Strasbourg, 9 January 2019 **T-PVS/DE (2019) 3**
[de03e_2019.docx]

CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

Standing Committee

39th meeting
Strasbourg, 3-6 December 2019

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REPORT

ON THE SPOT EXPERT APPRAISAL OF THE TEIDE NATIONAL PARK

(SPAIN)

29-30 August 2018

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The European Diploma for Protected Areas (EDPA) was first awarded to Teide National Park on the Island of Tenerife, Canary Islands, Spain, in 1989 for the period until 1994. The Diploma has subsequently been renewed on several occasions. The Group of Specialists on the European Diploma for Protected Areas decided at its meeting in 2018 that an on-the-spot appraisal be undertaken during 2018 to assess whether the EDPA should be renewed for a period of 10 years from 2019.

This report is written is relation to a consideration of the renewal of the EDPA for the 10-year period from 2019 until 2028. No member of the Secretariat in Strasbourg was present during the on-the-spot visit from 28 to 31 August 2018.

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1. THE REMIT

At its meeting on 21 and 22 February 2018, the Group of Specialists on the European Diploma for Protected Areas (EDPA) decided to carry out on-the-spot appraisals of certain EDPAs which are subject to renewals in 2019 and 2020. Teide National Park on the Island of Tenerife, Canary Islands, Spain, was one of those EDPAs selected for appraisal in 2018. The previous appraisal had been undertaken by Jadwiga Sienkiewicz between 28 and 30 September 2008.

A letter dated 25 April 2018, signed by Iva Obretenova, stated that "the objective of the on-the-spot appraisal is to assess whether the conditions of the site remain the same as when the Diploma was awarded and extended, or whether they have improved or deteriorated". I was asked to be "the independent expert in charge of the on-the-spot appraisal, visiting the site, meeting relevant stakeholders as per the draft agenda, and preparing a report, including the necessary recommended actions". This report is written to fulfil the requirements in Iva Obretenova's letter. The detailed programme for the on-the-spot visit, together with names and affiliations of people who contributed to the visit, is given in Annex 1.

2. INTRODUCTION TO TEIDE NATIONAL PARK'S EUROPEAN DIPLOMA FOR PROTECTED AREAS

An application from the Government of Spain for the award of the European Diploma for Protected Areas (EDPA) was made in 1987 [Council of Europe's paper SN-ZP (87) 27], and subsequently was considered at a meeting in Strasbourg later that year. Following favourable consideration of this application, an on-the-spot survey of the national park was conducted by Cyrille de Klemm and Eladio Fernandez Galiano [paper PE-ZP (87) 35, dated 28 December 1987].

The European Diploma was awarded to Teide National Park in 1989 and was renewed in 1994. Subsequently, there have been on-the-spot visits in April 1998 by Charles Zimmer [paper PE-S-DE (99) 61] and in September 2008 by Jadwiga Sienkiewicz [paper T-PVS/DE (2009) 6].

Over the years no conditions have been attached either to the award or to the renewals, but relatively extensive series of recommendations have been suggested. At the last renewal, 8 recommendations were made – my assessment of the extent to which these have been fulfilled is included in section 4 of this report. Management of the National Park has been guided from 2002 by the master plan on use and management.

A map of the National Park, showing the park's boundary (black line), roads (thick red lines), 4 zones (in pink, yellow, green and grey), various visitor amenities, and the 41 hiking trails, is included in Annex 2.

Annual reporting by the National Park to the Council of Europe in recent years has been extremely poor. As indicated in paper [T-PVS/DE (2018) 09] considered by the Group of Specialists in February 2018, an annual report has been submitted in only one year (2016) out of the last six years. I raised this issue with the National Park's Director during the on-the-spot visit, and I requested that timely delivery of the annual reports should now be the norm. As annual reporting is now included in the preamble to the renewal of all EDPAs, I have not included this as either a condition or recommendation, but it is essential that the management of Teide National Park fulfils its obligation to send annual reports to the Council of Europe.

The management plan for the National Park is known as the *Plan Rector de Uso y Gestión* (or in English as the *Master Plan for Use and Management*). This plan was approved by Decree 153/2002 on 24 October 2002 by the Canary Islands Regional Government. It was published in the Official Bulletin of the Canary Islands, Number 164, on 11 December 2002. To avoid confusion in this report, the abbreviation 'PRUG' will be used to refer to this plan, and the abbreviation 'new PRUG' will be used for the new master plan which is currently being prepared.

3. EUROPEAN INTEREST

The European interest in the Teide National Park was described in the application by the Spanish Government [paper SN-ZP (87) 27]. It was listed under a series of headings, namely:

Geological interest

Geomorphological interest

Atmospheric and astronomical interest

Botanical interest

Zoological interest

Archaeological, anthropological and ethnographical interest

Aesthetic interest

Cultural interest.

Just listing these interests hardly does justice to the National Park. The area has been shaped by volcanos and volcanic events, the last eruption being in 1798 (the Narices del Teide). There is still some low-level seismic activity, as well as places where sulphurous fumes can be encountered and other places which are substantially warmed from below the ground's surface. It is possible, even likely, that there will be further volcanic activity in the future. There is a considerable body of knowledge, including many publications on the geology and geomorphology of the National Park and the Island of Tenerife. I was told that the earth sciences featured most strongly in publications from the earlier days after the National Park was established. An up-to-date guide to the National Park's geology has been published (Barrera et al., 2015).

However, it is the biological aspects of the National Park which have become foremost in recent years. The extremely high degree of endemicity of the plants and animals makes the Island of Tenerife exceptional by European standards. For example, 142 of the 260 species of spiders (55%) recorded from Tenerife are endemic to the Canary islands (Ashmole & Ashmole, 2016), and other relatively large percentages of endemic species are known for many groups of plants and animals. Whereas such large percentages apply of the Canary Islands archipelago, there are also many endemic species in the National Park. Of the 194 taxa of vascular plants recorded within the park, 32 (16.5%) are endemic to Tenerife and of these 5 taxa are endemic to the National Park itself. Perhaps the best known of these is the Teide violet (*Viola cheiranthifolia*), described in 1799 by Alexander von Humboldt and Aimé Bonpland as the only plant species occurring in the vicinity of El Teide's peak. Also, the stratification of vegetation zones, from the pine (*Pinus canariensis*) forests at the lowest altitudes of the National Park to the almost bare rocks near the summit, and their associated flora and fauna, provide a unique ecological gradient.

