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PROPOSALS FOR THE STANDARD PRESENTATION OF ELEMENTS OF NATURAL AND CULTURAL HERITAGE WITHIN THE SCOPE OF GEOPARK PROJECTS

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Review Article

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Geopark, Geosite, Natural-Cultural Heritage, Geotourism, Geopark Classification System, Standard Identity Card.

ABSTRACT

The aim of this work is to develop suggestions for designated standards for the display of natural and cultural assets in the design of a Geopark. During a continuing dynamic period detailed work continues to be carried out by experts on the natural and cultural assets found within Geosites that are part of Geoparks according to National laws and guidelines and international agreements. This article proposes standard identity cards, to be used during the period of preparation of a Geopark Project within an area that encompasses a known number of natural and cultural assets. This enables a shared organisation and language to be used within the organisation process relating to the consolidation of data, set-up of visitor centres and route planning activity organisation. The identity cards in question should be prepared in such a way that they give short, interesting summary information about the characteristics of these natural and cultural assets that fits well with, and can be used in conjunction with, other information, brochures and map materials. There is also the potential to prepare graduated identity cards according to the interests of different age groups and levels of understanding. The cards, easy to carry and containing safety information, will therefore be useable by every visitor of whatever age or level of interest (professional, amateur), and will also therefore be useable as educational materials. This work will also open up debate about the new classification and assessment system it proposes in the light of legal definitions and terms and other measures practiced across the world. To develop a classification system is the product of long and hard work and the discussions necessary for the progress of the system may last for years. Indeed some classification systems in use for years come to the point of being inadequate in the light of scientific developments and need to be re-designed. This is the path of scientific thought. There is no doubt that conceptual discussion of these developments that are new both in Turkey and in the wider world will continue in the future. Although consciousness of safeguarding as well as legal policies for cultural assets have progressed to a certain point, unfortunately the same is not true for natural assets. This article presents a contribution to all works in this field both through proposals for standard identity cards for natural and cultural assets and for a classification system for geosites.

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1. Introduction and Legal Framework

As a result of the geodynamic processes that have taken place since the formation of the earth's crust the globe on which we live, which is constantly changing and evolving, can be characterised as a living ecosystem. Humans were not witness to a large portion of this development. However in the last few million years anthropological development, and in the last few tens of thousands of years of cultural accumulation and transfer, socialisation has been achieved. During the development of the industrial and information ages humans began to feel a gradual interest in the past and with the help of scientific fields such as archaeology, anthropology and palaeontology began to voyage into both their and nature's past.

On the other hand, the production carried out in industrial societies opened the path to the fast consumption of natural resources; this conscious/unconscious destruction continues to this day. To meet the ever increasing variety of human 'requirements' almost all existing natural resources of the earth, metallic and non-metallic mineral bodies (ores, industrial materials, natural stones) and other natural assets have started to be consumed with disregard for their non-renewability. Thus natural assets have become elements of "natural geological heritage" and at the point where they are not protected they will be consumed and disappear. Equally when it became clear that our links to the earth's past would be broken some protection reflexes came into action. It should not be forgotten that this protection reflex concurrently places protection and reorganisation

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ahead of industry, which has gained resources at next to no cost, as well as the finances for improvement. The protection reflex also includes the slowing down of the untamed consumption economy in favour of some collectivist approaches. To put it another way, together with the appearance of the safeguarded areas has come a situation where the provision of natural resources has become increasingly difficult and cost is continually increasing.

The first steps towards the safeguarding of Geological Heritage go as far back as the 1750s with the protection works to the Baumann Cave in France and the Giants' Causeway in Ireland (Burek and Prosser, 2008; Doughty, 2008; Erikstad, 2008). Likewise in 1872 the Yellowstone National Park in the USA was brought under special protection status. Later, despite the addition of the Grand Canyon and Karlsbad Caves (Kazancı, 2001), due to lack of an established legal framework and lack of widespread knowledge of safeguarding these efforts were not successful. One of the reasons for this was the beginning of industrial development and the intensive use of material sources and reserves, meaning that such parks might have been seen as an economic risk.

The IUCN (*International Union for the Conservation of Nature*), founded in 1948, and its 1964 "species in danger*"* and "red list" can be counted as the first systematic and international practices. The signing of the "International UNESCO cultural and natural heritage protection agreement" and the "World Heritage List" published at the same time, although initially awakening great excitement was not particularly effective in the development of safeguarding politics and practice. From the notes of Turkish scientists during this period we know that particularly in northern European countries there was swift development in the conscious protection of rare geological formations (Ketin, 1970). Although this term started to be systematically used in Europe in the 1970s, it was in 1991 at an initiative organised by earth scientists in the town of Digne in France that a proposal for the organisation of the newly-termed Geoparks was published in a manifesto. The document in question was signed by delegates from more than 30 countries (Kazancı, 2001). Although this was heralded as 'the awakening of earth scientists' (Barettino vd., 1999*a, b*), the level reached by the subject in the intervening 25 years cannot be characterised as very hopeful. A short time later the 1995 European Association for the Conservation of Geological Heritage; ProGEO, played an important role in the contemporary and scientific approach to the subject. Meetings were particularly organised on developing solutions to how and by whom these elements of geological heritage should be safeguarded (ProGEO Group, 1998). It was in the same period that these terms rapidly began to be debated (Wimbledon et al., 1995; Wimbledon, 1996; Sol and Ünder, 1999). In 2002 UNESCO put together its own directive on how the safeguarding of geological heritage should be put into practice within the framework of sustainable development and founded the International Geopark Network (GG, 2015; GGN, 2015).

