH	Individual/ha
Seedling	<5 cm	99
Sapling	5-10 cm	50
Small pole	10-20 cm	12
Pole	20-30 cm	4
Mature tree	>30 cm	11
Total		**176**

Fresh leaf biomass

Data on the fresh leaf biomass of *Taxus wallichiana* in the Solukhumbu district is based on the average value collected from other districts of Nepal. The available fresh leaf biomass of *Taxus wallichiana*in the Solukhumbu district was 5,830.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in mature tree (>30 cm DBH) with 3,022.1 kg/ha followed by sapling (5-10 cm DBH) with 1,755.2 kg/ha; small pole (10-20 cm DBH) with 685.8 kg/ha; and pole (20-30 cm DBH) with 367.0 kg/ha respectively (Table 125).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Solukhumbu district was 1,295.6 kg/year/ha. Among the growth class the available harvestable fresh leaf biomass was found higher in a mature tree (>30 cm DBH) with 671.6 kg/ha/y followed by sapling (5-10 cm DBH) with 390.1 kg/ha/y; small pole (10-20 cm DBH) with 52.4 kg/ha/y; and pole (20-30 cm DBH) with 81.5 kg/ha/y respectively (Table 125).

Table 125: Total and harvestable quantity fresh leaf biomass (interpolated)of Taxus wallichiana in Solukhumbu district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	1,755.2	390.1
Small pole	10-20 cm	685.8	152.4
Pole	20-30 cm	367.0	81.5
Mature tree	>30 cm	3,022.1	671.6
Total		**5,830.1**	**1,295.6**

3.4.41. Taplejung district

Single species of Taxus (*Taxus wallichiana*) is recorded from Taplejung district. The potential habitat area of its distribution in this district is 9,898 ha.

*Distribution site(s):*Helok - Baroya Khimty, Jhongim, Jhankharka, Thamkharka, Phedi, Nessum – Bhuje, Selap - Walunchung Gola, Chittre, Baroya Khimty - Mul Pokhari

Location: 27° 20' - 27° 40' 06'' N; 86° 37' - 87° 59' 32'' E

*Elevation:*1700 - 2945 m

Table 126: Habitat and production potential of Taxus in Taplejung district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	9,898	122	4,727.1	1,050.5

Population

The total population of *Taxus wallichiana*in Taplejung district was 122 individuals/ha. Among the growth classes the population of sapling (5-10 cm DBH) was reported higher (99 individuals/ha) followed by small pole (10-20 cm DBH) with 12 individuals/ha, pole (20-30 cm DBH) with 7 individuals/ha, and mature tree (>30 cm DBH) with 4 individuals/ha respectively (Table127).

Table 127: Population structure of Taxus wallichiana in Taplejung district

Growth class	DBH	Individual/ha
Seedling	<5 cm	0
Sapling	5-10 cm	99
Small pole	10-20 cm	12
Pole	20-30 cm	7
Mature tree	>30 cm	4
Total		**122**

Fresh leaf biomass

The available fresh leaf biomass of *Taxus wallichiana*in the Taplejung district was 4,727.1 kg/ha.Among the growth classes the fresh leaf biomass is found higher in sapling (5-10 cm DBH) with 3,112.1 kg/ha followed by small pole (10-20 cm DBH) with 844.9 kg/ha; mature tree (>30 cm DBH) with 407.7 kg/ha;and pole (20-30 cm DBH) with 362.4 kg/ha respectively (Table 128).

The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Taplejung district was 1,050.5 kg/ha/year. Among the growth class the available harvestable fresh leaf biomass was found higher in sapling (5-10 cm DBH) with 691.6 kg/ha/y followed by small pole (10-20 cm DBH) with 187.8 kg/ha/y;mature tree (>30 cm DBH) with 90.6 kg/ha/y; and pole (20-30 cm DBH) with 80.5 kg/ha/y respectively (Table 128).

Table 128: Total and harvestable quantity fresh leaf biomass of Taxus wallichiana in Taplejung district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	3,112.1	691.6
Small pole	10-20 cm	844.9	187.8
Pole	20-30 cm	362.4	80.5
Mature tree	>30 cm	407.7	90.6
Total		**4,727.1**	**1,050.5**

3.4.42. Terhathum district

Single species of Taxus (*Taxus wallichiana*) is recorded from the Terhathum district. The potential habitat area of its distribution in the Terhathum district is 643 ha.

*Distribution site(s):*Basantapur, Minchin Dhap - Mul Pokhari

Location: 27° 08' 22'' - 27° 16' 05'' N; 86° 24' 27'' - 87° 30' E

*Elevation:*2500 - 2600 m

Table 129: Habitat and production potential of Taxus in Terhathum district

SN	Scientific name	Potential habitat area (ha)	No/ha	Wt/ha (kg)	Sustainable amount to harvest (kg/ha)
1	*Taxus wallichiana*	643	22	7,635.6	1,696.8

Population

The total population of *Taxus wallichiana*in the Terathum district was 22 individuals/ha. Among the growth classes,only mature trees are available in this district (Table130).

Table 130: Population structure of Taxus wallichiana in Terathum district

Growth class	DBH	Individual/ha
Seedling	<5 cm	0
Sapling	5-10 cm	0
Small pole	10-20 cm	0
Pole	20-30 cm	0
Mature tree	>30 cm	22
Total		**22**

Fresh leaf biomass

The available fresh leaf biomass of *Taxus wallichiana*in the Terathum district was 7,635.6 kg/ha.Among the growth classes, the fresh leaf biomass is only available in a mature tree (>30 cm DBH). The total harvestable fresh leaf biomass of *Taxus wallichiana* in the Solukhumbu district was 1,696.8 kg/ha/year. Among the growth class, the available harvestable fresh leaf biomass was found only in a mature tree (Table 131).

Table 131: Total and harvestable quantity fresh leaf biomass of Taxus wallichian in Terathum district

Growth class	DBH	Total leaf biomass (kg/ha)	Harvestable leaf biomass (kg/ha/y)
Sapling	5-10 cm	0.0	0.0
Small pole	10-20 cm	0.0	0.0
Pole	20-30 cm	0.0	0.0
Trees	>30 cm	7,635.6	1,696.8
Total		**7,635.6**	**1,696.8**

3.5Trade status

Leaves and young twigs of *Taxus* spp.are highly valued for an amorphous substance called "taxol". Taxol is used to prepare medicine for the treatment of breast, liver, lung, blood, and gynecological cancers. Taxol is very expensive in the international drug market; 2 gm of pure taxol is sufficient to treat one cancer patient (Vidensik *et.al.* 1990.). Almost, 10,000 kg of Taxus leaves are required to produce 1 kg of taxol (Isah, 2015). While the product, "taxol" is very expensive; 1 kg taxolcosts around 200,000 USD (Ho, et al., 2005); local harvesters get a very minimal amount.

