

ASPECTS REGARDING THE ENVIRONMENTAL IMPACT OF TOURISM ACTIVITIES IN THE APUSENI NATURAL PARK (ROMANIA)

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Abstract: Located in the heart of Apuseni Mountains, the Apuseni Natural Park, provoked passionate controversy related to its legal status, the management areas, the touristic megaprojects, the promotion of more or less decent touristic activities. The natural and human resources are fabulous and are widely recognized abroad and are struck with his foot in all directions. But the touristic activities causes many damages such as: air pollution in summer period, water pollution in karsts areas, soil pollution, especially with waste products in huge quantities, the reduction of natural areas, destruction of flora and fauna, degradation of landscape aesthetics through doubtful touristic infrastructure, the effect of overcrowding during summer periods. To all these effects, which accumulate from year to year, one could add the pressure of rural communities which has land within the park territory, because along centuries the forest supplied the inhabitants with significant incomes. Recently, a strong lobby is made, sometimes at the edge of the legality, in order to allow real estate projects. But, aside from nebulous discussions and confrontations on the development of mass tourism in the park area, we should mention that there are initiatives to promote a decent tourism development.

Key words: Apuseni Natural Park, tourism potential, degradation, impact

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INTRODUCTION

The Apuseni Natural Park (ANP) is located in the western part of Romania and in the central-north-western part of the Apuseni Mountains (figure 1), within the coordinates of 46°26' – 46°45' lat N and 22°32' - 23°5' long E. In this geographic space, the ANP occupies an area of 75,784 hectares, established by Law no. 5 / 2000, stretching on the administrative territory of three counties (Cluj - 40.15%, Bihor - 31.92% and Alba - 27.92%). The Park also constitutes the territory of 16 communes and properties which belong to other 25 communes, so that 47

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settlements and 2 holiday villages (Boga and Fântânele) are integrally on the park's territory and partly other 8 settlements on the park's limits (ANP Adm., 2007).

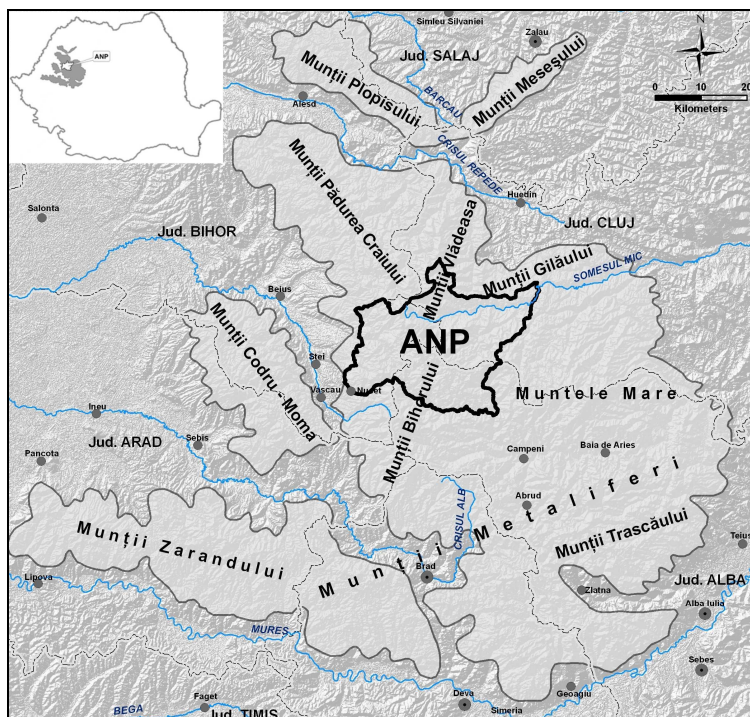


Figure 1. Geographical position of the Apuseni Natural Park within the Apuseni Mountains

Professor Alexandru Borza from Cluj Napoca is the predecessor of the idea of law protected natural elements of Bihor Mountains (in 1924); he proposed the establishment of a natural park (an approach with no space completion). Prominent scientists followed, in the fight with bureaucracy and inertia: Emil Racoviță (mid 30s), Marcian Bleahu (the 50s - 60s), Zeno Oarcea (the 70s), Ana Marossy (the 70s - 80s - who managed to obtain the protection of 20 reservations on the actual park, situated in Bihor County - Marossy, 1975) etc.

After the major change of the political regime in December 1989, the legal status of this vast area was also changed: by the Government Emergency Ordinance no. 7 / 1990 the „phantom parks of the 70s, including the one in the Apuseni Mountains...” were re-established (Bleahu, 2004) (about 13 national parks). The first official statute was established in 1995 by Law no. 137 / 1995 (environment legal framework) when all existing reservations and natural parks were listed in the category of „reservations of national level”. Law no. 5 / 2000 and Law no. 41 / 2000 established its surface (75,784 hectares) and the title of „natural park”, and based on Order of Ministry no. 850 / 2003 and HG 230 / 2003, the Natural Park enters under the administration of the National Forest Authority - ROMSILVA.

By the internal zonation (ANP Adm. 2007), NPA comprises management categories starting with the most restrictive (strict protection areas, 1st category UICN) where human activities are completely excluded, to the most permissive management category of protected areas in Romania (natural park, 5th category, UICN) as areas where the development of traditional communities is promoted, in harmony with nature. According to the UICN classification, the ANP is a protected area, included in the 5th management category. The internal zonation of the ANP comprises 4 management categories.

