



# Mapping, identification and conservation of Virgin forests in Slovakia

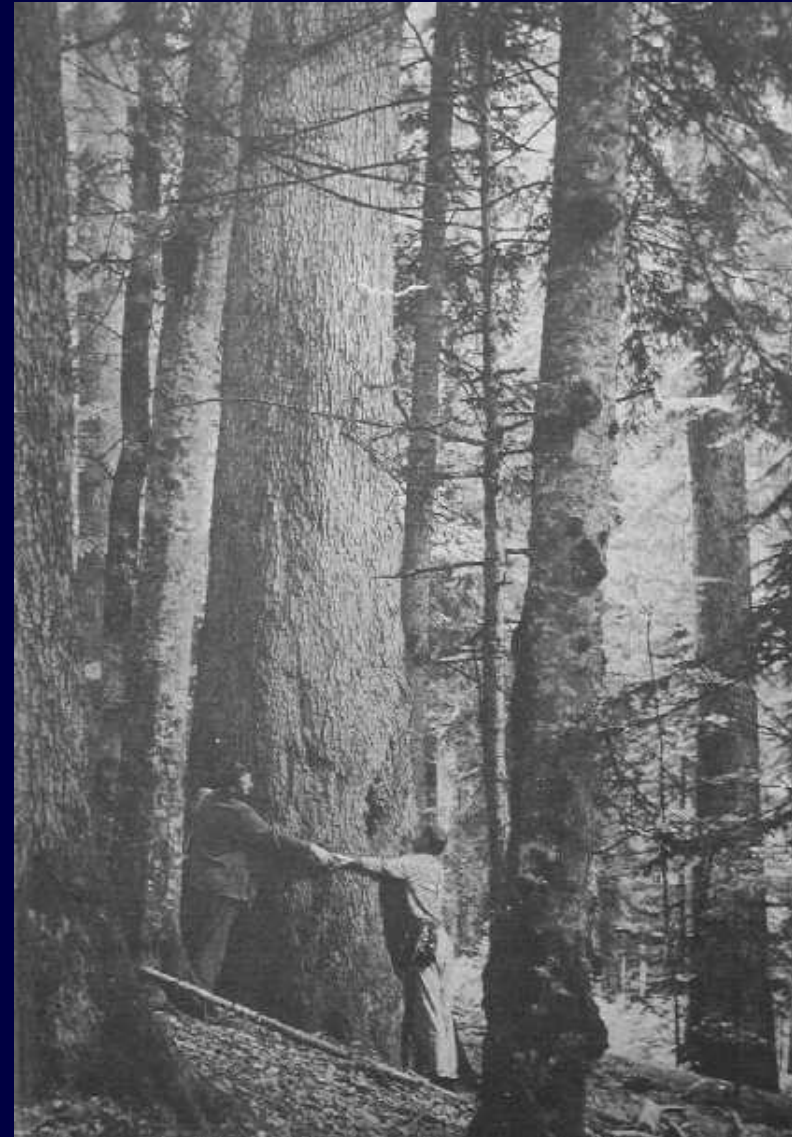
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Carpathian Convention Working Group on Sustainable Forest Management

# Why we needed to identify virgin forests ?

- Manual for High conservation valuable forests  
3.1 – List of rare, threatened and endangered habitats
- unclear estimations of the amount of virgin forests in Slovakia
- unclear conservation of valuable forests
- article 10 of „Forest Protocol“ of the Carpathian Convention
- we like old-growth forests



## Vision

to identify all virgin forests in Slovakia and to secure their conservation forever

## Aims

- to identify all virgin forests in Slovakia
- to improve protection of virgin forests
- to increase public awareness on virgin forests

## 2009 - we began to work

2 projects (2009 – 2011 and 2013 – 2015)



virgin forest ↔ old-growth forest ↔ natural forest ↔

**Forest** ↔ forest ↔ forest stand ↔ plantation

~~OLD  
GROWTH  
FOREST~~

FOREST

FOREST  
???