The interesting earth and biological sciences would be sufficient to establish the National Park's European interest. However, since the application for the EDPA in 1987, two other aspects of the National Park have undoubtedly increased its European significance. First, studies on the aboriginal people of the Canary Islands, the Guanches, have advanced, and now more than 1000 archaeological sites are known within the National Park. These are important in understanding the development of human societies in Macaronesia. Second, studies originating in the twentieth century have contributed to knowledge about climate change (see, for example, Martín et al. (2012), who indicate that the high mountain temperature has increased by 0.14 + 0.07°C per decade since 1944). Similarly, Olano et al. (2017) have analysed the effects of change in precipitation, and the effects of drought on the plant communities. These long-running studies are similar to those in the Hawaiian Islands, and are important indicators of what is happening to the environment of this planet.

Thus, for the criterion of 'European Interest', my assessment is that the European interest has not only been maintained, but has increased, during the last 30 years.

4. APPRAISAL OF THE IMPLEMENTATION OF THE PREVIOUS 8 RECOMMENDATIONS

Eight recommendations were attached to the previous renewal of the EDPA. In this section of the report I provide my brief assessment of the extent to which these issues have been addressed. This assessment is based on observation as well as on written comments by the National Park staff and discussions whilst I was on Tenerife.

Recommendation 1: The areas surrounding the cable car should be restored according to the Rambleta del Teide restoration project. There has been some progress with implementing this recommendation (which originates in section 12.5 of the PRUG). I saw work being undertaken on footpath No. 10 (from the upper teleférico station to the summit of El Teide). I also saw some work which had been undertaken to make the pavements more natural in appearance. Ignacio Sabaté Bel, Director General de Teleférico de Pico Teide, S.A., described the plans to upgrade both the base and upper stations of the teleférico. Implementation of these plans awaits all of the official approvals as well as incorporation within the park's new PRUG.

Recommendation 2: Efforts to eradicate wild mouflon and rabbit populations within and outside the park should be continued, with special emphasis on the removal of the pressure of the invasive animals in the areas located outside the park. Objective 2 of the PRUG states "To establish a progressive control plan to monitor mouflon sheep, wild rabbit and other introduced mammals, aimed at eradicating the former and maintaining the latter two groups at levels that do not pose a significant threat to the Park's flora". Control measures for both species have continued both within and outside the National Park. For the mouflon, about 40 hunters each day (termed collaborators) act together to control this illusive animal. Their efforts are being successful as demonstrated by the census of mouflon every spring and winter. Census data indicate that the winter population within the National Park declined from an estimate of about 200 animals in 2001 to less than 50 in 2017. Wild rabbits are shot and hunting is effected with dogs and ferrets, referred to in the PRUG (section 11.1.2) as a traditional activity. The rabbit population size is recorded by use of the 'kilometric abundance index (KAI)". In 2003/04 the KAI was approximately 2.5. By 2016/17 the KAI had been reduced to less than 0.5. The Civil Guard undertake periodic inspections of livestock farms, etc., to ensure that there is no illicit keeping of mouflon. The research undertaken by the National Park on the detrimental effects of rabbit grazing on native plant species has been published (Cubas et al., 2017).

Recommendation 3: The roadworks cabin near Riachuelo Reserve, near to the TF-21 road, should be removed thus implementing article 12.4.4 of the Masterplan for Use and Management (PRUG – Plan Rector de Uso y Gestión). This recommendation has not yet been implemented. However, in 2016 an agreement was reached with the occupants of the building, the Tenerife Mountaineer's Group Sports Club, to vacate the building, which no longer meets health and safety standards. A new building was offered to the Club in El Portillo – I was shown into this building, which was in the process of being refurbished. Work on demolition of the former Public Works hut and restoration of the surrounding area is now awaiting final approval and should commence relative soon.

Recommendation 4: The buildings which still remain in the area of El Sanatorio should be demolished and ecological restoration of the area should be undertaken. The fact that these building are "incompatible with the aims of the Park" is stated in the section 12.4.6 of the PRUG. I visited the area which has these dilapidated buildings and strongly support the comment in the PRUG. A valuation of the buildings was completed in November 2017. A project called Demolition of the houses of El Sanatorio and environmental recovery was drafted in December 2017. The Tenerife Council approved the purchase or expropriation of these properties in June 2018, and this was published in the Provincial Official Gazette in July 2018. Unless there are any unexpected circumstances, it is considered that demolition and restoration will commence in 2019.

Recommendation 5: The monitoring of the effects of global climate change on the park's ecosystems should be improved so as to anticipate potential damage and possibly take adaptation measures. The PRUG places considerable emphasis on various aspects of monitoring (the words 'monitor' or 'monitoring' are used 19 times in the PRUG). Very considerable attention has been paid to the collection and analysis of climatological data. There are 9 automatic weather stations (6 operated by the National Park and 3 by the State Meteorological Agency), 8 basic weather stations, 9 manual stations (temperature and rainfall gauges) and a large number of temporary sensors which measure temperature and humidity every 10 minutes. The latter are associated with the various ecological studies. In addition, there are 21 plots for monitoring the effects of herbivores and climate change. There is monitoring of the phenology of 13 plant species and a standardised Butterfly Monitoring Scheme is undertaken from February to September.

Recommendation 6: Genetic and ecological studies on endangered and endemic or indigenous plant species should be continued in order to ensure that plans to restore these species are carried out; the extension of these programmes to all endangered species should be considered. There is a considerable amount of research and conservation management which has targeted the three endangered plant species (Bencomia exstipulata, Helianthemum juliae and Stemmacantha cynaroides) and the three vulnerable species (Dactylis metlesicsii, Salix canariensis and Silene nocteolens). Some other species have also received attention, perhaps one of the more interesting being the dynamics of the juniper, Juniperus cedrus. Such species-specific studies have generally been coordinated with understanding the effects of climate change.

