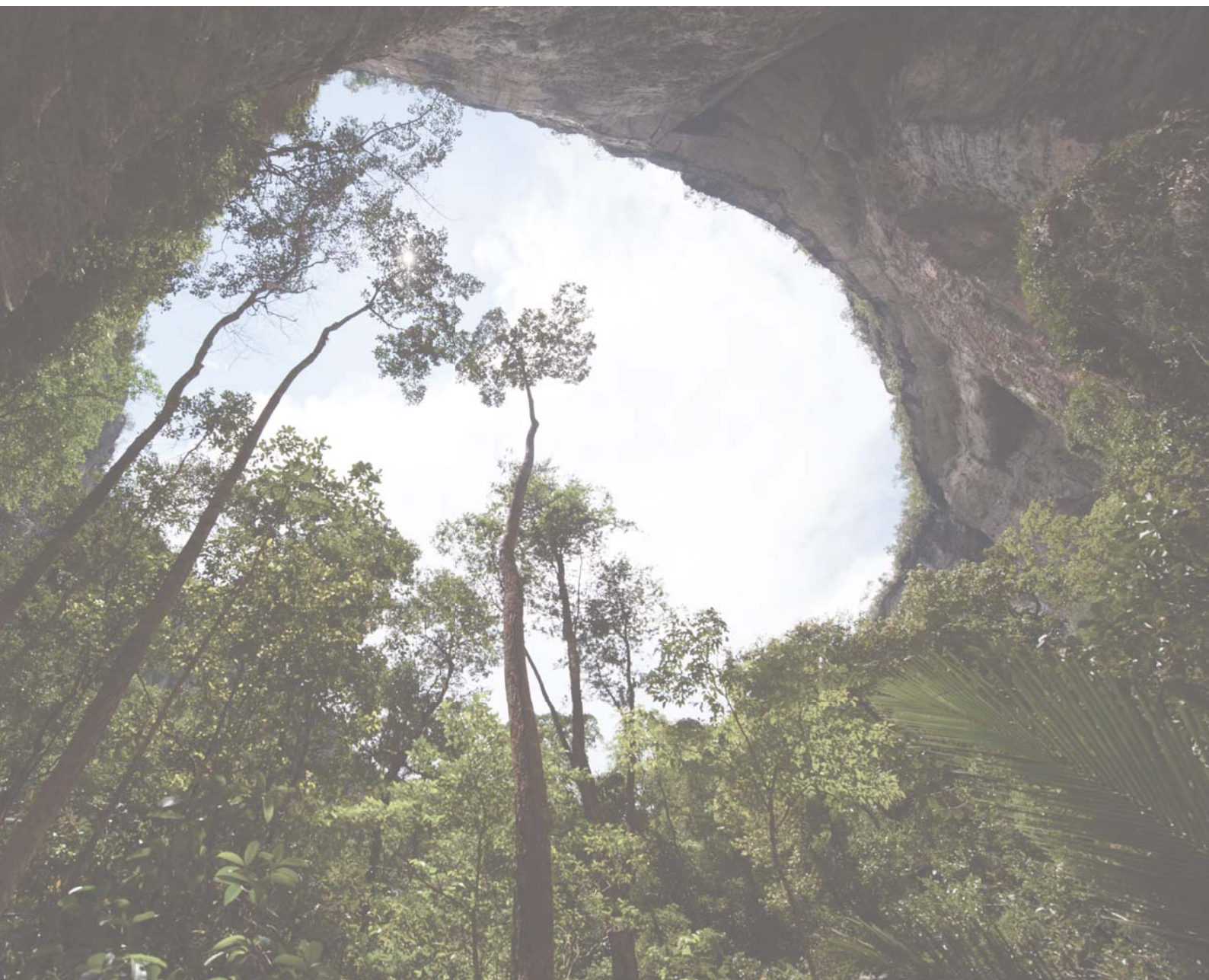




[WHC/18/42.COM/INF.8B2.ADD](http://WHC/18/42.COM/INF.8B2.ADD)

# IUCN World Heritage Evaluations 2018

ADDENDUM: IUCN Evaluations of nominations of natural and mixed properties to the World Heritage List



IUCN REPORT FOR THE WORLD HERITAGE COMMITTEE, 42ND SESSION, MANAMA, BAHRAIN, 24 JUNE-4 JULY 2018

Cover photo: Chiribiquete National Park, 'The Maloca of the Jaguar', Colombia  
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# ADDENDUM

## IUCN Evaluations of Nominations of Natural and Mixed Properties to the World Heritage List

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OUTSTANDING UNIVERSAL VALUE																
State Party	Name of the property (ID number)	Note	Meets one or more natural criteria				Meets conditions of integrity				Meets protection and management requirements			Further mission required	IUCN Recommendation	
			Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	Integrity	Boundaries	Threats addressed	Justification of serial approach	Protection status	Management	Bufferzone/ Protection in surrounding area			
			77	77	77	77	78, 87-95	99-102	78, 98	137	78, 1324	78, 108-118, 1324, 135	103-107			
France	Chaine des Puy - Limagne fault tectonic arena (1434 Rev)	Referred nomination	-	yes	-	-	yes	yes	yes	-	yes	yes	yes	no	I	
Mexico	Tehuacán-Cuicatalán Valley: originary habitat of Mesoamerica (1534 Rev)	Mixed site Referred nomination	-	-	-	yes	yes	yes	yes	yes	yes	yes	yes	no	I	

**KEYS**

yes met  
 part partially met  
 no not met  
 - not applicable

I inscribe / approve  
 N non inscribe / approve  
 R refer  
 D defer

## **A. NATURAL PROPERTIES**

### **A2. REFERRED NOMINATIONS OF NATURAL PROPERTIES**



EUROPE / NORTH AMERICA

## CHAINE DES PUYS - LIMAGNE FAULT TECTONIC ARENA

FRANCE



Aerial view looking towards Puy de Dôme © IUCN / Josephine Langley





# WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

## CHAINE DES PUYS - LIMAGNE FAULT TECTONIC ARENA (FRANCE)

### ID N° 1434 Rev

**IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE:** To inscribe the property under natural criterion (viii).

**Key paragraphs of Operational Guidelines:**

Paragraph 77: Nominated property meets World Heritage criterion (viii).

Paragraph 78: Nominated property meets integrity, protection and management requirements with respect to criterion (viii).

**Background note:** The nominated property has been the subject of lengthy consideration by IUCN and the World Heritage Committee through a process of two referrals and extensive dialogue between IUCN and the State Party with procedural advice from the World Heritage Centre. The property was originally nominated as the “Tectono-volcanic ensemble of the Chaîne des Puys and Limagne Fault” under criteria (vii) and (viii) and considered by the World Heritage Committee at its 38<sup>th</sup> Session in Doha, Qatar, 2014. The Committee, through Decision 38 COM 8B.11, referred the nomination back to the State Party to specify more precisely the interaction of geological elements contributing to the proposed Outstanding Universal Value (OUV) and to provide additional information about the management of the site. The Committee also requested a “deepening of the dialogue” with respect to this nomination between the State Party and IUCN, with the support of the specialist earth science organisations. The Committee additionally requested that the State Party invite a mission to “implement the upstream process which is considered to assist in relation to complex proposed nominations”. An Independent Technical Mission (ITM) took place 4-8 October, 2015.

In response to decision 38 COM 8B.11, the State Party submitted a substantial complementary dossier with annexes at the end of January 2016 which was evaluated by IUCN and considered by the Committee at its 40<sup>th</sup> Session in Istanbul. The Committee, in Decision 40 COM 8B.13, noted that the ITM had confirmed the scientific value of the site. The Committee furthermore considered that the nominated property had the potential to meet criterion (viii) and again referred the nomination back to the State Party to resolve issues related to the exclusion of active quarries from the nominated area; improving awareness among stakeholders of regulations affecting the property; and strengthening regulation on private properties.

On 30 November 2017 the State Party submitted additional material responding to the Committee’s requests arising from Decision 40 COM 8B.13, and focused only on criterion (viii). Based on advice from the State Party, it was clarified that the resubmitted material replaced sections of the original nomination and provided updated maps and annexes. The material comprised a mixture of the originally submitted 2013 nomination adjusted for boundary and naming issues; a new Part 3 (justification for the inscription); amendments arising from the referrals (January 2016 and November 2017), and advice that pages 49 to 106 of the January 2016 dossier were no longer to be taken into consideration. In essence the evaluation hereunder relates to a dossier which is a hybrid between the originally submitted material and significantly changed parameters including a new name proposed for the nominated property; changed boundaries and surface area; changed criteria under which the property is nominated; a reframed description of the proposed OUV; and a new comparative analysis.

The Committee’s attention is drawn to IUCN’s previous evaluations of this nominated property in 2014 (WHC-14/38.COM/INF.8B2) and 2016 (WHC/16/40.COM/INF.8B2.Add) in order to avoid repeating information.

## 1. DOCUMENTATION

**a) Date nomination received by IUCN:** Original nomination received on 20 March 2013. Complementary information subsequent to Decision 38 COM 8B.11 was received on 02 February 2016 with IUCN noting at the time the large volume of information submitted (685 pages), unprecedented within the framework of a referral. Complementary information subsequent to Decision 40 COM 8B.13 was submitted to the World Heritage Centre on 30 November 2017.

**b) Additional information officially requested from and provided by the State Party:** Exceptionally, in the framework of a referral, the State Party informally submitted information on 30 November 2017, via the World Heritage Centre, and ahead of IUCN’s Panel meeting from 4-8 December, 2017. This provided an opportunity for the IUCN Panel to review the material prior to its submission in accordance with the statutory deadlines. On 16 January 2018 IUCN provided an interim report to the State Party, again noting the exceptional nature of this given the nominated property’s two previous referrals. IUCN noted the significant changes to the nomination as outlined

above and advised its intention to seek wider external expert reviews to assess the fundamentally amended expression and case made for the proposed OUV and supported by a new comparative analysis. IUCN also requested additional information concerning the rationale for the proposed change of name for the property; advice on the documentation constituting the nomination as resubmitted; clarification of the methodology used to conduct the new comparative analysis; confirmation that all attributes under criterion (viii) were included within the redrawn boundaries for the nominated property; a request to provide higher resolution maps to indicate the changes to the property's configuration and the resulting revised areas; and clarification of anomalies in the information regarding the extent of the "site classé" level of protection for the property.

**c) Additional literature consulted:** An extensive list of references was reviewed and documented during the evaluation of both the original 2013 nomination and second 2016 evaluation of the referral material.

