доц. д-р ГЕОРГИ ГЕОРГИЕВ
ЮГОЗАПАДЕН УНИВЕРСИТЕТ "НЕОФИТ РИЛСКИ", БЛАГОЕВГРАД

докторант Мария Трифонова Василева
ЮГОЗАПАДЕН УНИВЕРСИТЕТ "НЕОФИТ РИЛСКИ", БЛАГОЕВГРАД

ОПАЗВАНЕ НА ФЛОРИСТИЧНОТО РАЗНООБРАЗИЕ НА БЪЛГАРИЯ КАТО ЕЛЕМЕНТ НА КОНЦЕПЦИЯТА ЗА РАЗВИТИЕ НА УСТОЙЧИВ И АЛТЕРНАТИВЕН ТУРИЗЪМ

PRESERVATION OF THE FLORISTIC BIODIVERSITY IN BULGARIA AS AN INTEGRAL PART OF THE CONCEPT OF SUSTAINABLE AND ALTERNATIVE TOURISM DEVELOPMENT

Associate Prof. GEORGI GEORGIEV, PhD
SOUTH WEST UNIVERSITY "NEOFIT RILSKI", BLAGOEVGRAD

Maria Trifonova Vasileva, PhD Student
SOUTH WEST UNIVERSITY "NEOFIT RILSKI", BLAGOEVGRAD

Abstract: This paper examines the concept of sustainable and alternative tourism development. It supports the thesis that the concept of development of alternative forms of tourism supplements the concept of sustainable tourism, and what is more, it reveals some approaches leading to the desired results. Under observation are some specific features in development of one of the most popular forms of alternative tourism, namely ecotourism. Special emphasis is placed upon the conservation of floristic biodiversity in Bulgaria in terms of the concepts of development of sustainable and alternative tourism. The paper also supports the thesis that the system, encompassing the protected areas in Bulgaria as well as the protection areas under NATURA 2000 plays a certain role for the long-term preservation of the elements of greatest conservation value belonging to the floristic biodiversity. Social methods for recreational evaluation of the floristic biodiversity within protected areas have been proposed. Except for that relevant conclusions and recommendations have been made.
Keywords: sustainable development, sustainable tourism, alternative tourism, ecotourism, protected areas

I.INTRODUCTION:

The physico-geographical location of Bulgaria and its specific nature represented by high mountains featuring snow-retention during the cold half-year together with a sea coast with wide coastal strips, numerous and unique nature sites and cultural landmarks, make the country a preferred tourism destination.

The country was visited by 8 532 972 foreign nationals in 2008 and 5 779 823 international tourists (except for the transit tourists). Out of them 4 765 700 were tourists, visiting the country for holiday and recreation. Bulgarian tourism was dominated by sea resorts situated within the sea municipalities, a limited number of internationally recognized ski resorts (3), spa destinations (4) and the two biggest cities of the country, namely Sofia and Plovdiv, where business and cultural

tourism are well-developed. They concentrated some 90% of tourism activity (according to the statistical data). Furthermore, it was reported that 44 % of all overnights were in July and August and 73 % - in the period June – September. As a whole, Bulgarian tourism is monostructural in terms of territory distribution, seasonality and product diversification. Some 70% of all tourism activities are concentrated on less than 5 % of the territory of the country, showing significant seasonal fluctuations. The summer sea and winter ski tourism represent the dominant part of tourism supply and form to a large degree the image of Bulgaria as a tourist destination among its main target groups – the consumers of mass tourism. A significant share of the territory of the country remains unused or low-developed and the local businesses and communities could not benefit from the prospective advantages of tourism. The majority of the large tourism resorts resemble typical urban settlements, which do not provide favourable conditions for recreation, despite the fact that recreation is the main motive for travel.(National strategy for sustainable development of tourism in Bulgaria 2009-2013).

The search for specific solutions of the problems and conflicts, accompanying the modern tourism development at global and local scale, requires creation and application of two contemporary concepts, namely the concept of sustainable tourism development and the concept of development of alternative forms of tourism[1]. (Rakadziyska, 2007). The latter in turn could lead to an improvement in the competitiveness and the efficiency of the tourist sector in Bulgaria thanks to the effective use and preservation of the available natural and anthropogenic resources, corresponding to the needs of sustainable tourism development.

The concept of sustainable development emerged in the 70-ies of the XX century, placing an emphasis upon the relation between environment and economy. At the **World conference on Human Environment** (Stockholm, 1972) was adopted a **United Nation Environment Programme**. The idea of sustainable development gained wide popularity thanks to the report of the World Commission on Environment and Development (1987), which added a human implication of this term. The same document acted as a catalyst in the evolution of the idea of sustainability and led to a series of debates and disputes at the same time. In 1991, the **International Union for Conservation of Nature** (IUCN) and the **World Wildlife Fund** (WWF) published together a document, titled **Caring for the Earth - A strategy for sustainable living, which further developed the concept of sustainability defining it as "improving the quality of human life and keeping within the Earth's carrying capacity"**.