Overall, on the park territory there are numerous natural reservations and natural monuments (figure 2). This variety of habitats and natural geological, flora and fauna elements, has allowed ANP enter an important European project: Project Phare CBC „*Romanian-Hungarian Corridor for the Preservation of Biodiversity*” and also in Natura 2000 (European Union protected areas network).



Figure 2. Protected areas of the ANP ¹

¹ Some of the caves (class A reservation) are not on the map as their location is secret (for their protection), in accordance with H.G. no 57/2007, art. 44, paragraph „h” and Law no 49/2011 which seem to put into practice the expression „live hidden to keep clean”, <http://www.humpleu.ro/pesteri.html>

A FABULOUS TOURISTIC POTENTIAL

If we tried to find a single word to describe the Apuseni Natural Park, it would be „*fascinating*”. It's hard to find another area defined by karstifiable rocks that bear such a great variety of endo and exokarst forms on limited area.

From the *relief* point of view, the Apuseni Natural Park overlaps partially the Vladeasa and Bihorului Mountains. In these complex mountain structures, limestone gives the relief distinct touches of originality and uniqueness by altitude karst plateaus, a hydrographic network dense to the boundaries and unordered on the surface karst and by a deep karst hard to find by its rich forms, ancient habitation traces or fossils, thus proving a unique touristic value throughout the Romanian space (Pop, 1997; Linc, 1998; Moș, 2008).

On the surface, the karstic relief is defined by small *close karst bassinets* (Ponor Glade, Ocoale-Scărișoara Basin, Barsa Pit, Vărășoia Glade), drained by streams with very short surface flows. They alternate with karst plateaus (Padiș, Lost World) where there are numerous sinkholes of different sizes which mark the underground waterflows as well as extended limestones pavements (Bătrâna - Călineasa), gorge sectors (Galbenei, Someșului Cald, Ordâncușei etc.) or defiles (Arieșului Mare Defile).

An extraordinary endokarst has developed in depth, with monumental caves (Valea Rea Cave, Pojarul Poliței, Piatra Altarului, Bear Cave, Micula's Cave, Măgura Cave, Cetatea Rădesei, Humpleu Cave, Coiba Mică and Coiba Mare etc.), profound pit caves (V 5 Pit Cave, Fortress of Ponor, Bortig, Scărișoara), spectacular karst springs (Ponor, Galbenei, Crișului Negru, Tăuz etc.).

About 1,500 caves have been accounted for within the park boundaries, some of them national records (Bleahu, 2004; ANP Adm., 2007; www.parcapuseni.ro). For example there are:

- one of the most spectacular karst phenomena in the country (Cetățile Ponorului)
- the largest ice cave (Scărișoara Ice Cave, with an ice volume of 75,000 m³ (Silvestru and Ghergari, 1994; Perșoiu, 2003);

- the most ornated cave, with unique crystallizations. Valea Rea Cave stands among the first 10 cavities on Earth from a mineralogical point of view. 37 different minerals can be found here as speleotems (aragonite, gypsum, quartz, celestite, malachite, rodocroizite etc. – a miniature museum!), many described worldwide for the first time in a speleic environment. This is one of the most complex caves in the country (20 km long) and contains forms of a mineralized hydrothermal paleokarst (including native gold), relict hydrothermal endokarst and cold water endokarst (Damm et al., 1996);

- the most beautifully concretioned cave in Romania (Piatra Altarului);
- the most maze-like cave in Romania (Pârâul Hodobanei cave - with 22,142 km of topographically represented galleries, along an extension of only 820 m long (ramification coefficient 27.0).

- the deepest underwater cave (Tăuz Kartst Spring - siphon no. 2 is the deepest underwater passage explored in Romania, 85 m deep).

- the deepest cavity in the country (V 5 Pit Cave, also called the Fața Muncelului Pit Cave) with a 642 m drop (unfinished mapping);

- the largest romanian underground lake (in the Ghețarul de sub Zgurăști Cave). An interesting meteorological phenomenon was reported in this cave by R. Jeannel and E. G. Racovita (1929): mist formed into the light beams that penetrates through the cave entrance at noon.

The authors assume that it is a phenomenon of water condensation around the new formed ions, which is a process similar to the Wilson effect. Another interesting element is the presence of moss on the chamber floor. It is *Thamnium alopecurum* L. and *Oxyrrhynchium praelongum* (Hedw.), forms that grow under water and show the lake maximum water rise level (ro.wikipedia.org/wiki/Pe%C8%99tera-aven_ghe%C8%9Barul_de_sub_Zgur);

- the highest density of karst forms on surface unit;
- the largest underground vertical waterfall in Romania (Ventilator Cascade: 82 m, in the Valea Rea Cave);

- cave paintings have been discovered recently in Coliboaia Cave (Sighiștel Valley), thought to be over 30,000 years old. „*The cave is closed at the moment and won't be opened to the public, just for the better preservation of the findings*” (V. Lascu, President of the Romanian National Speleology Federation, http://www.experience-romania.ro/Pestera_Coliboaia, <http://www.ebihoreanul.ro/stiri/ultima-or-31-1/picturile-din-pestera-coliboaia-unice-in-europa-centrala-si-de-est-96610.html>, http://www.adevarul.ro/actualitate/social/Cele_mai_vechi_desene_din_lume-intr-o_pestera_din_Bihor_0_546545942.html).