**d) Consultations:** Previous evaluations have taken into consideration a total of 19 desk reviews. 12 additional reviews of the resubmitted nomination were obtained to ensure a solid review base. These included a range of reviewers who had previously reviewed the property as previously nominated, and a larger number who had never previously considered the nominated property.

**e) Field Visit:** Original field mission undertaken by Josephine Langley and Thomas Casadevall, 15-21 September 2013.

**f) Date of IUCN approval of this report:** April 2018

## 2. SUMMARY OF NATURAL VALUES

Whilst the boundaries of the nominated property have been slightly redrawn to exclude two quarries (discussed further in Section 4.2 below), the Chaîne des Puys - Limagne fault tectonic arena is advanced with virtually the same area as previously nominated. The overall nominated area of 24,223 ha has been reduced by c. 27 ha. This change in area relates to the exclusion of the two quarries with these areas now being included in a new, slightly enlarged, buffer zone for the overall property of some 16,307 ha.

The nominated property has been described in previous evaluations and will not be repeated in any detail here. The attributes of the site advanced in support of criterion (viii) are: the Plateau des Dômes, remnant of the ancient Hercynian mountain chain; the 30-km-long Limagne fault escarpment as the expression of continental break-up, subsidence and sedimentation which took place between 37 and 25 Ma (million years ago); and the inverted relief of the Montagne de la Serre, an important expression of the uplift phase. These elements have been re-interpreted in the new information to present a different approach to the site's claimed Outstanding Universal Value (OUV); in the words of the nomination, to "attain a

better definition of the potential outstanding universal value, as acknowledged by the World Heritage Committee in its decision 40 COM 8B.13." The resubmitted property is nominated under criterion (viii) only, as criterion (vii) has been withdrawn from further consideration. IUCN supports the removal of this criterion from the nomination, as it is clearly not met. Following the Committee's 2016 referral decision, IUCN has undertaken dialogue with the State Party to clarify the basis of previously unfavourable evaluations, including issues related to a confused foundation for OUV in the nomination, perceived weaknesses in the previous comparative analysis methodology and the divergent views clearly evident within the scientific community on the global significance of the nominated property. Whilst not prejudging the case for OUV, IUCN provided advice on the principle considerations which the State Party needed to account for in reframing the case for OUV. Lastly, advice was provided on issues related to choice of criteria, criterion-specific integrity, and aspects of protection and management.

Concerning criterion (viii), a significantly revised approach and re-interpretation of the value attributes has been taken compared to the two earlier nominations. In the past the emphasis was on understanding the relative value of each of the geomorphological features of the rifting instead of the whole process itself. Previous nominations also overstated the significance of the volcanic aspects of the site. With this resubmission the State Party has clarified and integrated the claimed OUV of the property to move beyond a collection of geological features to a cohesive story of how these elements together express the continental break-up process. At its simplest, the nomination considers that the globally significant value of the Chaîne des Puys - Limagne fault tectonic arena lay in its presentation of a "complete sequence of the processes that give rise to continental break-up".

A more logical context has also been developed by the State Party to position the nominated property within the complete plate tectonics cycle as defined by Wilson, including a positioning of the nomination under Theme 1 of the 2005 IUCN Geological Framework for Geological World Heritage ("Tectonic and structural features"). To that end, a simpler, clearly expressed and more plausible case has been made that the limited number and large scale of global rift systems makes it challenging to encapsulate in one site all of the key elements that contribute to understanding this multi-dimensional process. On the basis that most global rift systems are many thousands of kilometres long, the nomination contends that it is therefore necessary to identify exemplary sections of very large rifting systems that best tell this planetary-scale and continuous story. The State Party has formally advised of a name change for the nominated property to better reflect its core value as an exemplary arena of activity demonstrating continental break-up, noting a site with a similar naming in Switzerland. The tectono-volcanic assemblage including the long Limagne fault, the scenic alignment of the Chaîne des Puys volcanoes, and the inverted relief of the Montagne de la Serre

together demonstrate how the continental crust cracks, then collapses, allowing deep magma to rise, causing widespread uplift at the Earth's surface.

### 3. COMPARISONS WITH OTHER AREAS

The nomination includes a completely new comparative analysis predicated on the reformulated case for OUV as outlined above. The comparative analysis is modelled on that used in the nominations of the Stevns Klint (Denmark) and Swiss Tectonic Arena Sardona (Switzerland) World Heritage sites and is presented in a clear and logical manner. It reviews sites on the basis of a set of assessment prerequisites. A selection of sites is then subject to ranking against a set of indicators. The rankings are subject to peer review and finally to an in-depth comparison. The nomination dossier notes there are 10 major continental rift systems visible on the Earth's surface. From this, and based on a logic that smaller representative segments of larger rift systems is the only feasible option, the comparative analysis examines 13 pre-selected sites from different global rift systems. The analysis examines the process of continental rifting in its entirety and is not restricted to the most common geomorphological expressions (escarpments and grabens). Volcanic and uplift features, as inherent parts of the continental break-up process, are considered important associated features alongside tectonic structures. Special attention is also paid to the connectivity, diversity and clarity of expression of related features. Representative segments of the following major rift systems have been selected for comparison: Rio Grande rift (USA); Basin and Range Province (USA); Central American rift (Nicaragua); Dead Sea rift (Israel, Lebanon, Syria); Baikal rift (Russia); Western European rift (3 rifts segments in Czech Republic, Germany and the nominated property in France); and the East African rift (5 rift segments in Malawi, DR Congo, Rwanda, Kenya, Ethiopia and Eritrea).

The comparative analysis uses a series of assessment indicators covering five dimensions: 1) faulting and subsidence; 2) magmatism; 3) uplift; 4) connectivity and 5) science. A scoring system is then employed to assess the 13 pre-selected sites. On the basis of this, the Chaîne des Puys - Limagne fault tectonic arena is ranked as the highest regarding the cumulative indicator values. The methodology of the comparative analysis also uses a peer review system. The State Party, in supplementary information, has clarified that the group of site level experts did not review the indicator values assigned to all other sites but did review and agree with the overall findings including the conclusion that the nominated property ranked as the top site in terms of the assessment criteria selected. IUCN notes that several of these indicators still pertain to the educative value of the site and thus favour places where the features relating to continental rifting are accessible and expressed in relatively close proximity.

IUCN was concerned in previous evaluations about the choice of assessment indicators which related to accessibility, exposure, compactness and educative value. Whilst valid measures of importance, these are not primary indicators of OUV. In this case, there are still some debatable indicators relating to proximity of features and value to science. It is also clear, from the now quite large number of expert reviewers who have commented upon this nomination, that opinions remain polarized within the specialist community. Unusually divergent views continue to be expressed with some reviewers wholly supportive of the site's proposed OUV and others who do not consider the arguments are convincing. Different opinions were also expressed within the IUCN Panel process on the approach taken of selecting concentrated segments of larger rifting systems as a basis for OUV. This again relates to the focus of value being on educational merit versus those places with inherently outstanding value albeit challenging to experience in one place.

In light of the above, IUCN carefully assessed all reviews expressed in earlier evaluations and through the ITM, and has also sought a further range of reviews from both previous and new reviewers. The majority of reviews received was in favour of recognising the global significance of this property, when viewed through the reformulated lens of OUV which has been proposed within this revised nomination. Some experts had changed their previous opinion, being now more convinced by the arguments put forward in the revised nomination and backed by the new peer-reviewed comparative analysis. Finally IUCN notes, as confirmed by the State Party, that all experts involved in the new comparative analysis verified and agreed to the findings as a whole which placed the Chaîne des Puys - Limagne fault tectonic arena at the top of this list of 13 sites. Thus, whilst a notable weight of opinion continues to express doubt about the foundation of the nomination, the revised approach now attracts a majority of support for inscription on the World Heritage List.

Nonetheless, in IUCN's view, it is evident that there are other candidate sites which would warrant strong consideration for nomination using the same arguments as put forward for the Chaîne des Puys - Limagne fault tectonic arena. The State Party itself acknowledges this in the latest nomination material noting firstly that the nominated property is the first site nominated primarily for its values related to continental separation, notwithstanding several other properties on the World Heritage list also possess significant rift systems. Secondly, the State Party recognises that more than one site would be needed to fully represent the variety of (rifting) expressions, and their comparative analysis helps to identify some of the major candidates that could be considered as universal expressions of divergent tectonics.

IUCN analysis and inputs from reviewers point to a number of sites with high potential for further examination in relation to World Heritage potential, for example within the East African rift and in Thingvellir

National Park, a listed World Heritage site under cultural criteria, which is on the Tentative list of Iceland for possible renomination under natural criteria, which exhibits a rare terrestrial expression of the largely submerged, largest rifting system on Earth: the Mid Atlantic Ridge.

In conclusion IUCN considers that, while there are other more spectacular individual expressions of continental break-up such as sites in the imposing East African Rift Valley, the nominated property does substantiate a distinctive claim in relation to the completeness of the record, diversity and concentration of features which illustrate the overall continental break-up process and, thus, may be considered to fill a gap on the World Heritage List with regard to the theme of continental rifting.

#### 4. INTEGRITY, PROTECTION AND MANAGEMENT

A critical change with regard to integrity, protection and management concerns the withdrawal of criterion (vii) from this nomination. This changes the focus of these issues as they now relate to the protection of the site's geological values rather than questions of naturalness and aesthetics, which clearly are not at the level appropriate for a natural World Heritage Site. In addition, the property is now nominated with revised boundaries, which remove the two active pouzzolane quarries (according to the nomination less than 0.1 % of the nominated property).

##### 4.1. Protection

As IUCN noted in its 2014 and 2016 evaluations, the nominated property is located within Auvergne Volcanoes Regional Natural Park (PNRVA), established in 1977 and considered an IUCN category V Protected Landscape. The nominated property is subject to various State, Regional, Departmental and communal laws and regulations which govern the environment, urban development, quarries, tourism, natural resource management (forestry, water, soils) and agriculture. A range of regulations, explained in the nomination, are designed to ensure the balance between the needs of populations and the protection of the environment, preservation of areas allocated to agricultural and forestry activities, and the protection of important geological sites. The State Party has provided additional information with regard to the Mountains Act (Loi de Montagne) and the Quarries Plan (Schéma de carrières), which regulate new construction and prevents the opening of new quarries.

The nominated property is also covered by a range of legal land tenures including privately owned land (individuals or private companies), public land (State, Region, Municipality, or Commune) and commons. The complementary dossier provides additional information in response to the Committee decision 40 COM 8B.13 concerning: a) reinforcing the tools allowing local stakeholders to better understand the different regulations applying to the nominated property and its buffer zone, and b) strengthening the implementation of existing regulations on private

properties. This includes information tools, training for outdoor guides, enhanced control/ranger services as well as projects to develop management tools for private lands. These mechanisms assist in managing and minimizing impacts but the system is highly complex and stakeholders will continue to be challenged to understand the different regulations in different areas of one single World Heritage property, should it be inscribed.