Work on the characterization and protection of the geological heritage of Turkey began in the 1970s (Ketin, 1970; Canik, 1972). Important analyses of outstanding geological heritage elements have been carried out, these rare and special geological formations particularly include caves (Güldalı, 1972; Şenol and Şenol, 1978; Güldalı et al., 1981; Atalay, 1982; Güldalı et al., 1983), chasms (Güldalı and Şaroğlu, 1983), lagoon lakes (Gedik, 1977) and glacier lakes (Perinçek, 1979), waterfalls (Ulakoğlu, 1978), meteorite craters (Arpat and Yılmaz, 1976) and human footprint fossils (Arpat, 1976; Tekkaya, 1976). In the same period proposals oriented towards the protection of natural monuments began to be put forward (Öngür, 1976). Work undertaking the Geotourism concept together with mythology and geology underlines how seriously the subject was approached in Turkey during this period (Yüksel and Korkmaz, 1982; Şaroğlu, 1983). In this period open air museums and their roles were also moved into the scientific realm and public agenda (Altınlı, 1978*a, b*). Works proposing a different perspective on the perception of nature are also found in the same period (Durmaz, 1983). Law number 1710 on Ancient Artefacts (R.G., 1973) and Law number 2873 on National Parks (R.G., 1983), show that the state had started action in this area. Unfortunately these well intentioned works did not move far beyond those engaging with the subject at a professional level and was not transformed into a public preservation reflex. The socio-political and economic conditions of the period in question were likely a great influence in the inadequate legal organization and lack of preparation of education programmes. Even today economic conditions are

seen to be an impediment to the provision of resources and time by the targeted relatively middle to high income groups to such activities. The ÇED regulation that was published in the 21489 Official Newspaper on 07/02/1992 can be added to the organization of the legal protection of nature and countryside that began in the 1980s (R.G., 1993). This regulation was revised on 23/06/1997, 06/06/2002, 16/12/2003, 17/07/2008, 3/10/2013 and 25/11/2014 (RG, 2014). The right of decision making used by the Ministry since 2013 allows 'when seen necessary partial or complete transfer to the Provincial Governors'. This particularly strengthened the central authority on mining or large construction projects that directly interfere with nature and opened the way to some social discomforts. The mining law that can be discussed in the same frame was enacted with statute 6309 from 1954 to 1985 (R.G., 1954) at which date it was re-worked with important changes (RG, 1985*a,b*), in 2004 it was exchanged with statute 5177 (R.G., 2004). However, the new varied rules that defines the conducts in this subject which have resulted considerable unclarity on work programmes, authorization and conduct problems (R.G., 2007). The subject of interest in this article is the complexity created by the interrelated mining law and environment regulation and the uncertainty relating to the safeguarding of elements of geological heritage. Because of the lack of direct reference to geological heritage in the 1980s National Parks Law (R.G., 1983), the deficiencies came to the attention of professional associations and some suggestions for the removal of the deficiencies were put forward (Gürler, 1997; 1999). When we come to the 2000s more comprehensive publications start to be made on the subject (Gürler, 2001; Gürsoy, 2001; Saraç, 2001, Yılmaz, 2002). In addition to assessment works on specific landslide areas and the advent of geotourism (Avcı, 2001), works addressing ecotourism (Akıllı, 2004), special recommendations for the landscaping of areas with geological heritage characteristics (Polat, 2006), geological heritage in National Parks (Kazancı, 2007) and methods for the protection and use of geoparks (Gürler and Timur, 2007) were also put forward in this period.

Recently this subject shows a more striking development. Kazancı's "approaches to the phenomenon of Geosites, Geoparks and Geoheritage in the World and Turkey" and "geological safeguarding: the concept and Fundamentals" (2010*a, b*) act as handbooks for work carried out in Turkey in this field. In the subsequent short period of time in various regions of Turkey proposals for Geoparks have been developed and presented for public attention (Koçan, 2012*a, b*; Akbulut, 2014; Kumsar et al., 2014; Gümüş and Zouros, 2014; Güngör et al., 2014*a, b*). In fact the standard proposals relating to this subject were arrived at during this period (Çiftçi and Güngör, 2014).

Since the year 2000 in the world in general much effort has been given, and continues to be given, to the determination of geological heritage, its safeguarding and orienting towards Geotourism as an element of sustainable development (Wimbledon and Smith-Meyers, 2012; Theodossiou - Drandaki et al., 2002; Brilha et al., 2005; Dowling and Newsome, 2005). In fact, the "European Geopark Network" (EGN) founded in 2000 and the "Global Geopark Network" (GGN) founded by UNESCO in 2002 made clear the rules for contemporary work on the subject and won the position of fundamental organisations at the global scale.