Another unique natural feature is Groapa Ruginoasa (R. Hole), an immense torrential organism (below Mount Tapu, 1746 m) having the shape of an amphitheatre, formed and strongly deepened in a thick layer of quartzite sandstones and reddish-purple Permian shale overlapping limestones dissolved in time. Surface and vertical erosion are very active so Ruginoasa Hole expands before our eyes. At present, its size is estimated at about 600 m in diameter and 100 m depth. Figure 3 shows schematically the Ruginoasa Hole in four time sequences, just to illustrate this accelerated evolution.

The ANP also shelters five permanent ice blocks, called *underground glaciers*: Scărișoara (on Scărișoara Plateau) and Focul Viu (Padiș) are the most famous and appreciated by tourists (figure



Figure 4. The ice from Focul Viu Cave in 2007
(Source: R. Linc)

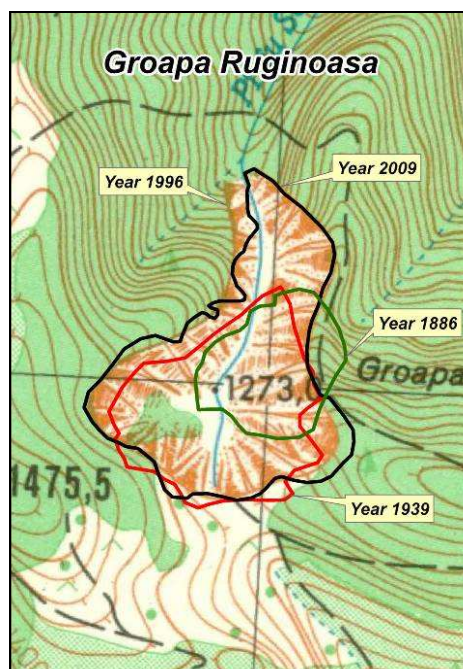


Figure 3. The evolution of Ruginoasa Hole

The background is the topographic map scale 1:25,000 (year 1996) For the year 1886 I used a Franciscan map scale 1:28,800, for the year 1939 a drawing to scale 1: 20 000 plan and for 2009, the orthorectify image

(Source of maps: Bihor County Council)

4), along with the ice blocks of Bortig, Barsa (Padiș) and Vârtop (Casa de Piatră area).

Apart from them, there are some caves that house permanent but smaller ice masses (the case of Onceasa or Vârtop pithcaves) or seasonal ice coming from accumulated snow, which may melt in warm years (Ghețarul de sub Zgurăști).

In terms of hydrography, the surface streams of the ANP area belong to several hydrographical basins: Crișului Negru, Someșului Mic and Arieșului Mare.

In karst areas the surface hydrographic network is unorganised and there is a phenomenon of karstic diffluence, which is the subterranean transfer of the waters beneath the surface watershed. Following the hydrological markings made by using ecotracers, numerous interconnections have been identified between hydrographic basins of the rivers Arieș, Crișul Negru and Someșul Mic and also between different tributaries of the same basin. The most distinct example is represented by the endoreic basin Padiș-Cetățile Ponorului, tributary, in the antepiocene era to the Arieșului Mare Basin, but which at present, discharges 95% of its

waters towards Crișul Negru and the rest towards Someșul Mic and Arieșul Mare (Adm. ANP, 2007).

In Someșului Mic Basin, at an altitude of 1,050 m lies the storage lake of *Fântânele*, formed as a result of damming the Someșului Cald Valley downstream of its confluence with Beliș stream. Due to the presence of this reservoir, a small mountain resort has developed (*Fântânele*) and in the neighbour villages, second residences like holiday homes are appearing rapidly.

From the biogeographical point of view, the ANP area stands out by its rich flora and fauna (northern, south-Mediterranean, Central-European, eastern and Euro-Asian elements can be found here, together with numerous endemic and relict elements unique in the country. About 1,700 plant and 850 animal species have been identified in the ANP.

Generally speaking, the general scheme of Carpathian levels is present here (batch deciduous forests: *Carpinus betulus*, *Acer pseudoplatanus*, *Fraxinus excelsior*, *Cerasus avium* etc), beech forests (defined by *Fagus sylvatica*), coniferous forests (defined by the species *Picea abies*), ended by the sublevel of subalpine meadows. On this background, major alterations appear, due to local relief, climate, soil features and lately, especially in the last century, due to human intervention.

Among the endemic flora species of the park, there are: Transilvanian lilac (*Syringa josikaea*), sconite (*Aconitum calibrottryon* ssp. *skarisorensis*), pink (*Dianthus julii wolfii*), violet (*Viola josi*), several forms of hawkweed (*Hieracium bifidum* ssp. *biharicum*, *H. sparsum* ssp. *porphiriticum*, *H. kotschyanum* etc.), *Edraianthus kitaibelii* (a plant firstly described here) and *Melampyrum bihariense* (Adm. PNA, 2007).

In the park fauna, there is a pregnant, well represented underground fauna of invertebrates. A great number of species are endemic and many of them inhabit just one cave (insects are well represented, choleopteres especially (ANP Adm. 2007).

Some of the caves are of a greater importance also because of the bat populations they shelter (caves in Sighiștelului Valley, Humpleu, Poarta lui Ionele, Ghețarul de sub Zgurăști, Coiba Mare etc). Thus, out of the total of 29 species of bats in Romania, 19 live in the park.

The large mammal fauna is represented by 45 species, generally common to mountain forests and there is also the chamois (*Rupicapra rupicapra*), recently reintroduced in the upper basin of the Crișul Pietros - Boga Valley. Today it is present also in Groapa Ruginoasă, Cetățile Ponorului, Scărița. Another action of repopulation successfully accomplished in the years 1970 - 1980 addressed the capercaillie (*Tetrao urogallus*), which was endangered as a result of excessive hunting.

