

# Vegetational Diversity in Various Forest of Amakantak Central India an Overview

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**Abstract - Since ancient times, Madhya Pradesh has been a biodiverse region. The forests of Amarkantak are home to diverse vegetation, types in addition to natural habitats and this makes it one of the most beautiful places in central India. It is important to understand the importance of a biodiversity, The uniqueness of different habitats and their flora and fauna make a rich ecosystem which needs to be preserved for the future generation. Vegetation plays a vital role in the structure and function of any ecosystem. There are many factors, that limit the distribution of vegetation, like climate, soil, slope, and other factors. the globe is on the verge of catastrophic ecological collapse as a result of deforestation, habitat fragmentation, and human population expansion. Biodiversity conservation is a major priority for the Achanakmar-Amarkantak Biosphere Reserve Thallophtes, bryophytes, pteridophytes, gymnosperms, and angiosperms are all represented in the Achanakmar-Amarkantak Biosphere Reserve's around 1498 plant species. A list of 184 plant species, including 24 pteridophytes and 160 angiosperms, is presented in this article to highlight the ethnobotanical uses of the Achanakmar Amarkantak biosphere reserve's indigenous peoples. The ethnobotanical applications of 90 kinds of plants by the Achanakmar Amarkantak biosphere reserve's tribal In .Tribal people in forests exercise wise use of plant resources and protect numerous plant species as a result. which has a long history of respect, care, and concern. This article focuses on various published papers, vegetational diversity in Amarkantak different types of forests, herbal medicines commonly used by local people in the treatment of diseases.**

**Keywords - Biosphere Reserve, Ecosystem, Ethnobotanical, Various Forest, Vegetational Diversity, Amakantak Central India**

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## INTRODUCTION

Achanakmar Sanctuary was established in the year 1975 in Lormi forest area of Bilaspur district of Madhya Pradesh, which is presently part of Mugeli district of Chhattisgarh state, in the year 2007 it was declared as biodiversity area and in the year 2009 (tiger protected area) Declared Tiger Reserve area, India has a total of 53 tiger protected areas in the country, out of which Achanakmar is number 32 tiger protected area The Biosphere Reserve's Bilaspur district contains the Achanakmar Wildlife Sanctuary, a large area dedicated to wildlife conservation. As part of achanakmar biosphere reserve ID, the core buffer as well as buffer zones have been established Chhattisgarh has a 551.55-square-mile core zone, as well as Amarkantak Wildlife Sanctuary has been located within it. There are 3284.36 km<sup>2</sup> of buffer and transition zones. In Madhya Pradesh, the buffer zone covers 1224.98 square kilometres, while in Chhattisgarh, the rest 2059.38 square kilometres comprise the buffer zone. The biosphere reserve's terrain ranges from lowland rice fields of Bilaspur, Mugeli, Marvahi-Pendra and Anuppur to the

Satpura mountain ranges of Dindori and the Maikal range. Bauxite rocks make up The biosphere reserve's terrain ranges from lowland rice fields of Bilaspur, mugelianmarvahi pendra and Anuppur to the Satpura mountain ranges of Dindori and the Maikal range. Bauxite rocks make up the topography of the Amarkantak plateau's soil. A number of short-lived streams and Nallas meander through the preserve. An important watershed for peninsular India is located in Achanakmar-Amarkantak Biosphere Reserve. It serves as dividing line between Bay of Bengal and also Arabian Sea, where rivers originate. Narmada, Johilla, and Son Rivers are all prominent rivers that originate here (Joshi et.al., 2010).

Achanakmar-Amarkantak Biosphere Reserve include the Vindhya and Satpura mountain ranges, as well as the Maikal mountains. Rainy (July–October), Summer (March–May), and Winter are the three distinct seasons of the reserve's characteristic monsoon environment. While December and January tend to be the coldest months, May and June are the hottest. The south-western monsoon

