Nardostachys jatamansi (D.Don) DC. 1016 Caprifoliaceae

Nomenclatural reference 1217 Govaerts, R. (2022): The World Checklist of Vascular Plants (WCVP). – Royal Botanic Gardens, Kew. Checklist dataset of 2022-12-08. Retrieved from https://sftp.kew.org/pub/data-repositories/WCVP/, viewed 4.3.2023.

Summary

Intrinsic Traits

Distribution	Nardostachys jatamansi is is considered endemic to the Himalayas and the Sino-Himalayan region, with confirmed occurrences in China, Bhutan, India, Nepal, and Myanmar. It is particularly widespread in the Himalayan mountain range, where it is found from northern India through Nepal and Bhutan to southwestern China.
Abundance	The species may grow in dense patches but is not frequent in any habitats where it is found. Density and frequency increase with altitude. Patches may be denser on west-facing slopes. In China, the majority of its range is in the eastern Tibetan Plateau. In Nepal, it is found in most of the northernmost mountain districts and can be regarded as common in its high altitudinal range. In India, its density varies among the alpine regions in which it occurs. It's occurrence in Bhutan is rare.
Habitat	The species thrives in alpine and sub-alpine habitats, including rocky slopes, alpine meadows, juniper and rhododendron scrub, and open pine forests. It grows on moist, steep, undisturbed grassy slopes, glacial flats, and moss-laden rocks. It grows at high altitudes from 2200 to 5000m.
Regeneration	The species reproduces both vegetatively and generatively, though vegetative reproduction is more dominant. The plant exhibits extensive clonal growth, producing dense clumps of ramets (vegetative clones). While sensitive to harvest, it regenerates easily from underground propagules, particularly when harvested in autumn. Replanting the upper 2 cm of the rhizome provided the fastest regeneration and rhizome biomass growth.
Reproduction	Seed-based reproduction is limited, with low seed germination rates (10–20%) and no persistent seed bank. Plants take 3–5 years to reach reproductive maturity, and seedling establishment in the wild is rare. However, flowering frequency and seed recruitment are higher in meadows. The flowers are hermaphroditic and pollinated by bees, flies, butterflies, ants, and thrips.
Plant Parts	Rhizomes and roots and to a lesser extent the leaves and exudates are used.
Lifeform	Perennial herb, consistently described as herbaceous across multiple sources. It typically grows to an average height of about 35 cm, though it can range from 10 to 60 cm.
Systematics	Jatamansi is a traditional Himalayan medicinal plant. Since its original botanical descriptions in the late 18th century it has taken until the late 20th century until the botanical identify could be revealed. It became clear that two separate species are used under the local name "jatamansi": The one entering in international trade is called Nardostachys jatamansi (D.Don) DC., the other species is Valeriana jatamansi Jones, a medicinal plant of more local use. The situation was blurred in the past by the existence of the name Valeriana jatamansi sensu D.Don. This name belongs in the synonymy of Nardostachys jatamansi (D.Don) DC. Another synonym of our species is Nardostachys grandiflora DC., a name which until today is used for the taxon in the CITES context.

Extrinsic Traits

Threat Status	Nardostachys jatamansi has been assessed globally by IUCN as Critically Endangered (CR) in 2023 and previously in 2015. At the national level, Nepal has classified the species as Vulnerable (VU) in 2002. Bhutan assessed the species as Vulnerable (V) in 1997.. China classified the species as Least Concern (LC) in 2013.
Threats	The primary threats to Nardostachys jatamansi are overharvesting and habitat loss, with varying degrees of impact across its range. Overharvesting of rhizomes for medicinal use and international trade is the most frequently cited threat, particularly in Nepal and India. The species is uprooted indiscriminately, significantly reducing regeneration potential, and leading to severe population declines—over 80% in some Himalayan regions. High market demand, lack of sustainable harvest practices, and destructive collection methods exacerbate this threat. Habitat loss, fragmentation, and degradation due to road construction, agricultural expansion, human settlements, fires and deforestation are also major concerns. Unregulated grazing further depletes populations, particularly in high-altitude meadows.
Purpose	Indian Spikenard is primarily valued for its medicinal properties, especially in traditional Asian

	medicine (Tibetan, Ayurvedic, Chinese, and Indian systems), as well as in current medicine. The rhizomes and extracts are widely used to treat ailments like high blood pressure, epilepsy, insomnia, asthma, digestive issues, and nervous disorders. It also has anti-cancer and anti-inflammatory properties. Beyond medicine, it has social and cosmetic uses, particularly in incense, perfumes, and hair care. Additionally, it serves as a food additive and spice. The plant also provides essential oils for various applications and acts as a natural insect repellent.
Use Fields	Medicine; Social Use; Food additive; Material.
Trade Trend	The international trade of Nardostachys jatamansi is largely based on unprocessed rhizomes, though essential oil and extracts are also exported in smaller quantities. Nepal dominates the global supply, contributing an estimated 82–95% of exports, followed by India (13%) and Bhutan (5%). India is the primary importer, receiving approximately 1,000 tonnes annually. Nepal's reported exports vary widely between sources: •Some reports indicate 200 tonnes/year, while another suggests 100–436 tonnes/year. •A long-term study suggests Nepal exports approximately 1,000 tonnes/year to India. •Between 2008 and 2018, 1,603 tonnes of rhizomes and 23 tonnes of oil were exported. •However, CITES trade data for 2010–2017 lists an average of 252 tonnes/year, with a peak of 787 tonnes in 2015. These figures indicate discrepancies between reported trade levels and officially documented exports. Nepal's government-assigned quota of 935 tonnes/year was exceeded by 30% in 2014–2015, suggesting a significant portion of trade occurs outside regulatory frameworks. Harvesting is almost exclusively from the wild. Cultivation remains limited despite efforts in India, Nepal, China, and Japan. Nepal's agroforestry initiatives remain small-scale. Overall, Nardostachys jatamansi is in significant global trade, with a rising long-term trend and ongoing concerns about regulatory enforcement and overharvesting. According to the CITES Trade Database, source country exports in the years 2010-2017 are from NP only. Export as roots in this period only took place in 2011 and 2012 (77 mt and 93 mt). All other trade was declared as oil, derivatives or extracts. Between 2010-2017, an average of 252 mt per year was exported from NP with a maximum of 787 mt in 2015. Main importing countries of these products were IN (total 830 mt) and PK (total 386 mt). These figures, however, show an incomplete picture because CITES enforcement is often ineffective.
Legislation	Nardostachys jatamansi (D.Don) DC. is protected by CITES Appendix II since 1997. It is listed in CITES under the synonym name N. grandiflora DC. It is clear that the other species traded locally as "jatamansi", Valeriana jatamansi Jones is not protected by CITES. While the species is listed in CITES. undocumented trade remains widespread, particularly between Nepal, Bhutan, and India, and CITES enforcement is often ineffective. In India, the species is protected under the Indian Forest Act (1927) and the Wildlife (Protection) Act, which ban mass collection from the wild. Despite this, illegal harvesting continues, and official records of legally collected rhizomes are scarce. Nepal has several regulations, including licensing for commercial collection, transport permits, and a ban on the export of unprocessed rhizomes. Enforcement is weak, with poor monitoring at customs checkpoints and bribery undermining controls. In Bhutan, harvesting requires approval under the Forest and Nature Conservation Act (1995), but currently no export quotas exist; yet a quota of 18mt/yr is proposed. In China, as of 2021, the species is under 'second conservation level' protection, requiring collection permits for harvesting.

Taxonomy and Identification

Taxonomy	*Reference*	
Weberling gives priority to the name N. jatamansi (D.Don) DC. for his taxon in which he also includes N. chinensis Batalin and N. gracilis Kitamura. His wide concept of only one accepted species in the genus is based on his observations that the morphological traits of all populations in the area are connected by transitions.	8213	Weberling, F. (1978): Monographie der Gattur
Mabberley & Noltie make clear that "Valeriana jatamansi sensu D.Don, in Lamb. (1821) 180, t., non Jones (1790)" belongs in the synonymy of Nardostachys jatamansi (D.Don) DC. They clearly distinguish it from the accepted species Valeriana jatamansi Jones "a medicinal plant of more local importance".	3694	Mabberley, D.H. & Noltie, H.J. (2014): A note
"the local name […] for the important drug plant jatamansi is Nardostachys jatamansi (D.Don) DC., indeed the name in current use in the scientific literature"	3694	
The name Valeriana jatamansi has been coined by different authors (=autonyms): Valeriana jatamansi Jones ex Roxb. is an accepted species (its native range is E. Afghanistan to Central & E. Central China and N. Indo-China). It is different from Valeriana jatamansi D.Don which is in the synonymy of Nardostachys jatamansi (D.Don) DC.	1126	World Checklist of Selected Plant Families, R
"1 Himal.: N. jatamansi (D. Don) DC. (N. grandiflora, jatamansi, Ind. nard, spikenard)"	3753	Mabberley, D.J. (2017): The plant-book. 4th e
The supporting statement of the 1997 proposal to include jatamansi in CITES Appendix II (under the name N.grandfolia DC.) clearly shows the intention of the Indian authorities which taxon they proposed for inclusion: They include "Valeriana jatamansi sensu D.Don" in the synonymy while Valeriana jatamansi Jones is not mentioned.	4755	India (1997): CITES Proposal. Inclusion of Na

Nardostachy grandiflora is the name used in the Indian CITES listing proposal and has since been accepted as the accepted name in the CITES context until today.	1169	WCMC Species+ Database - http://speciespl
Nardostachy grandiflora is the name used in as the accepted name in the CITES context until today.	7141	UNEP-WCMC (s.dat.): Species+. Retrieved fr
"much of the conservation literature […] still uses the name N. grandiflora"	3694	Mabberley, D.H. & Noltie, H.J. (2014): A note

Synonyms

Synonym	Eval	Ref	
Nardostachys chinensis Batalin		1217	Govaerts, R. (2022): The World Checklist of Vascular Plants (WCVP). –
Nardostachys gracilis Kitam.		1217	
Nardostachys grandiflora DC.		1217	
Nardostachys jatamansi C.B.Clarke		1217	
Patrinia jatamansi D.Don		1217	
Valeriana jatamansi D.Don		1217	

Taxon Present in Pharmacopoeias and other References

Name as used in Source	Status	Reference	
Nardostachys chinensis Batal.		3586	Zhonghua Bencao Editorial Committee, Chinese State Administration of TCM (ed.) (1998): Zhonghua Bencao (Materia Medica of China), Vol. 1-10. Shanghai Scientific and Technical Press, Shanghai. Retrieved from http://www.zysj.com.cn/zhongyaocai/zhonghuabenca
Nardostachys grandiflora DC.		2156	FRLHT - Indian Medicinal Plants Database - http://www.medicinalplants.in/
Nardostachys grandiflora DC.		3586	Zhonghua Bencao Editorial Committee, Chinese State Administration of TCM (ed.) (1998): Zhonghua Bencao (Materia Medica of China), Vol. 1-10. Shanghai Scientific and Technical Press, Shanghai. Retrieved from http://www.zysj.com.cn/zhongyaocai/zhonghuabenca
Nardostachys jatamansi (D.Don) DC.		3586	
Nardostachys chinensis		8394	Therapeutic Goods Administration (ed.) (2007): Substances that may be used in listed medicines in Australia. Therapeutic Goods Administration, Symonston. Retrieved from http://www.tga.gov.au/cm/listsubs.pdf, viewed: 25.01.2009.
Nardostachys chinensis Batal		8389	Anon. (2002): The Korean Herbal Pharmacopoeia (English edition). Korea Food and Drug Administration, sine loco.
Nardostachys chinensis Batal.		8374	China Pharmacopoeia Commission (ed.) (2005): Pharmacopoeia of the People's Republic of China 2005. 3 volumes. People's Medical Publishing House, Beijing.
Nardostachys chinensis Batalin		6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. & Tucker, A.O. (2000): Herbs of commerce. 2nd edition. AHPA, Silver Spring, USA.
Nardostachys gracilis Kitamura		2156	FRLHT - Indian Medicinal Plants Database - http://www.medicinalplants.in/
Nardostachys grandiflora		3145	Brinckmann, J.A., Kathe, W., Berkhoudt, K, Harter, D.E.V. & Schippmann, U. (2022): A new global estimation of medicinal and aromatic plant species in commercial cultivation and their conservation status. Economic Botany 22(10): 1-15.
Nardostachys grandiflora		5641	Lange, D. (1998): Europe's medicinal and aromatic plants. Their use, trade and conservation. Traffic International, Cambridge.
Nardostachys grandiflora		7279	van Wyk, B.-E. & Wink, M. (2004): Medicinal plants of the world. Timber Press, Portland.
Nardostachys grandiflora DC.		1180	GRIN (17.3.2015): Download World Economic Plants report from GRIN Taxonomy for the query. Medizin = 'Alle Nutzungen'. Retrieved from http://www.ars-grin.gov/cgi-bin/npgs/html/taxecon.pl?language=de
Nardostachys grandiflora DC.		3145	Brinckmann, J.A., Kathe, W., Berkhoudt, K, Harter, D.E.V. & Schippmann, U. (2022): A new global estimation of medicinal and aromatic plant species in commercial cultivation and their conservation status. Economic Botany 22(10): 1-15.
Nardostachys grandiflora DC.		3221	Goraya, G.S. & Ved, D.K. (2017): Medicinal plants in India. An assessment of their demand and supply. National Medicinal Plants Board & Indian Council of Forestry Research & Education, New Delhi & Dehradun. Retrieved from http://www.rcfceast.org/wp-conten
Nardostachys grandiflora DC.		8874	Anon. (s.dat. [2008]): Siddha Pharmacopoeia of India. Vol. 1. Ministry of Health and Family Welfare, sine loco. Retrieved from http://www.comsys.com.sg/pdf/Siddha_Herbs.pdf, viewed: 14.05.2012.
Nardostachys grandiflora DC.		9003	Anon. (2009): Monograph on medicinal plants of Bhutan. Volume 2. Institut of Traditional Medicine Services, Thimphu. Retrieved from http://herbalnet.healthrepository.org/bitstream/123456789/2054/5/Monograph%20on%20Medicinal%20Plants%20of%20Bhutan%20Volume
Nardostachys grandiflora de Candolle		6667	Manandhar, N.P. & Manandhar, S. (2002): Plants and people of Nepal. Timber Press, Portland.
Nardostachys jatamansi (D.Don) DC.		1101	Hänsel, R. & al. (1992-1998): Hagers Handbuch der pharmazeutischen Praxis. 5. Auflage.5 volumes [4179, 4180, 4181, 6097, 6098]

