Study on the application of Criterion VII

Considering superlative natural phenomena and exceptional natural beauty within the World Heritage Convention

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Publications Services
Rue Mauverney 28
1196 Gland
Switzerland
Tel +41 22 999 0000
Fax +41 22 999 0020
books@iucn.org
www.iucn.org/publications

Study on the Application of Criterion (vii)

Considering superlative natural phenomena and exceptional natural beauty within the World Heritage Convention

Lead author

Nora Mitchell, Adjunct Associate Professor, University of Vermont

With contributions from

Letícia Leitão, World Heritage Capacity Building Officer, IUCN

Piotr Migon, Professor, Department of Geography and Regional Development, University of Wroclaw

Susan Denyer, World Heritage Adviser, ICOMOS, with input from members of ICOMOS International Scientific Committees and other experts.

Abstract

As of February 2013, there are 133 properties inscribed on the World Heritage List on the basis criterion (vii) (*contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance*). The purpose of this study is to review, clarify and strengthen the application and assessment of criterion (vii) in order to improve advice to States Parties in the nomination process and enhance guidance for the IUCN evaluation process. This study conducts a case history of the application of this criterion, with a focus on properties inscribed since 1995, and reviews scholarship in related disciplinary fields. In coordination with ICOMOS, this study also reviews aesthetic considerations in the application of cultural criteria. This research identifies several challenges and serves as the foundation for recommendations to strengthen the application of criterion (vii) so that it is more structured, systematic, and transparent, and comparable to other natural criteria.

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About IUCN

IUCN, International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges. IUCN works on biodiversity, climate change, energy, human livelihoods and greening the world economy by supporting scientific research, managing field projects all over the world, and bringing governments, NGOs, the UN and companies together to develop policy, laws and best practice.

IUCN is the world's oldest and largest global environmental organization, with more than 1,000 government and NGO members and almost 11,000 volunteer experts in some 160 countries. IUCN's work is supported by over 1,000 staff in 60 offices and hundreds of partners in public, NGO and private sectors around the world. IUCN is the independent advisory body to the World Heritage Committee on natural heritage.

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1. INTRODUCTION

This study is intended to improve guidance for the application and assessment of criterion (vii).

The World Heritage Committee considers a property as having Outstanding Universal Value if the property meets one or more of the ten defined criteria. Criteria (vii) to (x) refer to natural heritage with criterion (vii) defined as:

> **contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance (UNESCO 2012a).**

This study was initiated following a decision adopted by the World Heritage Committee:

> Takes note of the need for additional resources to be provided to support priority work by ICOMOS and IUCN on thematic studies, including updating existing studies, the application of criterion (vii) and new initiatives, and to promote their effective use by States Parties(Decision 32 COM 10A, paragraph 8).

This decision was made in response to the advice of IUCN that it was timely to review the existing approach to application of criterion (vii) and identify ways to strengthen it, including partnerships that could be established. IUCN has, over the past several years, conducted other thematic studies on natural World Heritage.

1.1. Scope and purpose

IUCN initiated this review of the application of criterion (vii) in order to reflect on experience over time, assess the current approach in nominations and evaluations in light of current scholarship, and recommend ways to strengthen it. For a number of years, there has been limited guidance on application of this criterion. There were also concerns that the application of this criterion was not as systematic or rigorous as for other natural criteria.

The need for this study on criterion (vii) has been identified during discussions on World Heritage nominations based on natural criteria over the last 15 years. Recommendations for this project emerged, for example, from meetings in La Vanoise (1996) and Vilm (2005). The report of the Vilm meeting recommended that IUCN prepare a background study to review "the intention of this criterion; case law; history of the application of the criteria; and state of the art current practice" (IUCN 2005: 10). The report of the meeting in La Vanoise noted that a "significant literature exists on methodologies for assessing aesthetic and scenic values and the perception of natural beauty, and that the Committee may consider requesting a desk study for guidance" (UNESCO 1996: 3).

The overall purpose of this study is to review, clarify and strengthen the application and assessment of criterion (vii) in order to improve advice to States Parties in the nomination process and enhance guidance for the IUCN evaluation process.

1.2. Approach to the study

This study:

a) reviews the evolution of wording and the application and assessment of criterion (vii) over time;

b) conducts a selective literature review of related areas of research and practice relevant to the assessment of criterion (vii);

c) conducts case histories of the properties inscribed under criterion (vii) with particular emphasis on the properties inscribed since 1995 at the time of the last significant criterion (vii) wording changes; and

d) reviews the aesthetic and artistic values in the application of cultural criteria in coordination with ICOMOS.

Based on the findings, this study identifies the key challenges and recommends ways to improve the application and assessment of criterion (vii) in a structured, systematic, and transparent way comparable to that used for other natural criteria. This study also considers interactions with the other Advisory Bodies in reaching recommendations to the World Heritage Committee and considers other partnerships that IUCN could establish to strengthen the assessment of criterion (vii). Finally, this study is intended as a contribution to an ongoing discussion and will be revised from time to time as necessary.

2. CONCEPT AND INTERPRETATION OF CRITERION (VII)

This chapter first examines the wording and interpretation of criterion (vii) in the context of the current version of the *Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO 2012) (hereafter referred to as Operational Guidelines). The next section examines the evolution in the wording of criterion (vii) in the different versions of the Operational Guidelines over time and identifies two main phases in this evolution. Review of the application of criterion (vii) during these two phases (see chapters 3 and 4) and reflections in several reports prepared over the last fifteen years reveal key challenges for the application and assessment of criterion (vii). Findings from this review are summarized at the end of the section.

2.1. Current wording and interpretation of criterion (vii)

All criteria in the Operational Guidelines have their foundation in the World Heritage Convention. Article 2 of the Convention, defines that, the following shall be considered as 'natural heritage':

> natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;
>
> geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;
>
> natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty (UNESCO 1972).

The World Heritage Convention under Article 11 also defines that,

> The [World Heritage] Committee shall establish, keep up to date and publish, under the title of 'World Heritage List', a list of properties forming part of the cultural heritage and natural heritage, as defined in Articles 1 and 2 of this Convention, which it considers as having outstanding universal value in terms of such criteria as it shall have established (bis).

Such criteria are defined in the Operational Guidelines, which are revised by the Committee when deemed necessary, and therefore have allowed for their continuous evolution. The latest version of the Operational Guidelines (dating from 2012) describes in Paragraph 77 that the Committee considers a property as having Outstanding Universal Value if the property meets one or more of the ten defined criteria. Criteria (vii) to (x) refer to natural heritage with criterion (vii) defined as:

> **contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance (UNESCO 2012a).**

This definition mentions 'exceptional natural beauty and aesthetic importance' which parallels the references to 'aesthetic point of view' and 'point of view of natural beauty' under Article 2 of the Convention. It is important to note that 'sites' under the definition of cultural heritage in

Article 1 also references 'aesthetic point of view'.[1]The wording of criterion (vii) also refers to 'superlative natural phenomena' for which there is no such a clear parallel in Article 2.

IUCN currently interprets the definition of criterion (vii) as including two distinct ideas: (1) superlative natural phenomena and (2) exceptional natural beauty and aesthetic importance. This interpretation and guidance for its application are provided in the 2011 edition of *Preparing World Heritage Nominations* resource manual (UNESCO 2011b). This guidance indicates that nominations of new sites proposed under this criterion can address one or the other of these ideas or both. In addition, the guidance states that,

> The first, 'superlative natural phenomena', can often be objectively measured and assessed (e.g. deepest canyon, highest mountain, largest cave system, highest waterfall).
>
> The second concept, that of 'exceptional natural beauty and aesthetic importance', is harder to assess. This criterion applies to natural properties that are seen as having exceptional natural beauty and aesthetic importance. There are many intellectual approaches to concepts of the beauty and aesthetics of natural areas. While no one approach is recommended, adopting one or more recognized approaches is essential. Merely asserting these qualities without a robust supporting argument is insufficient. The application of this criterion should not be confused with the recognition of the aesthetics of cultural properties and cultural landscapes that is currently expressed through the use of the cultural criteria UNESCO 2011b).

The manual also provides guidance on preparing the comparative analysis, emphasizing that, properties proposed for inscription under criterion (vii),

> will have comparable sites distributed on a worldwide, rather than regional basis, so standards under this criterion are expected to meet a global standard of proof. This fact distinguishes the application of the aesthetic element of this criterion from those factors relevant to the consideration of cultural landscapes. Evaluation in relation to this aspect is based on comparison with properties previously inscribed by the World Heritage Committee under this criterion and, to the extent possible, it also involves a comparison of measurable indicators of scenic value (UNESCO 2011b: 40).

The recognition that criterion (vii) can be interpreted to have two distinct ideas – superlative natural phenomena and exceptional natural beauty and aesthetic importance – and that properties can meet this criterion by either one or the other or both, raises questions as to how to make distinctions between the two ideas and how to identify and define the values they convey. This resource manual (cited above) provides only limited guidance, particularly as to *how* 'superlative natural phenomena' can be objectively measured and assessed and what values are conveyed and, as to *why* the property contains exceptional natural beauty and what evidence to present to support such claim, particularly if the comparative analysis includes measurable indicators of scenic value (see chapter 3 for further discussion).