The State Party has clarified previously confusing figures regarding the percentage of the site covered by "site classé" and "site inscrit" protection status. 66.3 % of the nominated property is designated as "inscribed site" or "classified site" under French law. IUCN considers the "classified site" level of protection as equivalent to IUCN Category III (Natural Monument). Whilst the nomination claims that "the nominated property is protected under the strongest level of protection for natural sites in France", at least three other levels are understood to offer higher levels of protection for natural sites, namely the "Réserve naturelle", "Réserve intégrale" and "Parc National". However, for a site under criterion (viii), taking into account various protection levels and laws in place, this level of protection seems adequate. That said, IUCN also notes that one of the key areas of the nominated property, the inverted relief of the Montagne de la Serre, falls outside the "site classé/inscrit" designation. It is considered important to bring this area also into line with the "site classé" level of protection.

IUCN previously raised concerns about the timeframes of protection. It is understood that Natural Regional Parks in France are established upon a national decree based on agreement between regional governments and the local communities for a maximum period of 12-15 years (Loi pour la reconquête de la biodiversité - Article 53, Parks Charter). This is not ideal however, given the long existence of Auvergne Volcanoes Regional Natural Park and the strong support for the protection and management of the site by local/regional stakeholders, IUCN considers this constitutes an acceptable, stable long-term protection regime for a property inscribed under criterion (viii) for its tectonic and landscape scale geological values. Such values are likely to be more resilient to land use impacts than a site inscribed under criterion (vii) for natural beauty and landscape aesthetics which, as IUCN previously concluded, were severely compromised.

IUCN considers the protection status meets the requirements of the Operational Guidelines.

##### 4.2 Boundaries

IUCN in its previous evaluations raised concerns about the unusual configuration of the boundaries including the inclusion of heavily modified landscapes which significantly challenged the concept of naturalness and were problematic, in particular to arguments advanced in relation to criterion (vii) and landscape aesthetics. The withdrawal of criterion (vii) from the current nomination has moderated these concerns. The State

Party, in its supplementary information, has confirmed that all of the attributes necessary to portray the proposed OUV under criterion (viii) are inside the property and the majority of review information received during IUCN's evaluation confirms this appears to be the case.

The additional information provided detail on how the management authority is working to allow land owners and other stakeholders to better identify the boundaries on the ground in what is a complex land tenure situation, for example with the aid of information available in an online portal supported by geographical information systems.

Supplementary information also confirms that the nominated property's revised boundaries remove the two active pouzzolane quarries from the nominated area and are now located within small internal buffer zones. It is worth noting that if the State Party wishes to include these areas back into the property at a later stage (after activity has ceased and the quarries have been rehabilitated), this will need to follow the procedures outlined in Paragraphs 163-165 of the Operational Guidelines concerning boundary modifications.

IUCN considers that the boundaries of the nominated property meet the requirements of the Operational Guidelines.

#### 4.3 Management

IUCN in its previous evaluations has detailed the somewhat complex management and governance systems which apply to this landscape and the people living in and around it. Whilst recognizing that the complex management arrangements across different land tenures and levels of protection are appropriate for a multi-use protected landscape, the evaluation concluded that these were not adequate for a World Heritage property inscribed under natural criteria [especially criterion (vii)] and that this did not fully meet the requirements of the Operational Guidelines.

The State Party has provided additional information with respect to improved implementation of regulations on private properties which include: specialised training for guides; enhanced presence of park rangers; contractual agreements with private landowners; integration of private landowners into a unifying association; as well as reinforced management agreements between the State, the department and the Regional Natural Park.

IUCN notes that the timeframe of the management plan extends to a 5 year period (2015-2020) and is linked to a series of contracted actions which will end in 2020. An update of the management plan will be needed shortly to ensure clear plans beyond 2020.

Additional information has also been forthcoming on resourcing for the nominated property. Staffing levels have remained the same as noted in the 2016 evaluation, however, over a five year period, a total of nearly EUR 18 million will be invested in the property

(personnel, running costs and investment). An additional EUR 46.5 million are provided by the Departmental Council and EUR 700,000 sponsored by companies. These levels of support are reassuring and appear adequate to manage a site of this extent and complexity and proposed under criterion (viii).

IUCN considers that the management of the nominated property meets the requirements of the Operational Guidelines.

#### 4.4 Community

IUCN in past evaluations noted a largely positive situation regarding the strong and successful efforts to engage local communities and a range of diverse stakeholders to collectively support the conservation of the nominated property. This culture of stewardship appears to still be very strong for the site and augurs well for the future. The State Party has reasserted that local communities covering the site have adopted a series of complementary protective measures across the nominated property. This reinforces the nature of the participatory governance and management arrangements that are in place across this landscape. IUCN has not undertaken any field mission since the original nomination, and so is not in a position to advise on the current status regarding community attitudes to the nomination, but has not received any objections to the listing.

#### 4.5 Threats

The 2014 evaluation noted a number of threats to the nominated property and additional information provided at that time detailed threats, externalities, impacts on scientific and educational values and management responses. IUCN notes that threats to values in relation to criterion (viii) continue to be of some concern for the long-term preservation of the nominated property. These relate to quarries, urbanization, erosion/tourism and afforestation potentially masking geological features. A similar list of threats has been reiterated via the State Party's response to the supplementary information request.

In past evaluations, IUCN concerns arose around the issue of quarries within the nominated property. This represented a fundamental issue of incompatibility between the objectives of World Heritage and extractive industry within a nominated property. When located inside the property, the operation of active pouzzolane quarries seemed particularly incompatible with the proposed OUV particularly with regard to criterion (vii). Additional information has now confirmed that no new quarries will be permitted and that the permits for the two active quarries, now located in enclaves in the buffer zone of the nominated property, will cease in 2018 and 2030 respectively and will not be renewed. The exclusion of the still active quarries from the nominated property can be accepted provided that the State Party ensures that the quarrying operations are conducted at the highest technical and

ecological standard to safeguard the values the nominated property. Furthermore, after closure of the quarries, clear rehabilitation plans need to be developed and implemented.

IUCN reiterates its assessment of 2014 that the landscape within the nominated property has been subject to a long history of human use and exhibits a number of impacts which are the legacy of that use. Whilst many of these impacts were critical with regards to the evaluation under criterion (vii), IUCN notes that for a property nominated under criterion (viii) the key geological features are massive elements within the landscape and less prone to these impacts, although many past impacts are indeed noted in past evaluation reports. The future management of the quarries likely remains the most significant threat to these areas although this affects only a very small part of the nominated property. Another potential threat that requires careful monitoring and considered action is the ongoing management of high visitor numbers with the potential for erosion. Similar challenges exist with the management of forest cover on geological features to balance exposure with erosion protection. On visitor management, the additional information informed of new training opportunities for tour guides regarding private properties, an online-reservation system for school visits, as well as enhanced presence of park rangers.

In conclusion, IUCN considers that the management arrangements across different land tenures and levels of protection are appropriate for the protection of the values recognized in the revised nomination, and can be accepted as meeting the requirements of the Operational Guidelines.

## 5. ADDITIONAL COMMENTS

### 5.1 Use of the referral mechanism

IUCN is deeply concerned about the manner in which the referral process has been used (and essentially misused) in the case of this nomination. The evaluation of this nomination has been lengthy, spanning five years and involving a disproportionate level of human and financial resources. IUCN has documented some 16 meetings and exchanges with the State Party and the World Heritage Centre between the 2014 referral, and then a further 11 meetings and exchanges between the 2016 referral decision and this resubmitted nomination. The property has been referred twice and both times generated substantial changes requiring additional evaluation effort well beyond the scope of a normal referral. In 2016, some 685 pages of documentation were submitted with limited time available to evaluate this documentation. Following the 2016 referral decision, the property has been renominated with a new name, changed boundaries, changed criteria, a reframed case for OUV and a new comparative analysis. Over the course of an evaluation process spanning five years, only one evaluation field mission has been able to be undertaken.

IUCN wishes to draw these concerns to the Committee's attention, and suggests the Committee should refrain in the future using the referral mechanism to address fundamental issues within a nomination which requires significant work to bring it back to the Committee. In such cases a deferral is the more appropriate and constructive mechanism to engender dialogue between the State Party and Advisory Bodies. IUCN considers that in this case the misuse of the referral mechanism has also worked against the nomination, effectively forcing an upstream process to take place within the severe limitations of a referral framework, and resulting in repeated referrals and considerable discomfort to all the actors involved in the process.

IUCN also draws to the Committee's attention the intensive nature of this exercise which has diverted resources away from other more compelling priorities in line with the strategy towards a credible balanced World Heritage List, notably the support available for States that are currently little represented on the World Heritage List. IUCN notes furthermore that the resourcing of the type of dialogue engaged in is only feasible for well-resourced countries, which are typically also amongst the most-represented countries on the World Heritage List. Thus it creates an additional issue that acts against the goal of achieving a balanced and representative World Heritage List, with equality of access for all States Parties.

IUCN notes that the most similar case to the nominated property, the Swiss Tectonic Arena Sardona, was originally submitted and recommended to not be inscribed. The State Party of Switzerland, in that case, withdrew the nomination and undertook a substantial revision that was then positively evaluated as a new nomination. Such a course of action was open to the State Party and the Committee in the case of the present nomination and in the view of IUCN would have served the interests of the credibility of the Convention, instead of the improvised and resource-consuming process that has been followed.

### 5.2 Assessment of OUV for nominations with divergent expert opinion

IUCN notes that despite the improvements made to this nomination, the intense dialogue and the deepened scientific review, it remains a proposal where there are greatly divergent, and to some extent polarized opinions, amongst the relevant expert and scientific community. This is despite a range of activities that have been organized by the proposers of the nomination, across a number of years, to seek specific support for it. The IUCN Panel, which aims to work by consensus wherever possible, also hosts strongly differing views on the merits of the nomination, and with the eventual recommendation to the Committee to inscribe the nominated property taken by a slim majority of Panel members, and a minority view for non-inscription. In IUCN's experience, and also considering the past consideration of the nomination, this level of divergence is rare and concerning with regard to the standards of unquestioned universal value which the World

Heritage List aspires to. In this case, it appears to IUCN that the inscription, if accepted by the World Heritage Committee, would represent a basis for establishing the lowest point of interest with respect to the justification of the criteria that define Outstanding Universal Value.