provides rain to the area from June through September



**BIOSPHERE RESERVE IN INDIA**

Achanakmar-Amarkantak Biosphere Reserve has a diverse array of wildlife. The Achanakmar Sanctuary has more diverse and healthy wildlife populations than any other protected forest region, including Biosphere Reserve. The Sanctuary's strong conservation measures have resulted in increased security and better habitat conditions. Achanakmar Sanctuary contains habitat to 552 bison (gaur), 376 barking dears, 1369 sambars, 1936 Chitals, 28 bears, 46 panthers, and 26 tigers. Wild giant squirrels, monkeys Samarth, wild boar, Jackals, foxes, wolves, chinkara, black buck are all prominent wildlife species in the reserve. More than 170 bird species belongs to 51 groups can be found in the reserve's natural habitat. The reserve is home to more than a dozen different types of lizards and snakes, as well as a wide variety of frogs (including the bullfrog, toad, ornate thin mouthed frog, tree frog, burrowing frog, cricket frog, etc.). Red face monkeys, Langurs, red hips monkeys, as well as typical Indian monkey are among the four varieties of monkeys found as in India. Achanakmar-Amarkantak Biosphere Reserve is depicted on map in Figure 1. And Achanakmar-Amarkantak Biosphere Reserve was shown as in figure 3. Table 1 lists the ethno botanical uses of the plant species from Achanakmar-Amarkantak biosphere reserve.

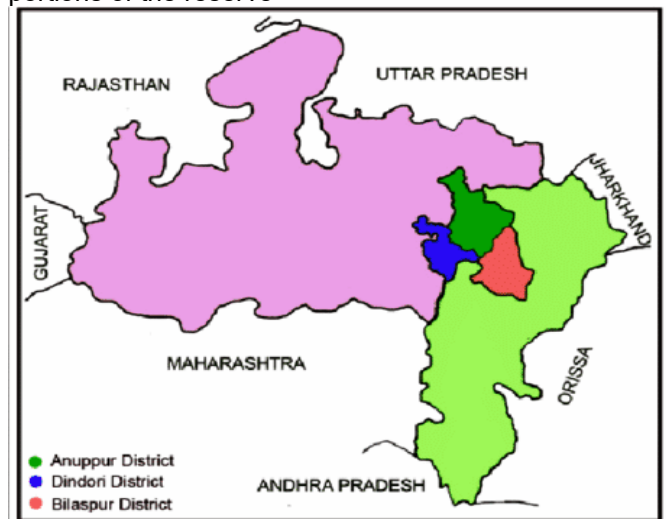
**TYPES OF VEGETATION**

Vegetational diversity is a crucial index of the ecological stability and socio-economic viability of a forest. Forest biodiversity, in turn, can be measured at various scales (e.g., genetic diversity, species diversity, functional diversity). Central India is one of the most bio-diverse regions in the world. The forests of Amakantak are home to a variety of flora,

The Amarkantak forest region is located in the south eastern part of Madhya Pradesh, India. The forest region is spread over approximately 10,000 square

kilometres and has a rich diversity of plant species. The Amarkantak forests are a part of the larger Vindhya an basin that is primarily made up of limestone. This makes the soil acidic, with low levels of nutrients. All this leads to a vegetation that primarily consists of evergreen trees and bushes. In the flora diversity in various forests of Amarkantak India. The major vegetation types found in the forest are tropical to sub-tropical dry deciduous forest.

“Achanakmar-Amarkantak Biosphere Reserve has been biosphere reserve in India and has a land size of 383,551 hectares (3835.51 km<sup>2</sup>) as in region of Madhya Pradesh and Chhattisgarh (Achanakmar-Amarkantak2012). Northern Bio-Geographical Zone 6 and Bio-Geographical Province 6 A are home to this reserve (Central highlands and Deccan peninsula). The district of Bilaspur, (Mugeli- marvashi pendra) in the Indian state of Chhattisgarh contains approximately 68.1% of this reserve. Besides the Anuppur and Dindori districts of Madhya Pradesh, Madhya Pradesh has the second and third-largest portions of the reserve”



**ACHANAKMAR-AMARKANATAK BIOSPHERE RESERVE CENTRAL INDIA**

These forests have been classified into three distinctive types:

1. Moist deciduous forests which can be commonly seen on slopes rich with streams and lakes
2. Dry deciduous forests which are usually found on slopes that have less water availability and hence do not support moist deciduous species
3. Mixed deciduous forest which is a mixture of moist and dry deciduous species. Forest in the Amarkantak are highly diverse, with a wide range of plants and trees. The Kaimur Range which has a chain of hills and mountains running from the south-east to south-west supports the largest number of forest in Amarkantak.