3.5.1 Taxus contorta

The study shows there is the trade of *Taxus contorta* in west Nepal, mainly in the Jumla district. In the far western part, in the Baitadi district, they are just planning for its marketing. In Mugu,its trade is within the district for local consumption as tea.

a. Collection and trading places of Taxus contorta

Local traders came to get an order and collect the leaf of *Taxus contorta* from Community Forests. Some traders came to collect its fruit. The price of its fruit is higher than its leaf.

b. Market chain ofTaxus spp.

Local people and Community Forest User's Groups are selling the *Taxus contorta* leaf to the local collector. The local collectors providethe leaf to the main traders at Nepalgunj. On-demand it is sold toKathmandu or India.

c. Market custody ofTaxus spp.

As a representative from a medicine company or large trader, the local collectors demand the quantity of *Taxus* spp leaf. Based on the local trader'sdemand, the local people or Community Forest Users' Group, collect the leaf of *Taxus* spp.

d. Value chain ofTaxus spp.

Though there is no such trade of *Taxus contorta,* it was more on about a decade ago. At that time the local market rate for its leaf was NRs. 10-20 per kg.

e. Taxustrade route and channel

The local traders collect the leaf from the local people and community forests. The collected leaf will be gathered in the district center as the transit point. From the transit center, it is then supplied to the main collection point Nepalgunj. Ondemand, it will be supplied to India or Kathmandu.

3.5.2 Taxus wallichiana var. mairei

Thisassessment finds that there is a demand of *Taxus wallichiana var. mairei*leaf from some companies. By viewing its importance and demand for the medicine, local people are also planting this species in their private land.

a. Collection and trading places of Taxus wallichiana var. mairei

Local traders came to get an order and collect the leaf of *Taxus wallichiana var. mairei* from Community Forests and the local people.

b. Market chain of Taxus wallichiana var. mairei

Community Forest and local people provide the Taxus leaf to the local collector. The local collector supply it to the main collector at Hetaunda. It is sold on demand from Hetaunda to India or Kathmandu.

c. Market custody of Taxus wallichiana var. mairei

As demand by representative from a medicine company or large trader, the local collectors demand the quantity of *Taxus wallichiana* var. *mairei* leaf. Based on the demand of the local trader, the local people or Community Forest Users' Group collected the leaf of *Taxus wallichiana var. mairei*.

d. Value chain of Taxus

Currently, there is no such trade of *Taxus wallichiana var. mairei,* it was two years ago. The local market rate at that time was NRs. 140 per kg of fresh leaf.

e. Taxus trade route and channel

The local traders collect the leaf from the local people and community forests. The collected leaf will be gathered in the district center as the transit point. From the transit center, it is then supplied to the main collection point Hetaunda. On-demand, it will be supplied to India or Kathmandu.

3.5.3 Taxus wallichiana

The trading of *Taxus wallichiana* was not observed in the eastern region of Nepal. In the central region, local people are collecting upon the demand of some companies. But due to the lower factory price, its trading isinfrequent.

3.5 Trade data

During five year's time (2013-2017) total 93.0 kg leaf of *Taxus* spp. was exported from Nepal. It was exported in extract form. The main exporting countries are India, Japan, and United Arab Emirates (UAE). The higher amount was exported in United Arab Emirates during 2015 (Table 132).

Table 132: Five year's trade data of Taxus sp. in Nepal

Fiscal year	Trade amount (kg)	Form	Export countries
2013	4.50	Extract form	India
	0.25	Extract form	United Arab Emirates
2014	0.25	Extract form	India
	0.50	Extract form	Japan
	21.0	Extract form	United Arab Emirates
2015	30.0	Extract form	United Arab Emirates
2016	20.0	Extract form	United Arab Emirates
2017	16.5	Extract form	NA
Total	**93.0**		

Source: Annual report of DoFSC (2016 and 2017)

3.6Profile of *Taxus* spp.

Taxus contorta Griff.

Family: Taxaceae

Nepali name (s): Lauth Salla

Local name (s):

Common name (s): West Himalayan Yew

Description: 6 to 18 m talldioecious tree with spreading andirregular branches; bark reddishbrown and scaly. Leaves spirally disposed, linear, shiny, 2 to 4 cm long, upper surface green. Staminate cone solitary, globose, axillary on the underside of branches. Sporophylls 6 to 10, peltate, each included 5 to 8 pendant sporangia. Female flowers solitary, green, axillary,decussate, with 3 pairs of scales. Seed olive green, in the young ovule is partially surrounded by a red fleshy aril.

Ecology: Forests of a middlehill and high mountain area especially in north and west facing slope, 2000-3500 m elevation.

Conservation and legal status:

IUCN: Endangered
*GoN:*Protected
*CITES:*Appendix II
CAMP:--

Distribution:

Nepal: 2000-3500m
Districts:Achham, Baglung, Baitadi, Bajhang, Bajura, Dailekh, Darchula, Dolpa, Doti, Gorkha, Humla, Jajarkot, Jumla, Kalikot, Manang, Mugu, Mustang, and Rukum_E

Availability in Nepal:

Attributes	**Amount**
Potential habitat area (ha)	184,309
Fresh leaf biomass quantity (kg/ha)	11,889.4
Sustainable harvesting quantity of fresh leaf biomass (kg/ha/yr)	2,642.1

Current harvest, process and storage methods:

Harvest period	The fruit ripens till October-November and it is suitable to to harvest the leaf after ripening the fruits which will helps in regeneration
Usable organs/parts	Leaf
Post-harvest treatment(s)	Drying out the leaves
Recommendation	----
No. of person involved in collection/sale	N/A

People's knowledge on quantity of the species:

Well known

Local use of the species:

To treat diseases associated with body ache.