As already mentioned, the current interpretation of criterion (vii) is the result of an evolution of the wording of this criterion in the different versions of the Operational Guidelines and its

[1] The relationship of aesthetics to the application of the cultural criteria is examined by ICOMOS in their contribution to this study (see chapter 5).

application over time. To provide this historical context, the following section reviews the changes in the wording over time.

2.2. Evolution in the wording of criterion (vii)

This section briefly examines the background to the development of criteria for assessing outstanding universal value, focusing on criterion (vii), and then summarizes the evolution of this criterion over time. More detailed examination of the application of this criterion is included in chapters 3 and 4.

Prior to examining the evolution of wording changes for criterion (vii) in the different versions of the Operational Guidelines over time, a brief description of some of the early draft text for criterion (vii) is presented. Although this is not a complete history of the drafting process, it provides some perspective for the wording that was eventually adopted by the Committee in the first version of the Operational Guidelines in 1977.

In May of 1976, there was an "informal consultation for an exchange of views among intergovernmental and non-governmental organizations" in Morges, Switzerland on implementation of the World Heritage Convention including the development of criteria for the assessment of outstanding universal value (UNESCO 1976). From the records of this meeting, it is clear that the intention was to create two separate lists of criteria for cultural and natural heritage. IUCN, ICOMOS, and ICCROM each brought draft criteria to the meeting and after discussion, agreed upon recommendations for two lists of criteria for the inclusion of properties in the World Heritage List. For natural properties, in addition to the general criteria, a set of conditions of integrity were also adopted.
The draft criteria for natural heritage proposed by IUCN included one labeled (c) defined as:

> Contain unique, rare or superlative natural phenomena, formations or features. This concept embraces those sites or objects which are either the 'only one of a kind', the highest, largest or other similar characteristic, measured on a global basis, or are superlative or representative examples of some of the most important ecosystems to man. Examples might include Angel Falls – the world's highest waterfall – in Canaima National Park, Venezuela, the Sequoia gigantea trees in California – the largest living organisms, and temperate coniferous forests, prairies and steppes (UNESCO 1976: 2, Annex IV).

It is interesting to note that this first proposal did not make specific references to natural beauty or aesthetic importance but focused mainly on superlative natural phenomena, formations or features. This draft proposal would be later refined and adopted as criterion N(iii) [now criterion (vii)] with the additional reference to natural beauty and aesthetic importance. Even so, this draft provides clues to what was initially envisaged through the examples provided. With this review of initial drafts of criterion (vii) as background, a summary of the chronology of changes to criterion (vii) based on the different versions of the Operational Guidelines adopted over time is presented in Table 2.1.

The criteria were first formally adopted by the World Heritage Committee in 1977 and over the ensuing years, changes have been made to all criteria including criterion (vii). Based on Table 2.1, two phases can be identified based on wording used: prior to and after 1994. The changes prior to 1994 were primarily concerned with the specificity of the description thus the meaning remained fairly consistent. In 1994, a more substantive change was made by deleting the phrase 'exceptional combinations of natural and cultural elements'; since then the text has

remained unchanged. In the following section, these two phases are used as a chronological framework for the case history of the application of criterion (vii), with a focus on the most recent group of 45 properties inscribed on the World Heritage List since 1995 when the 1994 Operational Guidelines came into effect. This is supported with additional discussion on the application and interpretation of criterion (vii) during these two phases.

Table 2.1: Evolution of the wording of criterion (vii)

Text that is removed from the criterion in the next version adopted is marked in *italic.* Text added to criterion is marked in **bold.**

Date of Operational Guidelines	**Text of Criterion**
Definition of Natural Criterion (iii), October 1977	(iii) contain *unique, rare or* superlative natural phenomena, formations or features *or* areas of exceptional natural beauty, *such as superlative* examples of the most important ecosystems *to man, natural features, (for instance, rivers, mountains, waterfalls), spectacles presented by great concentrations of animals, sweeping vistas covered by natural vegetation and* exceptional combinations of natural and cultural elements;
Definition of Natural criteria, November 1983	(iii) contain superlative natural phenomena, formations or features, **for instance, outstanding** *examples of the most important ecosystems,* areas of exceptional natural beauty or exceptional combinations of natural and cultural elements*;*
Definition of Natural criteria, March 1992	iii) contain superlative natural phenomena, *formations or features for instance, outstanding examples of the most important ecosystems,* areas of exceptional natural beauty *or exceptional combinations of natural and cultural elements*;
Definition of Natural criteria, February 1994	(iii) contain superlative natural phenomena or areas of exceptional natural beauty **and aesthetic importance;**
Definition of Natural criteria, February 2005	**(vii)** contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
Definition of Natural criteria, 2011	(vii) contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;

NOTE: Table 2.1 is adapted from *Guidance on the preparation of retrospective Statements of Outstanding Universal Value for World Heritage Properties* (ICOMOS et al. 2010: 27).

In reviewing Table 2.1, it is also important to note that until 2005, the natural criteria were numbered N(i) to N(iv). When the numbers were reassigned in 2005, so as to create one integrated set of criteria, the order was also changed. Thus, N(iii) became (vii), N(i) became (viii), N(ii) became (ix), and N(iv) became (x). In the following section, criterion (vii) is referred to as criterion N(iii) prior to re-numbering in 2005. To avoid confusion, when one of the pre-2005 natural criteria is referenced with the earlier numbers, the current criterion number is added to the text in brackets.

2.3. Reflections on the application and interpretation of criterion (vii) over time

This section describes the evolution of the application and interpretation of criterion (vii) during the two phases identified. Findings from several reports are reviewed that complement this summary and provide useful context for the evolution of ideas and emerging concerns related to applying criterion (vii).

Phase 1: 1977-1994. During this period, 88 properties were inscribed on the basis of criterion (vii) alone or in combination with other criteria.

By 1977, the Operational Guidelines, including criteria for the assessment of outstanding universal, were in place. In 1983, the first wording changes were made to criterion (vii), mostly simplifying the text without substantial changes in meaning (see Table 2.1).

Beginning in 1988, a series of discussions and review of the wording of the criteria resulted in a more substantive change to the text of criterion (vii) in 1994. In 1988, in the World Heritage Bureau and subsequently, the World Heritage Committee's sessions there were discussions on the difficulty "in the examination of nominated properties which had an indissociable combination of cultural and natural elements. This difficulty arose from the fact that 'culture' and 'nature' were evaluated separately by ICOMOS and IUCN respectively, using separate sets of criteria" (UNESCO 1988b: 1). This discussion was directly related to nominations for Mount Athos and Meteora (both in Greece) and Hierapolis-Pamukkale (Turkey) and the application of criterion N(iii) [now (vii)] related to natural beauty which, at that time, included the phrase 'exceptional combination of cultural and natural elements' (see Table 2.1). At their meeting in August 1988, the World Heritage Bureau recommended inscription of these three properties based on ICOMOS' recommendations to apply criterion N(iii), after taking input from IUCN (UNESCO 1988a). In the case of Hierapolis-Pamukkale, IUCN recommended against inscription on the basis of this criterion but ICOMOS – and the Bureau – felt that "recognition should be given to the combination of natural and cultural elements of this property" (UNESCO 1988c). Based on the recommendations of the Bureau, the World Heritage Committee inscribed all three properties on the World Heritage List as mixed properties on the basis of criterion N(iii) and several cultural criteria at its 12th session in 1988 (UNESCO 1988d; see Annex 1). In addition, the Committee agreed to an interim procedure for the evaluation of nominations with a combination of natural and cultural elements with ICOMOS consulting with IUCN on the application of natural criterion N(iii) and acknowledged that this did not resolve the issue of all 'mixed properties' (UNESCO 1988d).

In addition to the discussions above, in June 1988, the Bureau examined the nomination of Lesbos Petrified Forest (Greece) and identified the need for additional specialist advice "to evaluate properties nominated under natural heritage criteria (i) (the earth's evolutionary history) and (ii) (on-going geological processes)" (see UNESCO 1991a). This discussion gave additional impetus to the already identified need to review the natural criteria and the Bureau recommended that the Committee request a revision of the natural criteria and conditions of

integrity to be first considered by the Bureau and then submitted to the World Heritage Committee at its 16th session in 1992 (UNESCO 1991a).

In 1991, the Secretariat[2] convened a Task Force comprised of experts representing several disciplines of the geological sciences and a representative from IUCN. Their proposals included revision to several criteria, including criterion N(iii) [now (vii)], in this case, to "exclude references to … interactions between man and nature which were to be incorporated in a new cultural heritage criterion on cultural landscapes…" (UNESCO 1992a). The Bureau at its 15th session in June 1991, did not accept the proposals made, and recommended further revision. Subsequently, the World Heritage Committee at its 15th session in December 1991, requested additional work to revise the natural criteria and the conditions of integrity and submit revised proposals for consideration by the Bureau in mid-1992 (UNESCO 1991b).

This timing allowed participants in a workshop on the World Heritage Convention at the Fourth World Parks Congress in 1992 to contribute to formulating a response to this request (Thorsell 1992). This workshop agreed with the Task Force that the existing natural criteria were imprecise and specifically noted that the references to 'man's interaction with nature' in criterion N(ii) [now (ix)] and 'exceptional combinations of natural and cultural elements' in criterion N(iii) [now (vii)] in particular did not directly correspond to the definition of natural heritage in Article 2 of the Convention (UNESCO 1992a).