Nardostachys jatamansi (D.Don) DC.	3221	Goraya, G.S. & Ved, D.K. (2017): Medicinal plants in India. An assessment of their demand and supply. National Medicinal Plants Board & Indian Council of Forestry Research & Education, New Delhi & Dehradun. Retrieved from http://www.rcfceast.org/wp-conten
Nardostachys jatamansi (D.Don) DC.	3561	Quattrocchi, U. (2012): World dictionary of medicinal and poisonous plants. Common names, scientific names, eponyms, synonyms, and etymology. CRC Press, Boca Raton.
Nardostachys jatamansi (D.Don) DC.	6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. & Tucker, A.O. (2000): Herbs of commerce. 2nd edition. AHPA, Silver Spring, USA.
Nardostachys jatamansi (D.Don) DC.	8547	Ved, D.K. & Goraya, G.S. (2008): Demand and supply of medicinal plants in India. FRLHT, Bangalore.
Nardostachys jatamansi DC.	3091	National Pharmacopoeia Commission (ed.) (2020): Zhōnghuá rénmín gònghéguó yàodiǎn. 2020 Niánbǎn. Yī bù [Pharmacopoeia of the People's Republic of China. 2020 edition. Volume 1; in Chinese]. China Medical Science and Technology Press, Beijing.
Nardostachys jatamansi DC.	8374	China Pharmacopoeia Commission (ed.) (2005): Pharmacopoeia of the People's Republic of China 2005. 3 volumes. People's Medical Publishing House, Beijing.
Nardostachys jatamansi DC.	8388	Anon. (1999-2011): The Ayurvedic Pharmacopoeia of India. Part I, Vol. I-VII, 1st edition. Government of India, Ministry of Health and Family Welfare, . Retrieved from http://www.ayurveda.hu/api.html, viewed: 14.05.2012.
Nardostachys jatamansi DC.	8871	China Pharmacopoeia Commission (ed.) (2010): Pharmacopoeia of the People's Republic of China. English edition. Ed. 9. Stationery Office Books, s.loc.
Nardostachys jatamansi DC.	9003	Anon. (2009): Monograph on medicinal plants of Bhutan. Volume 2. Institut of Traditional Medicine Services, Thimphu. Retrieved from http://herbalnet.healthrepository.org/bitstream/123456789/2054/5/Monograph%20on%20Medicinal%20Plants%20of%20Bhutan%20Volume
Nardostachys jatamansi Roxb.	8545	Anon. (2009): International Standard ISO 4720. Third edition 2009-08-15. Essential oils. Nomenclature (in English and French). International Organization for Standardization, Geneva.
Patrinia jatamansi D.Don	3586	Zhonghua Bencao Editorial Committee, Chinese State Administration of TCM (ed.) (1998): Zhonghua Bencao (Materia Medica of China), Vol. 1-10. Shanghai Scientific and Technical Press, Shanghai. Retrieved from http://www.zysj.com.cn/zhongyaocai/zhonghuabenca

Common Names

Common Name	Typ	Language	Country	Ref	
achte narde	ver	German		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Akashamansi	ver	Sanskrit (Saṁskṛta		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
baalchad	ver	Gugrati		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Balchad	ver			5474	Ved, D.K. & Tandon, V. (ed.) (1998): Cons
bal-chad	ver	Hindi		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Balchar	ver			5534	Sharma, M.P. (1996): Nomenclatural ambi
balchar	ver	Hindi, Punjabi		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Bal-chhar	ver	Hindi		4755	India (1997): CITES Proposal. Inclusion of
Balchir	ver	Hindi		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
baluchar	ver		IN	4180	
Balu-char	ver	Hindi		4755	India (1997): CITES Proposal. Inclusion of
Bbultya	ver	Nepali		6667	Manandhar, N.P. & Manandhar, S. (2002):
bhootajata	ver	Kannada		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
bhultya	tra	Nepali	NP	6667	Manandhar, N.P. & Manandhar, S. (2002):
Bhutajat	ver	Sanskrit (Saṁskṛta		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
bhutajata	ver	Gugrati		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
bhutijata	ver	Kashmiri		4130	
bhutijatt	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Bhutijatt	ver	Kashmiri		5334	Anon. (1948-1997): Wealth of India. A dicti
bhutle	ver		NP	4132	Chapagain, A., Wang, J. & Pyakurel, D. (2
bhytajata	ver	Sanskrit		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
billilotan	ver	Punjabi		4130	
Chinese nardostachys	scn			6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. &
Espica-nardo	ver	Spanish; Castilian		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
gan song	ver			1180	GRIN (17.3.2015): Download World Econo
Gan song	ver	Chinese		1122	Mansfeld's World Database of Agricultural
ganagilamaste	ver	Kannada		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Gansong	tra	Chinese		5261	Pei Shengji, Li Yanhui & Yin Shuze (1996):
gansong	ver	Chinese		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Haswa	ver	Nepali		5334	Anon. (1948-1997): Wealth of India. A dicti
hint sumbulii	ver	Turkish		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Indian nard	ver			1180	GRIN (17.3.2015): Download World Econo
Indian Nard	ver	English		4755	India (1997): CITES Proposal. Inclusion of

Indian nard	ver	English		1100	GRIN Database (Germplasm Resources In
Indian nard	ver	English		5797	Wiersema, J.H. & Leon, B. (1999): World
Indian nard	ver	English		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Indian spikenard	ver			1180	GRIN (17.3.2015): Download World Econo
Indian spikenard	ver	English		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Indian spikenard	ver	English		1100	GRIN Database (Germplasm Resources In
Indian Spikenard	ver	English		2248	Husain, A., Virmani, O.P., Popli, S.P., Misr
Indische Narde	ver	German		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Indische narde	ver	German		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Jantamansi	ver			5534	Sharma, M.P. (1996): Nomenclatural ambi
jata jatila	ver	Hindi		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Jataamaansee	ver	Sanskrit (Saṁskṛta		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Jataamaansi	ver	Kannada		2248	Husain, A., Virmani, O.P., Popli, S.P., Misr
jatamama	ver	Telugu		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Jatamamshi	ver	Malay		5334	Anon. (1948-1997): Wealth of India. A dicti
Jatamamsi	ver	Sanskrit (Saṁskṛta		5044	Abdul Kareem, M. (1997): Plants in Ayurve
jatamanchi	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
jatamanchi	ver	Malayalam		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Jatamangsi	ver	Nepali		4755	India (1997): CITES Proposal. Inclusion of
Jatamangsi	ver	Nepali		5334	Anon. (1948-1997): Wealth of India. A dicti
jatamanshi	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Jatamanshu	ver			5503	Shah, N.C. (18.5.1998): in litt. to the Germ
Jatamansi	ayn			6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. &
jatamansi	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
jatamansi	ver			1180	GRIN (17.3.2015): Download World Econo
jatamansi	scn			6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. &
Jatamansi	ver	Bengali		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Jatamansi	ver	Bengali		4755	India (1997): CITES Proposal. Inclusion of
Jatamansi	ver	Bhutanese		5334	Anon. (1948-1997): Wealth of India. A dicti
Jatamansi	ver	Bhutanese		4755	India (1997): CITES Proposal. Inclusion of
jatamansi	ver	English		6369	McGuffin, M., Kartesz, J.T., Leung, A.Y. &
Jatamansi	ver	Garhwali		5474	Ved, D.K. & Tandon, V. (ed.) (1998): Cons
Jatamansi	ver	Gujarati		4755	India (1997): CITES Proposal. Inclusion of
jatamansi	tra	Gurung	NP	6667	Manandhar, N.P. & Manandhar, S. (2002):
Jatamansi	ver	Hindi		2248	Husain, A., Virmani, O.P., Popli, S.P., Misr
Jatamansi	ver	Hindi		4755	India (1997): CITES Proposal. Inclusion of
Jatamansi	ver	Kannada		4755	
Jatamansi	ver	Malay		4755	
Jatamansi	ver	Marathi (Marāṭhī)		4755	
jatamansi	tra	Nepali	NP	6667	Manandhar, N.P. & Manandhar, S. (2002):
Jatamansi	ver	Sanskrit (Saṁskṛta		4755	India (1997): CITES Proposal. Inclusion of
Jatamansi	ver	Sanskrit (Saṁskṛta		2248	Husain, A., Virmani, O.P., Popli, S.P., Misr
Jatamansi	ver	Sinhala, Sinhalese		4755	India (1997): CITES Proposal. Inclusion of
Jatamansi	ver	Telugu		2248	Husain, A., Virmani, O.P., Popli, S.P., Misr
jatamashi	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Jatamashi	ver	Hindi		4180	
Jatamashi	ver	Tamil		2248	Husain, A., Virmani, O.P., Popli, S.P., Misr
jatamasi	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Jatamasi	ver	Gujarati		5334	Anon. (1948-1997): Wealth of India. A dicti
jatamavchi	ver	Marathi		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Jatamavshi	ver	Marathi (Marāṭhī)		5334	Anon. (1948-1997): Wealth of India. A dicti
jatmavshi	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Jeta-manchi	ver	Malay		4755	India (1997): CITES Proposal. Inclusion of
Jetamansi	ver	Malay		2248	Husain, A., Virmani, O.P., Popli, S.P., Misr
kalichad	ver	Gugrati		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Kalichhad	ver	Gujarati		4755	India (1997): CITES Proposal. Inclusion of
Kalichhad	ver	Gujarati		5334	Anon. (1948-1997): Wealth of India. A dicti
Kan sung	ver	Chinese		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
kanshoko	ver	Japanese		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
kan-sung-hsiang	ver	Chinese		4130	
kukikipot	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Kukilipot	ver	Kashmiri		5334	Anon. (1948-1997): Wealth of India. A dicti
Kukil-i-pot	ver	Kashmiri		4755	India (1997): CITES Proposal. Inclusion of
ku-mi-chi	ver	Chinese		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
mamsi	ver	Hindi		4130	
Mamsi	ver	Sanskrit (Saṁskṛta		5044	Abdul Kareem, M. (1997): Plants in Ayurve
manchi	ver	Malayalam		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Mansi	ver			5534	Sharma, M.P. (1996): Nomenclatural ambi

