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## **Case Study**

### **Tourism potentials and impacts in protected mountain areas**

#### **- Aggtelek National Park –**

#### **Hungary**

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## **1. General description of the area**

### ***1.1 History of the region***

The National Park includes two villages as a whole and parts of further 19 settlements. The history of humans living in the region can be traced back to the Palaeolithic Period. The vestiges of many cultures spanning several tens of thousands of years from the Palaeolithic through the Neolithic Period, the Copper-, Bronze- and Iron Ages to the Antiquity have been unearthed by archaeologists in the caves and other excavation sites of the Bódva Valley and its surroundings. In the period of the Great Migration, the region was first occupied by the Huns, a nomadic Central Asian people, who were followed by the Germanic Gepids. Subsequently, for more than two centuries, it became part of the territory ruled by the Avars. In the 10<sup>th</sup> century the Danube Bulgarians, who were the lords of Southern Transylvania and of the south-eastern part of the Hungarian Great Plain settled here groups of Christian serfs from Macedonia which they had conquered from the Byzantine Empire. These people spoke Old Slavonic and were settled here by the Bulgarians with the intent of forming a living bulwark in the forefront of their realm. This population lived here until 895, the arrival of the conquering Hungarians. Later they were assimilated but their memory was preserved by the Gesta (Chronicle) of Anonymus and by several geographical names in the region.

During the 10<sup>th</sup> to 12<sup>th</sup> centuries, the inhabitants of the region melted iron ore. Some material remains of this primitive industry have been unearthed by archaeologists. It is also indicated by some place names. In the 11<sup>th</sup> century, the major part of the region was a royal domain. During the ongoing organisation of the Hungarian state, the "Forest Bailiff of Torna" was set up here. An earthwork fortification and a royal grange in the Valley of the Torna Brook served as its seat. Aggtelek and some settlements in its vicinity as well as Szalonna and some other villages were owned by noble families. Churches were built in Aggtelek, Szalonna and Szentandrás, the latter was populated by settlers from Southern Germany, and in some other villages. The Mongol Invasion which laid waste the whole country in 1241 and 1242 flooded this region, too, but many inhabitants found refuge in the dense forests and in the caves. When the invaders left, the survivors rebuilt their ruined villages and churches. The king ordered a castle to be built on the peak of a hill with steep slopes. This new fortification named Szádvár became the local centre for royal authority for centuries and a considerable part of the region was directly governed from there.

From the second half of the 13<sup>th</sup> century onwards several villages of the royal domain were donated to families of the lower nobility while a considerable part of it was acquired by the great landowners of the era, the barons. From the second half of the 13<sup>th</sup> century to the beginning of the 15<sup>th</sup> century, it was the Szalonnai family that was the most

powerful of them, then, until the second half of the 16<sup>th</sup> century, the Bebek family, who also possessed the Szádvár Castle. From the 16<sup>th</sup> century onwards the plundering troops of the Turkish army occupying the central part of Hungary looted the villages of this region, too. Meanwhile, Szádvár Castle was taken from the Bebek family by the mercenaries of the Habsburg king and emperor. The castle and the extensive estate belonging to it encompassing much of this region got in the hands of royal “provisors” and powerful pledge holders for more than a century, while the people of the villages lived under intolerable seigniorial burdens, obliged to pay tithe to the Church as well. In addition, they had to pay a tax to the Turks if they wished to escape the fate of their villages being plundered, their homes put to fire and themselves driven away into slavery. Because of the devastation inflicted by the Turks and the intolerable misery more and more settlements were deserted as their inhabitants fled to the more secure parts of the country.

In the second half of the 17<sup>th</sup> century almost the entire population of Northern Hungary rose against Habsburg rule. Also the population of this region took part in the general uprising. The insurrectionists (the “Kurutzes”) took back Szádvár Castle from the foreign troops. After having crushed the Turkish army at the walls of Vienna in 1683, the troops of Jan Sobieski, King of Poland marched home through this region. He laid siege to Szádvár Castle occupied by the insurrectionists, but he could not take it. However, his cavalry plundered the surrounding villages. After the suppression of the Kurutz insurrection the Supreme War Council of the Habsburg Court ordered the destruction of Szádvár Castle, while the immense estate belonging to it was donated to duke Eszterházy. At the beginning of the 18<sup>th</sup> century the fight of Hungary for independence from the Habsburgs gained a new impetus under the banners of Ferenc Rákóczi and the Aggtelek region was turned into a battlefield again. During the years after the fall of this war for independence there were repeated out.

By the second half of the 18<sup>th</sup> century life in the villages got back to normal. When the wars were over, life was secure again, the tillage gained in productivity, the families restored their homes and farms and the population was growing steadily. The landowners resettled the abandoned villages by people invited from other parts of the country. During the 19<sup>th</sup> century there was some – although modest – growth of industry and commerce in the region. Although there was some military activity in the region during the Hungarian War of Independence in 1848-1849, no fierce battles or devastation occurred here. In the second half of the 19<sup>th</sup> century the people of this region enjoyed at last a period of peace and order.

From the beginning of the 18<sup>th</sup> century up to our time the wonders of nature embellishing this region, the caves adorned by the most varied formations of dripstone are the objects of interest for a steadily growing group of scientists, archaeologists and other

scholars who investigate, explore and describe them in scientific publications as well as in guidebooks.

### **1.2 History of nature conservation in the region**

Nature conservation in the region dates back to 1926, when the Minister of Culture declared the Baradla Cave as national heritage. Then in 1940 the terrain over the cave comes under protection according to the 1935 Forest Law. The surface area covering the site of the four most important caves amounting to 1,634 ha, gained protected status between 1951 and 1958. The idea of establishing a National Park here – at first within the Hungarian territory only, then jointly with Czechoslovakia – emerged already in the sixties. Finally, the Aggtelek Landscape Protected Area was organised in 1978 and, in the framework of the Man and Biosphere Program of the UNESCO it was declared as Biosphere Reserve in 1979. Two “core areas” were marked in the protected territory. The decree, which established the National Park within the Landscape Protected Area was issued 1984. Some minor regions were included later. The Aggtelek National Park Directorate (abbr.: ANPI) has administrative and protective tasks on the one hand, but it is also in charge of tourism: it provides service for cave tourism, organises riding tours, arranges accommodation, etc. The Aggtelek National Park Directorate is a member of IUCN, FNNPE, AcaNaP, Europarc and ISCA.

Based on the application submitted jointly by the Hungarian and Slovak authorities, the Aggtelek National Park and the Slovak Karst Landscape Protected Area were declared as World Natural Heritage Site by the World Heritage Committee of the UNESCO on 6<sup>th</sup> December 1995. Thus the subsurface treasures of this region located on both sides of the border, the “world of caves”, became part of the World Heritage.

### **1.3 Description of the natural values**

The Aggtelek National Park is located at the borders of the two major biogeographical units of the Carpathian Basin: *Pannonicum* and *Carpathicum*. Consequently the impacts of both units can be detected in this region, resulting in a very high level of diversity of geological and natural features. Additionally, the ecosystems are affected only by a moderate human impact, thus this region is rich in near-natural and semi-natural habitats. This diversity provides a high ecological stability to these ecosystem-complexes.

#### **Geographical borders**

The Aggtelek National Park is situated in the northern part of Borsod-Abaúj-Zemplén county, Hungary. It mainly covers the region of the Aggtelek-Rudabánya Mountains (19 947 hectares altogether). The National Park consists of two parts. One is the Aggtelek Mountains, having a 57-km-long common border with the Slovak Karst National Park (2002).