The large mammal fauna is well represented by populations of wolf (*Canis lupus*), lynx (*Lynx lynx*), bear (*Ursus arctos*), roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), wild boar (*Sus scrofa*), wild cat (*Felis silvestris*) and polecat (*Mustela putorius*).

The strong human pressure - the area has been populated since ancient times - manifested especially by deforestation of vast surfaces covered with forests, replaced by grasslands. A strong negative impact of the human activity is shown by the alteration of the components and distribution of the fauna within the park area (in time, some species have disappeared or are about to disappear).

Unusual habitats, developed especially in the spruce forests and determined by the presence of excess water at higher altitudes, are represented by turf moors which form either on siliceous sublayer (Molhașurile de la Izbuțe, Pietrele Onachii, peat bogs of Călineasa, Barsa, Onceasa), or on karst where the bottom of the dolines gets a silt waterproof coat (Padiș).

Among them, formed on siliceous sublayer and included in the strict protection area, particularly beautiful and interesting from the scientific point of view are *Molhașurile de la Izbuțe* (figure 5) with six types of habitats, most important being: *olygotrophic peatbogs* („tinoave”) very well preserved with numerous endemic elements and glacial relicts, which cover a surface of 85.94 hectares.

Flora is defined by the presence of peatmoss (*Sphagnum cymbifolium* sin. *Sphagnum palustre*), but among the „famous” plants, there are: sundew (*Drosera rotundifolia*), an insectivore plant, as well as mugo pine (*Pinus mugo*) which live here, at the lowest altitude in the country. These peatbogs preserve plants and animals that died long ago. Here and there „bottomless tarns” appear, giving the landscape a special aura with their black waters (figure 5).



Figure 5. Marshes „*Molhașurile*” of Izbuțe
(Source: L. Nistor, taken from helicopter, 2010)

The main tourism areas in the park are: Padiș - Cetățile Ponorului, Boga - Aleu Valley, Chișcău - Peștera Urșilor cave, Sighiștel Valley, Vârtop - Arieșeni, Gârda - Scărișoara, Fântânele Lake, Vlădeasa - Stanciului Valley and Albac area (figure 6).

TOURISM ACTIVITIES AND THEIR ENVIRONMENTAL IMPACT: „WILD TOURISM” MARKS NUMEROUS OBJECTIVES

The human intervention on the environment leads, among other consequences, to a degradation of the tourist patrimony by its depletion and reduces the attractiveness of tourism resources. Surely the tourist practice needs a quality environment but in return, the quality of the environment is threatened by tourist development (Rapport general, OCDE, 1980).

In parallel with the unprecedented development of leisure activities, a constant growth of the intensity of the pressure put on the natural or human environment components was recorded. This leads gradually to an overload of the components in some sectors which generates the phenomenon of tourism (Deszi et al., 2006).

In the Apuseni Mountains in general but mostly in the ANP especially its southern half, *motzi*'s hamlets (groves) form poor community groups (Buza et al., 2001) which, after the strong socio-economic changes that occurred in Romania after 1989, entered an acute demographic, social and economic decline.

For a long time in the area of the ANP a decrease of the human pressure upon the environment by overgrazing and other agricultural activities has been a priority and also the reduction of deforestation (let us remember that the *motzi* are thought to have had a „*flourishing wood civilization*”) and the ecological and sustainable alternative seemed to have been tourism (through its variety: rural tourism, agro-tourism, eco tourism, mountain tourism), so that people can have an alternative to their secular occupation by practicing pluri-activities (agriculture, timber and tourism (Abrudan and Turnock, 1999).

One of the strongest arguments for adopting another lifestyle for the mountains inhabitants is the transformation of the traditional villages in „*holiday villages*” (Surd, 1992) and the rural facilities to become agro tourism facilities. There were villages and hamlets fit for the change: Cărmăzan, Casa de Piatră, Ocoale, Oncăsești etc. But it's a long way from the idea to practice and other settlements became „*holiday villages*” (some uninhabited until then- like Boga or Vârtop or sparsely populated - like Ic-Ponor, and then there were the second homes becoming more numerous in the proximity of Fântânele lake. Another idea was to create some over-communal centres that should be able to preserve the traditions and prevent the depopulation and migration to the adjacent valleys (Surd and Turnock, 2000).

In the Apuseni Natural Park the environment offers lots of quality tourist attractions but it seems that the current tourist practices aren't the most suitable for this protected area so that the negative impact upon the environment components is detached from afar.