Small pieces of wood from branches for Tea

Informal/Traditional rules for conservation:

N/A

The major problem in cultivation, collection/harvest:

Threats to the species:

Tree cutting and livestock grazing

Forest fire

Haphazard road construction

Other information:

N/A

Citation:

http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=210001316

https://www.conifers.org/ta/Taxus_contorta.php

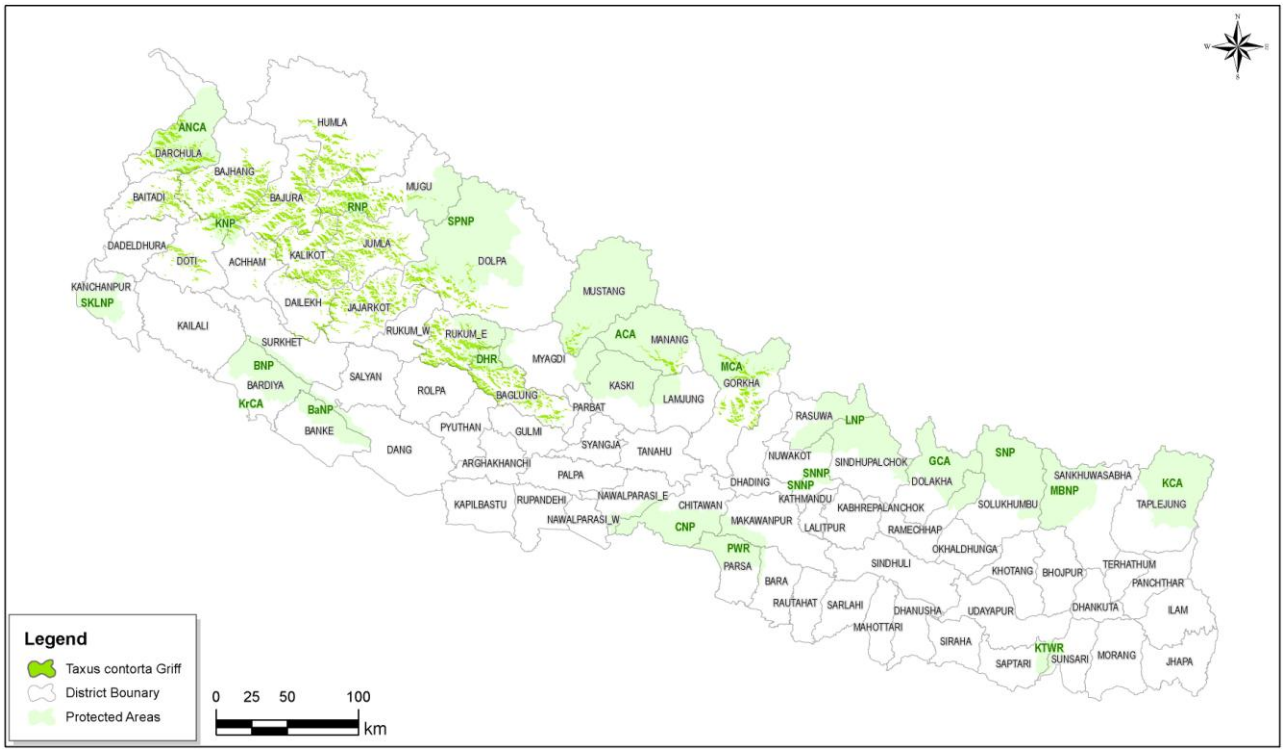

Figure 3: Distribution map of Taxus contorta Griff.

Taxus wallichiana var. mairei[11](Lemée & Lév.) S. Y. Hu Ex T. S. Liu

Family: Taxaceae

Nepali name (s): Mairiko Barme Salla

Local name (s): Barahipate

Common name (s): West Himalayan Yew

Description: Up to 30 m tall tree. Bark thin; variable in colors like red, purple, brown, or gray. Twigs alternate, finely grooved along with decurrent leaf bases,slender, round, green turning orange- or purple-brown. Leaves 2-ranked, spreading at nearly right angles to the shoot, 15-35 × 2-4 mm, linear, thick, coriaceous,marginsrevolute, cuspidate to mucronate apex; upper side midrib raised in 0.2-0.3 mm wide shallow groove and continued to apex; lower side midrib flat with or without papillae and continued to apex; dark green above and with two pale yellow stomatal bands below. Pollen cones axillary in rows, ovoid, 5-6 × 3-4 mm, yellow-green to pale brown, each with 8-14 microsporophylls. Seed cones axillary, solitary or in pairs, form on the lower side of shoots, with aril primarili green and covering the lower half of seed, swelling to orange or red and covering seed, 10-13 × 7-10 mm.

Ecology: Forests of middlehill and high mountain area.

Conservation and legal status:

*IUCN:*Vulnerable

*GoN:*Protected

*CITES:*Appendix II

CAMP:--

Distribution:

Nepal: 1400-2400m mid hills of central Nepal

Districts:Dhading, Kabhrepalanchok, Kathmandu, Lalitpur, Makawanpur, and Sindhuli

Availability in Nepal:

Attributes	**Amount**
Potential habitat area (ha)	31,425
Fresh leaf biomass quantity (kg/ha)	4,280.6
Sustainable harvesting quantity of fresh leaf biomass (kg/ha/yr)	951.3

Current harvest, process, and storage methods:

Harvest period	Fruits ripen till November- December so it is better to harvest after the seed dispersal.
Usable organs/parts	Leaves
Post-harvest treatment(s)	Drying out the leaves
Recommendation	----
No. of a person involved in collection/sale	N/A

People's knowledge on the quantity of the species:

[11]*Taxus mairei* has been reported from Nepal in 2012 and its inclusion in CITES appendix for Nepal has not been thoroughly discussed. The recent publication from Department of Plant Resources has ranked this species in variety under *Taxus wallichiana*. CITES appendices of plant species do not include infraspecies rank of *Taxus wallichiana*. Despite of those variations this study has carried out ecological assessment of all the three taxa separately. It will ease the Scienfific Authority to take right decision on *Taxus wallichiana* var. *mairei* in the future.

Well known

Local use of the species:

To treat diseases associated with bodyache.