## 6. APPLICATION OF CRITERIA

**Chaîne des Puys - Limagne fault tectonic arena** has been nominated under natural criteria (viii). Previous evaluations have concluded the nominated property does not meet criterion (vii), and that criterion has been withdrawn from further consideration.

### Criterion (viii): Earth's history and geological features

Continental drift, manifested through plate tectonics, is an essential paradigm for the history of the Earth as it explains the current make-up of oceans and continents and their past and future movements. The nominated property is an exceptional illustration of the phenomenon of continental break-up, or rifting, which is one of the five major stages of plate tectonics. The Chaîne des Puys - Limagne fault tectonic arena presents a coincident view of all the representative processes of continental break-up and reveals their intrinsic links. The geological formations of the property, and their specific layout, illustrate with clarity this planet-wide process and its effects on a large and small scale on the landscape. This concentration has a demonstrated global significance in terms of its completeness, density and expression and has contributed to the site's prominence since the 18th century for the study of classical geological processes.

IUCN considers that the nominated property meets this criterion.

## 7. RECOMMENDATIONS

The World Heritage Committee,

1. Having examined Documents WHC/18/42.COM/8B.ADD and WHC/18/42.COM/INF.8B2.ADD;
2. Recalling decisions 38 COM 8B.11 and 40 COM 8B.13;
3. Inscribes the **Chaîne des Puys - Limagne fault tectonic arena (France)** on the World Heritage List under natural criterion (viii);
4. Adopts the following Statement of Outstanding Universal Value:

### **Brief synthesis**

*The Chaîne des Puys - Limagne fault tectonic arena, situated in the Auvergne-Rhône-Alpes Region in the centre of France, is an emblematic segment of the West European Rift, created in the aftermath of the formation of the Alps 35 million years ago. The property comprises 24,223 ha with a 16,307 ha buffer*

*zone configured to provide strategic protection in key areas. The boundaries of the nominated property were drawn up to include geological features and landscapes which characterise the tectono-volcanic assemblage and include the long Limagne fault, the scenic alignment of the Chaîne des Puys volcanoes, and the inverted relief of the Montagne de la Serre. Together these demonstrate how the continental crust cracks, then collapses, allowing deep magma to rise, causing widespread uplift at the surface.*

*The property is an exceptional illustration of the processes and characteristic features of continental break-up, a fundamental phenomenon in the Earth's history. It is globally significant in terms of its completeness, density and clarity of topographic expression, providing distinctive evidence of the genetic and chronological links between the rifting features. Densely grouped and clearly interconnected, these features provide focused access to a planetary scale geological phenomenon and its overall understanding.*

### **Criteria**

#### **Criterion (viii)**

*Continental drift, manifested through plate tectonics, is an essential paradigm for the history of the Earth as it explains the current make-up of oceans and continents and their past and future movements. The property is an exceptional illustration of the phenomenon of continental break-up, or rifting, which is one of the five major stages of plate tectonics. The Chaîne des Puys - Limagne fault tectonic arena presents a coincident view of all the representative processes of continental break-up and reveals their intrinsic links. The geological formations of the property, and their specific layout, illustrate with clarity this planet-wide process and its effects on a large and small scale on the landscape. This concentration has a demonstrated global significance in terms of its completeness, density and expression and has contributed to the site's prominence since the 18th century for the study of classical geological processes.*

### **Integrity**

*Due to its size, continental break-up creates rift systems several thousands of kilometres long. The property's boundary incorporates all the elements necessary for a full presentation of this process. All the most impressive and best preserved examples are included in relatively close proximity.*

*The property includes the most impressive section of the fault, which forms a marked border between the flattened continental basement and the wide adjoining graben. It also contains a young volcanic field, relatively unaffected by erosion, exhibiting the complete spectrum of typical magmas in rift zones. Lastly, the long lava flow of the Montagne de la Serre, from an earlier phase of volcanism, straddles the basement and the sedimentary basin, which it overlooks. This inverted topography is a characteristic indicator of the wide-spread uplift which affects rift zones.*

*The landscape setting for the property's geological attributes has a long history of conservation measures; it is sparsely inhabited, with the main population being concentrated on the adjacent Limagne Plain. The geological features encompassed by the property's boundary are fundamentally intact: they are preserved from urbanisation; the erosion is very superficial and has not altered the structures; and past quarrying activity has affected only a minor part of the property. Overall, human impact remains limited and does not compromise the geological value of the Chaîne des Puys - Limagne fault tectonic arena concerning the integrity of the property in relation to criterion (viii).*

#### **Protection and Management requirements**

*The property has been subject to management and preservation measures for nearly one hundred years, under the impetus of local actors and supported by the State. Critical to protecting the property's Outstanding Universal Value is preventing any degradation to the geological features and maintaining, even accentuating, their visibility in the landscape. The main potential threats are thus the quarries, urbanisation, encroachment of forest masking the geological features, and erosion of soils linked to human action. All of these threats are managed via a combination of regulatory measures, an integrated management plan, and the availability of dedicated human and financial means.*

*The property is part of the Auvergne Volcanos Regional Natural Park (IUCN Cat.V protected area) which provides a management framework legally subject to review and renewal every 12 years. The property is subject to strong national legislature which applies to both public and private land and prohibits in particular the opening of any new quarries, mandates State authorization for any changes to the site, and prohibits or strictly limits construction. In addition there are local regulations which reinforce and add greater precision to these environmental, landscape and urban*

*protection measures. Continued efforts should be directed toward engaging with private landholders to raise awareness, ensure compliance with regulations and incentivize good stewardship practice.*

*Proactive management measures are also applied to the property through a tailored management plan which is focused towards the preservation of the geological features and their clarity of outline, management of visitor numbers, enabling traditional local activities, and interpreting the property's Outstanding Universal Value to the public.*

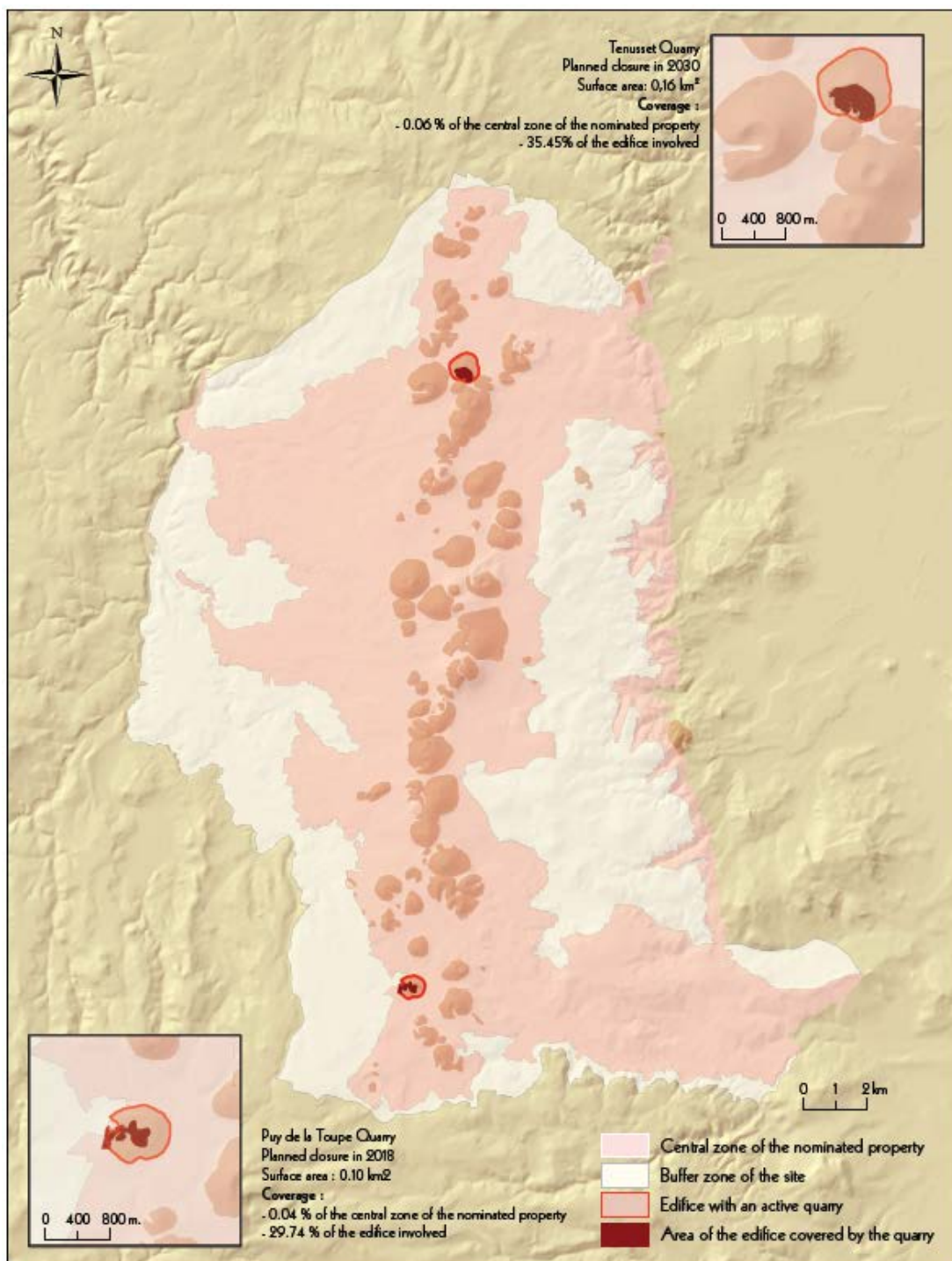
*Care is needed to manage the balance between forest cover and pasture when seeking to optimize the exposure of the property's geological features. It is important to ensure the property is protected against erosion and visitor impact.*

#### **5. Requests the State Party to:**

- a) continue its efforts to strengthen engagement with private landholders to raise awareness, ensure compliance with regulations and incentivize good stewardship practice, in particular to secure formal agreements with the Department of the Puy-de-Dôme and the Auvergne Volcanoes Natural Park to ensure enforcement;
- b) adhere to the proposed schedule for closure of the two active pouzzolane quarries which were formerly inside the nominated area, ensure quarrying operations are conducted at the highest technical and ecological standard to safeguard the Outstanding Universal Value of the property and furthermore to develop and implement clear rehabilitation plans and submit these plans to the World Heritage Centre and IUCN for review;
- c) strengthen the level of protection applying to the Montagne de Serre area of the property.



