Evaluation Mission Report

Name of aspiring UNESCO Global Geopark (aUGGp):
Estrela Aspiring Geopark
Name of Country:
Portugal
Name(s) of the evaluator(s) and date of the mission:
Richard Watson, Timo Kluttig, 9.-12.07.2018

The report must be one concise file of no more than 20 pages (using only the headlines and Arial font size 11) following the model below. Additional annexes should remain the exception.

A. GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Surface area in km²</th>
<th>2216 km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>170,000</td>
</tr>
<tr>
<td>Contact person</td>
<td>Emanuel de Castro</td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://www.geoparkestrela.pt/">http://www.geoparkestrela.pt/</a></td>
</tr>
<tr>
<td>Social media</td>
<td>Facebook, twitter, Instagram, youtube</td>
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</tbody>
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B. LIST OF DOCUMENTS SUBMITTED BY THE aUGGp

- via UNESCO:
  - IUGS Desktop reviews by Helena Sant'Ovaia and Dominique Jacques
  - Revised Application Dossier plus three annexes

- directly to the evaluator(s) during the mission:
  - PLANO ESTRATÉGICO DO GEOPARK ESTRELA 2018 – 2022
  - NETWORK ON SCIENCE AND EDUCATION FOR SUSTAINABILITY OF THE ESTRELA ASPIRING GEOPARK
  - Programas Educativos 2017/2018 Ensino Superior
  - Programas Educativos 2017/2018 “A ESTRELA VAI À ESCOLA”
- Programas Educativos 2017/2018 Ensino Básico
- Programas Educativos 2017/2018 Ensino Secundário
- UNESCO Mission’s Guest List
- General information Leaflet on the application of Estrela to the Geopark Network
- Book “A flora e a vegetacao da Serra Estrela” by the natural park
- Book “Plantas Aromáticas e Medicinais do Parque Natural da Serra da Estrela” (botanical guidebook)
- Map “Parque Natural da Estrela 1:25.000”
- Map of Geosites, Cultural and Natural Heritage and Tourist Infrastructures
- Book “Serra Da Estrela Montanhismo Escalada Invernal”
- 16 Leaflets/maps of the “Green Tracks”, a set of short and middle distance hiking trails, published by the Município de Manteigas
- Leaflets on the Information Center CISE seia
- Leaflet on Invertebrates of the area
- Leaflet on the reptiles of the area
- Leaflet on the amphibians of the area
- A set of five Leaflets on “percuso interpretative”, public interpretative fieldtrips (altogether 12) that took place between 22nd and 23rd April 2018
- A set of one map and 14 leaflets describing the “mountain pathways”, published by the Geopark partner Aldeias de Montanha
- Touristic leaflet on the municipality of Guarda
- Leaflet of the youth hostel “Pousada de Juvenude Serra da Estrela”
- Educational program sheets on rocks and history worked out by the Geopark
- Several publications on geothermal wells and spas in the geopark area
- Photography Book “Estrela, a mountain of emotions”
- General Brochure and map of the “Aldeias Historicas de Portugal” (Historical villages)
- Leaflet “Historical Villages of Portugal – GR 22” on the long distance historical walking paths and road cycling routes that cross the geopark area
- July edition of the National Geographic containing an article on the aspiring geopark
- Brochure on the historical village of Guia
- Leaflet on the “Museu Natural da Electricidade”
- Leaflet on the “Museu de Pao” (Bread Museum)
- Map and Leaflet on the “Manteigas Traces of the legacy of the crypto-jews”
- Leaflet on the “Museu do Brinqued” in Seia (Toy museum)
- Touristic brochure on the municipality of Covilha
- Brochure and map “Rotas and Percursos da Serra Estrela: Planalto Superior”, published by CISE-seia
- Various flyers and leaflets on festivities, markets, workshops and events taking place in the area, dealing with food, sports, photography and others

C. MAP OF THE AREA
D. SYNTHESIS OF IUGS DESKTOP ASSESSMENT
The IUGS experts focus on three main elements that make the Geopark Estrela a place of international significance in terms of geology: 1. the well-defined paleo-glacial landforms on different scales, 2. the granitic weathering landforms and the deeply researched correlation with rock structures and 3. the importance of the area concerning water supply for a huge area around the Geopark. The scientists point out, that these aspects have been highlighted in many peer-reviewed international scientific publications. The only geological aspect that had been left out in the application were some aplite-pegmatite dykes that appear in some parts of the geopark and might be of importance as sources for lithium. During the evaluators discussions with the experts present during the evaluation mission, the assessment of the IUGS experts could be affirmed.

E. VERIFICATION OF UGGp CRITERIA

E.1 TERRITORY

E.1.1 GEOLOGICAL HERITAGE AND CONSERVATION

As already pointed out by the IUGS experts, the most important geological aspects are the glacial landforms on the one and the landforms of granitic weathering on the other hand. Most of the Estrela is granitic, with metasedimentary formations - mainly schists and greywackes - outcropping at the southwestern part of EAG and at its center. Granitic terrains show well-preserved plateaus and linear tectonically-controlled valleys. Metasedimentary areas show deep and sinuous valleys and long ridge-like interfluves, with a dense drainage network.

Nine morphological units have been described:

1. The summit granite plateaus around the maximum altitude at Alto da Torre (1993 m)
2. The Southwest metasediment valleys of Alva and Alvoco
3. The Intramontane Valleys, deeply incised in the interior of the Serra da Estrela
4. The Cabeça Alta – Cerro do Gato Plateaus, remnants of a planation surface in the Videmonte area, deeply dissected by the Mondego and indistinctly preserved in metasediments and in granites.
5. The Transitional Zone to the Meseta Surface, a granite area in the NE limit of the Park
6. The SoutheastScarps and Transition Slopes, tectonically controlled mainly along SW-NE directions
7. The Southeast Piedmont, the so-called Cova da Beira platform, a planated granitic area at about 400-450 m, drained by the Zêzere river
8. The NW Piedmont Surface, the eastern limit of the Mondego platform, a planation surface that extends in northern Beira
9. The South Rim of the Portuguese Central Plateau occuring in a small area in the north of the Park

The high diversity of granite-types appearing in the area results in a very high diversity of granitic weathering landforms on different scales. Numerous outcrops like tors, blockfields, blockslopes or single boulders have formed, in many cases strongly influenced by the texture and depending on the mineralogical composition of the granite. Differences in pre-glacial and post-glacial weathering can be found in many places, while the glaciation itself formed the big structures like u-shaped valleys, moraines, glacial cirques and erosion plateaus.

The Geosite-Database of Estrela lists altogether 118 sites divided into eight groups: “Glacial and fluvioglacial” (35 sites), “periglacial and slope dynamics” (11 sites), “fluvial geomorphology” (10 sites), “granite weathering landforms” (18 sites), “hydrogeological” (6 sites), “bedrock geology” (21 sites), “mining”(4 sites) and “panorama observation points (19 sites). The database points out in detail, what is the main value of each site (scientific, educational…), the status of accessibility and what infrastructure is present. Up to now already
more than 30 of these sites are equipped with information panels. Further 15 sites are planned to be equipped with panels by the end of 2018.

Figure 3: Geological map of the Estrela region

According to the database, the following geosites are those of international relevance: The polygenetic granite columns of Cavao do Boi, a large set of granite columns testifying a complex geomorphic history, the Lagoa Seca col moraine fields, a sequence of four moraine ridges, evidencing the complete filling of the Zêzere valley by glacial ice, which generated a small diffluence at the headwaters of the Beijames valley and the Zêzere glacial valley itself. All three were visited during the evaluation mission.

About fifty percent of the geosites were classified to have a low vulnerability, while twelve percent were ranked to be of “high or very high” vulnerability.