After a long period of discussion on the revision of the criteria, the natural heritage criteria including criterion N(iii) [now (vii)] were revised and submitted to the Bureau meeting in July 1992. These revisions were subsequently agreed to by the World Heritage Committee and incorporated into the Operational Guidelines in 1994 (as described in Table 2.1). In addition, revisions to natural criterion (ii) [now (ix)] were also made to remove mention of 'man's interaction with nature'. With these changes, there was no longer any mention of the interaction of natural and cultural heritage in any of the criteria (Rössler 2002).

It is important to note that the timing for these changes in the natural criteria was concurrent with the development of an approach to cultural landscapes. The 1994 Operational Guidelines defined the term 'cultural landscapes' as embracing "a diversity of manifestations of the interaction between humankind and its natural environment" (UNESCO 1994). With all of these changes to the 1994 version of the Operational Guidelines, properties with a combination of cultural and natural elements could still be identified as mixed properties and those with significant interaction of natural and cultural heritage could be proposed as cultural landscapes.

Phase 2: 1995-2012. During this period, 45 properties were inscribed on the World Heritage List on the basis of criterion (vii) alone or in combination with other criteria.

As already mentioned and illustrated in Table 2.1, while the wording of criterion (vii) has remained unchanged since 1994, four reports published between 1994 and 2012 provide additional information and context on its application. In 1996, an expert meeting was convened on "evaluation of general principles and criteria for nominations of natural World Heritage sites" (UNESCO 1996, 3-4), at the Parc National de la Vanoise in France. This expert group discussed natural criterion N(iii) [now (vii)] and noted the grounding of its wording in Article 2 of the Convention but, while reaffirming the importance of this criterion, they also noted that the application of the concept of 'natural beauty' is difficult to assess. From the perspective of some of the participants, "the concept of natural beauty is essentially subjective and a social construct

[2] The World Heritage Centre was only formally established within UNESCO in 1992.

[and that] the natural beauty and aesthetics of an area may be closely associated with the cultural values" (UNESCO 1996: 3). Given these challenges, they considered that natural criterion N (iii) [now (vii)] should justify inclusion in the List only in exceptional circumstances or in conjunction with other natural or cultural criteria and recommended text changes to the Operational Guidelines to reflect this condition (UNESCO 1996). This suggested a similar approach to that used for the application of cultural criterion (vi) (*associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance*) and, in this case, specifies that the Committee "considers that this criterion should preferably be used in conjunction with other criteria" (UNESCO 2012: paragraph 77).

In 2005, additional changes to the Operational Guidelines were made after an extensive revision process, which was based on many expert group recommendations and related Committee's decisions between 2000-2004 (UNESCO 2002; UNESCO 2004; UNESCO 2005). One of the meetings that contributed to this process was the *Special Expert Meeting of the World Heritage Convention: The Concept of Outstanding Universal Value* held in Kazan, Russian Federation, from 6 to 9 April 2005. IUCN prepared a paper for this meeting that included information on criterion (vii) (UNESCO 2005). It considered that the assessment of Outstanding Universal Value under criterion (vii) included two distinct ideas:

> The first, 'superlative natural phenomena', can often be objectively measured and assessed (the deepest canyon, the highest mountain, the largest cave system, the highest waterfall, etc.). The second concept, that of 'exceptional natural beauty and aesthetic importance' it was noted is harder to assess and evaluation tends to be more subjective (UNESCO 2005: 35-36).

The IUCN's paper also stated that,

> The nature of this criterion is that the types of properties that are proposed for inscription will have comparable properties distributed on a world-wide, rather than regional basis, so standards applied under this criterion will need to meet a global standard of proof. … IUCN's decisions in relation to this aspect are based on comparison with properties previously inscribed by the World Heritage Committee under this criterion and, to the extent possible, they also involve a comparison of measurable indicators of scenic value (UNESCO 2005: 35-36).

Each of these statements reflects what has subsequently been adopted as the current IUCN's interpretation of criterion (vii) and was included later in the *Preparing World Heritage Nominations* resource manual, as mentioned in section 2.1.

Also in 2005, from 24 to 28 November, a meeting was held at the International Academy for Nature Conservation, Isle of Vilm, Germany, which also reflected on the application of criterion (vii) amongst other issues. Participants at this meeting,

> noted that 'aesthetics' is a personal and emotionally based response (not just visual but including a range of senses and associative responses), and therefore the concept is rooted in a community/culture. It was recognized that application of this criterion has been previously mainly descriptive and often using a 'eurocentric' approach, and that there is a need to provide better guidance on its understanding and application (IUCN 2005: 9).

In addition, the participants took a different perspective from that expressed at the La Vanoise meeting in 1996 and noted that only a few natural properties (6 at that time, there are now 9) had been inscribed on the basis of criterion (vii) alone. It was considered that this criterion "carries the same weight as any other criterion and it needs to be considered and understood with reference to article 2 of the Convention (IUCN 2005)". The different reflections presented show that while no consensus existed on how to apply criterion (vii), concerns were mostly related to the difficulty in assessing 'natural beauty' whereas 'superlative natural phenomena' seemed to raise no particular issues.

Contributions from meetings like the ones in Vilm and Kazan but also others not mentioned here that were part of the extensive revision process of the Operational Guidelines, were incorporated in the version adopted by the World Heritage Committee in 2005. One of the most significant changes introduced was the combination of the cultural and natural criteria into one single set based on the renumbering of natural criteria from N(i) to N(iv) to (vii) to (ix) following cultural criteria (i) to (vi). This combination also comprised a reordering of the natural criteria with N(iii) [now (vii)] to the position of the first of the natural criteria immediately following the first six cultural criteria.

2.4. Summary of findings and observations

The wording for criterion (vii) in the Operational Guidelines was modified several times over the years, with the most notable change in 1994; since then the text has remained unchanged.

The current interpretation of this criterion described in the 2011 edition of *Preparing World Heritage Nominations* resource manual (UNESCO 2011b) provides some basic guidance, namely by clearly stating that criterion (vii) includes two distinct ideas: (1) superlative natural phenomena and (2) exceptional natural beauty and aesthetic importance; and that nominations of new sites proposed under this criterion can address one or the other of these ideas or both. The resource manual also states that superlative natural phenomena can be objectively measured – but provides no further information as to how and from what value point of view – and that exceptional natural beauty and aesthetic importance can be more difficult to assess therefore recommending using current scholarship and recognized assessment approaches to support the justification. It further states that merely asserting a property has aesthetic qualities without a robust supporting argument is insufficient – but again, like for the first idea within the criterion, further explanations are not provided in the current guidance.

The resource manual indicates that IUCN has also noted that the application of criterion (vii) has normally been considered in conjunction with at least one other natural criterion. This statement, however, seems to reflect the past application of this criterion without providing a clear view as to its use in the future only in conjunction with other criteria (as it is the case of the application of criterion (vi)). This possibility was considered in the meetings at La Vanoise in 1996 and in Vilm in 2005 with opposite views (UNESCO 1996; IUCN 2005). In the latter, it was considered that criterion (vii) carries the same weight as any other criterion and it needs to be considered and understood in relation Article 2 of the World Heritage Convention that clearly refers to natural beauty. The manual also indicates that exceptional natural beauty and aesthetic importance must be supported by clear evidence and rigorous intellectual analysis and should not be confused with the recognition of the aesthetics of cultural properties and cultural landscapes that is currently expressed through the use of the cultural criteria. The manual further adds that the comparative analysis needs to be of global scope.

There is a reference in the resource manual that the present study will be developed to provide further advice on the application of criterion (vii), recognizing that the information in the manual can be expanded to provide additional guidance and that several challenges remain. The findings show four key challenges in the application of criterion (vii):

a) assessing how superlative natural phenomena can be objectively measured and assessed and clarifying values that are conveyed;

b) assessing natural beauty and aesthetic importance using recognized approaches that are systematic, rigorous and transparent;

c) conducting a comparative analysis in a global context based on a structured framework equivalent to that used for other natural criteria; and

d) clarifying the relationship between aesthetic values represented in criterion (vii) with aesthetic considerations in the application of cultural criteria.

Therefore the following chapters examine the case history and established practice in the application of criterion (vii) and relevant research in related fields to identify ways to address these challenges.

3. Case history of natural and mixed properties inscribed on the World Heritage List under criterion (vii)

The following sections review the current status of natural and mixed properties inscribed on the World Heritage List on the basis of criterion (vii), most commonly in combination with other natural or cultural criteria. The first section provides an overview of criterion (vii) alongside other natural criteria and identifies some of the frequent combinations of natural criteria found across all properties on the World Heritage List. A similar analysis is then made for the 133 properties inscribed with criterion (vii) and identifies some patterns in the more recent use of this criterion. The combinations of criteria used for inscriptions for all 133 properties are compared with those for the 88 inscriptions between 1978 and 1994 and with the 45 properties inscribed after 1995.

The following section looks more closely at the 45 properties inscribed since 1995, after the last wording change to criterion (vii) (see discussion in section 2.2). This review examines the use of criterion (vii) in combination with cultural criteria in the case of mixed properties, its use alone and finally the relationship between the two ideas imbedded in criterion (vii). Findings from these reviews are summarized at the end of this chapter.

3.1. Overall use of criterion (vii) in the inscription of World Heritage properties

As of December 2012, there are 133 properties inscribed on the World Heritage List on the basis criterion (vii) generally in combination with other natural or cultural criteria (see Annex 1). Nine properties are inscribed with only criterion (vii). Of the 133 properties, 110 are natural properties and 23 are mixed properties.

