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APPROACHES REGARDING THE IMPORTANCE OF NATURA 2000 SITES' SETTINGS IN PUPILS' EDUCATION THROUGH GEOGRAPHY. CASE STUDY: VALEA ROSIE (RED VALLEY) NATURA 2000 SITE, BIHOR COUNTY, ROMANIA

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Abstract

The setting of Natura 2000 sites in order to conserve, promote and exploit them as distinctive areas, is both a prerequisite and an opportunity regarding pupils' education also through geography as a discipline. In this context, the present paper aims to outline some practical and theoretical aspects towards familiarizing pupils with the necessity of protecting the environment, to use and depict tourist maps, to use spatial orientation, to recognize various species of plants and dwelling within Red Valley Nature 2000 site, in Bihor county.

Key words

tourism, setting, Natura 2000 site, geography.

1. Introduction

"Natura 2000 is a European network of protected natural areas created in 1992, determined by the need to protect the nature and to maintain the natural resources necessary for socio-economic development on long-term",¹. Lately, as a result of anthropogenic impact increase over the environment, some species of plants and animals in Europe, and beyond, are on the verge of extinction. To counteract this phenomenon, the European Union through its directives, "Birds" 79/409/CEE regarding wild birds' conservation and "Habitats" 92/43/CEE regarding the conservation of natural habitats and species of wild plants and animals, created Natura 2000 network consisting of Avifauna Special Protection Areas (SPA) and of Special Areas of Conservation (SCI).

Regarding the number of Natura 2000 sites, currently at European Union level there are 26.106 Natura 2000 sites covering about 20% of its territory, among which 381 sites are in Romania covering 17.89% of the its surface (OUG..., 2007).

The legislative documents based on which a part of the Romanian surface (17.89%) was introduced into Natura 2000 sites network were: GEO no. 57/20.06.2007 on the regime of protected natural areas, conservation of natural habitats, wild flora and fauna (OUG..., 2007); Order no. 1964/2007 Ministry of Environment and Sustainable Development regarding the establishment of community importance sites within a protected area regime, as an integrant part of Natura 2000 European ecological network in Romania; Law no. 49 from April 7, 2011 on approving the Government Emergency Ordinance no. 57/2007 on the regime of protected natural areas, conservation of natural habitats, wild flora and fauna (Legea..., 2011); Government Ordinance no. 20 from August 26, 2014 amending the Government Emergency Ordinance no. 57/2007 on the regime of protected natural areas, conservation of natural habitats, wild flora and fauna (Ordonanța..., 2014).

Red Valley Natura 2000 site, located on the territory of Bihor County, northwestern Romania is a specific area for *Asperulo-Fagetum* beech forest habitat. It has an area of 819 ha, of which deciduous forests occupy 86%, followed by surfaces occupied by forests in transition (5%), grasslands (5%), vineyards (2%) and orchards (2%). In this area, 14 species of rare plants included on the red list, species of amphibians and reptiles of national importance and a well preserved natural forest habitat are protected (Covaciu-Marcov et al., 2009; Ghira et al. 2002; Herman et al., 2016).

The existence of national and international importance species claims from stakeholders various efforts towards identifying the best ways and means of protecting them. In counterpoint, the existence of Oradea city in its immediate vicinity, with its spatial needs, constantly expanding, is outlined as a risk factor for the Red Valley Nature 2000 site. In this framework, educating pupils through geography represents a first step towards a sustainable exploitation of this area, based on tourism and ecotourism. Currently, due to population density increase per spatial unit, while green spaces decrease, Oradea needs a fresh space where its inhabitants can escape from the daily city life, can find their inner balance in harmony with nature and within a short period of time. In contrast, Red Valley Natura 2000 site aims to conserve and protect the *Asperulo Fagetum* habitat but also plant, amphibians and reptiles species, for which this space was introduced in Natura 2000 network.

The establishment and development of a responsible tourism and people's education, of pupils in this case, towards a sustainable development, is the best solution both for Oradea city, Oradea Metropolitan Area, and also for Red Valley Natura 2000 site.

2. Methodology

The unprecedented expansion of anthropic impact and the changes generated, both at local and global level, have led humanity towards identifying optimal possibilities regarding environment economic exploitation. Therefore, on one hand, the present study aims to address a dilemma, namely "Red Valley Natura 2000 site, between necessity and opportunity", and on the other hand, to provide an opportunity in order to increase pupils' awareness regarding the need to implement a bio-economic recovery system for Natura 2000 sites, in accordance with their preservation and protection needs. Following this background, we wanted to highlight some aspects regarding the importance of Natura 2000 sites settings and students' education through geography. We mention here: familiarizing students with environmental protection need, using and depicting tourist maps, spatial orientation, recognizing different species of plants and animals dwelling in Red Valley Natura 2000 site.