Recommendation 7: Access of visitors to the park should be strictly controlled, and the access plan (Plan de Acceso) adopted as required by the management plan.

Recommendation 8: The public use plan (Plan de Uso Público) should be adopted and implemented. These two recommendations have not been pursued even although they feature strongly in section 7 of the PRUG. This is largely due to changing legal conditions – there have been 5 changes to national park/protected area legislation between 2014 and 2017. Similarly, in 2009 the administration of Canary Island's national parks was devolved from the national level to the Canary Islands Autonomous Community, and administration of Teide National Park was further devolved in 2016 to the Tenerife Council (Cabildo Insular de Tenerife). It is anticipated that, and indeed essential that, plans for the use of the National Park by the public will be incorporated within the new PRUG (see section 6 of this report).

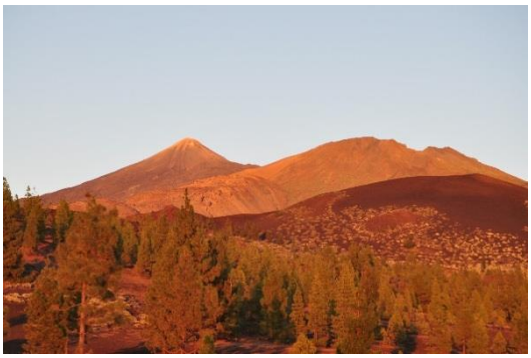
Conclusion. My conclusion is that there has been very considerable progress in implementing the scientifically-orientated recommendations (recommendations 2, 5 and 6), and indeed these three recommendations can be regarded as being fulfilled. There has been very limited progress towards fulfilling the three recommendations concerning infrastructure projects, although more recently plans have been drawn up and have recently been approved (recommendations 3 and 4) or are awaiting approval (recommendation 1). However, during the last decade there have been several legal and administrative changes which have had a major effect on the National Park, and have delayed action in relation to recommendations 7 and 8. These evolving circumstances now need to be reflected in the new PRUG; work towards this is described in section 6.1 of this report.

5. CONSERVATION MEASURES

The National Park was originally declared on 22 January 1954, and in 1999 it was extended to its present extent of 18,990ha. The majority of the area has an altitude of more than 2,000m, reaching its highest point on Pico del Teide (3,718m). The lowest elevation is 1,650m at Los Castillos.

The majority of the National Park is publically owned. Some small enclaves within the area of the park (but not part of the park), notably at El Portillo Alto, are in private ownership; it is the policy of the National Park's management to acquire these properties as they become available for purchase. During the last decade there has been a progressive devolution of managerial responsibility from the Spanish Government to the Canary Islands Government and then to the Tenerife Council.

Teide National Park viewed from Samara, at the western end of the park, just before sunset (both Pico Teide and Pico Viejo are visible at the left and right respectively).



Teide National Park viewed from Samara, at the western end of the park, just before sunset (both Pico Teide and Pico Viejo are visible at the left and right respectively).

There are four particular conservation issues which should be mentioned. These relate to conservation research, invasive species, honey bees and monitoring.

5.1. Conservation research

It must be stressed that the Teide National Park has a very impressive record in undertaking research, publishing the results and using the conclusions in evidence-based conservation management. An unpublished report prepared in June 2018 by Dr José L. Martin Esquivel lists 236 publications between 2009 and 2018. 93 of these publications are biological, relating to genetics, endangered plants, introduced species and especially rabbits, *Juniperus cedrus* and its dispersion, and the physiology of *Pinus canariensis* near the treeline. A further 78 publications relate to geology, hydrology and soils, and 34 to aspects of climate and air quality. The remaining 32 publications deal with human use of the National Park, including archaeology.

Some of the research has been undertaken by the staff of the National Park, although a majority is the result of cooperation with the University of La Laguna and other institutions. With a relatively small staff (see section 6) it is clearly of value for the management of the National Park to work with universities and other research establishments both to provide the evidence on which to base future management of the endangered and vulnerable species and the park's ecosystems and to inform policies and actions in the new PRUG and its successors.

The work on the conservation of the vascular flora is excellent. There is an inventory of the 194 species of vascular plants which occur within the National Park, as well as a good understanding of the ecology of those species which are endemic either to the Canary Islands (31 taxa generally), to Tenerife (32 taxa specifically), or to the National Park (5 of the 32 Tenerife endemic taxa).

As an example, the picture shows a flowering head of *Stammacantha cynaroides*. Research prior to 2009 had focussed on the genetics and ecology of this species, which is endemic to the National Park. Propagation of material has allowed many plants to be planted out in a fenced area of the park; I saw both the originally introduced plants at this site as well as their progeny. To date, this is a success story for an endangered endemic species, but the potential problems with a changing climate cannot be ignored.

The seeding head of Stemmacantha cynaroides at the introduction site.

The wealth of scientific knowledge extends also to the fauna of the National Park, especially the vertebrates (bats, birds and reptiles), although a considerable amount is also known about the invertebrate fauna. However, are there species for which research projects would be valuable in assisting their conservation? Section 8 of the PRUG contains lists of potential research projects (there are 10 categories of research and ideas for 42 individual projects). There is therefore ample scope for further useful research within the National Park. This leads to a recommendation: ***Recommendation 1. Undertake further research on the ecology and genetics of endangered and vulnerable species of the National Park's fauna and flora so as to assist in their conservation in a rapidly changing climate.***

5.2. Invasive (or introduced) non-native species

The major problem species are the mouflon (*Ovis orientalis*) and the rabbit (*Oryctolagus cuniculus*). An experiment has been designed to determine the effects of both species on the native vegetation. There are three treatments – fenced against mouflon, fenced against both rabbits and mouflon, and unfenced – with 21 replicates in different places around the National Park.

One of the 63 experimental sites, this one being fenced to exclude both rabbits and mouflon.

One of the 63 experimental sites, this one being fenced to exclude both rabbits and mouflon.

