COUNCIL OF EUROPE CONSEIL DE L'EUROPE

Strasbourg, 31 January 2005 **PE-S-DE (2005) 14**
[diplome/docs/2005/de14e_05] *English only*

Committee for the activities of the Council of Europe in the field of biological and landscape diversity (CO-DBP)

Group of specialists – European Diploma for Protected Areas

28 February – 1 March 2005
Room 11, Palais de l'Europe, Strasbourg

PIATRA CRAIULUI NATIONAL PARK (Romania)

APPLICATION for the European Diploma of Protected Areas

presented by
the Ministry of Agriculture, Forests, Waters and Environment of Romania

Document established by
the Directorate of Culture and Cultural and Natural Heritage

Logo European Diploma	**Council of Europe** **European Diploma** **Information form for Candidate Sites**
Site Code (to be given by the Council of Europe)	

1. SITE IDENTIFICATION

1.1 SITE NAME

PARCUL NAŢIONAL PIATRA CRAIULUI **PIATRA CRAIULUI NATIONAL PARK**

1.2 COUNTRY	ROMÂNIA							
1.3 DATE CANDIDATURE								
1.4 SITE INFORMATION COMPILATION DATE	2	0	0	4	1	2	0	2
	Y	**Y**	**Y**	**Y**	**M**	**M**	**D**	**D**

1.5 ADDRESSES: Administrative Authorities

National Authority	Regional Authority	Local Authority
Name: National Forest Administration Address: Magheru nr. 31, 010325 Bucharest Tel. 4021 2129769 Fax. 4021 2228428 E-mail office@rosilva.ro	Name: National Forest Administration-Brasov County Branch Address: Closca 31 Brasov Tel. 40268415770 Fax. 40268475678 E-mail dsbrasov@rosilva.ro	Name: Piatra Craiului National Park Address: Raului 27, Zarnesti, Brasov Tel. 40268223008 Fax. 40268223008 E-mail office@pcrai.ro

1.6. ADDRESSES: Site Authorities

Site Manager	Site Information Centre	Council of Europe Contact
Name: Horatiu Hanganu **Address:** Raului 27, Zarnesti, Brasov Tel. 40268223008 Fax. 40268223008 E-mail horatiuh@pcrai.ro	**Name:**Piatra Craiului National Park Headquarter Address: Raului 27, Zarnesti, Brasov Tel. 40268223008 Fax. 40268223008 E-mail office@pcrai.ro	**Name:** Horatiu Hanganu **Address:** Raului 27, Zarnesti, Brasov Tel. 40268223008 Fax. 40268223008 E-mail horatiuh@pcrai.ro

1.7 SUMMARY DESCRIPTION

Piatra Craiului National Park was declared national park in 1990 and it is located in the Eastern part of the Southern Carpathians stretching on 14.773 ha. The central element of the park is the calcareous ridge, which has 25km long and the most part with elevations over 2000 m. The mountain range represents one of the few alpine karst systems in the Romanian Carpathians. There are approximately 200 known caves. Among them here is localized the deepest vertical cave in Romania which has –515 m depth.

The richness in flora of the massif is a result of a variety of microclimatic conditions. Forests, rocky faces, scree slopes and marshes offer favorable conditions for a variety of plants, which are adapted to these types of habitats.

The fauna of the area is very rich in species; between them we mention brown bear, lynx and wolf.

There are a lot of endemic and endangered species of both fauna and flora.

Nearby the park there are six major localities, two villages being situated inside the park boundaries. These villages create a specific landscape.

The Park Administration was created in 1999 within the GEF financed Biodiversity Conservation Management Project. Since then, the Management Plan and the Park Regulation have been realized.

1.8 EUROPEAN INTEREST JUSTIFYING THE CANDIDATURE

The main characteristics and elements which identify the European Interest for the area are the following:

- **On the park territory is running a Life Project (2003-2007) called "Natura 2000 sites in Piatra Craiului National Park".** *The project's objective is to improve the conservation status of habitats and species in Piatra Craiului National Park through a series of strategic interventions involving data collection, public awareness, updating the management plan and designating five Romanian Natura 2000 sites. The project contains specific provisions for applying targeted conservation measures in the proposed sites. In addition, the project aims also to strengthen the capacity of the Park's management team in the Natura 2000 network knowledge, and to distribute the information gained about Natura 2000 among the interested specialists and the general public.*
- The area has 2 species of mosses (*Buxbaumia viridis*. and *Mannia triandra)* and 3 species of higher plants (*Ligularia sibirica, Liparis loeselii, Campanula serrata*) 3 species of insects (*Cerambix cerdo, Rosalia alpina, Lucanus cevus*), 24 bird species and 6 bats species listed in the Habitat Directive (Annex II) which have a large and viable population. Here were recorded as well 7 habitats types included in the Habitats Directive.
- The area has 3 species of mosses (*Buxbaumia viridis, Mannia triandra and Frullania parvistipula)* and 2 species of higher plants (*Ligularia sibirica and Liparis loeselii*) 3 species of insects (*Cerambix cerdo, Rosalia alpina, Lucanus cevus*), 1 species of fish, 3 species of amphibians, 26 bird species and 10 bats species listed in the Bern Convention (Resolution no. 6) which have a large and viable population. Here were recorded as well 5 habitats types included in the Bern Convention (Resolution no. 6).
- The longest and the most spectacular limestone ridge from the Romanian Carpathians.
- The largest number of karst formations within the Carpathians with more than 300 caves and the deepest vertical cave in Romania (-540m).
- Large forested areas (coniferous and mixed) with unspoiled stands and a very good status of conservation (no human activities).
- In the localities within the Park there are only extensive methods of agriculture, which contribute to the creation of a typical example of European landscape.
- The cultural values and tradition are well preserved in the local communities.

1.9 SELECTION METHODOLOGY

For declaring the European Interest explained above, the results of the Biological Monitoring System developed and implemented in "Biodiversity Conservation Project", financed by The Global Environment Facility trough The World Bank, The National Forest Administration and The Romanian Government, were used as well as the results from the studies conducted in the "NATURA 2000 Sites in the Piatra Craiului National Park" Project financed by the European Commission, GEF Project and the National Forest Administration through LIFE Nature funding scheme. An important contribution had the studies conducted over the years by the Romanian Academy, the Biological Institute, museums and various researchers and specialists.

1.10 MAIN AIM OR MOTIVATION

The main reasons for designing Piatra Craiului Massif as a National Park were the following:

- Unique limestone geology and geomorphology
- Biodiversity and landscape conservation
- Protection of valuable, endemic and endangered species
- Promoting and encouraging the sustainable tourism in the area
- Public awareness regarding the nature conservation spirit and its values

1.11 DATES *(to be filled in by the Council of Europe)*

DATE OF FIRST EXAMINATION DATE OF EXPERT VISIT

Y	Y	Y	Y	M	M	D	D		Y	Y	Y	Y	M	M	D	D

DATE OF SECOND EXAMINATION DATE OF AWARD

Y	Y	Y	Y	M	M	D	D		Y	Y	Y	Y	M	M	D	D

2. <u>SITE LOCATION</u>

2.1 SITE CENTRE LOCATION

LONGITUDE LATITUDE

E		2	5	°	1	3	‘	5	7	“	N	4	5	°	3	0	‘	1	1	“

W/E (Greenwich)

2.2 AREA (ha) 2.3. SITE LENGTH (km)

Total Area						,					1	4	,	7	7	3	
Core					4	,	7	7	5	. 20							
Buffer					9	,	9	9	7	. 80							
Transition						,											

2.4 ALTITUDE (m)

MINIMUM MAXIMUM MEAN

	7	1	0		2	2	3	7		1	2	1	1

2.5 ADMINISTRATIVE REGION

REGION NAME % COVER

Braşov County District			5	3
Argeş County District			4	7

3. <u>NATURAL HERITAGE</u>

3.1 GENERAL ABIOTIC DESCRIPTION (Geomorphology, geology and hydrogeology)

Geomorphology

Piatra Craiului Massif is oriented in a North-North West direction; with 25 km in length and elevations of over 2000 m, Piatra Craiului appears as a large open arc, surrounded by basins on all sides. It is situated between the Dambovitei corridor in the west, the Rucar-Bran corridor in the south and east; Tara-Barsei basin (elevation of 2238 m) to the north, and the Magurile Rucar and the Dambovicioarei River to the south.

The mountain can be divided into three parts: Piatra Craiului Mica occurs in the north and is delimited by the Curmatura (gorge/ravine; Piatra Craiului Mare is found between the Curmatura Piatra Craiului and the Saua Funduri; and Pietricica is represented in the South part from Saua Funduri until the confluence of Dambovitei and Dambovicioarei Rivers. The mountain has a number of peaks including: La Om (2238 m), Piatra Mica (1816 m), Grindul (2229 m), Fundurile (1951 m), and Pietricica (1764 m).

The extensive karst activity has resulted in a general lack of surface water runoff and has produced very low water retention in most of the valleys surrounding the mountain. The few valleys where water is present are located at the periphery of the mountain. The main river draining the area is the Dambovita, marking the northern end of the mountain. Its largest tributary is the Dambovicioara, with numerous smaller tributaries to the east. In the north Barsa Mare is located with its tributary Raul Mare of Zarnesti. Along the length of the Dimbovitei and Birsei Rivers there is a basinal intermountain corridor (Tamasul Corridor) that runs northeast-southwest from Zarnesti to Rucar.

The massif imposes itself as the most spectacular calcareous flank in Carpathian Mountains. This fact is due to the junction of many specific elements, among them being: it is the calcareous massif having the densest stratification in Romania, with elevation over 2000 m, and with a vertical or almost vertical strata position. Throughout this massif, impressive edges call attention, among them “Orga Mare”, a 100 m height tower-edge, excessively stratified, with 120 degree overturned strata. To any tourist who hikes along the “Crăpătura Valley”, “Crăpătura’s Needle” calls his attention. The name is suggested due to its very sharp cone shape on its upper part, and to the fact that it is separated by the rest of the calcareous wall from which it detaches, and because of its 2 m basal diameter that decreases at only 15-20 cm to the top. Worthy of remind are the two Diana’s towers, “The Big Tower” and “The Yellow Tower”, that watched from “Bârsa Valley” seem like two ”stony ricks”, with rounded picks. Path preferred by mountain climbers, being a part of the fantastic world of residual rocky shapes, “Călineţ’s Finger” represents, in fact, a 3 crag calcareous edge, that viewed from a certain position looks like the fingers of a hand. Throughout the massif there are hundreds of shapes like these, even more interesting and bizarre, but situated in inaccessible areas.

Down to the main edge, on the western mountainside, one can admire the largest and most important watershed named “Căldarea Ocolită”. “The pail” reminds a former ice circus, strongly devastated by the joint action of glacial and karst phenomena. From distance one can admire the largest mobile limestone detritus inRomania.

Until now, 500 caves were inventoried, but almost 85% have a development less than 20 m., but there are many unexplored, the massif being in many cases inaccessible. The researches achieved come to confirm the fact that the vertical strata position did not help big horizontal caves modeling. In South (Pietricica), where the inclination is lower, the longest caves in Piatra Craiului are known. They are as follow: "Wolf's Cave" 147 m and "Valea Rea Caves" 106 m, in this massif the caves average length being only 16 m. From the multitude of caves one can notice, though their importance, the following: "Colţii Chiliilor Cave", "The Two Doors Cave" from Padina Închisă, "Zaplazul", "The Big Cave" from Şpirlea Valley, "Walter Kargel's Cave".