¹ Formularul Standard Nature 2000, 2007 (<http://natura2000.mmediu.ro/>)

3. Familiarizing pupils with the necessity of protecting the environment

According to the International Union for Conservation of Nature (IUCN) a protected area is "a clearly defined **geographical area**, recognized, designated and managed based on some legal documents or other effective means, in order to achieve a long-term conservation of nature and of environmental services and of associated cultural values" (Dudley, 2008, p. 8).

The concept of nature protection comprehends the implementation of "actions to preserve species and ecosystems in a more natural state, their protection against human actions' effects, which often leads to restrictions for human activities". Unlike the concept of protection, the conservation term relates "to a more complex and dynamic approach: could mean keeping in a more natural state rare habitats and species with no intervention on natural processes, but could also allow an active intervention in order to maintain natural values or could even require an active management of natural resources, especially regarding "secondary" ecosystems which resulted from human activities over the centuries (e.g. grasslands)" (Stanciu, Florescu, 2009, p. 6).

The establishment and management of protected areas are a necessity because: "are the most effective preservation methods in-situ, since, being often delimited on relatively large, may include representative natural and semi-natural ecosystems and allow their conservation and monitoring; are model areas where natural and semi-natural ecosystems effective conservation actions, including sustainable use, can demonstrate that maintaining a satisfactory level of natural capital's components, helps ensuring resources and services that underpin sustainable socio-economic development; are real "laboratories" where strict protection or active management actions aiming to conserve biodiversity allow the accumulation of valuable knowledge either on natural processes, or finding efficient "formulas" in order to ensure the transition from a profit-focused economic development to a sustainable development model" (Stanciu, Florescu, 2009, p. 13–14).

At the same time, alongside with urban areas, protected areas can be considered real outdoor laboratories for promoting earth sciences (Fregni, Fioroni, 2007), where pupils can be taught about the importance of nature, conservation necessity and sustainable development. Among the activities that can be performed within the perimeter of protected areas, including within Red Valley Natura 2000 site we mention: using and depicting tourist maps, spatial orientation, recognition of different species of

plants and animals dwelling in Red Valley Natura 2000 site, sports and recreational activities, sports competitions etc.

4. The usage and depiction of tourist maps

Modern human needs, rehabilitation and recreation through tourism, and current tourism increase, have led to the need of using and interpreting tourist maps beginning from early school, based on education through and for the map (Montello, 2002). In this context, the use and depiction of tourist maps related to Red Valley Natura 2000 site imposes by itself, being the framework of spatial orientation, recognition of various species of plants and animals dwelling in Red Valley Natura 2000 site etc.

From a structural point of view, the tourism map related to Red Valley Natura 2000 site (the printed and online version) (fig. 1 and 2) comprehends: "6 tourist trails proposed of a total length of 111.5 km (fig. 1); 6 graphics related to tourist routes, with the name of the route length, maximum altitude, minimum altitude, degree of difficulty; 5 photos with related information, which illustrate various aspects of the area defining the site, information on the morpho-hydrographic units; the locations of: 4 restaurants; 4 accommodation units; 4 points where you can practice other recreational activities; 2 equestrian centers; 1 monastery; 1 wooden heritage church; 2 areas with cellars dug into the substrate, registered as part of the cultural heritage, 1 place where one can practice pleasure flights, 4 points of interest and the locations where it is proposed to be placed: 8 observation gazebos; 6 places for picnic, 2 lookout points; 1 parking; 4 proposed tourist boards; 7 proposed tourist indicators" (Herman et al., 2016, p. 29).

The usage and depiction of the tourism map of Red Valley Natura 2000 site, Bihor County, Romania by pupils can be done by using the printed version (fig. 1, 2) or the online version.

Using the printed version of the map is one of the simplest and accessible methods for pupils (Ilieș, 2009; Wendt, 2013; Ilieș, Wendt, 2015). From a methodological point of view, this can be done individually based on a careful reading of the map, possibly accompanied by some explanation offered by the companion regarding the importance of the Red Valley Natura 2000 site, the importance of the tourist map and its purpose and objectives. Contrariwise the usage of the printed version, using an on-line version is a more attractive and dynamic method at the same time.

5. Spatial orientation

Spatial orientation using the map implies the recognition of surrounding details from the field to the map and vice-versa, the recognition of details from the map to the field. Given the cartographic material elaborated for Red Valley, the orientation or determination of the place where we are and where we want to go is quite simple because the North is indicated on the map. Spatial orientation is done using field details, specified also on the map (cities, tourist paths, restaurants, accommodation facilities, picnic areas, cellars, crossroads, lakes, etc.) and which students can easily recognize (Wendt, 2011). For the orientation of Red Valley Natura 2000 tourist map in relation to field details, is necessary to know at least one direction or a visible landmark in the field, marked also on the map. At the beginning, one must identify on the map landmarks' position, represented by conventional signs which are specified in the map legend; then one must calibrate the map to the left or to the right, so that landmarks' position in the field corresponds to their position on the map.