Mansi	ver	Sanskrit (Saṁskṛta		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Mashi	ver	Garhwali		2248	Husain, A., Virmani, O.P., Popli, S.P., Misr
Masi	ver	Garhwali		4755	India (1997): CITES Proposal. Inclusion of
Masi	ver	Garhwali		5474	Ved, D.K. & Tandon, V. (ed.) (1998): Cons
Masi	ver	Garhwali		5334	Anon. (1948-1997): Wealth of India. A dicti
muskroot	ver	English		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Nahani	ver			5474	Ved, D.K. & Tandon, V. (ed.) (1998): Cons
Naharu	ver			5474	
naorochi	tra	Khalingi	NP	6667	Manandhar, N.P. & Manandhar, S. (2002):
nard	ver			1180	GRIN (17.3.2015): Download World Econo
Nard	ver	English		6637	Erhardt, W., Götz, E., Bödeker, N. & Seyb
nard	ver	English		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
nard indien	ver	French		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Nard indien	ver	French		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Nardenähre	ver	German		5797	Wiersema, J.H. & Leon, B. (1999): World
Nardenähre	ver	German		1180	GRIN (17.3.2015): Download World Econo
Nardenwurzel	tra	German		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
nardin	ver	English		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
nardo indico	ver	Spanish		4130	
Nardo indico	ver	Spanish; Castilian		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Nardostachys jatamansi radix	pha	Latin		4180	
Nardostachys jatamansi rhizoma	pha	Latin		4180	
Nardostachys rhizome	ver	English		4806	Yen, Kun-Ying (1992): The illustrated Chin
Nardostachys-jatamansi-Rhizom	pha	Latin		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
nardus root	ver	English		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Naswa	ver	Nepali		4755	India (1997): CITES Proposal. Inclusion of
Naswa	ver	Nepali		5334	Anon. (1948-1997): Wealth of India. A dicti
naswan	tra	Newari	NP	6667	Manandhar, N.P. & Manandhar, S. (2002):
Nihanu	ver			5474	Ved, D.K. & Tandon, V. (ed.) (1998): Cons
Nihanu	ver	Hindi		5502	Tandon, V., FRLHT (23.5.1998): in litt. to t
Pampe	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Pampe	ver	Bhutanese		4755	India (1997): CITES Proposal. Inclusion of
Pampe	ver	Bhutanese		5334	Anon. (1948-1997): Wealth of India. A dicti
pang spos	ver			4132	Chapagain, A., Wang, J. & Pyakurel, D. (2
pangbu	tra	Sherpa	NP	6667	Manandhar, N.P. & Manandhar, S. (2002):
pangpo	ver			4132	Chapagain, A., Wang, J. & Pyakurel, D. (2
pang-poe	ver		BT	4134	Gyeltshen, N., Bidha, N., Dorji, T. & Peldo
paumpe	ver		IN	4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Paumpe	ver	Bhutanese		4755	India (1997): CITES Proposal. Inclusion of
poi	tra	Tamang	NP	6667	Manandhar, N.P. & Manandhar, S. (2002):
Radix Nardostachyos	pha	Latin		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Rhizoma Nardostachyos	pha	Latin		4180	
Sambul	ver	Arabic		4180	
Spang-spos	ver	Tibetan		6667	Manandhar, N.P. & Manandhar, S. (2002):
spang-spos	tra	Tibetan	NP	6667	
Speichenähre	ver	German		1180	GRIN (17.3.2015): Download World Econo
spicanard	ver	French		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
spignard	ver	Italian		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Spike		English		5503	Shah, N.C. (18.5.1998): in litt. to the Germ
spikenard	ver			1180	GRIN (17.3.2015): Download World Econo
Spikenard	ver	English		4755	India (1997): CITES Proposal. Inclusion of
Spikenard	ver	English		6637	Erhardt, W., Götz, E., Bödeker, N. & Seyb
Spikenard	ver	English		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne
Spikenard	ver	English		1100	GRIN Database (Germplasm Resources In
spikenard	tra	English	NP	6667	Manandhar, N.P. & Manandhar, S. (2002):
spikenard	ver	English		5797	Wiersema, J.H. & Leon, B. (1999): World
sumbuil-i-hindi	ver	Arabic, Urdu, Persi		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Sumbulul-aasafter	ver	Arabic		4755	India (1997): CITES Proposal. Inclusion of
Sumbulu'l-hind	ver	Arabic		4755	
sumbul-ul-tib	ver	Arabic, Urdu, Persi		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Sumbuluttibe-hind	ver	Arabic		4755	India (1997): CITES Proposal. Inclusion of
Sunbuluttib	ver	Persian		4755	
tapaswini vilomasa	ver	Sanskrit		4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredit
Vahnini	ver	Sanskrit (Saṁskṛta		4180	Hänsel, R., Keller, K., Rimpler, H. & Schne

Distribution Range

Distribution Range	Ref	
"distributed in the Himalayas from Pakistan, India (Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim) to Nepal, Tibet and China "	8695	Baniya, A. (2010): FairWild implementation i
"Distributed throughout Nepal […]; also in northern India, Bhutan, Tibet, and western China."	6667	Manandhar, N.P. & Manandhar, S. (2002): P
"E. Asia - Himalayas from Uttar Pradesh to S.W. China"	8592	Anon. (s.dat.): Plants for a future. Retrieved f
"eastern Himalayas to […] Tibet, its range including China, Bhutan, India and Nepal […]. Its occurrence in Afghanistan, Pakistan and Myanmar is questionable"	8347	Mulliken, T. & Crofton, P. (2008): Review of t
"endemic to Himalayan Mountain range, occurring in India, Nepal, Bhutan, Myanmar and southwest China. In India it is found in Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh."	3641	Ved, D., Saha, D., Ravikumar, K. & Haridasa
"endemic to the Himalayan ranges of Bhutan, China, India, Nepal, and Myanmar"	4131	Chauhan, H.K. (2021): Nardostachys jatama
"Himalayas ([…] Nepal, […] Bhutan, South-West China, and Tibet)"	7688	Larsen, H.O. (2005): Impact of replanting on
"native range is Himalaya to W. & Central China"	1192	Plants of the World Online (POWO). Royal B
"Native to: Bangladesh, China North-Central, China South-Central, East Himalaya, Myanmar, Nepal, Qinghai, Tibet, West Himalaya"	1192	Plants of the World Online (POWO). Royal B
"Sino-Himalayan. NW India, Nepal (W, C & E), Sikkim, Bhutan, S & E Tibet, W China"	8619	Ghimire, S.K., Sapkota, I.B., Oli, B.R. & Par
Native to temperate zones of Asia (China) and tropical Asia (Bhutan, India, Nepal, Myanmar)	1100	GRIN Database (Germplasm Resources Info

Distribution

Continent	Region	ICC	Status	Free Text	Ref
3 Asia-Temporate	34 Western Asia	AF			5103
	36 China	CN			1106
		CN		Uttar Pradesh bis SW-China	2185
		CN		Tibet und W-China	2246
		CN		SW	5103
		CN		Xizang	7141
		CN		Gansu, Sichuan, and Yunnan provinces and the Xijang region of Tibet	8347
4 Asia-Tropical	40 Indian Subcontinent	BT		Haa, Paro, Thimphu, Bumthang, Halajola, Selala, Sagala, Jewlela, Dagye, Phangtsho, SoiYatsa, Lingtshi, Laya, Lunana, Naro, Pelela, Bumthang, Dagapela, Thrumshingla, Merak, Sakten, Phajuing, Dochula, and Sinchula	4131
		BT		Thimphu, Haa, Paro, Bumthang, Chukha, Gasa, Samtse, Trashigang, Tashi Yangtse, Wangdue Phodrang, Dagana and Tsirang districts	4134
		BT			7141
		IN		Uttar Pradesh Himalaya bis E-Him.	2040
		IN		Uttar Pradesh bis SW-China	2185
		IN		Arunachal Pradesh, Himachal Pradesh, Sikkim, and Uttarakhand	3641
		IN		Punjab	5103
		IN		Uttar Pradesh	7141
		NP		Jumla, Humla, Mugu, Bajhang, Bajura, Dolpa, Kalikot, Rukum East, Rukum West, Rolpa, Jajarkot, Dailekh, Doti, Pyuthan (Western Nepal), Manang, Baglung, Myagdi, Lamjung, Gorkha, Dhading, Nuwakot, Rasuwa, Sindhupalchok, Ramechhap (Central Nepal), Taplejung, Solukhumbu (Eastern Nepal)	4131
		NP			6667
		NP			7141
		PK	occurrence doubtful	Presence in Punjab (IN) suggests occurrence in PK	5103
	41 Indo-China	MM			5103

Abundance / Local Population Size

ICC	Abundance	Reference	
	"growing in clusters/patches that may cover the ground where it appears very dense [and] not very frequent in any of the habitats where it is found"	8365	Larsen, H.O & Olsen, C.S. (s.d
	“The density and frequency have shown a positive relationship with altitude and higher density was recorded from west-facing slopes”	4130	Chauhan, H.K., Oli, S., Bisht,
BT	"wide spread” over “an area of 27.97square kilometer extending from East to West Bhutan"	4134	Gyeltshen, N., Bidha, N., Dorji,
BT	"growing in clusters/patches that may appear dense where it occurs. It is generally not very frequent in any of the habitats where it is found, but no studies have been conducted in Bhutan"	4134	
BT	“occurrence in Bhutan is rare”	4130	Chauhan, H.K., Oli, S., Bisht,

IN	"Average population density of N. jatamansi in the Nandi Devi Biosphere Reserve, Western Himalayas, India was 0.21- 0.41 individuals/m2"	4131	Chauhan, H.K. (2021): Nardost
IN	"occurs in “low density [in] Valley of Flowers National Park and Kedarnath Wildlife Sanctuary (0.83 and 0.94 individuals/m2 respectively)"	4131	
IN	"Among the six alpine regions (Har-Ki-Dun, Dayara, Panwali Kantha, Tunghnath, Valley of Flowers-Chamoli, Kunwari Pass) of Garhwal (Western Himalayas, India), [...] the density ranged from 19.0-32.2 individuals/m2"	4130	Chauhan, H.K., Oli, S., Bisht,
IN	"density of 8.9 individuals/m2 [was reported] from Lingshi Dungkhag, Jigme Dorji Wangchuck National Park, Bhutan"	4131	Chauhan, H.K. (2021): Nardost
IN	"Sizeable subpopulations have been identified from western parts of Arunachal Pradesh, Sikkim, Himachal Pradesh and Uttarakhand in India."	3641	Ved, D., Saha, D., Ravikumar,
NP	“plant density varied from 8.52 to 25.58 individuals/m2” in “six sites of three different river catchments (Pindari, Sunderdhunga, Kaphani) located in Kumaun (Western Himalayas, India)”	4131	Chauhan, H.K. (2021): Nardost
NP	"suitable area was estimated at 4,609 km2, equivalent to 3.1% of the country’s area [and] a conservative stock rate of 141 kg air-dry rhizomes per ha"	9189	Smith-Hall, C., Pyakurel, D., M
NP	"patchy distribution […] in distinct plant communities"	9189	
NP	"probably not an intrinsically rare plant in the alpine habitat"	8365	Larsen, H.O & Olsen, C.S. (s.d
NP	"Occurrence: common"	8619	Ghimire, S.K., Sapkota, I.B., O

Ecology

TypeEc	ICC	Ecology	Ref	
alti		2200-4800m	3641	Ved, D., Saha, D., Ravikumar, K
alti		2200-5000m	4130	Chauhan, H.K., Oli, S., Bisht, A.
alti		2200-5000m, […] 3200-4500m and […] 3500 to over 5000m	8347	Mulliken, T. & Crofton, P. (2008)
alti		3000-5000m	7963	Chauhan, R.S. & Nautiyal, M.C.
alti		3300-5100m	6337	Anon. (1970): Medicinal plants c
alti		3300-5200m	7688	Larsen, H.O. (2005): Impact of r
alti		3600-4800m	8592	Anon. (s.dat.): Plants for a future
alti		3810-5155m	4134	Gyeltshen, N., Bidha, N., Dorji, T
alti	NP	3200-5000m	6667	Manandhar, N.P. & Manandhar,
alti	NP	3200-5300m	8619	Ghimire, S.K., Sapkota, I.B., Oli
habit		"alpine and sub-alpine habitats […] vary from open pine forests over dwarf Rhododendron and Juniper scrub to alpine meadows"	7688	Larsen, H.O. (2005): Impact of r
habit		"commonly found associated with Rhododendron anthopogon, Anophalis spp., Juniperus indica, Picrorhiza kurroa, Geum elatum, Dactylorhiza hatagirea, Rheum australe, Bergenia stracheyi, and sometimes Betula spp."	4130	Chauhan, H.K., Oli, S., Bisht, A.
habit		"growing in steep, moist, rocky, undisturbed grassy slopes"	3641	Ved, D., Saha, D., Ravikumar, K
habit		"grows in dry, open pine forests, among dwarf rhododendron and juniper scrub, on open, stony and grassy slopes, in alpine meadows or small depressions, and on the turf of glacial flats"	8347	Mulliken, T. & Crofton, P. (2008)
habit		"more frequent on the western aspects in alpine zones, on moist rocky and undisturbed slopes or on stones with coarse sandy loam soils, occurring usually in random forms"	3641	Ved, D., Saha, D., Ravikumar, K
habit		"prefers rocky habitats, alpine meadows, Juniper scrub, Rhododendron forests, and open pine forests"	4130	Chauhan, H.K., Oli, S., Bisht, A.
habit		"prefers to grow in moist steep areas, rocky, undisturbed grassy slopes, or stones with coarse sandy loam soil"	7963	Chauhan, R.S. & Nautiyal, M.C.
habit		"proliferates well in rocky habitats, alpine meadows, Juniper scrub, Rhododendron forests, and open pine forests"	8365	Larsen, H.O & Olsen, C.S. (s.da
habit		"rocks, ledges and open slopes"	8592	Anon. (s.dat.): Plants for a future
habit		"Typically grows on rocky outcrops, but can also be found in meadows, shrubland and forests"	8347	Mulliken, T. & Crofton, P. (2008)
habit	BT	"occurrence of the plant was mostly on moist, open meadows and moist shrubby Juniper-Rhododendron scrub habitat facing north aspect."	4134	Gyeltshen, N., Bidha, N., Dorji, T
habit	NP	"Dry to moist open forests, dwarf rhododendron and juniper scrub, open dry to moist stony or rocky slopes, moss laden rocks, rock outcrops, alpine meadows. Most populations, however, occupy steep rocky slopes, outcrops and meadows."	8619	Ghimire, S.K., Sapkota, I.B., Oli
habit	NP	"total area suitable for N. jatamansi was estimated at 16,294 km2 (low suitability 14,419 km2, medium suitability 1,608 km2, and high suitability 268 km2), equivalent to 11.0% of the country’s area"	9189	Smith-Hall, C., Pyakurel, D., Me
habit	NP	rocky hillsides	6667	Manandhar, N.P. & Manandhar,
regen		"grows vegetatively with successive ramets (vegetative clones) produced very close together in a dense clump"	4134	Gyeltshen, N., Bidha, N., Dorji, T
regen		"known slow recovery after harvest of the […] rhizomes	8365	Larsen, H.O & Olsen, C.S. (s.da
regen		"plant regenerates easily from the underground propagules when harvested in autumn. There is high risk of underground rhizome decay when harvested in summer"	8607	Natural Resource Industries (s.c
regen	BT	"population growth rate was higher in meadow habitats as compared with rocky habitats"	4134	Gyeltshen, N., Bidha, N., Dorji, T
regen	BT	"slow regeneration after harvest of the rhizomes"	4134	
regen	NP	"shows extensive clonal (vegetative) growth through the multiplication of a vegetative offshoot (ramets). A single plant produces many ramets in a dense clump, in which the successive ramets are compactly arranged and remain connected."	8619	Ghimire, S.K., Sapkota, I.B., Oli
regen	NP	"slow growing and long-lived species with seasonal growth"	8619	

