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Winter sports - tourism activities in the Bâlea glacial area, Făgăraș massif (Southern Carpathians-Romanian Carpathians)

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Abstract. Winter recreational activities (alpine skiing and touring ridges) are known in the Făgăraş massif since the end of the 18th century, and early of the 19th century. Due to terrain parameters (high elevations, favourable slopes) and climate (snowfalls and persistence of snow depth) Bâlea glacial area is famous for winter sports and tourism activities and for tourism infrastructure (cable car, several chalets and hotels and 2 points of Mountain Rescuer Public Services). Today, in contrast, off-piste skiing (freestyling and freeriding) is a younger and very popular sport activity. Therefore, skiing is only for experts and advances skiers. In recent years in the Bâlea glacial cirque, several forms of niche tourism were introduced: Church Ice and Ice Hotel and Inferno extreme skiing for skiers and snowboard competition. In the future heliskiing will develop, and for those who do not practice ski activities, snowmobile, paragladiders, photography.

Keywords: winter sports - tourism activities, off-piste skiing, niche tourism, Bâlea glacial area, Făgăraș massif, Romanian Carpathians

Introduction

Tourism, through its forms is an important economic activity in mountain areas and was discussed in several research papers (Booth & Cullen 2001; Heberlein et al., 2002, UNEP, 2002, 2007). Ski activities have been described as a distinctive form of winter tourism, an economic activity of mountain areas (Agrawala, 2007;

Hudson, 2002, 2004) or as the most spectacular form of mountain tourism (Booth & Cullen, 2001; Heberlein et al., 2002; Jeanneret, 2001; Godde et al., 2000; Yang et al., 2009) or have been mentioned as other forms of mountain tourism (Jeanneret, 2001; Nepal, 2002; Valaoras, 2002; Yang et al., 2009; Wyder, 2001).

Romanian Carpathians and the Southern Carpathians, especially have a great potential for tourism activities and winter sports. Recently, scientific research highlighted tourist activities in mountain areas (Popescu et al., 2009a; Popescu, 2010b), the impact of natural hazards on them (Gratton et al., 2015), terrain factors and climatic variables and their impact on ski activities (Popescu, 2009, Popescu et al., 2009b), patterns of winter tourism activities (Voiculescu et al., 2012) or ski activities and their patterns in the Southern Carpathians (Popescu, 2010a; Voiculescu et al., 2011a,b) or the management of snow avalanches in the ski areas (Voiculescu & Popescu, 2011). There have also been studies concerning other mountain areas of the Romanian Carpathians, regarding winter tourism in the Apuseni Mountains (Gaceu et al., 2015) or on patterns of the ski areas from the Romanian Carpathians (Lesenciuc et al., 2013). In his monograph book on the climate and climatic hazards Bogdan (2008) refers to their impact on ski activities.

The purpose of this study was: (i) to supplement our previous research in the Bâlea glacial area on winter sport tourism activities, and (ii) to highlight the current state of tourism and types of sport activities during winter season.

Geographical setting

The Făgăraș massif is situated in the central part of Romania, at the intersection of the parallel of 45°30' N and the 24°30' E meridian, in the eastern part of the Southern Carpathians and occupies a surface of approximately 1500 km² (fig. 1):



Figure 1. The location of the Făgăraș massif and of the Bâlea glacial area

The massif has the aspect of an enormous glacial ridge long of approximately 70 km, orientated East-West, rendering in appearance two high macro-slopes, one facing north (short and steep) and one facing south (much longer and less steep). The Făgăraş massif is the highest range in the Southern Carpathians and also the highest of the Romanian Carpathians (Moldoveanu - 2544 m a.s.l. and Negoiu - 2535 m a.s.l.). On the other hand, the Făgăraş massif is distinguished by its inherited glacial relief and by the present periglacial processes of a high spatial dynamic (Voiculescu, 2002).