About 41% of the EAG area is in the Serra da Estrela Natural Park (PNSE/ICNF), which provides legal protection to 102 geosites. In addition the Park includes other legal protection status’ for specific areas, such as the Natura2000, Birds and habitats Directive, the biogenetic reserves inside the PNSE and the RAMSAR convention area.
It has to be pointed out, that most of the Geosites of Estrela are of huge areal dimensions and therefore of relatively low vulnerability in terms of erosion, vandalism or overgrowing. Threats like infrastructures spoiling the scenery are in most cases limited because of the protection status of the Natural Park. Frequent wildfires might be a threat to some of the geosites, increasing the weathering process in some places, but at the same time they keep the landscape open and rock formations visible.

Recommendation: NO

E.1.2 BOUNDARIES

The Serra Estrela Geopark has a well-defined boundary that was created mainly focussing on the geoheritage and natural landscape elements such as rivers or mountain ridges. In some cases the geopark borders are also congruent with borders of the municipalities, but the main goal of the borderline is the integration of all landscape elements that are typical for the Estrela area as a large morphostructure. However some parts of the surrounding piedmonts are also included.

Within the area of 2216 km² most of the surface of nine municipalities is included: Belmonte, Celorico da Beira, Covilhã, Fornos de Algodres, Gouveia, Guarda, Manteigas, Oliveira do Hospital and Seia.

The borders are shown on the website and on all new information panels in the area. In addition, an official map (scale 1:75.000) was handed out to the evaluators, showing clearly and unequivocally the location of the border.

Recommendation: NO
E.1.3 VISIBILITY

The name Estrala is a household word throughout Portugal because Estrala is the country’s highest mountain and a popular resort area particularly for winter sports. Estrala is the source of drinking water for large metropolitan areas and Estrala is also the brand name for one of Portugal’s best-selling bottled mineral waters. All of this means that the name Estrala is very familiar to people in Portugal and this has greatly assisted the marketing and promotion of the Estrala Geopark brand.

In general, the visibility of the aspiring Geopark is relatively high throughout the Estrala region and is ensured by several infrastructures on different levels. Probably the most striking installation is one giant panel in each of the nine municipalities, explaining the candidature of the Geopark for the UNESCO status. These panels are located close to the most important roads leading into the villages so the Geopark-process is unmissable to everybody entering the area.

Figure 4: Geosite map and legend (enlarged)

Figure 4: One of nine giant Geopark-signs
Another outdoor-presence of the Geopark is given by relatively big information panels at the most important geosites. All panels are showing the corporate design of the Geopark (colours, logo, font etc.) and show identical structures with texts, maps and pictures.

Figure 5: Information panel for sites of high importance

Associated with these the park has developed an interesting guiding system including additional signs that are located at car parks or other places that are well accessible or strongly frequented by visitors. These signs indicate that there is a geosite nearby and point out the walking distance. A QR-code offers a map that shows the best way to get to the site. This system appears to be very innovative and really helpful to guide visitors to the interesting places.

Figure 6: Additional signposting

A detailed map showing the location of all geosites and touristic infrastructures was handed out to the evaluators and is available on the website in high resolution. Up to now it is not available in shops or information centers. There are hiking maps available published by private publishers, but these do not yet point out the geosites.

In general the Estrela Geopark focusses very much on the website and on social media (facebook, twitter, instagram, youtube) and offers relatively few printed products. The evaluators got the impression that this way of working might be due to the young technical team of the park that has recognized a general trend leading away from lots of paper towards more digital information. Whether this is good development or not is hard to decide. Young
visitors might appreciate it, while older visitors probably miss something. Some, but not all printed information is available in English too.

The website has a modern design and offers lots of information both in Portuguese and English. Beside a corporate design also a mascot was designed, obviously following the style of manga-comics, addressing a rather young target group.

![The Serra Estrela mascot](image)

*Figure 7: The Serra Estrela mascot*

The Geopark has its own graphical designer and photographer/film maker/drone operator, providing a continuous line in terms of public relation.

Ten places (mostly information centres and museums) have been equipped with so called “Portas do Geopark”, a type of geopark corner offering basic information and visualizing the position of the place being an “entrance” to the park.

![“Geopark Doors”](image)

*Figure 8: “Geopark Doors”*

Four centres offer more detailed information on the Geopark:
The Interpretation Centre of the Serrada Estrela (CISE), located in Seia in a park with 23000 m², focusses on dissemination and conservation activities on biodiversity and geodiversity. The Interpretation Centre of the Zêzere Glacial Valley (CIVGLAZ), located in Manteigas, hosts a small museum and information centre, with 5 rooms and an area of 215 m². The Ecomuseum of the Zêzere in Belmonte focusses on the ecological significance of the Zêzere, one of the main rivers of the area. It has 2 exhibition rooms, an area of 500 m² and was inaugurated in 2001.
The Interpretation and Memory Centre of the Estrela (EIME), focusses originally on the biodiversity and geodiversity of the Natural Park of the Serra da Estrela and is since 2017 maintained by the Geopark.

![Image](image1.png)

**Figure 9: Exhibition in the Torre-Information Center**

Probably even more important is the Information Centre of Torre at the highest point of the geopark, as this is the most visited place of the whole area. The interpretation centre hosts a permanent and a temporary exhibition area and a small conference room with an area of 260 m². It was inaugurated by the Natural Park of the Serra da Estrela in July 2008 but closed to the public in December 2015. In the framework of the collaboration with the ICNF, a memorandum was signed in 2017, with the Geopark now being responsible for the recovery and maintenance of this infrastructure.

The enterprising Geopark team work hard to promote the Geopark through social media and by interaction with the media. For example, they recently had significant success in raising national awareness of the Geopark by persuading the Portuguese edition of National Geographic magazine to feature a 5 page article on the aspiring geopark. This article was written by members of the team and used some striking photographs taken by the Geopark's in-house photographer as well as an attractive and informative pictorial map of the Estrela mountain landscape.

The Geopark is also recognised and promoted by national and regional tourism authorities and it also enjoys a positive image through the support of national and local government authorities, academic institutions, businesses, local communities and others.

All in all, the aspiring Estrala Geopark has achieved a significant and praiseworthy level of visibility in a relatively short time. A number of existing UNESCO Global Geoparks probably do not have the same level of visibility and could learn from Estrala’s experience. Certainly, this aspiring geopark would be well placed to promote itself as a UNESCO Global Geopark if their application is accepted.

Recommendation: NO

### E.1.4 FACILITIES AND INFRASTRUCTURE

The most important information and service infrastructures and facilities have been described in the chapter above, being the places where the Geopark becomes visible to the public. Concerning partnerships in this context, an important aspect is the strong co-
operation with the Natural Park that has transferred some of its responsibilities to the Geopark in the meantime. The best example for this is the information center at the Torre.

Most of the other information points are not completely new infrastructures but have been attached to existing museums or other points of interest. During the evaluation it was obvious, that there is a good relationship between the local touristic stakeholders and the Geopark Team. Everybody seems to be quite supportive giving the Geopark the chance to build up on existing structures.

Figure 10: View from Linhares castle and exhibition indoors also providing basic information on the Geopark

In general, the position of the Geopark being in a way a follow up on the Natural Park of Serra Estrela, makes it easier to co-operate with tourism, because a widespread understanding of the landscape and its highlights is already in place based on the natural parks’ work in the past.

The sites and facilities we visited were attractive, well maintained and in a safe, easily accessible condition.

The region of the Geopark generally seems prosperous and the towns, villages and roads in the Geopark were clean, tidy and litter free. It was noticeable that there has been considerable entrepreneurial investment in tourism in Estrala in recent years particularly in the construction of quality hotels and other forms of visitor accommodation.

Recommendation: NO

E.1.5 INFORMATION, EDUCATION AND RESEARCH

As described in earlier chapters, interpretation for the broad public is provided across numerous information panels, website and activities. Up to now, there is relatively little printed material – as the focus is more on digital information using internet and social media on different levels. The published information is mostly easy to understand – just some of the more detailed information on the big Geosite-Information panels is sometimes using too many technical terms (see recommendations).

