



CĂLDĂRUȘANI LAKE AND SURROUNDING AREA- TOURISM POTENTIAL AND SUSTAINABLE DEVELOPMENT

Roxana Marilena CIOBANU¹, Florin VARTOLOMEI²

¹ Faculty of Agrotourism Management, Bioterra University – Bucharest,
Gârlei Street no. 81, district 1, Bucharest, roxanaciobanu1978@yahoo.com

² Faculty of Geography, "Spiru Haret" University – Bucharest,
Blvd. Timișoara, no. 58, district 6, Bucharest, fvartolomei@yahoo.com.

Abstract

Supporting sustainable development in an general area with tourist activities is subject to natural and anthropogenic potential valences of that area. Valuing this potential should be prioritized for development strategies for medium and long term, leaving to short-term infrastructure projects to be initiated for enhancing accessibility area. Căldărușani lake and the surrounding area has some advantages of accessibility and proximity to large urban centers (ie. Bucharest, Ploiesti), sources of tourists, but is very poor in terms of tourism infrastructure and training human resources in tourism. Tourism anthropogenic potential is marked by the existence of cultural and religious monuments such as Balamuci-Sitaru and Căldărușani monasteries, the "Liviu Constantinescu" Geodynamics Observatory (founded 1943), the Alexander Ghica family Palace situated in Căciulați village from Moara Vlasiei common included on Historical Monuments List, now owned by the Romanian Academy. Natural tourism potential is supported by Căldărușani lake (with a total area of 224 ha and a maximum depth of 4 m), the Căldărușani Forest reserve (125 ha). At the end of this material are presented favorability and restrictive elements for tourism industry in the area as SWOT analysis.

Keywords: Căldărușani, lake, tourism potential, sustainable development.

1. GEOGRAPHICAL PARTICULARITIES AND TOURISM POTENTIAL

Căldărușani lake is located in the south part of Romania, in the Romanian Plain, the Vlasiei Plain subdivision (Fig. 1). Catchment of the lake has over 380 km² area, representing 3.6% of the Ialomita basin to which it belongs and reported to national scale area is only 0.16% of Romania's surface (*Atlas of Water Cadastre in Romania, 1992*). The length of this lake is 6.2 km, which represents only 1.4% of the Ialomita river length (Gâștescu P., 1971).

Climatic conditions in which water resources of Căldărușani lake formed are influenced by solar radiation totaling between 128,000 and 130,000 kcal/cm² and general atmospheric circulation dominated by masses of maritime polar air and continental origin that have 60.3% of the year, followed by continental tropical and maritime tropical with 15.8% (Euro-Asian and the Azores anticyclones and Iceland and Mediterranean cyclones) (Octavia Bogdan, 1974).

Monthly average temperatures show thermal contrast between the two extreme seasons, so to Bucharest-Baneasa weather station in January averages are -3.2°C and in July are 22.2°C (temperature extremes at the same weather station were: the minimum absolute -32.2°C in January 1942 and maximum absolute 41.4°C in August 1945). In general, precipitation fallen in the area are in 500-700 mm range (in Baneasa weather station for 74 years of continuous observations untill 2010 the average is 586.5 mm). Rainfall during the year has a maximum recorded in July (about 92 mm in Bucharest-Baneasa) and the smallest amounts fall in February, when there are less than one third of the maximum amount of precipitation (27.5 mm at the same station) (Posea Gr, Ion Stefanescu, 1984).

In terms of geomorphology, Lake Căldărușani catchment is marked by the drainage of the two tributaries: Vlasia river north and Cociovaliștea river in south (*Geography of Romania, vol V, Romanian Plain, the Danube, Dobrogea Plateau, Romanian seaside and Continental Platform, 2005*).

Basin topography is characterized by smooth, with inclination from west to east, with altitudes decreasing from 120 m to 75 m. Low density is characteristic (0.2 to 0.3 km/km²), with numerous marshy valley at the confluence that formed a kind of Căldărușani estuary due to Ialomița alluvium and groundwater above the bottom. Aquifer is located at 5-20 m depth, often giving rise to springs in the deeper valleys; relief fragmentation generally ranges between 0.5 to 2 m/km² (*Romania Geography, Vol I - Physical Geography, 1983*).