The most visited cave within the Park is "The Dambovicioara Cave".

The destruction of the caves by collapse of the ceiling, had caused the formation of speleoepigenetic gorges and natural arches, typical being Cerdacul Stanciului and Zaplazul.

A well-known cave in the area is that from "Colţii Chiliilor", because here, since the XV century, the local refugees during Turkish invasions "turned" the cave into a church. "The Shrine" located in the final part of the cave can be admired by any tourist.

Among the most important three avens in Piatra Craiului, "Vlăduşca Aven", "The Aven from Grind" and "The Aven below Grind Peak", the last one is the deepest underground gap in Romania: -515 m. The three avens are the result of waters infiltration on tectonic splits, on faults more precisely. Discovered in 1985 and explored until 1992, when the aven basement has been reached, it represents in fact an almost vertical pits connection. Its scientific importance is huge; it represents an excellent 500 m depth geologic profile, which will surely furnish important data regarding the stratigraphy and the tectonics of Piatra Craiului massif.

From the geographic point of view, the presence of this underground gap, close to the main edge where water streams misses, represents a persuasive reference point to the existence of glaciers in Piatra Craiului, a much disputed issue on these study fields.

Geomorphology of Piatra Craiului suggests the personality of this massif, being the single Romanian calcareous massif higher than 2000m and having slopes over 35 degrees. It is specially mentioned the western side of the mountain, that through its very particular appearance, imposes as representative for the Carpathians relief, epithet given by experts using the notion of "Piatra Craiului type valleys", with the highest density of residual rock shapes (edges, needles, crags, towers, pyramids), that due to the lack of vegetation and soils amplifies the "wilderness" and the picturesque of this mountainside. Many of these represent morphologic-geologic specific features that deserve to be preserved as natural monuments.

Geology

The Piatra Craiului range represents one of the most diverse and fascinating geological records of the Romanian Carpathians. It comprises nearly the full spectrum of sedimentary rocks (carbonates, sandstones, shales, conglomerates, phosphorites and chertstones), which were deposited on an older metamorphic basement mainly during Jurassic and Cretaceous time.

The geological history of the Piatra Craiului mountains started 175 million years ago when the continental crust started to stretch and break-up due to the opening of the Tethys ocean (and like nowadays in the East African Rift). Progressively, huge continental blocks subsided and rotated along major faults. Slowly, an asymmetrical basin formed in front of the continental margin, which started to gather sediments derived from the up-lifted and eroded hinterland chains (the Fagaras Mountains). These sediments are mainly comprised of calcareous sandstones and fossiliferous marls. After 10 million years, complex phosphatic elements, unleashed by submarine volcanic eruptions in the deeper part of the Tethys ocean, were precipitated on the whole shelf. Although extremely thin (1 meter!), these phosphorites bear the most comprehensive and interesting spectrum of marine fossils in the Piatra Craiului mountains. More than 130 different species of ammonites, bivalves and gastropods have been found in this interval.

During Upper Jurassic (160 million years ago) the basin subsidence accelerated and the water depth increased to several hundreds of meters. At the same time, further offshore, in the area of the actual Bucegi Mountains, coral reefs developed on a shallow platform. However, these reefs were continuously eroded by storms and dumped as detritus into the Piatra Craiului basin. They accumulated as massive carbonate breccias at the bottom of the basin, filling it up and thus, giving rise to a huge carbonate platform. Out of the 1050 meters thick carbonate sequence in the Piatra Craiului ridge; the lower 500 meters are made up of these hard limestone breccias.

On top of the afore mentioned carbonate platform clean, white limestone developed in a shallow lagoon. These limestones occur in the upper part of the Piatra Craiului ridge and one of their characteristic feature is the well preserved (and picturesque) stratification (e.g. at the Timbale Peaks or the Big Scree Wall). Marine algae living in the protected environment of the lagoon had precipitated them.

During the Cretaceous period (130 million years ago) tectonic movements started to lift up the continental margin and the closing of the ocean began. The carbonate platform was faulted and folded and partly emerged. Extensive erosion both on the continental margin and the hinterland took place and a tremendous amount of debris was sedimented in the remaining parts of the basin as conglomerates. Huge blocks of the former platform slipped and were amalgamated and deposited within these conglomerates. Such blocks are even nowadays visible in the area of the Magura village. At the end of the Cretaceous the whole region was emerged and marine sedimentation ceased. Tectonic movements continued and relief, as we can see it today is a recent feature. One beautiful example is the up-lift, which occurred in the area 5 million years ago, forcing rivers to cut their way through hard limestone, thus creating the Zarnesti and Dambovicioara Gorges.

3.2. HABITATS

On the Park territory were identified several major types of habitats, which present on their own several divisions. For the identified habitats, their correspondents with the international classification systems (EUNIS, CORINE Land Cover, Habitats Directive and Bern Convention) are mentioned.

I EUNIS - C Inland surface water habitats; Palearctic classification – (<) 2 Non-marine waters

1. EUNIS - C1 Surface standing waters; Palaearctic classification – (=) 22 Standing freshwater; CORINE Land Cover -5.1.2. Water bodies.

2. EUNIS - C2 Surface running waters; CORINE Land Cover - 5.1.1.Water courses:

- EUNICE - C2.1 Springs, spring brooks and geysers; Palaearctic classification – (=) 54.1 Spring mires; CORINE Land Cover - 4.1.1.Inland marshes;

- EUNIS - C2.2 - Permanent non-tidal, fast, turbulent watercourses; Palaearctic classification – (>) 24.1 Rivers and streams; CORINE Land Cover - 5.1.1. Water courses;

- EUNIS - C3 Littoral zone of inland surface water bodies; Palaearctic classification – (<) 53 Water-fringe vegetation; CORINE Land Cover 4.1.1 Inland marshes, 3.3.1. Beaches, dunes, and sand plains.

II EUNIS – D Mire, bog and fen habitats; Palaearctic classification – (<) 5 Bogs and marshes.

III EUNIS – E Grassland and tall forb habitats; Palaearctic classification – (>) 3 Scrub and grassland.

1. Alpine, subalpine and mountain medows on calcareous substrat:

-EUNIS - E1.7 Non-Mediterranean dry acid and neutral closed grassland; Palaearctic classification – (=) 35.1 Atlantic closed acidophilous grasslands; CORINE Land Cover – 3.2.1 Natural grassland;

-EUNIS E4.4 Calciphilous alpine and subalpine grassland; Palaearctic classification (=) 36.4 Boreo-Alpic calciphilous alpine grasslands; CORINE Land Cover3.2.1. Natural grassland; 6170 Habitats Directive/FFH - Alpine and subalpine calcareous grasslands;

- EUNIS - E1.72/P-35.12 [Agrostis] - [Festuca] grassland (Bent - fescue grassland); Palaearctic classification = 35.12 [Agrostis]-[Festuca] grasslands CORINE Land Cover 3.2.1. Natural grassland;

-EUNIS – E2 Mesic grasslands; Palaearctic classification (=) 38 Mesophile grasslands CORINE Land Cover 2.3.1. Pastures, 3.2.1. Natural grassland;

2. EUNIS -E5 Woodland fringes and clearings and tall forb habitats; CORINE Land Cover 3.2.3., Sclerophyllous vegetation3.2.1. Natural grassland 3.2.4., Transitional woodland shrub, 3.2.2. Moors and heathland:

-EUNIS - E5.4111/P-37.711 - [Angelica archangelica] fluvial communities; Palaearctic classification = 37.711[Angelica archangelica] fluvial communities; CORINE Land Cover 3.2.1. Natural grassland; 37.711 Bern Convention Resolution 4 - [Angelica archangelica] fluvial communities;

- EUNIS - E5.58/P-37.88 - Alpine [Rumex] communities (Alpine dock communities) Palaearctic classification (=) 37.88 Alpine dock communities CORINE Land Cover 3.2.1.Natural grassland.

3. Shrubs:

- EUNIS – F Heathland, scrub and tundra habitats; Palaearctic classification (>) 3 Scrub and grassland). This category contains: - EUNIS F2.2 Evergreen alpine and subalpine heath and scrub; Palaearctic classification =31.4 Alpine and boreal heaths CORINE Land Cover 3.2.2. Moors and heathland; 4060 Habitats Directive/FFH - Alpine and Boreal heaths); - EUNIS - F2.2/P-31.424 Carpathian [Rhododendron kotschyi] heaths (Carpathian Kotschy's alpenrose heaths);

- EUNIS - F2.3/P-31.61Mountain [Alnus] brush (Mountain alder brush) Palaearctic classification (=) 31.61 Mountain alder brush; CORINE Land Cover 3.2.2. Moors and heathland;

- EUNIS - F2.4/P-31.56 Carpathian [Pinus mugo] scrub Carpathian dwarf mountain pine scrub; Palaearctic classification = 31.56 Carpathian dwarf mountain pine scrub CORINE Land Cover 3.2.2. Moors and heathland;

- EUNIS - F9.13/P-24.223 - Montane river gravel low brush; Palaearctic classification (=) 24.223 Montane river gravel low brush; CORINE Land Cover 3.2.2. Moors and heathland; 3230 Habitats Directive/FFH - Alpine rivers and their ligneous vegetation with Myricaria germanica.

IV EUNIS – G Woodland and forest habitats and other wooded land; Palaearctic classification (=) 4 Forests.

1. EUNICE -G1 Broadleaved deciduous woodland; Palearctic classification (<) 41 Broad-leaved deciduous forests, 44 Temperate riverine and swamp forests and brush; CORINE Land Cover 2.2.2. Fruit trees and berry plantations, 3.1.1. Broad-leaved forest:

- EUNIS - G1.1/P-44.21 Montane [Alnus incana] galleries (Montane grey alder galleries); Palearctic classification (=) 44.21 Montane grey alder galleries; CORINE Land Cover 3.1.1. Broad-leaved forest; *91E0 Habitats Directive/FFH - Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Pandion, Alnion incanae, Salicion albae); 44.2 Bern Convention Resolution 4 - Boreo-alpine riparian galleries;

- EUNIS - G1.6 [Fagus] woodland (Beech woodland); Palearctic classification (=) 41.1D Dacian beech forests; CORINE Land Cover 3.1.1. Broad-leaved forest;

2. EUNIS - G3 Coniferous woodland Palaearctic classification (<) 42 Temperate coniferous forests; CORINE Land Cover 3.1.2.Coniferous forest:

- EUNIS-G3.1 [Abies] and [Picea] woodland (Fir and spruce woodland), Palaearctic classification (<) 42.1 Western Palaearctic fir forests, (<) 42.2 Western Palaearcic orogenous spruce forests; CORINE Land Cover 3.1.2.Coniferous forest;

- EUNIS - G3.1/P-42.12 Calciphilous [Abies alba] forests (Calciphilous silver fir forests); Palaearctic classification (=) 42.12 Calciphile medio-European fir forests; CORINE Land Cover 3.1.2.Coniferous forest;

- EUNIS - G3.1/P-42.21 Alpine and Carpathian sub-alpine [Picea] forests (Alpine and Carpathian sub-alpine spruce forests); Palearctic classification (=) 42.21 Alpine and Carpathian subalpine spruce forests; CORINE Land Cover 3.1.2.Coniferous forest;

- EUNIS - G3.4 [Pinus sylvestris] woodland south of the taiga (Scots pine woodland south of the taiga), Palearctic classification (=) 42.5 Western Palaearctic Scots pine forests; CORINE Land Cover 3.1.2.Coniferous forest;

- EUNIS G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland (Mixed fir - spruce - beech woodland) ; Palaearctic classification (=) 43.1 Fir-beech and fir-spruce-beech forests; CORINE Land Cover3.1.3. Mixed forest.