FOREST

FOREST  
STAND



# Virgin forest definition

*Relative untouched natural forest (signs of former human activities are not presented or they are difficult to identify and slightly visible) with climax (original) tree species composition, with the occurrence of typical species of the ecosystem, with well-preserved age, vertical, horizontal and spatial structure, with adequate presence of deadwood (standing and lying) in different stage of decomposition and with the presence of the individual tree species with the age on the close limit of their physical age.*

*Being part of the virgin forest it is also considered successional stage of forest ecosystem (so-called preparatory forest), which was naturally formed (without human impact) after the natural disturbances on the area of virgin forest (which has not been intervened by humans and there is a presumption that it will be left without intervention).*



- mapping and collecting data from forests



## basic mapping unit – segment (1 – 100 ha)

### Criteria, Indicators and categories of the assessment

#### Assessment on segment level

- naturalness of the vegetation (habitats)
- large trees (amount/distribution/present of the trees in age limit)
- large deadwood (amount /distribution/llying-standing/degrees of decomposition)
- visible signs of human activities (artificial elements, fellings, grazing, invasive species, other impacts)
- **CATEGORIES: A, B** – old-growth forest segments, C – natural forest segment, N – not mapping segments, U – artificial elements, P – natural non-forest areas

#### Assesment on site level

- size of area (size/narrowest distance)
- area of the „A“ segments (percentage)
- area of the „C“ segments (percantage)
- area of the „N“ and „U“ segments (percantage)
- **CATEGORIES: A** – old-growth forest sites (>50 ha), B – old-growth forest site (>20 ha), Z (B) – old-growth forest remnant (>5 ha)



- processing data and creation database on old growth forests

MAPOVANIE PRALESOV v 0.2

Record: 1 of 1

**DREVINY**

Druh	Pokryvnosť v %			obvod najhrubšieho kmeňa v cm	Hrubé stromy	Stromy blízko fyzickéh veku	Hrubé mŕtve drevo
	E1	E2	E3				
Quercus petraea agg.	2	3	30	391	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quercus cerris	1	1	22	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Quercus dalechampii				329	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sorbus torminalis	+	+	+	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cornus mas	2	6		0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Acer campestre	1	1	+	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carpinus betulus	+	+	6	232	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Prunus spinosa	2	1		0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fraxinus excelsior	+	+	1	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fagus sylvatica			1	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hedera helix	+	+		0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rosa canina		+		0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Record: 1 of 15

**VYŠŠIE RASTLINY**

Druh	Pokryvnosť
Poa nemoralis	3
Tithymalus cyparissias	2
Festuca pseudodalmatica	2
Digitalis grandiflora	1
Vincetoxicum hirsutiflorum	2
Asplenium trichomanes	1
Asplenium septentrionale	1
Verbascum x basnearum	1
Seseli osseum	1
Melica uniflora	2
Cruciata glabra	2
Fragaria vesca	1
Pulmonaria officinalis	1
Veronica chamaedrys	1
Lathyrus niger	2
Steris viscaria	1
Ajuga reptans	1