A new stimulus was given at the **Conference on environment and development (Rio, 1992**). The conference resulted in the adoption of Agenda 21, which turned into a base for a series of international, national and local initiatives in this field. Moreover a declaration containing 27 principles was adopted. The first principle states - "**Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature". It is considered that this is a new philosophy of development of the society, a well-founded reason for integration of social, ecological and economic aspects in decision-making in the realm of practice, the latter aimed at ensuring the living and working conditions of the future generations. Since the beginning of the new millennium the concept of**

[1] RAKADZIYSKA S, 2007, Concepts of development of sustainable and alternative tourism, At Introduction to Tourism, Publishing House "Science and Art", University of Economics, Varna, p.128. (in Bulgarian)

sustainable development is taken into consideration by an increasing number of organizations as the only meeting point of the interests of businesses, people and community, and most importantly by the future generations. The forum in Johannesburg (2002) was dedicated to the further enlargement and application of the decisions made in Rio.

Sustainable tourism is a relatively new term, emerging as a continuation of the concept of sustainable development, launched at the Rio conference (1992). Sustainable tourism aims to minimize the influence on the biological environment, but also to promote and encourage nature conservation practices among tourists in the phase of formation of markets, which generate tourists. In its nature this is an evolution in tourism, considering the interests of visitors and hosts alike. All activities within the area of visitation have to comply with the carrying capacity of the natural resources, that is to keep the principle of optimal use and economy of the exploited resources.

The above mentioned concept is subject to continuing debates and discussions, at theoretical and empirical level. For the purpose of this research we have adopted the definition given by the Federation of Nature and National Parks (EUROPARC). It defines **sustainable tourism as "all forms of tourism development**, **management and activity that maintain the environmental**, **social and economic integrity and well-being of** n**atural**, **built and cultural resources in perpetuity**". **In this respect the following requirements emerge in the context of sustainable tourism (Rakadziyska, 2007):**

- **To generate economic benefits for tourists and the local communities, as an integral part of a balanced economy;**
- **To reflect the needs of the local communities; the latter to be involved actively in decision – making; to ensure employment of the local community at all working levels; to provide controlling functions of the host community concerning tourism development; to ensure well-paid and attractive jobs;**
- **To prevent encouragement of elitarism; to contribute to a balanced international and regional/ local tourism development;**
- **The scale of development to comply with the carrying capacity of the host community and its resources such as landscape, history and culture;**
- **To be kept into consideration that physical and cultural environment is of eternal value, exceeding the singular value as a tourism resource, and for that reason it must serve not only the modern needs but also the ones of the future generations.**

The concept of development of alternative tourism forms supplements the concept of sustainable tourism and what is more it reveals some approaches, leading to desired results (Rakadziyska, 2007)[1].

Alternative tourism is determined as a shift of the dominating models of tourism development at three levels – socio-culture and tourism ethics, economic results and environmental protection (Wackermann, 1988).

According to the above mentioned author, citing Wackermann (1988) alternative tourism is impossible to be realized without alternative forms of hosting, servicing and qualifications of employees. In this sense alternative tourism is considered as a dynamic system, that could not be interpreted only as a combination of structural elements, but as an interaction of steady, compulsory and simultaneously active relations among these elements. On the other hand they eliminate the

[1] RAKADZIYSKA S, 2007, Concepts of development of sustainable and alternative tourism, At Introduction to Tourism, Publishing House "Science and Art", University of Economics, Varna, 128-129 pp. (in Bulgarian).

disadvantages of the mass conventional tourism such as **high concentration of tourist flows, coverage of large spaces, dissemination of advertisitng products and clichés and etc.** The existing unified and undiversified tourist products, being a prerequisite for the phenomenon of gigantism, could not satisfy the needs of those tourists who have special motives to undertake travel. Alternative tourist products, on the other hand, are expected to provide original combinations of the elements of the natural and anthropogenic landscapes. The latter have to ensure security, tranquility, comfort and special conditions such as regulation of tourist visitation**.** That way the forms of alternative tourism are opposing to the mass tourism[1] (Rakadziyska, 2007).

One of the most popular forms of alternative tourism is ecotourism. The latter is also called in our previous publications tourism of protected areas (1998) and protection areas under NATURA 2000. These are areas under a special regime of protection for their valuable genetic fund, endangered and rare species, threatened with extinction relict and endemic species, whose scientific importance extends beyond the boundaries of the country. At the same time the biodiversity in one of the areas of greatest nature scientific importance was seriously threatened as a result from the overbuilding. Currently a series of international initiaves are undertaken with the aim to ensure its preservation. Using as starting point the thesis that Bulgarian tourism needs adoption of some ecological limitations and restriction which could ensure its sustainable development, this paper aims to:

1. To make an analysis of the floristic biodiversity of Bulgaria, placing an emphasis upon the endemic, relict, rare and endangered plant species, as well as the most important habitats of science and nature conservation;

2. To determine critical areas for conservation of floristic biodiversity which have to serve as a basis for the further use of natural ecosystems for recreational purposes. To propose criteria and indicators for their recreational evaluation;

3. To make relevant conclusions and recommendations in accordance with the concept of sustainable tourism and the concept of alternative forms of tourism.