Bâlea glacial area is located in the central glacial sector of the Făgăras massif, on its northern slope, has a north-south longitudinal direction (see Fig. 1), is characterized by steep slopes and sharp peaks and is flanked by peaks of over 2400-2500 m (Vânătoarea lui Buteanu - 2507 m a.s.l., Capra - 2494 m a.s.l. and Iezerul Caprei - 2417 m a.s.l.). Bâlea glacial area is characterised by metamorphic rocks such as micaschists, gneiss, amphibolites and sometimes, crystalline limestone and scattered along the valley (Voiculescu, amphibolites 2002). From а geomorphological point of view, Bâlea glacial area still has vestiges of the last glaciation, such as well-developed glacial cirque, a glacial lake, glacial valley and two topographical thresholds (verrous) (Germain & Voiculescu, 2007; Voiculescu et al., 2011). The U-shaped valley is dominated by present-day geomorphological processes such as snow avalanche that fragment the steep slopes, rockfall, solifluctions and erosion (Voiculescu et al., 2011).

The mean annual air temperature (MAAT) on the highest ridges is -2.5°C, 0.2°C in the lower part of alpine zone and 3°C at timberline. The coldest month of the year is February (-8.4°C, -6.3°C and 3.6°C, respectively). The warmest month of the year is August (8.8°C, 12.3°C and 15.3°C, respectively). The mean annual precipitation (MAP) exceeds 1200 mm in the alpine zone, reaches 880 mm at timberline and is about 770 mm in the forestry zone. The highest amount of precipitation falls during summer, e.g. June (206.4 mm in the alpine zone, 129.3 mm at timberline and 112.7 mm within the forestry zone). Snow depth is high. At the highest elevations of the alpine zone, snow depth constantly grows from October until April or even May. In the glacier cirques or on the sheltered northern slopes the snow cover is persistent, sometimes until the next year.

The alpine slopes are covered by herbaceous vegetation and by some shrub species (*Rhododendron kotschy, Vaccinium myrtillus, Pinus mugo* or *Juniperus nana*). Between 1450-1500 and timberline (1700 m a.s.l.), prevailing coniferous, such as Norway spruce (*Picea abies*) forests covers the slopes, while at lower altitudes, beech trees (*Fagus sylvatica*) and other deciduous species become predominant (Voiculescu, 2002). On the other hand, the Făgăraş massif is endowed with genuine natural potential, which acts as a great setting for numerous tourist activities: glacial relief, 22 Carpathian endemic species of which the most important are: *Pinus mugo, Rhododendron kotschy, Festuca glacialis, Leontopodium alpinum, Trollium europeum, Silene dinarica,* alpine fauna (*Rupicapra rupicapra, Marmota marmota*) (Voiculescu, 2002).

In order to protect the extraordinary picturesque landscape as early as 1932 the Bâlea Reservation was founded. It is a complex reservation which is bound to protect the relief, the lake, the flora and fauna, and which is classified today according to the International Union for Conservation of Nature (IUCN). The reservation comprises the northern Bâlea area, but continues onto its southern counterpart - the Capra Valley, with a total surface of 180 ha (Voiculescu, 2002). This protected area increases the tourist attraction potential of the area.

Within this large massif, the highest tourist frequency is to be found in the Bâlea glacial area due to the Transfăgărăşan highway access. The summer season is the one favoured by tourists, since during winter this highway is closed and most importantly there is no winter-sport infrastructure other that the almost 50 year-old cable car (Popescu, 2009).

Tourist and sport activities have developed here especially after 1990 by practicing winter sports: alpine off-piste skiing and its newer forms - freestyling and freeriding, in the classic areas, under the Capra saddle, under the Doamnei saddle and on the Bâlea glacial valley (fig. 2):



Figure 2. The main off-piste skis: under Capra saddle (a.) under Doamnei saddle (b.) and on Bâlea glacial valley (c.) (by Popescu and Voiculescu)