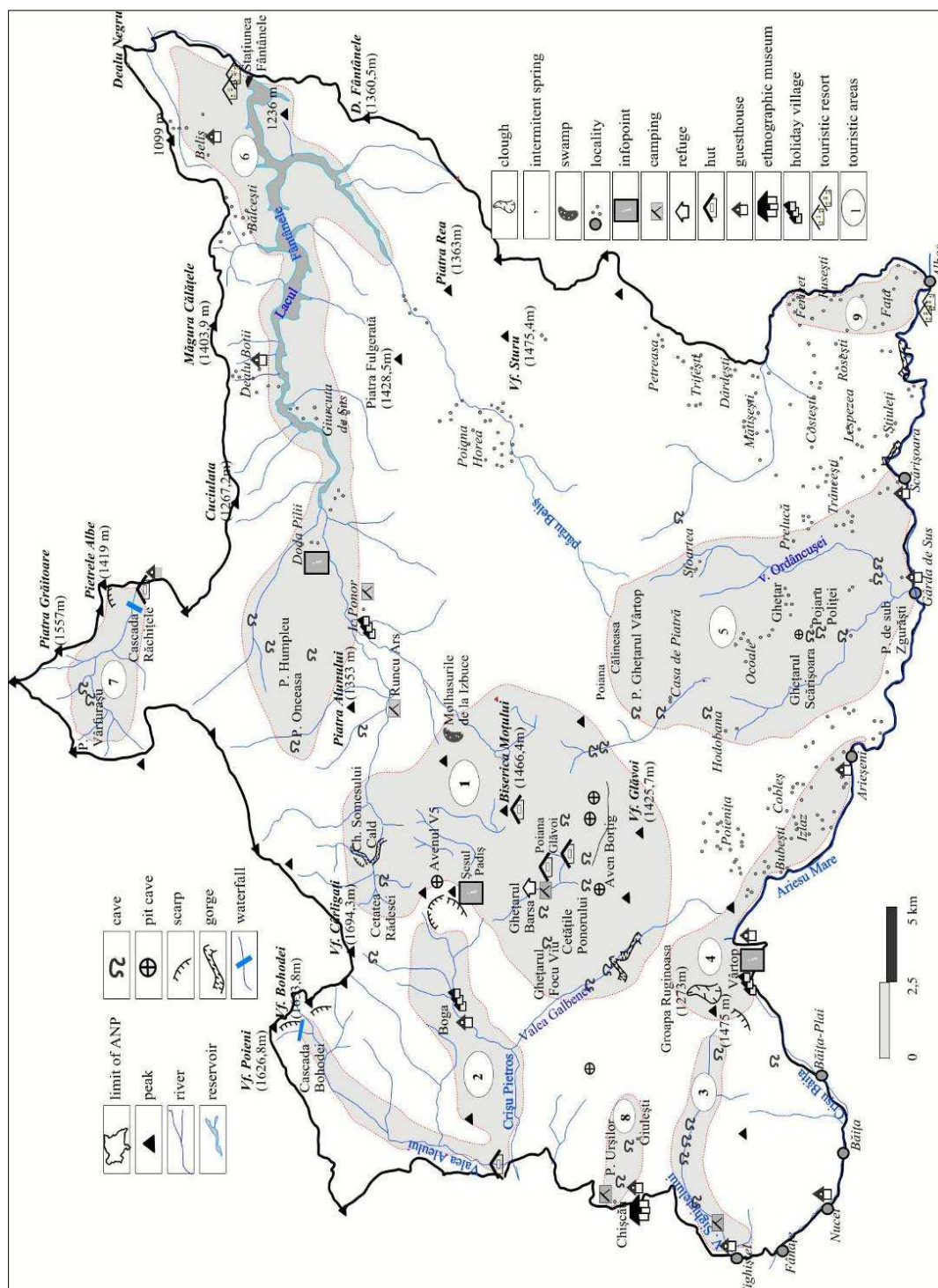


Figure 6. Representative touristic areas and objectives within ANP

1. Padiș - Cetățile Ponorului area; 2. Boga - Aleu Valley area; 3. Sighiștelului Valley area; 4. Vârtop - Arieșeni area; 5. Gârda - Scărișoara area; 6. Beliș - Fântânele Lake area; 7. Stanciului Valley - Pietrele Albe area; 8. Chișcău - Urșilor Cave ethno-touristic area; 9. Albac area

The first acts of deliberate destruction of the endokarst environment were recorded in the 19th century, made by the fossils hunters (Caves Onceasa, Măgura etc.) or theft of speleotems (generalized in the subterranean environment). Starting with 1970 when tourism started to develop explosively (and uncontrolled at that time), cave damaging has taken worrying dimensions (ANP Adm., 2007). Most caves in Sighiștelului Valley were affected in this way (Măgura Cave most of all) and in general all the caves that are accessible without any gear and special training. Or, another example: in early 70s, Valea Fagului Cave discovered while mining works advanced, was almost entirely devastated. The cavity sheltered remarkable, unique speleotems and aragonite crystals. They were extracted to be sold on the market. Later, after 1990 the cave bear (*Ursus spelaeus*) bones smuggling appeared and its main target in the park perimeter was Onceasa Cave. Ancient artefacts are also trade objects for smugglers (the case of Vârtop Glacier where, in the stalagmite ceiling three footprints of a Neanderthal man were discovered in 1973. One of them, harvested when it was discovered, is in the „Emil Racoviță” Speleology Museum in Cluj-Napoca but the other two were stolen in the early 90s. The speleotems in Măgura, Corbasca, Fânațe, V11 Caves are most endangered now, because these cavities do not have efficient protection systems.

Actions having totally or partially destructive character are diverse and complex and they address both territories which undergo strong tourism pressures and the ones characterized by lack or precarity of tourist amenities (e.g. lack or bad state of accommodation, access and special equipment – ladders, indicators, trails etc.) that determines the dispersion of tourists on large areas, having negative consequences upon some of the environment components. Among the many natural environment prejudices, the most frequent are:

- *air pollution* - a consequence of increasing car traffic in summer, as access in the park is permitted to all kinds of vehicles (from the heavy trucks which exploit and transport wood or work at the access road to Padiș, to individual cars, very numerous in July-August or SUVs that can reach places hardly accessible until recently). Dust from unpaved access roads adds to car discharge pipe emissions and at the end of summer the heavy smoke from burning garbage (e.g. Glăvoi Glade). We should also mention the air pollution in the cave environment, by an increased temperature, CO₂ accumulations emitted by carbide lamps and by visitor's breath. We should also mention the air pollution in the cave environment, by an increased temperature, CO₂ accumulations emitted by carbide lamps and by visitor's breath.