regen	NP	"vegetative spread is more economical than seed production and seedling recruitment, particularly in drier habitats"	8619	
repro		"growth of seedlings to reproductive size may take 3-4 years"	8365	Larsen, H.O & Olsen, C.S. (s.da
repro		"It has a generation length of one year."	3641	Ved, D., Saha, D., Ravikumar, K
repro		"may take 3–4 years to reach reproductive maturity"	4130	Chauhan, H.K., Oli, S., Bisht, A.
repro		"reproduces through vegetative means and through seeds, and mature between 3 and 5 years. The generation length of the species is between 3 and 10 years"	4134	Gyeltshen, N., Bidha, N., Dorji, T
repro		"Reproduction is through vegetative means (clonal growth) and seeds, where pollinators are likely small insects, e.g. flies"	8365	Larsen, H.O & Olsen, C.S. (s.da
repro		"Reproduction occurs by vegetative means (from rhizomes) as well as by seeds."	4131	Chauhan, H.K. (2021): Nardosta
repro		"Seed germination [...] is very low 10-20% […] with no persistent seed bank."	4134	Gyeltshen, N., Bidha, N., Dorji, T
repro		"seed germination […] is very low, with no persistent seed bank"	8347	Mulliken, T. & Crofton, P. (2008)
repro		"Species of bees, flies, butterflies, ants, and thrips are major pollinators"	4130	Chauhan, H.K., Oli, S., Bisht, A.
repro		"The plant may take 3-5 years to reach reproductive maturity."	4131	Chauhan, H.K. (2021): Nardosta
repro		"The population growth rate was higher in meadow habitats as compared to rocky habitats which is likely attributable to the high flowering frequency, seed mass, and seedling recruitment in meadows "	9475	Ghimire, S. K., Gimenez, O., Pra
repro		flowers hermaphrodite	8592	Anon. (s.dat.): Plants for a future
repro	NP	"In field conditions, plant regeneration through seeds has been found to be low."	8619	Ghimire, S.K., Sapkota, I.B., Oli

Life Form

LF_Standard	Duration	Lifeform	Woodiness	Height	Ref	
		herb			3221	Goraya, G.S. & Ved, D.K. (201
perennial herb	perennial	herb		about 35 cm high	6667	Manandhar, N.P. & Manandhar
perennial herb	perennial		herb	10-60cm	8619	Ghimire, S.K., Sapkota, I.B., O
perennial herb	perennial		herb	about 35cm	6667	Manandhar, N.P. & Manandhar
perennial herb	perennial		herbaceous		6337	Anon. (1970): Medicinal plants
perennial herb	perennial		herbaceous	10-60cm	7688	Larsen, H.O. (2005): Impact of
perennial herb	perennial		herbaceous	10-60cm	8347	Mulliken, T. & Crofton, P. (200

Threat Situation

ICC	PopulationStatus	Ref	
	"collection of rhizomes for sale in trade is a cause of conservation concern"	6667	Manandhar, N.P. & Manandhar
	"collectors rarely left any parts of the rhizome in the ground, leaving little chance for regeneration"	8347	Mulliken, T. & Crofton, P. (200
	"current population trend: decreasing"	3641	Ved, D., Saha, D., Ravikumar,
	"Current population trend: decreasing"	4131	Chauhan, H.K. (2021): Nardost
	"declining in many areas, particularly in India and Nepal, owing to overharvest and habitat loss […] In Nepal, overharvest of rhizomes […] seems to be the main threat. Habitat lost, fragmentation and degradation, due to over-grazing; and forest degradation, fires and logging were considered secondary threats to the species in the mid-1990s"	8347	Mulliken, T. & Crofton, P. (200
	"Due to high volume trade and demand, the species is collected from its wild habitat in an indiscriminate way and thus population is declining continuously […]. This has a severe impact on natural regeneration. Thus, the population of this species is declining very fast in the natural habitat."	3641	Ved, D., Saha, D., Ravikumar,
	"global population size is assumed to be declining primarily due to human induced habitat loss and degradation (India) and overharvest (Nepal)"	8365	Larsen, H.O & Olsen, C.S. (s.d
	"Habitat loss is continued due to road construction, agricultural invasion and human settlements. Unregulated grazing of yak, sheep and other cattle groups in high altitude areas has become a threat to this species."	3641	Ved, D., Saha, D., Ravikumar,
	"harvested destructively, i.e., up-rooted in large quantities, […] traded across national borders"	7677	Olsen, C.S. (2005): Trade and
	"high economic value combined with a lack of management had accelerated degradation of NTFPs such as N. grandiflora in community and government forests"	8347	Mulliken, T. & Crofton, P. (200
	"more than 80% of the wild population in the Himalayan region of India has declined over the last 10 years. The species is therefore assessed as Critically Endangered. Similar threats are ongoing in Bhutan, China, Myanmar and Nepal, and therefore the status in India is considered representative of that of the species globally."	3641	Ved, D., Saha, D., Ravikumar,
	"once abundant availability of […] Nardostachys grandiflora […] have declined drastically in recent years"	5232	Bhattarai, N.K. (1997): Medicin
	"status of the plant population is not known but it is suspected to be declining due to commercial trade"	8365	Larsen, H.O & Olsen, C.S. (s.d
	"Unregulated collection of roots for medicine and loss of habitat are the major threats to this species. Over exploitation is continued due to its several medicinal properties and high demand from the pharmaceutical industries […]. Habitat loss is continued due to road construction, agricultural invasion and human settlements. Unregulated grazing of yak, sheep and other cattle groups in high altitude areas has become a threat to this species."	3641	Ved, D., Saha, D., Ravikumar,
	"vulnerable (in Nepal and Bhutan [...]) to endangered (in some states of Indian Himalaya [...]) status in the Himalaya."	8619	Ghimire, S.K., Sapkota, I.B., O
	“Anthropogenic drivers that include accelerated rate of deforestation, habitat fragmentation, illicit trade, overexploitation, overgrazing, unregulated tourist influx, unsustainable development activities”	4131	Chauhan, H.K. (2021): Nardost

	“During harvest, the entire plant is uprooted which is fatal. The species is also threatened by over-grazing, habitat loss and deforestation. Wild collection of the species is widespread across its range, is unsustainable, and has resulted in the loss of several known subpopulations. Wild subpopulations have decreased significantly and a decline of at least 80% of the population in the last 10 years is suspected.”	4131	
	“Extensive harvesting of the species’ rhizomes/roots for medicinal and a number of other uses contributes to its rapid population decline."	4130	Chauhan, H.K., Oli, S., Bisht,
	“It is difficult to determine the impact on different subpopulations of the species of the various threats, including wild collection of rhizome/roots for medicine and other end-use products, price surges, rising demand for consumer products containing N. jatamansi, anthropogenic pressures, habitat degradation, life history traits (low seed viability and erratic seed production), and climate change. However, together these threats will affect the long-term survival of the species”	4131	Chauhan, H.K. (2021): Nardost
	“Overharvesting from the wild to meet global demand is a major threat to existing populations. Several other characteristics, such as the species’ slow growing nature, preference for specific habitat, low population density, and poorly developed ex situ propagation protocols, pose threats to its survival in the foreseeable future”	4130	Chauhan, H.K., Oli, S., Bisht,
	“Several characteristics, such as its endemic nature, restricted habitat, extensive harvest, and high trade value pose threats to its survival in the immediate future”	4130	
	“The habitat of the species (alpine meadows, Juniper scrub, Rhododendron forests, and open pine forests) is sensitive to overexploitation; for instance, Juniperus communis, Pinus wallichiana and rhododendron spp. are preferred for fuel wood in the cold desert of Indian Himalayas and have very high pressure of extraction”	4131	Chauhan, H.K. (2021): Nardost
	“the natural subpopulations of the species are doubtlessly declining at alarming rates”	4130	Chauhan, H.K., Oli, S., Bisht,
	“Trade of the species is the major concern for its long-term survival.”	4131	Chauhan, H.K. (2021): Nardost
	threatened in IN and NP	2210	Bajaj, M. & Williams, J.T. (199
BT	“communities are also empowered for management of resources within the area where the community have traditional and customary rights through approval of resources management and marketing plans by the Head of the Ministry”	4134	Gyeltshen, N., Bidha, N., Dorji,
BT	“Key issues identified by the collectors were the non-sustainability of current collecting methods and the difficulties in managing a common resource in a controlled and sustainable manner.”	4134	
BT	“permits are issued [to] NWFP Management and marketing groups […] based on the annual harvesting limit fixed in the management and marketing plan for commercial use”	4134	
BT	“Processed and semi-processed medicinal plant species including N.grandiflora are readily available in the local markets and they are usually collected in huge quantities with no consideration for sustainable harvest and trade management”	4134	
IN	"has become critically endangered depending on habitats […] due to over-exploitation of rhizomes for medicinal use, habitat degradation and other biotic interferences"	3695	Chauhan, R.S., Nutiyal, M.C. &
IN	"Vulnerable, and much depleted due to over-exploitation of rhizomes for medical properties, and also due to habitat degradation and other biotic interferences in its distribution"	3694	Mabberley, D.H. & Noltie, H.J.
IN	“A reconnaissance done by a research team working at the High Altitude Plant Physiology Research Centre (HAPPRC) at Srinagar-Garhwal, Uttarakhand in the area, including Dayara, Hari Ki Dun, Kunwari Pass, Panwali Kantha, Tungnath, The Valley of Flowers, Bedni Bugyal, Rudranath, Madmaheshwar and others parts of the Garhwal Himalayas, reveals that only a few pockets of N. jatamansi are present in these regions today.”	9239	Purohit, V.K., Chauhan, R.S.,
IN	“Reconnaissance surveys in Garhwal Himalayas reveal that its population is diminishing at a rapid pace and it is now restricted to few remaining populations”	4130	Chauhan, H.K., Oli, S., Bisht,
NP	"assessed as Vulnerable in Nepal during a 2001 CAMP workshop" - however [some authors] questioned the classification, considering empirical data to be scant and quantitative information on the status and harvest levels across Nepal to be lacking	8347	Mulliken, T. & Crofton, P. (200
NP	"grazing in the alpine meadows […] is considered a minor stress factor and is in some places reported minimised through rotational grazing practices"	8365	Larsen, H.O & Olsen, C.S. (s.d
NP	"highly threatened mainly due to unsustainable harvesting of its rhizome for international trade"	8619	Ghimire, S.K., Sapkota, I.B., O
NP	"large trade of rhizomes to India is assumed to be causing overharvest"	8365	Larsen, H.O & Olsen, C.S. (s.d
NP	"largest threat to the N. grandiflora population in Nepal is without doubt the commercial trade, i.e. harvesting"	8365	
NP	"N. grandiflora is extremely sensitive to harvesting of rhizomes due to its show growth and low rates of natural regeneration. Harvesting reduces flowering and seedling recruitment and causes increased mortality of individuals remaining after harvest. This sensitivity to harvesting was found to be even higher in drier rocky slopes and outcrop habitats than in meadow and forest habitats [...]. Higher rates of population growth in meadows allows plants to withstand higher rates of harvest."	8619	Ghimire, S.K., Sapkota, I.B., O
NP	included in the table "Threatened or Endangered Plants of Nepal"	6667	Manandhar, N.P. & Manandhar

Threat Status: Global and Supranational

Glo	*Threat Category*		*Criteria*	*Ass.*	*Publ.*	*Ref*	
glo	CR	Critically Endangered		2020	2023	1223	2023 IUCN Red List of Threatened Species. Version 2023-1. www.iucnredlist.org. Download of plant data received from IUCN website 16.12.2023.