II. MATERIALS AND METHODS

For the purpose of this research there have been used recognizable observation methods and approaches for data and information collection. Some other sources have been used, provided by the Ministry of Environment and Water, the Directories of Bulgarian National and Nature parks, and all 15 Regional Inspections on Protection of Environment and Water, the Ministry of Economy, Energy and Tourism, the Ministry of Regional Development and Public Works, the Ministry of Agriculture and Food, the Executive Forest Agency, research publications from international scientific forums, dedicated to biodiversity and protected areas, as well as a series of publications of Bulgarian and foreign authors. The analysis is conducted and the results have been established by the means of comparative and analytical approaches. Last, but not least personal observations in some of the protected areas have been undertaken. The working methods that have been used for the purpose of this research include description, diagnosis, analysis and synthesis, comparison, statistical and expert methods.

[1] RAKADZIYSKA S, 2007, Concepts of development of sustainable and alternative tourism, At Introduction to Tourism, Publishing House “Science and Art”, University of Economics, Varna, p. 129. (in Bulgarian)

NATURE OF METHODS:

1. Descriptive and diagnostic methods have been used to establish the state of the subject of study;
2. Methods of comparison have been used with the aim to determine and compare the state of the subject of study at national and global level;
3. Methods of analysis and synthesis allow to be established the common features, characterizing the examined processes. They have been used to facilitate management decision-making;
4. Statistical methods based on collective approaches allow examination of the registered problems, establishment of the main trends in their development and creation of prognoses and managerial solutions;
5. Expert methods have been used to identify the main problems, to develop prognoses and to provide management decisions as well as to undertake specific guidelines, recommendations and measures.

This methodology is aimed at identifying the actual status of the problems in Bulgaria and other countries and establishing development trends, concerning the level of sustainability. They in turn serve as a basis for the further maintenance, management, and conservation of protected areas as well as for expanding of the existing opportunities for international cooperation in this field.

III. RESULTS AND DISCUSSION:

Bulgaria is located in the Southeastern part of the Balkan peninsula, on the territory of the broad-leaved summergreen biomes and mixed forests of the temperate zones of the northern hemisphere and in the westsiberian region of Palearctic biogeographical realm.(Gruev, Kuzmanov, 1994). This is a precondition for its rich biodiversity, comprising plan and animal species. The character of the vegetation cover, its content, age, and level of anthropogenic impact represents an important prerequisite for tourism development. In morphobiological aspect the contemporary natural plants in Bulgaria constitute combination of tree, shrub-like, semi-shrubby and herbaceous biocenoses (Velchev, 1997).

Tree forest biocenoses are dominating, encompassing 3 348 000 ha which account for 30,16 % of the overall territory of the country. Natural plants cover 2 295 000 ha, which is 59,3% of the forest fund. As a result from the mass forestation in the past forests of artificial origin are 1 032 100ha (26,7%).

Pinus mugo (tree or shrubby species) are subject to individual statistical reporting due to their conservation importance. They encompass 29 000 ha (0,5%) (Bozhinov, 1994). According to the same author coniferous forests cover 1 070 000 ha, accounting for 33,33% of the timberland (without taking into consideration the species of *Pinus mugo*). The broad-leaved forest trees cover 710 500 ha (21,4%). There are a lot of low-productive and minor plantations which have to be replaced by tree species of high productivity and quality wood. Their coverage is 608 100 ha (18,3%). Tiller plantations, that could become high-stem by the means of stored coppice cover an areas of 348 400 ha (11,9%). Low-stem plants, on the other hand, represented mainly by *Robinia pseudoacacia* occupy 3.5% of the timberland (without Pinus mugo), which account for 117 000 ha.

The average age of forests is 42 years. The majority of plants belong to a second age category (21-40 years) accounting for 31,9 % while the ones of first age category (up to 20 years) account for 30,6 %.(Bozhinov,1994).

The largest share of forest tree biocenoses is represented by *Fagus sylvatica, Quercus cerris, Quercus frainetto, Quercus dalechampii, Pinus silvestris, Picea abies,Abies alba, Pinus nigra* and etc. The evergreen sclerophyll

species are.limited, disseminated mainly along the rivers of Struma and Mesta.

Second most frequently met are herbaceous biocenoses. The majority of them are represented by the species of *Dichantium ischaemum, Crysopogon gryllus, Poa bulbosa*, *Nardus stricta* and etc. Typically met are also shrubby biocenoses of *Paliurus spina-christi*, *Cotinus coggygria, Syringa vulgaris, Juniperus oxycedru, Juniperus communis* and etc. Large areas are covered by the semi-shrubby species of *Satureja montana, Artemisia absinthum* and others (Velchev, 1997).