In Turkey, during the same recent period both MTA (TUJEMAP) and some civilian organisations (JEMİRKO) have put forward many elements of geological heritage that are suggested to need safeguarding (MTA, 2015; JEMİRKO, 2015). The process of preparing a project to place these within the organisation of a Geopark and combine them with other elements of natural and cultural heritage is still very new in Turkey. Again in recent years this work has begun to bear fruit and in 2014 Turkey's first National Geopark (Kula Volcanic Geopark) was successfully accessioned into the UNESCO Geopark network. Thus for the first time Turkey's say in the UNESCO-GGN decision making mechanism (Representation right), the right to vote (voting right) and the right to partner status in European and UNESCO-GGN projects (Right to authority) was expressed (Gümüş ve Zouros, 2014).

Although, as highlighted above, in Turkey the basic legal organisation of natural assets and natural heritage are to be found (RG, 1973; RG, 1983), no definition has been made of the contents and standards relating to the terms Geopark and Geosite. This legal inadequacy hinders the formation of a set scientific standard in Geopark planning projects. At the "Workshop for Geoparks and Geological Heritage within the Framework of the UNESCO agreement" held in Ankara on 16/01/2014 the Ministry of Culture and the

General Directorate of Natural Assets' representatives made clear that the disorder in authority in this area had come to an end with decree law 644 (MADDE 13/A – (Ek: 8/8/2011-KHK-648/10 md.) (R.G., 2011). According to the results of the inventory carried out by representatives of the Environment and Planning Ministry with the 2013 "Protected Area Administration System" (SAYS) around 1700 natural protected areas and 49110 folders were included in the system. At the same meeting, according to the regulation prepared by the Ministry for the Countryside and Town Planning (R.G., 2012 and 2013) and published in the official newspaper issue 28358 on 19/07/2012, new safeguarding categories were designated, these are:

Sensitive areas definitely to be protected (Article 7): areas where all uses are restricted excepting scientific work.

Well-qualified protection areas (Article 8): areas protecting traditional lifeway's relating to natural life,

Sustainable protection and controlled use areas (Article 9): areas in which permission can be given to low intensity activities, tourism and settlement.

In papers in the workshop session entitled "Geopark enterprises in Turkey, Protected Areas and Legal Accountability, Area Administration, Geological Heritage and Nature Tourism" there were talks about the Geoparks and Geological Heritage concepts in the UNESCO agreement. In these talks the subject of making joint decisions towards benefiting from Turkey's geographical and geological wealth with international bodies that have an input into the subject of "Geoparks and Geological Heritage" on "legal regulation", "the need for a national network" and "sustainability" was voiced. As can be seen, apart from moving onto the national stage, the concept of "Geological Heritage" does not seem close to having high quality regulations within itself.

In the acceleration of Geopark organization projects in Turkey since the middle of the 2000s unfortunately the term "Geotourism" has taken priority over "Geological Heritage". The Geotourism concept is only one component in the planning of geoparks. The geopark concept really has the characteristic of a "cultural organisation" formulated within the framework of "sustainable development". In fact the main aim here is the determination of natural assets with the characteristics of geological heritage (geosite) and to safeguard them as part of the human experience, and in so doing to both increase awareness and give education relating to nature at every level as well as to transfer these assets to future generations by blocking their rapid exploitation/destruction. Alongside the rapid industrialization during the last 50 years, Turkey's elements of geological heritage have entered a period of rapid destruction, and it should not be left too late to take broad steps in this regard.

Above all a Geopark must contain a certain number of characteristic geosites. In addition, the region's natural and cultural heritage assets must have a place in a specific configuration within the Geopark Project. By looking at their spatial relationships and potential all these natural and cultural assets can be grouped from the point of view of designated scientific, social and cultural activities, activity routes with different aims can be put together and a fit must be found with people's needs. If this is done, in other words, if all the natural and cultural assets are related to one another, there will be a much greater total potential of these natural and cultural heritage elements to raise awareness. Naturally, without local ownership, organisations on this scale will not survive. For this reason it is important that 'local ownership' should be a primary proviso for this sort of project. The ownership of this sort of Geopark Organisation by local administrators and civil organisations at the same time ensures the formation of continuity in organisation and importantly brings about the capability to recruit experts.

2. Terms, Definitions, Principles

In this section previously established systematic approaches to the grouping of Geosites will be explained; firstly the terms Geopark, Geological Heritage, Geotourism and Geosite are discussed. In addition, in explaining the "Framework List" term, this subject's importance will be discussed. Apart from these, other natural and cultural assets that might be included in Geopark Planning will be briefly defined and the proposals developed for their introduction cards are explained.

2.1. Geopark

The name Geopark is given to large areas that encompass several Geosites, as well as other

natural and cultural heritage elements, museums and administration centres. The Geopark area is a cultural organisation that primarily takes under protection networks characterised by geological heritage and natural and cultural heritage and in so doing has the aim of socio-economic development. The Geopark area can be encompassed within one or more of a previously defined "national park", "natural monument" or "special protection area". Thus according to up to date legal regulations a geopark can encapsulate previously formed areas of special status or can be made for any small area within a nature preservation area. Together with geosites, these areas will have a role in preservation as well as raising awareness about safeguarding.