4. EUNIS - G5 Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice ; CORINE Land Cover 3.2.4. Transitional woodland shrub, 3.2.2. Moors and heathland

- EUNIS - G5.63/P-31.8G - Coniferous scrub woodland; Palaearctic classification (=) 31.8G Coniferous scrub woodland CORINE Land Cover 3.2.2.Moors and heathland;

- EUNIS - G5.74/P-83.222(p) - Early-stage coniferous plantations; Palaearctic classification > 83.222 Shrub and dwarf tree plantations; CORINE Land Cover 3.1.2.Coniferous forest.

5. EUNIS - G5.8 Recently felled areas; Palaearctic classification =31.87 Woodland clearings CORINE Land Cover3.2.4. Transitional woodland:

- EUNIS - G5.81 - Recently felled areas, formerly broadleaved trees CORINE Land Cover3.2.4. Transitional woodland shrub;

- EUNIS - G5.82 - Recently felled areas, formerly coniferous trees; CORINE Land Cover3.2.4. Transitional woodland shrub;

- EUNIS - G5.83 - Recently felled areas, formerly mixed broadleaved and coniferous trees; CORINE Land Cover 3.2.4.Transitional woodland shrub.

V EUNIS - H Inland unvegetated or sparsely vegetated habitats; Palaearctic classification (=) 6 Inland rocks, screes and sands.

1. EUNIS - H2.4/P-61.24 Carpathian calcareous screes; CORINE Land Cover 3.3.2. Bare rock; Palaearctic classification (=) 61.24 Carpathian calcareous screes.

2. EUNIS - H3 Inland cliffs, rock pavements and outcrops; Palaearctic classification (=) 62 Inland cliffs and exposed rocks; CORINE Land Cover 3.3.2.Bare rock, 3.3.3 Sparsely vegetated areas.

3 EUNIS - H3.2F/P-86.41(p) - Disused chalk and limestone quarries; Palearctic classification (>) 86.41 Abandoned quarries; CORINE Land Cover1.3.1. Mineral extraction sites.

VI (EUNIS - H1 Terrestrial underground caves, cave systems, passages and waterbodies; Palaearctic classification (=) 65 Caves.

VII Zone cultivate

1. EUNIS –I Regularly or recently cultivated agricultural, horticultural and domestic habitats; Palaearctic classification (>) 8 Agricultural land and artificial landscapes

2. EUNIS - G1.D4/P-83.15 - Fruit orchards; Palaearctic classification (=) 83.15 Fruit orchards; CORINE Land Cover2.2.2. Fruit trees and berry plantations

VIII EUNIS - J Constructed, industrial and other artificial habitats; Palaearctic classification (>) 8 Agricultural land and artificial landscapes:

1. EUNIS - J2 Low density buildings CORINE Land Cover 1.3.3. Construction sites1.2.1. Industrial or commercial units.

2. EUNIS - J5 Highly artificial man-made waters and associated structures CORINE Land Cover 5.1.2. Water bodies, 1.2.1. Industrial or commercial units, 4.2.2. Salines, 5.1.1. Water courses; Palaearctic classification (<) 89 Industrial lagoons and reservoirs, canals.

3. EUNIS - J5.33 Water storage tanks; CORINE Land Cover 5.1.2. Water bodies.

4. EUNIS J6 Waste deposits CORINE Land Cover 1.3.2. Dump sites.

IX EUNIS – X Habitat complexes

1. EUNIS - X08 Rural mosaics, consisting of woods, hedges, pastures and crops; CORINE Land Cover 2.4.3. Land principally ccupied by agriculture, with significant areas of natural vegetation; Palaearctic classification (=) 84.4 Rural mosaics.

3.3. FLORA

The richness in flora of the Piatra Craiului National Park is a result of a variety of microclimatic conditions. Elevation over 2000 m creates favorable conditions for the whole range of mountainous and alpine Carpathian species.

Forests, rocky faces, screen slopes and marshes offer favorable conditions for a variety of plants, which are adapted to these types of habitats.

Until now more then 350 fungi species were recorded in this area. The majority of recorded species are parasitic on superior plants. In the Park area four new taxa were recorded (*Niptera plicata, Stictis pachyspora, Trichopeziza leucostoma, Ramularia sambucina f. ebuli*). It was also identified a high number of parasitic fungi - superior plant combinations which are new for science or for Romania. Even if the number of parasitic fungi is quite big, the flora health is very good. There were no massive attacks of parasite fungi. The researches financed by the Park Administration identified 184 Macromycetes species.

Lichens group is well represented in the Piatra Craiului flora. Until now more than 220 rocky lichen species were registered.

Moses and liverworts were studied since the XIX century. Until now more than 228 species were recorded, some of them having a limited specific spreading area for Romanian Carpathians – *Bucegia romanica, Riccia sorocarpa, Grimaldia pilosa.* Other are protected species according to the Habitats Directive 92/43 EEC: *Mannia triandra*, *Buxbaumia viridis*, *Sphagnum* sp.

The first documents regarding scientific botanical researches on the park's territory is dating from XVII Century. In Piatra Craiului until now about 1108 taxa of vascular plants were recorded (1001 species and 107 subspecies). These taxa belong to 91 families, the following families having the main share: Asteraceae, Poaceae, Rosaceae, Caryophyllaceae, Brassicaceae, Scrophulariaceae, Ranunculaceae, Lamiaceae, Fabaceae, Apiaceae, Cyperaceae and Orchidaceae.

Knowing that the Romanian Flora registered 3136 plant species (CIOCÂRLAN, 2000) it could be said that Piatra Craiului National Park holds 30 % of the Romanian plant species.

Among these species 150 are included in "Romanian Superior Plants Red List" being endemic, rare or vulnerable. Around 53 endemic plant species for Carpathians are known to be part of massif's flora, many of which are calcicole.

There are two strictly local endemic plant species. The most important is the Piatra Craiului's Pink - *Dianthus callizonus* (Park flag species), found only on the limestone rocks and *Aubrieta intermedia ssp. falcata* which grows on scree slopes. Carpathian endemics includes: *Achillea schurii*, *Primula wulfeniana ssp. baumgarteniana* (found only in Postavarul and Piatra Craiului Massif), *Festuca carpatica*, *Sesleria haynaldiana*, *Trisetum macrotrichum*, *Koeleria transsilvanica*, *Draba compacta*, *Hesperis moniliformis*, yellow poppy - *Papaver corona-sancti-stefani* etc. Some rare species for Romania witch are found in Piatra Craiului are: little fern - *Woodsia glabella* which grows only in Bucegi Mountais, in 2000 year being recorded for the first time in Piatra Craiului; Yew – *Taxus baccata*, Arolla pine – *Pinus cembra*, angelica – *Angelica arhangelica; Nigritella nigra* and *Nigritela rubra.* There were identified three species included in the Habitats Directive 92/43 EEC: *Ligularia sibirica, Liparis loeselii* and *Campanula serrata.* The population of *Campanula serrata* of Piatra Craiului National Park is one of the biggest and the most important population in the country.

In Piatra Craiului there are three altitudinal levels: mountainous, subalpine and alpine. Limited by the altitude and site factors, the following vegetation units have been defined for the Piatra Craiului Massif:

- Meadows, which are used by local people as hay fields. These meadows are found at the massif bases at Bârsa Valley, Dâmboviţa Valley and near the Măgura and Peştera Vilages. These hay fields have a high specific diversity. Here there are a large number of Globe Flower -*Trollius europaeus; Great Yealow Gentian – Gentiana lutea*; Fragrant Orchid - *Gymnadenia conopsea;* Common Twayblade - *Listera ovata;* Lesser Twayblade -*L. cordata;* Military Orchid - *Orchis militaris* etc.
- Forests cover a large area of the park surface. The existing forest types belong to the following formations: pure spruce (*Picea abies*), mixed fir-spruce-beech, spruce-beech stands, fir-beech, mountainous beech and pine (*Pinus sylvestris)* groups. Of a great importance and unique in Romania is the high altitude variety of semi natural Norway spruce on limestone parental strata. Forests protect many of beautiful herbaceous species: Wild Lily – *Lilium martagon*; Bird's Nest Orchid - *Neotia nidus-avis; Epipactis atrorubens; Senecio nemorensis ssp. fuchsii,* etc.
- Alpine and sub-alpine meadows.

Some of sub-alpine meadows are used for grazing for hundreds of years. Specific biodiversity is lower here. The dominant specie is *Nardus stricta.* These grazed meadows have a secondary origin, being the result of clear cutting of spruce forest and dwarf pine shrubs. In order to prevent degradation and biodiversity loss in pastures, the Park Administration will encourage some enhancement measures and sustainable grazing, which means an activity that doesn't harm the pastures and the forest surrounding them and doesn't change the flora composition, with the pasture quality and biodiversity staying the same for the future.

Alpine and sub-alpine meadows have specific limestone vegetation. Here is found *Rhododendron myrthifolium*, which occupies large areas, representing one of Massif's beauties. Other interesting plants, which are found here are: *Dianthus spiculifolius,* carnation of Piatra Craiului – *Dianthus callizonus* (Park's flag species), *Kernera saxatilis, Campanula carpatica* etc.

- Vegetation around alpine gorges and gullies grows in specific conditions, like rich humus soils, diffused light and moistness. Here are found: *Delphinium elatum, Hesperis moniliformis, Heracleum palmatum, Adenostyles orientalis*, *Doronicum carpaticum,* etc.
- Scree slopes, which are situated at the base of rocky walls are frequent in Piatra Craiului. They are found in different stages: mobile scree slopes almost bare; semi-fixed and almost fixed. There are some characteristic vegetal associations, which mark the transition between these stages. Here grow some interesting plants: *Linaria alpina, Aubrieta intermedia ssp. falcata,* Yellow poppy - *Papaver corona-sancti- stefani, Silene alpina, Arabidopsis arenosa,* Edleweiss - *Leontopodium alpinum,* etc.
- Dwarf pine shrubs (*Pinus mugo*), which cover almost 400 ha.
- Alpine crest and lateral walls support a characteristic alpine vegetation. Here we mention some characteristic species: *Eritrichium nanum, Draba kotschyi, Viola alpina, Saxifraga moschata, Dryas octopetala, Minuartia gerardii*, *Cerastium transilvanicum*, *Leuchorchis albida*, *Nigritella rubra* etc.

Because of high calcareous walls, vegetation can survive only in rock fissures. Here is found a characteristic flora according to each particular vegetation level.

Riparian alder woodland (*Alnus incana* and *Alnus glutinosa*) are found on sides of some valleys and rivers. These contains specific hygrophytic flora.