Vegetational diversity in various forests in Amakantak central India has been investigated for its distribution pattern, occurrence and ecological role. The study area covers three types of forest - dry deciduous (DD), moist deciduous (MD) and moist mixed deciduous forest (MM). The study reveals that aprox total number of 1,500 species belonging to 406 genera could be identified in these forests with the most dominant plant family being Poaceae, Fabaceae followed by Asteraceae. The forest also has an abundance of medicinal plants that have been used for ages by people living in these areas to cure various ailments. Central India is one of the most bio-diverse regions in the world. The forests of Amakantak are home to a variety of flora, including 933 plant species. Here we will discuss a few species found in these forests.

The Achanakmar-Bilaspur Biosphere Reserve's natural vegetation differs from place to place. It is possible to divide the reserve's forest into two types: northern tropical moist evergreen as well as southern dry mixed deciduous. The reserve has wide range of the edaphic climatic conditions, and also had wide variety of the plant species. Some of the region's plant species include angiosperms, bryophytes, pteridophytes, gymnosperms, and thallophytes. The reserve is home to nearly 1500 plant species from 151 plant families. Achanakmar-Amakantak Biosphere Reserve has been the home to the numerous angiosperm species. It includes *Hypercom japonicum*, *Curculigo orchoides*, *Chlorophytum tuberosum*, *Dioscorea sp.*, *Curcuma aromatica*, *Gloriosa superba*, *Tropaeolum majus*, *Oxalis sp.*, *Biophytum sp.*, *Grewia rothii*, *Corchorus fascicularis*, *Hibiscus subdariffa*, *Abelmoschus ficulneus*, *Tamarix ericoides*, *Flacourtia indica*, *Cocculus hirsutus*, *Dillenia pentagyna*, *Talinium portulacifolium*, and *Thalictrum sp.* On the Amakantak plateau, several planted gymnosperms have flourished thanks to the unique climatic conditions. A few of them are thought to be endemic species, such as *Taxodium sp.*, *Juniperus sp*, *Pinus roxburghii*, *Pinus pseudostrobus*, *Pinus ponderosa*, *Pinus patula*, *Pinus oocarpa*, *P. mountzuma*, *P. kesiya*, *Thuja orientalis*, *Cupressus torulosa* are also regarded as endemic. In addition to these, Achanakmar-Amakantak Biosphere Reserve is home to over 105 different species of medicinal plants, 25 of which are considered rare. In the Amakantak forest, there is a diverse range of plants that grow and thrive, in this environment to make it their home. The plant species found here range from medicinal plants like, *Ficus benghalensis* and *Cymbopogon citratus* to fruit trees like, *Eugenia jambolana* and *guava (Psidium guajava)*. There also exists many different types of lichen scattered throughout the forest that form on shrubs, tree trunks, and rocks as well as other microbial organisms like fungi and algae.

## ETHNO BOTANICAL PLANT SPECIES

Table 1: Ethnobotanical uses of the plant species in Achanakmar-Amakantak biosphere reserve

No	Com Name	Reference	Species	Family	UP	UFN
1	2	3	4	5	6	7
1	Hansraj	Singh et al. (2004)	<i>Dryopteris cochleata</i> (D. Don) C. Chr.	dryopteridaceae	R	M
2	Bhanki	Bondyaetal. (2009)	<i>Adiantum capillus-veneris</i> L.	Adiantaceae	WP	M
3	JataShankri	Singh et al. (2004, 05),h Kapale(2012)	<i>Tectaria coadunata</i>	tectoriaceae	R-1, B & S-1	M
4	Jatamanshi	Bondyaet al. (2009)	<i>Alsophila balakrishnanii</i>	Cyatheaceae	R-2	M
5	Nechii	Singh et al. (2004-05)	<i>Nephrolepis cordifolia</i> (L.) C. Presl.	Nephrolepidaceae	R-1	M
6	Hadjod	Singh et al (2005)	<i>Equisetum ramossissimum</i> Desf. Ssp. <i>Debile</i> (Roxb. Ex Vauch) Hauch	Equisetaceae	R-1	M