**Map 1:** Nominated area and buffer zone





## **A. NATURAL PROPERTIES**

### **A3. MINOR BOUNDARY MODIFICATIONS OF NATURAL PROPERTIES**



**ASIA / PACIFIC**

**JEJU VOLCANIC ISLAND AND LAVA TUBES**

**REPUBLIC OF KOREA**



# WORLD HERITAGE MINOR BOUNDARY MODIFICATION PROPOSAL – IUCN TECHNICAL EVALUATION

## JEJU VOLCANIC ISLAND AND LAVA TUBES (REPUBLIC OF KOREA) – ID No. 1264 Bis

### 1. BACKGROUND INFORMATION

Jeju Volcanic Island and Lava Tubes was inscribed on the World Heritage List in 2007 under criteria (vii) and (viii) (Decision 31 COM 8B.12) as a serial property comprising (a) three elements of the Geomunoreum lava tube system (c.330 ha in total), (b) Seongsan Ilchulbong tuff cone (c.52 ha), and (c) the summit of Mount Halla, within Hallasan National Park (c.9,093 ha). The total area of the property is c.9,475 ha. Each component of the property has a buffer zone, with the exception of the Geomunoreum where one buffer zone encompasses all three component parts.

At the time of inscription, the World Heritage Committee, following IUCN advice, recommended that the State Party “consider the potential for extension of the nominated property to include other significant lava tube systems and volcanic features on Jeju” (para 6.e of the above-mentioned decision).

### 2. SUMMARY OF PROPOSED BOUNDARY MODIFICATION

The proposed boundary modification would result in five new components being added to the property: Suwolbong Tuff Ring (21.1 ha), Chagwido Tuff Cone Complex (120.2 ha), Upper Geomunoreum Lava Tube System (two components with a total of 46.6 ha) and Socheongul Lava Tube (13.2 ha). Each of these proposed new component parts is proposed with its own buffer zone, except the Upper Geomunoreum Lava Tube System, where the components are within the existing buffer zone of the existing property. The new Geomunoreum components lie between the existing inscribed components of the property. The new Upper Geomunoreum components include three caves – Utsanjeongul and Bukoreumgul in one component, and Daerimgul in the second. The total area of new buffer zones proposed is stated as being over 1,200 ha. The nomination does not state the separate areas of these two components, but does include a clear map showing their location and boundaries.

The situation with Suwolbong and Chagwido is complicated as, although the nomination cites these as separate components, the maps provided appear to show that the buffer zones of these areas are overlapping.

### 3. IMPACT ON OUTSTANDING UNIVERSAL VALUE

The proposed boundary modification would significantly amend the currently recognised Outstanding Universal Value (OUV) of the existing property. Suwolbong Tuff ring and the associated Chagwido Tuff Cone complex offer an unusually well exposed set of outcrops which show in three dimensions the variability of magmatic and phreato-magmatic eruptive deposit types and related processes which can be produced in what we refer to as “Surtseyan” style eruptions. The Suwolbong Tuff ring is a “geosite” for the Jeju Island UNESCO Global Geopark. Access to both lava tubes of the Upper Geomunoreum Lava Tube system and the Socheongul Lava Tube is restricted and carefully controlled. Both lava tubes were only recently (post-2007) discovered and are in “pristine” condition from a cave visitor perspective and both contain the rare and unusual carbonate speleothems which were one of the key elements / values highlighted in the 2007 inscription. Each of the components has relatively narrow values, but which may in combination contribute to OUV through the serial approach to listing proposed.

In terms of OUV, whilst the potential contributions to criterion (viii) are documented, the potential contributions to criterion (vii) are much less clear. These aesthetic values are not able to be assessed from the documentation provided, although the aesthetic values of the lava tube components appear to be congruent with those of the already inscribed Geomunoreum component.

In principle, IUCN considers that it is problematic to add completely new components to a serial World Heritage Site, which are not immediately linked to areas already included in the inscribed property. Although located on the same island and overall volcanic system as the inscribed property, IUCN notes that only the potential inclusion of the Upper Geomunoreum component is directly linked with the existing component parts of the nominated property, via a shared buffer zone. The other component parts are completely separate units, and have not been visited by any recent evaluation or monitoring mission. It is also not possible to fully verify the integrity, nor the protection and management requirements in place for these new components. Furthermore, questions of the overall selection of these components in relation to other geosites available on Jeju is not able to be assessed in the proposal made.

For these reasons IUCN considers that only the Upper Geomunoreum component parts can be accepted as representing a minor boundary modification, and even this is a fine judgement given the lack of separate area measurements for the two components. However, given the clear map showing boundaries, and the fact that these components are within the existing property's buffer zone and lie between the existing Geomunoreum component parts, IUCN considers that, on balance, acceptance of these components can be recommended. It is however essential that the State Party provides a new map of the whole of the Geomunoreum system, including the buffer zone, and the clarifications of the area measurements of the component parts (and buffer zone).

The other proposed component parts (Suwolbong, Chagwido and Socheongul) may eventually be considered as additions, but would require assessment through an evaluation mission to consider all aspects of OUV, and thus should be resubmitted as a proposed extension to the property in the correct format. These proposed component parts are not suitable for acceptance as minor boundary modifications.

#### 4. OTHER COMMENTS

None.

#### 5. RECOMMENDATION

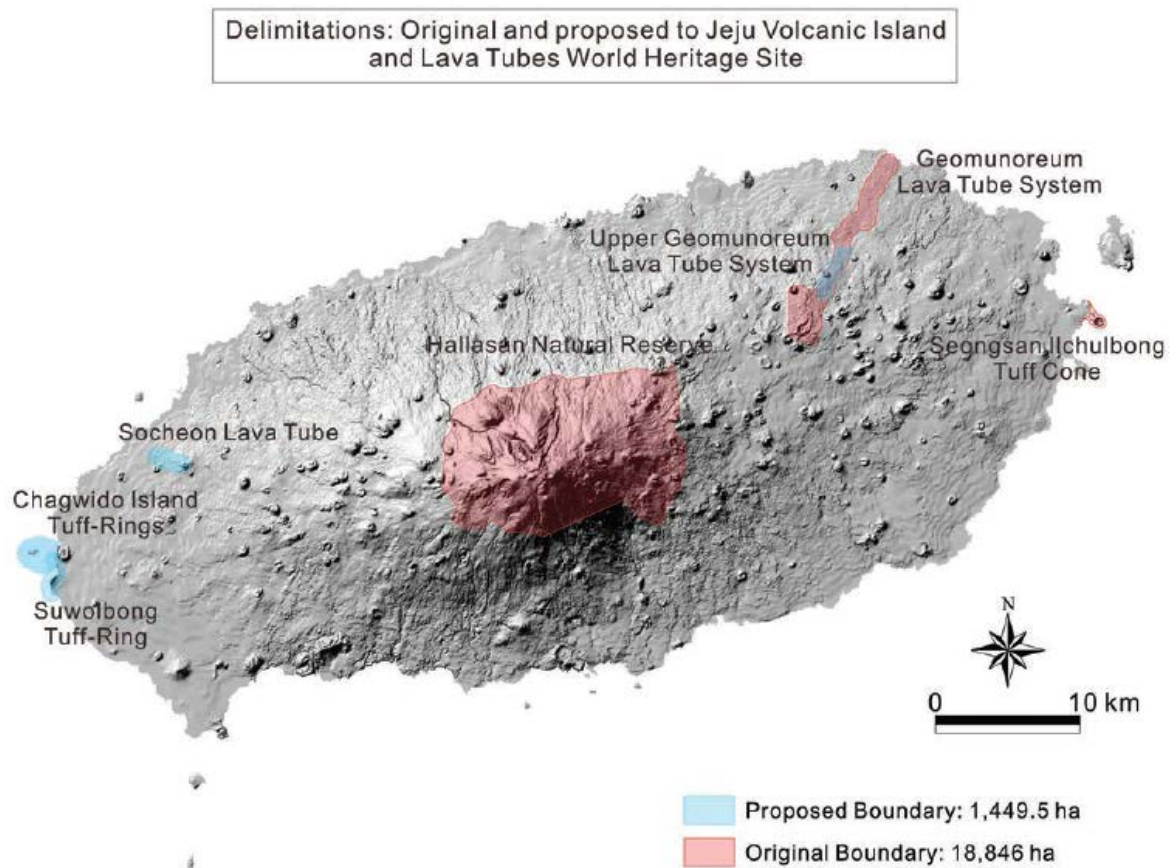
IUCN recommends that the World Heritage Committee adopts the following draft decision:

The World Heritage Committee,

1. Having examined documents WHC/18/42.COM/8B.ADD and WHC/18/42.COM/INF.8B2.ADD;
2. Recalling decision 31 COM 8B.12;
3. Approves the minor boundary modification request for the new Upper Geomunoreum Lava Tube System component parts to be added to the **Jeju Volcanic Island and Lava Tubes (Republic of Korea)**, and requests the State Party to provide to the World Heritage Centre, by **1 December 2018**, a new large scale map of the whole of the revised Geomunoreum component, including all of the relevant component parts, and the buffer zone, and also to provide separate measurements for the area of each of the component parts, as well as the buffer zone.
4. Does not approve the addition of the other three proposed new component parts to the **Jeju Volcanic Island and Lava Tubes (Republic of Korea)**, namely Suwolbong Tuff Ring, Chagwido Tuff Cone Complex and Socheongul Lava Tube, and recommends the State Party to resubmit these three component parts in the format of a new nomination for an extension of the property, with revisions to clarify the boundaries of the nominated components and their buffer zones, in order that a full evaluation of these proposals can be undertaken by IUCN.



**Map 1:** World Heritage Site and proposed Minor Boundary Modification





## **B. MIXED PROPERTIES**

### **B2. REFERRED NOMINATIONS OF MIXED PROPERTIES**



**LATIN AMERICA / CARIBBEAN**

**TEHUACÁN-CUICATALÁN VALLEY:  
ORIGINARY HABITAT OF MESOAMERICA**

**MEXICO**



Cactus Landscape, Purrón © IUCN / Thora Amend



## WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

### TEHUACÁN-CUICATLÁN VALLEY: ORIGINARY HABITAT OF MESOAMERICA (MEXICO) – ID N° 1534 Rev

**IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE:** To inscribe the nominated property under natural criterion (x).

**Key paragraphs of Operational Guidelines:**

Paragraph 77: Nominated property meets natural criterion (x).

Paragraph 78: Nominated property meets integrity, and protection and management requirements.