3.4. FAUNA

Invertebrates fauna is very rich being important from the scientific point of view.

On the park's territory there are about 35 endemic invertebrates species. There were described 91 invertabrates species new for science on park's teritorry starting with the end of XIX th Century. We mention here two endemic species for Piatra Craiului: *Nesticus constantinescui* (Arahnida) and *Rhagidia carpatica* (Arahnida, Acari). Here are found also some rare species: *Octodrilus exacystis* (Oligocheta, Lumbricidae), endemic for Transylvania and sub Carpathian zones of Muntenia and Moldavia; *Sclerophaedon carpaticus* (Coleoptera, Chrysomelidae), endemic for Oriental and Meridional Carpathians section.

Until now more than 250 butterfly species were identified on the park's area belonging at 22 families. *Psodos coracinus dioszeghy*, endemic sub-specie to alpine meadows at altitudes greater than 2000 m; *Apamea zeta sandorokovacsi*, endemic sub-specie for Carpathians; *Erebia pronoe*, which is found in Carpathians only in Piatra Craiului and Bucegi Mountain; *Pieris bryoniae* which is a protected specie according to the „Butterflies European Red List" etc.

In Piatra Craiului National Park, water courses are reduced. Aquatic fauna consists of invertebrates and 10 fish species: miller's thumb - *Cotus gobio*; trout – *Salmo trutta* etc.

Batrachians and reptile fauna is still insufficiently known. Here are some frog and toad species: salamander – *Salamandra salamandra*; newts – *Triturus cristatus cristatus* (protected species according to the Habitate Directive 92/43 EEC), mountain triton - *T. alpestris alpestris*; red mountain frog – *Rana temporaria temporaria*; *Bombina variegata variegata* (Habitat Directive protected species); *Bufo bufo*, etc. We mention here some reptile species: mountain viper – *Vipera berus berus*; *Natrix natrix*; nut tree snake – *Coronella austriaca austriaca*; *Anguis fragilis*; mountain lizard - *Lacerta vivipara*; *L. agilis agilis*; green lizard - *L. viridis viridis*; wals lizard – *Podarcis muralis*, etc. According to the Bern Convention and the Romanian law (annex 3 of law nr. 13/ 11 March 1993) all batrachians and reptiles species are protected.

Until now 110 bird species were identified. Fifty species are strictly protected according to the Bern Convention and the Romanian law (annex 3 of low nr. 13/ 11 March 1993), six are included in the Bonn Convention (law nr. 13/ 8 Jan. 1998).

In the present here are a small number of Golden Eagle - *Aquila chrysaetos.* Other raptors found on Park territory are: Lesser Spotted Eagle – *Aquila pomarina*; Buzzard – *Buteo buteo*; Goshawk - *Accipiter gentilis*; Sparrowhawk – *A. nisus*; Hobby – *Falco subbuteo*; Peregrine - *F. peregrinus*; Kestrel - *F. tinunculus*; Little Owl - *Athene noctua* etc. Rocky areas and canyons are populated by: Wall-creeper - *Tichodroma muraria,* a rare specie; Alpine Accentor - *Prunella collaris*; Swift - *Apus apus*; Alpine swift - *Apus melba*; Rock Trush – *Monticola saxatilis*; House Martin - *Delichion urbica* etc. Fir-spruce-beech forests, bushes and meadows support a big number of bird species: Coal Tit – *Parus ater*; Willow Tit - *P. montanus*; Crested Tit - *P. cristatus*; Nutcracker – *Nucifraga caryocatactes*; Black Woodpecker – *Dryocopus martius*; Red-backed Shrike – *Lanius collurio*; Wren – *Troglodytes troglodytes*; Raven – *Corvus corax*; Ring Ouzel – *Turdus torquatus* etc. There are also some game species: Capercaillie – *Tetrao urogallus*; Hazel Hen – *Bonasia bonasia* etc. Near rivers live: Pied Wagtail – *Motacilla alba*; Grey Wagtail – *M. cinerea*; Yellow Wagtail – *M. flava*; Dipper - *Cinclus cinclus* etc. Here is found White Stork - *Ciconia ciconia* which nests in the localities near park boundaries and comes to feed on Park meadows.

Until now 18 bat species were identified, which live in caves or old trees hollows. Fourteen species are strictly protected (Bern Convention), 6 species are included in the Habitat Directive 92/43 EEC (*Rhinolophus ferrumequinum, R. euriale, Myotis bechsteinii, M. blythii, M. myotys, Barbastella barbastellus*) and one specie - *Vespertilio murinus* is included in the Bonn Convention. It must be mentioned that all bat species are protected according to the Romanian law (law nr. 90/ 10 May 2000).

Piatra Craiului National Park has a healthy population of large carnivores: bear – *Ursus arctos*; wolf – *Canis lupus*; lynx – *Lynx lynx*. A study supported by the Park Administration pointed out the existence of three migration passages of these species between the Piatra Craiului Massif and the Bucegi Mountains. These zones will receive a special protection regime by forbidding the development of new constructions which could block the access of wildlife along corridors. Roe dear - *Capreolus capreolus* is found at the base of the mountain, and in the last two decades red dear - *Cervus elaphus* has colonized the mountain. In the present population of chamois - *Rupicapra rupicapra* is documented at about 120 individuals. Subsequently, there has been a severe decline in the

population due to hunting, poaching, trapping and habitat destruction in the past. Other species found in the Park are: wild boar - *Sus scrofa;* badger - *Meles meles*; marten – *Martes martes*; rocky marten – *M. foina*; wild cat – *Felix silvestris*; otter - *Lutra lutra* etc.

There are about 16 fauna species included in the IUCN Red list of threatened species as vulnerable (*Barbastella barbastellus, Parnasius apllo, Rosalia alpina* etc.) lower risk (*Rinolophus ferrumequinum, Muscardiniun avelanarius)* or not threatened (*Sciurus vulgaris*).

3.5. LANDSCAPE

The main landscape from Piatra Craiului may be considered the limestone massif surrounded by forests and pastureland with some patches of human appearance (spread villages with specific dwellings).

The main landscape units are:

- The impressive limestone ridge, with altitudes over 2000m on 25 km length;
- Alpine rocky meadows, with calcicoles plant species and dwarf pine islands, real jewelers of the Park. During the summer time here appear the human element (shepherds and sheep herds);
- Limestone scree slopes, with a rare beauty, specific to the Piatra Craiului;
- Beech, mixed, and coniferous stands, which often reach the rocky areas;
- Hay fields at the bottom of the massif;
- Anthropoid landscape - Peştera and Măgura villages with their spreaded houses and traditional dwellings.

Because of its almost unaffected natural landscape, Piatra Craiului National Park is important also for the Paneuropean Landscape Convention (low nr. nr. 451/8 of July 2002).

4. CULTURAL HERITAGE AND SOCIO-ECONOMIC CONTEXT

4.1 CULTURAL HERITAGE

The localities nearby the Park are represented by Zarnesti town and the communes: Bran, Moieciu, Fundata on the Brasov county district and Dambovicioara, Rucar on the Arges county district territory.

Zarnesti. On the Zarnesti territory were found two tombstones and some bricks whose surfaces were stamped with the 13th Legion (Gemina) stamp. Another important discovers is represented by the monetary thesaurus found at Zarnesti-Bran, composed of small bronze coins dating since III-IV centuries A.C., having on them the effigy of several Romans emperors.

The local story is talking about the existence of „Villa Zernensis", which comes from a shepherd called „Zerne", and whose son would have formed a settlement named „ Zerne's village" in the memory of his father.

At the beginning of the last millennium Transylvania was composed of small principalities and became an easy pray for the Hungarian invasion.

The XIII-XIV centuries includes the period of Saxon colonization in Transylvania, Banat, respective Barsa country and the first Tohan historic attestation (1294), respective Zarnesti (1367) under „Tuhan" and „Zernehaza" names. The new Tohan is documentary attested only in 1769 and it appears as result of the inhabitants' expulsion from their home because they didn't want to change their ancient religion.

The Middle Age is marked by several invasions in Barsa Country, which didn't avoid Zarnesti and Tohan localities. The interest of the great Hungarian and Saxons land owners to take possession the localities above mentioned until the 16th when they were took over by the Brasov City is also recorded.

The first Turkish invasion in Barsa Country took place in 1421 when Tohan and Zarnesti villages were set on fire. The population withdrew in the area of the actual „Chiliilor Crags" hermitage is located. More invasions took place after that, the population was withdrawing from the invaders' way.

In 1660 the inhabitants from the area supported Gheorghe Rakoczi at the Bran Castle conquest. The last Turkish incursion was in 1690 when took place "The Zarnesti Battle"

In 1848 the Romanians from Barsa Country were also rising for equals rights with the other privileged minorities. The Revolution had a beneficent effect on the Romanians from Transylvania, because of the serfdom abolition in the Austrian Empire.

The youth from Zarnesti will participate too at the events between 1877-1878 against the Ottoman Empire.

The First World War sprawled its destroying tentacles over this settlements. Now is falling martyr dr. Ioan Senchea.

The interwar period is characterised trough stability, peace and economic prosperity, reaching the peak in 1938.

The Second World War takes off many young people from the locality, and others will be taken prisoners.

Zarnesti town belongs to the Barsa Country ethnographic area, closed and very similar with Bran one's. Between the traditional occupations we mention the grazing, which was uninterruptedly practiced by the precursors. The agriculture became a prevailing occupation of the local people, assuring them a decent living.

Peştera Măgura and Şirnea. The oldest traces of the human presence in the village's area are dating since the Palaeolithic being represented by silex tools. There are discovered also from the post-Roman epoch ceramics remains. In 1373 in a list are mentioned too the villages: Zbarcioara, Coacaza and Sirnea. The strategic role of the area is emphasized also by the construction in the 14th century of the Bran castle. h

In 1651 Gheorghe Rakoczi assigned to the people from Brasov the Bran fortress and domain. Trough this act Brasov town becomes the owner of the villages belonging to the Bran castle. The entering of Transylvania under the domination of the Habsburg Empire will have influences on the Bran villages, especially regarding harden of the fiscal system. The revolution from 1848 conducted to the removal of the lord of the castle and the take over of the power by the representatives of the local people. Now the serfhood is also abolished. The belonging villages will pass to several districts.

From 1968 the villages Magura and Pestera belongs to the Moieciu commune, and Sirnea to the Fundata commune.

Referring to the types of houses that we meet in these localities, there are two room hoses (with a single entrance, with entrance hall and "house"), three room houses (median entrance hall, house and the big house), houses with four and more rooms, as well as two floors houses. Talking about construction materials the wood is preponderantly used, the houses being built with horizontals joists, and stonework as foundation (at the newer from cement). The joists are hatched carved on two or four faces. Later bricks will be used for the walls. For the roof shingle has been largely used, and in the last time the tile.

Between the main occupation of the people we remember: animals breeding, pastoral products processing, logging and recently the agro-tourism.