Record: 545 of 1398

**ŽIVOČICHY**

Druh	Pobytové znaky	Počet.
Dryocopus martius (Linnaeus, 1758)		
*		

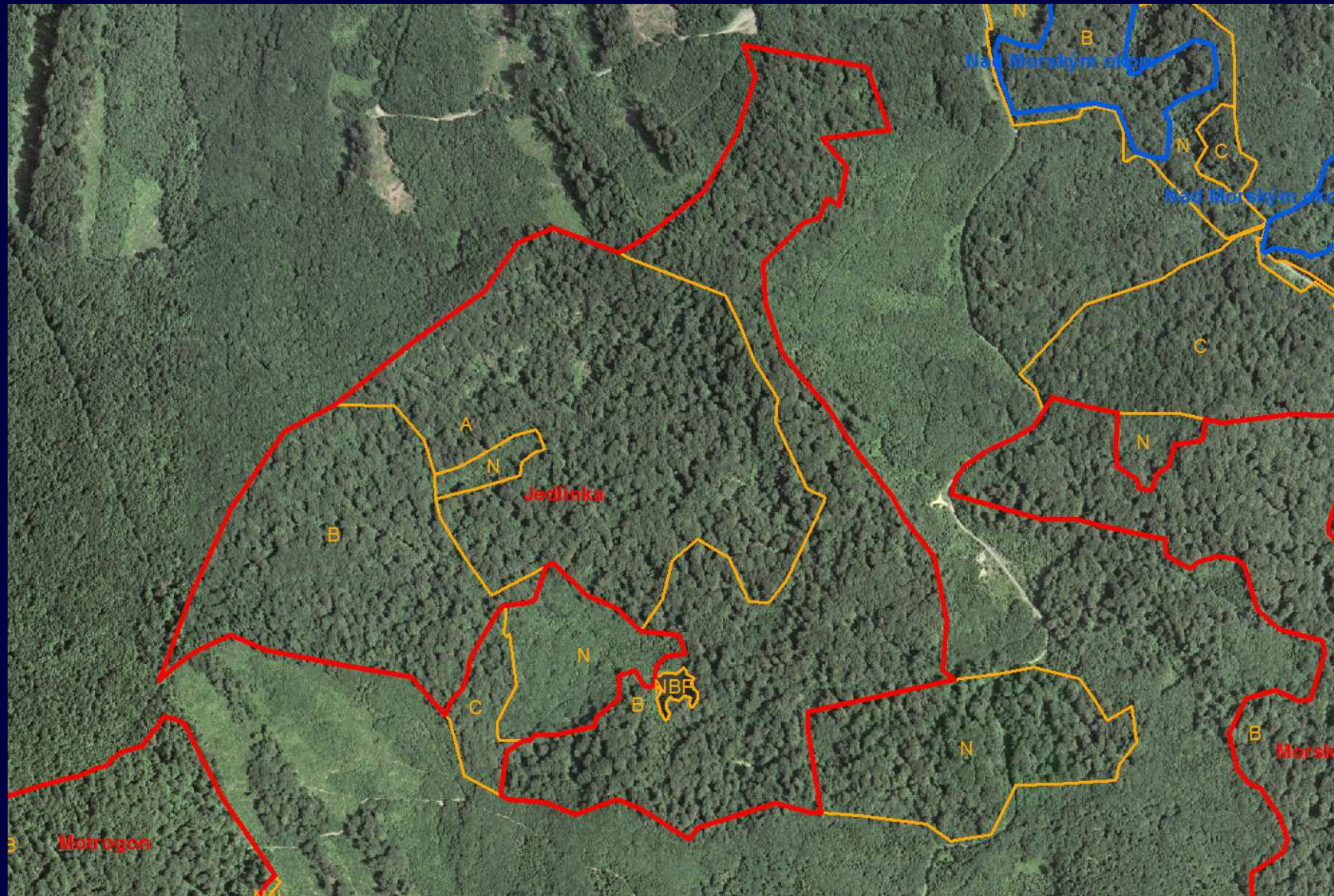
gathering data from mappers

2031 data records on segments

2221 data records on habitats

more than 14000 data records on species

- to make GIS layers (segments/old-growth sites/old-growth remnants)



4224 polygons on 59 673 ha

# RESULTS and CONCLUSIONS

	A	B	C	N/U	P	Total	Quantity
Old-growth forest	2225	6256	258	95	30	8864	123
Old-growth remnant	0	1627	5	4	2	1627	135
<b>Overall Old-growth forest</b>	<b>2225</b>	<b>7873</b>	263	94	37	<b>10491</b>	257
Other mapped areas	0	102	15803	32999	1	48905	
<b>OVERALL</b>	<b>2225</b>	<b>7975</b>	16066	33093	38	59396	