Despite the relatively small territory and due to the natural and geographical features, Bulgaria is rich in floristic biodiversity. Its vegetation contains some 7 200 green plants. Out of them the higher plants are divided into 130 families and 872 genera comprising of approximately 3550 to 3750 species, 847 sub-species and 2000 varieties. The dominant families are represented by *Asteraceae* - 470 species; *Fabaceae*- 278 species; *Poaceae* -237 species; *Rosaceae* - 207 species; *Caryophyllaceae* - 187 species; *Brassicaceae* - 169 species and etc. The main components of the forest ecosystems for their nature scientific importance are represented by a relatively small in number families, including *Pinaceae, Fagaceae, Aceraceae, Corylaceae* and etc., which in turn form the main vegetation belts in the country. The richest in species and genera, being of greatest importance for the ecosystems are the families of *Fagaceae: Quercus*-26 species; *Poaceae: Festuca* - 36 species; *Bromus* – 26 species; *Poa* - 14 species; *Fabaceae*:*Trifolium* - 59 species: *Vicia* - 36 species:*Lathyrus* - 28 species; *Medicago* - 14 species; *Asteraceae*: *Centaurea* - 35 species, *Anthemis* - 14 species; *Senecio* - 18 species; *Rosaceae: Rosa* - 44 species; *Potentilla* - 34 species; *Alchmilla* - 35 species: *Brassicaceae*:*Cardamine* - 17 species; *Allyssum* - 13 species; *Caryophyllaceae:Dianthus* - 22 species: *Minuartia* - 19 species: *Cerastium* - 18 species; *Lamiaceae:Thymus* - 25 species; *Stachys* - 20 species and etc. Or 30 genera comprising of more than 20 species; 464 genera of 10-20 species and 100 genera of fewer than 10 species (Peev and others,1993).

A significant share of them inhabit the areas up to the upper limit of vegetation zone (600 – 700 meters above the sea level), as well as the oak and yoke-elm subzone (from 700 to 1000 – 1300 m above the sea level) within the mesophyll deciduous forests. The most diverse vegetation is spread over the mountain region of Stara planina, followed by Rodophes, Pirin and Rila mountains, the karst regions in Thracian lowlands, Tundja hill region, the Black Sea coastline, Dobrudza and Danube valley. Up to 500m above the sea level in vertical direction are spread 2 246 species, from 500 to 1000m above sea- level – 2137 species; from 1000 up to 2 500m - 780 species and above 2500 m – only 144 permanent species. The carbon rocky ground is a precondition for the rich biodiversity. In terms of biological groups the plant species in the country are divided the following way: perennial species – 2 264; biennial species – 353; annual plants – 515. The presense of a great number of perennials, the variety of ecological niches and phytoclimatic influence as well as the differences in altitude represent prerequisites for diverse evolution mechanisms and natural selection. (Peev and others, 1993).

A distinctive characteristic of the Bulgarian biota, including contemporary natural vegetation represents their endemic and relict character.

Endemic plants comprise of 170 Bulgarian endemic species and 100 sub-species, as well as 200 Balkan endemic species and sub-species. Bulgarian endemits account for 4,9 % of the flora of the country, which in turn makes it a unique country within the European continent. If endemic sub-species are taken into consideration the above

percentage increases significantly, reaching 8 %. According to Peev and others (1993) it would increase even more, if the Balkan endemic species are added. Some of them have been formed within the territory of our country, in particular in the Rhodopes, Pirin and Slavianka mountain. During the quaternary period they have also been disseminated to other regions of the Balkan peninsula.

The distribution of Bulgarian endemic species and sub-species has been very irregular, related mainly with mountains. Stara Planina mountain is ranked first, reporting for over 90 Bulgarian endemic species and sub-species. Twenty of them represent local endemits. The next in the rank is the Rhodopes mountains where 80 species and sub-species are found and 16 of them are locals. Pirin mountain reports for over 70 species and subspecies, 30 of which are locals or Pirin endemits. 50 species and sub-species are found in Rila mountain and 10 of them are not found anywhere else. Vitosha mountain reports for 25 species and subspecies; Strandza counts 12 species; Sredna gora mountain – 12 species; Belasitza mountain – 8 species; Osogovo mountain – 6 species and etc. Currently Bulgarian endemic species and sub-species living in the valleys and lowlands as well as in the foothills are relatively few. They occupy limited regions of lush shrubby and herbaceous vegetation. Probably, the latter have been widespread in the past, but due to the human activities their areas have decreased dramatically.

We must emphasize that endemism in Bulgaria reveals the specificity and genetic features of its flora. The regional character of Bulgarian endemism proves that the country is rich in ecological niches and has a diverse phytogenetic and phytoclimtic history. The high percentage of Bulgarian and Balkan endemits which are representatives of high plants has resulted from a series of factors. The most important of them is the geographical location of Bulgaria, situated between the European forest broad-leaved, the steppe and the Mediterranean phytoclimatic areas, as well as the diverse geological and geomorphological features. The latter is represented by high mountains, plains and valleys, the existing climatic specific features as well as the sea influence, allowing dissemination of plants of various type, including – arctic, sub-arctic, mid-european, steppe and Mediterranean ones. The wide gamut of ecological niches is based on the complex relief, diverse rocky grounds, the variety of the soil cover, the wide variation of hydrological conditions, the rich geological history and etc. (Peev and others,1993).