There are several educational programmes being in use by the Geopark: Some examples were handed out to the evaluators such as:
- Programas Educativos 2017/2018 Ensino Superior
- Programas Educativos 2017/2018 “A ESTRELA VAIA ESCOLA”
- Programas Educativos 2017/2018 Ensino Básico
- Programas Educativos 2017/2018 Ensino Secundário
Also some field-trip guides including fill-in-the-blank texts exist, for example dealing with rocks of the Serra Estrela or with historical places. The responsible persons of the geopark team were able to prove that these programs are actively used by the local schools. The fact that some schools have signed a special partnership with the geopark shows, that the programs are well appreciated.
Research is probably one of the strongest points of the Estrela Geopark. The area has been in the focus of geological research quite early – the first studies dealing with the former glaciation were already published in 1884. A deeper knowledge of the processes was given in 1929 by Hermann Lautesbach, a German geographer that spent three months in the area in 1927 and 1928. He identified several features of the glaciation and mapped glacier extent and thickness. In 1971 the French geographer Suzanne Daveau published the results of her research – “La glaciation de la Serra da Estrela”. Daveau added up to previous works based on better topographic maps, on new field observations and on systematic aerial photo interpretation. Most of the results of Daveau’s mapping are still valid today, especially in what concerns to the glacial extent outside the Zêzere valley. In the mid-1990’s, Prof. Dr. Gonçalo Vieira, who is today the scientific coordinator of the geopark, continued Daveau’s research, and in the framework of a doctoral dissertation, using GIS, aerial photography, digital high resolution orthophotos and sedimentological analysis, supported by fieldwork, presented the current view of the Estrela glaciation. The long list of current studies presented already in the application dossier indicates, that the long history of research is continuing, although a cut in research funding made the process decrease in recent years.

The Geopark is endorsed and supported by several academic institutions and has a strong Scientific Committee headed by Professor Gonçalo Vieira of the University of Lisbon who is an internationally recognised glaciologist. The senior staff of the universities whom we met advised us that their institutions see opportunities for themselves arising from the geopark. For instance, their technical and engineering departments are cooperating with the Geopark in terms of planning and developing visitor infrastructure and, in addition, there are plans to increase study courses leading to qualifications in mountain sports and other tourism aspects. It is also anticipated that the presence of a UNESCO Global Geopark would be a catalyst to help to attract a higher proportion of students from the 80% of the Portuguese population who live on the coast to undertake study courses in the mountain interior of the country.

Recommendation: YES. When new information panels are designed or old ones are replaced, the texts should be checked by somebody without any geoscientific background to make sure everything is easy for the general public to understand. Some of the existing texts (less than 10%) contain too many technical terms, so the general visitor might have problems to understand some of the content.

E.2 OTHER HERITAGE
E.2.1: NATURAL HERITAGE

The natural history of Estrala is attractive and varied largely because of the wide range of natural habitats that are found in the mountain and lowland landscapes of the Geopark. Seasonal weather changes also influence the natural history as there is a significant difference in the temperature range between the hot summers and the cold winters when snow fall is high. The biodiversity of Estrala is particularly rich and is of international and national importance because of its sustainable populations of notable species including birds, mammals, amphibians, lizards and spiders.

The environmental value of the region led to the establishment of the Serra da Estrala Natural Park, which is one the main nature parks in Portugal. The Natural Park is operated by the government of Portugal and has an effective policy of nature protection linked to public enjoyment and understanding of the Park. There is an excellent of cooperation and mutual support between the Geopark and the Natural Park and the Natural Park staff regard the Geopark as a significant asset to the objectives of the Natural Park. In addition to the Natural Park, the Geopark boundary also contains a Ramsar – wetland of international importance and a biogenetic reserve as well as a large number of Natura 2000 sites, which are areas of European importance either for their natural habitats or the species they support.

Due to its elevation and location in the path of prevailing westerly winds sweeping in from the Atlantic, Estrala experiences high precipitation particularly in the winter months. Fresh water is abundant in the region in the form of rivers, streams and lakes and makes a pleasing feature of the local scenery. The abundance of water in a hot Mediterranean region is obviously an important natural asset and Estrala is nationally important as a source of drinking water for a significant proportion of the population of Portugal.

The Geopark works with its other partners to highlight the important natural heritage of Estrala through publications, exhibitions, events, films and other activities. For example, the Geopark has recently refurbished and re-opened the Centro de Interpretacao da Torre which is a large natural history exhibition at the popular Torre mountain top visitor centre. The exhibition centre had previously had to be closed by the Natural Park because of budget cuts under government austerity measures but the Geopark has entered into a long term agreement with the Natural Park to run the centre. This is a good instance of the Geopark being able to pool its resources with a strategic partner for the benefit of the region.

Recommendation: NO

E.2.2 CULTURAL HERITAGE

The cultural heritage of Estrala is largely determined by the landscape and by agricultural practices over succeeding generations. In particular, the region still has an active tradition of shepherding where sheep farmers accompany their flocks of sheep on the mountain sides using traditional breeds of large Portuguese mountain dogs which were bred to protect the sheep from wolves. Many of these shepherds still wear traditional woollen clothing made from the wool of their own sheep.

Estrala also has a number of picturesque villages which have traditional houses and buildings. These villages are attractive to visitors and some of them are located on long distance walking routes. Linhares de Beira is one such village and is acknowledged as one of the Top 10 traditional villages in Portugal. Restaurants often have traditional recipes on the menu using locally sourced foodstuffs. Estrala is very well known for its traditional high quality artisan cheeses that are produced at local farm houses and in small cooperatives.
The region has many historical aspects and has a number of hill-top castles reflecting its turbulent history. Linhares de Beira Castle has an impressive hill top location and has an interesting information centre which is popular with the many people who visit the village. The military aspects of the region come through to modern times as there is a former NATO radar station on the mountain top at Torre complete with two large radomes. One of the radome buildings is now the base for the mountain police force while the former military headquarters building houses the Centre de Interpretacao da Torre (see E.2.1). Other parts of the old NATO complex have been converted into shops and restaurants so Torre is now a focal point for visitors throughout the year.

There is a history of Jewish migrants coming to the area in the Middle Ages from other parts of Iberia to escape persecution as the local population was very tolerant and welcoming. As a safeguard, some of the Jewish people outwardly professed to follow Christianity although they retained their Jewish faith in the privacy of their own homes. Some old houses have inscribed markings intended to discreetly indicate that their owners were Jews.

The Geopark has a pro-active policy of supporting the local cultural heritage through its activities, events and information. For example, the recent article about the Geopark in the National Geographic magazine talked about traditional shepherding and included a photograph of a shepherd in the mountains with his flock.

Recommendation: NO

E.2.3 INTANGIBLE HERITAGE

The intangible heritage of Estrala also reflects the landscape and social character of the region and is influenced by the remoteness and isolation of the area for many generations. These factors have influenced social conditions in the region especially in the high mountains where farming has been largely restricted to pastoral sheep farming and associated home production of cheese and wool.

As well as traditional agricultural practices and farming methods, Estrala has its own social traditions and customs. There are clubs and societies dedicated to maintaining traditional music and dance that has been practiced in the region for many generations. These clubs often stage concerts or outdoor festivals and events so that traditional music is presented to a wider audience.

Many local people in the region practice traditional crafts such as textiles, leather work, wood carving and pottery. There is a flourishing textile industry based on the production of high quality woollen garments utilising the wool from traditional breeds of sheep. We visited the Burel Factory in Manteigas which is an excellent example of well-designed indigenous products appealing to a high end international market.

Estrala is an attractive scenic area with many traditional farm houses and other old stone buildings, many of which incorporate very large boulders into the walls. The small abandoned village of Quinta da Taberna is a geosite because of its geology but also contains fine examples of vernacular buildings in a remote rural setting. An interesting and unusual feature is that a local man in the past had the habit of recording local happenings by writing on the stone in the house walls with a sharp point. His writings can be found throughout the village on the walls of houses and they record social events such as marriages, births and deaths as well as natural events such as unusual weather conditions. The Geopark has plans to establish the abandoned village as a visitor site by converting some of the old buildings to house exhibitions and visitor information.