7	Pan bhajee	Kapale, 2012	<i>Marsilea spp.</i>	Marsileaceae	L	V
8	Anikaans	Bondyaet al. (2009)	<i>Pleopeltis macrocarpa</i>	Polypodiaceae	W-P	M
9	Glade fern	Singh et al. (2004)	<i>Cheilanthes albomarginata</i> C.B. Clarke	Pteridaceae	Fron s	M
10	Dodhari	Singh et al. (2005)	<i>Cheilanthes tenuifolia</i> (Burnm.) Sw.	Cheilantheaceae	R-1	M
11	Sanjivini	(Kapale(2012))	<i>Selaginella bryopteris</i> (L.) Baker	Selaginellaceae	L	M
12	Sanjivini	Singh et al. (2004).	<i>Selaginella repanda</i> (Desv. Ex Poir.) Spring	Selaginellaceae	Fron s	M
13	Kastun	Bondyaet	<i>Ablemoschus</i>	Malvaceae	S-2	M

	Bhindi	al. (2009)	<i>Moschatus Medic</i>			
14	Gumchi	Bondyaet al. (2009)	<i>Abrus precatorius</i> Linn.	Fabaceae	L	M
15	Babool	Bhat and Tiwari (2011)	<i>Acacia Arabica</i> (Lam.) Willd.	Mimosaceae	L & F2 B	M
16	Safed kikar	Tiwan and Bharat (2008)	<i>Acacia leucocephala</i> (Roxb.) Willd.	Mimosaceae	B & L	D
17	Babool	Tiwan and Bharat (2008)	<i>Acacia nilotica</i> (Linn.) Willd. ex Delle	Mimosaceae	S-2	D
18	Bach	Singh et al. (2011)	<i>Acorus calamus</i> L.	Araceae	R-1	M
19	Bel	Bhat and Tiwari (2011)	<i>Aegle marmelos</i> (L.) Correa.	Rutaceae	F-2	M & f
20	Gwarpatha	Sahu (2011)	<i>Aloe vera</i> L.	Liliaceae	L	M
21	Lal bhajee	Kapale (2012)	<i>Amaranthus hybridus</i> L.	Amaranthaceae	L	V
22	Katabhajee	Kapale (2012)	<i>Amaranthus spinosus</i> L.	Amaranthaceae	L	V

23	Suran	Kapale (2012)	<i>Amorphophallus campanulatus</i> Nicolson	Araceae	Corn	F
24	Dhawra	Singh et al. (2011)	<i>Anogeissus latifolia</i>	Combretaceae	B & R-2	M
25	Vidhara	Kapale (2012)	<i>Argyrea nervosa</i>	Convolvulaceae	L	M
26	Van makka	Kapale (2012)	<i>Ariseama tortuosum</i> Schott	Araceae	F-2	M
27	Barhal	Singh et al. (2011)	<i>Artocarpus lakoocha</i> Roxb.	Moraceae	WooD	D
28	Kareel	Kapale (2012)	<i>Bambusa arundinacea</i> (Willd.)	Poaceae	S-1	V
29	Katsanya	Kapale (2012)	<i>Barlienapronitis</i> Linn.	Acanthaceae	L & R-2	M
30	KolianBhaje	Kapale (2012)	<i>Bauhinia purpurea</i> L.	Caesalpinaceae	L	V

31	Shivlingi	Singh et al. (2011)	<i>Bryonopsis laciniosa</i>	Cucurbitaceae	L	M
32	Kasai	Singh et al. (2011)	<i>Bridelia retusa</i>	Euphorbiaceae	F-2	F

33	Sinduri	Bondyaet al.(2009)	<i>Bixa orellana</i> Linn.	Bixaceae	S-2	F
34	Kachnaar	Bondyaet al.(2009)	<i>Bauhinia variegata</i>	Caesalpiniaceae	B	M
35	Palash	Sahu (2011)	<i>Butea monosperma</i>	Fabaceae	B	M
36	Kumbhi	Sahu (2011)	<i>Careya arborea</i> Roxb.	Lecythidaceae	F-1	M
37	Charota bhaji	Kapale (2012), Sahu (2011)	<i>Cassia tora</i> L.	Caesalpiniaceae	L	V&M
38	Vanjira	Kapale (2012)	<i>Centratherum anthelminticum</i>	Asteraceae	W-P	M
39	Khattanibu	Bhat and Tiwari(2011)	<i>Citrus aurantium</i> Linn.	Rutaceae	F-2	M
40	Kundru	Kapale (2012)	<i>Coccinia grandis</i> L.	Cucurbitaceae	F-2	V
41	Bodakand	Kapale (2012)	<i>Colocasia esculantum</i> L.	Araceae	TS	V
42	Kevkand	Kapale (2012)	<i>Costus speciosus</i> Linn.	Costaceae	TS	V
43	Kali musli	Singh et al. (2011)	<i>Curculigo orchoides</i> . Gaertn.	Hypoxidaceae	R-5	M