Another essential feature of the contemporary natural vegetation in Bulgaria represents the presence of a great number of plants and plant biocenoses of ancient origin, or the so-called relict species (tertiary as well as glacial species). A lot of higher plants belong to relict elements. Special attention is paid to species of tertiary age, which are the oldest found within the territory of our country. Some of their representatives include *Aesculus hippocastanum, Rhododendron ponticum, Laurocerasus officinalis, Haberlea rhodopensis, Taxus baccata, Fagus orientalis, Herminium monorchis, Serapis vomeracea, Limodorum abortivum, Astragalus physocalix, Astragalus thracicus, Astragalus wilmottianus, Cistus salvifolius, Primula vulgaris subsp. sibthorpii. On the other hand glacial relicts include the following species - Primula deorum, Empetrum nigrum, Meum silaus, Oxytropis urumovii, Elyna bellardii, Carex rupestris, Juncus triglumis, Lloydia serotina, Salix retusa, Salix pentandra, Arenaria pirinica, Papaver degenii, Saxifraga aizoides, Saxifraga ferdinandii-coburgi, Potentilla fruticosa,Astragalus centralpinus* and etc.

Relict species and biocenoses are very important for the determination of the origin and development of the natural vegetation as well as for the strategy of their conservation (Velchev, 1982).

The established plant biocenoses in Bulgaria refer to 12000 associations and 700 formations, thus distinguishing the rich biodiversity of the country. Their main features and characteristics are predetermined by the natural wide distribution of biocenoses, as described above. The specific features of the country, on the other hand are dependant on the biocenoses of limited dissemination. In this respect the representatives of Bulgarian and Balkan endemits are of great importance. Bulgarian endemic biocenoses include *Astracantha aitosensis, Primula deorum, Centranthuskellereri, Festuca stojanovii, Carex tricolor* and etc. The majority of the Balkan endemic species are represented by *Pinus peuce, Genista rumelica, Convolvulus boissieri, Festuca valida, Festucopsis sancta* and etc. Unique biocenoses for their nature that could be found in the country and in Europe include a series of tertiery relicts, some of them being also endemits. They are *Fagus orientalis* including an ever-green sub-spieces of *Rhododendron ponticum*, *Fagus sylvatica* and its ever-green sub-spieces of *Laurocerasus officinalis, Aesculus hippocastanum, Ramonda serbica* and others (Velchev,1997).

A typical feature of the Bulgarian vegetation represents the wide distribution of secondary biocenoses of plant species of various character. Their formation has been influenced to a large degree by a negative anthoropogenic impact. The facts, proving the above statement could be found in the intensive deforestation of large areas within the country, especially in the sub-mountain and low-mountain areas, as well as the wide distribution of secondary, mainly herbaceous and shrub-like biocenoses. Exceptionally especially influenced in this sense are wide areas in the subalpine zone of the highest mountains in Bulgaria. At the same time strong deterioration of the structure and scope of content of plant species has been registered. This process has often been accompanied by invasion of ruderal and anthropophyte plants in natural biocenoses. The majority of herbaceous species have such a charter. They are represented by *Dichantium ischaemum, Chrysopogon gryllus*, as well as lots of forest and shrubby-like species such as *Paliurus spina-christi, Juniperus oxycedrus, Carpinus orientalis, Juniperus sibirica* and etc.(Velchev,1982,1997).

It is obvious that the recreational use of the mountain and seaside areas creates a real threat of extinction of valuable genetic fund. This issue is especially important in regard with the investment interests in some of the most unique in natural scientific value mountain territories in the country including Rila and Pirin mountain.

Based on this floristic review of the country and taking into consideration the analysis of the rare, endemic and relict species, we think that the criterion of conservation significance is extremely important with a view to the evaluation of the floristic biodiversity. Species of conservation importance could be rare, world, European or national protected endemic and relict taxa. In terms of the plant taxa these are the species, enlisted in the IUCN Red List of Threatened Species, the Convention on the Conservation of European Wildlife and Natural Habitats (Bern), the European list (E/ECE/1249); the Convention on International Trade in Endangered Species of Wild Fauna and Flora, also the species enlisted in the Red book of Bulgarian endangered species as well as the species under protection by the Law on biodiversity (2002). Furthermore, being of conservation importance are also the taxa and habitats, enlisted in Appendix 1 of the Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora; also Resolution No 4 (1996) listing endangered natural habitats, requiring specific conservation measures; Appendix 1 of the Law on biodiversity (2002).

The sustainable status of such systems ensures an efficient tourism development whereas it also requires a

specific approach, based on the common principles of sustainable development. **The approach, based on the use of criteria and indicators is approved as a necessary assessment basis aiming at balanced development of any system of such kind. Its numerous components and content suggests the use of a set of specialized criteria and indicators, concerning all aspects of tourism processes with a view to the specific nature of the complex tourist activity. The application of this approach into tourism management could ensure to a large extent achievement of a sustainable development.** (Yordanova, Mateeva, 2005). Moreover indicators are needed in the process of tourism planning. They also have to track the progress aimed at achieving the goals of sustainable development. **Being precisely determined in the legislative documents, they convert to norms and requirements in the process of implementation of tourist projects and become regulators of the conducted tourist activities.** (Asenova, 2002).