This section presents a series of analyses of the use of criterion (vii) over time. These analyses are based on data as of 2012 but are modeled after those prepared by IUCN in 2008 and published in its manual on *Outstanding Universal Value: Standards for Natural World Heritage* (Badman et. al. 2008).

It is important to note that it is useful to compile information on all 133 properties inscribed with criterion (vii) to obtain an overview of its application. Even so, these analyses should be viewed with the knowledge that properties inscribed at different times represent different wording of the criterion (see section 2.2). Also it should be noted that certain concepts (including the very notion of heritage) have evolved over time and, that for more detailed information of the evaluation and inscription process (including IUCN's recommendations and the World Heritage Committee's decisions) it is necessary to refer to the original documents (for such information please see http://whc.unesco.org/en/list/).

Figure 3.1 shows the overall numbers of times each natural criterion has been used in relation to all the natural and mixed properties currently inscribed on the World Heritage List. From this figure it can be seen that the most frequently used criteria are criteria (vii) and (x) (which was also the case in 2008, see Badman et. al. 2008:7, Figure 3).

Figure 3.2 illustrates the distribution over the years (1978 through 2012) of the 133 properties that have been inscribed in the World Heritage List under this criterion to date, most commonly in association with other criteria.

Figure 3.1: Use of natural World Heritage criteria in natural and mixed properties

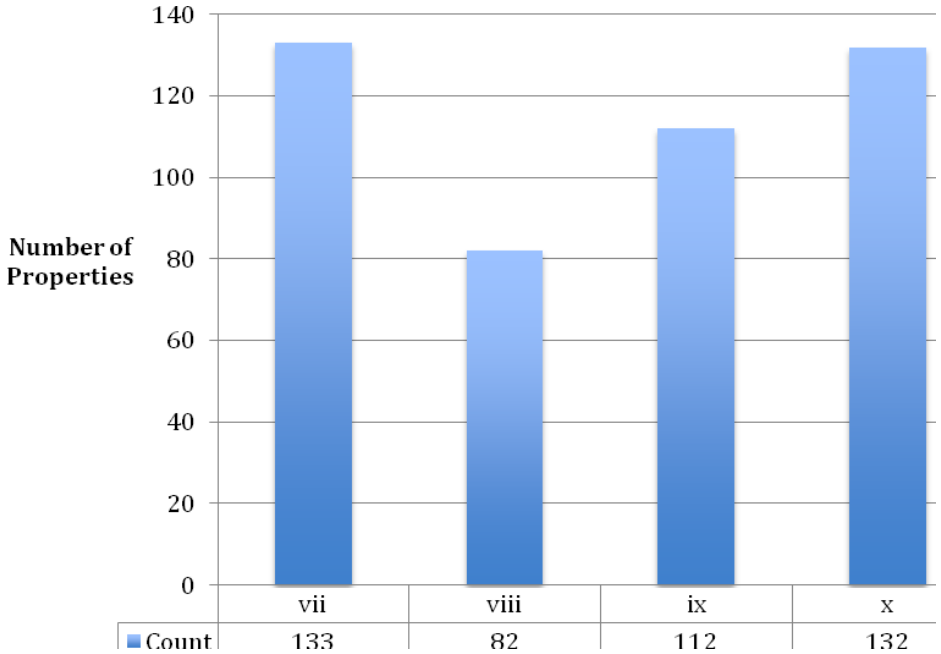
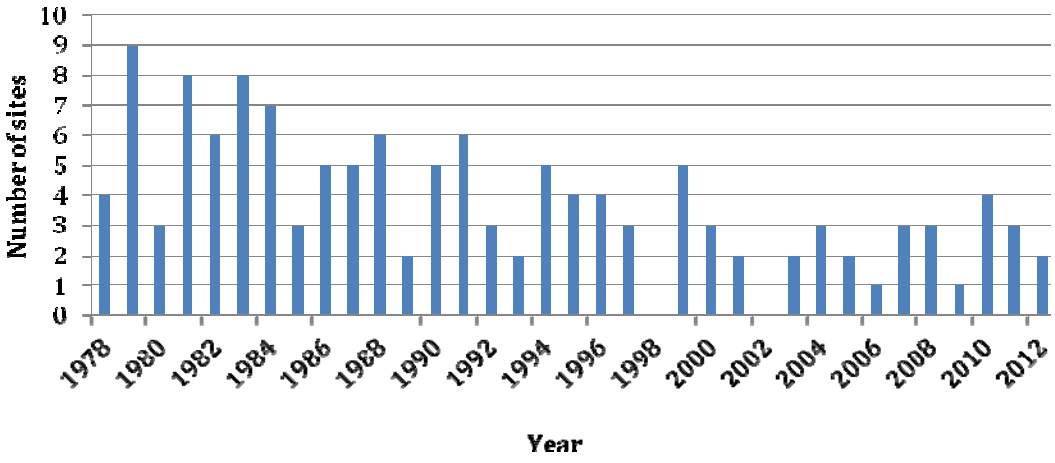


Figure 3.2: Trends in the use of criterion (vii) for World Heritage inscriptions between 1978 and 2012.



The general downward trend in the use of criterion (vii) illustrated in Figure 3.2 aligns with the findings in Badman et al. (2008). Based on a similar chart (with 2007 data) and other analyses on the change in use over time of each natural criterion, they observed that,

> the overall trend with time has been to see a decrease in the use of criterion vii within inscriptions. In the view of IUCN this is partly because this criterion is most strongly

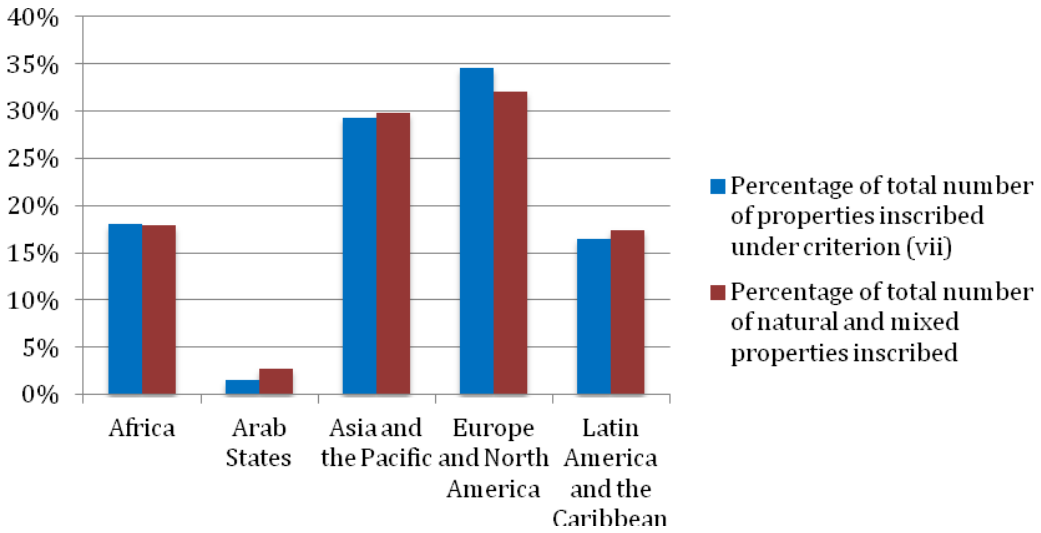
associated with the iconic sites that were the early preoccupation of the Convention. Such sites have established a general level of value that is difficult to match, and thus comparative analysis is more likely to conclude that existing properties on the World Heritage List exceed a new nomination in their demonstration of this value (Badman et. al. 2008).

The observation in Badman et al. (2008) that criterion (vii) remains an active part of new inscriptions to the List is still valid; there has been an average of two properties meeting this criterion each year since 2000. This trend may continue, as a review of the Tentative Lists (as of August 2012) indicates there are 251 properties from 95 States proposed under criterion (vii).

Figure 3.3 compares the use of criterion (vii) per region in relation to the total number of natural and mixed properties included on the World Heritage List. The findings show that the use of criterion (vii) follows the same trends as the overall percentage of properties inscribed per region. Thus, it can be said that evidence shows that there is no overall preference on the use of criterion (vii) for a particular region.

Figure 3.4 illustrates the numbers of instances of the use of different combinations of natural World Heritage criteria across all properties. This shows that inscription with the combination of criteria (ix) with (x) is significantly more common than all other combinations. However, criterion (vii) in combination with (viii); (vii) with (x); and (vii) with (ix) and (x) are also relatively common, with 20 or more occurrences each. The use of (vii) with (viii), (ix) and (x) is also relatively common with 18 occurrences.

Figure 3.3: Use of criterion (vii) per region in relation to the total number of natural and mixed properties



During the two phases identified based on the shift in the wording of criterion (vii) (see section 2.3), during Phase 1: 1978-1994, in total, 88 properties were inscribed whereas 45 properties were inscribed during Phase 2: 1995-2012. These numbers show that while the period of time

considered for both phases is approximately the same, 17 and 18 years respectively, the total number of inscriptions is nearly half in Phase 2 relative to Phase 1.

Figure 3.4: Combinations of natural criteria used in inscriptions of all natural properties.