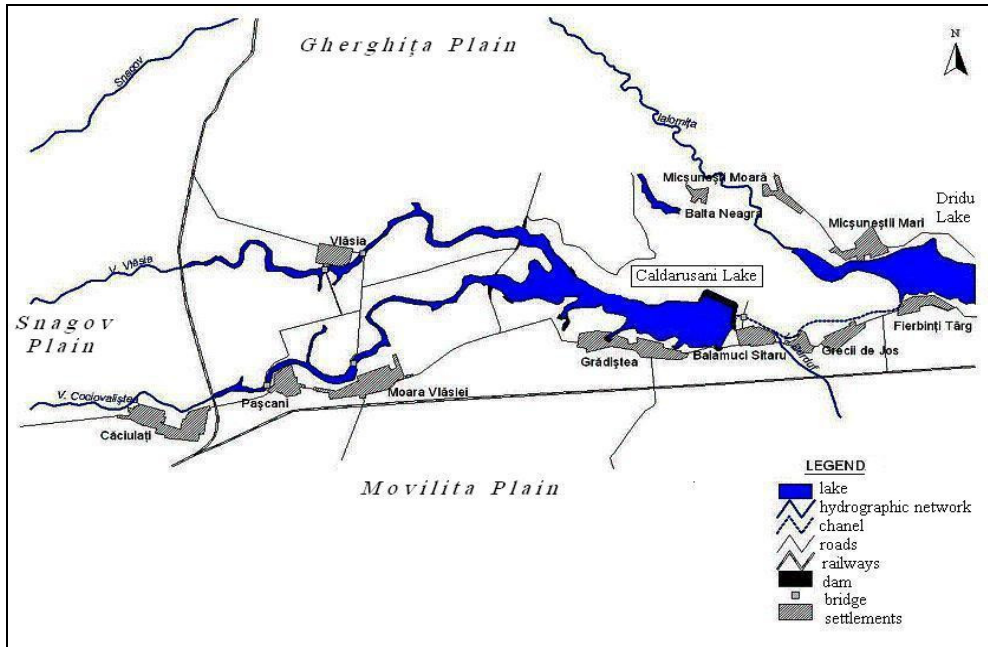


Figure 1 Geographical position of Căldărușani lake
(GIS processing of .shp vector source: www.geo-spatial.org)

Vlasia river spring from West of Vlasia Plains (in Ghiocel Forest area) and is oriented from west to east. Valley is highlighted by banks who increase gradually to confluence, overlooking an intermittent course of which feeds many swampy areas. The total length of river is 33 km to confluence with Căldărușani lake.

Cociovașiștea river spring near the Crevedia village with a route roughly parallel to Vlasia Valley in the north. The river is connected by Cocani-Dârza channel to Crevedia brook, a tributary of Colentina, which receives water supply balancing Căldărușani lake water regime. Cociovașiștea Valley outlined in the field slopes with heights of 1-2 m to 12-13 m. Marshy appearance was gradually transformed by dams in a series of ponds. The total length of the valley is 35 km (Gâștescu P., I. Jordan, 1970).

Căldărușani lake catchment is covered with soils from classes: cernisoils (62%), luvisoils (27%) and protisoils (11%) (classes called *after Romanian System of Soil Taxonomy 2003*).

2. CONSIDERATIONS ABOUT TOURISM POTENTIAL IN CĂLDĂRUȘANI LAKE AREA

Căldărușani Lake and the surrounding area by natural and human potential at its disposal, could become one of the most representative tourist areas in the north-east of our capital.

The anthropogenic tourism potential of the Căldărușani lake surrounding area sights is the religious monuments category, some included the National Heritage List which include: the Căldărușani monastery in Gruiu village (built by Matei Basarab in 1638), Balamuci-Sitaru Monastery in Grădiștea common (founded by Papa Greceanu in 1627) and "Liviu Constantinescu" Geodynamics Observatory (founded in 1943).

Natural tourism potential is supported by Căldărușani lake (with a total area of 224 ha and a maximum depth of 4 m) and Căldărușani Forest Reserve (125 ha, out of 468 ha, as the forest is).