The results of this experimental work have indicated that the control measures both within and outside the National Park for the mouflon have been successful. The estimated number within the National Park at the winter census has dropped from about 200 in 2001 to over 100 in 2009 and to less than 50 in 2017. Damage to vegetation by mouflon is becoming less critical. On the other hand damage to vegetation by rabbits remains critical, particularly as they eat the younger plants and thereby prevent regeneration of the shrubby plant communities. In order to encourage regeneration of the plant species the population density of rabbits needs to be maintained at less than 1 rabbit per hectare. At the time of the visit the number of rabbits was denser than this, even at times approaching 3 rabbits per hectare. In order to encourage regeneration of the broom species, as well as that of other plants, it is essential that rabbit control continues and might even need to be enhanced.

The presence of feral cats and dogs was also mentioned. Dogs were thought not to be a problem, because the numbers are declining and they generally rely on tourists for scraps of food. However, there is some observational evidence that cats pose a potential problem for the reptiles. It is likely therefore that greater control of feral cats will be required in the future.

Potential problems caused by an introduced grass – *Bromus tectorum*, known as drooping brome or cheatgrass – were also mentioned. Other non-native species, such as *Sagina procumbens*, were noticed amongst the rocks along hiking trail 10 to the summit of El Teide.

One of the objectives of the PRUG is to control all introduced mammal species so that they no longer pose a threat to the National Park's flora. There are detailed objectives on the monitoring and control of both the mouflon and wild rabbits, the latter being seen as a traditional use of the park (section 11.1.2 of the PRUG). Whereas the PRUG focuses attention on introduced animal species, with a changing climate it is possible that other species, such as plants, reptiles (an introduced species of snake is causing problems on Gran Canaria) or invertebrates might arrive accidentally or though human release within the National Park. An early warning system is there useful as action to eliminate an introduced species is likely to be more effect before it becomes widespread. These considerations lead to a recommendation: ***Recommendation 2. Establish (and annually update) a register of all non-native species which occur within the National Park, and either continue, enhance or commence control measures so as to ensure that these non-native species have a minimal effect on the park's native flora and fauna.***

5.3. Honey bees

Even before I visited Teide National Park the discussion about honey bees (*Apis melifera*) had been drawn to my attention! I was informed that each year there are about 2,700 hives located in 18 to 21 locations around the park.

The PRUG states that "apiculture is seen as a traditional form of use and as such is authorised in the National Park" (section 11.1.3). Honey from these bees has a reputation for excellent quality. The PRUG also states "bee activity is highly beneficial for vegetation", a statement which has been vigorously disputed more recently. The PRUG provides for the creation of rules governing the management of hives in the National Park, and also calls for research (1) leading to the establishment of a quality control system for the honey and (2) assessing the beekeepers' level of knowledge about conservation.

A popular article *Cien millones de abelas en el Teide (One hundred million bees in Teide)* by Rosa Rodríguez raises the problems caused by too many honey bees. Research has demonstrated that beekeeping decreases the density of wild pollinators and significantly reduces pollination (and thus seed set) of at least some of the National Park's most iconic species (such as *Spartocytisus supranubius*, retama del pico or white broom; *Adenocarpus viscosus*, codeso del pico or sticky broom; and *Echium wildpretii*, taginaste roja or Teide bugloss). There is also some evidence that domestic bees can spread diseases to wild pollinators. A study in the south of France suggested that competition with native pollinators spanned distances of 600 to 1,100 m around the hives. All of this evidence has led to suggestions that the keeping of honey bees should be banned within, or even near, protected areas.

The wild pollinators are a feature of the fauna of the National Park and at present there has been insufficient study to determine whether any of these species are endemic, or whether any of them are endangered or vulnerable. Such a study should be undertaken as a matter of urgency. Research has demonstrated that domesticated honey bees have a negative impact on some components of the biodiversity of the National Park; it therefore seems appropriate to manage the number and location of hives so as to reduce their effect both on the park's native fauna and to improve the regeneration potential of some plant species. This might be by, for example, reducing the number of hives, re-deploying the hives onto or outside the park's periphery, and/or having fallow periods of, say, 1 to 5 years when no hives will be located in defined sections of the park.

A recommendation is therefore: ***Recommendation 3. Prepare and implement an action plan for beekeeping within the National Park which aims to reduce the impact of honey bees on both the native flora and the native species of pollinators; and undertake research on the guild of native pollinators to determine its species composition and the conservation status (endemic to the Canary Islands, endemic to Tenerife, native, and whether endangered or vulnerable) of the component species.***

5.4. Monitoring

Monitoring takes many forms, and is mentioned on 19 occasions in the PRUG. The list of monitoring topics advocated in the PRUG is extremely wide, including mouflon, rabbits and other introduced mammals (pp. 5 and 25); colonisation by introduced species (p. 41); recovery of threatened species and restored areas (p. 41); environmental changes (p. 11); rabbit collaborators' knowledge of conservation (p. 45); hydrological systems (p. 55); water quality (p. 36); volcanic eruption prediction (p. 41); Mount Cumbre (p. 57); public use activities (p.11); number of visitors (p. 41); impact of visitors (p. 41); and impact of management activities (p. 41).

Monitoring should aim to provide data and evidence essential to the management of the National Park and also, if required, for more general application on the island of Tenerife. At a time of climate change it is essential to understand how the various conditions, such as temperature, precipitation, season patterns of rainfall or snowfall, drought, etc., are changing. Adaptation of the flora and fauna might be required, such as introducing the endangered and vulnerable species to other areas of the National Park which might in the future become more suitable for them.

There is a number of monitoring programmes of the biological resources of the National Park already existing. There are regular surveys of the flora, especially in relation to the various experimental plots. There are transects for counting butterflies using the Europe-wide methodology. There is abundant climatological data and a considerable amount of monitoring which contributes to climatological stations internationally. There is monitoring of the number of visitors to the National Park, but perhaps less information about the impact that they are having.