The other part includes the Rudabánya Mountains and the SW-NE striking range of the Szalonna Mountains with the Peak of Esztramos near their northern edge.

Orographically the Park area is characterised by hilly terrain, but the highest parts are elevations not higher than the level of low mountains. However, due to the high number of steep slopes, the mountainous topography is dominant. The highest peak of the territory is in the Aggtelek Mountains (Fertős-tető, 604 m asl.), while the lowest point is in the Valley of the River Bódva (150 m asl.).

### **Geology**

The Park area is composed of several geographical micro-regions: the Aggtelek Mountains and the Alsóhegy in the north-western part, the Putnok Hills in the west-south-west, and parts of the Rudabánya Mountains, the Szalonna Mountains and the Bódva Valley in the south-east. Regarding their structural-geological setting, both the Aggtelek-Rudabánya Mountains and the Slovak Karst belong to the unit of the Southern Gemerides, i.e. to the innermost member of the North-Western Carpathians. Due to its Carpathian type structure, this region is one of the most complex geological units of Hungary.

The basement rocks are mainly of Triassic age. They can be arranged into three large groups:

(1) Silice sequence, which originally was accumulated on the continental crust of the Gömör-Szepes Metalliferous Mountains (Spišské-Gemerské Rudohorie). The great caves of the region developed in the Steinalm and Wetterstein Limestone Formations.

(2) The Middle and Upper Triassic basalts of the Melléte (Meliata) sequence were formed as part of the oceanic crust opened up to the South of the Silice region at the beginning of the Triassic.

(3) During the formation of the Torna Sequence – which used to be the southernmost part of this territory, south of the opening up ocean – the Paleozoic continental crust became covered by the Mesozoic by rocks of the Uppony and Szendrő Mountains. Up to the Steinalm Limestone Formation this sequence is similar to the Silice sequence, but in the higher Middle Triassic and during the entire Late Triassic deeper marine limestone are characteristic.

During the Middle Cretaceous the region was folded, reverse faults of southern vergence and minor overthrusts were formed (represented by nappe outliers in the Alsóhegy range). During this time the territory was affected by karstification (paleokarst) and bauxite was formed.

The Pannonian Lake flooded the margins and the inner basins of the Aggtelek-Rudabánya Mountains, which had taken shape by that time. The sedimentary cycle of the Pannonian ended with freshwater limestone. The formation of the big cave systems started in the blocks of the previously karstified large limestone plateaus. The abrasive effect of rock

fragments (pebbles) pouring down from the Carpathians had the most active role in forming the underground caves. Along with the uplift of the region, the erosion of the emerged terrain intensified, causing the fluvial sediments to accumulate in the valleys of brooks and other watercourses. These processes have been going on since the end of the Pliocene.

### **Relief**

The relief and the hydrography of the region are controlled mainly by the geological setting and the structural pattern outlined above.

As for the orographical character of the region, the relief is a complex composed of hills and low mountains. Only the highest elevations – being for the most part open karst terrain – reach the level of medium-high mountains. The processes of the palaeogeographical evolution resulted in the formation of several characteristic relief horizons:

- uncovered karst plateaus elevated in a horst-like manner, forming high-level terrain
- exhumed horsts of small extension, lacking karst plateau characteristics, but appearing as high-level terrain
- moderately elevated peneplained horsts, whose Tertiary and Paleocene covers have been eroded
- low-level horsts with partly eroded covers, which were reshaped during pediment formation
- erosional-derosional basin terrain mainly built up by unconsolidated Quaternary sediments, belonging to the level of rolling country.

### **Climate**

This region has humid-continental climate characterised by long winters and summers. The climate is influenced by the Carpathians, keeping it cool. The mean annual temperature is 9,1 °C, the monthly means range from –4,0 °C to 20,3 °C. January shows the widest fluctuation of mean temperature, from –9,3 °C to –0,8 °C. The mean temperature in the vegetation period is of mountainous character: 15,5 °C. The usually 11 °C "warm" water of the karstic brooks keep the climate of the valleys more balanced than that of the plateaus.

The annual mean precipitation between 1941 and 1970 ran to 657 mm, but in the drought-stricken years of the past decade it was occasionally reduced to 627 mm. The maximum daily precipitation is 85 mm. The relief considerably influences the areal distribution of precipitation: the mountainous area north of the Jósza Valley receives the most rain, while the southern part of the region is remarkably drier.

### **Hydrography**

This region – directly or through the Bódva Brook – is part of the catchment area of the Sajó River. The most important watercourse of the karst area itself is the Jósza Brook,



flowing in the axis of the “Jósva Valley Anticline” and carrying the water of the biggest karst springs to the Bódva.

Some of the perennial watercourses of the karstified terrain disappear in sinkholes. More or less hidden potholes are not rare. Water from other brooks, which is dispersed in blind valleys, infiltrates into the karst. In the covered karst region the brook flowing through the upper part of the Fekete Valley disappears in a sinkhole. Other temporary or very short perennial watercourses disappear in the ponors of active caves (i.e. of those having subterranean watercourses).

The greatest known vertical thickness of the karstified limestone sequence is more than 1 000 m. Infiltration through the open karst is controlled – besides the topography by the thickness and the quality of the soil cover. The infiltration parameters, the movements of karst water, the connection among the karstified aquiferous rocks, the points of appearance of water on the surface, are all determined by the tectonic setting of impermeable and poorly permeable rocks (e.g. the evaporitic-clastic sequence of the Permian-Lower Triassic) and to a lesser degree by the argillaceous limestone formations with reduced karstification potential.

There are extreme changes in the discharge of karst springs: values range from 0 to 7 000 l / min are common. The greatest discharge measured was as much as 145 000 l / min produced by the Nagy-Tohonya Spring. The temporary lack of discharge of some springs (i.e. 0 l/min) is only apparent: the reduced amount of their water directly infiltrates into the alluvium or into other young, unconsolidated sediments which are in contact with the karst.

### **Soil characteristics**

The surface of these areas for the most part is covered by intrazonal soil types and their subtypes. These are the characteristic soils of the karst, which are formed in the lithological environment of carbonate rocks. The scattered patches of soil preserved by the karst terrain (relict soils) are the remains of red earth and red clay weathering products, which were formed under warmer climatic conditions. Only very few well-definable genetic soil types can be found here and the varied slope conditions (exposure, steepness) result in the mosaic-like occurrence of soils.

Beside the main types and subtypes of soils characteristic of the karst plateaus and their edges, and the valleys, a number of other pedological varieties can be identified:

- skeletal soils on carbonate rocks in the course of developing into rendzina; thin and not contiguous occurrences
- black and brown rendzinas containing rock fragments; occurrences alternating with patches of red earth (terra rossa)
- rendzinas mixed with red earth
- brown forest soils appearing on red earth (terra rossa) as parent rock

- multi-layered accumulations of red earth; superimposed layers of red clay and rendzina appearing on slopes and dolines
- slightly acidic reddish brown forest soils occurring in tectonic depressions, in narrow erosional valleys, as well as in rows of dolines developed in erosional and corrosional valleys and on slopes with karren surface
- alluvial soil of valley floors and of the flood plains of small rivers and brooks with considerable discharge.

The steeper slopes mostly have rocky and karren surfaces without continuous soil cover of measurable thickness. The soil profiles with a thickness of more than 40 cm generally consist of fossil red earths which display considerable resistance against erosion.

The soil profiles thinner than 40 cm are formed mainly by rendzinas. As their clay content accumulates in the lower parts, the thinner profiles are less eroded than the thicker ones.