The first documented ascents, with recreational purpose in Romania are in fact done in the Făgăras massif around the year 1700 by a *magnates society* for a hunting party in the area of Bâlea and Doamnei glacial valleys, but also in 1750 by Jacob Zultner & Fichtel in 1782 only for the love of nature (Baticu & Titeica 1984, FRAE, 2007). The number of ascents rises progressively after the middle of the 19th century with individuals that came from the Austro-Hungarian Empire, where the fashion of ascents was promoted by naturalists, other scientists but also by the bourgeoisie and event people of the Court for various reasons from science ones to recreation, art and even health. An important role in the promotion of such reasons to the Romanian public had the alpine clubs, of which we note the Siebenburgischer Karpatenverein (SKV) founded in 1880 and still works to this day (with an unfortunate hiatus during the communist period). They had an important role in introducing and promoting winter-sports as well. The first documented descents were the ones in the area that is called today Poiana Brasov and what were in 1892 the heights of Kronstadt. The next year, Bergen demonstrates gliding techniques in Laita valley (Erhard, 1990). Just as in the case of hiking and mountaineering, an important role in spreading the word about the new winter sports had the ski clubs - the first one, Kronstäder SkiVerein opened in 1907 in Braşov and in 1911 the next one in Sibiu - Hermannstädter Skiklub (HSK), where Nordic skiing was taught rather than alpine skiing, which was much more appreciated in Brasov (Baticu & Titeica 1984).

Materials and methods

The position of the chalets, the cable car and the lakes was determined using both the topographic maps (1: 25000) and also with the help of aerial photographs with a resolution of 0.5 m, courtesy of ANCPI. Local data was collected with a GPS (the location of the cable car and the chalets) to corroborate with the other data used. In order to show the altitudinal position of the above mentioned features, we used a 30 meters resolution DEM of derived through stereorestitution from the images of SPOT 5 satellite. The same DEM was used also for the derivation of terrain parameters such as hypsometry and slope.

In order to analyse the climate of the Bâlea glacial area we use the database from the three weather stations: Bâlea Lac (2070 m a.s.l., 45°36' N; 24°37' E, observation period 1979-2014), Cozia (1577 m a.s.l., 45°18' N; 24°20' E, observation period 1980-1994) and Cumpăna (830 m a.s.l., 45°26' N; 24°37' E, observation period 1983-1996). This data was processed in order to derive the climatic models (number of days with snow cover and snow depth of the Bâlea glacial area).

Other data sources used were statistical data from the The Romanian National Institute for Statistics – INSSE referring to the number of accommodation places and the tourist flow. For the whole area of the Făgăraș massif, the data belonging to 29 localities from 4 counties (Argeș, Brașov, Sibiu, Vâlcea) was processed (the area being divided administratively among these). Bâlea Cascadă area is in the administrative territory of the locality of Cârțisoara, so that the data used to express tourist indices, belongs to this locality.

To classify the skier categories, we used the Borgersen (1977, quoted by Penniman, 1999) and Gaylor & Rombold (1964) classifications in: beginners or novice, intermediates, advanced or expert or according to Tremper classification (2001) in moderate skiers, good skier and very good skier.

We also took suggestive photos that highlight elements of tourism infrastructure.

Results Winter sport activity. Ski activity Terrain parameters

Terrain parameters are very important for ski activities and are represented by elevation, declivity and aspect. The hypsometric map highlights the high elevation of Bâlea glacial area, with values over 2400-2500 m (fig. 3a), the maximum elevation is 2507 m a.s.l., the minimum over 660 m a.s.l., and the mean value is 1559.9 m.

The Capra off-piste ski has the departure altitude at 2314 m a.s.l. and the arrival point close to the Bâlea Lac (2040 m a.s.l.) and even over it, when the lake is frozen. The Doamnei off-piste ski has the departure altitude at 2150 m a.s.l. and the arrival point close to the Bâlea Lac (2040 m a.s.l.). The Bâlea valley off-piste ski has the variable departure point at 2040 m a.s.l. close to the Paltinu chalet and the arrival point at 1248 m a.s.l. close to the Bâlea Cascadă Hotel. Table 1 shows the patterns of ski pistes from Bâlea glacial area.