Rucăr. The oldest traces of the human presence within the locality territory are dating since the Romans domination in Dacia, at Rucar being built a destroyed „castellum" during the 117-118 A. C. events. The oldest attestation for the Rucar was recorded in 1377. Rucar was the witness of the frequent armies passing through towards Transylvania, or from here towards Vallachia (Vlad Tepes in 1459 towards Transylvania, Stefan Bathory in 1476 towards Vallachia, Mihnea the third at 1658 etc.). On the village territory took place the struggles between Radu from Afumati and the Turks. Sigismud Bathory has made a halt with his army at Rucar for a week. There are well known in the village the traces of Tudor Vladimirescu revolt from 1821. A part of Ipsilanti and Tudor's army has been living for a while on the Rucar territory. In 1848 the provisory government was withdrawn here. The independence war asked a lot of victims from Rucar also. During peace times Rucar was disposing of a frontier guard team for the frontier and gorge guarding. In1916 in Rucar came several military formations and they built many strategic roads, enabling in this way the ammunition and military equipments transport.

After bitterness street fights, the fifth alpine brigade occupied Rucar on the 1st of October 1916. During the 2nd of October in Rucar entered the 76th german division. A significant pat of the village was destroyed by the german cannons. 148 houses were destroyed and burned. In memory of the fallen

youngs in war a monument was set up in the center of the locality nearby the national road Rucar-Brasov.

Ethno-cultural specific

The popular architecture specific to the Muscel area is relevant for the characterization of the seventeenth century Rucar architecture. The hoses were built "after the valachian's tradition" with overlapped logs and pointed wooden roofs "in gutter" trough the smoke was exhausting, because the hoses had no chimneys.

The joists were "joined" and wooden nailed. The four faces roof was pointed or flat. The houses were plastered with white clay. The general plan of the dwellings was composed of: the entrance hall, the pantry and the living room.

At the end of the nineteenth century the two floors hose type was generated. The cellar was at the ground floor and the living rooms at the first floor. The interior organisation points out the existence of a domestic textile industry within the majority of the locality women were involved. Popular technical installations were functioning between the world wars on the Dambovita River at Valea Cheii and on the Rausor River.

At the end of the nineteenth century in the vocational school were making bottom drawers, which were competing with those, made at Brasov. In the weekly fair (on Sunday) were retailing textile domestic industry products: national costumes, carpets etc.

Rucar national costume impressed with its authenticity an unrivalled beauty the greats painters like Nicolae Grigorescu, as well as Nicolae Iorga, who in „Sights from the country" was recording a specific image of Rucar at the beginning of the last century: „thick black long coats peasants and sewn sleeveless sheepskin, peasant women whose butterflies and ornaments richness was partially covered by brown mantles, some of them are scapegrace wearing a man little hat on the fine white which wrap up their swarthy faces." Alexandru Vlahuta was also recording in „Romania pitoreasca": „Rucar women costumes genuine Romanian, sewn, manufactured and flourished by their own hands with a master ship that even themselves don't know from where they learnt it."

4.2 SOCIO-ECONOMIC CONTEXT

The population (1999 census data) for the major communities inside and nearby the Park is: Zărneşti town- 26,616 inhabitants, Măgura village (Moeciu commune)- 691, Peştera village (Moeciu commune)- 682, Fundata commune- 1005, Dâmbovicioara commune-1286 and Rucăr commune-6513. From these localities only Măgura and Peştera villages are located inside the Park boundaries.

Zărneşti town had been the most important industrial force in the area with pulp factory, mechanical works and wood processing facility. Nowadays the local industry has collapsed and the local population is facing a sheer unemployment phenomena. Fortunately in the last three years an important tourist activity raised. The number of the pensions increased and the local investors perceived that important resources for benefits are the tourist activities. The presence of the Park nearby contributed also to this development. Any way the actual status of such activities in Zărneşti are far away from the level achieved by the Moeciu Bran area. Other important economic activities are wood harvesting and processing and small manufacture, but at a lower level comparing with a decade ago. The local people are also involved in an extensive agriculture. There are no large agricultural exploitations, these activities having a subsidence character.

In the villages inside the Parks the main activities are the agricultural exploitations but at a lower level comparing with Zărneşti town, due to the harsh relief and climate conditions. The sheep and cattle breeding is very traditional the most part of the pasturelands located in the northern part of the Park being owned by these localities or by their local owner associations. The livestock is conducted in the springtime up in the mountains and it returns in September. This phenomenon is very traditional. During the winter time the livestock is fed with hay in very specific stables ("hodăi"). These are built from natural rocks and give to the landscape a very archaic view. The cheese produced in this area (especially that which is preserved in Norway spruce bark) is very appreciated. Due to the difficult access in the area there are only few pensions, but during the last years the phenomenon of private vacation houses raised. Each house has here a very large yard, which confers an important sensation of space and quite.

Şirnea village, which belongs to the Fundata commune, is one of the oldest tourist villages in Romania. The landscape is similar with Măgura and Peştera one's being dominated by the Piatra Craiului and Bucegi Mountains. The main activities of the local population are similar with those from

the above-mentioned villages, but the access by car is facile, that helping a more intensive tourist activities.

Dâmbovicioara and Rucăr communes are more crowded in terms of dwellings but the tourist activities are more intensive comparing with Zărneşti and Măgura-Peştera areas. Orchards, hay fields and other small patches for agriculture are also common. The sheep breeding is traditional with the same movements of herds during the year. The smoked dry cheese is well known in Romania. Small-scale logging and timber production facilities are present in the area. The rural tourism is developed, but the area potential is not enough exploited. Some of the local pensions are members of the Romanian Association of Rural, Ecological and Cultural Tourism.

In all the localities are secondary schools. In Zărneşti and Rucăr there are highschools.

Some of the labor forces from these localities are allocated to the large towns from vicinity (Braşov and Câmpulung).

5. EDUCATIONAL AND SCIENTIFIC INTEREST

Even the territory of the Piatra Craiului National park was a subject for many scientific researches since the XVII Century, the scientific interest increased after 1999. The park administration financed scientific researches on the park territory started with 2000. From 2000 to 2003 more then 70 scientific papers regarding park's geomorphology, geology, flora and fauna were published.

There are also, in preparation 12 phd thesis regarding park's geomorphology, geology, flora and fauna

In 2002, an environmental educational manual and pupils magazine were issued. The manual is thought in fifteen schools from the localities nearby the park but also in large cities like Brasov. Twice a year there are organized summer and winter ecological camps with the pupils involved in the above-mentioned educational programme. In each school where the manual is implemented there are ecological clubs.

The park administration organizes guided tour with tourist on various topics (wildlife and flora observing, backpack riding, hiking, horseback riding, cross country ski etc).

This year the first ecological trail was inaugurated.

The construction of the Zarnesti Visitor Centre has begun in august this year. The construction will contain: exhibition spaces, a small museum, a conference room, a classroom, administrative spaces and accommodation facilities.

6. SITE DESCRIPTION

6.1. VULNERABILITY

The specific identified threats on park's biodiversity are: overgrazing, uncontrolled tourism, illegal deforestation/timber removal, invasive species – just weeds following over-grazing, illegal hunting, holyday houses construction in the park's vicinity different natural factors and possible future problems - pollution and climate change.

6.2. PROTECTION STATUS

Piatra Craiului National Park designation had the following flow in terms of legislation:

- Piatra Craiului legally became a nature reserve on March 28, 1938 (National Gazette, 1938). The Romanian Council of Ministers had taken the decision to establish it because of "the unique character of the massif where rare species such as *Dianthus callizonus, Hesperis nivea, Minuatia trassilvanica, Leontopodium alpinum* are found, as well as of the beauty of the landscape features". In 1938, when the nature reserve was established, only 440 ha were considered for conservation. By 1972 this area had increased to 900 ha and today there are 4776 ha (the special conservation area), with a protected landscape area around which comprise 9997 ha.

- In 1952 (the year of the first registered forest management plan for Piatra Craiului), about 17.2 percent of the total massif surface was considered for conservation. According to this and the subsequent forest management plans, only indigenous species of local provenance have been used in the regeneration process.

- In 1990 along with other twelve protected areas, a Ministerial Order proclaimed Piatra Craiului National Park. The first park administration was set up in November 1999, through a project financed by The World Bank (GEF), The Romanian Government and The Romanian National Forest Authority.
- In 2000, the Law No. 5 for the approval of the national territory arrangement Plan - Section III - protected areas- extends the area of the Piatra Craiului National Park to 14,800 hectares;
- In 2003, the Government Ordinance nr. 230/2003 stipulates the external boundaries of the Park;
- In 2003, the Ministerial Order 552 establishes the internal zoning of the Park.

Within the Park there is a special conservation area -4476ha; 638 ha out of this are scientific reserve. The special conservation area includes also four karst areas: Prăpăstiile Zărneştilor, Cheile Dâmbovicioarei, Cheile Dâmboviţei and Cheile Brusturetului as well ad an area with nature monument status (Bats Cave). The rest of the surface (9,997 ha) represents the protected landscape area.

Within the special conservation area only the following activities are allowed: scientific and educative activities, controlled tourism, grazing activities with the livestock from the communities nearby the park, fire extinction, protection measures for habitats, flora and fauna species, insects over braking and other calamities extinction.

In addition to the activities mentioned above, in the protected landscape area the following activities are allowed: sustainable use of renewable resources by low impact technologies, tending of stands, conservation felling, sanitary cutting, reproduction methods based on natural regeneration, other activities approved by the park administration and the scientific council, which don't jeopardize the environment.

Trough the LIFE project five NATURA 2000 sites will be designated within the park: Cheile Brusturetului (Brusturetului Gorges-255,7 ha), Cheile Dâmbovicioarei (Dâmbovicioarei Gorges- 248,4 ha), Cheile Mari ale Dambovitei (Great Dâmbovita Gorges- 752,8 ha), Piatra Craiului Ridge and Bârsa Valley- 2360 ha and Prăpăstiile Zărneştilor (Zărneşti Gorges- 118 ha).

6.3. OWNERSHIP

The forest from the Park is in majority state owned but there is also forest in the property of the local commune halls, churches, individuals and local associations. Local associations and the commune halls own the hay fields and pasturelands. The land inside the localities is owned by individuals or by local authorities. Watercourses are owned by the state as well as the rocky faces.