Name used in redlist: Nardostachys jatamansi (D.Don) DC. Accepted Name used in redlist: Nardostachys jatamansi (D.Don) DC.

glo	CR	Criricallly Endangered	A2cd	2020	2021	4131	Chauhan, H.K. (2021): Nardostachys jatamansi. The IUCN Red List of Threatened 2021: e.T50126627A88304158. Retrieved from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T50126627A88304158.en, viewed: 17.02.2025.
		Name used in redlist: Nardostachys jatamansi (D.Don) DC.				Name used in redlist: Nardostachys jatamansi (D.Don) DC.	
glo	CR	Criricallly Endangered	A2cd	2014	2015	3641	Ved, D., Saha, D., Ravikumar, K. & Haridasan, K. (2015): Nardostachys jatamansi. The IUCN red list of threatened species 2015. e.T50126627A50131395. Retrieved from http://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T50126627A50131395.en, viewed: 07.10.2016.
		Name used in redlist: Nardostachys jatamansi				Name used in redlist: Nardostachys jatamansi	
glo	CR	Critically Endangered	A2cd	2014-07-16	2015	1206	2020 IUCN Red List of Threatened Species. Version 2020-3. www.iucnredlist.org. Download of plant data received from IUCN 14.1.2021.
		Name used in redlist: Nardostachys jatamansi (D.Don) DC. Accepted				Name used in redlist: Nardostachys jatamansi (D.Don) DC.	

Threat Status: Countries

ICC Region	Threat Category		Assd.	Publ.	Ref	
BT	I	Indeterminate		1997	1109	UNEP-WCMC Threatened Species Database. Downl
		Name used in redlist: Nardostachys jatamansi DC.			Accepted Name:	
BT	V	Vulnerable		1997	1109	
		Name used in redlist: Nardostachys grandiflora DC.	Synonym		Accepted Name:	Nardostachys jatamansi (D.Don) DC.
CN	LC	Least Concern – 无危		2013	3319	Chinese Academy of Sciences (2013): Chinese biodi
		Name used in redlist: Nardostachys jatamansi			Accepted Name:	
IN	I	Indeterminate		1997	1109	UNEP-WCMC Threatened Species Database. Downl
		Name used in redlist: Nardostachys jatamansi DC.			Accepted Name:	
IN	I	Indeterminate		1997	1109	
		Name used in redlist: Nardostachys jatamansi DC.			Accepted Name:	
NP	VU	Vulnerable		2002	6664	Bhattarai, N. (2002): Conservation assessment and
		Name used in redlist:			Accepted Name:	
NP	V	Vulnerable		1996	3359	Shrestha, T.B. Joshi, R.M. (1996): Rare, endemic an
		Name used in redlist: Nardostachys grandiflora	Synonym		Accepted Name:	Nardostachys jatamansi (D.Don) DC.

Purpose of Use

Purpose		Ref
<multiple>	“The species has a long tradition of use in ethnomedicine, perfume, incense, and modern medicine”	4131
animal poison	“The roots and rhizomes are […] used as insect-repellent”	9334
food additive - flavouring & spice	"an important spice used as a seasoning in medieval European cuisines"	3698
	"The essential oil obtained from rhizomes is used as a flavoring agent"	8619
material - colouring, dye, varnish	"Tibetans […] use a red coloured dye obtained from the flowers of the plant"	3698
material - general	Materials: essential oils (fide Wealth India RM, as Nardostachys jatamansi)	1100
medicine - general	"A paste of the rhizome is applied to treat hemorrhoids. Dried leaves are used as an incense."	6667
	"Rhizomes and its extracts are also highly valued [...] as a substitute for valerian."	8619
	“The biological activities of the plant extract are of pharmaceutical interest” including the following activities and applications: anti-hyperglycemic and anti-diabetic, anti-cancer, effects against dementia and Alzheimer, restored locomotor activity and muscular coordination, free radical scavenging, reduced neuronal injury (Parkinson), radio-protective, anti-tumour, anti-inflammatory.	4131
	Used in the "treatment of fits and heart palpitations, to treat constipation and regulate ruination, menstruation and digestion […] external pain killers, as an antiseptic, for the treatment of epilepsy, hysteria, convulsions [...] high blood pressure, fever, anxiety, insomnia, asthma and other bronchial problems [...] neurosis, insomnia, constipation and scorpion stings in Pakistan"	8347
medicine - traditional Asian medicine	"Records on the traditional uses of Nardostachys jatamansi (D.Don) DC. in India dates back to 500 to 1000 BCE i.e., during Vedic times. These uses are well documented in Ayurvedic classics like ‘Sushruta Samhita’, ‘Nighantus Chikitsa Granthas’ and ‘Charak Samhita’. Ever since that time, the dried roots and rhizomes of N. jatamansi have constituted an important part of the ‘havan samagri’ or powdered mixture of medicinal herbs/plants, used in religious pyres of Hindus in India. There is a belief that the burning of these herbs/plants have curative properties against many diseases."	3698
	"Rhizomes are highly used for incense in the Himalaya. In amchi medicine in Dolpa, rhizomes are used in wounds, cough and cold, chronic fever, fever due to poisoning, spleen disease, intestinal parasites, high blood pressure, tumors, stomach diseases and swellings"	8619
	"The rootstocks and roots are medicinally used as an important Ayurvedic drug. They are a source of an essential oil for medical purposes."	1122

	"The Tibetan system of medicine […] uses the rhizomes for curing wounds, cough, cold, chronic fever, inflammation, intestinal worms, high blood pressure, food poisoning, gastritis, etc. Like the Dolpo communities of Nepal, the Amchis or the agro-pastoralist Tibetan community of Poksundo use the leaves […] for curing headaches, high altitude sickness, fever and wounds"	3698
	"very long history of use as medicine in Ayurveda, Homeopathy, ethno medicine and Indian System of Medicine (ISM) to modern medicine industry"	3695
	“highly valued in the Chinese, Tibetan, Nepalese, Bhutaniese, Indian and Japanese systems of medicine”	4131
	“traditional Tibetan medicinal practitioners (Amchis) used to collect wild medicinal plants from the Tibetan pastures [including] Nardostachys jatamansi”	4132
	Used in traditional medicine in BT, IN, NP and CN (Tibet)	5103
medicine - traditional herbal medicine	"treatment of fits and heart palpitations, to treat constipation and regulate ruination, menstruation and digestion […] external pain killers, as an antiseptic, for the treatment of epilepsy, hysteria, convulsions [...] high blood pressure, fever, anxiety, insomnia, asthma and other bronchial problems [...] neurosis, insomnia, constipation and scorpion stings in Pakistan [...] essential oil, [...] incense [...] hair tonic to stimulate hair growth and dye the hair black [...]"	8347
	“decoction of roots is […] taken as a tonic for the enhancement of memory”	4131
	“ethnobotanically reported for the treatment of a wide variety of ailments such as nervous, digestive, circulatory, respiratory, urinary, stomach, and reproductive disorders, and to cure cough, fever, headache, food poisoning, cholera, stomach disorders, intestinal worms, joint pain, rheumatism, and jaundice. The genus is also valued for the enhancement of memory”	4130
	“Externally, the oil is used to treat uterine inflammation as added to steam bath and also used in eye compounds, atrial flutter and as poison antidotes.”	9028
	“found to be an effective medicine for spasmodic condition, heart and urinary problems, menstrual abnormalities and problems related to digestion”	9334
	“Jatamansi oil in combination with cold water, is effective against nausea, stomach ache, liver problems, kidney complaints, insomnia and headache.”	9028
	“natural ingredient of a native drug ‘Sataushadhi’”	9334
	“roots and rhizomes of the species are used to treat various disorders of nervous, digestive, circulatory, respiratory, urinary, and reproductive systems”	4131
	“The roots and rhizomes are usually used as […] antiseptic, laxative, heart tonic, tranquilizer and for insomnia, hysteria, vertigo, chronic skin diseases, renal stones, low and high blood pressure, epilepsy, leprosy, respiratory trouble and enhancing the mental awareness”	9334
	“used for spinal headache, excitement, menopausal symptoms, flatulence, cardiac disease, epilepsy and intestinal colic etc. The roots and rhizomes of Jatamansi have been used to treat hysteria, syncope, epilepsy, and mental weakness”	9028
	“used in “nervous headache, excitement, menopausal symptoms, flatulence, epilepsy and intestinal colic”	9028
	“used to cure cough, fever, headache, food poisoning, cholera, stomach disorders, intestinal worms, joint pain, rheumatism, stomach disorders, jaundice, and cardiac problems, and to purify the blood”	4131
	Offered as medicinal plant at local market in NW Yunnan	5261
	Traditional European medicine	3751
	Used in traditional medicine	5997
	Used in traditional medicine in BT, IN, NP and CN (Tibet)"	5103
social use - cosmetics	"also as stick incense to be sold in countries of the Middle East"	5103
	"hair tonic to stimulate hair growth and dye the hair black"	8347
	"The essential oil obtained from rhizomes is used [...] in the cosmetic and perfume industries. Rhizomes and its extracts are also highly valued as an ingredient in hair oil"	8619
	“an important ingredient in the production of incense, essential oils, and perfumes” in Bhutan	4134
	“In Bhutan, primarily used for manufacturing incense, which is burned during religious rituals and ceremonies to appease the humans, local deities and gods.”	4134
	“promotes black colour and growth of hairs”	9334
	in perfumes	5997
	perfumery	1122
social use - general	"incense"	8347
	as stick incense to be sold in countries of the Middle East	5103

Purpose: Standardized Use Fields

Purpose: Fields of Use	*Frequency*
<multiple>	1
animal poison	1
food additive - flavouring & spice	2
material - colouring, dye, varnish	1
material - general	1
medicine - general	4

medicine - traditional Asian medicine	8
medicine - traditional herbal medicine	16
social use - cosmetics	8
social use - general	2

Purpose: Number of Use Fields

Purpose: Number of use fields

Taxon used in 9 different standardized use categories (max. 27 categories possible).

Plant Parts Used

Plant Part (standardized)	*Plant Part (free text)*	*Remark*	*Ref*	
exudate	"extract"		5103	IUCN & TRAFFIC (1997): Analyses of propos
exudate	"oleoresin"		5103	IUCN & TRAFFIC (1997): Analyses of propos
leaf			8619	Ghimire, S.K., Sapkota, I.B., Oli, B.R. & Para
leaf			6667	Manandhar, N.P. & Manandhar, S. (2002): Pl
root	"rhizomes"		5193	Hänsel, K. (1997): Die Gelbwurzel. Curcuma
root	"rhizomes"		5997	Mulliken, T. (2000): Implementing CITES for
root	"getrockneten Rhizome und Wurzeln"		4180	Hänsel, R., Keller, K., Rimpler, H. & Schneid
root	"rootstocks and roots"		7143	Lange, D. & Schippmann, U. (2001): Identific
root			3751	van Wyk, B.-E. & Wink, M. (2017): Medicinal
root	"rhizomes and, to a lesser extent, roots"		8347	Mulliken, T. & Crofton, P. (2008): Review of t
root	"rootstock"		1122	Mansfeld's World Database of Agricultural ar
root	"rhizome"		8619	Ghimire, S.K., Sapkota, I.B., Oli, B.R. & Para
root	Root(Rhizome)		3221	Goraya, G.S. & Ved, D.K. (2017): Medicinal p

Scale and Trend of Trade

ICC	*Trade Trend*	*Ref*	
	“Evidence indicates an increase in trade of medicinal plant products from the Himalayas. For example, in far-western Nepal trade volume doubled and value increased 17-fold in the past two decades as a consequence of rising incomes in China and India, expanding infrastructure, and government interventions.”	4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredith, C. & Leaman, D. (2021): Review of the biology, uses and conservation of the critically endangered endemic Himalayan species Nardostachys jatamansi (Caprifoliaceae). Biodiversity and Conservation 30: 3315-3333.
	“From 2008 to 2018, India was the major importer of its rhizomes (1062 tonnes) followed by Pakistan (532 tonnes)”	4130	
	“Scientific advancements resulting in commercial applications for any of these purposes could greatly increase demand for the species.”	4131	Chauhan, H.K. (2021): Nardostachys jatamansi. The IUCN Red List of Threatened 2021: e.T50126627A88304158. Retrieved from https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T50126627A88304158.en, viewed: 17.02.2025.
	According to the CITES Trade Database, source country exports in the years 2010-2017 are from NP only (more recent data for NP not yet available on website). All exports are from wild sources. Export as roots in this period only took place in 2011 and 2012 (77 mt and 93 mt). All other trade was declared as oil, derivatives or extracts. Exports of these derived products increased from 2010 to 2015 and dropped to 300 mt/year in 2016 and 2017. Between 2010-2017, an average of 252 mt per year was exported from NP with a maximum of 787 mt in 2015. Main importing countries of these products were IN (total 830 mt) and PK (total 386 mt).	1167	UNEP-WCMC. CITES Trade Database. - https://www.unep-wcmc.org/resources-and-data/cites-trade-database
BT	“In recent times the demand for N. grandiflora by many small-scale incense making industries and traders that are dependent on NWFP [is] on the rise.”	4134	Gyeltshen, N., Bidha, N., Dorji, T. & Peldon, S. (2022): Non-Detrimental findings report for Nardostachys grandiflora in Bhutan Himalaya. Proposal to fix national quota for sustainable trade. Nature Conservation Division and Social Forestry & Extension Division, Department of Forests and Park Services, Ministry of Agriculture & Forests, Thimphu.
IN	“In India, there has been a demand of 300 metric tons of jatamansi rhizomes every year and is increasing regularly and to meet this requirement, 1000 tons of jatamansi rhizomes are imported from Nepal each year.	9334	Prabhuji, S.K., Rao, G.P., Srivastava, R., Pande, S., Srivastava, G., Srivastava, C. & Srivastava, M. (2024): Nardostachys jatamansi (D.Don) DC. A wonder herb of alpine region of Himalayas. Medicinal Plants 16(3): 426-435. doi: 10.5958/0975-6892.2024.00045.3.

