COUNCIL OF EUROPE CONSEIL DE L'EUROPE
Committee of Ministers
Comité des Ministres

Resolution CM/ResDip(2008)1
on the revised regulations for the European Diploma for Protected Areas

(Adopted by the Committee of Ministers on 20 February 2008
at the 1018th meeting of the Ministers' Deputies)[1]

Appendix 5: Model plan for annual reports

Annual report for the year ....

Annual reports should describe the changes that have taken place since the previous year in dynamic terms of management and function and not be limited to basic data. Any new text or map introducing a change in the situation of the area should be attached to the annual report.

State: **ESPAÑA**

Name of the area: **PARQUE NACIONAL DEL TEIDE (TEIDE NATIONAL PARK)**

Year and number of years since the award or renewal of the European Diploma for Protected Areas:
1989, renewed in 1994, 1999, 2004, 2009 y 2019

Central authority concerned:

Name: **CONSEJERÍA DE TRANSICIÓN ECOLÓGICA, LUCHA CONTRA EL CAMBIO CLIMÁTICO Y PLANIFICACIÓN TERRITORIAL DEL GOBIERNO DE CANARIAS (VICECONSEJERÍA DE LUCHA CONTRA EL CAMBIO CLIMÁTICO)**

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Authority responsible for its management:

Name: **CABILDO INSULAR DE TENERIFE**
(Consejería Insular del Área del Medio Natural y Seguridad)

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[1] As amended by Resolution CM/ResDip(2014)2 on 2 July 2014 at the 1204th meeting of the Ministers' Deputies. Internet : http://www.coe.int/cm

1. Conditions: List here all conditions which were attached to the award or the renewal of the European Diploma. Explain either how the conditions have been totally complied with or detail the progress in complying with the conditions. Please also indicate any unresolved difficulties that you have encountered.

n/a

2. Recommendations: List here all recommendations which were attached to the award or the renewal of the European Diploma. Explain either how the recommendations have been totally complied with or detail the progress in complying with the recommendations. Please also indicate any unresolved difficulties that you have encountered.

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.

Studies have been conducted on the ecology of two threatened species: *Bencomia exstipulata* (Marrero et al. 2019) and *Juniperus cedrus* (Cervigón et al. 2019). The former is considered endangered and the latter vulnerable. Work continues on *Juniperus* but there has been a new development: we have located a specimen more than a thousand years old and have analysed its growth rings to investigate the climate history of the high-altitude mountain area.

Work has also been done on the advancing tree line of the pine forests, which are encroaching into the national park, particularly in the southern zone where the threatened species *Dactylis metlesicsii* is found (Bello et al. 2019).

Lastly, a novel remote sensing technique is being developed to identify plant species from aerial photographs or drone images; algorithms have been developed that take into account the multispectral signature of the different species (Iberrola-Ulzurrun, 2019; Marcello et al., 2019). The main conclusion of these studies is that there is a 17% reduction in populations of retama del Teide or white broom (*Spartocytisus supranubius*), along with an explosive increase in populations of the shrub species rosalillo de cumbre (*Pterocephalus lasiospermus*) of more than 200%, all in the period between 2002 and 2017 (Ibarrola-Ulzurrun et al., 2019).

- Bello-Rodríguez, V., Cubas, J., Del Arco, M. J., Martín, J. L., & González-Mancebo, J. M. (2019). Elevational and structural shifts in the treeline of an oceanic island (Tenerife, Canary Islands) in the context of global warming. *International Journal of Applied Earth Observation and Geoinformation*, 82, 101918.
- García-Cervigón, A. I., García-Hidalgo, M., Martín-Esquivel, J. L., Rozas, V., Sangüesa-Barreda, G., & Olano, J. M. (2019). The Patriarch: a Canary Islands juniper that has survived human pressure and volcanic activity for a millennium. Ecology, e2780.
- Ibarrola-Ulzurrun, E., Marcello, J., Gonzalo-Martín, C., & Martín-Esquivel, J. L. (2019). Temporal dynamic analysis of a mountain ecosystem based on multi-source and multi-scale remote sensing data. *Ecosphere*, 10(6), e02708.
- Ibarrola-Ulzurrun, E., Drumetz, L., Marcello, J., Gonzalo-Martín, C., & Chanussot, J. (2019). Hyperspectral Classification Through Unmixing Abundance Maps Addressing Spectral Variability. IEEE Transactions on Geoscience and Remote Sensing.
- Marcello, J., Ibarrola-Ulzurrun, E., Gonzalo-Martín, C., Chanussot, J., & Vivone, G. (2019). Assessment of Hyperspectral Sharpening Methods for the Monitoring of Natural Areas Using Multiplatform Remote Sensing Imagery. IEEE Transactions on Geoscience and Remote Sensing, 57(10), 8208-8222.
- Marrero, M. V., Oostermeijer, G., Nogales, M., Van Hengstum, T., Saro, I., Carqué, E., ... & Bañares, Á. (2019). Comprehensive population viability study of a rare endemic shrub from the high mountain zone of the Canary Islands and its conservation implications. *Journal for nature conservation*, 47, 65-76.