For example, it has been noted that at Focul Viiu glacier, during the height of the season (August), the melting process of the ice mass has accentuated (the high temperatures of the external environment might have contributed as well in the last years). The good news is that measures have been taken and the access of tourists has been denied for the last few years inside the pit cave and the ice mass can be admired from a balcony. Although we are not the partisans of using physical barriers to isolate valuable objectives and we rather believe in the power of upbringing, we know that this goal requires a period of time.

- *rivers and small streams pollution* - in karst areas, the latter are vulnerable even to small human interventions. For example, in Boga holiday village (with about 200 house numbers including boarding houses) there is not even one water treatment plant and the situation is the same for Gârda village which has Scărișoara glacier on its area or, the case of Vîrtop, packed with villas, guesthouses and second homes. We mustn't forget the small second homes in the proximity of Fântânele Lake which most of the time do not observe the rules of protection against sewage pollution. Car washing in the small streams is also added to all those troubles as well as waste that can be found along riverbeds (especially plastic bottles).

- *soil erosion and pollution*. Soil erosion in the tourism area occurs along the many paths and trails that cross the park through all directions, in camping areas and in sightseeing spots. We must specify however, that most of the soils are heavily eroded by forest exploitation and the erosion caused by tourists is by comparison, insignificant. But more important is the pollution of soil by depositing domestic waste and insufficiency of waste disposal system. This is a chapter we could insist on more... Waste disposal problem is common to tourism regions because of the

concentration of tourist facilities on area unit or because of the temporary concentration of the number of tourists. Every year about 40,000 tourists walk on the park paths and the mountains of garbage they leave behind aren't cleared off because it isn't ...profitable (these are stated by mayors of communes that have their territories in the park) - www.jurnalul.ro/stire-descoperirea-romaniei-08/gunoaiele-apusenilor. The area Padiş-Fortress of Ponor is considered the heart of the park, on the one hand because of its geographical position and on the other due to great number of first rank tourist objectives. However, there are only two places tourists coming in „*summer human flood*” can accommodate in and mostly in tents: Padiş Plain and Glăvoi Glade (also known as „*La Grajduri*”). At La Grajduri there are a few wire mesh trash bins but their capacity is too small compared to the garbage quantity produced. Garbage light fractions are carried by wind (sometimes by animals) and get into the frail Cetăţilor stream that crosses Glăvoi Glade and flows in the underground of the Fortress of Ponor.

But apart from the fact that the two places have no minimum endowments for a decent hygiene, the brutality of the tourists has no borders, as new (illegal) camping places appear constantly (most of them in Ponor Glade), accompanied by garbage procession and all tourist trails are marked by plastic bottles, beer cans, plastic bags etc. And on the ice block of Scărișoara, traces of cigarette ash can be seen. Tourists are often caught cutting firewood or washing their car in the small mountain streams.

- *land use by reducing natural spaces*..In the park area, the reduced natural spaces are mostly a result of other economic activities like massive deforestation. For centuries motzi (a part of the mountain inhabitants of the park) have earned their living by woodworking but the 29th century society bears the guilt of the deforestations „*to the scrap*”. However tourist activities aren't entirely blameless either, as tourism development draws up accommodation buildings, equipment and tourism infrastructure that threaten free spaces. If until the 90s there wasn't much of a visible tourism infrastructure, nowadays there are a few places where holiday villages have developed, or mountain resorts: for example Boga Valley (wild and isolated until recently), with many buildings with most various architecture, spread along the valley and up the slopes. Or on the Fântânele Lake banks, at 1,050 m altitude where a flourishing resort has appeared. A lot more can be added: the Ic Ponor holiday village, Aleului Valley tourist complex, but most of all, the chaotic buildings in Padiş (with wooden, cardboard or tin boxes – in different degradation stages, or small shop booths), lots of second homes built in the proximity of Fântânele Lake, Vârtop, Gârda, Horea Glade etc.

- *destruction of flora and fauna*. Environmental pollution and the reduced natural spaces are responsible for a reduced biodiversity by altered and fragmented habitats and the attendance excessive use of the natural areas drives to disappearance of animal and vegetal species as a result of tourists conduct (negligence, vandalism, stepping on vegetal cover, abusive picking of berries, setting up fires at random etc.). We should mention that, in the camping areas, the vegetal cover suffers a lot because of the density of „*fires*”, technically almost at every tent entrance there is a bigger or smaller fire (depends on the taste and the fuel used). Vandalism is a not insignificant negative consequence of tourism activities. For example in the proximity of the Bortig pithole a delicate flower still appears from place to place (lilly of the forest - *Lilium martagon*) which is picked by tourists, pulled out by their roots (it won't even resist a few days until they get home !). As we have mentioned above, there are lots of traces of cigarette ash on the ice block of Scărișoara or many trees with different messages „*tattooed*” on their trunks... We mustn't forget the fish poaching and trout is in great demand.

Another example of tourists' uncivilized behaviour is the great number of ATVs and snowmobiles „*by which some visitors leave the permitted access paths and seek for sectors with more thrill*” (ANP Adm., 2007). These practices are difficult to control and have a high destructive potential (both physical and aesthetic) by damaging paths and walking trails, increasing erosion on slopes and grasslands degradation. Their noise is incomparably greater than that of cars and it disturbs wild animal populations.