As of June 2015 there were 111 geoparks tied into the "Global UNESCO Network of Geoparks" programme (GGN, 2015*a*), a number that is increasing daily. The number of geoparks in the European Geoparks Network (EGN) is 58. For a geopark project making an application to the Global UNESCO Network of Geoparks (GGN) a form is sent and an assessment made. In this assessment, apart from standard information (country, place, location, geological environment, etc.), the geopark is presented to a commission for suitability assessment and suggestions according to whether it has its own logo, safeguarding strategies for geological site areas and other natural and cultural assets, the infrastructure allowing the geopark's sustainability must be in place, the geopark's geotourism potential must have an established link with the region's tourism sector, the geopark must have local stakeholders, the necessary provision must be made for education opportunities for visitors, the geopark administration must have strategic partnerships, administration structure and sustainable development (GGN, 2015*b*).

As can be seen from the assessment form, the geopark is not solely a concept made for special geological assets or groups of geosites. At the same time a Geopark encompasses other tourist areas such as nature tourism together with geotourism, religious tourism and health tourism. Such an organisation gives the opportunity to present all of these activities under a single umbrella and thus presents the most important cultural organisation servicing sustainable regional development. This is the reason for the rapid increase in the number of Geopark organisations across the World.

In Turkey work on Geoparks began systematically in 2003 with the MTA, JEMİRKO and Kula Volcanic Geopark Project. The Kula Volcanic Geopark Project became part of the UNESCO Geopark Network in 2013. Apart from this in Turkey there are also both yet to be completed or completed Geopark projects such as Çamlıdere (JEMİRKO), Karapınar (Gürler ve Timur, 2007), Levent Valley (Güngör vd. 2012*a, b*, Akbulut, 2014), Gökçeada (Güngör vd., 2014*a*), Nemrut-Süphan (Güngör vd., 2014*b*) and Narman Fairy Chimnies (Güngör, 2014*c*) for which applications have yet to be made to EGN or the UNESCO Geopark Network. Manisa Celal Bayar University was at the forefront of the implementation and research centres showing activity in this area in Turkey (R.G., 2013). This development shows that this subject will quickly move into the academic realm.

Although there is widespread effort and literature relating to Geopark organisation, there is still not a standard proposal for the definition of the term Geosite. The aim of this article is to develop suggestions on this subject and open a discussion.

2.2. Geological Heritage (Geoheritage)

A geosite is a region that is rare, under threat of destruction, with which destruction information about the area and a geological testimonial will be lost (Wimbledon, 1996; Kazancı, 2010*b*). The name "geological heritage" is given to formations or found forms such as regions, rocks, fossils, minerals and ground formations that came into existence at any point in the 4.6 billion year formation period of the earth that are viewed as a finite natural monument that if not taken under safeguard will be destroyed.

The fact that there are hundreds of geological heritage elements in Turkey that fall into this category was dealt with above in description of work on this subject. Apart from these, there are many items of natural heritage that, because protection measures are not yet sufficient, are waiting, identified but not published, both in the inventories of MTA and of civil organisations such as JEMIRCO. Which of these have value as geosites and which might be assessed as the main themes of geoparks are subjects that cannot be decided ab initio.

2.3. Geotourism

Geotourism is an activity, and forms one element of nature tourism that encompasses all types of winter and summer nature sports, that encompasses scientific organisation and attracts high income groups. Geoparks fulfil their regional development role (in a large part) through geotourism (Koçan, 2012*a*). Geotourism, while in some respects at one with nature, also provides the opportunity for the investigation of geological heritage elements and a better understanding of nature. Visits and excursion activities organised with the aim of investigating nature and geological heritage come under the umbrella of "Geotourism" (Kazancı, 2010*b*). In Turkey there are examples of established tours organised in part for archaeological sites and in part to visit cave formations (Damlataş Cave, The Cave of Heaven and Hell). Within this frame, the Nemrut caldera, in the Bitlis-Tatvan region is one of the geological heritage sites in Turkey that is host to hundreds of local and international visitors every year and is an important item of geotourism.

2.4. Geosite

A Geosite is a natural structure such as group of rocks, minerals or fossils, stratum, ground formation or geological structure resulting from an event during the creation or evolution of the earth's crust, that put a process or formation into existence, that has a need for scientific documentation and in some cases visual attraction qualities (Wimbledon, 1996; ProGEO Group, 1998; www. progeo.se).

A geosite is inside a Geopark and carries the characteristic of geological heritage. The geosites in question could themselves be part or all of the geological heritage entity with which they are related. Within this category of geosite can be evaluated not only geological or morphological elements, but also things reminiscent of the earth's formation, as well as ecological history and culture related formations showing human-earth relations.

Elements of "Geological heritage" can be taken under protection by the state. The terms "protection area" and "site" were made only for areas with "archaeological" and "cultural" elements according to the regulations in operation. In Turkey, while there are terms such as National Park, Nature Park and Natural Monument within the protection regulations, there is not as yet a legal framework directly relating to the protection of "geological heritage", the term Geosite could be adapted for the sort of geological heritage that is defined as a "geological heritage protection area".