These natural and anthropogenic objective analysis of the tourism potential in Căldărușani lake area can add Alexander Ghica family Palace, located in the Căciulata village in Moara Vlasiei common, Ilfov county, 5 km from the lake, tourist attraction included on Historic Monuments List, completed in 1834 by Prince Demetrius Alexander Ghica.

The most important tourist attraction has famous place of worship located on a peninsula that reaches into the lake of the same name. Inside Căldărușani monastery, built by Matei Basarab in 1638, is a museum with works of the great painter Nicolae Grigorescu.

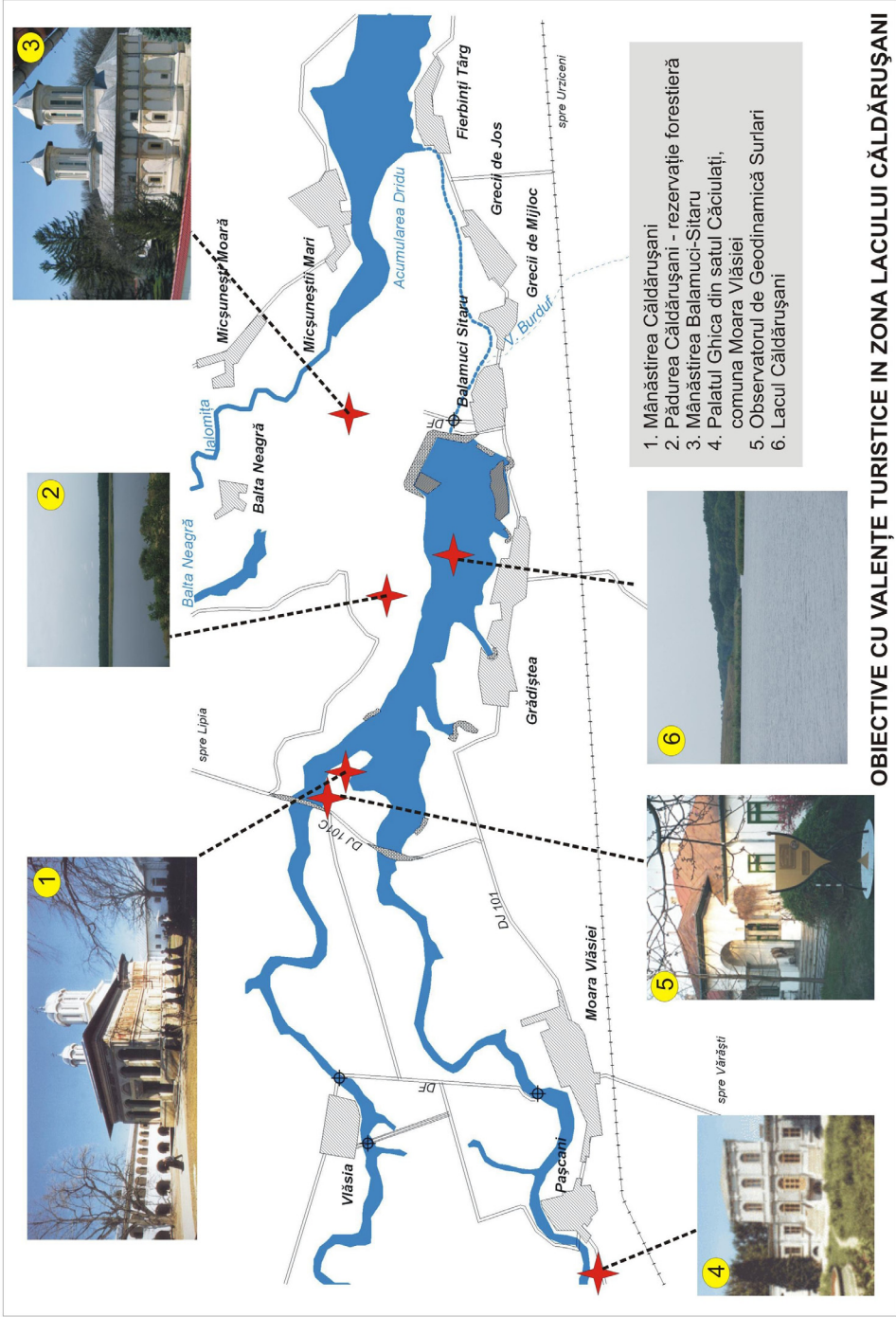
The following are the broad main attractions of the Căldărușani lake area (Fig. 2).