**Background note:** In 2016, Tehuacán-Cuicatlán Valley: originary habitat of Mesoamerica was nominated as a mixed site under cultural criteria (iii),(iv) and (vi) and natural criterion (x) and considered by the World Heritage Committee at its 41<sup>st</sup> session in 2017. At that time, the Committee, through decision 41 COM 8B.9, referred the nomination back to the State Party of Mexico to address a range of issues concerning both natural and cultural heritage. The State Party was also asked to elaborate on proposals to better integrate the management of natural and cultural heritage institutionally and within management plans; to strengthen management resources and capacity; to address a range of issues pertaining to nature tourism planning and visitor management; and to refine governance systems to be more participatory. On natural heritage the State Party was requested to clarify that all attributes contributing to its proposed Outstanding Universal Value (OUV) were included within the serial property's boundaries as configured. Finally the State Party was asked to consider re-nominating the property also under criterion (ix) in view of its potential ecological significance.

To avoid repeating information, the Committee's attention is drawn to IUCN's previous evaluation of this property which provides detailed analysis (see WHC/17/41COM/INF.8B2).

#### 1. DOCUMENTATION

**a) Date nomination received by IUCN:** Original nomination file received on 24 March 2016. Complementary information subsequent to Decision 41 COM 8B.9 was received by IUCN on 31 January 2018.

**b) Additional information officially requested from and provided by the State Party:** IUCN received the material submitted in response to Decision 41 COM 8B.9 following the World Heritage Panel meeting of December 2017. The dossier was reviewed and then considered by the IUCN Panel at its second and final meeting on 20 March 2018.

**c) Additional literature consulted:** IUCN reviewed numerous references which are listed in its 2017 evaluation of this nominated property.

**d) Consultations:** 6 desk reviews were received and considered in IUCN's 2017 evaluation of the nominated property. The IUCN representative from the 2016 field mission reviewed the referral document.

**e) Field Visit:** The original field mission was carried out by Thora Amend (IUCN) and Luisa Díaz Arriola (ICOMOS), 16-24 October 2016. As this was a referral decision, no further field visit was undertaken.

**f) Date of IUCN approval of this report:** May 2018

#### 2. SUMMARY OF NATURAL VALUES

The Tehuacán-Cuicatlán Valley: originary habitat of Mesoamerica (TCV) is nominated for inscription on the World Heritage List as a national serial, mixed property under criteria (iii), (iv), (vi) and (x). The nominated property thus continues to be nominated under the same mix of cultural and natural criteria as originally proposed. The re-submitted material reports an overall nominated area of 145,255.20 ha with two different measurements provided for the buffer zone enveloping three components (344,931.68 ha in the text, and 284,239.78 ha in the table). Maps provided show an identical boundary to that which was originally nominated. However, the area measurements provided for each component and for the buffer zone and shown in tabular form are slightly different to those originally proposed: the nominated area is marginally larger (by 9.91 ha) whilst the buffer zone is 60,691 ha smaller (see updated Table 1 below). Given the total areas which are repeatedly used throughout the resubmitted nomination and the maps provided, IUCN understands these are inconsistencies in the information, but that the property as resubmitted is the same as originally nominated; however the precise areas should be confirmed with the State Party.

The nominated property is shared between the states of Puebla and Oaxaca in central-southern Mexico, within the country's southernmost arid and semi-arid region. TCV includes three component areas (called zones in the nomination dossier): Zapotitlán-Cuicatlán

(the largest of the component areas), San Juan Raya, and Purrón. Table 1 details the breakdown of areas making up the site.

Components	Region/District	Nominated area (ha)	Buffer zone (ha)
Zapotitlán-Cuicatlán	Puebla & Oaxaca	136,597.43	284,239.78
San Juan Raya	Puebla	6,106.64	
Purrón	Puebla	2,561.04	
<b>TOTAL</b>		<b>145,265.11</b>	<b>284,239.78</b>

Table 1 Component parts constituting the nominated property (note above that the nominated area and buffer zone measurements in the text are different, and should be clarified).

The nominated property continues to have a complicated alignment with the UNESCO Tehuacán-Cuicatlán Biosphere Reserve (TCBR), designated in 2012. The nominated area is entirely within the TCBR, however, there is an apparently different alignment of the nominated area with the biosphere reserve core zones.

IUCN provided a detailed description of the natural values reported for the nominated property in its 2017 evaluation and this will not be repeated in full here. In summary, TCV includes a diverse array of xeric shrublands, tropical deciduous forests, oak and pine forests as well as vegetation types of smaller extent such as palm groves or gallery forests. The smaller Purrón component has an area of 2,561 ha, mostly covered by tropical deciduous forest and to a lesser degree by xeric shrubland with a small area of riparian vegetation in good state of conservation. The San Juan Raya component, at 6,107 ha, is more isolated in the Tehuacán Desert. It is covered mainly by columnar cacti forest and by desert rosette shrubland. The Zapotitlán-Cuicatlán component is located in the main core zone of the TCBR. Of its area of 136,588 ha, 97,000 ha are covered by tropical deciduous forest, 13,420 ha by xeric shrubland - mainly columnar cacti forest, 4,651 ha by desert rosette shrubland, and the remainder is comprised of pine forests, oak forests, mixed pine-oak forests, yucca forests, grasslands and riparian vegetation. The region is reported as an arid or semiarid zone with one of the highest levels of biological diversity in North America, and the Valley is noted as a global biodiversity hotspot. It contains rare flora and plant biomes characterized by high levels of endemic and endangered species. Its fauna diversity surpasses that of any other drylands on the planet and, moreover, it is an outstanding agrobiodiversity centre. This region is renowned for its botanical significance across several plant families including the cactuses (Cactaceae), agaves, yuccas (Agavaceae), bromeliads (Bromeliaceae), Burseraceae and oaks (*Quercus* within the Fagaceae). IUCN also recalls its previous evaluation chronicled impressively high levels of faunal diversity in this region including very high levels of endemism among mammals, birds, amphibians and fish. TCV also hosts an unusually high number of threatened species with some 38 listed in the IUCN Red List of Threatened Species.

One of IUCN's chief concerns, documented within its original evaluation, was to confirm that the configuration of the site included a significant

proportion of the globally recognized natural values reported for the TCBR as a whole and the wider Tehuacán-Cuicatlán Valley. The State Party has provided detailed analysis of both floral and faunal diversity and endemism based on data from the National System of Biodiversity Information (SNIB) and from the National Commission for the Knowledge and Use of Biodiversity (CONABIO). Further spatial analysis has been undertaken corresponding to the polygon of the larger TCBR natural protected area which includes the nominated property. This additional analysis provides convincing evidence that the nominated property includes significant levels of the rich biodiversity which characterizes this region. Revised species lists are provided indicating, for plants, that the property includes some 44% of flora within the wider Tehuacán-Cuicatlán Valley and 50% of the species of the TCBR. It is noted that actual numbers might be even greater, since the records obtained from the SNIB database correspond only to the figures supplied by some 90 projects and studies. Additional analysis has also been provided for faunal diversity confirming that some 99 endemic vertebrate species are distributed within the nominated property.

In conclusion, IUCN considers that the deepened analysis has confirmed the property as configured includes significant levels of biodiversity which are characteristic of this known high-biodiversity region. It is clear however that values may extend beyond the property as nominated, and there would be scope to extend the property once more detailed species inventories are understood. One example is the reported findings of the Ecology Group from the Autonomous Metropolitan University (UAM) of Iztapalapa, who have registered 71 different species of plants established under the canopy of *Prosopis laevigata* (mezquite) in the sub-basin of Zapotitlán, north of the nominated property. It is also clear that there remain many gaps in the understanding of the biodiversity. The SNIB data is based on a range of projects with differing objectives and parameters and the information is acknowledged as incomplete.

### 3. COMPARISONS WITH OTHER AREAS

The Committee's attention is drawn to IUCN's 2017 evaluation of the comparative values of the nominated property at a global scale. In summary it was clear at the time of the previous evaluation that the TCV coincided with a region of known high biodiversity evidenced by the spatial overlay with global biodiversity prioritization systems such as biodiversity hotspots, priority ecoregions, centres of plant and genetic diversity and priority areas for birds. In addition, the TCV region has been identified in various past studies as a gap on the World Heritage List in terms of exceptional biodiversity values.

IUCN noted at the time shortcomings of the comparative analysis related to the inter-linkages in the landscape of human and natural features, which are the basis of the property's proposed Outstanding Universal Value story. While the dossier focuses on the "originary habitat of Mesoamerica", highlighting the



close relationship of people and nature, the comparative analysis, nonetheless, dealt with natural and cultural values and each criterion through separate independent analyses. This is still the case and reflects the need to progressively seek better integration, understanding and interpretation of the interplay between nature and culture in this mixed cultural landscape nomination.

In its previous evaluation IUCN noted that TCV is not nominated for criterion (ix), notwithstanding strong potential to meet this criterion based on the global comparative analysis. The State Party has responded to this suggestion noting it is not ready, at this time, to advance the property under criterion (ix) due to inconclusive evidence and the need for further analysis. IUCN notes that the nomination dossier begins to document the ecological and evolutionary significance of the region which coincides with three known ecoregions (Balsas Dry Forests, Tehuacán Valley Matorral and Sierra Madre del Sur Pine-Oak Forests) which are not yet represented on the World Heritage List. Moreover, over 70% of the nominated property is also found in the Southern Mexican Dry Forests priority ecoregion thus supporting the potential for future consideration of re-nominating the property also under criterion (ix).

Concerning criterion (x), IUCN's evaluation of the re-submitted nomination concludes that the site sustains high levels of plant biodiversity including cacti, agaves, yuccas, bromeliads, bursera and oaks. Furthermore, it hosts one of the highest animal biodiversity levels in a dryland, at least with regard to some taxa such as amphibians, reptiles and birds. There is also a very high level of endemism, both among plant and animal species (including rodents, reptiles and birds), as well as several globally threatened species. The TCBR, which encloses the nominated property, is listed amongst the top 0.20% most irreplaceable protected areas in the world for the survival of threatened species. TCBR encompasses over 10% of the global distribution range of four amphibian species, and is ranked as one of the two most important protected areas in the world for the conservation of seven amphibian and three bird species.

## 4. INTEGRITY, PROTECTION AND MANAGEMENT

### 4.1. Protection

IUCN in its previous evaluation concluded that protection status of the nominated property met the requirements of the Operational Guidelines, principally through the legal protection afforded to the TCBR through the Mexican General Law of Ecological Balance and Environmental Protection (LGEEPA). The LGEEPA law guarantees effective legal protection for the nominated property and directed the preparation of a management plan for TCBR with objectives to preserve the biodiversity of the Floristic Province of Tehuacán-Cuicatlán, thus maintaining the continuity of the ecological and evolutionary processes that take place in the area, as well as preserving the associated cultural and historical heritage. The management

framework and legal protection seem adequate and interactions with the wider landscape and connectivity needs are being taken into account in ensuring the adequate protection of the biosphere reserve.