Recommendation: NO
E.2.4 INvolvement in Topics Related to Climate Change and Natural Hazards

Estrala is the highest mountain area in Portugal and one of the highest areas in the western part of Iberia. Due to its elevation and relative proximity to the coast the Estrala region experiences high precipitation because of the prevailing westerly winds coming in from the Atlantic Ocean. This means that Estrala has a prominent role in influencing the climatic conditions over a wide geographical area beyond the borders of Portugal.

The Portuguese government maintains an important climate study centre at the Meteorological Observatory at Penhas Donradas in the Estrala mountains. Meteorologists record daily weather readings and monitor climatic trends affecting climate change. The Observatory also houses some scientific instruments belonging to the Spanish Meteorological Service in a cooperative research study between the two countries of the weather patterns and changing climatic conditions of both the Iberian Peninsula and the western Mediterranean. The Observatory is an official partner of the aspiring Estrala Geopark and participates in educational programmes for schools.

Estrala, like other parts of Iberia experiences hot dry summers that can create ideal conditions for wild fires. In some years there may be a lot of fires particularly on the upper mountain areas that are not cultivated. There the native mountain grasslands are used for sheep grazing but may be susceptible to fire in hot weather. The Portuguese government devotes significant resources to fighting wild fires and the Natural Park has firefighting teams who also carry out fire prevention work. The Geopark also helps to raise public awareness of the risk of fire and the damaging impacts that wild fires can have on wildlife.

Recommendation: NO

E.3 MANAGEMENT

The Associação Geopark Estrela (AGE) which runs the Geopark is a private non-profit association with objectives of public utility, with its provisional office at the Polytechnic Institute of Guarda. It was created in May 2016 and its main mission is to contribute to the protection, valuing and promotion of natural and cultural heritage, emphasising on geological heritage, improving scientific knowledge and public outreach, and fostering tourism and sustainable development in the territory of the Estrela Geopark.

There is a 4 year Strategy and Implementation Plan for the Geopark which is aimed at developing the three focus themes of a UNECO Global Geopark as follows:

Science & Education
Tourism
Sustainable Development

The Strategy and Implementation Plan is backed up by an integrated Finance Plan which is supplemented by other key documents such as the Tourist Charter of the Geopark Estrala or the Science Strategical Plan. There are also policies covering the delivery objectives of the Geopark and these include policies on matters such as Community Empowerment, Geoheritage of Geoeducation.

The range of strategic partners and stakeholders that cooperate with the aspiring Estrala Geopark and that provide support for it is impressive. This is a particularly strong aspect of
this geopark and augurs well for its future. The Geopark has a comprehensive and effective management structure made up of a consortium of nine municipal authorities, government agencies, academic institutions and others. This is based on proper legal agreements, common policies, joint planning and innovative ideas such as Integrated Management Areas where various partners agree a common action plan.

The Association’s governance is overseen by the General Assembly, the Board of Directors, the Supervisory Board and the Scientific Committee. The Supervisory Board is the oversight and control body of the AGE and consists of a President and two Voting members, its main responsibilities are to examine the association’s documentation and accounting data, monitor the activities and provide opinion on the financial report by the Board of Directors. The General Assembly, is made up of a President, a Vice-President, a Secretary and by all the AGE members. Among other responsibilities, it approves and evaluates the activities proposed by the Board of Directors. The Board of Directors is the executive body of the AGE. It’s composed by a President, a Vice-President, a Secretary, a Treasurer and a Voting member, and among other responsibilities, administers and manages the association in accordance with the statutes, regulations and decisions of the governing bodies.

The Geopark Technical Team consists of the Executive Coordinator, the Scientific Coordinator and the Technical Staff who have a background in the three main disciplines of a Geopark: tourism, education and science, and community development. A key focus of the technical team is on geosciences, with three geologists (one with a PhD), two geographers (one with a PhD), and members with background in biology, tourism, education, design and communication, and mountain sports. This interdisciplinary team bridges the gap between natural and social sciences, including expertise in regional development. The Geopark staff are clearly very committed to the Geopark and obviously have a strong team ethic as they are able to combine their individual skills to excellent effect. There is a good gender balance in the team as several of the staff are females who are employed on an equal basis to their male colleagues.

The Geopark is also able to draw on the resources of its strategic partners on a support basis when needed, for instance, for engineering advice or for tourism marketing expertise. The Scientific Committee of the Geopark is well set up and is headed by the Scientific Coordinator who is Professor Goncalo Viera from the University of Lisbon who is an internationally respected glaciologist. The Committee supports the work of the Geopark team by providing expert advice and opinion as well as by promoting scientific research and study in the Geopark. The Committee includes experts in socio-economic development who are also able to valuable guidance to the Technical Team. There are appropriate agreements and memorandums of understanding in place to ensure that the Geopark can interact with its partners. A good example of this cooperation is the agreement between the Geopark and the Serra da Estrala Natural Park, which forms a strong base for both facilities to work together for the benefit of their region.

The Geopark has a healthy direct budget of €458,966 in 2018 which will rise to €578,409 in 2020. This budget is made up of financial contributions from the municipal authorities, local businesses and others. This budget is supplemented to a considerable degree by in-kind contributions from some of the strategic partners such as the staff time of municipal employees or the free use of office space in the Polytechnic Institute of Guarda. The Geopark also has some commercial sponsors such as BMW who have given the Geopark three complimentary cars for use as work vehicles. The Portuguese outdoor wear manufacturers Berg also donates the staff uniforms for the Technical Team.

The aim of AGE is to utilise the Geopark as a catalyst to promote sustainable development, community development, to achieve regional, national and international recognition and to promote a strong network of stakeholders. Among other matters, it is anticipated that the
Geopark will help to reduce the impacts of rural exodus or emigration which reduced the population of the geopark area by 10,000 people between 2011 and 2016. Rural exodus and emigration has altered the profile of the population and its economic structure, and is likely to have long term impacts if effective measures are not put in place. AGE is part of the process and is playing its part to improve the prospects for Estrala. It should be realised that most of the emigrants are from the youngest and normally the most entrepreneurial generations, which means that the population has been distorted and now has a high disproportion of elderly people which is likely to increase.

Overall we formed the conclusion that the aspiring Estrala Geopark has a comprehensive and effective management structure and we concluded that the Geopark is functioning successfully as a de facto geopark.

Recommendation: NO

E.4 OVERLAPPING

The aspiring Estrala Geopark does not overlap with any other UNESCO designated sites or facilities. The existing Naturtejo UNESCO Global Geopark comes relatively close at one point to the boundary of Estrala although this may be of little consequence given the long boundaries and size of both geoparks. There are some similar geological aspects between the two geoparks just as there are differences. As well as similarities, each area has different heritage qualities and it is not up to us as the geopark evaluators to decide if the proximity of the two areas is problematic or not.

However, it is evident from the letters of support included with Estrala’s application that the aspiring geopark has strong, high level support within Portugal. This high level of support was also evident from the discussions we had with representatives of nationally important institutions, agencies and organisations during our mission. This included the Private Secretary to the Minister of Tourism and the Chief Executive of the Portuguese National Tourist Board. Both of them made long journeys to meet us and both placed great importance on Estrala being accepted as a UNESCO Global Geopark. Presumably, the proximity of Naturtejo to Estrala has been considered by the Portuguese National Commission to UNESCO, the Portuguese government, the Portuguese Geoparks Forum and certain other organisations who clearly support Estrala’s application to become a UNESCO Global Geopark.

The Geopark encompasses the entire area of the nationally important Serra da Estrala Natural Park, which is operated by the government of Portugal. The Geopark boundary extends well outside the area of the Natural Park to include other areas of the region including a number of towns and villages. There is clearly an excellent degree of cooperation and mutual support between the Geopark and the Natural Park, which is the central core of the Geopark. We saw clear evidence of this during our inspection when we visited some of the Natural Park facilities and met the Director of the Natural Park and some of his staff who clearly supported the Geopark application. They made it clear to us that they placed considerable value on the prospect of their region becoming a UNESCO Global Geopark.