Informal/Traditional rules for conservation:

N/A

The major problem in cultivation, collection/harvest:

Threats to the species:

Tree cutting and livestock grazing

Forest fire

Haphazard road construction

Other information:

N/A

Citation:

http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=210001316

https://www.conifers.org/ta/Taxus_mairei.php

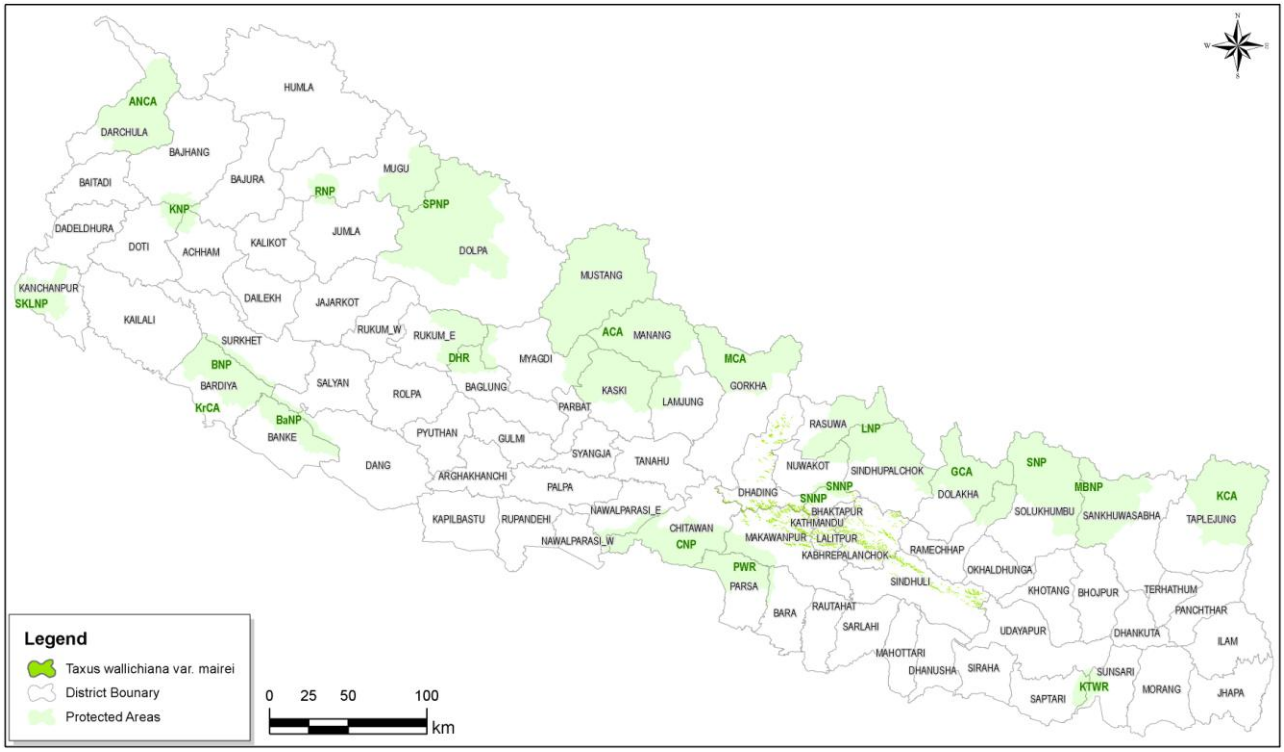

Figure 4: Distribution map of Taxus wallichiana var. mairei

Taxus wallichiana Zucc.

Family: Taxaceae

Nepali name (s): Barme Salla, Dhengre Salla, Silangi, Jhyambarsingh

Local name (s): Thuner

Common name (s): East Himalayan Yew

Description: Dioecious small tree found in moist coniferous and mixed forests with 1–5 m hight. Leaves evergreen, linear, flat with short-petiole, 1–3 cm long needles with a pointed tip. Dark green above, yellowish-green beneath. Spreading in two rows eitherside of the shoot. Flower: male and female flowers on separate individuals. Axillary male inflorescences globose, yellow. Female flowers erect, green, borne singly in the leaf axils. Cone is berry-like structure consist single seed enclosed in a fleshy aril ripening from green to red. Aril open at the top and green seed are visible in the opening.

Ecology: Mostly found along with *Rhododendron spp. Abies spectabilis, Melastoma malabathricum, Quercus semecarpifolia*forests of eastern middlehill and high mountain forest and more abundant in north west facing slopes.

Conservation and legal status:

*IUCN:*Endangered

*GoN:*Protected

*CITES:*Appendix II

CAMP:---

Distribution:

Nepal: 2200-3500m

Districts:Baglung, Bhojpur, Dhading, Dhankuta, Dolakha, Gorkha, Ilam, Kabhrepalanchok, Kaski, Kathmandu, Khotang, Lamjung, Myagdi, Nuwakot, Panchthar, Parbat, Ramechhap, Rasuwa, Sankhuwasabha, Sindhupalchok, Solukhumbu, Taplejung, and Terhathum.

Availability in Nepal:

Attributes	**Amount**
Potential habitat area (ha)	97,369
Fresh leaf biomass quantity (kg/ha)	5,830.1
Sustainable harvesting quantity of fresh leaf biomass (kg/ha/yr)	1,295.6

Current harvest, process, and storage methods:

Harvest period	The fruiting period is September to November so it is advisable to harvest after the fruiting season.
Usable organs/parts	Leaves
Post-harvest treatment(s)	Drying out the leaves

Recommendation ----

No. of a person involved in collection/sale N/A

People's knowledge on the quantity of the species:

Well known

Local use of the species:

To treat diseases associated with bodyache.

Informal/Traditional rules for conservation:

N/A

Major problem in cultivation, collection/harvest:

N/A

Threats to the species:

Tree cutting and livestock grazing

Forest fire

Haphazard road construction

Other information:

N/A

Citation:

http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=210001316

http://www.efloras.org/florataxon.aspx?flora_id=5&taxon_id=200005497

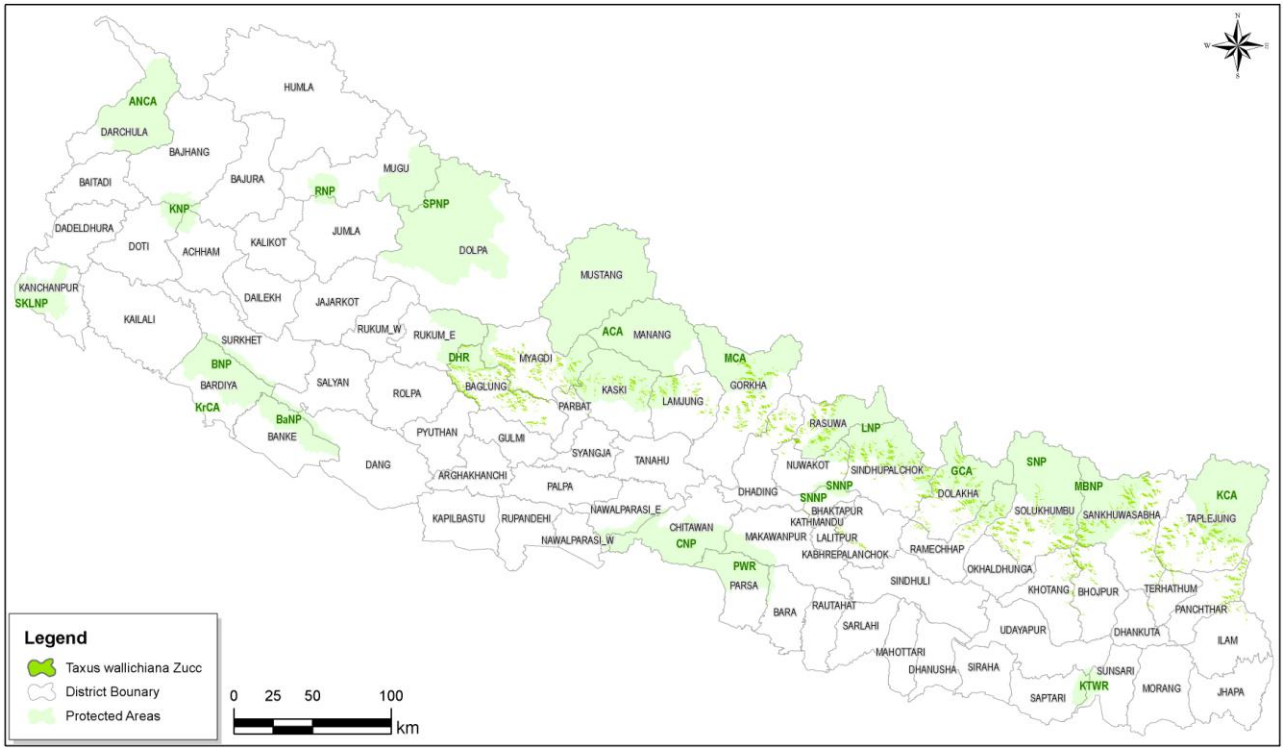

Figure 5: Distribution Map of Taxus wallichiana Zucc.

4. SUSTAINABLE MANAGEMENT OF *TAXUS* SPP.

The demand of *Taxus* sp leafy biomass in the global drugs market is growing day by day as the patients of cancer are increasing. Collection methods and harvested quantity should not spoil the regeneration capabilities of the species. Conservation of habitats and critical minimum level of their population should be maintained during collection. A critical minimum level of plants/part isneeded to be left untouched during the harvesting operation. Species specific critical minimum level of plants/parts differs varied based on the nature of plant. Harvesting resulted in both short and long-term effects on the population dynamics. Lowering the population of specific species resulted from it as vulnerable due to less ability to recover from catastrophic events, like over-harvesting and deforestation.

Twing harvesting

Harvesting of yew leaves in appropriate amount from fully mature tree growing in wild only ensures the sustainable conservation of its population and individuals.Collection of bark and roots is prohibited. Similarly harvesting of any parts from seedling and sapling is also strictly prohibited.

Harvesting season

Harvesting of leaves need to be carried out after seed maturation. The flowering period of the Himalayan yew is March to April and their seeds ripen in September to November (Rikhari *et al.*, 1998; Poudel *et al.* 2012). Small twings should be collected only after November.

Harvesting technique

Collection of yew leaves is recommended only from a healthy and fully grown adult individual. Collection of leaves from saplings and seedlings are not recommended either for 'taxol' extraction or for propagation by cuttings. Process of sustainable harvesting of young leaves from tall trees is difficule task, so tree pruners can be used. Cutting large branches should be prohibited.

Sex ratio

All the three species of yews distributed in Nepal are dioecious, both male and female flowers on the different plants. Ratio of mature male and female individuals is another important factor that needs to be maintained before taking decision about harvesting of twigs. Both sexes should co-exist in a balanced ratio in any population. If there is unbalanced sex ratio collection of leaves should be avoided from the individuals (male/female) with low numbers (Dhar *et al.* 2013).

Estimation of Annual Allowable Harvest (AAH)

Yews are one of the long-lived tree species in the world. More than 5000 years old yew trees have also been recorded from Europe. However yew are slow growing species. Unfortunately natural regeneration of this species through seeds is very poor (Pant *et al.* 2008; Lanker *et al.* 2010). Yews always are found distributed in scattered patches with few individuals. Estimation of AAH should be based on Non-timber forest products resources inventory guidelines 2069 published by Department of Forest and Soil conservation. While estimating annual allowable harvest from natural population, adult individuals having more than 20 cm diameter are only considered. AAH is estimated from the allometric equation devised for yew by Parajuli *et al.* 2001 and the calculation adopted by Yadav 2014.

Sustainable harvesting of yew

Decision on commercial harvesting of leaves is taken based on the inventory of yew population. Commercial collection of yew twigs should not performed from small population. As mentioned in the previous paragraph commercial harvesting should be done from fully grown adult trees aged more than 15-20 years. From adult trees 33% of twigs should be harvested annually. Harvesting should be conducted in rotational basis with three to four years duration. Biomass quantification of cultivated individuals with 20, 10, 7 and 3-5 years is calculated as 57, 27.6, 13.5 and 1.7 kg respectively by DFO-

Lalitpur, 2020. The same report calculated the conversion factor for 1kg of green leaves to dry leaves as 0.43 kg. This indicated leaf collection from new born or 2 to 3 years old individual need to be less than that of full grown individuals. Collection of new born branches after ripening of seeds can effectively reduce the damage to the yew tree and ensures its long term survival as well as maintenance of healthy population in wild.

Monitoring collections from wild

Harvesting new leaves for commercial purpose is challenging for the collectors. Villagers or community forest user groups require adequate awareness and training on appropriate techniques for collecting leaves from fully grown yew trees.Empowered by training they should also be equiped with necessary tools to collect leaves. Monitoring of leaf collection should be regularly performed in the wild habitat by the concerned authorities, who provide collection permission for wild populations of yews.

4.1 In-situ conservation of yew

Conservation of yews in their natural habitat is the best approach to maintain their stable and viable population. This method is also effective to preserve the genetic diversity of the population in the long run.Unsustainable collection of leaves and bark for local uses can also hamper the trees.So, community forest user groups or local villagers needs to aware and provide training on appropriate collection techniques, post harvesting process and uses of taxus parts. *Taxus* species are endangered in Himalaya region, including in Nepal. So, before granting collection permissions for commercial purposes concerned authorities should conduct rigorous inventory and resource assessment of each population subjected to provide collections permission.