There were, however, concerns regarding the overlaps with implementation of the TCBR. IUCN notes the mixture of zoning within the TCBR which overlaps with the nominated area and may complicate management. Nevertheless it appears the legal protection is sound.

IUCN considers that the protection status of the nominated property meets the requirements of the Operational Guidelines.

### 4.2 Boundaries

IUCN's concerns in the previous evaluation regarding boundaries stemmed from the lack of clarity surrounding the inclusion of attributes of OUV inside the three component areas being nominated. As noted above, the additional analysis of values provided by the State Party provides more convincing evidence that the necessary attributes to express OUV are indeed included within the nominated property. It is worth reiterating that the nominated area comprises 29.6% of the core and buffer zone area of the TCBR and the larger transition zone of the biosphere reserve provides a good degree of graded protection for the site. As noted above, the species inventory analysis indicates important values may still be found outside the areas as nominated suggesting potential for future extensions to the nominated property should it be inscribed.

The three components of the nominated property share the same single buffer zone which appears is of an adequate size to provide an additional layer of protection for nature conservation values within the component parts. The buffer zone also facilitates habitat connectivity between the three component parts and beyond, whilst also accommodating the sustainable use of certain zones within the TCBR.

More detailed maps provided by the State Party clarify the overlay between zoning system of the TCBR and the nominated property. This remains complex and potentially confusing however, it appears to represent an adequate management regime for the mixed property as is further discussed in 4.3 below.

IUCN considers that the boundaries of the nominated property meet the requirements of the Operational Guidelines.

### 4.3 Management

IUCN previously concluded that in general, an effective and well-established management system is in place for the natural values of the TCBR and thus the nominated property. The management of natural heritage is primarily through the National Commission of Natural Protected Areas (CONANP) which has a long established record of sound management. Cultural heritage and archaeological aspects are managed through the National Institute of Anthropology and History (INAH) and there is evidence

of increasing engagement between CONANP and INAH in the context of the mixed site nomination. The re-submitted information reports on positive relevant investments and strategic actions carried-out in a coordinated manner by these institutions, both to strengthen protection and management and build staff capacity. Agreements between CONANP and INAH include a commitment to meet at least once each 6-month period to coordinate and monitor compliance with specific projects being implemented in the property. Continued efforts are required to build a stronger integrative approach to managing natural and cultural issues assets at site level and to foster participatory approaches which empower local communities in planning and decision-making.

The State Party reports an update of the Strategic Management Plan through 2016/17 which better integrates the management of natural heritage with archeological features through a series of interrelated objectives, informed by the requirements of the Operational Guidelines. The plan provides a more up to date description of natural and cultural assets within the framework of a mixed World Heritage property and prescribes additional measures for the conservation and management of intangible cultural heritage, such as linguistic diversity and communities' sustainable development.

Additional information is also provided on the overlay of the nominated property with the zoning system of the TCBR. This shows the nominated property aligns with a mixture of protection, traditional use, sustainable natural use and special use zones. Whilst this diversity of zonings reflects the mixed site approach, it is nevertheless complex and challenging for stakeholders, users and even managers to interpret. Ongoing efforts are encouraged where possible to simplify and harmonize the zoning system within the nominated property.

The State Party has also outlined investments in the protection and management of the nominated property including a Global Environment Facility project on Strengthening of Management Effectiveness and Resilience of Natural Protected Areas aimed at protecting biodiversity threatened by climate change. Four consultancies are planned for 2018 covering public use programmes in the context of climate change scenarios; a monitoring and management programme for forest plagues and diseases in temperate forests; analysis of the distribution of vegetation and its connectivity in climate change conditions, through the updating of floristic inventories; and evaluating the sustainability of current and potential productive activities under future climate change scenarios. These additional investments are welcome, however, IUCN notes there is continued concern regarding the overall funding and staffing dedicated to the nominated property given the size of the TCBR and management responsibilities.

IUCN considers that the management of the nominated property meets the requirements of the Operational Guidelines.

#### 4.4 Community

The State Party reported several new positive developments with respect to the Committee's request encouraging improved participatory governance for the property. These include a review of successful participatory processes and proposals to adopt CONANP's model governance systems from other sites in Mexico. The nominated property benefits from an Advisory Council established for the TCBR under the LGEEPA law and several other well-established mechanisms that support community livelihoods and sustainable development. A range of initiatives are documented; for example, plans to adopt and adapt the Sello Colectivo Calakmul (Collective Seal Calakmul) initiative designed and driven by the Calakmul Biosphere Reserve. This aims to create a regional identity and the marketing of products and services. As it applies to the mixed World Heritage site of Ancient Maya City and Protected Tropical Forests of Calakmul, Campeche, inscribed in 2014, it is seen as highly relevant for TCV.

IUCN noted a range of community related issues in its 2017 evaluation. There is clearly a long term commitment to working with communities, particularly through CONANP's policies in natural areas across Mexico. It will be important to grow the efforts to capture and share the benefits of a potential World Heritage inscription and to empower local communities in decision making, thus creating a culture of stewardship toward the site.

#### 4.5 Threats

IUCN noted in its previous evaluation that the scope of threats was quite low. Population density is low and there is a trend of emigration. Nevertheless, the lack of personnel and funding is hampering the ability to manage a range of threats to the nominated property which include illegal trafficking of cacti, extraction of agave and natural resources for fuel and other purposes, hunting, overgrazing, deforestation, as well as secondary road impacts.

The nominated property has to date received relatively low numbers of visitors, in the order of 20,000 visitors per year. The State Party has advised of substantive progress in preparing an updated Nature Tourism Strategy for the TCBR. This responds positively and quickly to Committee Decision 41 COM 8B.9. The strategy was prepared in 2017 and considers responsible visitation as a potential World Heritage property. It is also aligned with the goals, strategies, actions and indicators of state and federal public policies for tourism, as well as with the wider management programme of the biosphere reserve. The strategy was developed consensually with community tourism businesses and of a group of ecotourism specialists. The document outlines the touristic systems as well as the community enterprises in each of the three main touristic regions of the TCBR. The strategy prescribes visitor carrying capacities in key areas. However, the challenge remains to see the

strategy implemented, including the envisaged infrastructure, long-term impact monitoring, and capacity building on many aspects for local communities.

IUCN in its previous evaluation detailed a number of other threats which continue to impact or potentially impact the nominated property; however programmes are in place and, for the moment, these are considered to be under control.

In conclusion, IUCN considers that in light of the additional information provided and advances in several areas, the integrity and protection and management requirements of the Operational Guidelines are met.

## 5. ADDITIONAL COMMENTS

### 5.1 Justification for Serial Approach

#### a) What is the justification for a serial approach?

IUCN has previously noted that the justification for a serial approach was not explicitly spelled out beyond an argument that the three component areas constitute the places which best represent the stated Outstanding Universal Value (including archaeological “highlights”) and which are in the best condition. The additional information from the State Party has confirmed the values existing within the nominated areas but it appears evident that these values potentially extend beyond the areas nominated.

#### b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?

From the point of view of the natural values the serial configuration is ecologically linked by the good connectivity afforded by the much larger enveloping buffer zone which broadly aligns with the core and buffer zone of the TCBR. This ensures continuity of ecological processes and room for the continued development of ecological processes and critical habitats. IUCN continues to have some concerns regarding the viability of the smaller components. The improved species data suggests the possibility of future extensions should the nominated property be inscribed. It is noteworthy that there are significant areas within the biosphere reserve’s core preservation zone that have not been included within the three nominated components. With further research and inventory it may be found that many of these areas also contain significant nature conservation values.

#### c) Is there an effective overall management framework for all the component parts of the nominated property?

All three component areas form part of the TCBR which places them under a common legal framework and a single management system. The good inter-institutional coordination between CONANP and INAH is at an early stage but advances on cooperation and coordination are reportedly happening quite quickly and are thus encouraging. As noted in IUCN’s previous evaluation it will be critical to continue to work

toward the goal of stronger, long-term integration between nature and culture in the site.

## 5.2 Mixed site configuration

The cultural criteria, including evaluation of the justification of the nomination as a cultural landscape, will be evaluated by ICOMOS. Whilst IUCN considers the natural values of this site make a strong case for inscription there remain conceptual shortcomings as to how the property presents itself as a cultural landscape in line with paragraph 47 of the Operational Guidelines. The situation noted in 2017 remains. As IUCN noted at that time, the 22 archaeological sites included in the dossier are mostly discussed as stand-alone features, not in their natural context, or in terms of their co-evolution / dependencies on the natural setting. The nomination dossier suggests that exceptional biodiversity has led to great cultural diversity. This cultural diversity is argued to be reflected in archaeological remains, languages and pictographic evidences, technical innovations driven by adaptation to the harsh arid and semi-arid climate, leading to the domestication of wild plant species and development of the region as one of the important Vavilov centres of agro-biodiversity. However, in the field, the close interaction of humans with nature is only visible to the trained eye, as most features and infrastructure (like channels and Purrón Dam) have been reclaimed by natural succession. Should TCV be inscribed as a cultural landscape, IUCN recommends further fundamental reflection on how linkages in the landscape are identified, presented and better managed in an integrated fashion.

## 6. APPLICATION OF CRITERIA

**Tehuacán-Cuicatlán Valley: originary habitat of Mesoamerica** has been nominated under natural criterion (x) as well as under cultural criteria (iii), (iv) and (vi) which will be evaluated by ICOMOS.

### Criterion (x): Biodiversity and threatened species

The Tehuacán-Cuicatlán Valley demonstrates exceptional significance for the remarkable level of biological diversity in an arid and semiarid zone in North America. A remarkable 70% of worldwide floral families are represented in the Valley, by at least one species, and the area is one of the main centres of diversification for the cacti family, which is highly threatened worldwide. A remarkable diversity of cacti exists within the nominated property often in exceptional densities of up to 1,800 columnar cacti per hectare. The nominated property exhibits particularly high diversity among other plant types, namely the agaves, yuccas, bromeliads, bursera and oaks. Worldwide, it hosts one of the highest animal biodiversity levels in a dryland, at least with regard to taxa such as amphibians, reptiles and birds. The nominated property coincides with one of the most important protected areas worldwide for the conservation of threatened species encompassing over 10% of the global distribution range of four amphibian species, and is ranked as the one of the two most important protected areas in the world for the

conservation of seven amphibian and three bird species. The biodiversity of this region has a long history of sustaining human development and today a third of the total diversity of the Tehuacán-Cuicatlán Valley, some 1,000 species, are used by local people.

IUCN considers that the nominated property meets this criterion.