- *landscape degradation*. Plunging in equipment and modern infrastructure often draws along an aesthetic degradation of landscape. On the one hand the style and architecture of those implants isn't always in harmony with traditional buildings nor at the due scale and on the other hand tourism development is sometimes anarchic and dispersed, thus degrading landscapes. Without further comments, the locations mentioned above (Boga holiday village but most of all Padiş) are deformed by such buildings which do not integrate architecturally and tire the eye with their bright colours or degradation and obsolescence, thus producing a visual pollution.

- *overcrowding effect*. The concentration in space and time of the tourist sojourns brings to overcrowding and overloading of the tourist structures and infrastructures that harm the environment and the quality of life. In the Apuseni Natural Park that is the situation especially during summer and mostly in July-August when, in the allowed camping places (and not only) there is an enormous density of tent, circulation on walking trails is crowded, and many times tourists almost bump in each other. However during the last years, maybe as a result of the economic crisis, the number of tourists has dropped dramatically, which has reduced a bit the human tourist pressure in the park (figure 7). Another aspect of this point of view is weekend traffic congestions that cause air and noise pollution and increased energy consumption (petrol or diesel). In winter the area Vârtop-Arieşeni is the most crowded because of winter sports and the easy access on DN 75.

The inadequate behaviour of a tourist is frequently used as an excuse by others, thus producing a cascade of cumulate destruction to the habitats and nature in general. These manifestations haven't been controlled much up to the present. There are a few spots on the park territory where all those problems cumulate: Glăvoi Glade, Padiş Plain, Boga Valley, Sigiştelului

Valley, Răchițele Cascade etc. The uncivilized conduct of the tourists has also a major negative impact on the frail subterranean environment. We cannot forget about the theft of the „stone flowers” (crystals, stalactites, stalagmites etc.) sold on a flourishing black market and about the disappearance of the „petrified footprints of the Neanderthal man” in Vârtop Cave, which is by now history. Some of the caves are true ossuaries that allow researchers the acces to a rich and well preserved material, represented by cave bear (*Ursus spelaeus*), along with other bone pieces that belong to hyena and cave lion etc (Bears, Măgura Cave, Micula's, Onceasa Caves) (Onac, 2000). But the wider access of tourist masses brings this thesaurus to considerable damages.

A systematic inventory of the ANP caves hasn't been made yet, and even less for the cave fauna; there are only punctual pieces of information for some of the known caves. Protecting this fauna (which in some caves includes endemic species of insects or strictly protected species of bats), is possible only by strict records of tourists' access in those cavities and not only there. In 2006 - 2007, the ANP Adm. Has established an approval system for the spelean activities in the park; it works quite well and most of the tourists who practice caving in the park area make use of a punctual or periodic approval. The results are collected through reports and included in the park data base.

In august 2009 and august 2010 when the top of the tourism activities is recorded in Padiş, we applied



Figure 7. In the summer of 2010, the lodging pressure on Glăvoi Glade is much reduced compared with former years. As we can see, there are a lot of vehicles

(Source: L. Nistor - taken from helicopter)

some questionnaires to tourists available for this activity.

Some of the key questions refer to the „*personality*” of the ANP (e.g. : „*are you familiar with the significance of a natural park?*”, or „*do you consider the ANP a tourist attraction?*”), and also to the opportunity to develop mass tourism by building large scale real estate (e.g. „*how do you think tourist activities affect the general and particular quality of the ANP?*” or „*do you agree with the development of a tourism resort in Padiş?*” or „*what do you think is the role of rural communities situated in the park vicinity?*”).

Regarding the geographical personality of the Apuseni Natural Park, most of the respondents answered that it has unique, with wild landscapes, great diversity and beauty, but they had no idea of what a natural park is. However, at the other aspect almost all (90%) answered categorically that mass tourism will destroy the beauty of the region but some investments are needed to create ecological toilets and clean the park (that is to clear off the garbage). Again, they knew nothing about the role of the communities surrounding the park.

LATENT (OR NOT) CONFLICT SITUATIONS

Regions that benefit from a quality environment, favourable to tourism development are facing the following dilemma: either they encourage the development of this economic activity and therefore must accept some degradation of the environment or, on the contrary, give propriety to preserving the environment and give up the potential revenue from tourism. This problem is acute in economically disadvantaged area where the environment quality is the only exploitable source and this is the case of many mountain regions.

The Apuseni Natural Park is an inhabited area and people must earn their living in one way or the other. Before the 90s words like „*rural tourism, eco-tourism, sustainable development etc*” weren't used very often and tourist activities in mountain areas (except the consecrated resorts like Prahova Valley or Stâna de Vale (Bihor County) were reduced.

After the official pronouncement of the Apuseni Natural Park, the mountain inhabitants were forced to give up their old and pretty good income source which was forestry (after the Revolution in 1989 timber theft has become a mass activity for many rural communities, thus supplementing their income especially when Romanian economy was slowly but surely collapsing). At that point a hidden conflict started to smoulder. On the other hand, the development of tourism infrastructure - especially accommodation - was favoured and „*real estate projects that kept at the limit of the law*” gained ground (www.jurnalul.ro/stire-descoperirea-romaniei-08/gunoaiele-apusenilor).