Another key challenge in the conservation of yew is its slow regeneration capacity in the wild. Studies have shown that yews along the Himalayas have poor regeneration, germination and survival rate. Yews regeneration in the Himalaya region is mainly hampered by excessive disturbances in the habitat from human and livestock grazing (Lanker *et al.* 2010; Dhar *et al.* 2013; Poudel *et al.* 2014). Such activities should be controlled in the natural habitat of yews and monitoring plan should be developed and implemented in each pocket areas of yews to assess their population trend.

4.2 Ex-situ conservation of yew

Commercial cultivation of yew is necessary to ensure continuous availability of raw materials for 'Taxol' manufacturing companies. Given the high demand of Taxol in the global market, proper cultivation techniques need to be in place. In Nepalese perspective abandoned agriculture land and barren lands, leasehold forests, community forests and private forest areas can be used for its cultivation. Propagation of this species can be done through seeds and cuttings. The method for its cultivation are described as follows:

A. Bed preparation

Nursery bed is laid towards southern or north-east aspect where irrigation is available. While choosing the land for making nursery bed, sloppy areas with occasional flooding should be avoided.The selected area need to fence properly to avoid grazing. Stone or bamboo fence is recommended because it also prevents floodwater of rainy season to enter inside the polytunnel.Bed need to prepare inside polyhouse. Width of the bed is normally of 1 meter while length can be long enough depending on the availability of land area. Most of the time length of bed is 10-15 meters. Height of the seed bed should be maintained more than 5 inch.

B. Seed preparation

In the month of September to October, completely ripen seeds are collected from healthy tree. The red and fleshy covering of seeds are removed and washed with clean water and dried in shady places. Dried seeds are then stored in a sealed container placed inside dry room so that they cannot be destroyed due to insects & rodents attacks and infected by fungus and other micro-organisms.

C. Nursery preparation

Yews are propagated both from seeds and cuttings inside polyhouse. For germination of seeds, dried and clean seeds are normally pre-treated asinserting them in slightly moist sand bed for six months to one year. During this phase, they need to keep moist providing regular water. This practice helps to provide good environment for seed germination. Nursery bed needs to prepare by using sieved and clean sand. Nursery bed is properly prepared by keeping fence of stones, bricks or bamboos along the sides.

D. Seedlings

i) Seed germination

After bed preparation pre-treated seeds are shown below 2 cm and the distance between two consecutive seeds is 15 cm in all directions. The temperature inside polyhouse is maintained to be around 25º C and the bed is regularly watered depending upon the moisture of the top layer of sand. When seeds start to germinate they are kept on bed for one month and then transferred to polybags. Polybags are prepared in advanced with 2:1:1 ratio of soil, fertilizer and sand. Germinating seeds and seedlings should remain in polybags within polyhouse for one year before their plantation.

ii) Cutting

Preparation of seedlings from cuttings of small twigs is most popular and efficient techniques in yew propagation. Healthy fully-grown adult trees are selected for cuttings. It would be better to take cuttings from both sexes in balanced ratio. While harvesting branches for cuttings only the pencil-sized branches need to be collected from the mature tree. It needs to be aware that not more than 33% branches shall be harvested for cuttings preparation.

Mostly branches of one to two years old are appropriate for cuttings. Above two years branches are not suitable for cuttings. Around 15 cm length of each cutting is taken from harvested twigs. These cuttings are then soaked in Rootex-3, root inducing hormone solution and planted in slanted position. Around 3 cm part of the cutting is inserted into the sand. January is an appropriate month for cutting plantation on the nursery bed and mostly roots can be observed after six month in majority of cuttings. Cuttings having roots are then transferred into polybags for one year and then planted in the field sites.

E. Plantation

Field preparation should be completed in advance before plantation. In the plantation sites 0.3 m deep holes need to be prepared with 3 m to 5 m distance between the holes. These holes need to be filled with soil and fertilizers.More than one year old healthy cuttings or seedlings with roots and branches should be planted in the sites.

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ANNEXES

Annex 1 Field schedule for data collection

Population Status of Mostly Traded CITES Listed Plant

Pilot Survey and Training for Surveyer

Date: **2077/11/24 (8 March 2021) - Monday**

Place: **Masine Community Forest, Chandragiri-2, Masine, Kathmandu**

Time	Activities	Remarks
8:00-8:15	Gathering	Arrived at Pallo Bhanjyang (Way to Mashine, anout 1 km towards Kathmandu from Nagdhunga)
8:15-8:45	Walk/Drive	Pallo Bhanjyang - Mashine
8:45-9:15	Breakfast/Snacks	At Mashine
9:15-9:45	Mashine-Sample site	Walk downhill
9:45-11:45	Plot measurement	
11:45-12:15	Sample site-Mashine	Walk uphill
12:15-13:15	Lunch at Mashine	
13:30-14:00	Mashine-Sample site	Walk uphill
14:00-16:00	Plot measurement	
16:00-16:30	Sample site-Mashine	Walk downhill
16:30-16:45	Tea/Snacks	Mashine
16:45-15:30	Mashine-Pallo Bhanjyang	Walk/Vehicle

Participants

SN	Name	Position, Institution
1	Dr. Sanjiv Kumar Rai	Director General, Department of Plant Resources
2	Mr. Deepak Lamichhane	Department of Plant Resources
4	Dr. Bhuvan Keshar Sharma	CODEFUND
5	Dr. Ram Chandra Poudel	CODEFUND
6	Mr. Surya Man Shrestha	CODEFUND
7	Mr. Shikhar Rai	CODEFUND
8	Mr. Aashish Tiwari	CODEFUND