No.	Ski piste	Departure	Arrival	Vertical	Length	Average	Difficulty level
	name	(m)	(m)	drop (m)	(m)	slope (º)	
1.	Capra saddle	2314	2040	274	480	30	difficult level
2.	Doamnei saddle	2150	2040	110	630	27	difficult level
3.	Bâlea glacial valley	2040	1248	792	3700	27	very difficult level in the upper and lower parts

Table 1. Morphometrical patterns of the ski pistes from the Bâlea glacial area

Figure 3b shows the high declivity of Bâlea glacial area, suited for expert or advanced off-piste skiers. Therefore, slopes with declivity between $0^{\circ}-5^{\circ}$ represent 2.7% of the area, slopes between $5^{\circ}-15^{\circ}$ represent 6.1% of the area, slopes between $15^{\circ}-25^{\circ}$ represent 13.9% of the area, slopes between $25^{\circ}-35^{\circ}$ represent 30.5% of the area and slopes over 35° represent 46.8% of the total area. The average slope of the main ski pistes show high values (see table 1).



Figure 3. Hypsometry (a.) and declivity maps (b.) of the Bâlea glacial area in combination with the main tourist features (Transfăgărășan highway, accommodation, cable car, ski pistes)

Climate variables

At the alpine level of the Bâlea glacial area, 90-100 days with snowfall and 8-9 months/year with snow cover (from October to May or even July) are recorded. Therefore, a good correlation (R^2 =0.831) is given between the elevation and the

number of days with snowfall (fig. 4a). A good correlation ($R^2=0.896$) was also found between the snow cover and the number of days with snowfall (fig. 3c) and very good correlation ($R^2=0.992$) between the snow depth and the elevation (fig. 4b):



Figure 4. Correlation between elevation and snow depth (a.), elevation and between number of days with snowfall (b.) and between number of days with snowfall and number of days with snow cover (c.) (Gratton et al., 2015)

The highest values of days with snow cover and of snow depth were found between the highest alpine ridges and timberline (fig. 5a,b). A reasonable snow depth and snow cover for about 3 months are favourable for ski activities.



Figure 5. Climatic models of the number of days with snow cover (a.) and yearly average snow depth (b.)

Tourism activity

Bearing in mind the social-economic development within the Romanian Carpathians, tourism certainly represents an important driver of progress, as it is in other mountain areas, where it became a genuine industry, yet having a certain impact upon the environment (UNEP, 2002, 2007; Yang et al., 2009). Unfortunately, due to the poor infrastructure (low accommodation capacity and almost no cable transportation) the potential we mentioned is under-capitalized. Since the 19th century, when the first accommodation structures were built, tourism has developed very differently within the Făgăraş massif, according to the local interest, but also in accordance with the social-economic changes that occurred after 1990 (table 2):

Period	Tourist management of Bâlea glacial area
1880-1914	Siebenbürgischer Karpatenverein (SKV): construction of the first chalet, Podragu,
	and creation of the first hiking trails in the valley. Construction of a small stone
	shelter for the shepherds (1907) and reconstruction of the shelter in wood (1912).
1930-1940	National club of Romanian Tourism: restoration of old lodging infrastructures and construction of new chalets and alpine shelters.
1950-1970	National Organization of Tourism: modernization of lodging infrastructures.
1970-1985	Ceaușescu's regime: construction of the Transfăgărășan highway (1970-1974),
	Ceauşescu's hunting chalet (now called Cabana Paltinu Hotel) (1970) and of the
	cable car (1973).
	Sibiu department: Bâlea glacial area ski resort project, which was not functional
	(1972).
1990-2000	Transport, Construction and Tourism Ministry (1999): Implementation of seven
	laws aiming at managing the cost of tourist infrastructures according to their quality.
	Private owner: construction of Bâlea Lac Hotel (hotel/restaurant) (2000).
2006-2010	Private owner: launch of the event of the Ice hotel and Church in the glacial cirque (2006).
	Construction of Bâlea Lac Hotel (second hotel) (2007).
	Regional Development and Tourism Ministry: creation of this new Ministry (2008).
	Creation of Inferno ski and snowboard competition (2010). Launch of Explore the
	Carpathian Garden (2010).
at the	non equipped ski pistes, only for advanced and expert skiers
moment	

Table 2. Evolution of Bâlea glacial area tourist management (Gratton et al., 2015 with additions)

Overall, in the Făgărăș massif, the accommodation facilities are represented by 16 chalets (12 on the northern slope and 4 on the southern slope), 2 tourist complex (only one on the northern slope and one on the southern slope) and 6 alpine refuges (only one on the northern slope and 5 on the southern slope) each with its own characteristic features (table 3 and fig. 6):