A sustainable tourism development suggests rational use of the recreational and tourist potential of the areas with a view to its preservation, serving as a basis for tourism activities of the future generations. In order to ensure such sustainability it is necessary to create a purposeful system of mechanisms aiming at optimal assimilation and cost-effectiveness of the resource potential. Sustainable management of the recreational resources is implemented through an assessment analysis, starting from the available resources and tourism conditions, passing through the forms and means of tourism activities and reaching the organizational and legislative mechanisms managing the whole recreational and tourist system with a view to the social and economic prosperity of the local communities. (Yordanova, 2003).

In particular the level of development of sustainable tourism is assessed by several criteria groups, which register the importance of tourism on the one hand, while reporting for its effects on the basic elements of each individual territorial and tourist system, namely – resources, tourists and local communities.

Every group of criteria is formed on the basis of the existing relation between the carrying capacity of the resources in protected areas and the form of tourism, appropriate for its category. Moreover, the protected regime and the legislative regulations are also taken into consideration.

The popular postulate, stating that there is a need for science to serve the real practice suggests the latter to find the meeting point between theoretical knowledge and real conditions. Furthermore, the scientific results are needed to penetrate deeper into practical problem –solving. This postulate referred to the idea of sustainable development means that scientific and theoretical research should adapt to the real process of sustainability. The starting point could be in the form of developed criteria and a theoretical model, followed by scientific experiments in order to finish with a working model for the practice. (Yordanova, Mateeva, 2005).

The criteria system for sustainable management of tourism resources as a cameral, theoretical product could become an actual model of sustainable development on the condition that it is adopted into concrete real conditions. Experimental testing of the system of criteria and indicators for sustainable development is appropriate to large extent in protected areas complying with the principles for sustainable development, implying environmental protection. On the other hand the nature scientific character of these areas should not include only conservation, excluding any economic activities on their territory. The latter creates a need to unite cares for the

nature and people as well as to assess the opportunities for use of such areas for economic and social prosperity of the local communities. Similar attitude toward the issues of sustainable development and protected areas lays the basis for a system of criteria and indicators, which results in variable options of experimental models of its practical testing. (Yordanova, Mateeva, 2005).

Based on the above, we have tried to make an attempt to develop relevant set of criteria and indicators for recreational evaluation of biodiversity, including the floristic biodiversity of protected areas, proclaimed by the Law on protected areas (1998) and the protection area in accordance with the Law on biodiversity, due to the fact that these areas are subject to strong investment interests (Georgiev, 2005). For evaluation of the floristic biodiversity there have been established four criteria – **availability, uniqueness, conservation significance and attractiveness.** The importance of each criterion is based on a set of indicators.

In our opinion any evaluation would not be reliable enough without a prior accurate specificiation of the existing genetic fund. The latter is very often neglected by the representatives of design and building companies and organizations, despite the fact that the national and nature parks, the majority of the reserves and managed reserves as well as the most important protected localities have developed and adopted management plans. Unfortunately, it is not the case with the protection areas under the Bird and Habitat Directive, due to the fact that the establishment of the ecological network NATURA 2000 is still at an early stage.

One of the most important indicators for any protected area, attracting tourists represents the indicator, measuring its uniqueness. In terms of the floristic biodiversity, we have established 11 indicators for evaluation, placing an emphasis upon the availability of endemic and relict species and natural habitats, subject to protection of numerous international contracts and conventions.

Each of the indicators is measured on the basis of an evaluation ranging from I to V. We have taken into consideration the fact that national and nature parks, the other protected areas as well as the protection areas under NATURA 2000, are areas under special protection and their recreational use require restriction in the intensity of mass recreation activities. The latter is to be achieved by keeping tourist activities away from the areas under strict regime of protection (reserves and managed reserves).

There are two ways to regulate the level of recreation, applicable to areas of floristic importance around the world. In particular these are direct regulation and manipulative methods.

The first one include all possible ways of restriction on visitation, as well as the ways aimed at increasing the sustainability of the plant cover within the areas designated for stay. The manipulative methods, on the other hand, include means for indirect impact on the levels of tourist attraction, respectively of the alienation of tourists. The practice of recreational organizations around the world reveals that neither legislative established regimes of protection, nor the artificial restriction on visitation could lead to a decrease in the over-exploitation of the areas of scientific and recreational importance. What is needed, though is an establishment of special zones, where the emphasis is placed upon typical resources and sites. The intensification of recreational use of the peripheral and adjoining areas, the creation of favourable conditions for mass forms of recreation in proximity to protected areas serve as an important prerequisite for prevention of the over-pressure on the natural complexes within their boundaries. For that reason

the development of accurate criteria, proving the uniqueness of protected areas is essential for the protection of the biodiversity. Moreover, it could facilitate their further recreational use.