More recent are the conflicts between tourism developers and nature defenders who fight for stopping this economic activity. One of the locations most argued on is *Padiş* where until recently there were a few poorly maintained houses and boxes and an undeveloped campsite. After 2000 after the Romanian economy recovered a little, the interest in this magical land has grown dramatically and lots of unauthorized odd looking kiosks, terraces and accommodation buildings (boxes, a hut). More recently S.C. Compania de Turism, Hoteluri şi Restaurante Padiş S.R.L. (CTHRP) - the local tourism company, has a real estate undertaking of wide scope along the forest road that leads to Ic Ponor, which is building a mountain ski resort with 2,000 beds and the entire related infrastructure and has already purchased 86 hectares of land in the heart of the park, near a strictly protected area (research reservation - Molhaşurile de la Izbuce).

In order to obtain the necessary approvals, this project had to pass through the ANP Administration Advisory Council which includes all the administration of the communes on the park land) and the gauntlet of the Scientific Council. The promoters of the project say that to the date it passed the Advisory Council (December 2007), they had already invested 2 million euro and they wanted to change the „*strictly protected area*” statute in „*sustained development area*”. Although it passed the Advisory Council, the project hasn't pass the Scientific Council so for the moment it is stuck at the Ministry of Environment and Forests.

At one point, citing the massive attack of bark beetle (*Ips typographus*) in the park forests, **the mayors of five Bihor communes** situated on the park land submitted a memorandum in which they demand among other things the **annulment of the park (!)** on the ground that the right of property was not respected (and thus they are unable to use their grasslands and forests as they please!). It is interesting that so violent reactions from local communities were only registered in the Bihor part of the park, the other two sectors (Cluj and Alba Counties) have a relatively good collaboration between the ANP Administration and the locals, especially in agro-tourism and rural tourism. This proves that striving for Padiș is far from an end, especially since legislation changes frequently and allows smart lawyers to make interpretations freely.

HOWEVER, THERE IS HOPE FOR CIVILIZED MOUNTAIN TOURISM

Leaving aside the discussions and nebulous confrontations on mass tourism development in the park perimeter, we should mention that there are also initiatives for a decent tourism development and promotion.

Thus, in October 2009, The Apuseni Natural Park was awarded at the Gala Awards EDEN (European Destinations of Excellence) from Brussels <http://ziuadecj.realitatea.net/eveniment/eveniment-parcul-national-apuseni-destinatie-de-excelenta-a-romaniei-16206.html>). The European Union has declared the Apuseni Natural Park a tourism destination of excellence and consequently, it will benefit from tourism promotion in Europe, have its own web page on the official EDEN web site and will be included in the European Destinations of Excellence, which facilitates experience exchange. The main objective of the EDEN project is to promote sustainable tourism development models.

Then there is another project in progress, in Pietroasa commune, on the valleys of Aleu and Crisul Pietros, where a group of 25 American investors have purchased 120 hectares of land and intend to set up a holiday village with boarding houses and rustic holiday homes, trout farm, swimming pools etc.: „...*the tourism model that is to be practiced in this part of the Apuseni Mountains is based on that given by the hospitality industry of the American state North Carolina where the emphasis is on closeness to nature*” (Radu Țârle, President of the Bihor County Council, Nov. 2010). It is true that until now, this beautiful intention materialized only in purchasing the land and fencing, and rumours suggest that this much trumpeted intention is not going to be put into practice. In fact, two investors from Bihor risked and invested in rural tourism in 2005, in the same valley, by building two huts and a trout farm on the site of the former school camp, but dropped it in favour of the American investors.

In the area of Gârda, since 2000 projects have been running on the subject of *Arnica Montana* (a herb related to camomile and sunflower) which lives in the park and is considered „*queen of herbs*” (www.jurnalul.ro/campaniile-jurnalul/jurnalul-national/necunoscuta-noua-apreciata-in-europa).

Albert Rief, the coordinator of the first project related to arnica, after his peregrinations in the Apuseni Mountains, intended to set up a small ethnography museum in the hamlet of Ghețar, next to the cave entrance, which could function also as a tourist information centre but it proved to be very hard to find popular craftsmen to build savin covered houses because this traditional occupation has disappeared in the region of the motzi. Now he has another project which is to establish a traditional household where tourists could see how the people lived around here.

Following another protection and conservation project in implementation until 2011 initiated by the Centre for Environment Initiative from Cluj Napoca, 37 caves in the ANP are going to become tourist destinations. This project aims to improve the park management plan, the conservation of the 37 caves and their technical endowment needed for surveys and mapping for each of them as well as 15 projects to imitate the access in through gates. These are extremely valuable caves, in some of them access is only permitted for research. Some of the 37 caves that need a high degree of protection are Bears Cave, Fortress of Ponor, Piatra Altarului, Onceasa, Focul Viu Glacier, Humpleu Cave, Scărișoara Glacier etc (www.ziare.com/articole/parcul+national+apuseni).

CONCLUSIONS

Although it is a protected area which has a relatively good management plan, the area of the ANP confronts with serious problems related to mass tourism activities. The Bihor sector of the park gives the greatest problems and most difficult to manage because the greatest density of valuable natural tourist attractions is here, so that the fights for the possession of Padiș area are fierce too. And the elected representatives of the rural communities are very much against the idea of integral protection which doesn't seem to be in line with their development strategies. We also believe that as long as the ANP is under the „guardianship” of the National Forest Authority, many of the „historical state of facts” won't be solved under the excuse of their great interest in the park forests and will leave the tourist activities and even their negative impact aside.

In addition, the broadening and modernization of the access road from the commune of Pietroasa (Bihor) to Padiș (DJ 763 Sudrigiu-Pietroasa-Padiș Hut) (with European structural funds!) is not a good sign for the future of the park as a nature preservation area as it will facilitate the increased motorized access of crowds of tourists and cars and indirectly sooner or later, the appearance of a tourist resort.

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