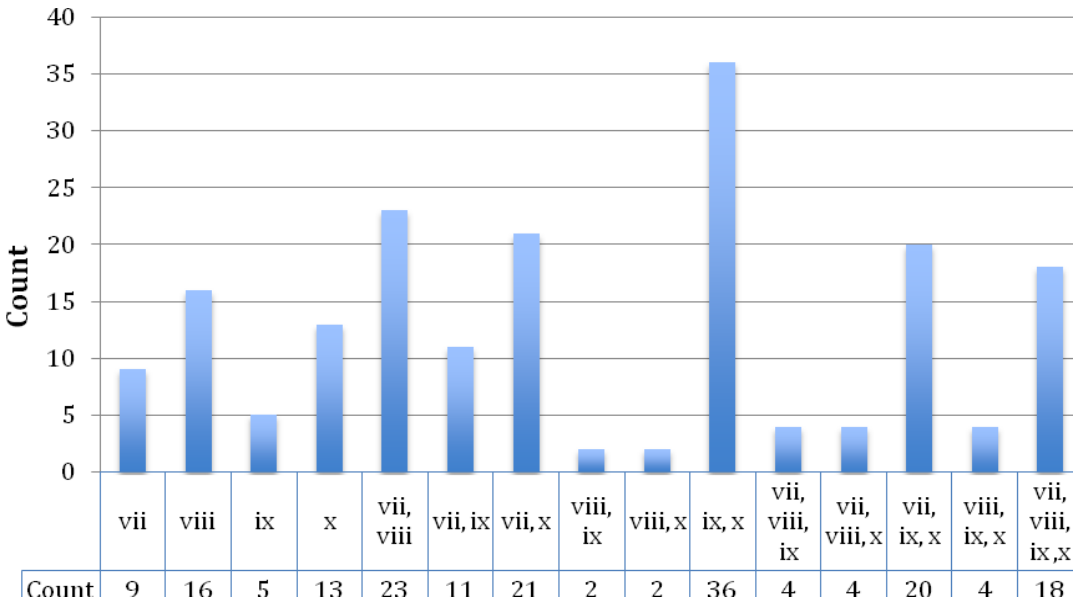
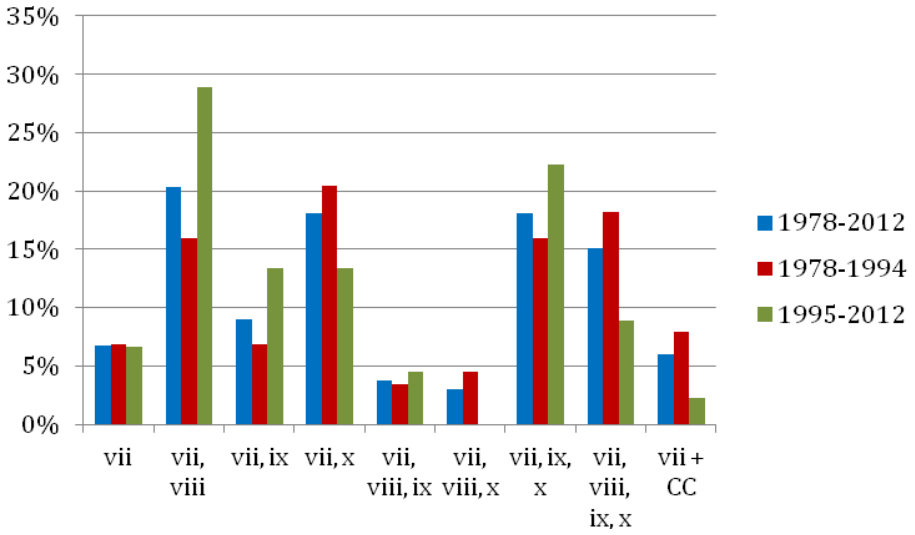


Figure 3.5 provides an analysis based on the different combinations of criteria but this time compared to the two subsets based on the evolution of the wording of the criterion.

Figure 3.5: Combinations of criteria used (shown on x-axis) between 1978-2012 compared to percentages used between 1978-1994 and between 1995-2012.



Note: “vii and CC” indicates (vii) as the sole natural criteria used on in combination with one or more cultural criteria in mixed properties.

The comparisons in Figure 3.5 show that the percentage of properties inscribed by criterion (vii) only has remained consistent. In contrast, the percentages of properties with different combinations of criteria have not remained consistent.

Combinations such as (vii) and (viii), (vii) and (ix) and (vii), (ix) and (x) have retained their relatively high occurrence in general compared to other sets of combinations but, when compared between the different phases, considerable differences occurred. In the second phase (1995-2012), the combination between (vii) and (viii) was the most used most frequently with almost 30% of the total number of inscriptions. Similarly, there were marked increases in the use of the combination with (vii) and (ix) and with (viii), (vii) and (ix). On the other hand, there were marked decreases in the second phase in the use of combinations with (vii) and (x) – even if the total numbers for this combination remained high - with (vii), (viii) and (x), with the combination using all four natural criteria, and the use of criterion (vii) alone with other cultural criteria. This illustrates that criterion (vii) has been used in various combinations with other natural criteria.

3.2. Review case history for natural and mixed World Heritage properties inscribed between 1995-2012

The previous section reviewed the patterns and trends in the use of criteria across all properties then on the 133 properties inscribed with criterion (vii) between 1978 and 2012. Following these general comparisons, this section provides a more detailed review focusing on the 45 properties inscribed between 1995 and 2012. These 45 properties represent a good cross section with 39 natural properties (3 inscribed with (vii) only) and 6 mixed properties (see Annex 1 for the list of properties inscribed on the World Heritage List using criterion vii).

This review first examines the application of criterion (vii) in the inscription of mixed properties, followed by a similar analysis on the use of the criterion alone. Then it looks at how the two ideas identified within the wording of criterion vii, that of superlative natural phenomenon and exceptional natural beauty and aesthetic importance, have been applied. This part of the review is supported by references of the nomination files, IUCN's evaluation reports and World Heritage Committee's decisions (hereafter referred to as statutory documents) to understand the relationship between these two ideas and also to review the current approach to application of criterion (vii). The chapter concludes with a summary of the key findings.

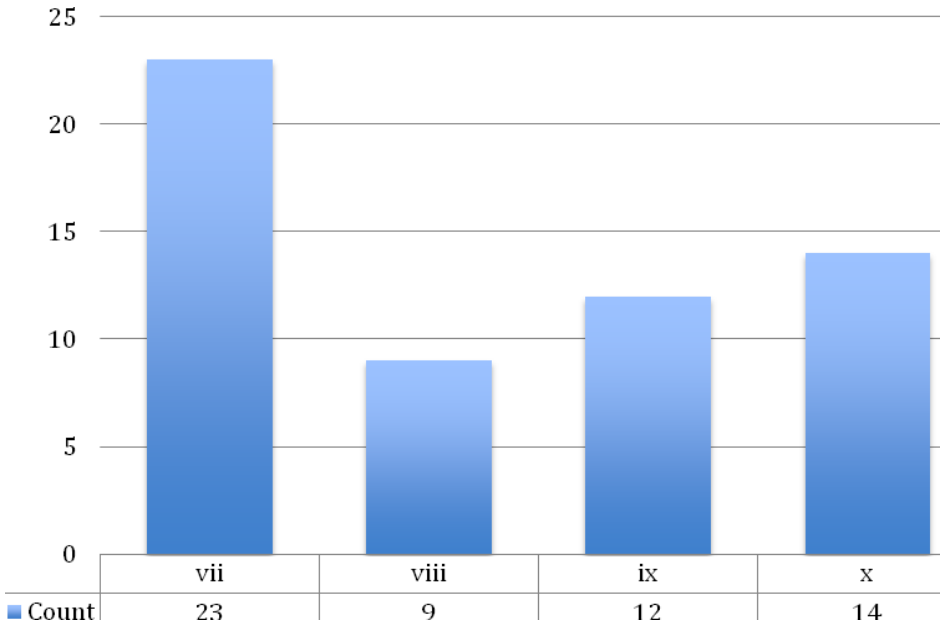
3.2.1. Use of criterion (vii) in the inscription of mixed properties

Figure 3.6 illustrates the use of natural criteria in inscriptions of mixed World Heritage properties. This analysis demonstrates that criterion (vii) has been used much more frequently in mixed property inscriptions than any of the other natural criteria; 23 (79%) of 29 mixed property inscriptions use criterion (vii) and 8 of the 23 include (vii) as the sole natural criterion. Most of these mixed properties (17 of the 23) were inscribed on the List prior to 1995; only 6 mixed properties have been inscribed since 1995 and only 1 property with (vii) as the sole natural criterion (Wadi Rum Protected Area, Jordan). This may reflect the change in wording in criterion (vii) in the Operational Guidelines of 1994, that omitted the reference to combinations of natural and cultural elements (see Table 2.1 in section 2.2).

A review of the 6 mixed properties inscribed under criterion (vii) since 1995 is useful, particularly since during that time, the criteria have been combined into a single set in 2005 and criterion (vii) is juxtaposed to criterion (vi). Although these two criteria represent different sets of values, their juxtaposition has often created confusion. First, criterion (vi) has restrictions put on its use

alone as the World Heritage Committee considers that this criterion should preferably be used in conjunction with other criteria. A similar approach has been suggested for criterion (vii) as seen in section 2.3 but no such decision has been formally adopted by the Committee. Second, criterion (vii) refers to natural beauty, which requires an application that goes beyond a purely scientific justification. However, as seen before, criterion (vii) derives from Article 2 of the World Heritage, which defines what is to be considered as natural heritage. Challenges in assessing criterion (vii) in a structured and transparent way comparable to that used for other natural criteria should not be confused with other issues related to the identification of natural and cultural heritage and their interaction, which requires a different discussion.