## 7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopts the following draft decision, noting that this will be harmonised as appropriate with the recommendations of ICOMOS regarding their evaluation of this mixed site nomination under the cultural criteria and included in the working document WHC/18/42.COM/8B.ADD:

The World Heritage Committee,

1. Having examined documents WHC/18/42.COM/8B.ADD and WHC/18/42.COM/INF.8B2.ADD;
2. Recalling decision 41 COM 8B.9;
3. Inscribes Tehuacán-Cuicatlán Valley: originary habitat of Mesoamerica (Mexico) on the World Heritage List under criterion (x);
4. Adopts the following Statement of Outstanding Universal Value:

### **Brief synthesis**

*The Tehuacán-Cuicatlán: originary habitat of Mesoamerica is located in central-southern Mexico, at the southeast of the State of Puebla and north of the State of Oaxaca. The property is a serial site of some 145,255 ha composed of three components: Zapotitlán-Cuicatlán, San Juan Raya and Purrón. All these share the same buffer zone of some 344,932 ha. The entire property is located within the Tehuacán-Cuicatlán Biosphere Reserve. The property coincides with a global biodiversity hotspot and lies within an arid or semiarid zone with one of the highest levels of biological diversity in North America, giving rise to human adaptations crucial to the emergence of Mesoamerica, one of the cradles of civilisation in the world.*

*Of the 36 plant communities, 15 different xeric shrublands are exclusive to the Tehuacán-Cuicatlán Valley. The valley includes representatives of a remarkable 70% of worldwide flora families and includes over 3,000 species of vascular plants of which 10% are endemic to the Valley. It is also a global centre of agrobiodiversity and diversification for numerous groups of plants, in which the cacti stand out, with 28 genera and 86 species of which 21 are endemic. Large "cacti-forests" shape some landscapes of the Valley making it one of the most unique areas in the world.*

*The property exhibits the impressively high levels of faunal diversity known in this region including very high levels of endemism among mammals, birds, amphibians and fish. It also hosts an unusually high number of threatened species with some 38 listed under the IUCN Red List of Threatened Species. The property is one of the richest protected areas in Mexico in terms of terrestrial mammals (134 species registered, two of them endemic to the Valley). The TCV is part of the Balsas Region and Interior Oaxaca Endemic Bird Area (EBA). There are 353 birds recorded, of which nine are endemic to Mexico. The property has eight known roosting areas of the threatened Green Macaw including a breeding colony.*

### **Criteria**

#### **Criterion (x)**

*The Tehuacán-Cuicatlán Valley demonstrates exceptional significance for the remarkable level of biological diversity in an arid and semiarid zone in North America. A remarkable 70% of worldwide floral families are represented in the Valley, by at least one species, and the area is one of the main centres of diversification for the cacti family, which is highly threatened worldwide. A remarkable diversity of cacti exists within the property often in exceptional densities of up to 1,800 columnar cacti per hectare. The property exhibits particularly high diversity among other plant types, namely the agaves, yuccas, bromeliads, bursera and oaks. Worldwide, it hosts one of the highest animal biodiversity levels in a dryland, at least with regard to taxa such as amphibians, reptiles and birds. The property coincides with one of the most important protected areas worldwide for the conservation of threatened species encompassing over 10% of the global distribution range of four amphibian species, and is ranked as the one of the two most important protected areas in the world for the conservation of seven amphibian and three bird species. The biodiversity of this region has a long history of sustaining human development and today a third of the total diversity of the Tehuacán-Cuicatlán Valley, some 1,000 species, are used by local people.*

### **Integrity**

*The property is of sufficient overall size and contains the key representative habitats and plant communities of the floristic province Tehuacán-Cuicatlán that convey its Outstanding Universal Value under criterion (x). The three components include relatively undisturbed areas of high conservation value quality and are embedded within a larger buffer zone all of which coincides with the Tehuacán-Cuicatlán Biosphere Reserve. Further protection is afforded by the biosphere reserve's larger transitional zone. The management systems are in place to address the various threats to the area and establish objectives, strategies and specific actions in coordination with key local, national and international stakeholders to address these threats including any adverse effects of development.*

**Protection and management requirements**

*The property Tehuacán-Cuicatlán Valley: originary habitat of Mesoamerica has effective legal protection to ensure the maintenance of its Outstanding Universal Value. At the time of inscription the property has a recently updated Strategic Management Plan which aims to integrate the management of natural heritage with archeological features through a series of interrelated objectives. The plan provides a description of natural and cultural assets within the framework of a mixed World Heritage property and prescribes additional measures for the conservation and management of intangible cultural heritage, such as linguistic diversity and communities' sustainable development.*

*The institutions in charge of implementing protective measures are the Ministry of Environment, the National Commission for Protected Areas (CONANP), the Federal Attorney General for Environmental Protection and the National Institute for Anthropology and History (INAH). For monitoring of biodiversity the National Commission for Knowledge and Use of Biodiversity and the National Forestry Commission coordinate with CONANP. All these institutions work together with the Administration Office of the Tehuacán-Cuicatlán Biosphere Reserve. Ongoing efforts are needed to ensure full integration and institutional coordination across issues related to natural and cultural heritage in accordance with the respective mandates of CONANP and IHAH. Both managing institutions are committed to actively working with local communities and efforts to strengthen these approaches are ongoing.*

*In comparison to other regions, current and potential threats are considered quite low, and the population density is low. Tourism use at time of inscription is relatively minimal, however, has the potential to rapidly grow. A Nature Tourism Strategy for the Tehuacán-Cuicatlán Biosphere Reserve (2018-2023) seeks to balance the protection of the property's Outstanding Universal Value with fostering responsible visitation that empowers local communities. Priority needs to be given to the adaptive implementation of this strategy based on monitoring the impacts.*

**Requests** the State Party to:

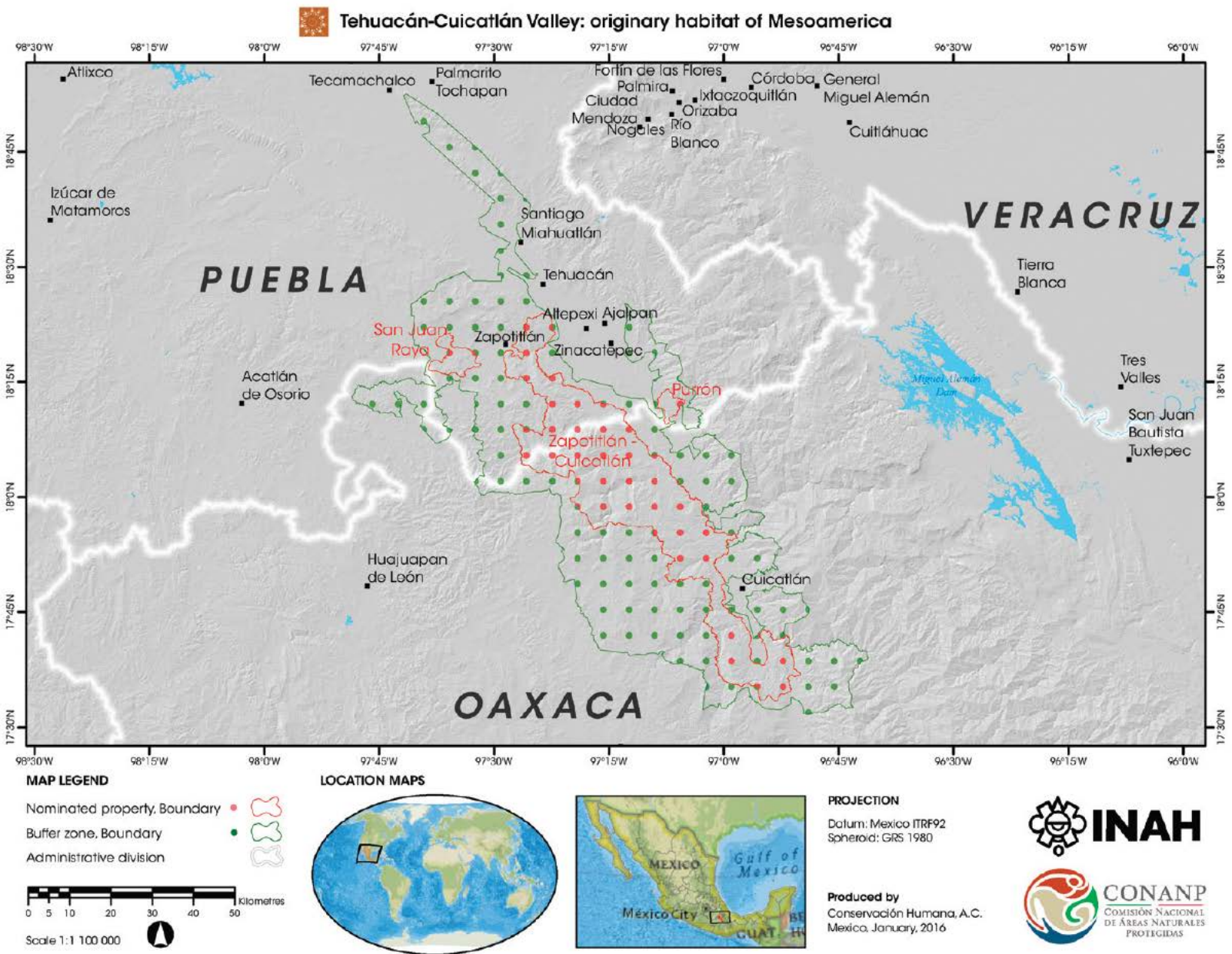
- a) confirm to the World Heritage Centre the correct exact areas of the nominated components and buffer zone;
- b) conduct a more systematic inventory of fauna and flora within the property and the wider biosphere reserve and Tehuacán-Cuicatlán Valley to guide opportunities for further extension of the property;
- c) continue to strengthen participatory governance arrangements which work with local communities in harnessing tangible benefits from the World Heritage property.

5. Welcomes the improved integration of natural aspects with archaeological features within the updated Strategic Management Plan for the Cultural Sites within the property which complements the actions set forth in the Management Programme of the Tehuacán-Cuicatlán Biosphere Reserve and encourages continued harmonization between natural and cultural heritage management.

6. Further welcomes the updated Nature Tourism Strategy for the Tehuacán-Cuicatlán Biosphere Reserve (2018-2023) which seeks to balance the protection of the property's Outstanding Universal Value with fostering responsible visitation that empowers local communities and encourages the State Party to implement the strategy including the envisaged infrastructure, long-term impact monitoring, and tourism-related capacity building for local communities.

7. Encourages the State Party to consider in future re-nominating the property under additional natural criterion (ix) in recognition of the global ecological significance of this region which coincides with an arid and semiarid zone with one of the highest levels of biological diversity in North America.

Map 1: nominated property and buffer zone







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