Table 3. Situation of the accommodation in the Făgăraș massif: in chalets, in alpine refuges and in tourist complex

No	Chalet/hotel	Alt (m a.s.l.)	Slope	Capacity
1	Suru	1450	Ν	81 – destroyed
2	Bărcaciu	1550	Ν	52
3	Poiana Neamțului	706	Ν	30
4	Negoiu	1546	Ν	243 (summer) 140 (winter)
5	Bâlea Lac Hotel	2027	Ν	100
6	Paltinu	2044	Ν	36
7	Bâlea Cascadă Hotel	1234	Ν	67
8	Podragu	2136	N	60

9	Turnuri	1550	Ν	30
10	Arpaş	600	N	60 - abandoned
11	Sâmbăta	1401	N	60
12	Urlea	1533 N		53 - abandoned
13	Cumpăna	840 S		88
14	Piscu Negru	1340	S	34
15	Capra	1585	S	52
16	Cota 2000	2000	S	24
No	Alpine refuges	Alt (m a.s.l.)	Slope	Capacity
1	Puha	2146	S	8-10
2	Chica Fedeleşului	1800	Ν	-
3	Bâlea	2080	Ν	20
4	Călțun	2175	S	10
5	Moldoveanu	2137	S	6-8
6	Berevoiescu	2190	S	24
7	Zârna	1923	S	8
No	Tourist complex	Alt (m a.s.l.)	Slope	Capacity
1	Vama Cucului	700	N	55
2	Sâmbăta	690	N	87



Figure 6. The location of the accommodation facilities in the Făgăraș massif

It need be mentioned that 7 accommodation facilities: (6 chalets and one tourist complex), representing 43.7% out of all the facilities in the Făgăraş massif are located along the Transfăgărăşan highway, a reality that has created the proper environment for tourism development and especially of the activities of activities mentioned above. Within the Bâlea area, there is only one tourist complex at the foothills (Vama Cucului), and three chalets, integrated in the tourist circuit as hotels lately, which are higher up – one of them located at 1234 m altitude, near a beautiful waterfall cast over a glacial step - the Bâlea Cascadă Hotel and two others located in the Bâlea glacial cirque: Paltinu (Ceauşescu's former hunting lodge) and Bâlea Lac.

After 1990 the accommodation capacity registered a significant drop, especially between 1990 and the year 2000: from 2785 lodging places to 2209 places and to 2169 places in 2008, observing certain stabilization in the last years, even though the total capacity lost appreciatively 800 places. This phenomenon is the result of the precarious economic context, the privatization of the chalets and the lack of financial means of the private owners to refurbish and/or to upgrade them, but also to the lack of interest of the local authorities. The accommodation capacity in the Bâlea valley including the bed and breakfasts found at the foothills the village of Cărțișoara dropped from 149 places in the year of 1990 to 145 in the year 2000 and the rose to 394 in 2010, while in 2015 342 places were available. As for the tourist flow in the Făgăraş Mountains, from the year 2000, when there we noted 47742 tourists in 2008 the flow rose to 69405, therefore the rate of increase in 8 years is of 68%. The majority of tourists remain, naturally, accommodated in chalets, in the year 2000 being registered 23859 tourists and in 2008, 23963 tourists in this forms of accommodation.

The tourist flow in the Bâlea glacial area has shown a continuous increase from the year 2001 when 2979 tourists were registered to 4044 in 2010 and 16620 in 2014. Therefore, the increase of visits from 2001 to 2014 was of 458%. Comparing the available data from INSSE (from 2010 onwards, considering the same months January, February, March and April) we can observe same major change: 626 tourists in 2010 and 1934 in 2015. This is a 208% rise. This shows the increasing interest of tourists for the afore mentioned area. On the other hand the high percentile rise is not hard to attain once the value we started from is rather low. Nonetheless the reason for this increased interest in the area is the rise of new forms of mountain tourism, especially niche tourism and the revival of old ones that are nature based.