2.5. The Grouping of Geosites and the Framework List

The ProGEO Group, collected together ten different categories or groups that cover all areas of earth sciences (ProGEO, 1998). These are: a- stratigraphic, b- environmental, c- volcanic-metamorphic- sedimentary petrology, fabrics and structures, events and provinces, d- mineralogical, economic, e- structural, f- geomorphological structures, erosion-deposition events, landscapes and topography, g- events relating to asteroids, h- continental and oceanic scale phenomena, plate relations, i- under-sea, j- historical and cultural geosites (www.progeo.se) (Table 1).

As a general grouping, this division is not detailed. Within each group it is possible to formulate sub-groups by looking at shared characteristics and these sub-groups are known as the Framework List (Brilha et al., 2005). In this way it becomes easier to formulate lists bringing together almost identical characteristics and compare them. Even if the framework lists are not accepted as countries' inventory lists they are an important contribution towards achieving this purpose (Brilha et al., 2005; De Lima at al., 2010). Efforts towards achieving the Framework List for Geosites in Turkey within the structure of JEMİRKO and TUJEMAP, the need for which was suggested by Kazancı and Şaroğlu (2009), have increased in recent years (Kazancı et al., 2005; Kazancı et al., 2012). Kazancı et al. (2015) define the purpose of the Framework List as, "to indicate the occurrence of Geosites, representation of the geosites and indication of the cases without naming them".

All of the effort of creating Framework Lists will of course be shaped by various public and private organisations as well as independent researchers. In this article the focus is on proposals for the definition, classification and formulation of standard identity cards for Geosites.

Indeed the "Natural site inventory form" and "The Technical Assessment In order to Evaluate Natural Sites" prepared by the General Directorate for the Safeguarding of Natural Assets are already

Table 1- Geosite classification by classes and sub-classes, and point system.

Jeosit Sınıf Numarası	Jeosit Sınıfı (*)	Jeosit Alt Sınıfı (Çatı Liste Adı ve Kodu)	Çatı Liste Açıklaması	Jeosit Kodu	Geosite value and points		
					A (5) (Aesthetic)	B (5) (Scientific)	C (A+B) (10)
JS-1	Stratigraphic						
JS-2	Environmental	(Ex: Lakes: G)	(Every types of lacustrine environment)	(JS-2/G-A)	(5)		
JS-3	Volcanic - Metamorphic - Sedimanter Petrology / Textures and Structures, Cases and Provinces						
JS-4	Mineralogical, economic						
JS-5	Structural,						
JS-6	geomorphological structures, erosion-deposition events, topography and land views						
JS-7	Meteorite related events						
JS-8	continental and oceanic scale phenomena, plate relations						
JS-9	Under-sea						
JS-10	Historical and cultural						

(*) Divisions used in the classification system proposed by ProGEO (ProGEO, 1998).

readily available (ÇŞB, 2013). The classification system and standard identity card proposals presented below are not official in character. These proposals are formulated with the intention of easing the communication both within the teams preparing "Geopark Planning Projects" and with official and private parties in any region of Turkey, to be a contribution to the formulation of a shared language. Being the first works on this subject in Turkey, these proposals will progress discussion between interested experts and new proposals. In time this work should be viewed as a well–intentioned start to a potential meeting point on a shared platform with the public.

2.6. Other Natural and Cultural Heritage Components

A Geopark area's essence is to encompass more than one Geosite and in addition other natural and cultural heritage elements within its structure. These 'Natural Heritage' elements consist of wetlands that can shelter flora and fauna and their endemic species, and all types of geomorphological formations.

Cultural Heritage elements are: all types of artefacts and remains pertaining to the activities of people before the present. All types of remains from Palaeolithic caves to Neolithic settlements, younger settlements and artefacts have a place within this class. These cultural remains can be anything from a bead to a road continuing for kilometres (Roman road), a water cistern (Byzantine Yerebatan Cistern), or a canal (Urartu Şamran Canal). The Ministry of Culture has developed standard record forms for every type of find and the director of the museum to which the artefact is related is responsible for it. The subject that interests us in this article is the cultural assets that remain with the area of Geopark projects and the development and introduction of identity cards of different levels according to the age and level of interest of the visitors to the area. The suggested identity cards can initially be considered in three categories. The first category is cards designed to be used by visiting children of primary school age. The second is to be developed for adults. The third type of identity card can be designed with contents suitable for visitors interested at a more professional level. The cards in question can also be translated into different languages and when necessary can be printed within the visitor centre in suitable numbers, or shared digitally. Of course the role of specialist professional groups within the preparation of the cards is essential.

In relation to the research methodology that should be used for the other natural assets, flora and

fauna, the General Directorate for the Safeguarding of Natural Assets' "technical principles" (TVKGM, 2013) presents details. However, these regulations do not contain standard proposals for Geosites and Geological Heritage and it should be emphasised that these subjects are treated in the most superficial way.

The proposed identity cards should be filled in by the subject's experts and presented to the Geopark project group. The experts in question (archaeologists, anthropologists, biologists, botanists, ethno botanists etc.) will of course make a detailed inventory work of the flora and fauna within the scope of the Geopark Proposal Project and will report according to their own legal framework. The identity card suggested here will provide clear characteristic information on stocks of natural assets in abstract format that will help bring together other information and documentation more easily. Here it is enough to say that a Cultural Asset Identity Card, resembling the Geosite Identity Card, would be very useful. The contents of these identity cards, and their pre-preparation, as well as being the subject of a separate study, would help the Geopark Planning Project group to carry out much sounder planning and achieve a sustainable Geopark Administration.