Recommendation: NO

E.5 EDUCATIONAL ACTIVITIES

As described under E1.5, the geopark has already developed a number of educational programs for all school levels and is co-operating closely with some schools in the area. The
The park has one employee responsible solely for the education sector, being supported by the other colleagues within the team. This gives the team the opportunity not just to develop programmes but to carry out most of the courses by themselves. Providing professional staff for it, the park can also offer special educational activities such as courses in photography or birdwatching.

Courses in birdwatching and photography offered by the geopark staff

The Geopark has strong partnership agreements with both of the third level academic institutions in the geopark area. Both institutions recognise the value of the Geopark and the opportunities it provides for study and research. Courses linked to the wider influences of the Geopark have been set up and the Geopark Team works with students to provide practical learning and work experience. It is anticipated that if the aspiring Geopark achieves UNESCO Global Geopark status then the Estrala region will attract a higher proportion of students from the 80% of the Portuguese population who live on the coast. The Geopark has initiated a projected called the Research Stimulus Grant which is used to give support grants to students who are undertaking research projects that are relevant to the work of the Geopark. There is also a Science Strategical Plan to promote scientific understanding within Estrala. An interesting objective of the Plan is the bridge the gap in understanding between the scientists and local communities and local businesses. This is creating benefits that are likely to lead to opportunities for communities and businesses in the fields of geotourism, geoeducation and geoheritage.

Estrala Geopark’s close partnership with third level academic institutions is paying dividends in terms of education, science and innovation and many existing UNESCO Global Geoparks could learn from their approach.

Recommendation: NO

E.6 SUSTAINABLE TOURISM

The Estrala region is an established tourist destination in Portugal with year round visitors thanks to the availability of winter sports at Estrala’s ski resorts. Nonetheless, Estrala’s main market is domestic visitors from within Portugal as most foreign tourists congregate at the better known coastal resorts. Consequently, there is potential to increase tourist numbers in order to create new socio-economic opportunities. One of the key reasons why the Geopark Estrala has been established is to promote Estrala as a quality destination for sustainable tourism based on the environment, heritage and education.

As discussed in E.3 above, the Associacao Geopark Estrala (AGE) has formulated its Strategy and Implementation Plan which is an effective overall plan for the Geopark backed up by a Finance Plan and effective polices relating to the various objectives of the Plan. One of the
three main themes of the Plan is Tourism and this is supported by the Tourism Charter for the Geopark Estrala.

The Geopark Estrala brand is being used to good effect to promote geotourism focussed on the landscape, geology and environment of this mountain region. As well as this, the Geopark is helping to promote the social and cultural values of the region. This strategy is designed to enhance the socio-economic wellbeing of the region through sustainable development (see E.7). The geopark brand is used as a common promotional tool by the Geopark Technical Team and other partner organisations to increase the tourism product of Estrala through activities such as marketing, festivals, events, education projects, approved businesses like restaurants and hotels, interaction with activity providers, publications and research projects.

As an example of this effective approach to sustainable tourism, the Geopark Technical Team is working with the Serra da Ela Natural Park, which has traditionally been predominantly regarded as a nature protection area, to raise the tourism profile of the Park. This is helping to make visitors more aware of the superb ecotourism experiences that are available in the Natural Park.

Estrala is of great interest to outdoor enthusiasts as there are many opportunities for outdoor recreation. In particular, there is a vast network of more than 1,200 kilometres of walking trails. The Geopark is crossed by 39 national long distance trails and many walkers are able to stage their walk at guest houses along the routes. Estrala also offers excellent motoring and cycling routes as well as historic villages, castles and museums for people to browse around. The winter snow on the mountain top attracts many skiers to the ski lifts and throughout the year the region has great appeal because of its landscapes and scenery. The Geopark region is well supplied with high quality hotels, guest houses and hostels as well as excellent restaurants that often specialise in local food.

All in all, Estrala has a good tourism industry but with considerable scope for further expansion of the tourist industry. It is clear that the Geopark has a well-planned and effective plan in place for promoting sustainable tourism and it is also clear that the Geopark is helping to increase the tourism economy of the region.

Recommendation: NO

E.7 SUSTAINABLE DEVELOPMENT & PARTNERSHIPS

E.7.1 Sustainable development policy

The 4 year Strategy and Implementation Plan that was launched in 2017 by the Associacao Geopark Estrala (AGE) has been formulated to provide strategic direction for the Geopark. An important element of the Plan identifies the best way forward for the sustainable development of the region. The Plan sets out the reasons and objectives for sustainable development and also lays down the various steps that are necessary to achieve the goals of sustainable development. The Plan is supported by the various partners that are involved in the management of the Geopark and is endorsed by national government departments. AGE provides the direction, oversight and strategic support needed to implement a major plan of this kind, while the Geopark Technical Team under the Executive Coordinator is responsible for delivering the outputs.

The Plan concentrates on the four years from 2017 to 2021 which AGE correctly noted as being the critical time period for establishing the aspiring Geopark and advancing it to
UNESCO Global Geopark status. With that in mind, the sustainable development goals of the Plan gave priority to targets that could be achieved relatively quickly. One of the first development goals to be achieved was the refurbishment and re-opening of the Centro de Torre Interpretacao de Torre. This is a large exhibition hall featuring the natural history of Estrala which was closed a few years ago by the Serra da Estrala Natural Park because of budget cuts by central government. The Geopark is using its resources to operate the Centre under a 10 year agreement with the Natural Park authorities, which is an excellent example of a practical approach to sustainable development.

Another example, picks up on the field studies potential of the Geopark and concerns the Meteorological Observatory of Penhas Douradas. Here the Geopark is working with the Meteorological Service of Portugal to establish a climate change research facility at the Observatory. The research centre will have residential facilities for visiting scientists and university groups as well as laboratories and a reference library. Already the Geopark and the Meteorological Service have introduced an education programme for schools at the Observatory and this is attracting schools from other areas to Estrala.

A further example is the abandoned village of Quinta de Taberna which once had an isolated farming community of around 15 families. As well as its picturesque setting in unspoilt countryside, the village has good examples of traditional farm buildings some of which still have their original interiors in a well preserved condition. Importantly, the village sits on bedrock and there are fine rock outcrops some of which had been incorporated into exterior walls of various buildings. The Geopark is working on a project to establish the deserted village as a visitor attraction or time capsule of a past community that will pick up on the cultural and geological heritage of the site.

At the same time, the Geopark is implementing a policy of providing interpretation and access to new geosites or of upgrading existing sites where geological or other heritage aspects may not previously have been interpreted. This is a sensible and successful policy which has created a suite of excellent visitor sites for the Geopark.

Other development projects are in the pipeline. An interesting example is the Geoalberques Network which is a project to re-develop disused buildings in rural locations such as former forest ranger houses or schools that have closed because of falling village populations. The plan is to refurbish these buildings as hostels for walkers, cyclists and other visitors thus bringing some life and spending power back to these disadvantaged places. In most cases, the hostels will be owned and operated by local communities or individual families depending on their location. We felt that this was an innovative approach to rural regeneration.

These are just some aspects of the wide ranging and comprehensive approach to sustainable development that is being demonstrated by AGE and which is being pursued on their behalf by the Geopark technical Team working in cooperation with other partners.

Recommendation: NO

**E.7.2 PARTNERSHIPS**

As discussed throughout this report, the Estrala Geopark is managed by the Associacao Geopark Estrala which is a consortium of partners including all of the nine municipalities in the region along with academic institutions, government agencies and others. This means that the Geopark is founded on strategic partnerships and is all the more effective for that.
The Geopark has a proactive approach to partnership working at all levels and on a variety of issues. These include management, tourism, marketing, conservation, education, heritage, science, community empowerment and business development. Typical operational partners in the geopark itself include the various departments of the nine local municipalities, academic staff at the University and at the Polytechnic, tourism providers, business owners, farmers, societies and community groups.

It is obvious that the Geopark has a strong commitment to partnerships and it is equally obvious that partnerships are one of the main strengths of this successful geopark.