Figure 3.6: Use of natural criteria in mixed properties.



The analysis of the statutory documents of the 6 mixed properties being considered indicates that the natural and cultural values of some properties remain quite distinct. For example, at uKhahlamba /Drakensberg Park, South Africa (i, iii, vii, x - 2000), IUCN considered that the property met criterion (vii) for its "outstanding aesthetic value. Soaring basaltic buttresses, incisive dramatic cutbacks and golden sandstone ramparts all contribute to a spectacular environment (IUCN evaluation 2000)". The property was also inscribed under criterion (x) for containing significant natural habitats for in-situ conservation of biological diversity and its outstanding species richness, particularly of plants (bis). In terms of the cultural values, justifications used for the application of criteria (i) and (iii) are related to the largest and most densely distributed rock art group in Africa in the many caves and rock shelters in this mountainous area. The rock art represents the artistic expression of the San people, over a period of 4000 years which throws much light on their way of life and their beliefs (ICOMOS evaluation 2000). While these natural and cultural values co-exist on the property, there is not a strong relationship between the two; the attributes that convey the cultural values are distinct from those contributing to the aesthetic value.

In other cases, there are cross-relationships among the natural and cultural values. That is, in these cases, part of the attributes that convey the natural beauty and aesthetic importance are also important attributes in defining the cultural values. In the cases of Mount Wuyi, China (iii, vi, vii, x- 1999) and Wadi Rum Protected Area, Jordan **(**iii, v, vii – 2011), the visual character of the natural environment, included natural features contributing to the values identified under criterion (vii) may also have contributed to the cultural use or settlement of the area.

At Mount Wuyi, "The case for criterion (iii) is also strong with respect to the features in the eastern scenic zone, especially the riverine landscape of Nine-Bend Stream (lower gorge). Rugged rock monoliths are a feature of other natural sites… but Mount Wuyi is exceptional in its juxtaposition of smooth rock cliffs with clear, deep water (IUCN evaluation 1999)". ICOMOS, in their evaluation, noted that,

> the cultural landscape along the Nine Bend River and on the mountain is one of great beauty, and it contains a group of religious and academic buildings, many in ruins, attracted there because of the beauty and tranquility of the natural landscape. Its qualities were recognized as early as the 8th century AD, when measures were introduced to ensure their continuance….
>
> The landscape in the eastern zone is of considerable cultural interest…. However, its significance lies principally in its undeniable natural beauty, and as such it is better covered by natural criterion iii [now (vii)] (ICOMOS evaluation 1999).

ICOMOS evaluation report is not conclusive of their final assessment on the application of criteria and refers that a final recommendation will be considered after receiving additional documentation from the State Party. The World Heritage Committee's decision however, states that the property is inscribed under "Criterion (iii): Mount Wuyi is a landscape of great beauty that has been protected for more than twelve centuries (World Heritage Committee 1999)". In this case, the aesthetic character of the natural landscape served as an impetus for the use of the area that resulted in the associated significant cultural values.

In other cases, reference has been made to visual cultural elements on the landscape as contributing - or not negatively impacting - the aesthetic quality of the properties. For example, in the Laponian Area, Sweden (iii, v, vii, viii, ix – 1996). IUCN's evaluation related to criterion (vii) notes that

> [This area within the Arctic Circle, has a] great variety of natural phenomena of exceptional beauty. The snow-covered mountains in Sarek and Sulitelma are not only magnificent to see but are a textbook of glacial-related geomorphology. The large alpine lakes in Padjelanta, with the mountain backdrop on the Swedish/Norwegian border are of exceptional beauty….The existence of the Saami culture ranging from the traditional birch and turf kata to contemporary cabins adds to the aesthetic value of the site (IUCN evaluation1996).

In summary, these examples illustrate that in some cases, certain attributes can convey different cultural and natural values. They also raise a question regarding the potential contribution of certain cultural features that have visual landscape presence to the evaluation of criterion (vii) on mixed properties, as in the case of the Laponian area. In addition, the particular case of Mount Wuyi raises a question regarding the relationship between the recognition of aesthetics within the cultural criteria and the concept of natural beauty, recognized under criterion (vii). Chapter 5, developed by ICOMOS, explores these issues and responds to one of

the key challenges identified in chapter 2 on the need to clarify the relationship between values represented in criterion (vii) with aesthetic considerations in the application of cultural criteria.

3.2.2. Use of criterion (vii) alone

The use of criterion (vii) alone has continued to be limited with nine total inscriptions, six during the first phase and only three inscriptions since 1995. As there has been some concern with criterion (vii) being used as a sole criterion (see section 2.3), so a brief review of these nine properties may be useful. In 1979, Sagarmatha National Park Parc national de Sagarmatha (Nepal) was one of the first two3 properties inscribed under criterion (vii) only, based on IUCN's assessment that "without question… [Sagarmatha was] a superlative natural phenomenon of exceptional natural beauty…As the highest point of earth's surface, Mt. Everest (Sagarmatha) and its surroundings are of major significance not only to Nepal, but to the whole word" (IUCN evaluation 1979). IUCN's evaluation report also noted that this property "satisfies the criterion where natural and cultural elements are found in exceptional combinations… The area is of major religious and cultural significance…and also is the homeland of Sherpas whose way of life is unique, compared to other high altitude dwellers (bis)" Similarly, Kilimanjaro National Park (Tanzania) inscribed in 1987, was inscribed under (vii) as "the largest single-standing mountain in the world… [therefore considered as] a superlative natural feature, its snow-capped peak standing almost 5 km from the surrounding plains " (IUCN evaluation 1987).

In 1992, three properties in China were inscribed with (vii) alone: Huanglong Scenic and Historic Interest Area, Jiuzhaigou Valley Scenic and Historic Interest Area, and Wulingyuan Scenic and Historic Interest Area. All three were also nominated under criterion (x) but because of the lack of data on the conservation status of wildlife species an assessment at that time could not be made of the applicability of this criterion. In the case of Huanglong, IUCN's evaluation states that "Huanglong valley with its series of travertine lakes, waterfalls, forests and mountain scenery is a superlative natural property" (IUCN's evaluation 1992). Similarly, for Jiuzhaigou Valley, IUCN considered that "With its 108 lakes, numerous waterfalls and forests set in spectacular mountain scenery, the site clearly [met] criteria (iii) [now (vii)]" (IUCN's evaluation 1992). In the case of Wulingyuan, IUCN's evaluation was that "Wulingyuan has undeniable natural beauty with its spectacular jagged stone peaks, luxuriant vegetation cover and clear lakes and streams" (IUCN's evaluation 1992).

In 2008, the Monarch Butterfly Biosphere Reserve (Mexico) and Mount Sanqingshan National Park (China) were also inscribed with only criterion vii. IUCN's evaluation of the Monarch Butterfly Biosphere Reserve considered that,

> The overwintering concentration of the monarch butterfly in the nominated property is a superlative natural phenomenon. The monarch butterfly migration is considered the classic example of two-way insect migration, involves millions of individuals, and is as long as or longer than that any other insect migration. Of many insect migrations none

[3] The other property was Białowieża National Park (Poland). In 1979, IUCN's evaluation considered that on its own the property should not be included on the World Heritage List but that a case could be made if it included the Belovezhskaya Pushcha in Belarus. The property was nevertheless included on the List and there is no justification in any statutory document as to why. In 1992, the property was extended in to include Belovezhskaya Pushcha State National Park (Belarus) and renamed Belovezhskaya Puschcha/ Białowieża Forest (Poland/Belarus) as a biologically rich and largely undisturbed forest with free-ranging herd of European bison. Due to the particular circumstances of this inscription, this property is thus not fully considered in the present review.

> compares with that of the monarch butterfly in terms of length, regularity, singularity and visibility on site (IUCN evaluation 2008).

Mexico nominated the property under criterion (x) as well but IUCN considered that "at the global level, the nominated property is not one of the most important and significant areas for the in-situ conservation of biodiversity and threatened species (bis)".

In the evaluation of Mount Sanqingshan (China), IUCN determined that the property met criterion (vii) because the "remarkable granite rock formations combined with diverse forest, near and distant vistas, and striking meteorological effects to create a landscape of exceptional scenic quality [and that] the most notable aspect is the concentration of fantastically shaped pillars and peaks" (IUCN evaluation 2008). Similar to the three properties inscribed in 1992, China also nominated Mount Sanqingshan under criteria (viii) and (ix) but IUCN considered that the proposed property did not meet these two criteria.

Similarly, the Lakes of Ounianga (Chad), inscribed in 2012, were initially proposed under criteria (vii) and (viii). IUCN evaluation considered that the property met criterion (vii) as it

> represents an exceptional example of permanent lakes in a desert setting, a remarkable natural phenomenon which results from an aquifer and associated complex hydrological system which is still to be fully understood. ….[it] also displays a range of striking aesthetic features, with varied coloration associated with the different lakes and their vegetation, and the presence of dramatic natural desert landforms that all contribute to the exceptional natural beauty of the landscape (IUCN evaluation 2012).