We have to point out that the most important floristic species are logically distributed within the boundaries of the protected areas in the country. Due to the restricted size of these areas and the insufficient data collected in the process of investigation Peev (1999) proposed an amended coefficient, representing the ratio of the number of rare and endangered species and the total number of established species.

$$ConV = \frac{SpC}{PRS}, \text{ where}$$

ConV – is the coefficient of conservation importance;

SpC- the total number of species; PRS – number of rare and endangered species;

On the condition that all examined species are rare or endangered, then PRS = SpC, and ConV = 1. This is the maximum value of the coefficient. If, on the other hand, the number of rare and endangered species is close to zero, then ConV will also be close to zero. The coefficient of conservation importance is directly proportional to the number of the number of rare and endangered species (Peev, 1999). On the basis of the range of values we have proposed an assessment of indicators from I to V in another research (Georgiev, 2005).

The indicator measuring tourism attractiveness is evaluated on the basis of the existing territories, which encompass main types of natural habitats.

Estimating the importance of such a theoretical system of criteria and indicators for sustainable tourism development, both authors Yordanova and Mateeva (2005) consider that the well-known postulate determining the need of the science to serve the practice suppose maximum levels of relevance between theoretical knowledge and reality as well as a tight application of scientific results in the process of problem solving occurring in the real world. This postulate related to the idea of sustainable development means adaptation of scientific and theoretical formulations within the scope of the real process of such development, based on cameral and theoretical approaches, passing through scientific experiments and ending with the real models. In this regard the system of criteria used for evaluation of sustainable management of recreational resources, considered as cameral, theoretical product could turn into a real model of sustainable tourism through the means of its adaptation in the real conditions. The experimental approbation of the system, using criteria and indicators, measuring sustainable tourism could be implemented on the basis of protection areas under NATURA 2000. The latter are most appropriate due to the fact that their state makes them compatible with the principles of sustainable development, implying also environmental protection. On the other hand the nature-scientific character of such areas should not mean only pure conservation, excluding any options for their economic exploitation. The issues of sustainable development its implication with a view to the protected areas, serve as a basis for the numerous aspects and scale of the system of criteria and indicators. This is the reason for the large number of existing versions for its practical approbation". (Yordanova, Mateeva, 2005).At the same time we have to point out that the suggested criteria and indicators for recreational evaluation of the floristic biodiversity of areas of high scientific and nature importance represent an initial stage in this filed and correspond to our efforts to provide a more common system for evaluation of the whole biodiversity and all its elements. The

further improvement of such system of criteria and indicators for evaluation of the floristic biodiversity could be used as an instrument for optimization of the management plans of protected areas, at the stage of development of strategies and programmes for sustainable development at national, regional and local scale. (Yordanova, Mateeva, 2005)

IV. CONCLUSIONS:

It is obvious that Bulgaria has an extraordinary and unique floristic biodiversity which ranks the country among the top places in Europe in this field. It makes it especially attractive for Bulgarian and international tourists. At the same time, as a result from the rapid development of the tourist sector for the last decade, supplemented by intensive and very often unwise building within areas featuring ecosystems of greatest natural and scientific importance, the country is confronted with the real threat to be deprived of valuable genetic fund. Strongly endangered are large areas of Rila and Pirin National Parks, Vitosha Nature Park, the region along the coastline of Kamchia river, Irakli, the South Black Sea region, some areas in the Westren and Central Rhodopes and etc. Subject to random establishment are ski tracks, serious damages are caused on longose forests, sand stripes, wetlands, unique forest ecosystems and etc.

A huge number of floristic species of natural and scientific importance, being subject to analysis of this research, could be found within the boundaries of the protected areas as well as the protection areas under NATURA 2000. According to us the system of protected areas in Bulgaria has a decisive role in the aim to ensure the preservation of the elements of greatest conservation value at this stage. The National Parks and relatively large reserve are of greatest importance in this field. Nature parks, managed reserves, protected localities and natural landmarks have also certain natural and scientific significance. With a view to the national parks (Rila, Pirin and Central Balkn NP) it is considered that their network is completely established. On the other hand except for the existing nature parks, namely Vrachansky Balkan, Strandza, Vitosha, Sinite Kamani, Rusenski Lom, Shumensko Plateau, Balgarka, Golden Sands, Rila Monastery, Persina and Belasitsa, there are favourabe conditions for proclamation of similar areas in the western and eastern parts of Rhodopes, Central Sredna Gora (also called Sastinska Sredna gora), Zemen Mountain, Western Stara planina and etc. Advanced research works in this scope is conducted in the Eastern Rhodopes.

The concept aimed at structuring the national system of protected areas, encompassing mainly huge areas of national and nature parks and relevantly big reserves has developed rapidly for the last twenty years. It also created good conditions for preservation of large and small complexes of the most significant ecosystems in the country. An important step, especially in terms of the Ramsar sites and the small forest reserves was marked by the introduction of a category of managed reserves.

A series of important sub-biomes, representatives of ecosystems and regions of special biogeographical value are encompassed by a well-regulated system of protected areas. An example could be given with Strandza sub-region located in the South Bulgarian bio-geographical region, as well as the subregions of Stara Planina and Rila and Rhodope sub-regions (including Rila, Pirin, and parts of Western and Central Rhodopes) and also the sub-region of Slavianka situated in the Mountain biogeographical region and etc. On the first place are ranked Rila, Pirin and Central Balkan National Parks, as well as the nature parks of Vrachansky Balkan and Strandza, together with the reserves and other protected areas located within their territory. At the same time, there is a

wide spread negligence in this field and as a result whole biogeographical regions are deprived of such type of protected areas. This is valid to a largest degree for Danube and Dobrudza sub-regions of the Western Bulgarian biogeographical region and the subregion of the Thracian Lowlands of the Central Bulgarian biogeographical region.