Population Status of Mostly Traded CITES Listed Plant

Field study – 1

<u>Jumla, Mugu and Baitadi (Western Florestic Region)</u>

Day	Date	Place	Activity	Remarks
1.	2077/12/02	KTM- Nepalgunj	Travel	Air travel
2.	2077/12/03	Nepalgunj- Jumla	Travel	Travel by vehicle; Night stay
3.	2077/12/04	Jumla	Coordination; information collection	Coordinate with Regional Office of DPR; DFO; discuss about the field survey; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel, etc.) of Taxus sp
4.	2077/12/05	Jumla	Field assessment	Field survey in Jumla district
5.	2077/12/06	Jumla-Mugu	Travel; coordination; information collection	Verify the availability of Taxus sp on the way; Coordinate with Rara NP; discuss the field survey; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel etc.) of Taxus sp
6.	2077/12/07	Mugu	Field assessment	Field survey in Mugu District
7.	2077/12/08	Mugu-Kalikot	Travel	Travel by vehicle; Night Stay
8.	2077/12/09	Kalikot-Kailali	Travel	Travel by vehicle; Night Stay
9.	2077/12/10	Kailali-Baitadi	Travel	Travel by vehicle; Coordination with DFO; discuss about the field survey; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel etc.) of Taxus sp; Night Stay
10.	2077/12/11	Baitadi (plot)	Field Assessment	Field survey in Baitadi District
11.	2077/12/12	Baitadi (plot)	Field Assessment	Field survey in Baitadi District
12.	2077/12/13	Baitadi-Nepaljung	Travel	Travel by vehicle; Night Stay
13.	2077/12/14	Nepalgunj-KTM	Travel	Air Travel

Population Status of Mostly Traded CITES Listed Plant

Field study – 2

Taplejung, Terathum, Sankhuwasabha and Bhojpur (Eastern Florestic Region)

Day	Date	Place	Activity	Remarks
1.	2077/12/16	KTM- Taplejung	Travel; Coordination; information collection	Air travel; Coordinate with DFO; KCA; discuss about the field survey; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel, etc.) of Taxus sp
2.	2077/12/17	Taplejung-Tallo Phedi	Field assessment	Field survey in Taplejung
3.	2077/12/18	Tallo Phedi	Field assessment	Field survey in Taplejung
4.	2077/12/19	Tallo Phedi-Phidim	Travel	Vehicle
5.	2077/12/20	Phidim-Terathum	Travel	Vehicle
6.	2077/12/21	Terathum	Field assessment	Coordinate with DFO; discuss about the field survey; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel, etc.) of Taxus sp
7.	2077/12/22	Terathum-Gufa Pokhari (Sankhuwasabha)	Travel	Vehicle
8.	2077/12/23	Gufa Pokhari-Tinjure	Field assessment; Travel	Field survey in Gufa Pokhari, Tinjure Milke area; Vehicle travel
9.	2077/12/24	Terathum-Bhojpur	Travel	Vehicle
10.	2077/12/25	Bhojpur	Field assessment	Coordinate with DFO; discuss the field survey; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel, etc.) of Taxus sp
11.	2077/12/26	Bhojpur-Suntale	Field assessments	Field survey in Suntale
12.	2077/12/27	Bhojpur-Kathmandu	Travel	Vehicle

Population Status of Mostly Traded CITES Listed Plant

Field Study – 3

Taplejung, Terathum, Sankhuwasabha and Bhojpur (Central Florestic Region)

Day	Date	Place	Activity	Remarks
1.	2077/12/16	KTM- Ghalegaun	Travel	Vehicle
2.	2077/12/17	Ghalegaun	Field assessment	Coordinate with ACA; Discuss about the field survey; Field assessment; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel, etc.) of Taxus sp
3.	2077/12/18	Ghalegaun-Manang (Manang)	Travel	Vehicle
4.	2077/12/19	Manang-Pisang	Field assessment; Travel	Field assessment; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel etc.) of Taxus sp; Vehicle
5.	2077/12/20	Pisdang-Chame	Field assessment, Travel	Field assessment; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel, etc.) of Taxus sp
6.	2077/12/21	Chame-Dharapani-Bimthang	Travel	Vehicle; On foot
7.	2077/12/22	Bimthang	Field assessment	Field assessment; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel, etc.) of Taxus sp
8.	2077/12/23	Bimthang-Dharapani	Travel	On foot
9.	2077/12/24	Dharapani-Besisahar	Travel	Vehicle
10.	2077/12/25	Besisahar-Kathmandu	Travel	Vehicle
11.	2077/12/26	KTM-Chitlang-KTM	Field assessment	Field assessment; collect existing information and trade status (collection quantity, collection and trading places, market chain, market custody, value chain, trade route and channel, etc.) of Taxus sp

Population Status of Mostly Traded CITES Listed Plant

Final Survey

Date: **2077/12/30 (12 April 2021) - Monday**

Place: **Chulipran Community Forest, Chitlang, Makawanpur**

Time	Activities	Remarks
7:00-7:15	Gathering	Arrived at CODEFUND office, Koteswar
7:15-11:15	Travel	Koteswar to Chitlang, snacks on the way
11:15-11:45	Discussion	Chairperson and members of Community Forest
11:45-13:45	Field assessment	Chulipran Community Forest
13:45-14:45	Lunch	In Chitlang
14:45-18:45	Travel	Chitlang - Kathmandu

Participants

SN	Name	Institution
1	Ms. Madhu Ghimire	DPR
2	Ms. Kalpana Sharma (Dhakal)	DPR
3	Dr. Bhuvan Keshar Sharma	CODEFUND
4	Mr. Aashish Tiwari	CODEFUND
5	Mr. Shikhar Rai	CODEFUND