44	Ban haldi	Tiwari and Bharat (2008)	<i>Curcuma aromatica</i> Salisb.	Zingiberaceae	TS	D
45	Amarbel	Sahu (2011)	<i>Cuscuta reflexa</i> .Roxb.	Convolvulaceae	S-2	M
46	Sisham	Bhat and Tiwari(2011)	<i>Dalbergia sissoo</i> Roxb.	Fabaceae	B	M
47	Dhatura	Bhat and Tiwari(2011)	<i>Datura stramonium</i> Linn.	Solanaceae	F-2	M
48	Saptapami	Bhat and Tiwari(2011)	<i>Desmodium gangeticum</i> (L.)DC.	Fabaceae	R-2	M
49	Suankand	Sahu (2011)	<i>Dioscorea globosa</i> Roxb.	Dioscoreaceae	Tuber	V
50	Tendu	Bhat and Tiwari(2011)	<i>Diospyros melanoxylon</i> Roxb.	Ebenaceae	F-1-2	M
51	Jangalisem	Kapale (2012)	<i>Dolichos</i> spp. (L.)	Fabaceae	F-2	V
52	Minjurhuti	Bondyaet al. (2009)	<i>Elephantopus scaber</i> L.	Asteraceae	R-2	M
53	Villaikand	Kapale (2012)	<i>Eulophia nuda</i>	Orchidaceae	R-2	M
54	Bargad	Singh et al.	<i>Ficus bengalensis</i> L.	Moraceae	L.F-2.	M

55	Dumar	Bondyaet al.(2009)	<i>Ficus glomerata</i>	Moraceae	F-1	F.
56	Pakn	Kapale (2012)	<i>Ficus</i> spp.	Moraceae	L	V
57	Kapas	Sahu (2011)	<i>Gossypium arboreum</i> L.	Malvaceae	R-2,B	M
58	Gulbakawli	Kapale (2012)	<i>Hedychium coronarium</i>	Zingiberaceae	L	M
59	Jangalimooli	Kapale (2012)	<i>Heliotropium ovalifolium</i>	Boraginaceae	L	V
60	Kali Kutaj	Bondyaet al. (2009)	<i>Holarrhena pubescens</i> (Buch-Ham) ex G. Don.	Apocynaceae	S-2	M
61	Neel	Tiwari and Bharat(2008)	<i>Indigofera tinctoria</i> Linn.	Fabaceae	L &F-1	D
62	Senha	Singh et al. (2011)	<i>Lagerstroemia parviflora</i> Roxb.	Lythraceae	B, L, Tendernil	V
63	Mehndi	Tiwari and Bharat (2008)	<i>Lawsonia inermis</i> Linn.	Lythraceae	L	D
64	Mahua	Kapale(2012) Bhat and Tiwari(2011)	<i>Madhuca indica</i> J.f.Gmel	Sapotaceae	F-1, F2	V.&M

65	Roni	Kapale (2012)	<i>Mallotus philippensis</i> (Lam.) Muell. Arg.	Euphorbiaceae	F-2.	D & m
66	Bakain	Bhat and Tiwari(2011)	<i>Melia azadirachta</i> Linn.	Meliaceae	B & F-2	M
67	Kari	Singh et al. (2011)	<i>Milium tomentosum</i> (Roxb.) Finet&Gagnep.	Annonaceae	G & B	M
68	Munga	Kapale (2012)	<i>Moringa oleifera</i> L.	Moringaceae	F-1,F-2, L	V
69	Kewanch	Bondyaet al.(2009)	<i>Mucuna prunata</i> Hook.	Fabaceae	S-2	M
70	Kay phal	Tiwari and Bharat(2008)	<i>Myrica esculenta</i>	Mynceaeae	L	D
71	Tinsa	Bhat and Tiwari (2011)	<i>Ougeinia oenoneis</i> (Roxb.)Hochr.	Fabaceae	G. B	M
72	Amla	Singh et al.(2011)	<i>Phyllanthus emblica</i> Linn.	Euphorbiaceae	F-2, L, B	M.