### **Caves**

In the region of the Aggtelek Karst and the Rudabánya-Szalonna Mountains 262 caves are known, most of which are inside the National Park region. Twenty of the 125 strictly protected caves of Hungary can be found here, among them the longest known cave of the country: the Baradla-Domica Cave System (18 km out of the total 25 are in Hungarian territory). The second deepest cave of the country is also here, i.e. the Vecsebükk Shaft.

Due to the varied geological structures of the different regional units, a highly varied complex of cave systems was formed during the five-million year long karstification process, which has been active since the beginning of the Pliocene. The caves have been formed by various processes, they have different characters and are in diverse stages of their evolution. However, they have two things in common: that the host rocks of the caves are the limestone lithologies of the Triassic and all of them have been preformed by tectonic elements: their passages follow the fissures or the crushed zones in the limestone.

As far as the number of the known caves and the total length of passages are concerned, caves formed by streams of subsurface waters are the most common. These include active caves (i.e. those having perennial flow of water), systems with only temporary activity (i.e. in which water flows in the thawing period and on occasions of abundant precipitation), and caves which have already lost the active character, being in the phase of filling up.

### **Ecological background**

The fauna and flora of the Aggtelek Karst has more mountain - and additionally Carpathian - characteristics than one would expect considering its altitude above sea level due to its geographic connection with the high plateaus of the Gömör-Torna Karst. Some

decades of climate cooling is enough for species living in the higher regions of the Carpathian Mountains to move to lower zones; on the other hand, in warmer and drier periods trends are on the contrary. Thus, the fauna and flora are always in a state of dynamic change, and it will last as long as we can preserve the nature-like habitats and *ecological corridors* of the landscape. Due to the plateau's karstic basins and the narrow, canyon-like valleys there are many hollows with controversial microclimates, which gives living opportunities to species with very different habitats, and allows the formation of communities with surprisingly varied species composition. Habitats of the higher plateaus are usually covered with debris soil with a shallow fertile layer. For this reason, often differing from climate zonal communities, edaphic, i.e. bedrock or soil-related factors control the formation of associations. On the dry and warm southern slopes *Mediterranean* influences can be recognised, combined with the Carpathian Basin's typical hill-and plain *southern continental* forest-steppe vegetation. Moreover, the karstic landscape rises from the valley of the Bódva Brook, which mediates Pannonian influences characteristic to the Carpathian Basin's lower parts towards our area.

### **Vegetation**

The vegetation of the Aggtelek National Park can be divided into two parts situated on the two sides of the Aggtelek-Teresztenye-Perkupa line of villages. North of this borderline a specific karst-flora and a calciphilous vegetation of limestone-hills are found, while to the south of it a gravelly layer covers the limestone base sediment where plant associations similar to the West European heathlands live on acidic soil. This latter area is called covered karst.

Without any disturbance the landscape would be covered by closed forests; naturally open or less closed vegetation is only possible on the steep rocky walls, dolomitic ridges of the plateaus and in areas covered by only a thin soil layer. One can find here plant associations remarkably different from the so-called climatic climax, development of which is due to the local mezo- and microclimate, changes in the base rock and soil properties.

The majority of the Aggtelek National Park forests belong to the Hornbeam-Sessile Oak association which covers the downy surfaces of the hilly regions of Hungary between 400-600 m height asl. The other climatic climax forest of ANP is the Turkey-Sessile Oak association appearing on lower altitudes (250-400 m asl.), found only on the covered karst. On the karstic surface there are only a limited amount of really characteristic patches of this forest type, where the soil is relatively thicker; on the southern slopes and plateaus because of the thin soil and the microclimate they are replaced by thermophilous oak forests. On the covered karst, south of Aggtelek a more wet Turkey-Sessile Oak forest type occurs rich in acidophilous species. The cold continental nut-scrubs and marginal associations rich in thermophilous forest-steppe species are also characteristic to the region.

Beech forests cover the Northern slopes and hillsides even under 600 m altitude. In the majority of beech forests the Beech mixes with other tree species. Extrazonal beech forests are characteristic to the cooler Northern slopes and some valleys.

Secondary, second-growth and semi-natural associations, mesophilous and moderately dry meadows, steppe-like grasslands, heather-like juniper-scrubs now cover a significant area. Most of these had been used as hay-meadow earlier. Another part of these habitats went through the typical succession process of abandoned lands. Of the stream associations, alder and tall herb woods, swards and fens are the most valuable, covering less area.

### **Habitats**

The habitats bellow can be found in the area, following the Habitat Directive:

4030 Dry heath

6410 Molinia meadows on calcareous, peaty or clayey-silt-laden

6510 Lowland hay meadows

6430 Hydrophilous tall herb....

6520 Mountain hay meadows

6210 Semi-natural dry grasslands and shrub lands ...

6240 Sub-pannonic steppe grasslands

91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*

91F0 Riparian mixed forests of *Quercus robur*, *Ulmus* spp. and *Fraxinus* spp.

9150 Medio-European Limestone beech forests of the *Cephalanthero-Fagetum*

91H0 Pannonic woods with *Quercus pubescens*

Jav. Pannonic-Balcanic turkey oak-sessile oak woods

Jav. Subcontinental thermophile mountain woods

Jav. Continental deciduous thickets

### **Flora**

This karst area is one of the richest and most unique region of the Carpathian Basin. One of the most valuable plant species is the endemic *Onosma tornense*, a European Red Book species, living in the mosaic patches of rock grasslands and karst low woods. The rare *Alyssum montanum* ssp. *brymii* is also an endemic member of dry and rock grasslands. The *Dianthus plumarius* ssp. *praecox* can be found only on Esztramos Mountain. *Sesleria heuffleriana* is an endemic species in Transylvania and in the Hungarian Mountains of Medium Height. The *Dentaria glandulosa*, living in closed forests is an endemic Carpathian element of the flora. The post-glacial relict *Carex brevicollis* often mixes with *Waldsteinia geoides* in rocky forests. A number of protected orchids live in the hornbeam-oak and the

rocky forests, frequently including the *Neottia nidus-avis*, *Platanthera bifolia*, *Cephalanthera rubra*, *C. damasonium*, rare species are the *Cephalanthera longifolia* and some *Epipactis* species such as *E. atrorubens*, *E. purpurata*.

## Fauna

### *Cave fauna*

Deriving from the geographical situation of the area, some troglobiotic animals can be found in the caves of Aggtelek National Park. There are three endemic arthropod species living in this region: *Niphargus aggtelekiensis*, *Duvalius hungaricus* and *Eukoenenia austriaca vagvoelgyii*.

### *Snails*

The neighbourhood of the Carpathian Mountains has a strong influence on the snail fauna of the Aggtelek National Park. *Bielzia coerulans* often can be found in wet, cooler valleys, similarly to *Cochlodina cerata*, *Macrogastra latestiata*, *Perforatella vicina*, *Trichia unidentata*, and *Chilostoma faustinum*. The protected *Sadleriana pannonica*, living in fresh brooks is supposed to be a Tertiary relic species.

### *Arthropods*

This karst area is notably rich in insect species, thankfully to the very diverse habitat mosaics, where many species with narrow tolerance range can be found. *Omocestus viridulus* lives only here in Hungary. *Paracaloptenus caloptenoides* is a rare, endangered species. The parthenogenetic *Saga pedo* is the largest native grasshopper species. The rocky grassland and steppe mosaics are the habitats of two relic locust species: *Stenobothrus eurasius*, *Euchorthippus pulvinatus*.