Recommendation: NO

**E.7.3 FULL AND EFFECTIVE PARTICIPATION OF LOCAL COMMUNITIES AND INDIGENOUS PEOPLES**

There are no indigenous people in the Geopark. Local communities and organisations are involved in the management and development of the Geopark and the Geopark runs event and programmes that benefit local people and visitors.

The Geopark management structure is strongly supported by local government authorities and is fully accountable to local communities. There are effective policies such as the Community Empowerment Policy of the Associacao Geopark Estrala which are helping to create socio-economic opportunities for local communities and local businesses.

The local community representatives and ordinary local people that we met during our inspection were aware of the Geopark and obviously placed considerable value on it. Similarly, local business owners who we met also see the potential of the Geopark and some of them are investing in improving their business based on the positive impact of the Geopark. This positive attitude is already creating additional job openings in small village communities.

Recommendation: NO

**E.8 NETWORKING**

Representatives of the aspiring Estrala Geopark have already visited several Global Geoparks while seeking advice and information about setting up a geopark. Members of the Geopark Technical Team have attended open meetings of the European Geoparks Network and several representatives will attend the 2018 International Conference on UNESCO Global Geoparks in Italy. Estrala has also taken part in meetings and activities of the Portuguese Geoparks Forum and has been fully interacted with the Portuguese National Commission to UNESCO.

Recommendation: NO

**E.7 SELLING OF GEOLOGICAL MATERIAL**
We were assured that none of the organisations, businesses or enterprises associated with the Geopark sell geological material in contravention of the Global Geopark and we saw nothing to cause us to doubt that.

Recommendation: NO

F. DISCUSSION

The aspiring Estrala Geopark is located in an area of significant landscape quality which has geology of national and international importance. The region has strong natural and cultural heritage and has an important sustainable tourism industry. In recent times, like many rural areas in Europe, the region has experienced a rural exodus as young people emigrated to cities in Portugal or in other countries.

The Estrala Geopark has been set up partly to help to reverse the trend towards rural de-population but also to help to promote the socio-economic and environmental values of the region. The Associacao Geopark Estrala provides an effective and comprehensive management structure which is strongly supported by all of the nine municipalities in the Geopark as well as by government agencies, academic institutions, local communities, businesses and others.

The Geopark has a healthy budget which is augmented by in kind contributions from a number of strategic partners and by some commercial sponsorship. The Geopark Technical Team currently has nine full time professional staff including the Executive Coordinator, several geologists, an ecologist, an expert in mountain sports, a graphic designer, a photographer/film maker and a finance expert. The Team is well balanced and clearly committed to the Geopark and has successfully established it as an effective de facto geopark. The educational, heritage and natural potential of the geopark is well developed and supported by appropriate public programmes and information. The Geopark has a wide range of partners and stakeholders including the Serra da Estrala Natural Park. There is an excellent level of cooperation and mutual support between the Geopark and the Natural Park which is creating benefits for the region in terms of environmental protection, education and tourism.

Estrala is an established tourism area throughout the year including the winter when winter sports are a popular pastime on the mountain. The management authority of the Geopark has an effective Plan for increasing tourism and sustainable development and works closely with regional and national bodies to maximise the development potential of the Geopark and the region. The Geopark has achieved a high level of visibility and is effectively marketed and promoted. It has a good range of geosites and other sites of cultural and natural interest. Site interpretation is generally good although a minority of panels do contain technical information which may not be readily understood by some visitors. Sites are well maintained and safe for public access and there are suitable environmental protection measures in place to protect the geopark sites and areas.

Overall, the aspiring Estrala Geopark is an impressive entity and would be a very good UNESCO Global Geopark if it is accepted.

G. RECOMMENDATIONS

Recommendation:
The aspiring Estrala Geopark should be given a **Green Card** and should be accepted as a UNESCO Global Geopark.

**Recommendation for the Geopark:**

When new information panels are designed or old ones are replaced, the texts should be checked by somebody without any geoscience background to make sure everything is easy for the general public to understand. Some of the existing texts (less than 10%) contain too many technical terms, so the general visitor might have problems to understand some of the content.

### H. ITINERARY

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<tr>
<th>General Topics Activity/Locality</th>
<th>Findings/Comments</th>
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<tr>
<td><strong>Day 1</strong> Brief Visit and workshop with the geopark Team. Welcome and Presentation of the team members. Overview of the Estrela Aspiring Geopark features and activities Presence of the president of the “Associação Geopark Estrela”, members of the EAG Scientific Committee and EAG team.</td>
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**THE MOCHO REAL PANORAMA GEOSITE**

From this geosite you get a broad view of the Mondego valley, in the contact zone between metasediments and granites, where the fluvial gorge of the Corujeira stream cuts the contact zone hornfels, used for the installation of the Caldeirão dam. The dam was inaugurated in 1993 and aims at water supply and hydroelectric power production. The observation point allows the understanding of the significance of fluvial incision accompanying the uplift of Serra da Estrela and the typical human settlements along the Mondego valley. From here, we identify the hamlets of Vila Soeiro and Mizarela, an expression of a long adaptation of local communities to geology.

This point gives a good example of the concept of combining a detailed information panel at a geosite with an additional signpost by the road, to engage the visitors’ attention. The viewpoint itself could use some maintenance as some parts of the path and stairs looks a little unsafe.

This place offers a good view on the landscape and how it was changed by human occupation. No information facilities yet, but the parking lot offers plenty of space for interpretation.
TRINTA PANORAMA
Panorama towards the Meanders of the Alto Mondego (F5), where the walkways project will be implemented. This is a typical Mediterranean mountain landscape carved by fluvial erosion, which showed significant human occupation until the mid XX century. Even today, it is possible to identify the agricultural occupation with the use of terraces, although quite degraded by erosion, as well as old constructions along the valley floor. The area was devastated by recurring fires, the last one taking place in 2016. The construction of the Mondego walkways has as its main objective the environmental and cultural valorisation of this landscape.

THE METASEDIMENTS OF QUINTA DA TABERNA GEOSITE
Outcrops with striped schists of Neoproterozoic age (more than 650 Ma) with folds synchronous to the granite intrusions during the Variscan orogeny. The geological history of this geosite reflects the origins of the evolution of the territory of the Estrela Geopark, a fact that led the EAG to plan the installation of a Geological Interpretation Centre in partnership with the Municipality of Guarda.

“PORTA DO GEOPARK” OF CELORICO DA BEIRA (LINHARES DA BEIRA VILLAGE)
"Geopark Doors" are part of EAG’s communication strategy, being information points placed in the most visited places of each of the 9 municipalities that are part of this application, constituting entrance "doors" to the Estrela Geopark. In addition to the 9 Municipalities, there is a 10th

The Linhares de Beira information centre is basically a local museum and shop selling local products. Being one of the ten “Geopark-doors”, there could be more information given on the Geopark itself.
Door in Torre, a symbolic place in Serra da Estrela and the site with the highest number of visitors in the territory. This strategy aims at bringing communities and visitors closer to the concepts of a Geopark, making all the information about the territory more easily available.

LINHARES DA BEIRA CASTLE PANORAMA (PARTNERSHIP WITH THE “ALDEIAS HISTÓRICAS” NETWORK)
Built on a residual relief, the Historical Village of Linhares da Beira shows a unique architectural heritage, fruit of the legacy left by the civilizations that settled throughout the history. Founded in medieval times, with foral granted in 1169 by D. Afonso Henriques, it lost this status with the liberal administrative reform, in 1855. Although the site has seen the settlement of pre-Roman peoples and there is written record of the passage of Romans, Visigoths and Muslims, the story of Linhares has its origin in the context of the Christian Reconquest. The buildings are a testimony to the use of geology by its inhabitants, with its granite constructions and medieval Castle implanted in the highest point of the residual relief. From the castle, the panorama offers views over the Mondego platform and the southern slope of the central Portuguese plateau.