But, for various reasons, there are situations when we do not have a map or there is no cardinal point indicated on the map (on some older maps the North is not indicated); in these situations things get complicated a little bit, because one has to determine the North at a certain point, and following this direction, one has to determine other directions. Even from primary school pupils are informed about different methods of orientation by observing specific things in nature. The simplest orientation methods, but also less precise are: muscles on tree bark and on isolates walls of rocks are facing North; snow lasts longer on the Northern side of trees and buildings; the growth-rings of trees are closer to each other and tree bark is thicker on the Northern side; at 12.00 o'clock the Sun indicates South; the church altar faces East etc. (Dragomir et al., 1970; Ilieș, 2003; Săndulache, Sficlea, 1966; Linc, 2004; Valeria, 2005; Bențe, 2000; Grigore, 1979).

6. The recognition of various species of plants and animals dwelling within Red Valley Natura 2000 site

It can be an instructive-educational action that can take place both in the classroom, by using a specially elaborated album containing species of plants and animals within Red Valley Natura 2000 site, and in the field, through direct contact with the reality. The Red Valley Natura 2000 site album is a support material for geography classes, which aims to provide

essential information, in an easily accessible way to pupils regarding the species of plants and animals that have their habitat dwelling in this area. To be more attractive, it is recommend a rich iconographic and photographic illustration that can meet textual information. Furthermore, it's substantial to emphasizing the practical and scientific importance of each species in maintaining a sustainable natural geographical environment, beneficial to humanity.

Red Valley Natura 2000 site is "specific to beech forest habitat type *Asperulo-Făgetum*. Besides the three species of amphibians and reptiles listed in Annex II Directive 92/43/EEC (*Triturus cristatus*, *Bombina variegata*, *Bombina orientalis*) within this site may be encountered other important fauna and flora species from which we mention: *Bufo bufo*, *Rana ridibunda*, *Aster sedifolius* ssp. *canus*, *Cimicifuga europea*, *Dianthus guttatus*, *Leontodon croceus* ssp. *Rilaensis*, *Potentilla norvegica*, *Rumex thyrsoiflorus* ssp. *Thyrsoiflorus*, *Vicia sparsiflora*, *Rana dalmatina*, *Alopecurus pratensis* ssp. *laguriformis*, *Chamaecytisus rochelii*, *Corydalis solida* ssp. *slivenensis*, *Dianthus trifasciculatus* ssp. *deserti*, *Orchis morio*, *Rhinanthus borbasii*, *Salvia amplexicaulis*, *Natrix natrix*" (Standard Form Nature, 2000; Herman et al., 2016, p. 30). Assisting the discovery of above mentioned species and not only, we provide the 7 proposals regarding turrets holds location, specified within the touristic map of Red Valley Natura 2000 Site, Bihor County, Romania. They "create special opportunities for discovery by raising the observation act, both literally and figuratively speaking" (Dincă et al., 2012, p. 310).

Alongside with pupils' familiarization regarding environmental protection, the usage and depiction of tourist maps, spatial orientation, the recognition of different species of plants and animals dwelling in Red Valley Natura 2000 site, we can mention other issues such as: pupils' gateway in a natural setting less affected by pollution, with the benefits resulting from this, muscles toning, "contemplation, fusion with nature in the most purest and fulfilling form, joy for eyes and soul, proving each other physical capabilities, discovering some special natural components, some wild animals' behavior and certain humanized ensembles' detail traits" (Dincă et al., 2012, p. 314).

7. Conclusions

The awareness increase among pupils from the corresponding administrative units in the immediate proximity (Oradea, Paleu, Ineu, Oșorhei), through instructive-educative actions which are specific to

life and earth sciences, especially to geography, is an important step towards the conservation, promotion and exploitation of Red Valley Natura 2000 site, Bihor County, Romania.

The present study can represent a useful tool that can be used by all stakeholders in the proximity of Natura 2000 sites. It aims to create a methodological framework, by highlighting some activities among which we can mention: pupils' familiarization regarding environmental protection, the usage and depiction of tourist maps, spatial orientation, the recognition of different species of plants and animals dwelling in Red Valley Natura 2000 site, etc. Each of these activities can be customized based on definitely aspects specific to protected areas and pupils involved in different actions in order to increase the awareness regarding these areas. Furthermore, they can be complemented by other activities.

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