Of *Carabidae*, it worth mentioning some Carpathian fauna elements: *Carabus obsoletus* and *C. zawadzkyi*, *Abax schueppeli* and *Trichotichnus laevicollis carpathicus*.

*Otiorhynchus roubali* is an endemic weevil species of the karst fauna.

There are more than 2000 butterfly species living in the area of Aggtelek National Park, and a large number of them are rare, endangered and protected species. Some remarkable butterfly species are as follows: *Parnassius mnemosyne*, *Apatura iris*, *Limenitis populi*. Many butterflies feed on *Compositae* plants, such as: *Discia conspersaria*, *Cucullia tanacati*, *C. xeranthemi*, *C. gnaphalii*. The rare *Panchrysia deaurata* feeds on *Thalictrum minus*. The xeromontane butterflies grow mainly on grass roots, the karst plateaus are habitats of European importance for these species: *Euxoa decora*, *E. birivia*, *Dichagyris candelisequa*, *D. forcipula*, *D. nigrescens*, *D. musiva*, *Rhyacia latens*, *Chersotis fimbriola baloghi* - endemic! - *Ch. multangula*, *Ch. rectangula*, *Ch. margaritacea* and *Apamea platinea*.

The protected *Iphiclides podalirius* and *Papilio machaon* seek prominent places with strong sunshine for a "date" (hilltopping).

#### *Fishes*

In the brooks of the karstic region *Eudontomyzon danfordi*, a *Cyclostomata* species is widespread. The *Noemacheilus barbatulus*, *Sabanejewia aurata* and *Gobio gobio* fish species are typical in the faster, stony brook reaches. In the slower, clean water upper reaches one can often observe smaller groups of *Phoxinus phoxinus*; where *Leuciscus leuciscus* is also frequent. In earlier times two trout species were introduced into these brooks: *Salmo trutta m. fario* and *S. gairdneri irideus*. Thanks to their voracity, the original small-fish population decreased. Therefore the Aggtelek National Park Directorate stopped their introduction in the protected areas. The most common fish in the middle brook reaches are *Leuciscus cephalus*, and *Barbus meridionalis petenyi*. Recent surveys in the Jósva water system and in the upper reach of the Bódva indicated 42 fish species altogether, which is more than the half of Hungary's fish fauna, and 13 of them are protected.

#### *Amphibians and reptiles*

13 out of the 16 Amphibian species, and 9 out of the 15 Reptile species living in Hungary can be found in the National Park. The salamander (*Salamandra salamandra*), symbol of ANP is frequent in all the cool and humid forests. The Hungarian lizard (*Ablepharus kitaibeli fitzingeri*) lives on debris and karstic surfaces.

#### *Birds*

The avifauna of the National Park is diverse and valuable. Regular nesting of *Aquila heliaca* has been recorded in the area. The *Circaetus gallicus* frequently appear in some couples. *Pernis apivorus* nests mainly in oak forests. The *Buteo buteo* and the *Accipiter gentilis* are quite common. *Strix uralensis* nests in older beech and pine forests. *Bubo bubo*-s are rather small in number, while the *Strix aluco*, which begins to give its characteristic hooting in spring, is comparatively frequent.

Species living hidden life, like *Colomba oenas* and *Tetrastes bonasia* can be also found in the region. Many nesting sites of *Corvus corax* are also known. *Ficedula albicollis* and *F. parva* live mostly in the mountain-like plateau forests. *Certhia familiaris* nests under old trees' peeling bark.

#### *Mammals*

The dominant game species of the area are *Cervus elaphus* and *Sus scrofa*. *Canis lupus* has resettled recently. *Lynx lynx* is also a resettled predatory animal in the karst. Of the weasel family *Martes martes* is remarkable, but not rare on the higher woodlands. On the contrary, *Martes foina* is common in the proximity of settlements but also temporarily lives in

caves. *Meles meles* is an inhabitant of the woody plateaus. From the rodent family, *Citellus citellus* is of importance, because it is a primary food for those birds of prey which hunt from the ground, such as the imperial eagle and the saker. The extremely rare *Elliomys quercinus* also occurs here.

## 2. The human impacts

### Forestry

77 % of the total area of the ANP is covered by forests, thus the harmonisation of forest management activities with nature conservation is one of the most important tasks. Forests show a remarkable heterogeneity in their species structure and age of the trees. As a consequence of the intensive use, the short rotation period (30-40 years), the repeating growth of coppice, the species composition has changed and the densely growing Hornbeam became predominant in many places. Fortunately on some not easily accessible parts of the plateaus (e.g. Haragistya) there are still some old forests patches, in which the traces of human intervention can hardly be detected.

The forests subcompartments are managed primarily for:

timber crop production	43,8 %
nature conservation	23,9 %
soil conservation	25,8 %
game protection	1,4 %
other protection	0,1 %
recreational forest	0,4 %
other forest lands	4,6 %

There are no intact, virgin forests in the Aggtelek National Park, but semi-natural, old forest stands, used as protection forests can be found in the remote places. These were chosen as core areas of the forest reserves. Active forest management is present on less than 50 % of the NP area, and it is likely to be further reduced.

The main principle of the forest management is to conserve the natural ecosystems, vegetation, flora and fauna of the karst area, and to develop and manage semi-natural forests of indigenous species.

### Hunting and game management

The area of the National Park is ideal for big games with its closed, continuous forests. The natural features, the good game covers, springs provide comfortable habitats for the games. The district consists of 5 management areas. The game population far exceeds the carrying capacity of the area.

Small and ground games are not so important, but these contribute to the diversity of the fauna. Occasional presence of *Canis lupus*, *Lynx lynx* and *Ursus arctos* has been detected.

The hunting activity is seasonal in the region, it is active during belling and beatings. The infrastructural accessories of hunting, having impact on nature include: salt grounds, feed troughs and high stands.

### Agriculture

The karst area was covered by forests till the Middle Age, when extensive farming began spreading, which led to the formation of a cultural landscape with mosaic structure. The relationships and balance among the landscape elements, and thus the biological diversity have also been maintained.

This region represents a transition zone between the agricultural plain and the forested mountain areas. Important trade routes connected the big towns of the district, in S-W direction.

Remnants of some castles and fortifications prove the importance of control over the area. After the I. World War the Trianon Treaty separated this blooming district into two suffering, poor parts. Trading was cut, the centres became peripheries. People were forced to self-sustain themselves, which led to the cultivation of any lands available. The hay-meadows were cut bald, the forests were used in very short rotation periods. The traditional land use methods have almost disappeared by today, but their consequences and remnants can be maintained and/or conserved, especially in the transitional areas.

<b>Land management in the area of the Aggtelek National Park</b>		
	Area (ha)	Ratio %
Arable land	1068	5,36 %
Grassland	2771	13,91 %
Orchard	44	0,22 %
Garden	2	0,01 %
Vineyard	78	0,39 %
Forest	15370	77,02 %
Abandoned	615	3,08 %
<b>Altogether</b>	<b>19 947</b>	<b>100 %</b>

Source: ANP archives

Photos: Rózsa, Sándor,  
ANP archives

<b>Land ownership in the area of the ANP</b>		
Owner	ha	%
ANP	4 605	23
Északerdő Co.(Forestry)	12 013	59
Co-operatives	1 937	10
Municipalities	709	4
Private	515	3
Others	131	1

Church	5	0.03
<b>Altogether</b>	<b>19 915</b>	<b>100</b>

Source: ANPI archives, 1998.