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 who became invasive have a minimal effect on the park's native flora and fauna.

The staff of the Teide National Park, and especially those who regularly work in the natural environment, keenly monitor and provide early warnings when they detect the arrival of new non-native taxa. In this way, as soon as an "unusual" species is observed, the technical team of the national park are immediately notified, and they supervise and correctly identify the discovery. There is, therefore, an updated list of all the flora present within the protected natural area, to which all the native and non-native species that encroach on its limits are constantly added.

Thus, in the last 5 years 17 new taxa have been detected, and during 2019 a single taxon has been added: *Umbilicus heylandianus* Webb & Berth, a taxon from the Mediterranean (Spain, Portugal and Morocco) that has previously been recorded in the Canary Islands.

In addition, an on-line platform is being prepared for mobile devices to facilitate the transfer of information and real-time updating of the aforementioned inventory.

Each new addition of a taxon to the inventory entails a risk assessment based on its invasive potential, and if necessary, the new population is immediately eradicated. Moreover, for those species that are considered invasive and that have become widely spread, control campaigns to remove the plant by hand are carried out annually during the spring and before fruiting begins – especially of the taxa that are considered to be more aggressive, in particular, *Lactuca serriola*, *Bromus tectorum* and *Reseda luteola*.

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.

Work is being carried out to divide the national park into three zones in order to free one of them annually from beekeeping with *Apis mellifera*, so that it can recover from productivity losses associated with the presence of hives. At the same time, the aim is to limit the number of hives within the entire national park to 1,444, 42% less than the number authorised in recent years (2,700), to ensure that the density of hives throughout the protected area does not exceed an average of 8 hives/km2, which is the threshold recommended in recently published research to prevent Apis populations from competing amongst themselves (Henri and Rodet, 2018).

However, work continues on refining this threshold to establish a hive density that does not harm other natural pollinators. Research on how *Apis mellifera* interacts with other pollinators in other areas outside the Canary Islands suggests a density of 4 hives/km2, but although the impact has been confirmed in the Canary Islands (Valido et al., 2019), the validity of this threshold has yet to be determined in the high-mountain environment of Tenerife.

- Henry, M., & Rodet, G. (2018). Controlling the impact of the managed honeybee on wild bees in protected areas. *Scientific reports*, 8(1), 9308.
- Valido, A., Rodríguez-Rodríguez, M. C., & Jordano, P. (2019). Honeybees disrupt the structure and functionality of plant-pollinator networks. *Scientific reports*, 9(1), 4711.

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

The Teide National Park's ecological monitoring programme is being developed around four categories: species, vegetation, ecological processes and climate.

The first category maintains an updated inventory of the species of fauna, flora and fungi (including lichenised fungi) recorded in the national park and includes monitoring programmes on non-native and native species.

The second category focuses on assessing changes in vegetation in terms of species richness, abundance and diversity, focusing on three sectors: the NE Cañadas, the SW Cañadas and the summit above 2,600 m altitude.

The third category involves monitoring of how climate seasonality is influencing phenological processes such as flowering, the appearance of adult lepidoptera and the arrival of the ring ouzel (*Turdus torquatus*). This bird is an essential wintering bird for the dispersion of *Juniperus cedrus* in the national park. This category also analyses the effects of *Apis mellifera* hives on the productivity of retama del Teide.