IN	“The species is […] among the 20 most traded medicinal plants in India. Domestic herbal industries in India consume 528 tonnes/year of N. jatamansi”	4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredith, C. & Leaman, D. (2021): Review of the biology, uses and conservation of the critically endangered endemic Himalayan species Nardostachys jatamansi (Caprifoliaceae). Biodiversity and Conservation 30: 3315-3333.
NP	"harvest and trade were believed to be increasing in the Jumla District from the mid-late 1990s, rising from 14 tons in 1995 to 66 tons in 1996 and 124 tons in 1997"; "reliable figures on harvest and trade are lacking"	8347	Mulliken, T. & Crofton, P. (2008): Review of the status, harvest, trade and management of seven Asian CITES-listed medicinal and aromatic plant species. Bundesamt für Naturschutz, Bonn (BfN-Skripten 227). Retrieved from http://www.bfn.de/fileadmin/MDB/documents/service/skript227.pdf, viewed: 05.02.2010.
NP	“annual national-level trade increased threefold from 1997–1998 to 2014–2015, from 377 t to 1,145 t, equivalent to more than 1.7 billion rhizomes in 2014–2015, assuming an average air-dry rhizome weight of 0.66 g. The absolute amount purchased directly from harvesters by domestic processors in Nepal increased 1.8-fold, from 164 to 289 t, while the amount handled by traders quadrupled, from 212 to 856 t. Although total domestic processors’ purchases increased from 201 t in 1997–1998 to 354 t in 2014–2015, the rising harvest is primarily export driven, increasing 4.5-fold from 176 t to 791 t (calculated as production minus the domestic industry purchase)”	9189	Smith-Hall, C., Pyakurel, D., Meilby, H., Pouliot, M., Ghimire, P.L., Ghimire, S., Madsen, S.T., Paneru, Y.R., Subedi, B.P., Timoshyna, A. & Treue, T. (2023): The sustainability of trade in wild plants – a data-integration approach tested on critically endangered Nardostachys jatamansi. PNAS Nexus 2(11): 1-9. https://doi.org/10.1093/pnasnexus/pgad328.
NP	“Annual trade of about 100–500 tonnes is estimated from Nepal [...]. A total of 1603 tonnes of its rhizomes and 23 tonnes of its oil were exported from Nepal from 2008 to 2018”	4130	Chauhan, H.K., Oli, S., Bisht, A.K., Meredith, C. & Leaman, D. (2021): Review of the biology, uses and conservation of the critically endangered endemic Himalayan species Nardostachys jatamansi (Caprifoliaceae). Biodiversity and Conservation 30: 3315-3333.
NP	“proposed annual quota of 935 tons of dry rhizome or their derivatives”	4130	
NP	“The CITES trade data for the period 1997–2017 showed that almost all reported legal trade was wild-harvested and took place as processed products (derivatives). There was a large discrepancy between exporter and importer-reported quantities. The average total importer-reported trade was 49 kg/year, and the exporter-reported trade 73,500 kg/year with 99% from Nepal. Contrasting this, the central wholesaler export was estimated at 856,000 kg unprocessed air-dry rhizomes in 2014–2015 (Table 1) although such export is formally prohibited. Alternative explanations, such as stocking, appear unlikely given the low processing capacity in the country. Since the CITES Trade Database only captures legal trade, it cannot be used to assess actual trade levels.’	9189	Smith-Hall, C., Pyakurel, D., Meilby, H., Pouliot, M., Ghimire, P.L., Ghimire, S., Madsen, S.T., Paneru, Y.R., Subedi, B.P., Timoshyna, A. & Treue, T. (2023): The sustainability of trade in wild plants – a data-integration approach tested on critically endangered Nardostachys jatamansi. PNAS Nexus 2(11): 1-9. https://doi.org/10.1093/pnasnexus/pgad328.
NP	“The increase in trade between the two observation periods occurred in western Nepal, particularly in Karnali Province supplying 22% of traded rhizomes in 1997–1998 and 71% in 2014–2015. Trade decreased in the east”	9189	

Utilization: Commodity, Cultivation, Harvest, Sustainability, Trade

Type	ICC	Utilization	Ref	
com		"rhizomes are easily confused with those of Valeriana jatamansi Jones"	8365	Larsen, H.O & Olsen, C.S. (s.c
com		"roots […], because of high commerce, are often fraudulently adulterated with other species"	3697	Cornara, L., Ambu, G., Trombe
com		“The yellow essential oil with pleasant odour, also called “spikenard oil”, can be obtained (approximately 1.9%) by steam-distillation of dried rhizomes of the plant.’	9334	Prabhuji, S.K., Rao, G.P., Sriv
com		Dried, mainly whole rootstocks and roots (crude drug); in addition the powdered rootstock and the essential oil.	7143	Lange, D. & Schippmann, U. (
com		Droge sind die getrockneten Rhizome und Wurzeln als Ganz-, Schnitt- und Pulverdroge.	4180	Hänsel, R., Keller, K., Rimpler,
com		Main products in international trade are unprocessed rhizomes with smaller amounts in processed products such as oil.	5997	Mulliken, T. (2000): Implement
com		'Marc', the root after the essential oil has been extracted	5997	
com		Mostly traded as rhizomes and extracts, also stick incense	5103	IUCN & TRAFFIC (1997): Anal
com		Plant parts in trade are principally the rhizomes.	5997	Mulliken, T. (2000): Implement
com	IN	“Due to the resemblance in the external morphological characters and characteristic odour the roots of Selinum vaginatum are being used as a substitute for N. jatamansi in the Indian herbal drug market”	9334	Prabhuji, S.K., Rao, G.P., Sriv
com	NP	Oleoresin and oil are exported.	5103	IUCN & TRAFFIC (1997): Anal
cul		"no cultivation seems to take place, only small eforts in IN and NP"	5103	
cul		"Sometimes cultivated in N India, China and Japan"	2032	Mansfeld, R. (1986): Verzeichr
cul		“A few simple micropropagation protocols have been developed for vegetative multiplication of N. jatamansi using petiole, rhizome shoot-buds and nodal explants with high viability success. The commercial cultivation techniques have shown a restricted success”	9334	Prabhuji, S.K., Rao, G.P., Sriv
cul		“Loamy, porous soil rich in organic matter is suitable for its cultivation.”	4130	Chauhan, H.K., Oli, S., Bisht,

cul		“Some attempts have been made to cultivate the species in Nepal and India however; most of the commercial demand for the species is currently met from wild collection.	4131	Chauhan, H.K. (2021): Nardos
cul		Ex situ propagation of a “large number of N. grandiflora plants can be obtained through top edge cuttings, taken right before senescence, without damaging the economically important part i.e., underground part of the plants”	9010	Dobhal, P., Purohit, V.K. & Ch
cul		North India, China, Japan (sometimes cultivated there), Nepal	4180	Hänsel, R., Keller, K., Rimpler,
cul	BT	“No artificial propagation of N. grandiflora was initiated by community groups or any projects due to its abundance in the wild for now”	4134	Gyeltshen, N., Bidha, N., Dorji,
cul	IN	"cultivated in the State of Uttarakhand in India"	3641	Ved, D., Saha, D., Ravikumar,
cul	IN	“Due to the high demand for N. jatamansi, the National Medicinal Plant Board, India, is promoting its cultivation by providing a 75% subsidy to interested farmers”	4130	Chauhan, H.K., Oli, S., Bisht,
cul	IN	Natural Fostering; Himachal Pradesh, Uttaranchal	3145	Brinckmann, J.A., Kathe, W.,
cul	NP	cultivated: Agroforestry	3145	
cul	NP	Natural Fostering; Districts of Jumla and Lamjung	3145	
cul	NP	Propagated by seeds or rhizomes.	6667	Manandhar, N.P. & Manandha
exp		"non-processed rhizomes are exported in large quantities from Nepal, and to a smaller extent Bhutan, to India"	8365	Larsen, H.O & Olsen, C.S. (s.c
exp		“Nepal is the largest exporter (82±5%) in terms of volume of N. jatamansi, followed by India (13±5%) and Bhutan (5±4%).”	4131	Chauhan, H.K. (2021): Nardos
exp	BT	“More than half of the national collections are exported to India and the rest are supplied to the domestic market for traditional medicine, incense, perfumes, etc.”	4134	Gyeltshen, N., Bidha, N., Dorji,
exp	CN	Country of export (Sechuan)	4180	Hänsel, R., Keller, K., Rimpler,
exp	CN	Exported from Tibet to NP, where the oil is extracted	5997	Mulliken, T. (2000): Implement
exp	IN	"80% of the imported N. grandiflora rhizomes are consumed locally (in processed form), while the rest is exported as manufactured medicines"	8365	Larsen, H.O & Olsen, C.S. (s.c
exp	IN	"dry powder and extracts […] are exported to different medicinal markets of Canada, Ireland, Netherlands, Singapore, Turkmenistan and USA and sold for 2972 US$/kg"	3696	Kaur, H., Lekhak, M.M., Chaha
exp	IN	Exports of 34 tonnes of rhizomes from Sikkim between Apr 1993 and Apr 1995 acc to Indian CITES proposal	5103	IUCN & TRAFFIC (1997): Anal
exp	IN	Re-export: 17% of the estimated 1000 tonnes/yr. from NP	5997	Mulliken, T. (2000): Implement
exp	NP	"annual volume of N. grandiflora rhizomes traded from Nepal to India [estimated] to be 100-436 ton with an average export value of US $ 603 thousand."	8619	Ghimire, S.K., Sapkota, I.B., O
exp	NP	"main supplier to the large Indian wholesale market"	7688	Larsen, H.O. (2005): Impact of
exp	NP	"More than half of the national collection of N. grandiflora is estimated to be exported to India"	8365	Larsen, H.O & Olsen, C.S. (s.c
exp	NP	"N. grandiflora was the second highest export earning Medicine plants in Nepal next to chirayito (Swertia chirayita) before its ban on export [...]. Still large amount of unprocessed air-dried rhizomes are traded through illegal channel."	8619	Ghimire, S.K., Sapkota, I.B., O
exp	NP	"rhizomes of jatamansi originated from Nepal share about 82-95% of the total global export value, whereas India and Bhutan respectively share 13% and 5%"	8619	
exp	NP	"The non-processed rhizomes are exported in large quantities from Nepal, and to a smaller extent Bhutan, to India."	8365	Larsen, H.O & Olsen, C.S. (s.c
exp	NP	"The unprocessed air-dried rhizomes and aromatic oil are exported mainly to India. Small amounts of oil are exported to France, England, Pakistan, Spain, Germany and South Korea."	8619	Ghimire, S.K., Sapkota, I.B., O
exp	NP	“about 160 tonnes/year N. jatamansi rhizomes/roots and 2.3 tonnes/year N. jatamansi oil was exported between 2008 and 2018 from Nepal”	4131	Chauhan, H.K. (2021): Nardos
exp	NP	“The annual trade level of N. jatamansi rhizomes from Nepal is estimated at 100-500 tonnes”	4131	
exp	NP	200 tons exported/yr.	4140	Malla, S.B., Shakya, P.R., Raj
exp	NP	Exports of 220 tonnes for the period 1989-1994 acc. to Nepali export figures	5103	IUCN & TRAFFIC (1997): Anal
exp	NP	Exports of 3202 kg of oil to IN during 1996/1997 acc. to Nepali customs data	5997	Mulliken, T. (2000): Implement
exp	NP	main exporter, app. 1000 tonnes/yr of dried rhizomes to India acc. to study by Olsen	5997	
exp	NP	Major country of export	7143	Lange, D. & Schippmann, U. (
har		"the older the rhizomes […] the higher the precentage of essential oil in plants of up to two or three years"	8347	Mulliken, T. & Crofton, P. (200
har		“plant material available in the market is mostly collected from the wild”	4130	Chauhan, H.K., Oli, S., Bisht,
har		Harvesting in fall produces better oil quality due to low moisture content and less damage through fungi.	6035	Subedi, B. & Koontz, A. (1999)
har	BT	“DoFPS recommends an Allowable Harvest Limit (AHL) of 25% in a 7-year generation length which would mean an AHL of 18MT per year. Therefore, a national quota is fixed at 18MT until next NDF report.”	4134	Gyeltshen, N., Bidha, N., Dorji,
har	BT	“Generally, N. grandiflora is harvested from the state reserved forest”	4134	