Monitoring is thus an essential feature of the management of the National Park. However, monitoring can be an expensive activity in terms of both human resources and cash. It is therefore essential that all monitoring activity is undertaken with a defined aim. In relation to the European Diploma, these considerations lead to a recommendation: ***Recommendation 4. Maintain and expand (as appropriate) the targeted programmes of monitoring the climate and both the biological and geological resources of the National Park.***

6. MANAGEMENT

The Management Plan for the National Park (PRUG), originally prepared in 2002 but which the GESPLAN staff indicated had been revised in 2012, has guided the management of the National Park for the last decade during which the European Diploma had been renewed. However, the devolution of powers from the Central Government of Spain to the Canary Islands Regional Government and then to the Tenerife Island Council has inevitably caused some delays and difficulties in relation to implementing aspects of the PRUG. The PRUG has a collection of 11 aims – these are reproduced in Annex 3. All of these aims are commensurate with the holding of the European Diploma, especially aim number 11.

The 65-page (in its English language translation) PRUG covers a large number of issues, some of which are reflected in the recommendations made when the European Diploma was renewed 9 years ago. Indeed, if everything within the PRUG had been acted upon and completed, in 2018 it would have been difficult to find any recommendations to attach to the renewal of the Diploma! Thus, my assessment of the PRUG is that it is excellent in guiding the management of the National Park, but it needs to be complimented by appropriate action plans and monitoring so that the various tasks are undertaken and completed in a timely fashion.

During the last 5 years the budget for the National Park has increased substantially, although the number of staff (permanent and on contract) has declined slightly (see table below).

Year	No. of staff	Total budget (million euros)
2014	31	2.98
2015	31	3.49
2016	30	4.16
2017	30	5.34
2018	27	5.38

There are three specific issues which I should like to mention in relation to the management of the National Park – these are issues surrounding the new PRUG, about redundant buildings and environmental restoration, and the use of the park by the public.

6.1 The new PRUG

I was taken through the process for preparing a new (or revised) PRUG by staff of GESPLAN. As a result of the new law for national parks in Spain in December 2014, it was decided in October 2016 that all national parks in Spain should have a PRUG. In July 2017 GESPLAN was given the task of preparing PRUGs for all four of the national parks in the Canary Islands.

In preparing the new PRUG, GESPLAN are following procedures advocated by the Europarc Federation. During the consultation phase, 180 people were invited to 6 "participation days"; 116 people actually attended. The preliminary results are that 5 management problems, 4 public use problems and 3 conservation problems were identified.

The actions in the PRUG which have not yet been undertaken or completed should be identified. These need to be carried forward into the new PRUG. A recommendation is therefore: ***Recommendation 5: Actions in the PRUG which have either not been undertaken or have not been completed should be identified and included within the new PRUG.***

I was informed that the new PRUG has to be completed by May 2021, but that GESPLAN anticipates that it might be completed before December 2019. I asked whether the new PRUG will include targets, and I was assured that this is likely (as well as there being guidelines). I asked if there would be indicators so that monitoring might be more effective. Again I was assured that appropriate indicators would be included.

The Council of Europe will need to be certain that the new PRUG supports the requirements of the European Diploma for Protected Areas. This therefore leads to a recommendation: ***Recommendation 6: Ensure that the new PRUG both contains appropriate management indicators and targets and supports the European Diploma for Protected Areas; management must inform the Council of Europe when the new PRUG has been completed and formally adopted by the Canary Islands Government.***

6.2 Redundant buildings and environmental restoration

At the renewal of the European Diploma in 2009 three of the recommendations related to the removal of buildings and the restoration of the land surrounding these buildings (recommendation 1 concerning Rambleta del Teide, recommendation 3 concerning the building at Riachuelo, and recommendation 4 concerning the buildings at El Sanatorio). The existing PRUG (section 12.4) advocated that these buildings should be removed and their surroundings restored to a more natural ecosystem. However, as explained in section 4 of this report, such work has not yet been completed.

The company which manages the cable car has plans to improve the areas around both the base and upper (Rambleta) stations of the teleférico. I was shown these plans, and basically they aim to (1) bring all the facilities (shelter, sanitation, stores, offices, etc.) into a single building incorporated into the upper station and (2) remove the existing buildings (which probably do not comply with health and safety requirements) and (3) restore and improve all areas so that they are more natural in character.

The building at Riachuelo does not meet modern safety standards, and the users of the building, the Mountaineers Club, have been offered alternative accommodation at El Portillo Alto, which I visited and which is currently being refurbished for their use.

One of the buildings at El Sanatorio.

Progress has been made at El Sanatorio with valuing the existing buildings and gazetting them so as to establish if there are legal owners of these properties. Following either purchase or expropriation the plans are to demolish these buildings (there are potential problems due to asbestos) and then to restore the sites.

Demolition of all redundant buildings would be in accordance with the PRUG, and demolition of these specific building was recommended when the European Diploma was renewed in 2009. Restoration to a more natural environment is also in keeping with the spirit of both the PRUG and the 2009 renewal. These considerations lead to a recommendation: ***Recommendation 7. Demolish all building (and other non-natural structures) within the National Park which are no longer in use; and restore these areas and their surrounds to as natural a condition as is possible.***

6.3 Public use of the National Park

Teide National Park is the most visited national park in Spain. It is estimated that at least 6 million tourists visit Tenerife each year, and that during the last year (2017) there were about 4.3 million visits to the National Park. This amount of visitor pressure can therefore impact on the fragile upland environments of the National Park. The management of visitors is therefore crucial to the conservation of species, habitats and landscape. This was recognised in section 7 of the PRUG, which called for the preparation of a Public Use Plan (section 7.8). This requirement needs to be taken forward into the new PRUG.

A major problem is the easy access along roads TF-21, TF-24 and TF-38. The roads authority have placed safety barriers beside the roads where the land falls away from the road steeply. The National Park has placed some barriers to stop cars pulling off the sides of the road and thereby damaging the roadside environment. However, car parking remains a problem with car parks filling up early in the day and, as I observed, cars pulling off the road wherever they can find a space, often in very unsuitable locations. There are ideas to alleviate parking problems by establishing major car parks at the periphery of the National Park at places where the three roads enter the park, and having a system of low (or zero) emission vehicles to move people around the park.