Ownership category	Owner	Percentage
Forest	State	39.62
Forest	Commune Halls	4.60
Forest	Churches	0.60
Forest	Local associations	9.20
Forest	Individuals	12.70
Hay field	Individuals	19.88
Pastureland	Local associations	4.00
Within the built up area	Individuals and local authorities	2.60
Rocky faces	State	2.58
Rocky faces	Local associations	4.22
Water stream	State	-
Arable	Individuals and local authorities	-
Total		**100**

6.4. DOCUMENTATION

Relevant publications and scientific data concerning Piatra Craiului National Park

1. ALEXIU V. & STANCU D., 2003, Carici remotae-Calthetum laethae Coldea (1972) 1978 ligularietosum sibiricae nova subass. in the Brusturet Gorges (Piatra Craiului), in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 94-97, Ed. Phoenix, Braşov.
2. ALEXIU V., 1998: *Les Gorges de calcaire comme refuge de la flore preglaciaire des Carpates roumaines: importance scientifique et conservation.* Guide de la deuxieme excursion internationale de phytosociologie en Roumanie (5-10 iulie 1998), Piteşti.
3. ALEXIU V., 1998: *Vegetaţia Masivului Iezer-Păpuşa. Studiu fitocenologic.* Ed.Cultura, Piteşti.
4. ALEXIU V., 2003, Characterisation of the flora and vegetation of the upper stream of Dâmboviţa, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 100-118, Ed. Phoenix, Braşov.
5. ALEXIU, V., 1998: *Rezervaţii şi monumente ale naturii din judeţul Argeş*. Editura Cultura, Piteşti.
6. BAUMGARTEN, J.G.G., 1864: *Enumeratio stirpium magno Transilvaniae Principatui*, 1-3(4**)**, Vindobonae: Libraria Comensinae.
7. BELDIE, A. & CRETZOIU, P., 1937: Câteva plante interesante din flora Muntilor Bucegi şi Piatra Craiului, *Acta pro Fauna et Flora Univ*., seria II, **2**: 14-16.
8. BELDIE, A., 1952: Vegetatia Masivului Piatra Craiului, *Bul. şt. biol., agron., geol., geogr*., 4(4): 999-1029, Ed. Acad. Române, Bucureşti..
9. BOROS, Á. & VAJDA, L. 1967: Bryologische Beiträge zur Kenntnis der Flora Transsilvaniensis. *Rev. Bryol. Liche nol.* 35(1-4): 216-253.
10. BOŞCAIU, N, & al, 1994: Lista Rosie a plantelor vasculare disparute, periclitate, vulnerabile şi rare din flora Romaniei, *Ocrot. Nat. med. Inconj*., t. 38, nr. 1, 45-56, Bucuresti.
11. BOŞCAIU, N. & TAUBER F., 1977: Asociaţii vegetale petrofile şi rupicole din Munţii Piatra Craiului,(I), *Stud. com.oOcrot. nat*., 265-271, Suceava.
12. BRĂDESCU V., 2003, An enthomological synthesis (Family Syrphydae) for Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 178-180, Ed. Phoenix, Braşov.
13. BRĂDESCU, V., 1991: Les Syrphides de Roumanie (Diptera, Syrphidae). Clés de détermination et répartition. Travaux du Muséum d'Histoire naturelle "Grigore Antipa", 31: 7-83, Bucharest.
14. BRĂDESCU, VL., 1991: Les Syrphides de Roumanie (Diptera: Syrphidae). Clés de détermination et répartition. *Trav. Mus. Hist. Nat. "Grigore Antipa*", 31: 7 – 83, Bucureşti.
15. BRANDZA, D, 1898: Contribuţiuni noue la Flora României, *Analele Acad. Române*, seria 2, 11: 1-34, Bucureşti.
16. CHIRA D. & CHIRA F., 2003, Wood fungi influence in a Norway spruce stand affected by windfall in Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 50-53, Ed. Phoenix, Braşov.
17. CIOCÂRLAN V. & POP O., 2003, Annotations on the Piatra Craiului Massif Flora, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 98-99, Ed. Phoenix, Braşov.
18. CIOCÂRLAN V. & POP O., 2003, Woodsia pulchella Bertol. in Romanian Flora, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 84-86, Ed. Phoenix, Braşov.
19. CIOCÂRLAN, V., 1961: O specie nouă pentru flora R.P.R.: Aubrieta intermedia Heldr. & Orph., *Lucr. Şt. Inst. Agronomic Bucureşti*, Seria B, 5: 399-403.

20. COCA, S., 1997: *Avenul de sub Colţii Grindului (-540 m)- deepest cave in Romania*, Proceding of the 12th International Congres of the Speleology. 87-90, Switzerland.

21. COCA, S., 2001: *Avenul de sub Colţii Grindului.* EcoCarst, 1, 20-21.

22. COCA, S.,1997: *Avenul de sub Coltii Grindului (-540 m) - deepest cave in Romania.* Proceedings of the 12 th International Congress of the Speology, Switzerland, 4, 87-90,

23. CONSTANDT K., POP O. & SARAZIN A., 2003, New pteridophyte records for Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 87-93, Ed. Phoenix, Braşov.

24. CONSTANTINESCU, T, 1980: *Le karst de Piatra Craiului. Note I,* Trav. Inst.Spéol.„Emile Racovitza“, XIX, Edit. Academiei, 203-217, Bucureşti.

25. CONSTANTINESCU, T., 1973: *Considérations géomorphologiques et spéologiques sur la partie septentrionale du Massif de Piatra Craiului.* Trav. Inst. Spéol."Emile Racovitza“, XII, Ed. .Academiei, 297-302, Bucureşti.

26. CONSTANTINESCU, T., 1976: *Le karst de Pietricica (Massif de Piatra Craiului-Carpates Méridionales).* Trav. Inst. Spéol.“Emile Racovitza“, XV, Edit. Academiei, 233-245, Bucureşti.

27. CONSTANTINESCU, T., 1977: *Évolution du réseau hydrographique de la zone karstique Prăpăstiile Zărneştilor,* Trav. Inst. Spéol. “Emile Racovitza“, XVI, Edit. Academiei, 217-228, Bucureşti.

28. CONSTANTINESCU, T., 1984, b: *Carte de la circulation des eaux souterraines dans Le Massif de Piatra Craiului,* Trav. Inst. Spéol. “Emile Racovitza“, XXIII, Edit. Acdemiei, 75-79, Bucureşti.

29. CONSTANTINESCU, T., 1984,a: *Le Massif de Piatra Craiului. Genèse et l'évolution des torrents des versants nord-ouest et nord; glaciation pléistocene,*Theoret. and Appl.Karst., 1, Ed. Academiei, 99-106, Bucureşti.

30. CONSTANTINESCU, T., 1984: *Le Massif de Piatra Craiului. Genèse et évolution des torrents des versants nord-ouest et nord ; Glaciation Pléistocène.* Theor.and Appl.Karst., 1, 99-106.

31. CONSTANTINESCU, T., 1985: *Évolution du réseau hydrographique du Couloir de Dâmbovicioara.Genèse et l' évolution de la Vallée de Dâmbovicioara,*Theoret.and Appl. Karst., 2, Ed. Academiei, 55-64, Bucureşti.

32. CONSTANTINESCU, T., 1987: *Évolution du réseau hydrographique du Couloir de Dâmbovicioara. Note 2. Genèse et l" évolution de la Vallée Dâmboviţa.* Theoret.and Appl. Karst.,4, Ed. Academiei, 117-126, Bucureşti.

33. CONSTANTINESCU, T., 1992: *Évolution du réseau hydrographique du Couloir de Dâmbovicioara.Note 3,* Theoret. and Appl. Karst., 5, Edit. Academiei, 67-81, Bucureşti.

34. CONSTANTINESCU, T., 1992: *Massif de Piatra Craiului. Particularités morphogénetiques. Sous-unités karstiques,* Trav. Inst. Spéol."Emile Racovitza",XXXI, Ed. Academiei, 139-150, Bucuresti.

35. CONSTANTINESCU, T., 1994: *Masivul Piatra Craiului. Studiu geomorfoloic,* the abstract of Phd thesis,. Bucureşti Univ,. de Geogrphy Fac, 1-26, Bucuresti.

36. CONSTANTINESCU, T., 1994: *Masivul Piatra Craiului. Studiu geomorfologic.* The abstract of Phd thesis, 18-19.

37. CONSTANTINESCU, T., 1994: *Masivul Piatra Craiului-studiu geomorphologic* (teză de doctorat), Facultatea de Geografie, Bucureşti.

38. CONSTANTINESCU, T., 1996: *Le karst de Piatra Craiului (1). Particularités des composants géosyatémiques.* Trav. Inst. Spéol. "Emile Racovitza", XXXV, 201-220.

39. CONSTANTINESCU, T., 1996: *Le Karst de Piatra Craiului. Particularités des composants géosystémiques (1).,* Trav.Inst.Spéol, "Emile Racovitza", XXXV, Edit.Academiei, 201-220, Bucureşti.

40. CONSTANTINESCU, T., 1996: *Masivul Piatra Craiului. Particularităţile reliefului,* Ocrot. Nat. şi Med. Înconj., Edit. Acad. Rom., 35-46, Bucureşti.

41. CONSTANTINESCU, T., 1997: *Le karst de Piatra Craiului (2). L'Exokarst.* Trav. Inst.Spéol. "Emile Racovitza", XXXVI, 208-222.

42. CONSTANTINESCU, T., 1997: *Le karst de Pietricica (Massif de Piatra Craiului, Carpates Méridionales)*, Trav. Inst. Spéol. "Émile Racovitza", XV, 233-245, 1976.

43. CONSTANTINESCU, T., 1998-1999: *Le karst de Piatra Craiului (3). L'Endokarst.* Trav. Inst. Spéol. "Emile Racovitza", XXXVII-XXXVIII, 45-59.

44. CONSTANTINESCU, T., 2000: Masivul Piatra Craiului – harta carstului, EcoCarst**, 1**: 16-19, Soc. Română de Speologie şi Carstologie, Bucureşti.

45. CONSTANTINESCU, T., 2000: *Masivul Piatra Craiului. Relieful periglaciar*, Comunicări de Geografie, 4, 35-38, Bucureşti.

46. CONSTSNTINESCU, T., 1997: *Masivul Piatra Craiului. Relieful structural,* Comunicări de Geografie, 1, 27-30, Bucureşti.

47. CONSTANTINESCU T. & PIŢIGOI R., 2003, The main types of relief of Piatra Craiului Ridge, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 13-34, Ed. Phoenix, Braşov.

48. CONSTANTINESCU T., 2003, The Pleistocene glaciation and the avens of Piatra Craiului Ridge, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 35-42, Ed. Phoenix, Braşov.

49. CRISTEA, E., 1971: *Piatra Craiului. Turism-Alpinism,* Ed. Sport-Turism, 232, 323-331.

50. CRISTIAN-COMES, I. & TAUBER, F., 1976: Ceno-corologia tisei (Taxus baccata L.) in Piatra Craiului, *Ocrot. nat. şi med. inconj*., t. 21, nr. 1: 27-32, Bucuresti.

51. DEACONU S., 2003, Observation on rodent species in the northern side of Piatra Craiului Massif, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1,315-319, Ed. Phoenix, Braşov.

52. DIHORU G., ŞTEFĂNUŢ S., WALFISH R & POP O., 2003, Bryophites Flora of the Piatra Craiului Massif, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 68-83, Ed. Phoenix, Braşov.

53. DRĂGHICI, B., 1979: *Flora şi vegetatia vaii Dambovicioarei şi a versantului estic al Pietrei Craiului* , Teza de doctorat, Bucuresti.

54. DRĂGHICI, B., 1980, Analiza florei vasculare din Valea Dambovicioarei şi a versantului estic al Pietrei Craiului , *Bul. şt. Al Facultăţii de Învăţământ Pedagogic*, 467-474, Piteşti.

55. FENERU F., GHIURCĂ D., LENGYEL P., FENERU M. & MUNTEANU A., 2003, A pilot bird survey in Piatra Craiului National Park, 2001-2002, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 277-288, Ed. Phoenix, Braşov.

56. FUSS, M., 1966: *Flora Transilvaniae excursoria*, Cibinii, G. de Closius.

57. GHEORGHIU V., GIURGINCA A., CAPAC C. & NISTOR V., 2003, Preliminary data on the presence of Myotys myotis and Myotys blythii in Avenul de sub Colţii Grindului 2020 m altitude - Romania (Chiroptera, Vespertilionidae), in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 307-314, Ed. Phoenix, Braşov.