3. Geosite Classification System and Proposal for a Standard Identity Card

It is necessary to be able to describe all Geosites on a standard form, in an easily explicable and indexable classification. Firstly it is suggested that on the basis of general contents 10 Geosite groups should be formed (ProGEO, 1998). In this classification, not including any order of importance, each class is host to a very wide range of geological components and can be divided into sub-groups on the basis of shared characteristics. The sub-groups, as emphasised above, can also be used as headings for the Framework List and these can be scored using a points system in three groups, A, B and C, according to geological importance, scientific value, rarity and aesthetic characteristics (Table 1). In this way a Geopark Project's Geosite richness is shown by the total of the site's Geosite points.

The first and most important scientific activity is the production of the inventory of the Geosite elements within the designated Geopark area. After first placing the geosites within specific groups according to contents and scope and point-scoring them, they must be included in the inventory, having had their other physical and environmental qualities accurately specified. There are various rules for the accession of such natural formations with high scientific or visual value to the inventory. After all the geological specifics of these geological elements have been recorded, the environmental and technical characteristics must also be recorded carefully. The preparation of a standard "Geosite Identity Card" (Table 2) is proposed for the purpose of this recording system.

The inventory studies, based on the identification of specific case studies within a certain time segment, are important and aim to protect the geological sites and their monitoring. In this way, every kind of Geosite in the Geopark area will be recorded and when these cards are used transfer of information will be very practical and fast. The identity cards in question must be made by earth scientists chosen by the Geopark Planning Project Group. Academically trained earth scientists specialised in a specific area and tied to the Geosite field should be commissioned on this subject. The identity cards in question, as discussed in the above 'Cultural asset' section, can be prepared in different styles according to the different intended age and interest groups. Here we will introduce the proposed standard adult format.

On the face of the Geosite Identity Cards are four sections. Starting at the top left and moving clockwise, the first section (blue) gives geographical situation information. The second section (green) gives the Geosite's name, class, sub-class and points, physical dimensions and geological classification measures. The third section (orange) contains information on the physical environment, security and logistics. The fourth section (yellow) gives information on the geosite's geological heritage qualities, what the visitor will find when they visit the site, and what they should bring with them in preparation for their visit.

The back of the identity card also consists of four sections. Moving clockwise, as above, in the top left section (red) the geosite's safeguarding and protection specifics; top right (grey) the geosite's inventory details; bottom right (dark Brown) if it is represented in any way in the visitor museum (photograph, mineral or rock, fossil etc.) and a photograph where necessary; bottom left (pink) a physical view of the inventoried item.

Table 2- Geosite inventory identity card (front and back details).

NATURAL HERITAGE TYPE: GEOLOGICAL HERITAGE (GEOSITE)	
GEOGRAPHIC LOCATION	**GEOSITE DESCRIPTION**
X: Y: Z: COORDINATE SYSTEM: PROJEKTION: 1:25.000 SCALE SHEET Nr: TIME ZONE: PROVINCE: Erzurum COUNTY:Narman VILLAGE: Yoldere LOCALITY: Göndere ROAD ACCESS: 11th km of the Erzurum -Pasinler Road, turn right, first valley.	**GEOSITE NAME:** Gönderi Fairy Chimney **GEOSITE CODE:** GeoCode-1 **GEOSITE CLASS:** Geomorphologic-Erossional Feature **SUBCLASS and SCORE:** Fch-A) ; 5 **DIMENSIONS:** X=20 (mt); Y=20(mt); Z=13(mt) **GEOLOGICAL CLASSIFICATION:** **LITHOLOGY** : Gravelstone-Sandstone **AGE** : Plio-Quaternary **STRATIGRAPHIC UNIT:** Yoldere Formation
GEOLOGICAL HERITAGE SPECIFICATIONS	**PHYSICAL ENVIRONMENT, SAFETY and LOGISTICS**
DESCRIPTION: **IMPORTANCE:** **SCIENTIFIC IMPORTANCE and SIMILAR FEATURES:** **BEST POINT FOR OBSERVATION and VIEW:** **TECHNICAL EQUIPMENT FOR BEST OBSERVATION:** (Binokular, magnify, ruler, textbook, camera, etc.)	**DISTANCE FROM VISITOR CENTER:** (optimum route, km) **NAME and Nr. of the ROUTE :** (on which route of the Geopark?) **NEAREST WATER STATION:**(spring or others, km?) **NEAREST LOGISTCS STATION:**(numbered or coded stations including emergency phone line and other equipment) **NEAREST SAFETY SIGNBOARD :**(signboards that are located in fixed and well known locations by the safety team; includes special marks and sign, phosphoreschent/dark yellow colored, in 50x50 cm diameter and 2 meters high) **NATURAL HAZARD RISK:** (possible risks like flooding, lightning, landslaide, rockfall, snowslide, or any attack wild animals, etc.) **EMERGENCY CALL NUMBERS:** (Police, Gendarme, Forest ranger, Emergency of health and Visitor Emergency Center)