<b>Land use types in the area managed by ANP</b>		
Land use	ha	%
arable land	101	4



grassland	1 760	39
orchard	4	0.09
forest	2 544	55
land withdrawn from	106	2
<b>Altogether</b>	<b>4 605</b>	<b>100</b>

Source: ANPI archives, 1998.

### Settlements

The average number of inhabitants in the villages within the borders of ANP is around 360 (range: 12 - 1 283). The decrease of the population started in the 19<sup>th</sup> century for the following reasons:

- several mines were opened in the nearby areas, that attracted many people from the villages. Commuting was not possible, because public transportation did not work that time, so consequently people had to move closer to their workplace.
- A high number of young people emigrated to the United States to seek better standard of living. (This rate of emigration has had its ups and downs, but actually it is still a social phenomena.)
- The phyloxera infection destroyed all vineyard at the end of the 19<sup>th</sup> century. (Tóth, Erika, 1997.)

Despite these facts, the villages remained intact organic ones, where habitants lived their traditional life style until the late 1950's, when a second decline started and resulted in a complex problem of a vicious circle:

- Great industrialisation in the Borsod Basin and migration or commuting to industrial cities.
- Forced collectivisation of land into co-operatives, depriving the private owners of their land.
- Agriculture became less and less profitable, so more and more cultivated land became abandoned.
- Diminishing sources of income in the rural regions.
- Low standard of public services (health, education, etc.)

(Tóth, Erika 1997)

Another social phenomenon resulting from the previous facts is that age structure is unnatural. Since heavy industry of the socialist era attracted adult workforce, today people in their 40s and 50s are much fewer, than normal. Generally speaking most of these villages have aging population. As far as age structure is concerned, more favourable is the situation in villages where tourism provides employment to the younger generations, or where the gypsy population is high. Today the unemployment rate is also very high, and with the collapse of the heavy industry many skilled workers were dismissed whose retraining is problematic. The national park is the largest

employer of the region, but for certain jobs requiring high qualification it has to employ a great number of people from other parts of the country.

Settlement	Population	Gypsy population (%)	Municipality
Aggtelek	663	3,3	Independent
Jósvafő	342	2,8	Independent
Szuhafő	230	6,5	Independent
Trizs	316	5,2	Independent
Alsótelekes	166	5	Independent
Égerszög	88	0	Independent
Felsőtelekes	871	10	Independent
Perkupa	965	19,2	Independent
Szin	789	67,9	Independent
Szinpetri	276	35	Independent
Szögliget	868	0,7	Independent
Szőlősdó	153	0	Independent
Teresztenye	30	0	Independent
Tornakápolna	12	0	Independent
Varbóc	73	5	Independent
Bódvarákó	148	0	Independent
Bódvaszilas	1283	11	Independent
Hidvégdó	765	20	Independent
Komjáti	346	5	Independent
Tornanádaska	562	80	Independent
Tornaszentandrás	309	0	Independent

Source: BAZ Megyei Környezetvédelmi és Területfejlesztési Kht., 2002.

### **Tourist activities in the reserve and at its borders**

The number of visitors to ANP is around 200 000 people annually, but the tourism is concentrated in both time and space: the most people come during summer, and they usually visit only the most frequented sites, around the entrances of Baradla Cave, in Aggtelek and Jósvafő. The ration is 70% of total visitation in Aggtelek and 30% of total visitation in Jósvafő. This situation leads to the overloading of the local carrying capacities in these villages, while the tourism potential of other sites remain unexploited. Most visitors spend only a couple of hours in the area, but there has been a little increase in overnight stays.

The Baradla is mainly visited by:

- families (weekend visitors)
- school groups
- retired (individuals and groups)

About 140 000-150 000 visitors only come to see the Baradla Cave, but there is a group of visitors (about 30 000-40 000 people) who require additional programmes.

The direct impacts of tourism, like increased air and water pollution, harms made to the natural assets, flora and fauna, erosion, are usually negative. The positive influences include: enhancement of the environmental awareness in the region, infrastructural development, etc. Involvement of local people – as e.g. tourist guides - into the work of the National Park Directorate is essential.

Between 1997 and 1999 six micro regions launched the Aggtelek and its region development project. Its aim was to survey and co-ordinate the possible programmes, sites and services in the region. The programme was co-ordinated by the Aggtelek National Park Directorate. However, the national park, as a GO could not be flexible enough, and met great difficulties during the project. The next step was to establish a foundation for the operation and co-ordination of programmes in this region, but for various reasons this and the project of marketing communication and tourist development failed. Ever since there is no sufficient co-ordination between the different services and organisations. The NP administration does not have the legal background to take responsibility for services managed by someone else. The Tourinform Office, its database and the event and service guide of the ANP published annually are the informal links with other services. Also good Cupertino works with NGOs, municipalities, churches during the annual series of events since 1998.

<b>Name of tourist programme</b>	<b>general features</b>	<b>maximum number of participants</b>	<b>duration (hour)</b>	<b>partners</b>	<b>evaluation as ecotourist programme</b>	<b>Future plans</b>
Baradla Short Tours	basic geology, history of speleology, up-to-date information, music and light show, guided	100	1	–	–	reducing the group size
Baradla Middle Tour	basic geology, history of speleology, up-to-date information, music and light show, guided	60	2	–	–	reducing the group size
Baradla Long Tour	basic geology, history of speleology, up-to-date information, guided	35	5	–	–	reducing the group size
Baradla Special Tour	basic geology, history of speleology, up-to-date information, small group, guided	15	7	–	√	
Vass Imre Cave Tour	basic geology, history of speleology, up-to-date information, small group, guided, connected with nature walk	15	3	–	√	publications
Béke Cave Tour	basic geology, history of speleology, up-to-date information, small group, guided, connected with nature walk	10	3	–	√	publications
Rákóczi Cave Tour	basic geology, history of speleology, up-to-date information, small group, guided	10	1	–		rehabilitation of its environment, publication of materials
Nature walks	interpretation of coexistence of man and nature, basic botany and zoology, nature conservation management, management	35	3 and 6	–	√	extention of selection, improvement of educational trails
Zoology Tour	for groups with special interest, guided by specialists	15	4 and 8	–	√	
Botany Tour	for groups with special interest, guided by specialists	15	4 and 8	–	√	

<b>Name of tourist programme</b>	<b>general features</b>	<b>maximum number of participants</b>	<b>duration (hour)</b>	<b>partners</b>	<b>evaluation as ecotourist programme</b>	<b>Future plans</b>
Jósvafő village walk	integration the village of Jósvafő and its immediate natural surroundings into the tourist programmes, great features and examples of the traditional village architecture and agriculture, an art and a handicraft collection, activities	35	3	Municipality of Jósvafő, Protestant Church, local people	√	involvement of more sites, more local people
Horse and carriage riding	special Hucul bread, riding and interpretation	5 20	flexible		√	improvement of facilities
Cave concerts	classical and modern music concerts in the Concert Hall of the Baradla Cave	1 200	1	Friends of Aggtelek, East Hungarian Philharmonic Music,	-	-
Gömör-Torna Festival	concerts, lectures, exhibitions, eco and handicraft camps, sport events	not known	10 days	Municipalities of Aggtelek and Jósvafő, Friends of Aggtelek, Friends of Jósvafő, Jósvafő Foundation, Protestant Church, Gömör-Torna Foundation	√	extension of programmes to other villages, study the carrying capacity of the area

Source: ANPI archives, 2002

### **3. Planning and management**

#### ***3.1 Management structure and responsibilities***

Evaluating the area, beyond the plain size of the national park, it is very important to safeguard the protection of the integrity of the geological, geomorphologic assets, that of the diversity of habitats and wildlife.