On the other hand, IUCN was of a different view in relation to the application of criterion (viii) considering that

> some of the lakes in Ounianga (in particular Lake Yoan - Ounianga Kebir) have a continuous and undisturbed sedimentation from the Holocene, providing a unique source of information on the recent paleoclimate of the Saharan region. However, these features are both of specialized interest and of regional significance rather than a basis for defining Outstanding Universal Value. The geomorphological values of the property are able to be recognised via inscription under criterion (vii) (bis).

While early inscriptions such as Sagarmatha and Mount Kilimanjaro can be said to be iconic properties and seem to have been assessed as meeting criterion (vii) based mostly on a measurable dimension as a starting point. In these cases, Sagarmatha[4] was assessed as the highest point of earth's surface and Kilimanjaro as the highest mountain in Africa and the largest[5] single-standing mountain in the world. This approach is in line with the present guidance included in the *Preparing World Heritage Nominations* resource manual, in which superlative natural phenomena can often be objectively measured and assessed as in the deepest canyon or the highest mountain. In the case of the Monarch Butterfly Biosphere Reserve, it is the overwintering concentration of the monarch butterfly that occurs on the property that is considered a superlative natural phenomenon. However, this concentration is part of the monarch butterfly migration that is as long or longer than any other insect migration. Thus the justification used for meeting criterion (vii) also involves a measurable dimension.

[4] Sagarmatha is the Nepali name for Mount Everest.
[5] The choice of the adjective reflects the wording used in IUCN's evaluation.

In the case of Lakes of Ounianga, there is no such explicit reference to such measurable dimension in IUCN's evaluation of the application of criterion (vii), however, in the part on comparisons with other areas, it is stated that

> the nominated property is the largest known lake complex in a hyper arid environment, with lakes of various water volumes, structure and composition (including saline, hyper saline and freshwater lakes). All these features support the recognition of the nominated property as a superlative natural phenomenon: one of the components of criterion (vii) (bis).

This confirms that for all properties included on the World Heritage List under criterion (vii) only with clear references to 'superlative natural phenomena', the assessment was based to some degree on a measurable dimension

The other properties inscribed under criterion (vii) only, which, in IUCN's evaluations do not have clear references that they contain superlative natural phenomena, are all located in China. The analysis in the evaluation reports of these properties clearly show that they were recommended for their natural beauty and aesthetic values.

Aesthetic values were equally recognized in the justifications given for the application of criterion (vii) in the cases of Sagarmatha National Park, the Kilimanjaro National Park, the Monarch Butterfly Biosphere Reserve and the Lakes of Ounianga. For instance, in the latter the justification refers to 'a range of striking aesthetic features' and 'the exceptional natural beauty of the landscape'. Similarly, Sagarmatha is described as 'a superlative natural phenomenon of exceptional natural beauty'. For Kilimanjaro and the Monarch Butterfly Reserve, such references are not as evident but part of the wording used implies a degree of aesthetic considerations. In these cases, however, the recognition that the properties also have certain aesthetic values does not seemed to be the main reason for the application of criterion (vii) but rather is used as a complement to the superlative natural phenomena. However, the wording used in the justifications given for the application of criterion (vii) is unclear, if the property contains superlative natural phenomena or it has exceptional beauty or both. For this reason, the next section explores the relationship between the two ideas imbedded in criterion (vii).

3.3. Relationship between 'superlative natural phenomena' and 'exceptional natural beauty and aesthetic importance'

As mentioned in section 2.1, IUCN currently interprets the definition of criterion (vii) as including two distinct ideas: (1) superlative natural phenomenon and (2) exceptional natural beauty and aesthetic importance – and that properties can meet this criterion by addressing either one or the other or both.

Findings from the review of the 45 properties inscribed since 1995, 16 were inscribed for their exceptional natural beauty and aesthetic importance and 23 properties considered were linked to the idea of superlative natural phenomena but they also included reference to aesthetic values.[6] In the remaining 6 properties it is unclear or there is not enough information to determine why it was considered that the properties met criterion (vii). This might be because

[6] These figures are based on the analysis of the justification given for the application of the criterion but also in the comparison with other areas in IUCN's evaluation reports.

the statement used is very general or because IUCN recommended that the property should be deferred.

As the two ideas have often been considered jointly, therefore, it is important to examine how each of the two ideas have been approached separately then look at how they have been used in combination.

3.3.1. Superlative natural phenomena

As already mentioned, there are references to superlative natural phenomena in the IUCN evaluation reports of 23 properties inscribed under criterion (vii) since 1995 – and some references are clearer in some files than in than others. In fact, the review of the nomination files of these respective properties showed that there were only a few cases where State Parties proposed the property met criterion (vii) because it contained superlative natural phenomena and described the phenomena. These properties were: iSimangaliso Wetland Park (South Africa), Ilulissat Icefjord (Denmark); Monarch Butterfly Biosphere Reserve (Mexico); Kenya Lake System in the Great Rift Valley (Kenya); Lakes of Ounianga (Chad); and Ningaloo Coast (Australia). Most of these were related to animal concentrations and migrations but also to other biological and geological processes.

In a few files, however, the justifications given do not clearly explain what natural phenomenon is being considered and most importantly as to why it is superlative. For instance, in the evaluation of the Pyrénées – Mont Perdu, France and Spain (iii, iv, v, vii, viii – 1997, 1999), it is mentioned that "Although its natural features are evident in many other mountain regions, the central portion of the Pyrénées has a combination of dramatic alpine natural phenomena" (IUCN evaluation 1997), without any further explanation. Likewise, in the Desembarco del Granma National Park, Cuba (vii, viii – 1999), the justification reads that the property "contains superlative natural phenomena and areas of exceptional natural beauty and aesthetic importance (IUCN evaluation 1999)" but the rest of text relates only to natural beauty.

The finding also showed that while there is no clear definition to what shall be considered as 'superlative natural phenomena', the term generally refers to impressive or dramatic expressions of natural features and natural processes which possess scientific and/or aesthetic values.

Biotic components: high animal concentrations and large migrations

Biotic components and, in particular, high animal concentrations and large migrations, are often recognized as superlative natural phenomena. In addition to the already mentioned cases of the Monarch Butterfly Biosphere Reserve (Mexico), inscribed under criterion (vii) alone or the Kenya Lake System, there are other examples such as the Gunung Mulu National Park, Sarawak, Malaysia (vii, viii, ix, x – 2000) inscribed based on the justification for criterion (vii) as,

> With its deeply-incised canyons, wild rivers, rainforest-covered mountains, spectacular limestone pinnacles, cave passages and decorations, Mulu has outstanding scenic values. The natural phenomenon of millions of bats and swiflets leaving and entering the caves is a superlative wildlife spectacle as is the less-easily appreciated life of the invertebrate world in the (IUCN evaluation 2000).

It is important to recall that, in the early versions of the wording of criterion (vii) (see Table 2.1), there were specific references to 'spectacles presented by great concentrations of animals',

thus the above examples confirm that this aspect has always been present in the application of the criterion (vii) over time.

Biological and geological processes

In iSimangaliso Wetland Park, South Africa (vii, ix, x – 1999) three natural phenomena were judged outstanding in this property; two relate to the concentrations of species. The other phenomenon identified involves "shifting salinity states within St. Lucia that are linked to wet and dry climatic cycles. The lake responds accordingly with shifts from low to hyper-saline" (IUCN evaluation 1999). This statement points to the recognition of other processes than animal concentrations. The Lakes of Ounianga (Chad) are another case, whose complex underwater hydrological system (which is still to be fully understood) was at the basis of the recognition of the property as a superlative natural phenomenon. Animal concentrations and migrations nevertheless remain the most recognized processes as being superlative natural phenomena.

Natural features

The review of the statutory documents also shows that superlative natural phenomena can include striking natural features or combinations of features. Sagarmatha and Kilimanjaro, as examined in section 3.2.2, were considered as superlative natural phenomena based mostly on the justifications that the first is the highest point on Earth and the second is the highest mountain in Africa and the highest free-standing mountain in the world. Likewise, Lake Baikal, Russian Federation (vii, viii, ix, x – 1996) is one of the world's major lakes in terms of size and volume in comparison to many millions of natural freshwater lakes around the world. IUCN when comparing the property with other areas considered that,

> It is the sixth largest [lake] in the world in terms of surface area but the largest in terms of volume of freshwater. It is also the oldest (25 million years) and deepest (1700 m) of the world's lakes (The age of most other lakes on earth rarely exceed 30,000 years). It is also one of the world's most biologically diverse lakes with 1500 species of aquatic organisms living in the Lake, 80% of them endemic (IUCN evaluation 1996).

The justification used for criterion (vii), was

> The picturesque landscape surrounding the [Lake Baikal] depression with mountains, boreal forests, tundra, lakes, islands and steppes provide an exceptionally scenic setting. The single largest reservoir of freshwater on earth (20% of the world's total) is found here which is an additional superlative phenomenon (bis).

The analysis of the justifications given for the application of criterion (vii) shows that there are only a few examples where a claim was made that any measurable attribute was the world's record. Examples include references to: Angel Falls in Canaima National Park (Venezuela), the highest waterfall on Earth; Lake Baikal (Russian Federation), the deepest freshwater lake; Mt Sagarmatha (Nepal), the tallest peak. More often, wording has been more cautious, indicating that a property contains 'one of the largest, highest, deepest' examples of a particular natural phenomenon. Thus, in the case of Putorana Plateau (Russian Federation) the proposed Statement of Outstanding Universal Value included in the nomination file stated that "Scales and number of waterfalls are impressive (the highest density of waterfalls in Russia and possibly in the world)", but IUCN's evaluation considered that "superlative natural features include an extensive area of layered basalt traps that has been dissected by dozens of deep canyons; countless cold water rivers and creeks with thousands of waterfalls" (IUCN evaluation 2010).