(FRONT)

GÖNDERE FAIRY CHIMNEY (GeoCode-6/Fch-A)	TURKISH NATIONAL GEOSITE INVENTORY Nr:.....
CONSERVATION/PROTECTION PROPERTIES	**GEOSITE INVENTORY PROPERTIES**
PHYSICAL CONDITION AND DAMAGES: (i.e., no artificial damage, but rock fall is possible in heavy rain or wind errosion) **OUTCROP CONSERVATION AND PRECAUTIONS:** (no damagable actions allowed like sampling or digging, etc.) **GEOSITE PROTECTION ADVICES: (**drainage or landscaping, precautions against settlement, pcnic place, agricultural activities or mining, etc.)	**GEOPARK NAME :** **GEOSITE ID :** **NAMES OF THE PEOPLE PREPARED THIS CHARD:** **DATE:** **FIRST DISCOVERY:** **RELATED PAPERS:** **REPRESENTATION IN VISITOR CENTER: (**Geological map, cross/column section, thin/polished section, hand sample, souvenir materials, etc.) **FURTHER INFORMATION ADRESS:**
CURRENT PHYSICAL VIEW	**REPRESENTATIVE SAMPLE IN VISITOR CENTER**
(high-definition photo)	(high-definition photo of the sample in the visitor center)

(REVERSE SIDE)

The "Turkish National Geosite Inventory Number" takes its place on the top right section of this card. This number will be very useful in the preparation of the central Turkish catalogue of geosites and in accordance with proposals to be developed later about the nature of the coding system, a decision can be made. At the same time this number will be used on maps, brochures, route maps and booklets and will be easy to understand in excursion programmes and among the regional population, as well as visitors.

The proposed information to be included in the Geosite inventory identity card are presented in the example in table 2.

4. Geopark Identity Card Proposal

All the natural and cultural elements introduced above will be the elements of the geopark that are combined to prepare a Geopark Project. Therefore when the proposed standard identity cards are completed, they will bring about a situation where a standard assessment form for the Geopark area can be prepared (Table 3).

The Geopark assessment form can be in either standard A4 or A3 sizes. This assessment form, together with the other natural and cultural heritage identity cards presented, will become the key documents for the region. The sections on this standard Geopark assessment form and the information they contain are all proposals that are open to discussion and will progress with the experience of the researchers leading the project. The information proposed to be found on the first page is as follows:

1- Legal foundation and framework: is there a defined safeguarding status for the area of the Geopark organisation? If there are natural monuments or special protection areas, forest assets and protection status, a water reservoir protection area or other such within the Geopark then the national or international safeguarding status should be recorded.

2- Geographical characteristics: The geographic coordinates, settlements in the vicinity and transportation facilities as well as administrative divisions should be recorded on a topographic map of specific scale.

3- Geopark area's geographical borders: The placement of the Geopark area within a wider geographical region should be shown.

4- Geological scope of the Geopark area (general geological characteristics): The Geopark area's regional geology map and legend should be provided. On this map the Geopark's defined Geosites can also be shown.

5- Potential of the Geopark: In this area the Geopark's activity identification is given. The numerical inventory and characteristic information of all types of natural and cultural assets within the geopark area can be given in this space.

On the second page should be the Geopark settlement plan and activity route. On this settlement plan, apart from the main transportation and settlement components, the topographic characteristics (preferably three dimensional), the Geopark's visitor centre and all the natural and cultural items with an identity card within the Geopark should be shown, the routes arranged according to aims should be shown in different colours. The settlement plan in question can be made more complex or more basic according to the ages of the activity groups or the requirements of the groups using it and then printed in the correct numbers.

5. Conclusions

Today there are 111 Geoparks linked to the "Global UNESCO Network of Geoparks" and 58 linked to the European Geoparks Network. Apart from these there are also examples that are not connected with the Geopark networks. The reason for the rapid increase in these types of organisations is both the quickly increasing potential of the educational characteristics of the areas and awareness and consciousness of the protection of nature and the input of Geotourism activities directly into regional economies. One part of Nature Tourism, Geotourism, in contrast to the former which includes all forms of summer and winter nature sports, encompasses a scientific organization and is an activity that attracts high income groups. Meanwhile the Geopark phenomenon encompasses Nature Tourism and Geotourism together with Cultural Assets (archaeology and ethnography), Religious Tourism, and Health Tourism and gives the opportunity for the presentation of all these activities in a designated

Table 3- Details of an example of a standard Geopark identity card.