Considering the geological features and the speleological assets of the Aggtelek and Slovak Karst, the caves of karst area were listed among the World Heritage sites. Acknowledging the uniqueness of the area, both sides became Biosphere Reserves (1977, 1979). Most of the Aggtelek National Park is strictly protected, too. In the following we should examine if the present level of protection is suitable, and if we can live up to the demands deriving from the above prestigious titles.

The core zone of the Biosphere Reserve is smaller than the preliminary studies suggested, because between 1978 and 1985 the area was a protected landscape area. The expansion of the core area in the future is necessary, especially in case of old forest stands. The size of the strictly protected area should be increased especially in areas not included in the core zone (e.g. in extensive orchards). The disturbance of certain areas (wood collection, excessive mushroom picking, growing network of dust roads) urges us in taking action as soon as possible, and tackle the problem legally as well.

Further problems arise from the fact, which the zoning system prescribed by IUCN has not been legally declared to satisfy criteria for category II, and the zoning of Biosphere Reserves (although the zones have been long assigned, and managed accordingly). Some problems still contradict to the zoning system, however during the last 5 years a management strategy has been developed and is conducted systematically. However, there is still no legally constituted nature conservation management plan of the national park.

For the possible extension of the protected area in the future and for nature conservation management reasons, the establishment of a transitional zone in the surrounding wilderness area is needed.

Despite the above analysed problems and tasks the present area of the national park includes the most important and typical habitats, geological, geo-morphological assets.

Most of the Aggtelek National Park is secondary habitat. Some of it is cultural landscape, where croplands, vineyards, orchards, meadows and pastures were in a much higher ratio than today. Forest management used the forests more intensively for charcoal burning and fire wood. Older forests survived where hunting had a priority over forestry. Despite these anthropogenic effects, the area is a biosphere reserve and national park, but it has several reasons:

1. Most of the area has very low economic value. The extensive use of the land for centuries resulted in the extremely high diversity of species in a rather mosaic like habitat structure.

2. Forestry did not cause irreversible results, and the flora and fauna found an asylum in orchards, remaining patches of forests, etc. So after giving up on forestry, regeneration of habitats and natural succession immediately started.

3. Traditional mowing and grazing maintained habitats and species that were even more diverse than the primary ones.

4. The key of the sustainability of the traditional agricultural methods was in the strict areal division. None of the types outdid the others, so the diversity, stability, mosaic pattern of the area was the result (similarly to the natural state).

5. For the last 10 years the ratio of exotic species (*Pinus nigra*, *Ailanthus altissima*, *Ovis musimon*) has been decreasing.

### **3.2 Description of existing or planned tourism and biodiversity strategies for the reserve**

#### **The strategy of nature conservation management**

Setting up the objectives of nature conservation management we have to focus on the idea of “natural habitats” and “natural wildlife”. Natural ecological processes and the protection of species and habitat diversity have to be secured. It can be achieved the most effectively with

- the establishment of an outer buffer zone and extension of the protected area
- the realisation of zonal management (based on vegetation mapping) with proper methodology
- maintaining traditional agriculture (extensive orchards, grazing, mowing) based on the zoning system,
- launching land use compensation system that makes nature conservation not only accepted but supported by local people
- mowing and grazing that serve nature conservation purposes
- forest management aiming at native species and age composition resulting in biological diversity
- better control of traffic with barriers and a permit system
- eradication of invasive exotic species (pines, black locust, tree of heaven, golden rod)
- stopping hunting as a sport activity (game control is important, but should be carried out with professionals and more importantly with circumstances ideal for carnivores)

- interpretation and tourism have to be adjusted to nature conservation priorities (considerate and sustainable visitor management planning co-ordinated by the ANP, but co-operating with locals)
- protection of the quantity and quality of surface and subterranean waters
- safeguarding scientific researches
- supporting high quality development of villages within the protected areas
- recultivation of landscape “scars”
- full scale harmonisation of surface and subterranean nature conservation management

### **Visitor management plan**

The Aggtelek National Park has compiled a visitor management plan in 1998. Since there are two villages within the area of the national park, and further 23 can be found on its borders, the plan aimed at including the immediate surroundings of the NP and biosphere reserve, and also the nature conservation areas nearby. The visitor management is based on the nature conservation management plan and the nature conservation zoning system.

#### *Zone A:*

- no tourist activity and development is accepted
- any building, structure are to be demolished, no new ones are to be built
- any publications should give only general information (i.e. without specification of the location of fragile populations, nests of protected species, etc.)
- its roads are to be closed down
- no visitors are admitted

#### *Zone B:*

- any major development is prohibited, no new building /structure is to be built
- orientation of visitor activity by signs and boards (prohibition, restriction), information with publications
- its roads are to be closed down for vehicles (vehicles only with permission)
- only licensed guides (ANP employees / one with certificate issued by the ANP) can guide small groups of special interest (bird watching, “photo safari”, etc.); the system is to be elaborated in details
- can be visited without guides only on the marked trails
- already marked trails and carefully selected other dirt roads can be involved in bicycle and horse-riding trails
- site for special field studies
- no site for mass activities



#### *Zone C:*

- developments serving sustainable tourism is allowed, even new buildings (achieving the honey pot effect with all the necessary services)
- orientation and information of visitors with information panels and publications
- establishment of picnic areas
- its roads are to be closed for vehicles (except for paved roads), (vehicles only with permission)
- publications can describe its area in details
- it can be visited individually, main site for guided tours
- its trails and roads can be involved in bicycle and horse-riding trails
- site for special field studies (e.g. universities)
- certain areas are site of “mass actions” with restrictions

#### *Zone D:*

- it is about 20,000 ha area surrounding the NP, can become protected on the long run
- possible site of more intensive developments (trails, information panels, camp sites)
- planning the network of hiking, bicycle, horse riding trails adjoining the ones in the protected area
- mass actions can be organised

#### *General restrictions in the area of the NP and BR:*

There is no camping in the whole area, only in the existing camp sites.

#### *Developments*

- Maintenance and improvement of already existing visitor and educational trails
- Establishment of new educational trails (information boards, publications, too)
- New picnic areas
- New camp sites outside of the protected area
- New publications
- New video tapes on the natural assets of the ANP
- Slide series, postcards
- Introduction of new guided tours
- Courses (guides)
- Establishment of a botanical garden

#### *Regression:*

- relining the hiking trails crossing zone A

### **Information system**

The national park established a visitor and nature conservation centre in 1996 (Naturinform) to provide a facility for a better communication between the NP administration and the grassroots. Since the tourist service function dominated its activity, and there was an opportunity to apply for funds, the office became a member of the National Tourinform Network. It gives a better opportunity to be more accessible from all over the country, and also to have an access to databases, national publications, etc.

Internet was introduced in 1996, and ever since the facilities have been improved. The first web site was introduced in 1998, which is an excellent opportunity to provide up-dated information on tourist and nature conservation news, events, activities, etc.

The information materials (including the shortened and public version of the nature conservation management plan) are spread through many channels: peer national parks, World Heritage Sites, Tourinform offices, schools, municipalities, press releases, media news/programmes.

### **Round table with stakeholders**

The nature conservation management plan of the Aggtelek National Park contains strategy for the involvement of stakeholders as the following:

“Close work relationship should be kept with:

- peer authorities
- local municipalities and organisations
- educational institutions, research centres
- national and county level institutions
- NGO's working in the NP
- regional municipal associations
- media
- Slovak Karst PLA (now NP)
- UNESCO MAB Committee
- ACANAP
- IUCN
- EUROSITE
- UNESCO World Heritage Committee
- ISCA (International Show Caves Associations)
- Slovakian tourist experts and organisations
- Slovakian nature conservation institutions and organisations
- Hucul (horse) breeding organisations”

From tourism point of view, the following partners play part in the activity of the Aggtelek NP/BR. Their importance is scored as the following: \*=less important, \*\*=important, \*\*\*=very important.