Finally, the fourth category assesses the evolution of climate change in terms of changes in temperature and precipitation and identifies anomalies and trends in these variables as well as aggregate indicators such as drought risk or evapotranspiration.

5. Actions in the Management Plan for the National Park (PRUG) which have either not been undertaken or have not been completed should be identified and included within the new PRUG.

In the current Master Plan for Use and Management of the Teide National Park (PRUG – Plan Rector de Uso y Gestión), 16 objectives and their corresponding actions were established. Since its approval and to date, all the objectives have been fully met except for the following:

- "Improve the survival capacity of threatened plant and animal species and develop an ecological monitoring programme that diagnoses the state of biodiversity in an integrated way and assesses the impact of management activities on the environment". This objective and its actions have been partially completed as they are continuous actions over time. The new PRUG incorporates, adapts and reformulates both the general objective and the related programmes and actions, taking an integral approach and developing indicators for monitoring and evaluation.

- "Establish a progressive plan to control the mouflon, rabbit and other introduced non-native mammals, geared towards the total eradication of mouflon and maintenance of the others at a level that does not present a significant threat to the flora of the Park". The actions established to meet this objective have been completed to a large extent but not in their totality. The difficulty of completely eradicating the mouflon is compounded by the lack of an island-wide plan or strategy. This objective has been reformulated taking into account the constraints and shortcomings detected in the current PRUG.

- "Take the necessary steps to incorporate the private lands of Cumbres de Vilaflor, the settlement of El Portillo and the "Las Cumbres" estate into the National Park". It should be noted that it has been impossible to meet the objective on land acquisition mainly due to the lack of a purchase agreement with the private landholders.

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.

The new Master Plan for Use and Management will contain a section on monitoring, evaluation, review and validity of the plan. It establishes that monitoring is a structural element the function of which is to ascertain the results and progress of the planned actions through objectively verifiable indicators, which will be set out in an annex. Once the document has been approved, the national park will prepare an annual report which will include the monitoring of compliance with the actions established in the PRUG on the basis of the corresponding indicators, and an evaluation of whether the measures have been carried out in an efficient and effective manner.

Preparatory work for the new PRUG for the Teide National Park has taken into account the existence of areas of conservation concern with which it is related, spaces of the Natura 2000 Network and other protected natural areas. Furthermore, the recommendations and findings of the Council of Europe for the European Diploma for Protected Areas and by UNESCO in relation to the World Heritage List are also considered.

The Council of Europe will be notified as soon as the competent body – i.e. the Government of the Canary Islands – approves the new Master Plan for Use and Management of the national park.

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.

- Demolition of the houses of El Sanatorio (The Sanatorium).

On 29 June 2018 forced expropriation began of the houses of El Sanatorio, comprising 4 buildings.
The landholders have already come to a mutual agreement on expropriation of 2 of the 4 buildings, and signature of the "occupancy deed" of the first is scheduled for November 22.

The process is expected to be completed for the rest of the buildings in 2020.

There are already plans approved for the demolition of the houses and restoration of the affected area.

- Demolition of the Public Works hut and Mountaineers Club.

On 6 September 2019 a collaboration agreement was signed between the Island Council of Tenerife and the Tenerife Mountaineers Group Club to take possession and subsequently demolish the building, as a necessary preliminary step in the demolition and restoration of the area.

The project for the demolition of the Public Works hut and Mountaineers lodge and restoration of the area was drawn up at the end of 2017 and approved in 2018. On 20 November 2019, the approval of the demolition project by a public undertaking was finally signed. The project is scheduled for completion in the first four months of 2020.

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.

In this regard, it should be noted that since 2018 work has been underway on updating and analysing the carrying capacity of the Teide National Park, and on preparing a mobility study. As a result of this study, a sustainable mobility system will be defined in accordance with the current and future needs of the national park; different proposals will be put forward and studied, and three service areas will be established at the park access points. The service areas will be located in El Portillo Alto, on the access road from Vilaflor, and on the access road from Chío. For each, the most suitable location will be proposed through a participatory study on the best options, taking into account various conditions such as proximity to the national park, ease of management, topographical situation, environmental and landscape aspects, etc. Buses will depart from these service areas to visit the Teide National Park, with the aim of minimising passenger car access to the park and promoting public transport and improving the quality of the visit.