GEOPARK IDENTIFICATION CARD

GEOPARK NAME:

LEGAL BACKGROUND AND JURISTIC FRAMEWORK:

GEOGRAPHIC LOCATION	GEOPARK GEOGRAPHIC BORDERS
X1: Y1: X2: Y2: X3: Y3: X4: Y4: X5: Y5: COORDINATE SYSTEM: PROJEKTION: MAP SCALE AND SHEET Nr: TIME ZONE: PROVINCES: COUNTIES: VILLAGES: OTHER SPECIAL RESERVATION OR PROTECTION ZONE: TRANSPORTATION OR ROUTES:	

GEOLOGICAL SITUATION	GEOPARK FACILITIES
(APPROPRIATE SCALE GEOLOGY MAP)	**VISITOR CENTER (MUSEUM):** **NAME AND TYPE OF THE GEOSITES:** **NAME AND TYPE OF THE CULTURAL SITES:** **BIOSITES (FAUNA AND FLORA INVENTORIES):** **GEOPARK ROUTES:** TREKKING ROUTES: CLIMBING ROUTES: ROCK CLIMBING ROUTES: PARAPENT ROUTES: SKI ROUTES: AQUAPLANE ROUTES: DIVING ROUTES AND SPECS: OBSERVATION TERRACES: BIRD OBSERVATORY POINTS: **GEOPARK NATURAL SPRINGS:** **LOGISTICS STATION NUMBER:** **DRIVEN BY:** **ACCOMMODATION POSSIBILITIES:** **AUTHENTIC FOOD AND DRINK:**

FRONT PAGE

SETTLEMENT PLAN AND ROUTES OF THE GEOPARK

(MAP INCLUDES ALL NATURAL AND CULTURAL HERITAGES, ROUTES, DESTINATIONS)

REVERSE PAGE

Bull. Min. Res. Exp. (2016) 153:223-238

organisation, in a planned fashion (Table 4). Thus, this is the most important cultural contribution to "sustainable regional development". This is the reason for the rapid global increase in Geopark numbers.

In Turkey systematic work on Geoparks started in 2003 with the MTA and JEMIRKO – organised Kızılcahamam Silicified Tree Forest and the Kula Volcanic Geopark. The Kula Volcanic Geopark was included in the UNESCO Geopark Network in 2013. Apart from that the other completed or in-progress Geopark projects have not yet been included in the UNESCO Geopark Network.

Although there are many reasons for this it remains outside the scope of this article. In fact the importance of this subject has not yet been realised. In terms of legal arrangements or local administrations and serious and scientific concentration on this subject there are serious deficiencies. The legal arrangements to be made on this subject can both open recruitment of technical experts from many different branches of science and can ensure the knowledgeable inclusion of these national assets into people's lives. In this way sustainable activities can ensure a contribution to the development of an effective and efficient consciousness of safeguarding.

A Geopark project's success comes from; correct project formation, scientific team work, effective financial structure, stable project administration, the ownership of the project by local communities and sufficient distribution of education and information. Unless all these elements come together a sound Geopark Project is not a realistic proposition.

The aim of Geopark projects is the winning of natural and cultural assets for the public within a known system and in doing this to awake awareness from the point of view of nature, present an addition to education and teaching and in learning to present enjoyment and sustainable regional development. The preparation of this type of project is very complicated both from the scientific and social points of view. The declaration of the natural and cultural assets within this sphere by the use of standard identity cards or forms can achieve convenience as well and advantages for both the experts working in this field and for the people who will benefit from it.

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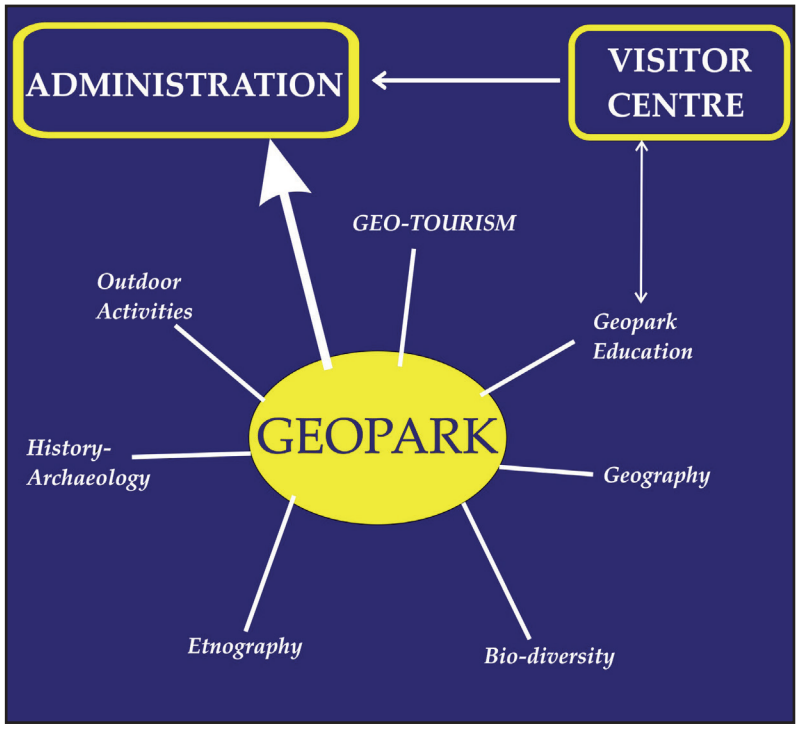
Table 4- Elements of a Geopark Project.



open expression of some terms. For these contributions we offer our thanks. In addition, whether in relation to how cultural assets should be handled or for views on the whole of this article we would like to thank our friend, archaeologist Dr. Adnan Baysal for his time and important contributions.

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