#### Hungarian partners:

##### 1. National partners:

- Magyar Turizmus Rt./ Hungarian Tourism Co.\*\*\*
- Természetvédelmi Hivatal/ Hungarian Nature Conservation Authority\*\*\*
- Környezetgazdálkodási Intézet TVI/ Environment Management Institution NCD\*\*\*
- national parks\*\*
- Hungarian World Heritage sites\*\*
- Magyar Karszt- és Barlangkutató Társulat/ Hungarian Karst and Cave Research Association\*\*
- Nagycsaládosok Országos Egyesülete/ Hungarian Association of Big Families\*\*
- Magyar Hegymászók Országos Szövetsége/ National Association of Mountain Climbers\*\*
- Tourinform Network\*\*
- media\*\*
- travel agencies, tour operators\*\*
- Publishing houses (pl. Cartographia, Paulus, Frigoria, stb.)\*\*
- cavers' groups\*\*
- Magyar Üdülési Szolgálat Közalapítvány/ National Holiday Service Foundation\*
- Magyar Szállodaszövetség/ Hungarian Association of Hotels\*
- Kerékpárosok Országos Szövetsége/ National Association of Cyclists\*

##### 2. Regional partners:

- Észak-magyarországi Regionális Marketing Igazgatóság/ North Hungarian Regional Marketing Office\*\*\*
- Borsod-Abaúj-Zemplén Megyei Idegenforgalmi Hivatal/ Tourist Management Office of Borsod-Abaúj-Zemplén County\*\*\*
- Magyar Madártani Egyesület 4. sz. HCs./ Hungarian Ornithological Society District 4\*\*\*
- Ökológiai Intézet a Fenntartható Fejlődésért Alapítvány, Miskolc/ Ecological Institute for Sustainable Development Foundation\*\*\*
- BAZ Megyei Természetjárók Egyesülete/ BAZ County Hikers' Society\*\*
- BAZ Megyei Határőr Parancsnokság/ BAZ County Border Guards\*
- Media\*\*

### 3. Local partners

- municipalities (Aggtelek, Jósvalfő)\*\*\*, others\*
- Gömöri Településszövetség, Galyasági Településszövetség/ Gömör Villages' Association, Galyaság Villages' Association\*
- NGO's (Jósvalfőért Alapítvány, Jósvalfőért Baráti Kör, Baráti Kör Aggtelekért Egyesület, Aggteleki Iskolásokért Alapítvány, Gömör-Torna Alapítvány)\*\*\*
- Protestant Church\*\*
- local tourism enterprises\*\*
- local citizens\*\*
- Aggtelek Border Guards\*

#### Foreign partners:

- Europarc Federation\*\*\*
- Slovak Tourist Association\*\*\*
- Slovak Cykloclub\*\*\*
- foreign national parks\*\*
- Slovak Karst National Park\*\*\*
- International Show Caves Association\*\*
- American National Park Service\*

## **4. Institutional and legal framework**

### ***4.1 Brief description of the legal framework contributing positively to the implementation of sustainable tourism and the conservation of biodiversity***

Hungary, just as many other countries has participated in the preparation and signed many international agreements, conventions etc. concerned with nature conservation. Also, national legislation includes similar measures. They partly derive from the international directives, partly from the national practice. Management plans serve the implementation of these measures on regional and local level. Tourism has been present in Hungarian protected areas for about 2 centuries, but it has been only recently that we consciously combine the seemingly controversial areas of tourism and nature conservation.

The following laws, directives, recommendations, strategies tackle the problems of nature conservation, biological diversity, tourism in the Aggtelek National Park.

### International:

1. Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Signed: 1992., Ratification: 1994.

1.1 Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Signed: 1999. June, Ratification: 2001.

2. Convention on Co-operation for the Protection and Sustainable Use of the Danube River, Signed: 1994., Ratification: 1998.

3. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Signed: ---, Ratification: 1979.

4. Convention on the Conservation of Migratory Species of Wild Animals, Signed: ---, Ratification: 1983.

4.1 Agreement on the Conservation of Bats in Europe, Signed: ---, Ratification: 1994.

5. CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora, Signed: ---, Ratification: 1985.

6. Convention on the Conservation of European Wildlife and Natural Habitats, Joined: 1989.

7. Convention on Biological Diversity, Signed: 1992., Ratification: 1994.

7.1 Protocol on biological safety, Signed: 2000.

8. Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), Signed: ---, Ratification: 1985.

(www.kvvm.hu, 2002.)

### National

1. 1996. LIII. Law on Nature Conservation

relevant sections:

28. §

(2) National parks are such extensive territories of Hungary where natural character has not been significantly altered, and of which the primary function is to conserve the natural botanical, zoological, geological, hydrological, scenic and cultural historical values of outstanding importance, sustain biodiversity and the sound functioning of natural systems, promote education, scientific research and recreation.

(7) “The territory of all national parks shall be classified in natural, managed and demonstration zones in compliance with the international obligations and the principles pronounced by the Minister in Decree.”

48. § (6) The Minister of Public Welfare and Health shall, by statutory law and with the Cupertino of the ministry as a competent authority, designate the authority which may by resolution declare any cave or any parts of a cave a medical cave. They may by the same resolution determine the measures necessary for conserving the climatic conditions and ensuring the tranquillity of the therapeutic activities.

51. § (1) The authorisation of the Ministry shall be required for

a, using or changing the use of any cave or part of any cave;

b, developing any cave or part of any cave;

.....

64. § (2) In the areas suitable for visiting and in compliance with the interest of conservation, the possibility of visiting protected natural areas shall be ensured, as a part of information propagation, education, scientific research and tourism. To this end the directorates shall maintain educational and interpretation facilities.

2. 14/1997. (V. 28.) Ministerial decree on zoning of national parks.

3. 211/1997. (XI. 26.) Government decree on the rights and responsibilities of regional environmental agencies, national parks, and the Environmental and Nature Conservation Authority

6. § (1) The national park directorate is responsible for

r, maintaining and operating facilities serving interpretation, educational and tourist purposes and it carries out nature conservation research, education, and interpretation activities.

4. 83/1997. (IX. 26.) Parliament decision on the elaboration of the National Environmental Protection Programme

It included the obligation of compiling the National Nature Conservation Plan. As a result the National Nature Conservation Plan was published in 1997 laying down the most important issues in nature conservation between 1997 and 2002. It did not refer to tourism of any form. (It resulted in the establishment of the National Biodiversity Monitoring System in September 1997.) Now the 2<sup>nd</sup> National Nature Conservation Plan is under preparation for the period 2003-2008, and there have been suggestion to include ecotourism among the issues.

5. 67/1998. (IV. 3.) Government decree on the restrictions and prohibitions concerning protected and strictly protected associations.

6. 2226/2001. Government decision on the 10 years' term development of wellness tourism

It puts the responsibility to elaborate the development programme of ecotourism jointly on the Minister of Economy and the Minister of Environment. As a result, in the year of 2002.

the first joint fund was available for ecotourism, exclusively for national parks (100 % subsidy).