There are two visitor centres, at El Potillo and near the Parador; there are plans to enlarge the former, and work is already underway to extend and improve the latter. These centres provide information about the geology, flora and fauna of the National Park, and about the hiking trails, etc. There is the small Juan Évora Ethnographical Museum which focuses on the living conditions of shepherds on Las Cañadas. There are also ideas about developing the area of El Portillo Alto into a service area for the management of the park, for emergency services, and for visitors.

The National Park is zoned, as shown in the map in Annex 2. The most sensitive environments have been classified as 'reserve' or 'restricted' zones, and the public are encouraged to use the 'moderate use' zone (bright green on the map) and the 'special use' zone (grey on the map) associated with the visitor centres, the facilities at El Portillo Alto and the Parador.

Already the management has increased the number of hiking trails so that there are 41. Forty of these can be used by any visitor, but trail number 10 to the summit of El Teide requires a permit (in 2017 about 65,000 people ascended on this trail). There is a continuous programme of managing and improving these hiking trails. The existing PRUG limits cycling – section 7.4.6 states that "it can only be practised freely on asphalted roads. It may be authorised in future, with restrictions, only in terms of a guided route along the dirt track Pista del Filo". For reasons of safety, the National Park management could consider a limited route for pedal cyclists so as to keep the majority of cyclists off the main roads.

Various kinds of sporting activities are occasionally held in the park; many more have been suggested but in the interests of environmental protection they have not been permitted. Hiking routes, cycling routes and sporting events need to be carefully controlled and monitored, and only permitted in areas where it can be shown that they will not to cause environmental damage.

With so many aspects to the public use of the National Park, a long series of recommendations could be made. However, many (and probably all) of these will be included within the new PRUG. Hence, an overarching recommendation is: ***Recommendation 8. Prepare and begin to implement guidelines for public use and mobility within the National Park within one year of the new PRUG being adopted.***

7. USES AND SOCIO-ECONOMIC ACTIVITIES

The National Park is traversed by road TF-21 which runs from Puerto de la Cruz and La Orotava in the north of Tenerife to Vilaflor and onwards to the south of the island. Within the park the road runs approximately north east to south west (see Annex 2). Road TF-24 from La Laguna and Santa Cruz joins TF-21 near El Portillo. Road TF-38 from Chio, Santiago del Teide and the west coast joins TF-21 towards the extreme south west of the park. There is therefore very easy access to the National Park from the majority of major settlements on Tenerife.

There are essentially only two public uses of the National Park.

First, there is the use of the park by both Tenerife inhabitants and tourists for leisure and (on only a few occasions) for sporting activities; this is covered in section 6.3 above. This requires careful management so that the geological features, the landscape, the ecosystems and flora and fauna are protected. Provisional plans aimed at keeping car parks to the periphery of the National Park, with low (or zero) emission vehicles ferrying tourists around the park, should assist in the management of visitors. Implementation of the guidelines for mobility and public use has to be a very high priority (see recommendation 8) and should be in operation within one year of the new PRUG being adopted.

Second, there are the traditional uses of the park for rabbit hunting and beekeeping; these are covered in sections 5.2 and 5.3 respectively. Both of these uses are potentially sensitive issues, though management of both is essential if the park's biodiversity is to be conserved.

8. CONNECTIVITY OF THE AREA

The National Park covers the high altitude land of the island of Tenerife, and it is more or less surrounded by the Corona Forestal, an area of pine (Pinus canariensis) forest designated as a Natural Park and predominantly in public ownership.

However, Teide National Park is also one of a series of four national parks within the Canary Islands – the others are Caldera de Taburiente National Park on La Palma, Garajonay National Park on La Gomera and Timanfaya National Park on Lanzarote. Together with the natural parks and nature reserves, there is a good network of protected areas in the Canary Islands, especially so on the higher altitude land. This contributes to the network of protected areas throughout Macaronesia (Madeira, Canary Islands, Cape Verde islands and the Azores).

Corner of an information board showing the 3 logos.

Signage within the National Park is geared to demonstrating significant natural features, such as geological formations, fauna and flora. These information boards carry three logos – those of the European Diploma, the World Heritage designation and EMAS, as can be seen in the photograph.

EMAS is the European Union's Eco-Management & Audit Scheme, an accreditation of which the National Park is proud to have received. The World Heritage listing says that the Teide National Park has "outstanding universal value", and that El Teide in the planet's third tallest volcano, rising about 7,500m above the ocean floor. The ecosystems of the National Park also contribute to a Natura 2000 site. The clear skies are recognised as one of the best places on the planet to see the night sky. Teide National Park is thus well connected and has received multiple designations.

9. CONCLUSIONS

My impression is of a well-managed National Park. Its masterplan, the PRUG, is extremely detailed and incorporates many activities which should have been completed by 2018. However, changes in Spanish laws about conservation and national parks, and changes in administrative responsibility from national to regional to local levels, have all led to delays in implementation. It is anticipated that many aspects of the PRUG will be carried forward into the new PRUG, but this will need to be ascertained (recommendation 5). It is important that when the new PRUG is formally adopted by the Canary Islands Government that notification is sent to the Council of Europe (recommendation 6), indicating any aspects of the plan which might affect the European Diploma.

As outlined in this report I have no hesitation in recommending that the European Diploma for Protected Areas be renewed for a period of ten years from 19 June 2019 until 18 June 2029. I making this recommendation to the Group of Specialists I suggest that eight recommendations are attached – these are indicated in the text of this report, and are listed for convenience in Annex 4.

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ANNEX 1

On-the-spot expert appraisal of Teide National Park, Tenerife, Spain: Programme, 28 to 31 August 2018

Tuesday 28 August 2018

- Flight from Edinburgh to Tenerife South airport; car journey to Teide National Park; overnight in The Parador de Las Cañadas del Teide.