58. GHIURCĂ D., MUNTEANU A. & FENERU F., 2003, Some herpetological observations in Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 273-274, Ed. Phoenix, Braşov.

59. GUŞĂ D.N., 2003, Some systematic and ecological data regarding snout beetles fauna (Coleoptera, Curculionidae) of Piatra Craiului National Park (Braşov County), in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 262-266, Ed. Phoenix, Braşov.

60. GUTT, W.F, 2002: Piatra Craiului. Repere în cunoaşterea unui masiv cartstic, *EcoCarst*, 3: 24-25, Soc. Română de Speologie şi Carstologie, Bucureşti.

61. HAUER, F.B., 1863:Geologie Siebenbürgens Herausgegeben von dem vereine für Siebenbürgishen Landeskunde, Wilhelm Braumüller, Wien.

62. HONCIUC V., & STĂNESCU M., 2003, Acarian fauna (Mesostigmata, Prostigmata, Oribatida) of Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 159-169, Ed. Phoenix, Braşov.

63. IFTIME A., 2003, Contribution to the knowledge of the ichtiofauna and herpetofauna of Piatra Craiului National Park and its surrounding areas, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 267-272, Ed. Phoenix, Braşov.

64. IONESCU D.T. & DRĂGHICI M., 2003, Some ornithological observations in Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 275-276, Ed. Phoenix, Braşov.

65. IONESCU O., PREDOIU G. & IONESCU G., 2003, Large carnivores movement corridors between Piatra Craiului and Bucegi Mountains, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 301-306, Ed. Phoenix, Braşov.

66. IORAŞ F.I., 2003, The implications of domestic grazing on ground vegetation in high altitude Norway spruce forest in the Piatra Craiului Massif, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 142-149, Ed. Phoenix, Braşov.

67. IORAŞ, F., 2002: The implication of domestic grazing on ground vegetation in high altitude Norway spruce forest in the Piatra Craiului Massif, *Research in Piatra Craiului National Park,* 1, (în curs de publicare).

68. IORAŞ, F., RENDER, M., VOICULEŢ, M. & VERGHELEŢ, M. 2000: Analize şi soluti provind reducerea efectelor paşunatului in paşunile şi arboretele de altitudine din Piatra Craiului (Community Forestry, a viable management solution to reduce the ecological impact of livestock grazing at high altitude in Romania). *Revista de Silvicultura*, Anul V, Nr. 1-2 (11-12) Brasov.

69. JALBĂ A, 2003, The species composition, phenology and trophic structure of Macromycetes of Piatra Craiului Massif, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 54-62, Ed. Phoenix, Braşov.

70. KOTSCHY, T., 1853: Beitrage zur Kenntniss des Alpenlandes in Sibenbürgen, 1-32, Wien.

71. LEPĂDATU I., 1998, Vechile aşezări bârsene, Braşov.

72. LIPAN D., 2003, A method of exploiting existing descriptive data about the forests and integrating them in the GIS, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 324-329, Ed. Phoenix, Braşov.

73. LIPAN D., 2003, Adoption of the base map for the Geographical Informational System of Piatra Craiului National Park Administration, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 320-323, Ed. Phoenix, Braşov.

74. MARCOCI C.N., 2003, New systematic and ecological data regarding the lichens of Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 63-67, Ed. Phoenix, Braşov.

75. MARTONNE, EMM, DE, 1981: *Cercetări asupra evoluţiei morfologice a Alpilor Transilvaniei* (*Carpatii Meridionali*) – *translation* Ed. Academiei R.S.R..

76. MARUŞCA T., POP O., VODĂ A & VERGHELEŢ M., 2003, Evaluation of grazing pressure on the Piatra Craiului National Park's pastures and management issues, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 130-141, Ed. Phoenix, Braşov.

77. MICALEVICH-VELCEA, V., 1961: *Masivul Piatra Craiului. Consideraţii geomorfologice,* Anal.Univ.Buc. Sr. Ştiinţele Naturii, Anul 27, 145-152, Bucureşti.

78. MIHĂILESCU, S., 1994, Dynamic of vegetation of calcareous screes on the Piatra Craiului Mică Mountains, *Ocrot. nat*. , 38(2,): 135-141, Bucuresti.

79. MIHĂILESCU, S., 1995, Indicii de diversitate ai unor asociatii vegetale din Muntii Piatra Craiului, *Ocrot. nat*., 39 (1-2): 71-77, Bucureşti.

80. MIHĂILESCU, S., 1996, Structura unui profil transversal de vegetatie in Masivul Piatra Craiului, *Asociatia Muzeografilor Naturalisti din Romania Naturalia. Studii şi cercetari*, t. I-II.

81. MIHĂILESCU, S., 2001, *Flora şi vegetaţia Masivului Piatra Craiului*, 400 pp, Ed. Vergiliu, Bucureşti.

82. MIHĂILESCU S., 2003, Protected plant species and fragile habitats of Piatra Craiului Massif, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 119-129, Ed. Phoenix, Braşov.

83. MORARIU, I. & DRĂGHICI, B., 1980, Contributii la flora Masivului Piatra Craiului, *St. şi cerc. biol*., seria biol. veget., 32 (1): 3-8, Bucuresti.

84. MORARIU, I., 1978: Primula baumgarteniana nu a dispărut din flora Carpaţilor Româneşti, Ocrot. nat, 22(1): 78, Ed. Academiei Române, Bucureşti.

85. MUNTEANU A.V & CONSTANTINESCU T., 2003, Geomorphological researches in the hydrogeographic basin of Valea Cheii de sub Grind, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 43-49, Ed. Phoenix, Braşov.

86. MURARIU D., 2003, The faunal state and the estimation of the preservation categories of the mammal species of Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 289-300, Ed. Phoenix, Braşov.

87. OLTEAN, M., & al., 1994: Lista roşie a plantelor superioare din România, *Inst. De Biologie. Studii sinteze, documentaţii de ecologie*, 1:1-52, Bucureşti.

88. ONCESCU N.; Region de Piatra Craiului –Bucegi. Etude geologique; An. Inst. Geol. Rom; XXII; 1943; Bucureşti.

89. ONCESCU, N., 1943: *Région de Piatra Craiului-Bucegi. Étude géologique,* Analele Inst.Geol. .Rom., XXII, 1-124, Bucureşti

90. ORAŞEANU, I.GAŞPAR, E, BULGAR, AL., TERTELEAC, N., 1984: *Hydrological study of Dâmbovicioara Pasage, Theoret. and Appl. Karst.,*1, 153-164, Bucureşti.

91. ORCHIDAN N.; Branul (consideraţii morfologice); Bul. Soc. Rom. LIV; 1936; Bucureşti.

92. PÂRVU C., 2003, Dolichopodidae (Diptera) of Piatra Craiului National Park, Romania – with the identification of some valuable wet habitats, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 188-194, Ed. Phoenix, Braşov.

93. PÂRVU C., 2003, Faunistical data on some dipterans (Insecta: Diptera) of Piatra Craiului National Park, Romania, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 181-187, Ed. Phoenix, Braşov.

94. PÂRVU, C., 2001: Some dipterans (Diptera: Brachycera) collected with Barber traps in the National Park Piatra Craiului, Romania. Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa", 43: 271-276, Bucahrest.

95. PATRULIUS D.; Schiţă stratigrafică a seriei neocomiene de Dâmbovicioarei; Hauterivian, Barremian şi Bedoulien de facies pelagic şi recifal; Asoc. Geol. Carpato-Balc.; Congr. V; Bucureşti 1961;III,1;1963; Bucureşti.

96. PATRULIUS D: Geologia masivului Bucegi şi a culoarului Dâmbovicioarei. Edit. Acad.; R.S.R.; 1969; Bucureşti.

97. PATRULIUS, D.,1969, *Geologia Masivului Bucegi şi a Culoarului Dâmbovicioara,* Ed. Academiei R.S.R., 244-250, Bucureşti.

98. PETRESCU, ANGELA, 1995: Preliminary list of the avifauna of Piatra Craiului massive (Romania). *Travaux du Museum d'Histoire Naturelle "Grigore Antipa"* XXXV, 527 – 548, Bucureşti.

99. POP O., 2003, Ethnobotanical note of Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 150-158, Ed. Phoenix, Braşov.

100. POP, O., 20001 Distribution of Asplenium lepidum and Asplenium ruta-muraria in Romania, *Acta. Horti. Bot. Bucurestensis*, 29:139-147 Bucureşti

101. POPESCU, A., SANDA, V. & DRĂGHICI, B., 1980, Aspecte ale vegetatiei lemnoase din Masivul Piatra Craiului, *Contrib. bot*. Cluj, 1949-160.

102. POPESCU, G., 1988: *Avenul de sub Vârful Grind,* Bul. al Cercului Speologic "Hades"-Ploieşti, 103-109.

103. POPESCU, I., 1967: *Contribuţii la cunoaşterea stratigrafiei şi structurii geologice a Masivului Piatra Craiului,* D.S. LII, 2, 157-176, Bucureşti.

104. POPESCU, I., 1967:Contribuţii la cunoaşterea stratigrafiei şi structurii geologicea Masivului Piatra Craiului, Com. Inst. Geol. (1964-1965), 52(2), Bucureşti.

105. POPOVICI B., 2001, Demografia istorică a Branului de Jos, referat Bucureşti.

106. PRAOVEANU I, 1998, Aşezările brănene: satul, gospodăria, locuinţa, Braşov.

107. PURICE D., 2003, The structure of ground beetles communities (Ord. Coleoptera, Fam. Carabidae) in some forest ecosystems of Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 243-249, Ed. Phoenix, Braşov.

108. RÖMER, J., 1898: *Aus der Pflanzenvelt der Burzenlander Berge in Siebenbürgen*, Verlag von Carl Graser, Viena.

109. RÖMER, J., 1904: Durch der Krepatura auf den Kleinen Konigstein, *Jahrb. der Siebenbürgen Karp. Ver*., 4:86-95.

110. SANDA, V. & POPESCU, A., 1976: Contribuţii la cunoaşterea vegetaţiei de stâncarii din Masivul Piatra Craiului, *Contrib. Bot., Cluj*.

111. SANDA, V., POPESCU, A. & DOLTU, M.I., 1977, Vegetatia Masivului Piatra Craiului, *St. şi comunic. şt. nat*. , 21: 115-212.

112. SCHOTT, H.W., 1851a: Ein neues euopisches Rhododendron, *Bot. Ztg*., 9(2):17, Berlin.

113. SCHOTT, H.W., 1851b: Ein neue Saxifraga, *Bot. Ztg*., 9(4):65-66, Berlin.

114. SCHOTT, H.W., 1851c: Ein neue Gentiana aus Siebenbürgen, *Bot. Ztg*., 9(7):151-152, Berlin.

115. SCHOTT, H.W., 1851d: *Dianthus callizonus* n. sp. und *Hepatica angulosa* D.C., *Bot. Ztg*., 9(10):192-194, Berlin.

116. SCHOTT, H.W., 1851e: Zwei für die Flora Oesterreichs neue Pflanzen, *Bot. Ztg*., 9(15): 281-285, Berlin.

117. SCHUR, F., 1866: *Enumeratio Plantarum Transsilvaniae*, G. Braummüller, Vindobonae.

118. SERAFIM R. & MAICAN S., 2003, Preliminary data on the Cerambicides and Coccinelides (Coleoptera: Cerambycidae, Coccinellidae) of Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 250-261, Ed. Phoenix, Braşov.