2.1. Căldărușani Monastery

This is a monastery of monks with the abbot in 2010 as Lavrentie Gata Protosingel. The objective is located in Gruiu common, in Ilfov county, at 40 km North-East of the capital. The easiest accessibility from Bucharest is from North Railway Station by urban transport 205 line to the Free Press Square, then pre-town 452 line.

Monastery founded by Matei Basarab in 1638 is dedicated to: St. Demetrius, St. John Evangelist, St. Barbara, All Saints Sunday.

At the beginning of seventeenth century, in the Vlasiei Forest Matei Basarab built in 1638, near an old wooden monastery, one of the most important religious monuments, Caldarusani Monastery.



OBIECTIVE CU VALENTE TURISTICE IN ZONA LACULUI CĂLDĂRUȘANI

Figure 2 Touristic objectives in Căldărușani lake area
 (GIS processing of .shp vector source: www.geo-spatial.org)

Prince also raises three sides by a wall of defense cells in the east, the city is provided with a high watch, tower - Bell today, all of which are surrounded on three sides by Căldărușani lake.

In the right side of the entrance is the cellar (which still retains the original vaults), being above it is old Prince Matei Basarab throne room which now houses the Treasure Room, here are exposed crosses, chalices, vestments bishops, embroidery, candles, all of a huge value.

The original painting was restored in 1778, 1817, 1911, the last time by the Belizarie painter (Vlasie M., 2005).

Monastery Museum houses objects of great value: icons and paintings of great artists (Eugene Lazar, Nicolae Grigorescu, George Tatatascu, Sava Hentai), silverware, sacred vessels, vestments bishop, gold and silver embroidery, etc. We mention the library that houses thousands of manuscripts and religious books in Latin, Greek, French, Italian and Romanian, dating from seventeenth century to the present (Vlasie M., 2005).

2.2. Balamuci-Sitaru Monastery

This is a monastery of monks having in 2010 Silouan Ionascu monk as the abbot. The objective is located in the Grădiștea village in Ilfov county, at 46 km North-East of the capital. The easiest accessibility from Bucharest is from North Railways Station by urban transport line 205 to the Free Press Square, then pre-town 452 line.

Monastery founded by Papa Greceanu Jupan in 1627 is dedicated to St. Nicholas.

Balamuci Monastery is located in North-East of Ilfov county, in the forest near the Sitaru village of Grădiștea common and is also known as the Sitaru Monastery. Today Sitaru Monastery is a monument with religious meanings.

In XVI-th century , the current place of monasteries there was a wooden church with the same dedication. In 1627 Papa Greceanu Grand Chancellor (1587-1632) built a stone church, enclosure walls and cells. The present church is made by a descendant of the founder, in 1751-1752, Gheorghe Greceanu Jupan (Vlasie M., 2005).

From the same period dates the church painting, made by the Dima priest of Brasov with his disciples. First document attesting to the monastery is given by Prince Leon Tomșa to April 15, 1631 (*Monasteries Guide in Romania*, 2011).

Mound that monastery was built was originally an island in the Ialomita river, for which, Patriarch Macarius of Antioch, who visited the monastery in 1656, called it "Monastery in the water". Later, they changed the water course, the island remained a simple hill.

2.3. Căldărușani lake

Lake is located about 45 km from Bucharest near Grădiștea settlement. It is an old river estuary with 2.75 km² area and about 4 meters deep.

Căldărușani fluvial estuary is formed by the mouth of Ialomita river silt anastomosis, it lies in the right side of its basin (Gâștescu P., 1963).