Wednesday 29 August 2018 (accompanied by Charles Balfour, interpreter)

- Briefing meeting in the Parador with Manuel Durbán Villalonga (National Park Director) and Dr José Luis Martín Esquivel (Head of Conservation).
- Brief introduction to José Ángel Castro Pino (National Park Ranger), and to Rosa Ramos and Carlos Sánchez (TRAGSA – a public company offering services in rural development, environmental conservation and emergency actions).
- Visit to the Teleférico; meeting with Ignacio Sabaté Bel (Teleférico Manager) and Manuel Marrero Gómez (National Park Botanist); ascent to La Rambleta and discussion of works which need to be undertaken on the buildings; walk on hiking trail No. 10 towards the El Teide summit; and discussion of the proposed developments to both the base and upper stations, and the surrounding environments, of the Teleférico.
- Introduction to 2 further members of the National Park staff – Juan Carlos Hernández Álvarez (Coordinator of Public Use) and Lucía Casado Sáenz (Forestry Engineer, Technician); introduction to 2 members of the Cabildo Insular (Island Council) – José Antonio Valbuena Alonso (Consejero del Área de Sostenibilidad, Medio Ambiente y Seguridad) and Natalia González (Press officer); and introduction to Juan José Areces Maqueda (Director, Organismo Autónomo Parques Nacionales, Madrid).
- Visit to an experimental site where 3 treatments are being used to investigate the effect of herbivores on vegetation (no fencing, tall fencing to exclude mouflon, tall fencing to exclude both rabbits and mouflon).
- Visit to large (17ha) fenced plot to examine restoration via re-introduction of various species of plants in the absence of herbivores.
- Visit to El Portillo and El Portillo Alto; inspection of building (mountain lodge) being offered to the Mountaineers' Club; visit to the Visitor Centre; walk around the green houses and nurseries where plants for re-introduction are being grown and 'hardened-off'; visit to the seed store; walk around the botanical garden noting the weather station; and lunch.
- Visit to a fenced area where one of the endangered plant species – Stemmacantha cynaroides – has been introduced.
- Visit to two places referred to as El Sanatorio (the Sanatorium).
- Visit to the Cañada Blanca Visitor Centre and discussion of its development.
- Visit to the redundant Mountaineers'' Club (mountain lodge) at El Riachuelo.
- Visit to the Juan Évora Ethnographic Museum.
- Viewing of the sunset from Samara.
- Dinner at the Parador de Las Cañadas del Teide.
- Finally an interpretation of the night sky, by Juan Vicente Ledesma de Taoro, environmental educator, astronomy promoter and tourism guide, including the three visible planets and various constellations.
- Accommodation at the Parador de Las Cañadas del Teide.

Thursday 30 August 2018 (accompanied by Heather Adams and Charles Balfour, interpreters)

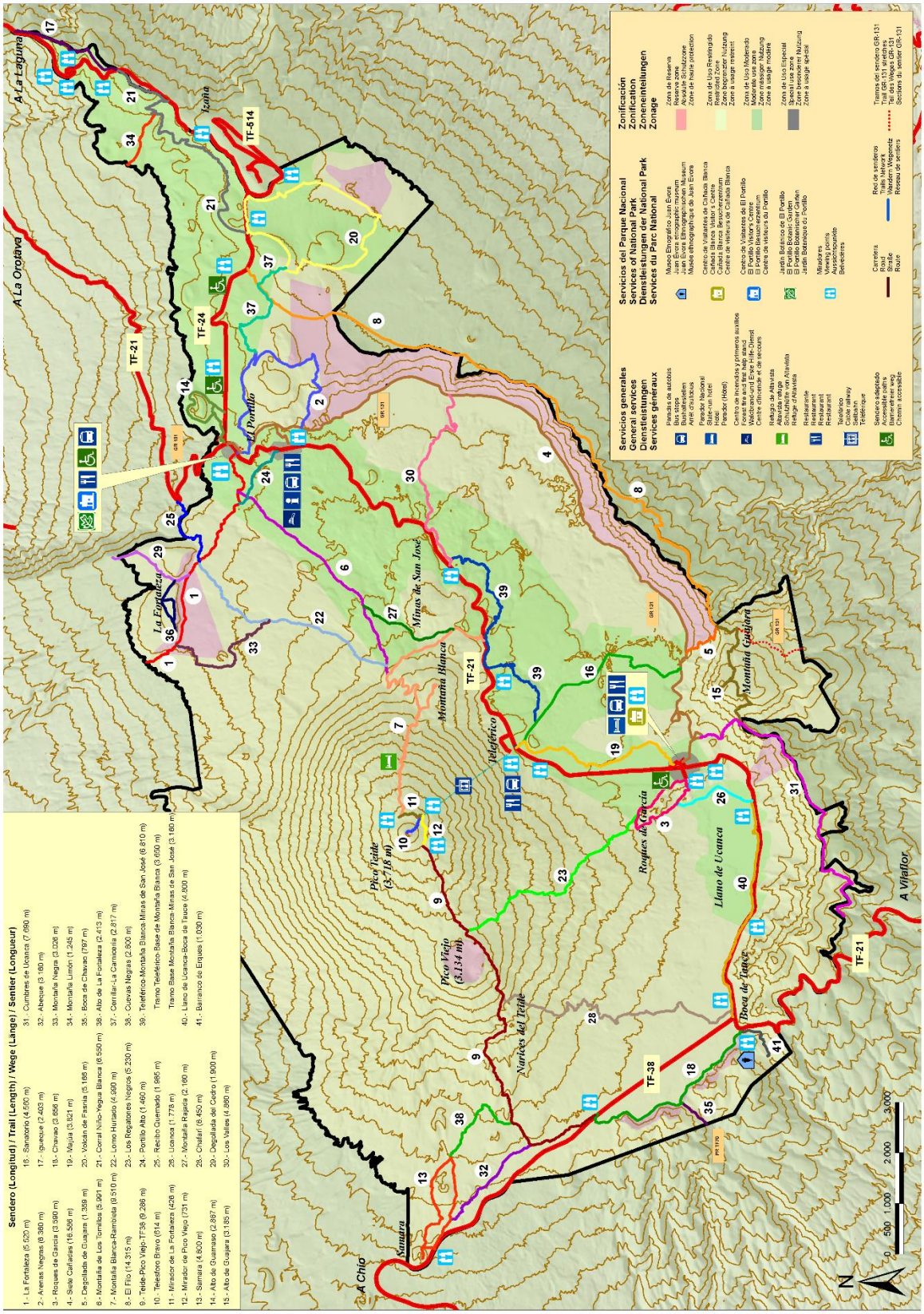
- Car journey from Las Cañadas to the National Park offices in La Orotava, with brief visits to the El Portillo Botanical Garden (bird watching) and the 'stone rose' (or 'stone daisy') in the Corona Forestal Natural Park.
- Meeting with the senior management, including
    - Blanca Delia Pérez Delgado, Viceconsejera de Medio Ambiente del Gobierno de Canarias
    - Carlos Enrique Alonso Rodríguez, Presidente del Cabildo Insular de Tenerife and Presidente del Patronato del Parque Nacional del Teide
    - José Antonio Valbuena Alonso, Consejero del Área de Sostenibilidad, Medio Ambiente y Seguridad, Cabildo Insular de Tenerife
    - Juan José Areces Maqueda, Director, Organismo Autónomo Parques Nacionales, Madrid
    - Manuel Durbán Villalonga, Director, Teide National Park
- Meeting with the Board of Trustees of the Teide National Park, including
    - The senior management group, as above
    - Ruth Acosta Trujillo (Asociones Ecologistas - ecological associations)
    - Matilde Arnay de la Rosa (Archaeology, University of La Laguna)
    - Francisco Beltran Aroca (Mountaineers' Club)
    - Manual Nogales Hidalgo (CSIC – Consejo Superior de Investigaciones Científicas)
    - Carlos Martínez Roger (IAC – Instituto de Astrofísica de Canarias)
    - Wolfredo Wildpret de la Torre (Botany, University of La Laguna)
    - Capitán Juan Carlos Ubero (Guardia Civil, Civil Guard)
    - Sargento Francisco Javier Corbal (Civil Guard)
- Meeting with Gestión of the Canary Islands Government and the Planeamiento Territorial y Medioambiental (GESPLAN) staff – Maria José Jiménez Díaz and Ana Pino – to discuss the preparation of the new PRUG.
- Lunch in La Orotava
- Meeting with National Park staff to discuss the visit and provide any initial feedback.
- Car journey to Hotel Nivaria, La Laguna.
- Guided tour of the historic centre of the La Laguna World Heritage Site.