119. SIMONKAI, L., 1886*: Enumeratio Florae Transsilvanicae Vesculosae critica*, Magzar Természettudományi Társulat, Budapest.

120. SLONOVSKY, V., 1977: Cartarea speciei *Blechnum spicant* (l.) Roth. din Carpaţii Româneşti, 29(1): 33-38, Bucureşti.

121. SPENCER, C., 2000: În adâncurile Piatrei Craiului. Avenul de sub Colţii Grindului, *EcoCarst*, 1, 20-21, Soc. Română de Speologie şi Carstologie, Bucureşti.

122. STAN M., 2003, Preliminary data regarding the Staphylinids of Piatra Craiului Mountain (Coleoptera: Staphylinidae), in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 240-242, Ed. Phoenix, Braşov.

123. STANESCU A., 2003, Preliminary study regarding the Hemipterous fauna of Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1,232-239, Ed. Phoenix, Braşov.

124. STĂNESCU M., 2003, Preliminary data regarding Lepidoptera Fauna of Piatra Craiului Mountains, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 195-212, Ed. Phoenix, Braşov.

125. ŞTEFUREAC, T., 1951: Consideratiuni briologice asupra rezervatiei naturale "Piatra Craiului Mare", *Bul. şt. biol., agr., geol., geogr*, 3,(2): 249-270.

126. STERGHIU C & DOBRE A., 2003, Researches on spider fauna of Piatra Craiului Massif, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 170-177, Ed. Phoenix, Braşov.

127. SZÉKELY (L.), 1996 – Lepidopterele din sud-estul Transilvaniei, *"Disz. Tipo", Săcele*: 1-78

128. TATOLE V., 2003, Researches on aquatic invertebrate fauna of Piatra Craiului National Park (I), in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 217-231, Ed. Phoenix, Braşov.

129. TEODOREANU, E, 1980: *Culoarul Rucăr-Bran. Studiu climatic şi topoclimatic*, Ed. Acad., Bucureşti.

130. THOMAS, Fr., MUNTHIU, L., 1968: *Avenele din Piatra Craiului.* Cumidava II, 123-135.

131. VASILIU-OROMULU L., 2003, The Thrips species of Piatra Craiului National Park (Insecta, Thysanoptera), in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 213-216, Ed. Phoenix, Braşov.

132. VERGHELEŢ M., 2003, Biodiversity Conservation Management in the Piatra Craiului National Park, in POP O. & VERGHELEŢ M., Research in Piatra Craiului National Park, vol. 1, 9-12, Ed. Phoenix, Braşov.

133. ***Arhivele Statului Braşov, Acte judecătoreşti 20/1753.

134. ***Arhivele Statului Braşov, Actele Magistratului 302/1787.

135. *** Institutul de Biologie al Academiei Române, 1993: Elaborarea Studiului de Fundamentare pentru Parcul Naţional Piatra Craiului.

7. SITE MANAGEMENT

7.1. MANAGEMENT PLANS

The first Management Plans together with the Park Regulations had been developed starting with 2001 and they are now submitted to the Romanian Academy for no objection. Afterward it will be submitted to the Ministry of Environment and Water Management for the final approval.

The setup of the Management Plan was a participatory process, all the stakeholders being invited to the developing process. In this respect the Park has Consultative Council composed of the representatives of all the institutions that come in contact with the Park and a Scientific Council composed of the representatives of the relevant ministries, National Forest Administration, Romanian Academy, research institutes and faculties. For the plan designation were held several workshops with the both councils.

The Management Plan comprises six main chapters and annexes. The first chapter is a short introduction the categories of the protected areas, legislation and the procedures used for the plan designation and the plan modification. The second one presents the general description of the park, geomorphology, geology, hydrogeology, and biology, social, economic and cultural aspects. In the third chapter are presented the evaluations of the biodiversity and physical landscape, local traditions, cultural heritage and the historic landscape, natural resource use, tourism and recreation, awareness, education and research and park administration. This part includes also the main threats on the Park. The fourth chapter is very important describing the actions, which must be undertaken by the Park Administration for a five years period. All the actions are linked with the evaluation part and provide information about: target, priority, development period, implementation partners and notes. The actions which will be undertaken by the Park Administration are structured as follows: biodiversity and landscape, conservation of traditions, land and natural resource use, tourism and recreation, education and awareness, park management. Chapter five is represented by the Park Regulations and it comes to adapt the existing legislation to the local needs and to cover where necessary the gaps of the actual legislation. It has a detailed description of the activities permitted within the Park regarding: silviculture, hunting, fishing, grazing, mowing, other natural resource use, building construction, scientific research, tourism and visiting rules and a section with applicable sanctions. The last chapter presents the methodology to be used for the Management Plan Implementation monitoring. In the annexes are presented the members of the Scientific and Consultative Councils, lists of species, the scientific biography etc.

All the forests from the Park are administrated on a forest management plan basis. The way of this management is applied fully takes into consideration the aspects mentioned in the park management plan.

For the five proposed NATURA 2000 sites a management plan will be provided at the end of the project implementation. Anyway aspects regarding this project have been already included in the actual management plan of the Park.

7.2. BUDGET AND PERSONEL

Starting with 1999 the Park Administration is benefiting by the financial support of the Global Environment Facility (trough the World Bank), the Romanian Government and National Forest Administration within the Biodiversity Conservation Management Project. The financial dimension is about 2,4 billion US$ for a five years term until the end of 2005.

The money had been allocated for the following activities: administrative infrastructure (visitor center, 4X4 vehicles, communication means, GIS technology, computers, audio visual equipments, mountain shelters, camping facilities, furniture etc.), ecoturism programme, public awareness programme, educational programme, small grants programme for the local people, biodiversity monitoring and baseline survey. Excepting the visitor center construction and its endowments, all the above-mentioned activities are fulfilled. The visitor center construction started in September 2004 and is estimated to last 15 months.

Within the LIFE project the Park Administration is benefiting of 280,000 euros from the European Commission counterpart the rest of 50% being supported by the National Forest Administration and GEF. Until now in this project have been purchased: computers, binoculars, field

equipment. There are stipulated a set of specific conservation measures for each site which will be accomplished until the closing date (June 2007).

In June 2005 the National Forest Administration signed with the Ministry of Environment and Water Management the Administration Contract for 16 Romanian national and natural parks. For the Piatra Craiului National Park the annual budget allocated by the National Forest Administration is 123,000 US$ for salaries, ecological activities, trails and shelters maintenance, public awareness and ecological education, office expenses, cars maintenance and study tours.

In this moment the park staff is composed of 10 members: park manager, financial specialist, procurement and public awareness specialist, biologist, IT specialist, community outreach, chief ranger, eco tourism and education and three rangers. Especially for the field activities the Park Administration is working with over 100 volunteers annually.

8. MAP OF THE SITE

• Physical map:

NATIONAL MAP NUMBER SCALE PROJECTION

L 3587 Ar, Br, Cr, Dr topo sheets	1: 50,000	Stereo 70

REFERENCE TO AVAILABILITY OF BOUNDARIES IN DIGITISED FORM

http://www.pcrai.ro/media/documantare.htm

• Map of designated sites described in 6.2.

habitats.pdf major habitats

dem.pdf elevation model of the park area

topo.pdf 1:50.000 topo sheets

internal_zoning.pdf

• Aerial photograph(s) included:

	yes		

NUMBER AREA SUBJECT COPYRIGHT DATE

9. SLIDES

Number	Place	Subject	Copyright	Date
1	Piatra Craiului ridge	Tourists hiking on ridge	George Onete	June 2000
2	Piatra Craiului	Autumnal landscape	George Onete	September 2001
3	Piatra Craiului	Landscape Curmatura pasture and surrounding forest	George Onete	June 2000
4	Piatra Craiului - Vladusca pasture	Sheep fold in Vladusca pasture	George Onete	June 2000
5	Piatra Craiului - Vladusca pasture	Cow in pasture	George Onete	June 2000
6	Piatra Craiului - Vladusca pasture	Wattering place	George Onete	June 2000
7	Piatra Craiului	Barsa Valey seen from the ridge	George Onete	July 2002
8	Piatra Craiului	Storm on the ridge in winter	Mircea Verghelet	
9	Piatra Craiului	Alpine meadows in summer	George Onete	August 2002
10	Piatra Craiului - ridge	Vertical stratification of limestone on the ridge	George Onete	August 2002
11	Piatra Craiului	Locomotiva – exocarstic ellement	George Onete	July 2002
12	Piatra Craiului	Horizontal stratification of limestone in the Prapastiile Zarnestiului Canion	Pop Oliviu	September 2002
13	Piatra Craiului	Hayfield on Barsa Valley	Peter Lengyel	July 2001
14	Piatra Craiului	Abandoned hayfield	Onete George	July 2002
15	Piatra Craiului	Acul Crapaturii – exocarstic ellement	Pop Oliviu	September 2002
16	Piatra Craiului	Stone river on Marele Grohotis scree slope	Catalin Eremia	July 2001
17	Piatra Craiului – Magura Village	Autum in Magura Village	Pop Oliviu	September 2002
18	Piatra Craiului	Forest in autumn	Mircea Verghelet	Octombrie 2003
19	Piatra Craiului – Magura Village	Village and mountain in autumn	Pop Oliviu	September 2002
20	Piatra Craiului – Barsa Valley	Crops and houses at the end of Zarnesti town	George Onete	August 2002
21	Piatra Craiului – Magura Village	Village and mountain in winter	Mircea Verghelet	

22	Piatra Craiului – Magura Village	Traditional sledge with horses	Mircea Verghelet	
23	Piatra Craiului – Magura Village	Foot prints and sledge tracks in winter	Mircea Verghelet	
24	Piatra Craiului – Magura Village	Abandoned pastoral construction on Magura village	George Onete	August 2002
25	Piatra Craiului	Popular art	George Onete	July 2001
26	Piatra Craiului – Valea Barsei	Traditional charcoal kiln	Pop Oliviu	September 2002
27	Piatra Craiului – Barsa Valley	Team of researchers working at biodiversity inventory (plants)	Pop Oliviu	July 2001
28	Piatra Craiului – Diana Valley	Team of researchers working at biodiversity inventory (birds)	Pop Oliviu	June 2001
29	Piatra Craiului – Pestera Village	Children from Pestera Village receiving presents for Christmass from behalf of park's administration	Pop Oliviu	December 2002
30	Piatra Craiului - Barsa Valley	Bear portret	Onete George	July 2001
31	Piatra Craiului – Prapastiile Zarnestiului	Viper	Mircea Verghelet	
32	Piatra Craiului - ridge	Dianthus callizonus, the endemic pink of Piatra Craiului on the flag species of the park	Pop Oliviu	August 2003
33	Piatra Craiului – Marele Grohotis scree slope	Chamois, the flag species of the park	Pop Oliviu	August 2004
34	Piatra Craiului	Fosils - amoniti	Coca Spencer	2000
35	Piatra Craiului	Fosils - corals	Coca Spencer	2000