Annex 2 General characteristics of surveyed plots

SN	Florestic region	District	Site name	Altitude	Latitude (N)	Longitude (E)	Aspect	Slope (°)	Population structure (Individuals/ha)					Remarks
									Seedling (<5cm DBH)	Sapling (5-10 cm DBH)	Small pole (10-20 cm DBH)	Pole (20-30 cm DBH)	Mature (>30 cm DBH)	
1	Western	Jumla	Foi kalika CF	2490	29.25596	82.234949	NW	35	397.73	0.00	49.72	7.07	0.00	Cutting & grazing
2		Jumla	Foi kalika CF	2497	29.255854	82.238291	NW	32	596.54	99.43	99.43	0.00	0.00	Cutting & grazing
3		Jumla	Gostadanda (national forest)	2740	29.240136	82.22634	NE	20	0.00	0.00	0.00	7.07	0.00	Cutting, grazing and fire
4		Jumla	Gostadanda (national forest)	2870	29.336	82.223622	E	22	0.00	0.00	24.86	0.00	0.00	Cutting, grazing and fire
5		Mugu	Nijar Pul (Rara NP)	2990	29.528126	82.065509	N	32	596.54	0.00	24.86	3.54	3.98	
6		Mugu	Nijar Pul (Rara NP)	3020	29.527871	82.064405	N	33	0.00	0.00	37.29	0.00	3.98	
7		Mugu	Majh ghatta(Rara NP)	2975	29.529108	82.06064	N	29	198.85	99.43	49.72	7.07	0.00	
8		Mugu	Majh ghatta(Rara NP)	3025	29.528122	82.059923	NW	20	596.54	0.00	37.29	3.54	0.00	
9		Baitadi	Basanta hariyali CF, dholmoda	2440	29.532101	80.7203	E	41	0.00	0.00	0.00	7.07	1.99	About 1500 T. contorta trees in the CF. Taxus sp appear.
10		Baitadi	Basanta hariyali CF, dholmoda	2415	29.531557	80.72135	NE	35	596.54	49.72	62.14	0.00	0.00	Thining of CF just finalized. So, very less shrubs and seedlings
11		Baitadi	Basanta hariyali CF, dholmoda	2375	29.531941	80.722595	N	30	0.00	49.72	37.29	3.54	0.00	
12		Baitadi	Basanta hariyali CF, dholmoda	2387	29.532328	80.721133	NE	30	198.85	0.00	24.86	0.00	3.98	
13	Central	Makwanpur	Chulipran CF, Chitlang	1942	27.66898	85.133841	W	39	0.00	0.00	0.00	3.54	9.94	
14		Makwanpur	Chulipran CF, Chitlang	1932	27.670499	85.135379	NW	37	0.00	0.00	0.00	0.00	1.99	
15		Kathmandu	Masine	1628	27.41538	85.1113	NE	60	0.00	0.00	0.00	3.54	3.98	
16		Dhading	Masine	1599	27.41611	85.11138	NE	56	0.00	0.00	0.00	10.61	0.00	
17		Lamjung	Bujung, ACAP	2793	28.34542	84.277806	S	25	0.00	0.00	0.00	0.00	3.98	
18		Lamjung	Bujung, ACAP	2766	28.341412	84.280462	SE	20	0.00	0.00	0.00	7.07	3.98	
19		Lamjung	Bujung, ACAP	2724	28.341849	84.279966	SE	35	0.00	0.00	0.00	0.00	3.98	
20		Lamjung	Bujung, ACAP	2710	28.33861	84.28145	SE	40	0.00	0.00	0.00	0.00	1.99	
21		Manang	Dukhurpokhari, ACAP	3206	28.602346	84.178624	NE	27	994.23	0.00	0.00	0.00	1.99	
22		Manang	Dukhurpokhari, ACAP	3187	28.602284	84.17908	SW	35	1590.77	0.00	24.86	3.54	1.99	
23		Manang	Sworgaduwari, ACAP	3150	28.602134	84.170036	E	30	2386.16	0.00	24.86	7.07	0.00	Road fragmenated the Taxus sp habitat
24		Manang	Chame gate, ACAP	3153	28.550612	84.248122	NE	20	596.54	0.00	24.86	0.00	0.00	
25		Manang	Thimang, ACAP	2567	28.551424	84.26936	NE	40	0.00	0.00	12.43	0.00	5.97	
26	Eastern	Taplejung	Simbu CF	2872	27.410626	87.762891	SE	40	0.00	99.43	0.00	0.00	0.00	Cutting & grazing
27		Taplejung	Kaflepati	2801	27.404803	87.755149	W	35	0.00	0.00	0.00	3.54	1.99	Cutting & grazing
28		Taplejung	Simbu CF (Bhalugade)	2729	27.398359	87.752859	E	25	0.00	0.00	12.43	0.00	1.99	Cutting & grazing
29		Taplejung	Kaflepati	2931	27.410019	87.756947	NW	30	0.00	0.00	0.00	0.00	1.99	Cutting & grazing
30		Terathum	Shreeshaibek CF	2737	27.19807	87.479375	N	55	0.00	0.00	0.00	0.00	7.95	
31		Terathum	Shreeshaibek CF	2721	27.198052	87.478665	NE	30	0.00	0.00	0.00	0.00	3.98	
32		Terathum	Shreeshaibek CF	2749	27.198284	87.478113	NE	35	0.00	0.00	0.00	0.00	3.98	
33		Terathum	Hulaketar	2800	27.190881	87.477018	NE	45	0.00	0.00	0.00	0.00	5.97	
34		Bhojpur	Tintale, kalopokhari (sampang)	2545	27.291275	87.060094	W	60	198.85	99.43	24.86	0.00	0.00	Cutting & grazing
35		Bhojpur	deurali, kalopokhari (kimalung)	2540	27.290949	87.05753	W	40	0.00	0.00	12.43	3.54	0.00	Cutting & grazing
36		Bhojpur	Temke	2877	27.168709	86.906851	S	45	0.00	0.00	0.00	0.00	1.99	
37		Bhojpur	Temke	2850	27.168652	86.90716	SE		0.00	0.00	0.00	0.00	3.98	

Annex 3 Distribution of Taxus spp. in different districts

Taxus wallichiana			*Taxus contorta*			*Taxus wallichiana* var. *mairei*		
SN	**Districts**	**Area_ha**	**SN**	**Districts**	**Area_ha**	**SN**	**Districts**	**Area_ha**
1	Baglung	9,700	1	Achham	1,609	1	Dhading	5,261
2	Bhojpur	2,420	2	Baglung	13,322	2	Kabhrepalanchok	6,108
3	Dhading	2,636	3	Baitadi	3,922	3	Kathmandu	1,365
4	Dhankuta	2	4	Bajhang	17,741	4	Lalitpur	2,579
5	Dolakha	6,114	5	Bajura	18,757	5	Makawanpur	5,949
6	Gorkha	8,075	6	Dailekh	2,424	6	Sindhuli	3,793
7	Ilam	467	7	Darchula	12,231	**Total**		**25,055**
8	Kabhrepalanchok	1,211	8	Dolpa	8,375			
9	Kaski	2,743	9	Doti	3,773			
10	Kathmandu	142	10	Gorkha	10,135			
11	Khotang	930	11	Humla	9,553			
12	Lamjung	2,725	12	Jajarkot	12,146			
13	Myagdi	9,026	13	Jumla	13,277			
14	Nuwakot	1,070	14	Kalikot	14,919			
15	Panchthar	2,978	15	Manang	1,916			
16	Parbat	468	16	Mugu	14,667			
17	Ramechhap	2,451	17	Mustang	1,573			
18	Rasuwa	5,275	18	Rukum_E	13,945			
19	Sankhuwasabha	11,666	**Total**		**174,287**			
20	Sindhupalchok	7,357						
21	Solukhumbu	8,697						
22	Taplejung	9,898						
23	Terhathum	643						
Total		**96,695**						

Source:Field assessment 2021