Friday 31 August 2018

- Car journey from La Laguna to Tenerife South airport; flight back to Edinburgh.

ANNEX 2

A map of the Teide National Park



ANNEX 3

The 11 aims of the Teide National Park (copied from the *Plan Rector de Uso y Gestión* (the *Master Plan for Use and Management*)

1. AIMS OF THE TEIDE NATIONAL PARK.

The general aims of the Teide National Park are as follows:

I. To protect its landscape, integrity of its endemic fauna, flora and vegetation, i.e. its biodiversity, geological assets, water resources and its atmosphere; in short, to ensure sustainable dynamics and functional structure, as well as the environmental services relevant to the different ecosystems encompassed by the Park.

II. To protect the integrity of its archaeological resources and significant cultural assets.

III. To provide ecological stability and diversity, perpetuating biotic communities and genetic resources as far as possible in their natural habitat, paying special attention to those that are under threat of extinction.

IV. To promote scientific research and analysis of the Park's resources, as well as to conduct volcanic eruption surveillance and prevention operations.

V. To promote enjoyment by the public bearing in mind the Park's assets in a way that is compatible with their conservation.

VI. To promote environmental protection and public awareness of the ecological and cultural assets of the Park and their meaning.

VII. To promote socio-economic development of the surrounding communities, especially by encouraging sustainable development programmes and activities.

VIII. To annul as soon as practicable, and avoid in the future, real property rights and customs that still remain within the Park and which are incompatible with the above objectives.

IX. To promote co-ordination of activities which are carried out within and beyond the Park's boundaries but that may still have an impact on the Park or vice versa, with the aim of achieving the best possible synergy of all activities since this will benefit the Park and the Island.

X. To contribute to the National Parks' Network with a sample of general interest to Spain, which is highly representative of the volcanic processes and ecosystems, associated to high altitudes in the Macaronesia Region.

XI. To contribute to European and World heritage with an extremely valuable sample of Spanish Macaronesian nature; to promote and maintain recognition abroad, and to take part in international programmes for nature conservation.

(This extract is copied from pages 4 and 5 of the PRUG)

ANNEX 4

The suggested eight recommendations which might be attached to the renewal of the European Diploma for Protected Areas in 2019

In considering the on-the-spot visit in August 2018, it is my recommendation that the European Diploma for Protected Areas be renewed for the period from 2019 to 2028. I also recommend that no conditions should be attached to the renewal, but that a series of 7 recommendations be attached to it, as listed below.

Recommendation 1. Undertake further research on the ecology and genetics of endangered and vulnerable species of the National Park's fauna and flora so as to assist in their conservation in a rapidly changing climate.

Recommendation 2. Establish (and annually update) a register of all non-native species which occur within the National Park, and either continue, enhance or commence control measures so as to ensure that these non-native species have a minimal effect on the park's native flora and fauna.

Recommendation 3. Prepare and implement an action plan for beekeeping within the National Park which aims to reduce the impact of honey bees on both the native flora and the native species of pollinators; and undertake research on the guild of native pollinators to determine its species composition and the conservation status (endemic to the Canary Islands, endemic to Tenerife, native, and whether endangered or vulnerable) of the component species.

Recommendation 4. Maintain and expand (as appropriate) the targeted programmes of monitoring the climate and both the biological and geological resources of the National Park.

Recommendation 5: Actions in the PRUG which have either not been undertaken or have not been completed should be identified and included within the new PRUG.

Recommendation 6: Ensure that the new PRUG both contains appropriate management indicators and targets and supports the European Diploma for Protected Areas; management must inform the Council of Europe when the new PRUG has been completed and formally adopted by the Canary Islands Government.

Recommendation 7. Demolish all building (and other non-natural structures) within the National Park which are no longer in use; and restore these areas and their surrounds to as natural a condition as is possible.

Recommendation 8. Prepare and begin to implement guidelines for public use and mobility within the National Park within one year of the new PRUG being adopted.