The area enclosed by the 0 m isobath provide virtually the most important value that is used in calculating of lake technical characteristics. Dam altitude is 74.5 m above Baltic Sea (BS) is located at 7.5 m above the riverbed lake. Characteristic levels for the lake operation are 68.5 m above BS, where the minimum is and maximum 74.1 m above BS. This level has been operating for 1% probability in the exceptional floods. The rate used to describe a lake is the normal level of retention (NNR), which in Căldărușani lake case is 72.3 m above BS, it means is 5.3 m above the riverbed and 2.2 m under the dam (Paul D., 1971).

Lake is undergoing a process of eutrophication especially *macrophytes*, which harms fish fauna (Calinescu R., 1956). Fishermen finding here zander, catfish, perch, pike and carp (C.S. Antonescu, 1963). Is a hut near the lake (now private) provided with boats and marina.

The north of the lake is bordered by forest with the same name that is a remnant of "Vlăsia old forest". This is good for hunting pheasants and rabbits, some of it forming a forest reserve that houses species of oak, poplar and willow. To the west of it has set up a pheasantry.

2.4. Căldărușani Forest Reserve

Căldărușani Forest Reserve is located in north of Ilfov county (at 31 km from Bucharest) and was declared a protected area by the HCM no. 114 of 1954. Forest lies north of Căldărușani lake, starting from its bank.

Forest was probably more extensive in the past, but deforestation to gain new arable land have greatly reduced area. From Căldărușani body forest, totaling 468 hectares, only 125 ha is forest reserve, that the parcels in the vicinity of the lake, on left bank (northern) (Gh Mohan, A. Ardelean, M. Georgescu, 1993).

This forest shelters secular oaks (*Quercus robur*), vestiges of the original trees which vegetate with poplars (*Populus alba*) and willow (*Salix alba*). Rest of the ancient Vlășia forests by "mixed foliage forest" type, Căldărușani forest is a particular form of development, given this climate and the substrate conditions.

Thus, 30 days per year average temperature is between 0 and 10°C and 185 days exceed 10°C. Number of days of winter is 30-35, and those with frost ranges from 95-115. Number of days with temperatures above 25°C is 100-120, and the tropical days (temperatures above 30°C) is 30-35. Annual precipitation ranges around 500 mm, the largest amount falling in June (91.9 mm) and lowest in February (31.5 mm) (Berbecel O. et al., 1960).

Shrub layer is the horn (*Cornus mas*), carp (*Cornus sanguinea*), hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), soft chain (*Evonymus europaeus*) clocoțiș (*Staphylea pinna*), smoke tree (*Cotinus coggygria*), wild cherry (*Cerasus vulgaris*) etc.

Arbosrescent layer is dominated by oak (*Quercus robur*), which is accompanied by demand (*Quercus cerris*), greyish oak (*Quercus pedunculiflora*), flasks (*Quercus frainetto*) and Tartar maple (*Acer tataricum*) (Pop E., N. Sălăgeanu, 1965).

2.5. Surlari Geodynamics Observatory

Surlari "Liviu Constantinescu" National Geomagnetic Observatory (also often short called Surlari Geomagnetic Observatory) was founded in 1943 as a research unit of the Geological Institute of Romania (C. Alexandrescu, 1974).

Căldărușani Geodynamics Observatory has geographical coordinates: northern latitude = 44°40'36" and eastern longitude = 26°16'12". It is located about 30 km north-west of Bucharest, in a active geodynamic region associated to several structo-genetic Precambrian-Tertiary, especially to Intra-Moesian fault.

Observatory is a center for fundamental research in geomagnetism and also works as a reference station for compiling national geomagnetic maps.

Internationally, is part of a global network of INTERMAGNET geomagnetic observatories, studying planetary magnetic field structure and phenomenology. Database Centre covers six solar cycles since 1943 (Jordan I, 1973).

The laboratory is furnished in an old building that belonged to Căldărușani Monastery, near of the same name lake. Laboratory facilities, arranged in the basement, helps clinometrics observations, micro-gravity, temperature and atmospheric pressure, digitally recorded with a National Instruments equipment. In the court of Observatory has installed a pilot plant to a depth of 3 m below ground level, containing a 10 m vertical pendulum, an GS 11 BN gravimeter observer and other devices facilities.