har	CN	“the harvesting of N. jatamansi begins in May, but most harvesters would halt the harvesting of N. jatamansi and choose to harvest F. cirrhosa between June and July, despite their grasslands having ample supply of N. jatamansi and high demand from the traders. After the relatively short period of F. cirrhosa harvest, the Tibetan’s harvesters would go back to harvest N. jatamansi again until the first snow”	9224	Zhao, J., Hu, S., Fan, L., Zeng
har	NP	"All collection is from the wild with only negligible cultivation taking place"	8365	Larsen, H.O & Olsen, C.S. (s.c
har	NP	"harvest season is from August to October, but may start earlier depending on the number of harvesters and the economic needs of harvesters"	8365	
har	NP	"typically harvesters make trips exclusively for harvest or harvest while herding in the alpine meadows"	8365	
har	NP	[also: IN] "Collection conditions at high altitude are very strenuous: collectors often stay in rock caves, the weather is cold and treacherous, and the working environments dangerous. Collection is usually done using a one-handed hoe, kodhalo, for digging. Bamboo baskets are used for storage: a doko for products collected in large volumes and a phurlung for high value, low volume products."	5651	Olsen, C.S. (1998): The trade i
har	NP	“exclusively wild-harvested and economically important to rural households”	9189	Smith-Hall, C., Pyakurel, D., M
imp		“India was the largest importer of rhizomes (1,062 tonnes), followed by Pakistan (532 tonnes) and Bangladesh (9 tonnes) from Nepal. India is also the largest importer of Nepalese essential oils derived from the species (18 tonnes). Other major importers include the United States, Belgium, United Kingdom, Switzerland, France, Germany, United Arab Emirates, and South Korea.”	4131	Chauhan, H.K. (2021): Nardos
imp	IN	"The Indian market is supplied primarily from Nepal, with some products from Bhutan and India"	8365	Larsen, H.O & Olsen, C.S. (s.c
imp	IN	Primary country of import, 80% processed and consumed locally	5997	Mulliken, T. (2000): Implement
man	BT	“There are 146 NWFP groups in the country for sustainable management [of NWFP harvest], out of which 7 are involved in N. grandiflora management”	4134	Gyeltshen, N., Bidha, N., Dorji,
man	NP	"N. grandiflora has been recommended for strict management, with low harvest rates and fairly long rotations (at least 5 years) between successive harvests. [...] a harvesting rate of <10% rhizomes [is recommended] from mature plants in drier habitats, such as rocky slopes and outcrops; and <25% rhizomes from mature plants in moister habitats, such as meadows."	8619	Ghimire, S.K., Sapkota, I.B., O
man	NP	“A project aimed to promote sustainable trade in Nepal was started in 2018 supported by the UK Government’s Darwin initiative. The project involves the assistance of the FairWild Standard principles and robust measures that will help traders, collectors, and CITES Management Authorities in the sustainable harvest and trade of the species. Future research should focus on understanding demand drivers (including the relative demand for different uses), implementation of tools and techniques to increase local community control and management of production areas, refinement of cultivation and propagation methods, long term monitoring of population structure, and implementation of sustainable harvest and trade in the entire species’ range.”	4131	Chauhan, H.K. (2021): Nardos
man	NP	“Nepal’s progressive community forestry laws and the support of development partners [...] enable inclusion of NTFPs in the management plans of some community forests and provide a foundation for the communities’ legal access and management control of the NTFPs in their forests. It has been a major paradigm shift for the sustainable and regulated harvest of the NTFPs, including N. jatamansi, by local communities. [...] Community forest user groups (CFUGs), especially in high mountain areas (including Humla, Jumla, Mugu, Dolpa, Darchula and Bajhang), have management plans that incorporate sustainable management of N. jatamansi based on resource inventories. Management plans specify the collection area, period of harvest, species, and the quantities of the products to be collected, as well as the method of harvest. Pasture burning, which destroys many plant species, including N. jatamansi, has been stopped in Humla after the community forest management plan was instituted [...].”	4131	
man	NP	“Some forest areas in Nepal, especially in Bajhang district, have been certified by the Forest Stewardship Council (FSC) for N. jatamansi harvest to maintain harvest level, monitoring, and record-keeping protocols that ensure ecological and social conditions for sustainable harvest of forest products.”	4131	
price		"average purchase price paid […] to middle level traders was estimated ad USD 2.2/kg during 1997/98, the value of the harvest during that year therefore estimated to be on the order of USD 400000."	8347	Mulliken, T. & Crofton, P. (200
price		"European and North American cosmetic companies involved in the selling of ‘Spikenard essential oils’ at a price of about 70 USD/kg"	3698	Dhiman, N. & Bhattacharya, A.
price		"extracts and powder of the plant are exported to markets in Singapore, Netherlands, Ireland, Canada, the United States and Turkmenistan […] and sold for 29 to 72 USD per unit"	3698	
price		"In Europe and North America, ‘Spikenard oil’ was sold for 70 US$/kg by cosmetic companies"	3696	Kaur, H., Lekhak, M.M., Chaha
price		“On popular online shopping portals the price of the essential oil obtained from species was about 2700 USD/kg in November, 2020	4131	Chauhan, H.K. (2021): Nardos
price		“Surge in the N. jatamansi prices over the past two decades has increased returns to harvesters/laborers from its collection”	4131	
price		“surge in the price (i.e. from 1.75 USD/kg rhizomes in 1997–1998 to 4.32 USD/kg rhizomes in 2014–2015) of N. jatamansi”	4130	Chauhan, H.K., Oli, S., Bisht,
price	CN	“The average price of N. jatamansi paid to the harvesters is approximately 28–42 RMB/kg”	9224	Zhao, J., Hu, S., Fan, L., Zeng
price	IN	"dried roots and rhizomes […] are sold for 3501000 INR/kg at different places of India […]. Essential oil from the plant also sells at 12,0003000 INR/l"	3696	Kaur, H., Lekhak, M.M., Chaha

price	IN	"Oil from the plant fetches a price of Rs. 12,000–30,000 per liter […] The dried rhizomes of the plant […] sell at Rs. 350–1100 per kg at local markets of Amritsar, Himachal Pradesh, Bengaluru, Chennai, Dehradun, Jaipur, Kolkata, Lucknow, Mumbai, Guwahati, Hyderabad, Kanpur, Madurai, Ramnagar, Shillong, Siliguri, Tanakpur, and Khari Baoli in Delhi, the largest wholesale market for medicinal plants"	3698	Dhiman, N. & Bhattacharya, A.
price	IN/P	“The import value to India and Pakistan has increased by about five and threefold, respectively, from 2008 to 2017”	4130	Chauhan, H.K., Oli, S., Bisht,
price	NP	"significant price increases […] from 1994/95 to 1997/98, but […] harvester prices were constant. This indicates that increasing demand and wholesaler prices do not necessarily directly affect the harvesters’ incentive to collect"	8291	Larsen, H.O. & Olsen, C.S. (20
socu		"in ancient times, the plant was a critical part of various drugs and perfumes in countries like Greece, Arabia, Egypt, Rome, and […] Europe. The great physician, Hippocrates sweetened and spiced his drinks with the plant and its parts for health benefits"	3698	Dhiman, N. & Bhattacharya, A.
socu		"Jatamansi (Nardostachys jatamansi) is a traditional Indian drug plant used for incense and medicine […]. It is harvested from the wild in the Western Himalayas, where over-exploitation and degradation of ist natural habitats give rise to concerns about ist conservation status. However, proper assessment of the conservation status of jatamansi is hampered by confusion with Valeriana jatamansi, a medicinal plant of more local importance. The item of materia medica traded is, in the case of both species, the upper part of the rhizome and stem base."	3694	Mabberley, D.H. & Noltie, H.J.
socu		"prized in salves in Roman society"	3753	Mabberley, D.J. (2017): The pl
socu		"Traditional records for medicinal uses […] in India date back to Vedic times (500-1000 BCE) […] and are well documented in ayurvedic classics such as Charak Samhita, Nighantus Chikitas Granthas and Sushruta Samhita […]. Ancient scriptures confirmed that underground tissues (roots/rhizomes) of N. jatamansi are also extensively used in Unani, Bhutanese, Chinese, Japanese, and Tibetan medicinal system."	3696	Kaur, H., Lekhak, M.M., Chaha
socu		"Traditional records for medicinal uses […] in India date back to Vedic times (500-1000 BCE) […] and are well documented in ayurvedic classics such as Charak Samhita, Nighantus Chikitas Granthas and Sushruta Samhita […]. Ancient scriptures confirmed that underground tissues (roots/rhizomes) of N. jatamansi are also extensively used in Unani, Bhutanese, Chinese, Japanese, and Tibetan medicinal system."	3696	
socu	IN	"an extremely important part of the folklore medicine of Kumaon in Uttrakhand and is used in various magico-religious ceremonies […]. Like the Bhotias, the Kumaonies burn incense sticks or dhoop prepared using the subterranean parts of N. jatamansi […] in the room of ailing patients. The Kumaonese believe that these incense sticks can cure 50% of the illnesses in their community"	3698	Dhiman, N. & Bhattacharya, A.
socu	NP	[also IN] "unemployed and poor locals harvest almost all the traded material, illegally. Although the governments of both India and Nepal have banned the harvesting and trading of the plant, illegal trading, [contributes] towards 35 million workdays per year"	3698	
sus		"During collection whole plants are uprooted and disturbed."	3641	Ved, D., Saha, D., Ravikumar,
sus		"harvested before they are mature partly owing to concern that others will harvest them first, with entire plants uprooted"	8347	Mulliken, T. & Crofton, P. (200
sus		"harvesting 100% of the plants in plots followed by replanting of upper plant parts and two centimetres of the rhizome provided the fastest regeneration and rhizome biomass growth"	8347	
sus		"Harvesting should follow a combination of selective collection of matured rhizomes and replanting of the younger ones in situ. The whole rhizome should not be harvested from the clone and other plants in the vicinity should not be removed. Harvesting should be done on a rotational basis."	8619	Ghimire, S.K., Sapkota, I.B., O
sus		"observed slow recovery of populations after harvest […] that is often indiscriminately removing juvenile and mature plants"	8365	Larsen, H.O & Olsen, C.S. (s.d
sus		"regeneration following harvest using traditional methods was very low (16.3%) compared to harvest in conjunction with replanting (upper parts of the rhizomes replanted after collection) and rotational harvesting systems (left untouched)"	8347	Mulliken, T. & Crofton, P. (200
sus		"sensitive to harvest […] even low levels of harvesting had a strong negative effect on ramet density, recruitment and survival rate"	8347	
sus		"traditional harvest methods were very detrimental to plant regeneration in a natural state"	8347	
sus		“changing harvesting practices to promote regeneration would allow country-wide higher levels of sustainable harvests, simultaneously promoting species conservation and continued trade of substantial economic importance to harvesters and downstream actors in the production network”	9189	Smith-Hall, C., Pyakurel, D., M
sus		“The collection of medicinal plants generates significant income for Himalayan communities; for instance, in Nepal the contribution of medicinal plants to annual cash income in different regions varied from 15% to 50% of total household income”	4131	Chauhan, H.K. (2021): Nardos
sus		optimal harvest season: fall	6035	Subedi, B. & Koontz, A. (1999)
sus		optimal percentage of plants not harvested: 20%	6035	
sus		optimal rotational interval: 5 years	6035	
sus	NP	"Local harvest management is typically reported to be based on a fixed starting date rather than maximum amounts"	8365	Larsen, H.O & Olsen, C.S. (s.d
sus	NP	"What former rules (e.g. agreed starting dates after seed fall, allowed tools, exclusion of outsiders) may have been in practice are now assumed to have disappeared due to increasing potentials for commercialisation"	8365	