FOLGOSINHO QUARTZ DIKE GEOSITE
At Folgosinho, a village of the municipality of Gouveia, a peculiar quartz dike about ten meters wide, has been used to install the Castle. The dike has tin and tungsten mineralizations and was mined in the 1940s and 1950s. For the geopark the Linhares castle is an ideal site, connecting geological and cultural heritage in a perfect way.

This dike together with the little castle on top is another site that has the opportunity to attract a lot of visitors, as they will find cultural heritage, a panoramic view and geology in one place. In both places (Linhares and Folgosinho) unfortunately information panels were not yet installed.
CASAIS DE FOLGOSINHO
Small dwellings spread in the hills, consisting of living quarters and annexes for the cattle, built with local raw materials and thatched roofs. This is an important place for mountain agriculture, with the fertile soils left by the incision of the Mondego river allowing the development of pastures and rye fields.

FRAGÃO DO CORVO PANORAMA
Panorama from Penhas Douradas towards the village of Manteigas and to the north to the city of Guarda, which allows the observation of the main geomorphological units of the northeast sector of the Estrela Aspiring Geopark. With an altitude of approximately 1450 meters, from this panorama we can observe the Zêzere valley, as well as the transition between the Estrela range and the Iberian Meseta, near the city of Guarda.

This recreational area used to be a campsite before and is today still used by visitors to have a picnic or a bath in the river.

Besides the perfect view on the landscape that this site offers, it is special because the visitor has to pass a deeply weathered granitic body before the view comes into sight – so the geosite is highlighted by the location itself.

PENHAS DOURADAS AND VALE DO ROSSIM GRANITE LANDFORMS
In a typical granite weathering landscape geosite, the Fragões das Penhas Douradas, located south of the Vale do Rossim, are characterized by a set of in situ boulders that are arranged geometrically, respecting the joint system that controls their genesis and shape.

METEOROLOGICAL OBSERVATORY OF PENHAS DOURADAS
(PARTNERSHIP WITH THE PORTUGUESE INSTITUTE FOR THE SEA AND ATMOSPHERE – IPMA)
Built in 1940, the Meteorological Observatory of Penhas Douradas plays a very important role in the meteorological monitoring and characterization of the Serra da Estrela climate. The partnership established between the Portuguese Institute for the Sea and the Atmosphere and the Associação Geopark Estrela will allow the development of research projects in the area of climate and climate change, as well as its use for educational programs and other interpretation activities.

VISIT TO THE BUREL FACTORY
The Burel Factory is the factory of Burel Mountain originals and a record in the history of the village of Manteigas and in the Portuguese Wool Industry. It all began in 1947, the year that saw the birth of Lanificios Império, the most important wool factory in the region of Serra da Estrela. Today it continues to produce using the same machines and traditional equipment, from the time the industry was still made by hand, thus ensuring the production of unique, different and high quality fabrics.

Up to now this site – like some others visited during the evaluation trip – are equipped with an older interpretation panel that was already put up by the natural park. These signs are just in Portuguese and will be replaced by the geopark in the near future.

This Observatory is especially interesting in terms of education, as it works at the same time with the old style mechanical meteorological instruments and with modern electronic equipment. Schools regularly visit this institution.

As the production of wool is probably the most important traditional industry in the Estrela, it is of high value to the geopark to have the chance, to show the whole production process from the sheep farming across the processing of the wool up to the weaving and production of clothes, furniture and decoration from the material.
preserving the past, reinterpreting it and making it into a story of the future.

THE ZÊZERE GLACIAL VALLEY
The Zêzere Glacial Valley is one of the most beautiful and iconic places in Serra da Estrela. Its landforms were strongly shaped and eroded during the Quaternary glaciations, with its last maximum local extent occurring about 30 thousand years ago. The valley presents a "U" shape in all its extension upstream from Manteigas, constituting the most important glacial landform in Portugal, and considering the numerous geosites contained within it, it presents itself as an example of international relevance. Along the road up the Zêzere Glacial Valley, several glacial landforms and deposits occur, such as glacial cirques, hanging valleys, overdeepenings, riegels, roches moutonnées, moraines and small kame terraces.

COVÕES DA AMETADE AND ALBERGARIA
The Covão da Ametade is a glacial overdeepening immediately adjacent to the glacial cirque of Covão Cimeiro. The basin is infilled with fine sediments that make it favourable for agriculture and suitable for reforestation. Downstream from the Covão da Ametade lies the Covão de Albergaria, which together with the two covões (overdeepenings) upstream forms a succession of depressed and poorly drained areas typical of mountains subjected to glaciations.

LAGOA SECA COL MORAINE FIELDS
Geosite of international relevance consisting of a sequence of four moraine ridges, evidencing the complete filling of the Zêzere valley by glacial ice, which generated a small diffuence at the headwaters of the Beijames valley. The outermost moraine ridge dates from an ancient glacial phase, long before the last glacial maximum of Estrela. The area

Even though the Estrela is – especially for Portuguese people – well known as a destination for winter tourism and the higher parts are covered by snow in winter, it might be hard to imagine that this area was partly covered by glaciers. The Zêzere valley is an ideal place to explain processes to the visitors, that most people would expect only in Scandinavia or in alpine regions.

This place used to be utilized as a campsite as it is quite picturesque and strategically well located. Several hiking paths lead through the place.

This site, equipped with one of the big interpretation panels, is a scenic place, but, compared to others, more of scientific than of touristic value.
presents an intramoraine sedimentation basin showing fluvioglacial sedimentation and a very good example of a till sequence, including a lodgement till and a flowtill.

THE GRANITE COLUMNS OF COVÃO DO BOI AND CÂNTRARO RASO GEOSITES
The Covão do Boi is a col at 1840 m asl, located between the Glacial Cirque of Covão do Ferro, the Zêzere Valley and the Cântaro Raso. In this geosite of international relevance, we find a large set of granite columns testifying a significant geomorphic history. The granitic columns, with diameters between 2 and 5 meters and a height between 4 and 8 meters, result from the combined effects of deep weathering that exploited the orthogonal jointing pattern, glacial erosion that has razed the surface and the top of the columns, and post-glacial erosion exposing the columns and removing the sapprolite. Other relevant geological features include deep weathering exposures, a fault with slickenside surface, the Cântaro Raso paleonunatak, remnants of a possible moraine and numerous small-scale processes typical of the marginal periglacial belt of Estrela. The granite columns are locally called “queijeiras” (from “queijo”, meaning cheese), because they resemble a stack of Serra da Estrela cheese, making them particularly original and closely related to the regional culture itself. The geosite also includes the “Senhora da Boa Estrela” statue, sculpted directly in the bedrock by António Duarte in the 1940’s. The image of the Virgin honours her protection to the mountain shepherds of Estrela.

THE GLACIAL CIRQUE OF COVÃO CIMEIRO, CÂNTRARO MAGRO PEAK, CÂNTRARO GORDO HORN AND RUA DOS MERCADORES DOLERITE DIKE
The Glacial Cirque of Covão Cimeiro is the best example of a glacial cirque in Serra da Estrela, with steep headwalls shaped like an amphitheatre, a glacial
overdeepening and a riegel. The Cântaro Gordo is a peak with 1875 meters of altitude, which as a paleonunatak, overlooked the glacier surface during the Last Glacial. The Cântaro Magro is the most prominent peak of the Estrela with 1928 meters of altitude, deeply marked by glacial erosion in its flanks, having also formed a nunatak. The Rua dos Mercadores is a small gorge with vertical walls caused by the differential erosion of a dolerite dike that intrudes the Estrela granite.

THE TORRE PLATEAU GEOSITE
The highest point of Serra da Estrela and Continental Portugal (1993 meters). It is a privileged site for landscape interpretation. During Pleistocene glaciations the Torre Plateau showed an ice-field with a thickness of 90 meters, draining to the adjacent valleys.

VISIT TO THE “CENTRO DE INTERPRETAÇÃO DO GEOPARK ESTRELA – PORTA DO GEOPARK DA TORRE”
The work developed in partnership with the Institute for Conservation of Nature and Forests allowed the concession of the former “Centro de Interpretação da Torre” to the Associação Geopark Estrela, for a period of 10 years. This will be a centre aiming at disseminating knowledge on the geological, biological and cultural values of the Estrela Aspiring UNESCO Global Geopark.