The infrastructure for the Bâlea area is insured by the Transfăgărăşan highway, built during the communist years of 1971-1974, with a length of 90 km, crossing-over to the Capra Valley on the southern side of the massif, reaching its maximum altitude of 2070 m at the tunnel that connects the two valleys and by a cable car that transports people from the Bâlea Cascadă Hotel up to the Bâlea glacial cirque. The movement satisfaction index (MSI) is an index which shows the correlation between the number of places in the accommodation facilities and the hourly capacity of cable transportation (Țigu, 2001).

MSI= Qt/ Np,

where

MSI = movement satisfaction index, Qt – hourly capacity of cable transportation, Np – number of places in the accommodation facilities

Worldwide the values are situated between 1.25-1.75 (Ţigu, 2001). Within the Bâlea valley, this value is of 0.96 if we consider only the accommodation facilities mentioned above and shown in fig. 5 (at Bâlea Lac and Bâlea Cascadă Hotel). Even so the index has a value well under the average value. The reason is the even though

the accommodation places are not many, there is only one, very old cable car, build in the 1970s, with a low passenger hourly capacity.

Discussion Ski activities

Winter activities are represented by alpine skiing, off-piste skiing, especially and snowboarding mainly, to which skating on the frozen Bâlea Lac can be added. In the Bâlea glacial area there are no delineated, groomed or classified ski pistes. Also, with one exception (found Bâlea glacial valley) there are no visual warning systems, such as display panels which read, for example, "No Stopping" or "Avalanche Area" (Voiculescu, 2009). Moreover, due to the characteristic glacial relief, the declivity of the slopes is rather high, that would be properly attributed to expert skiers, as shown in table 1.

In the temperate continental climate, ski activities should take place at altitudes above 1000 m a.s.l., which provide conditions with snow for at least 3 months/year (Besancenot, 1990). Both ski pistes from Bâlea glacial cirque (Capra and Doamnei) have high absolute altitude, over 2000 m a.s.l. but with short vertical drop. In terms of vertical drop, the Bâlea valley ski piste is very well integrated into Petterson's principle (2005). In order to have a real ski area the vertical drop must be of at least 400 m (according to Petterson, 2005). If this were a regular ski area, with groomed pistes this would be the largest in Romania, from the vertical drop point of view. Also here would be found the longest ski slope in Romania (the Bâlea valley ski piste is approximately 3700 m long). We need to draw the attention to the fact that the described ski pistes are more or less guides lines, for as mentioned above. since there are no groomed ore delineated ski-slopes every skier/snowboarder chooses his/her own trail. In any case, any trail they use, the difficulty degree is rater high due to the high slopes which are a result of the glacial relief.

Slope declivity is another terrain factor of ski activity, which separates the skier categories in the following categories: skiers and beginners. The first category was defined: "as users of skis, snowboards or other gravity-propelled recreational devices whose design and function allow users a significant degree of control over speed and direction on snow" (Penniman, 1999, 36) and as for beginning skiers or beginners as: "those individuals who are using one or another of these devices for the first time or who possess marginal abilities to turn or stop on slopes with incline greater than 20%" (Penniman, 1999, 36). The ski pistes between 25°-30° are considered to be destined only to moderate skiers, who are able to descent off-piste in any condition (Tremper, 2001). Any ski piste with slopes steeper than 30°-35° is considered to be destined only for good skiers and over 45° to very good skiers (Tremper, 2001). All three ski pistes in the Bâlea glacial area have an average slope over 25°, but there are sections of these pistes that reach even 48°-50°.

Moreover another difficulty parameter is given by the fact that the snow in not groomed so that the snow-depth can be in some areas even of several meters. High declivity, large snow depth and differently layered snow-packs reclaim a high avalanche risk level and also a high injury risk level. All these ask that the skiers/snowboarders that ride in the Bâlea glacial valley be expert skiers/snowboarders.