The idea is to establish a programme of actions designed to provide the Teide National Park with facilities commensurate with its importance, and which will become fundamental elements for organising public use of this natural space, improving its services and ensuring that visits are compatible with the preservation of its environmental values.

Once the public service and island remit has been defined and substantiated, these service areas will be developed through an island or regional project that will include structural planning and the design plans.

3. Site Management: List here any changes to the European Diploma holding site management, in relation to both terrestrial and aquatic environments (as appropriate), and in relation to staff and finances, since the last annual report was submitted to the Council of Europe. Please also indicate any unresolved difficulties that you have encountered.

Since the entry into force on 1 September 2017 of Law 4/2017 of 13 July on Land and Protected Natural Spaces in the Canary Islands, published in the Regional Official Gazette (BOC) No. 138 of Wednesday 19 July 2017, there has been no change in state or regional regulations that directly and significantly affect the national park, beyond resolutions and notices of specific and one-off procedures and actions (mouflon control campaign, rabbit control campaign, ...).

It should also be noted that, currently, day-to-day management of the Teide National Park has been delegated to the Tenerife Island Council (Environment and Safety Department).

At present (end of 2019), the staff of the national park comprise 11 permanent employees and 16 contract workers; in recent years the number of contract workers has fallen from 19 to 16. In addition to these figures there are 44 public-sector and 5 private-sector workers and, in summer, during the firefighting campaign (3 months), another 44 public-sector workers.

The budget allocated to Teide National Park for 2019 was as follows:

- Chapter 1, Staff: € 1,100,398.78

- Chapter 2, Current expenditure: € 3,122,629

- Chapter 6, Investments: € 2,496,757

4. Boundaries: Give details of any changes to the boundaries of the European Diploma holding site since the last annual report was submitted to the Council of Europe. If there are any changes, please attach an appropriate map to this report. Please also indicate any unresolved difficulties that you have encountered.

No change.

5. Other information: List here any other information about the European Diploma holding site which you consider should be provided to the Council of Europe.

For the third consecutive year, 2018 visitor numbers hit a new high: 4,330,994 people came to the national park that year. The estimated visitor numbers for 2019, on the basis of data available to date, will be a figure very similar to last year.

On 25 June 2018, the Scientific Committee of the Board of Trustees of the Teide National Park was officially established and held its first formal meeting.

In autumn 2018, the Teide National Park began an ambitious study to obtain data to enable the restoration of the primitive plant landscape that would still prevail in the high-altitude mountain areas of Tenerife in conditions where human activity is absent, or at least how it would have been prior to the last few centuries – which was when human activity had its greatest impact on the land. One of the aspects that this study aims to resolve is to discern whether Juniperus cedrus ssp. cedrus was a sporadically present taxon in the landscape or if, on the contrary, and as several authors claim, there were stands of this species in high-altitude areas of the Canary Islands in the past, as is the case with other related species in the neighbouring Atlas Mountains. One of the lines of work promoted by the study is a dendrochronological analysis of the Juniperus cedrus specimens currently found in the national park, in order not only to determine their age, but also to be able to reconstruct, through a study of their rings, the prevailing climate conditions in the high-altitude areas prior to the twentieth century. In October the first samples of several specimens were collected, in particular of one known to many as “The Patriarch” since, owing to its size and appearance, it has always been considered one of the oldest trees in this unique location. Dendrochronological analysis has already confirmed the specimen’s suspected old age, having counted 329 growth rings in the 12,5 cm of the sample obtained with an increment borer. However, given the diameter of the trunk (approximately 1 m) it was suspected to be much older. This has been confirmed by radiocarbon dating of its core, which is 1,050 ± 30 years BP. That is to say, considering that 1950 was established as the origin year for the BP (before present) scale, the specimen in question was already alive at the beginning of the 10th century, and would currently have an approximate age of 1,118 years.

It is also worth mentioning, on the one hand, that the national park organised the First Conference on research and dissemination of high-mountain scrub conservation, held at the Telesforo Bravo Centre on 11 and 12 April 2018 and attended by a hundred technicians and scientists interested in this ecosystem, and that it participated in the 14th edition of National Congress on the Environment (CONAMA) (Madrid, 26-29 November 2018).

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