**total area of Old-growth forests**

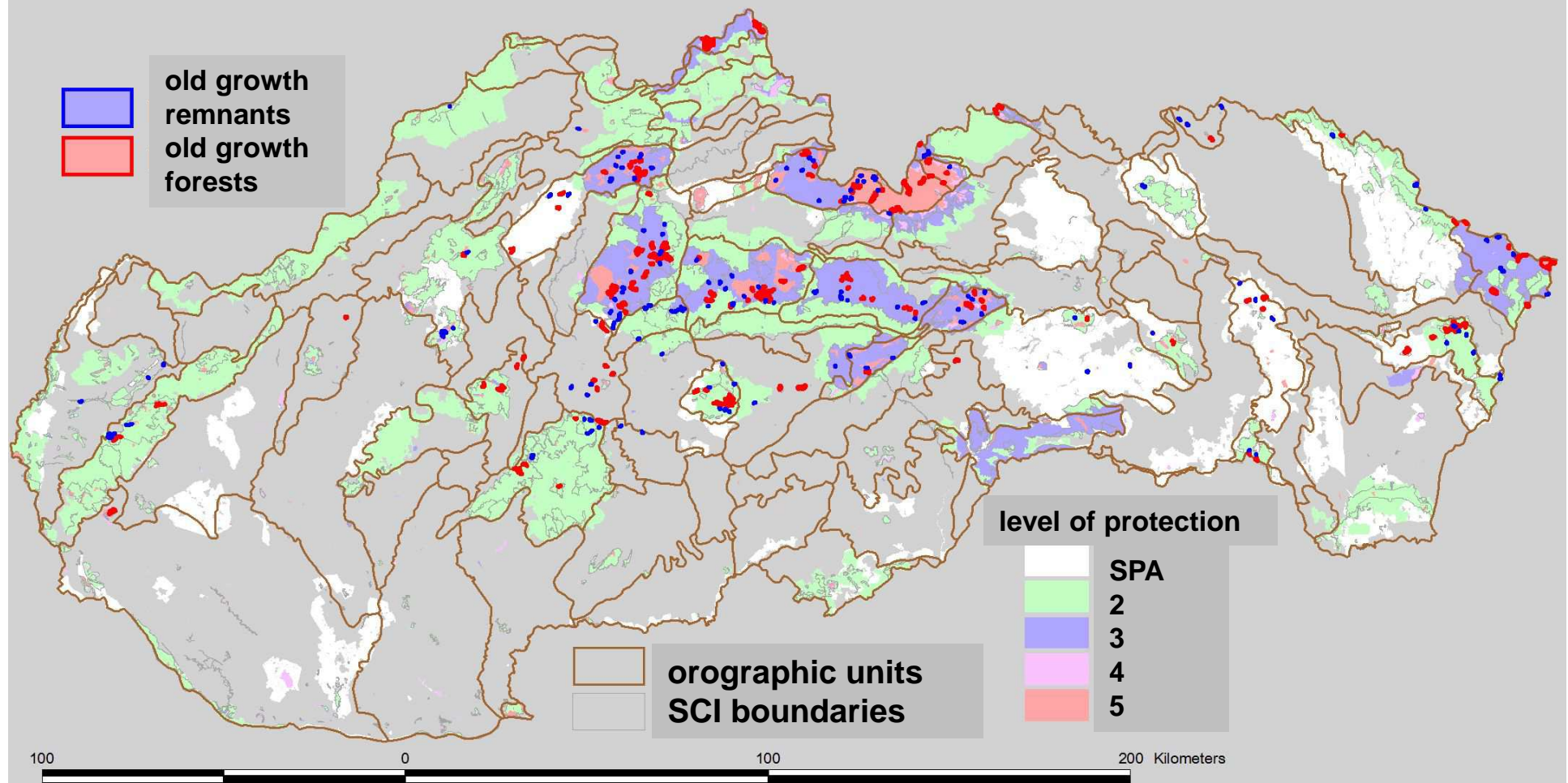
**10491 ha**

**0,48%**

**of all forest of Slovakia**

**or 0,21% from the whole Slovakia**

# Map of Current conservation status of Old-growth forests



123 old-growth forests sites      8 864 ha

135 old-growth remnants      1 627 ha

- review of representativity and complexity of network of strict protection sites

Level of protection	Old growth forests	Old growth remnants	Total	Old growth forests	Old growth remnants
	area (ha)	area (ha)	area (ha)	quantity	quantity
-(SPA)/1	283	182	465	8	14
2	604	326	930	6	25
3	1435	482	1917	20	36
4	49	27	76	1	1
5	6494	609	7104	87	59
Overall	8864	1627	10491	122	135

**3312 ha of old growth forests are not protected**



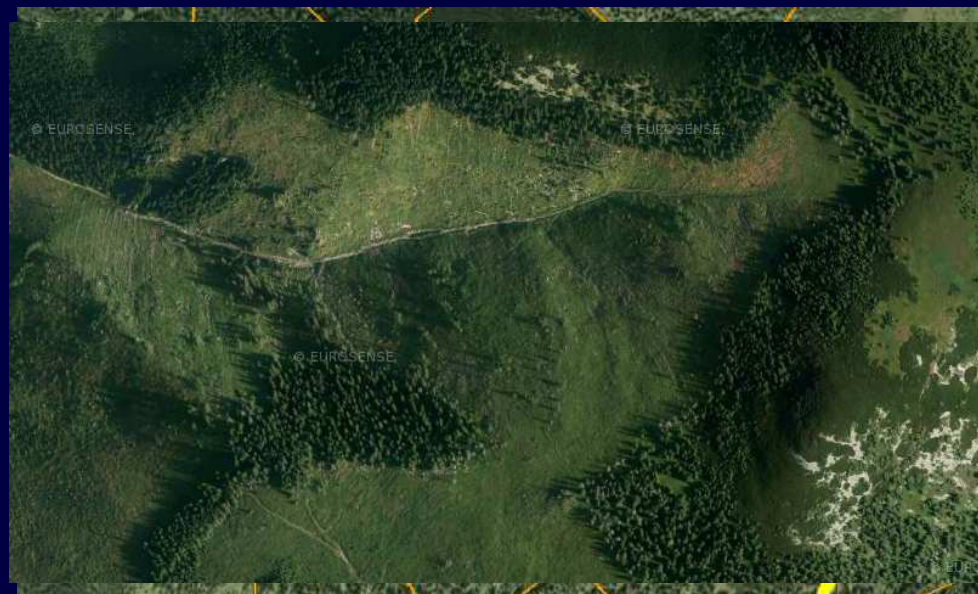
# Interventions (felling) in the Old-growth forests