2.6 Alexandru Ghica family Palace

The palace is located in Ilfov county, Căciulați village Moara Vlăsiei common. Accessibility is by the DN 1 Bucharest - Ploiesti, then DJ 101 through Balotești to Căciulați village. Current administrator is the Romanian Academy. This objective is included on Historical Monuments List (LMI Code: IF-II-aB-15268).

Ghica Palace is known as "to the Academy". It's a beautiful building from the early nineteenth century. It was completed in 1834 by Demetrius Alexander Ghica Prince.

Palace is located in the Moara Vlasiei common first documented in 1622. By 1807 the estate was Ianache Mavrodin squire, who sells to D. Ghica. This leaves legacy of Alexander Ghica, ruler of Țara Românească (1834-1842) and then caimacan (1834-1858). In 1924 the Palace was donated to Romanian Academy which it owns today.

Palace with interesting architecture is well maintained, has large rooms with all facilities. It is located in a park with old trees, with back terrace which is looking on a garden and lake. Elegant furniture Louis XVI style who was in one of the bedrooms, belonged to Elena Lupescu, who lived here a while.

Current village named Căciulati was because there were given places of soldiers returning home from war. Near the palace is the "Assumption" Church built in neoclassical style. Church contains the following inscription: *"This holy church was the foundation of too pious Ghica Alexander, Prince of Țara Românească in 1832 and was restored in 1890, by Mrs. Mary Blaremborg"*.

3. FAVORABLE AND RESTRICTIVE ELEMENTS TOWARDS TOURISM INDUSTRY IN THE CĂLDĂRUȘANI LAKE AREA – SWOT ANALYSIS

In this section of the paper we present the favorability and restrictive elements for the tourism industry in the Căldărușani lake area in a SWOT analysis form.

Strengths and weaknesses are related to the involved settlements (Nuci, Grădiștea and Gruiu) and their strategies. Opportunities and threats coming from the market environment and competition are usually the factors on which generally has no control.

Strengths:

1. Conditions existence for rural tourism development;
2. The existence of cultural and religious monuments of interest: Căldărușani Monastery in the Gruiu village (founder Matei Basarab, 1638), Balamuci-Sitaru Monastery in the Grădiștea common (founder Jupan Papa Greceanu, 1627), "Liviu Constantinescu" Geodynamics Observatory (founded in 1943);
3. The existence of natural attractions: Căldărușani lake (224 ha area, 4 m maximum depth), Căldărușani forest reserve (125 ha, out of 468 as the forest is);
4. Alexander Ghica family Palace proximity, located in Ilfov county, Caciulati village, Moara Vlasiei common, at 5 km from the area, objective on Historical Monuments List, built finished in 1834 by Demetrius Alexander Ghica Prince;
5. Localities are crossed by DJ 101C, DJ 101B, DJ 200, DC 10, DC 185 roads.

Weaknesses:

1. Insufficient financial resources, domestic and foreign investment almost zero;
2. Shortage of accommodation, because the area has very few hotels or hostels;
3. Poor quality training in tourist services;
4. Lack of citizens and local authorities concern on environment conservation;
5. Lack of promotion forms of the area to increase the number of tourists on its territory.

Opportunities:

1. Physical infrastructure and utilities improving;
2. Encourage new forms of tourism (leisure, rural, environmental);
3. Extension of farms and households authorized to practice agro-tourism;
4. Availability of additional resources may be accessed by using European Union funding programs.

Threats:

1. Reduced joint response to local environmental changes and challenges, leading to decreased competitiveness of communes involved, to other territories, considered more interesting to tourists and tourism investors;
2. Insufficient publicity of the area to attract tourists;
3. Lack of association between local authorities in involved settlements to promote common development strategies;
4. Tourist migration to other regions who exploit their potential.

CONCLUSIONS

An important attracting point in Căldărușani lake area is the cultural and recreational facilities offered or which could give Grădiștea common especially, so people comfort to be improved. Complementary this will increase the attractiveness of the tourists in Căldărușani lake area.

Tourism can develop because of the Căldărușani lake itself existence, but also tourist valences of cultural and religious monuments in the lake vicinity.

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