Being the most visited point of the geopark, the scenery here is a little bit disappointing. Because of the location in the middle of a high plateau, the view is just good from the edges but not from the place itself. Beside a giant parking lot and several shops selling souvenirs there is not much to see up here – except the information centre of cause. The fact that the Geopark gets the chance to follow up the natural park in running this centre in this highly frequented place is really a great opportunity. Checking touristic platforms like tripAdvisor and others it is clear to see, that nearly every tourist visiting the Estrela will come to this place, being the highest point above sea level. Already now the exhibition gives a good impression on many issues including the geological heritage, forestry, environmental protection and the history of sheep farming.

SABUGUEIRO VILLAGE
At this place the evaluators could enjoy some traditional music and dance that was presented by a local dance group.
Mountain Village, located about 1000 meters asl, occupying a sunny slope overlooking the Alva river, where the traditional granite houses, the community oven, are still in use.

It was good to see, that also young people seem to be quite active in the associations that keep the tradition and culture of the area alive.

LAGOA COMPRIDA (FRAGA DA PENA RUIVA)
The Lagoa Comprida is one of the geosites that best exemplifies the glacial erosion landforms of Serra da Estrela, in which we find deep glacial valleys, overdeepenings, rieglia, roches moutonnées, polished surfaces, striations and erratic boulder fields. The area shows a large dam built over a natural lake, which is the main water reservoir of Estrela and is used for hydroelectrical power production. Despite its high impact on the landscape, this historical dam whose construction started in 1912 is one of the first engineering works of this nature carried out in Portugal.

This site combines an impressive piece of engineering on an area of high geotouristic value. A well paved and signposted hiking trail gives access to the place.

RAMSAR SITE OF SERRA ESTRELA
This site was visited depart from the original itinerary. It is a relatively wet plateau covered by several lakes, bogs and other areas of high ecological value.

The biodiversity of this place becomes obvious soon after entering – the evaluators could observe several species of insects, spiders and amphibians. At the same time his place gave a good case for discussing, if every site of geological interest should be open to the public. In this case, the geopark has not yet decided how to deal with this subject in the future.
H2OTEL (UNHAIS DA SERRA)
Spa with waters with a total mineralization of 280 mg/l, pH 8.5 and temperature of 37.5 ºC, associated to the deep flow in the Bragança-Vilariça-Manteigas-Unhais fault. It’s an exsurgence in the porphyritic Covilhã granite, covered by 30 meters of fluvioglacial deposits, and where the H2Otel is installed.

List of people met during the mission
(9-12 July)

<table>
<thead>
<tr>
<th>Nome</th>
<th>Position on Geopark Estrela</th>
<th>Day and locality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emanuel de Castro</td>
<td>Executive Coordinator of AGE</td>
<td>AGE headquarters</td>
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<tr>
<td>Gonçalo Vieira</td>
<td>Scientific Coordinator of AGE</td>
<td>AGE headquarters</td>
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<tr>
<td>Gisela Firmino</td>
<td>AGE Technical Team</td>
<td>AGE headquarters</td>
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<tr>
<td>Fábio Loureiro</td>
<td>AGE Technical Team</td>
<td>AGE headquarters</td>
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<tr>
<td>Filipe Patrocínio</td>
<td>AGE Technical Team</td>
<td>AGE headquarters</td>
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<tr>
<td>Hugo Gomes</td>
<td>AGE Technical Team</td>
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<tr>
<td>Magda Fernandes</td>
<td>AGE Technical Team</td>
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<tr>
<td>Lucas César</td>
<td>AGE Technical Team</td>
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<tr>
<td>João Castel Branco</td>
<td>AGE Technical Team</td>
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<tr>
<td>Patrícia Azevedo</td>
<td>AGE Technical Team</td>
<td>AGE headquarters</td>
</tr>
<tr>
<td>Constantino Rei</td>
<td>President of Guarda Polytechnic Institute and President of AGE</td>
<td>09/07/2018. AGE headquarters Lunch IPG</td>
</tr>
<tr>
<td>António Fidalgo</td>
<td>Rector of Beira Interior University</td>
<td>09/07/2018. 10H00 – AGE headquarters</td>
</tr>
<tr>
<td>Gonçalo Poeta</td>
<td>Scientific Committee</td>
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</tr>
<tr>
<td>Name</td>
<td>Role</td>
<td>Event Date</td>
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<tr>
<td>Rosa Tracana</td>
<td>Scientific Committee</td>
<td>09/07/2018. 10H00 – AGE headquarters</td>
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<tr>
<td>Rui Cerveira</td>
<td>Lunch Tourism School</td>
<td>Lunch IPG 09/07/2018.</td>
</tr>
<tr>
<td>Luis Costa</td>
<td>Guarda Municipality Tourism office</td>
<td>Mocho Real Panorama Geosite</td>
</tr>
<tr>
<td>João Batista</td>
<td>Guarda Municipality Tourism office</td>
<td>Mocho Real Panorama Geosite</td>
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<tr>
<td>Carlos Meireles</td>
<td>Geologist of Geology and Energy</td>
<td>9/07/2018. Quinta Taberna Geosite</td>
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<tr>
<td>Afonso Proença</td>
<td>President of Videmonte parish</td>
<td>Quinta da Taberna geosite</td>
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<tr>
<td>Maria e José</td>
<td>habitants of Quinta da Taberna Geosite</td>
<td>Quinta da Taberna geosite</td>
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<td>José Martins Morgado</td>
<td>Vice-president of Corujeira parish</td>
<td>9/07/2018. Corujeira school</td>
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<tr>
<td>Fanfarra “NemFá NemFum”</td>
<td>Alexandre Horta – musical group</td>
<td>09/07/2018. Dinner (Hotel Lusitânia)</td>
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<tr>
<td>Filipe Silva</td>
<td>Representative of the Secretary of State for Tourism in Portugal</td>
<td>09/07/2018. Dinner (Hotel Lusitânia)</td>
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<td>Pedro Machado</td>
<td>President of Centre of Portugal Tourism office</td>
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<td>Adriana Rodrigues</td>
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<td>Henrique Machado</td>
<td>ICNF – Responsible for PNSE</td>
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<tr>
<td>Serra dos Reis</td>
<td>Covilhã Municipality</td>
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<td>António Manuel Pina Fonseca</td>
<td>President of Fornos de Algodres Municipality</td>
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<tr>
<td>Luís Tadeu Marques</td>
<td>President of Gouveia Municipality</td>
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<tr>
<td>Jorge Ferreira</td>
<td>Cultural department of Gouveia Municipality</td>
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<tr>
<td>Esmeraldo Carvalhinho</td>
<td>President of Manteigas Municipality</td>
<td>09/07/2018. 19H00 – Dinner (Hotel Lusitânia)</td>
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<tr>
<td>José Francisco Rolo</td>
<td>Vice-President of Oliveira do Hospital Municipality</td>
<td>Dinner (Hotel Lusitânia)</td>
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<tr>
<td>Filipe Camelo</td>
<td>President of Seia Municipality</td>
<td>Dinner (Hotel Lusitânia)</td>
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<tr>
<td>António Ruas</td>
<td>Intermunicipal Community of Beira and Serra da Estrela - CIMBSE</td>
<td>Dinner (Hotel Lusitânia)</td>
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<tr>
<td>Luis Antero</td>
<td>ADIRAM – Mountain Villages Association</td>
<td>Dinner (Hotel Lusitânia)</td>
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<td>João Carlos Morgado</td>
<td>Celorico da Beira Tourism and Cultural municipality department</td>
<td>Linhares da Beira Geopark Door</td>
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<tr>
<td>Arménio Coelho</td>
<td>Historical Villages Association - AGE partner</td>
<td>10/07/2018. Linhares da Beira Castle</td>
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</tbody>
</table>