Apart from slope, in order to be able to practice winter sports, the most important parameter is snow, through its two most important components: number of days with snow cover and snow depth (see fig. 5). In order to have a reliable winter season for skiing/snowboarding it is important that in 7 out of 10 winters there are at least 100 days with snow cover (Burki et al., 2005). Another opinion is that there must be at least 120 days with snow cover so that the winter-season is economically efficient (Țigu, 2001). In the Bâlea glacial valley, the 100 days limit is situated just below 1200 m a.s.l. and the 120 days mark is situated around 1400 m a.s.l., which show that the season for practicing winter sports is on average a good one, without the need of artificial snow.

Not only the snow cover is important, but also its depth. On groomed ski pistes, today's technologies have reduced the minimum snow depth to 20 cm. But on unprepared terrain used for freeride, the minimum rises to 40 cm or even 70 cm (Gumuchian, 1983, quoted by Besancenot, 1990) depending on the terrain's roughness. As we can see in fig. 5, this minimum is reached even at the lowest altitudes, as a yearly average, but the largest snow depths are reached only around the highest altitudes. The important matter here is to note that these values are yearly averages, during the season the snow depth reaching even several meters in the area of Bâlea Lac in some instances (according to National Meteorological Agency archives). These being said – the danger is not of having to little snow, but having too much snow and being rather difficult to ski in for the amateur skiers/snowboarders

Tourism activities

The first forms of tourism practiced were ridge touring and climbing with the primary motivation of recreation (motion, fresh air), landscape experience (Muhar et al., 2007) and alpine skiing. Thereafter, especially in the last 10-15 years new forms of tourism have emerged. In this respect and according to Beedie & Hudson (2003), Buckley (2006) and Pomfret (2006) we need to mention a series of adventure mountain tourism as niche tourism. Niche tourism refers to forms of tourism destined to be practiced by a reduced number of individuals due to its unusual nature when attributed to the general public (either to dangerous, or too expensive or too difficult for non-athletes) (Popescu et al., 2009b). These forms are recently rather well represented in the Făgăraș massif. Summer activities refer to cycling the Transfăgărasan highway, climbing and walking, as traditional forms of mountaineering (Hudson, 2004), hiking, hunting, or air based activities as paragliding. During winter these refer to skiing, snowboarding and riding snow-mobiles. Skiing and snowboarding are considered here niche tourism due to the fact there are no groomed ski pistes so that the attribute of extreme is added to the two activities. Furthermore, due to the fact that there is almost no ski infrastructure (cable cars, skilifts etc), heliski has found a well-represented terrain in the Făgăraș massif, where helicopters are used to drop-off skiers or snowboarders on different heights so that the only effort the enterprise is riding down the powder-covered slopes.

Due to the need to increase tourist attraction after 1990, there were adopted new forms of tourism that were not characteristic to the Romanian Carpathians until then: organizing ski and snowboard competitions and a particular type of religious tourism, both activities taking place in the winter season. The first activities are for certain part of the sport-tourism defined as: "all forms of active and passive involvement in sport activity, participated in casually or in an organized way for noncommercial or business/commercial reasons, that necessitate travel away from home and work locality" (Standeven & DeKnop, 1999, quoted by Daniels et al., 2004, 180-181).

A particular extreme ski and snowboard competition has increased the reputation of the Bâlea glacial area - *Inferno*, which reached its 4th edition in 2010 and has been imported from Austria (Popescu, 2010b) (fig. 7):



Figure 7. *Inferno* extreme ski and snowboard competition (4th edition in 2010) (by Popescu, 2010)

Unfortunately due to lack of implication of the local authorities that was also the last year it was organized in Romania. Nonetheless its importance cannot be undermined since it was the main promoter of extreme skiing and snowboarding in Romania. It is considered to have less impact on the sensitive high mountain environment due to the fact that it needs no groomed are planned ski slopes – it just uses the slopes as they are and the powder snow.

The competition usually had the starting point in one of the saddles found in the upper part of the Bâlea glacial cirque. In the year 2010, Administrația Națională de Meteorologie (ANM) (2009-2010) using the European five-level avalanche danger scale, issued of considerable snow avalanche danger level. Therefore, due to snow avalanche risk and due to safety measures, the starting point was set just under the first glacial-step, where the end-point of the cable car is located; the finish line is always at the Bâlea Cascadă Hotel at 1234 m a.s.l. (Popescu, 2010b). This ski piste is in fact the Bâlea glacial valley ski piste described above.