Old growth forest name	Year (possible)	area (ha)
Drastvica	2011	0,50
Chmelinec	2012	11,00
Fišiarka	2012	4,00
Hromovisko	2012	9,00
Kasne	2013	16,00
Kolesová	2012	1,00
Kráľova hoľa	2012	0,50
Nemecká	2011	1,00
Pálenica	2012	9,00
Poľana	2011	1,50
Príslop	2011	3,00
Roháčska dolina	2013	1,50
Smrekovica	2011	8,00
Trstený žľab	2012/2015	3,92
Veľká Vápenica	2012	2,00
Veľký Bok	2011	20,00
Malý bok	2011	8,20
Spálená	2011	1,50
Oravcová	2012	8,00
Kasne	2014	7,00
Flos	2015	0,72
Kujavy	2015	0,05
<b>Overall</b>		<b>117.39</b>



**270 years old spruce  
Smrekovica  
NP Veľká  
Fatra**

**old growth forest Veľký  
Bok in NP  
Nízke Tatry  
- former**




all is on the web  
[www.pralesy.sk](http://www.pralesy.sk)

description of all sites, actualities, advocacy cases, protection, conclusions and other useful information on old growth forests

example – of web page for 1 site of virgin forest – Babia hora

Infiltration issue virgin forests on other important web pages as for example tourist – hiking.sk, lgis.sk and others

 "Až keď bude mať spoločnosť zodpovedný prístup nielen k tomu, z čoho má priamy úžitok, ale aj ku všetkému stvoreniu čo od počiatku patrí na tento svet, môže sa nazvať vyspelou. Mahatma Gandhi (1869-1948)"  Hľadať

ÚVOD PRALESY VÝZNAM OCHRANA LOKALITY FOTOGALÉRIA KNIŽNICA PROJEKT

### Babia hora

Orografický celok:	Oravské Beskydy
Okres:	Námestovo
Katastrálne územie:	Oravská Polhora
Ochrana:	5. stupeň ochrany – A-zóna CHKO Horná Orava (Babia hora)
Prielučnosť k VCHÚ:	CHKO Horná Orava
NATURA 2000:	SKUEV0189 Babia hora
Typy biotopov:	Ls9.1 Smrekové lesy čučoriedkové Ls9.2 Smrekové lesy vysokobylinné
Výmera:	257 ha
Vlastníctvo:	Štátne



### Popis lokality

Spolu s pralesom na Pilsku je prales na Babej hore najzachovalejším lesným ekosystémom v rámci CHKO Horná Orava. Aj z tohto dôvodu bol zaradený do najprísnejšie chránenej A-zóny CHKO a je územím európskeho významu SKUEV0189 Babia hora. Ochrana pralesov na najvyššom vrchu Oravských Beskyd sa datuje od roku 1926, kedy tu bola vyhlásená rezervácia „Kotlina pod Babou horou“ na výmere takmer 118 ha, neskôr rozšírená na takmer 504 ha. Prales bol identifikovaný po obvode Babej hory (1 724,9 m n.m.) v nadmorskej výške od 1 170 do 1 490 m na ploche takmer 257 ha.

Dominujú tu smrekové lesy čučoriedkové, ktoré miestami plynule prechádzajú do pásma kosodreviny. Zaujímavosťou je pomerne významné zastúpenie borievky nízkej v subalpínskom vegetačnom stupni. Tento bol v dávnejšej minulosti silne poznačený činnosťou človeka, značná časť porastov bola odstránená pre získanie pasienkov. Pastvou boli ovplyvnené aj najvyššie položené časti smrekového vegetačného stupňa. Už niekoľko desaťročí prebieha spontánna aj človekom podporená regenerácia týchto priestorov. V porastoch dominuje smrek, pravidelnou prímесou je jarabina vtáčia, len ojedinele aj ďalšie dreviny (buk, javor horský, jedľa). Podobne ako v iných prirodzených smrekových lesoch aj tu môžeme pozorovať dve výškové pásma smrečín líšiacie sa štruktúrou a vývojom. Hranica v prípade Babej hory prebieha zhruba vo výške 1 450 m n.m.. Na podstatne menších plochách boli zaevidované smrekové lesy vysokobylinné viažúce sa



Foto © Pavol Polák



# Challenges

- **conservation**
- published scientific article of results
- raising public awareness
- research and monitoring
- cooperation and exchange experience with neighbouring countries on protection the old-growth forests (mainly Carpathians)
- large scale protection of wilderness







**Vă mulțumesc pentru atenție**