73	Chitrak	Bondyaet al. (2009), Kapale(2012)	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	R-2 F1	M
74	Anar	Tiwari & Bharat(2008)	<i>Punica granatum</i> Linn.	Punicaceae	R-4 F-1	D
75	Manjistha,	Kapale (2012)	<i>Rubia cordifolia</i>	Rubiaceae	WP, R-2	M.&D
76	Kusum	Bhat and Tiwari(2011)	<i>Schleichera oleosa</i> (Lour.) Oken.	Sapindaceae	L, f-2 &S-2	F
77	Bhilwa	Bondyaet al (2009)	<i>Semecarpus anacardium</i> L.f.	Anacardiaceae	R-3 & f-2	d
78	Ramdatun	Bondyaet al.(2009)	<i>Smilax zeylanica</i> L.	Smilacaccae	R-2	M
79	Akarkara	Kapale (2012)	<i>Spilanthes paniculata</i> Wall. ex DC.	Asteraceae	L	M
80	Jamun	Bhat andTiwari (2011)	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	L,F-2 S-2	F,M&D
81	Saja	Singh et al. (2011)	<i>Terminalia alata</i> Heyne ex Roth	Combretaceae	B & G	D
82	Behera	Singh et al. (2011)	<i>Terminalia bellinca</i> Roxb.	Combretaceae	F-2	M

83	Iswarjata	Bondyaet al. (2009)	<i>Uraria lagopodioides</i> (L.) Desv.	Fabaceae	R-2	M
84	Rasna	Bondyaet al. (2009)	<i>Vanda tessellata</i>	Orchidaceae	W-P	M
85	Nirgundi	Sahu (2011)	<i>Vitex negundo</i> (Linn.)	Verbenaceae	R-2	M
86	Dhawai	Tiwari and Bharat(2008)	<i>Woodfordia tomentosa</i> (Linn.)Kurz.	Lythraceae	F-1	D
87	Van dhania	Shrivastava. et al.(2012)	<i>Eryngium foetium</i>	Apiaceae	L	M
88	Van adrak	Kapale (2012)	<i>Zingiber zerumbet</i> (L.)	Zingiberaceae	R-2	M
89	Ber	Bhat and Tiwari (2011)	<i>Zizyphusnumulana</i>	Rhamnaceae	B	M
90	Ber	Bhat and Tiwari (2011)	<i>Zizyphus maunianialam</i> .	Rhamnaceae	B	D

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Sl.No	Common Name	Reference	Species	Family	Useful-part	Usefulness
1	2	3	4	5	6	7
SNO	CM	R	SP	F	UP	UFN

Indication of useful part

Rhi-zome	Root	Resin	Rind	Tuberous Roots	Tuber	Stem	Seed	Stripe	Leaf	Bark	Flowers	fruit	Gum	Whole Plant
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
R-1	R-2	R-3	R-4	TR-5	TS	S-1	S-2	S-3	L	B	F-1	F-2	G	W-P

Indication of use full part Usefulness

Dye	Medicine	Food	Vegetable	Timbers	Traditional & Culture
1	2	3	4	5	6
D	M	F	V	T	C

## CONCLUSSION

Based on the information shown above, it's important to make sure that this region offers a wide variety of mushrooms due to the abundance of plants. Local and indigenous people are missing out on the financial benefits of many of them because they haven't been effectively documented. Food and medicine can be found in plenty in the Amarkantak forest. The economic and social well-being of tribal people is greatly enhanced by the knowledge of edible wild species and their use. Antifungal, antibacterial, antiviral, antioxidant, and anticancerous, among other bioactive compounds, are present in the majority of species. It's not just that they're consumed, but that their use in folk treatments helps to open up new enterprises. Additionally, in this Biosphere region, further research into the marketing as well as preservation of famous wild edible macrofungi species will be beneficial to the economy

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