sus	NP	“A 3-year regeneration study in central Nepal found that 100% rhizome harvesting (the local harvesting practice) in meadow and shrub populations followed by replanting of upper plant parts and 2 cm of the rhizome provided the fastest rhizome biomass growth and regeneration”	9189	Smith-Hall, C., Pyakurel, D., M
sus	NP	“A 4-year population study in north-western Nepal found higher growth rates and faster recovery in meadow populations (higher recruitment, faster vegetative growth) than in rocky-outcrop populations (slow growth, low fecundity) and recommended low harvest rates (≤25% in meadows and ≤10% in outcrops) with at least 5 years between harvests to allow population recovery”	9189	
sus	NP	“By combining credible district-level trade data with empirically based quantifications of species distribution, stock, and yield, we generated the currently best available estimates of the actual and sustainable harvest levels of N. jatamansi”	9189	
sus	NP	“price increases, dwindling stocks, and continued wild harvesting (no cultivation) may indicate a species moving towards economic extinction. On the other hand, the New harvest scenario indicates a considerable potential to increase annual harvests through changed harvesting practices’	9189	
sus	NP	“The estimated sustainable harvest range is wide, from 598 to 1,495 t/year under existing harvesting practices to 5,979 t/year with improved practices”	9189	
tra		"estimated consumption of rhizomes by herbal manufacturing units is about 500–1000 metric tons"	3698	Dhiman, N. & Bhattacharya, A.
tra		"large-scale trade has been found to take place outside the control of CITES"	7688	Larsen, H.O. (2005): Impact of
tra		“Sometimes, the official consumption by herbal and other end users is manipulated to avoid taxes.”	4130	Chauhan, H.K., Oli, S., Bisht,
tra		“The trade volume is likely to be underestimated since there are several end uses of the species and illegal trade of the species is prevalent within the region.”	4130	
tra		“trade figures […] are likely to underestimate the actual level of exploitation as illegal trade of the species is prevalent within the region, and official consumption data for herbal industries are often manipulated to avoid taxes”	4131	Chauhan, H.K. (2021): Nardos
tra		CITES Trade data: 2 international trade transactions under the term "dried plants" between 1975 and 2017	7150	UNEP-WCMC (2019): CITES
tra		CITES Trade data: 2 international trade transactions under the term "medicine" between 1975 and 2017	7150	
tra		CITES Trade data: 23 international trade transactions under the term "derivatives" between 1975 and 2017	7150	
tra		CITES Trade data: 6 international trade transactions under the term "extract" between 1975 and 2017	7150	
tra		CITES Trade data: 7 international trade transactions under the term "roots" between 1975 and 2017	7150	
tra		CITES Trade data: 79 international trade transactions under the term "oil" between 1975 and 2017	7150	
tra	CN	“currently, we lack even a rudimentary understanding of the N. jatamansi domestic trade and harvest practice in China”	9224	Zhao, J., Hu, S., Fan, L., Zeng
tra	CN	“harvesting of N. jatamansi […] entirely done by the local Tibetan harvesters”	9224	
tra	CN	“Local wholesalers […] sold [N. jatamansi] to Hehuachi TCM market (one of the largest TCM wholesale markets in China, located in Chengdu). Then the TCM could be further sold to pharmacies across the Country”	9224	
tra	IN	"In domestic markets, estimated annual trade of […] rhizomes is around 200-500 tnes (mt)"	3696	Kaur, H., Lekhak, M.M., Chaha
tra	IN	"In India, the annual demand of Nardostachys rhizome has been reported to be 674.9 ton in 2001-2002 which increased to 866.8 ton in 2004-2005 with an annual growth rate of 8.7%"	8619	Ghimire, S.K., Sapkota, I.B., O
tra	IN	"listed in the top 20 most traded plants in India"	3696	Kaur, H., Lekhak, M.M., Chaha
tra	IN	“annual [estimated] consumption of […] N. jatamansi by the domestic herbal industry in India [is] 528 tonnes/year”	4131	Chauhan, H.K. (2021): Nardos
tra	IN	Estimated annual trade: 500-1000 metric tonnes	3221	Goraya, G.S. & Ved, D.K. (201
tra	NP	"80t […] processed annually by the private sector in Nepal". Total collected from 1987 to 1994 was 940.45t"	5232	Bhattarai, N.K. (1997): Medicin
tra	NP	"estimated annual trade level of air-dry N. grandiflora rhizomes from Nepal at 100-500 tonnes, with trade in 1997/98 of 350-400 tonnes. Official records for the same year put national harvest at only 97 tonnes […]. and legal trade can in some areas be as little as 12% of the total trade"	8365	Larsen, H.O & Olsen, C.S. (s.d
tra	NP	"increasing export from Nepal to India and overseas destinations of essential oil produced from N. grandiflora rhizomes is reported […] on the basis of data from the Nepalese Customs Department. Export of 21 tonnes essential oil from the years 2000/01 and 2001/2 is reported, and it is mentioned that Nepal imported between 50 and 100 tonnes N. grandiflora rhizomes per year between 2001/2 and 2003/4 from Tibet for this production"	8365	
tra	NP	"trade (domestic and export) of dried rhizomes of N. grandiflora in Nepal for 1997/1998 was in the order of 300t"	8347	Mulliken, T. & Crofton, P. (200
tra	NP	“Annual trade of about 100–500 tonnes is estimated from Nepal”	4130	Chauhan, H.K., Oli, S., Bisht,

tra	NP	“As per the recent estimate, 353,803 kg of its rhizome were purchased by processors in Nepal (excluding amounts via traders for unprocessed exports) generating 2,151,574 USD in value at the national level”	4130	
tra	NP	“In 2014–2015, rural households continued to collect N. jatamansi rhizomes exclusively in the wild on dedicated trips to remote subalpine and alpine collection areas, with an average of 106 ± 119 kg air-dried rhizomes/household/year using 13 ± 11 days (n = 25) from August to December”	9189	Smith-Hall, C., Pyakurel, D., M
tra	NP	“Sales to traders and domestic processors were mainly done from September through January. The rhizomes then moved to central wholesalers and additional domestic processors, concentrated in the larger cities. Central wholesalers exported to regional wholesalers in India; we registered no N. jatamansi regional wholesalers in Tibet. The market beyond the regional wholesalers remains undocumented.’	9189	
tra	NP	“The estimated national-level trade in 2014–2015 (1,145 t [...]) was 30% above the government-assigned quota (878 t), with estimated trade exceeding quotas in 15 districts”	9189	
tra	NP	“traded in high amounts with 82% of the annual global production and 99% of legal international trade from Nepal”	9189	
tra	NP	In the table "Estimated annual potential N. grandiflora collection in Nepal (mid-1990s)" a total of 750-900 tons is given	8347	Mulliken, T. & Crofton, P. (200
tra	US	"sold in this country"	6369	McGuffin, M., Kartesz, J.T., Le

Legislation

Legislation	Annex	Source Taxon		
CITES	II	6386	UNEP-WCMC (2001): Annotated CITES Appendices and Reservations. C	

Regulation

ICC	Regulation	Ref	
	National laws are in place in Nepal and India. However, enforcement is limited and there seem to be reports of a large amount of illegal trade.	8347	Mulliken, T. & Crofton, P. (200
	A CITES proposal by IN in 1979 for inclusion of Nardostachys spp. in CITES App. I was rejected. Later proposals by IN in 1989 and 1994 for inclusion of N. grandiflora in CITES App. II were both withdrawn. In 1997, the inclusion in App. II was accepted.	7141	UNEP-WCMC (s.dat.): Specie
	In 2020, Nepal has issued an export quota 382.700 kg of rhizomes.	7141	
	"Despite the fact that N. grandiflora has been on Appendix II of CITES since 1997 [it has been made] clear that international trade (e.g., between Nepal, Bhutan and India) is taking place on a large scale"	3694	Mabberley, D.H. & Noltie, H.J.
	"CITES implementation seems to be vertually non-existent"	8347	Mulliken, T. & Crofton, P. (200
BT	“to ensure sustainable collection or harvesting, the technical regulations are developed by the Department of Forests and Park Services”	4134	Gyeltshen, N., Bidha, N., Dorji,
BT	The Forest and Nature Conservation Act (1995) protects the flora and fauna in Bhutan. Collection of N. jatamansi from the wild is permitted under this act but transport requires a permit.	4131	Chauhan, H.K. (2021): Nardost
BT	“communities are also empowered for management of resources within the area where the community have traditional and customary rights through approval of resources management and marketing plans by the Head of the Ministry”	4134	Gyeltshen, N., Bidha, N., Dorji,
BT	“Currently there is no quota set for export of any NWFPs collected and traded within and outside Bhutan. However, communities are allowed to harvest NWFPs for their domestic use without obtaining a permit.''	4134	
CN	“in August 2021, N. jatamansi became listed at the ‘second conservation level’ in the List of Wild Plants of National Priority Protection in China, which meant that collection permits are now needed for their harvesting”	9224	Zhao, J., Hu, S., Fan, L., Zeng,
IN	“The harvesting of threatened medicinal plants from forests is banned. Nardostachys jatamansi is specifically protected by the Government of India through a ban on the mass collection or removal of plant materials from their natural habitat for any purpose”	4131	Chauhan, H.K. (2021): Nardost
IN	The Indian Forest Act, 1927, Wildlife (Protection) Act, 1927/1991/2002	4130	Chauhan, H.K., Oli, S., Bisht,
IN	"Even the legally collected rhizomes have no official records in India because the harvesters usually avoid paying taxes for their collection"	3698	Dhiman, N. & Bhattacharya, A.
NP	"The purpose of current regulations (collection license, transport permit, banned export of unprocessed rhizomes) appears to be collection of fees"	8365	Larsen, H.O & Olsen, C.S. (s.d
NP	"While no comprehensive management plan exists, some regulatory mechanisms are in place. Commercial collection of medicinal plants requires a licence (collection permit) specifying collection area, period of harvest, species, quantities, and methods of harvest"	8365	
NP	[also IN] "According to National Medicinal Plant Board (NMPB), Government of India, plants sold in the market are mainly harvested from natural habitat and traded illegally. […] there is lack of official records regarding legal collection of rhizomes. In this regard, both Indian and Nepalese governments have banned the illegal harvesting and trading of this high value plant"	3696	Kaur, H., Lekhak, M.M., Chaha
NP	"export of unprocessed rhizomes of N. grandiflora is banned"	8365	Larsen, H.O & Olsen, C.S. (s.d
NP	"Medicinal plant harvest and trade from forests in Nepal is regulated by the Forest Act of 1993 and the Forest Regulations of 1995. Alpine meadows where N. grandiflora occurs are legally categorised with forest land"	8365	
NP	"Export of N. grandiflora was banned in 1995 as specified in the Forest Regulations. An amendment in 2001 allowed export of processed plant material, provided the processing had taken place in Nepal and was authorised by the Department of Forest (advised by the Department of Plant Resources and Herbs Production & Processing Co. Ltd. – a company started by the Nepalese government in 1981 to pioneer commercial cultivation of medicinal plants)"	8365	

NP	"The de facto implementation of the forest law regarding export of medicinal plants in Nepal is weak: customs officers are unable to distinguish rhizomes from various species […], deputed forest rangers are not actually working at customs offices […] and forest and police officers reportedly extract rents for letting medicinal plant consignments pass the control posts"	8365	
NP	Government of Nepal, ban on raw export	4132	Chapagain, A., Wang, J. & Pya
NP	"Harvest is not managed by the national authorities, no quotas or maximum amounts are specified. In practice, traders bulk the harvested rhizomes and apply for collection license and transport permit at the same time, meaning that officially recorded data is valid at the district level at best"	8365	Larsen, H.O & Olsen, C.S. (s.d
NP	“In Nepal, wildlife harvest and trade control is implemented by the Forests Act, 2019 (2076) and the National Parks and Wildlife Conservation Act (1973). The collection of medicinal plants is authorized via license issued by Divisional Forest Officers. The license specifies the collection area, period of harvest, species, and the quantities to be collected, as well as the method of harvest. The number of medicinal plants collected, any associated fees, and the issue of a ‘release order’ (required to transport the harvested plants out of the district) is verified by the Divisional Forest Officers. All these rules apply to N. jatamansi in Nepal.”	4131	Chauhan, H.K. (2021): Nardost
NP	"Collection of medicinal plants is not allowed in National parks, conservation areas and protected areas according to the National Parks and Wildlife Conservation Act (1973)"	8365	Larsen, H.O & Olsen, C.S. (s.d

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Abbreviations and Standards

ICC = ISO Country Codes Ref = literature reference

Altitude: Low / High = minimum and maximum limits of altitude range [m]

Legislation: Source Taxon = name of taxon as contained in legislation

Utilization: TypeUtil

TypeUtil	*TypeUtilLong*
com	commodity
cul	cultivation
exp	export
har	harvest
imp	import
man	management
price	price
rem	remark
socu	socio-cultural significance
sus	sustainability
tra	trade
trend	trend and scale of trade

Distribution Status: Standard

Status	*Explanation*
chk	check entry
nat	native
int	introd., established
adv	introduced, not established
ocd	occurrence doubtful
unc	status unclear
ext	extinct
cul	cultivated
sou	source doubtful
ica	introduced (casual or naturalized)
don	doubtfully native
pex	(presumably) extinct
ali	casual alien
nzd	naturalized
nna	not native
dpn	status doubtful, possibly native
abs	absent but reported in error

Common names: Type

Ecology: TypeEcol

TypeShort	*Type*
?	<unknown>
ayn	ayurvedic name
hom	homoeopathic name
pha	pharmaceutical name
scn	standardized common name
tra	trade name
ver	vernacular name

TypeEcol	*Explanation*
alti	altitude
grow	growth rate
habit	habitat
morph	morphology
regen	regeneration
repro	reproduction