A Government proposal was also produced as a result, includes the following issues: definitions (ecotouristic products, sustainable tourism, ethics in tourism), international trends (WTO, statistical predictions), Ecotouristical assets of Hungary, results, the possible and necessary ways of development ( research, infrastructure, complex services, modelling – monitoring, ecotourism and other products), human resources (education of travel guides, special guides, and nature conservation specialists, interpretation – education), marketing (approach, ethical codes, eco codes, marketing communication), means and suggested measures (board, funding, possible schemes)

The National Tourism Development Programme 2001-2002. also includes ecotourism amongst a subtitle (Other quality tourist programmes – sub programme), but it does not elaborate it any more. The fact is that government funding of tourism has increased the money allocated for ecotourism for the last 3 years.

### Regional

#### 1. Nature Conservation Management Plan of the Aggtelek National Park, 1998.

It is very elaborate work on all aspect of nature conservation (history, special features, itinerary of geology, flora, fauna, land use, ets., zoning, methodology of management). Its scope is between 1998 and 2002.

#### 2. The Tourist Management Plan of the Aggtelek National Park, 1998.

It discusses the history of tourism in the area, nature conservation situation and constraints, harmonisation of tourism and nature conservation, strategies, objects of development, methodology, marketing, etc. in details. Its time scope is between 1998 and 2008. Many of the set goals have been achieved, but with the changing situation this time span has been proved too long to work along this plan for 10 years. The national park is planning to revise it in 2003.

#### 3. The Tourist Development Concept and Strategic Programme of the North Hungarian Region, 2000.

It discusses ecotourism on a regional level but from all aspect (survey, sites, programmes, their relationship to other fields of tourism, marketing, implementing agencies, etc.). Its scope is between 2001 and 2006.

#### ***4.2 Brief description of the institutional framework which supports the planning and management of the protected area***

Nature conservation planning and management relies on three department of the NP. The Authority Department is responsible for managing the nature conservation researches and projects, besides the ever increasing authority work (e.g. passing resolutions in official procedures). Its members are specialists of various fields of earth sciences. They set up the nature conservation strategy for the NP/BR. The Ranger Department acts a nature conservation police, but they have a limited task in interpretation. The Land Management Department is responsible for the different management activities in the areas owned by the national park (forestry, hunting, grassland management, Hucul horses, etc.)

To satisfy the various functions, the NP administration has 69 people on staff (also including the back-up employees, such as finance, maintenance, etc.). But especially for the extended tourist services and programmes the NP contracts another 25-30 people all year round and an additional 25-30 people in the high season (April – October), following the seasonality of demands

Before the establishment of the national park in 1985, most of the tourist services, including the cave tours, were run by two regional tourist agencies. After 1985 the financial facilities were given to hand over the hotel, the hostel and camp site, the cave and other tours to the NP administration. As far as the employees are concerned, some of them were taken over, too, but it was a major task to create a suitable and functional staff. To operate the tourist services there is a Tourist Department within the NP administration.

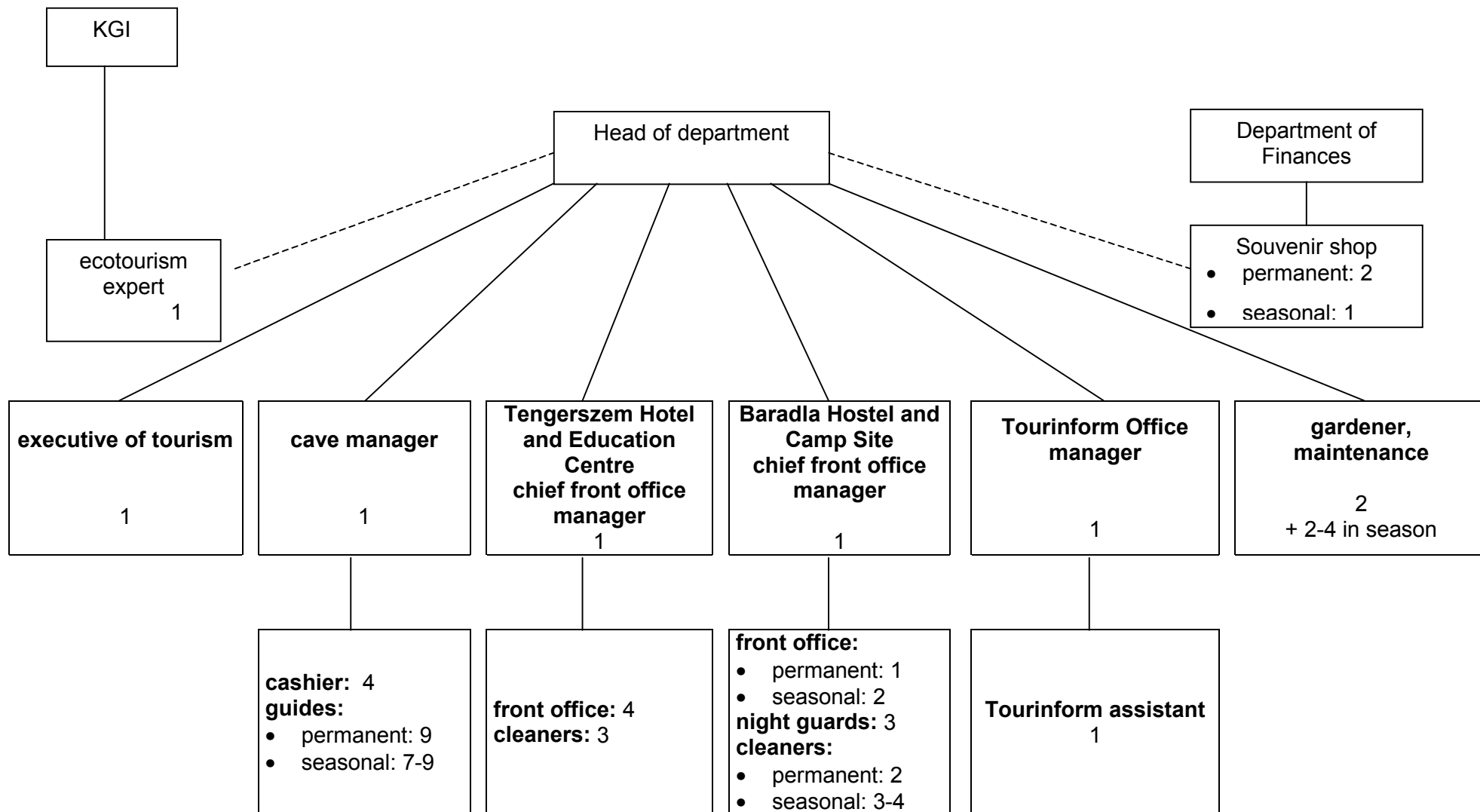
The total number of employees in the Tourist department is 36 in the low season plus 16-19 in the high season. Most of the staff is from the nearby villages. Considering that before 1990 the nearby heavy workforce of the area was the hinterland to it. This means that tourism has gained great importance in employment during the last 12 years. The number of qualified tourism specialists, guides, hotel staff is lagging far behind the needs. The national park administration has made great efforts to provide courses mainly for its own employees, but open language courses have also been announced. Taking the 36 permanent employees into consideration, only 9 of them have MS degree or participate in higher education. 81 % of the 27 employee have GCE, 9 % have other education degree. The ratio is similar with the seasonal employees.

There used to be a huge pressure in July and August before 1990, but there has been a favourable tendency in stretching out visitation in the April – October period. It is the result of the changes in travelling habits and conscious marketing. Only 20 % of all the department employees have special tourism qualification.

The structure of the department is in the following diagram:



## Aggtelek National Park Directorate Tourist Department



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