A certain role for the preservation of the biodiversity, including the floristic biodiversity, have a series of conventions, directives and programmes for which Bulgaria is a signatory. In this sense of special importance is the Council Directive 79/409/EEC on the conservation of wild birds as well as the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. The latter laid the basis of establishment of the European ecological network NATURA 2000. Similar importance have the Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention), the Convention on Wetlands of International Importance, especially as Waterfowl habitat (the Ramsar convention), the Man and the Biosphere Programme of UNESCO concerning establishment of a world network of biosphere reserves, the Bird Life International programme on the sites of ornithological importance, the CORINE Programme, Plant Life International concerning the sites of floristic importance, the European network of protected areas called Pan Parks and etc. All these initiatives in turn represent a prerequisite for development of ecological tourism in Bulgaria, the latter being an integral part of the concept of development of sustainable and alternative tourism.

"Ecotourism is a form of tourism, supposing travel and stay in relatively undamaged nature. It does not violate the environment, on the opposite, it contributes to the maintenance of the ecological stability. For that reason it places requirements for relevant and adequate management of the recreational and tourist activities complying with the regime of protection of the areas (ensuring their ecological sustainability). Furthermore, tourist activities create such economic conditions that the nature protection becomes very beneficial for local communities."[1](Yordanova, Mateeva, 2005). This definition has laid the basis of the system of criteria and indicators for sustainable maintenance and management of recreational resources in the case of protected areas. The characteristics of the Bulgarian flora as well as the proposed set of criteria and indicators for recreational evaluation of the floristic biodiversity could be an integral part of such system.

[1] YORDANOVA I., Z. MATEEVA, 2005, A concept of a system of criteria and indicators of sustainable tourism, In Issues of geography, Academic press Prof. M. Drinov, Bulgarian Academy of Science, Sofia, p.30. (in Bulgarian)

REFERENCES:

1. ASENOVA M., 2002, The role of indicators for the implementation of sustainable tourism development, In collection of papers from the Scientific conference Tourism in the XXI century, Sofia University press, Sofia (in Bulgarian)
2. BOZHINOV H.1993. Forest resources and their ecological functions in Bulgaria In the In the National strategy for protection of biodiversity Volume 2, Ministry of Environment and Water of Bulgaria, pp.9 – 72 (in Bulgarian)
3. GEORGIEV G., 2005, Criteria and indicators for recreational evaluation of biodiversity in protected areas in Bulgaria, In Issues of geography, Bulgarian Academy of Science, Geographical institute, Sofia, pp.65-85 (in Bulgarian)
4. GRUEV B., B. KOUZMANOV, 1994, General biogeography, University press "St. Kliment Ohridski", Sofia, p.498 (in Bulgarian)
5. STATE AGENCY FOR TOURISM National strategy for sustainable development of tourism in Bulgaria 2009 – 2013, State Agency for Tourism, Sofia, p.52 (in Bulgarian)
6. PEEV D., M.ANCHEV, D.IVANOVA, ST. KOZHUHAROV, A.PETROVA, S.TSONEVA, Bioiversity of the high plants in Bulgaria, In the National strategy of biodiversity protection, Main papers, Volume 1, Ministry of Environment and Water, Sofia, pp.73-125 (in Bulgarian)
7. RAKADZIYSKA S, 2007, Concepts of development of sustainable and alternative tourism, At Introduction to Tourism, Publishing House "Science and Art", University of Economics, Varna, 128-132 pp. (in Bulgarian)
8. VELCHEV V.1982. General specification of contemporary vegetation. In Geography of Bulgaria. Physical and Socio-economic geography Academic publishing house "Professor Marin Drinov", Sofia, pp.420-423 (in Bulgarian)
9. VELCHEV V.1997. Main characteristics and trends in the dissemination of contemporary vegetation In Geography of Bulgaria. Physical and Socio-economic geography Academic publishing house "Professor Marin Drinov", Sofia, pp.265-269 (in Bulgarian)
10. YORDANOVA I., Z. MATEEVA, D. STEFANOVA, I.DRENOVSKI, I. VARBANOV, 2003, Unified model of a scheme of sustainable management of recreational and tourism activities, In Collection of papers from scientific conference "60 anniversary of Golden Sands Nature Park, Varna, 30-31.12.2003 (in Bulgarian)
11. YORDANOVA I., Z. MATEEVA, 2005, A concept of a system of criteria and indicators of sustainable tourism, In Issues of geography, Academic press Prof. M. Drinov, Bulgarian Academy of Science, Sofia, pp.18-33. (in Bulgarian)
12. WACKERMANN G., 1988, Tourism Inernational, Paris, Armand Colin, 163 p.