On the other hand another type of tourism rose from the initiative of a private endeavour. In the Bâlea glacial cirque, there have been built an *Ice Hotel* and an *Ice Church* (fig. 8):



Figure 8. The Ice Churh (a.) and The Ice Hotel 2010 (b.) (by Popescu, 2010)

The Ice Hotel has become a traditional project. The marketing theme of the 2010 Ice Hotel is *Ice Hotel Cold Think*. The hotel is the sole project of this kind in the Carpathian Mountains offering privacy and comfort to its tourist at affordable prices (www.euro-turism.ro) and nonetheless a unique experience. It is built every year at an altitude over 2000 m in the month of December depending on the weather and on the quantity of snow and ice. The purpose of the hotel is to promote tourism within the massif and beginning with this year to create a brand for the area. The hotel is built in the shape of a cross and covers around 650 sq m. The 2010 hotel has 12 double rooms, an Ice Bar, an Ice Restaurant and an exhibition of various ice statues. The hotel is open to Romanian and to foreign tourists alike. Close to the hotel, the *Ice Church* is built just as the hotel every year. It was built for the very first time three years ago on a surface of 70 sq m. It is the only such establishment in southeastern Europe and has the purpose of promoting tourism in the area. It is inaugurated each year in the month of January and accepts Christians of all confessions. On this year's inauguration participated the high priests of the Catholic, Greek-catholic and Protestant Churches. The church is adorned with furniture, icons and statues made of snow and ice and is illuminated by a chandelier. In the church services for wedding and christenings are officiated (www.euro-turism.ro). According to Arnold Klingeis, the manager of the Bâlea Ice *Hotel* the two buildings have attracted tens of thousands of visitors and over 2000, from which 600 were Romanians who have beneficiated from the services of this brand until last year's count (www.agenda.ro, www.sibiul.ro). In this context we mention that this kind of tourism represents the result of a learning experience (Cohen, 2006), but also of local development as it is noted for other mountain areas in the world (Yang et al., 2009).

Conclusions

The natural potential of the Făgăraș massif in general, but of the Bâlea valley in particular favours the development of tourist activities, most of them belonging to niche tourism – extreme sports and extreme accommodation facilities (as the Ice Hotel). The natural parameters important for the development of winter sports are

met – the ones regarding slope and snow. But it is important to stress that in today's conditions, when no ski pistes are delineated or groomed only expert skiers/snowboarders should be the ones practicing such sports in the Bâlea cirque and valley in order to limit the number of injuries. Moreover good knowledge of snow dynamic is important due to the fact that conditions of snow avalanches are rather frequent, because of heavy snowfall and high declivity (but also due to important triggering factors: wind, sun, quick temperatures rises a.s.o.). Also the management of the snow avalanche risk is based primarily on announcements of the risk level rather than on other forms active or passive (only a few snowpack fences and a deflecting wall survive from the era of the Transfăgărășan highway construction) (Voiculescu & Popescu, 2011).

The tourist activities are capable of boosting the economy of the Făgăraş massif, as we could see in the rise of number of visitors on the course of a 15 year time span. Even though most of the new forms of niche tourism (extreme skiing, heliskiing and snowboarding) and other alternative attractions like the Ice Hotel and the Ice Church are winter-based activities or attractions, due to marketing plans and promotion campaigns, the area was brought to the attention of a larger potential tourist market. So that not only during winter and not only extreme skiers and snowboarders begun to frequent the area more and more, but also other tourist types: nature lovers, snow mobil, paragladiders, photography enthusiasts, seekers of unique attractions (the Ice hotel and Church are unique, for each year are built differently). These unique features of the Bâlea area have drawn it on the international tourist map of Romania.

Nonetheless we need to mention the implication of the local and even foreign investors in the Bâlea area. Even though these are modest endeavours they seem to have reached its goal in generating the snowball effect and have gathered the laurels of other major marketing campaigns (like *Discover the Carpathian Garden*). Although years ago the plans of a ski resort (Berbecaru & Botez, 1977) that would rival the resorts of the Alps were drawn, nothing was accomplished in this respect up to the present moment.

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