IUCN's evaluation of the Dolomites (Italy) also reads "Some of the rock cliffs here rise more than 1,500 m and are among the highest limestone walls found anywhere in the world (IUCN evaluation 2009)". However, in both cases, those features were considered for their aesthetic importance rather than superlative natural phenomena. Rarely any individual feature measured to be the highest or the largest on Earth has been singled out to justify the inscription.

In the context of this study it is important to note that no single landform, if approached from the genetic perspective, is unique. This is because processes that shape the surface of the Earth are universal and governed by basic principles of physics and chemistry that do not change according to geographical location. Hence, geomorphologists define genetic groups of landforms (Table 3.1) and tend to see similarities rather than differences as it allows more informed research into the origin of the land surface. It was also observed that the visual appearance is not necessarily the key to understanding the origin of physical landscapes, and that landforms looking essentially the same may have had different histories. The concept of equifinality addresses this issue (Thorn, 1988). Consequently, uniqueness of specific landform features is, if analyzed from the point of view of its origin, in general, not sufficient basis to determine Outstanding Universal Value.

Table 3.1: Genetic groups of landforms

Agent of landform change	Process	Resultant landforms (examples)
	Endogenic	
Crustal movements	Tectonic (uplift and subsidence)	fault scarp, mountain front, graben
Volcanism	Volcanic (eruptive)	cinder cone, stratovolcano, trap
	Exogenic	
Changes in rock temperature and water content	Physical weathering	block fields
Chemical reactions between rock and water	Chemical weathering	duricrusts, dissolution pits and flutes
Surface running water	Fluvial	gorges, canyons, terraces, floodplains, waterfalls, potholes
Groundwater movement	Karst, piping	caves, sinkholes
Gravity	Mass movements	talus cones, landslide scars and tongues, terracettes
Wind	Aeolian	dunes, blowholes, yardangs, ventifacts
Ground ice	Frost processes, permafrost	patterned ground, pingo, thermokarst lakes
Moving ice	Glacial	cirques, U-shaped valleys, moraines, erratic boulders, eskers
Waves and currents	Littoral (marine)	cliffs, abrasion platforms, stacks, sea caves, beaches
Plants and animals	Biogenic	coral reefs, termite mounds
Humans	Anthropogenic	open-cast mines, spoil heaps, burial mounds, agrarian terraces

3.3.2. Exceptional natural beauty and aesthetic importance

As indicated previously, in 16 properties the application of criterion (vii) was solely related to their exceptional natural beauty and aesthetic importance. In addition, 23 properties that include references to superlative natural phenomena were also considered to meet criterion (vii) for their aesthetic values, and therefore they also need to be taken into consideration from this point of view.

The aesthetic characteristics of the properties described are primarily visual, as illustrated in the examples below. Even so, there are occasional references to sound such as illustrated in the case of the Monarch Butterfly Biosphere Reserve (Mexico) previously mentioned, or at Ilulissat Icefjord, Denmark (vii, viii – 2004) where "the dramatic sounds produced by the moving ice, combine to present a memorable natural spectacle " (IUCN evaluation report 2004). In addition, some descriptions of attributes also relate to aspects of experiential quality with references to wind and weather or commonly occurring atmospheric conditions that contribute to the property's character but most often it is the visual aspect of it that it considered such as Mount Sanqingshan National Park, China (vii – 2008). Some justifications include references to properties as 'pristine', 'nearly pristine' or 'relatively undisturbed' such as the arctic and boreal landscape of Putorana Plateau, Russian Federation (vii, ix – 2010). Such references can be interpreted as a description of an aesthetic experience in a natural environment with minimal anthropogenic disturbances.

In recent years, there has been an emphasis towards describing simultaneous presence of various natural features of the physical landscape as conveying aesthetic value, as illustrated in the following examples:

- Pitons, cirques and remparts of Reunion Island (France) – "The combination of volcanism, tectonic landslide events, heavy rainfall and stream erosion have formed a rugged and dramatic landscape of striking beauty, dominated by two towering volcanoes, the dormant Piton de Neiges and the highly active Piton de la Fournaise. Other major landscape features include "Remparts" – steep rock walls of varying geological age and character, and so-called "cirques", which can be described as massive natural amphitheatres with an imposing height and verticality. There are deep, partly forested gorges and escarpments, with subtropical rainforests, cloud forests and heaths creating a remarkable and visually appealing mosaic of ecosystems and landscape features (IUCN evaluation 2010)".

- Putorana Plateau (Russian Federation) – "Its superlative natural features include an extensive area of layered basalt traps that has been dissected by dozens of deep canyons; countless cold water rivers and creeks with thousands of waterfalls; more than 25,000 lakes characterized by a fjord-like formation that is associated with a large variation in the relief (IUCN evaluation 2010)".

- Wadi Rum Protected Area (Jordan) – " Wadi Rum is recognised globally as an iconic desert landscape, renowned for its spectacular series of sandstone mountains and valleys, natural arches, and the range of narrow gorges, towering cliffs, massive landslides, and dramatic cavernous weathering forms displayed. Key attributes of the aesthetic values of the property include the diversity and sheer size of its landforms, together with the mosaic of colours, vistas into both narrow canyons and very large wadis, and the scale of the cliffs within the property. The property displays, in a

protected setting, an exceptional combination of landforms resulting from drainage incision, severe weathering by salt, biological, and other processes, and the undermining of steep sandstone cliffs by these weathering processes, together with the world's most spectacular networks of honeycomb weathering features (IUCN evaluation 2011)".

Individual features, because of high number and density especially over relatively limited areas, have also been considered to convey aesthetic values, as in the case of the Rock Islands Southern Lagoon (Palau) with its 52 marine lakes (amongst 200 marine lakes known worldwide). Similarly reference is made to "the concentration of fantastically shaped pillars and peaks" (IUCN evaluation 2008) in Mount Sanqingshan (China) and the "extraordinary array of banded, bee hive shaped cone towers" (IUCN evaluation 2003) of Purnululu National Park (Australia). Other similar examples can also be found in earlier inscriptions, as in the case of the Yosemite National Park (United States of America) inscribed in 1984.

The properties considered are often spectacular physical landscape[7], mainly mountainous and coastal areas as shown in the analysis in Table 3.2. For this analysis four simple categories are considered: mountains, uplands, lowlands and coasts, including islands. They are usually sufficiently different from each other, although the boundary between plateau, mountains and deeply dissected uplands is somewhat arbitrary and some uplands, although at considerable altitude, present a rather low relief of plains. In addition, some properties extend over a few different landscape types, even from coastal zone to the rugged mountains. In such examples, the decision how to classify the property was based on expert knowledge, aided by descriptions of the properties. Thus, although some examples may be disputable, it is believed that this does not affect too much the general review.

The physical landscape consists of a combination of individual landforms (also called natural features). Paradoxically, landforms are not easy to define unambiguously since they occur at a variety of spatial scales, show hierarchy, may overlap or have diffuse boundaries (Evans 2011). Practitioners of geomorphology – "the science that investigates the landforms of the Earth" (Ahnert 1998) – usually define landforms by shape and origin. Examples of landforms include river canyons, floodplains, waterfall steps, isolated hills, upstanding rock formations, coastal cliffs, sea stacks, karst sinkholes and termite mounds (Goudie 2004). Another component of physical landscapes is water. Springs, rivers, oxbows, lakes, marshes, lagoons and an open sea are all landscape elements. Water does not simply coexist with landforms but creates and re-shapes them, being an important factor behind the origin of landforms. Erosion of running water produces gullies, fluvial incision drives the evolution of canyons and gorges, alternating freezing and thawing contributes to the development of blockfields and scree slopes, subterranean dissolution of limestone produces karst landforms and wave attack moulds wave-cut terraces and cliffs. Likewise, glaciers, ice caps and ice sheets do not merely increase the diversity of a physical landscape but actively shape it, even if the process escapes direct observation as it occurs mainly at the base of an ice body. References to these natural features are often mentioned in Statements of Outstanding Universal Value of properties inscribed under criterion (vii).

[7] The term 'physical landscape' for the purpose of this study refers primarily to relief (topography) of the Earth surface, including altitude, slope steepness, texture (e.g. density of erosional dissection), and the presence of water in the landscape (e.g. rivers, lakes, waterfalls, sea water).

Table 3.2 Provisional classification of World Heritage properties inscribed using the criterion (vii) in respect to main types of physical landscape (geomorphological scenery)*

Mountains	Uplands	Lowlands	Coasts and islands
1. Wadi Rum Protected Area 2. China Danxia 3. Pitons, cirques and remparts of Reunion Island 4. The Dolomites 5. Monarch Butterfly Biosphere Reserve 6. Mount Sanqingshan National Park 7. Teide National Park 8. West Norwegian Fjords – Geirangerfjord and Nærøyfjord 9. Tropical Rainforest Heritageof Sumatra 10. Pitons Management Area 11. Three Parallel Rivers of Yunnan 12. Swiss Alps Jungfrau-Aletsch 13. Gunung Mulu National Park 14. uKhahlamba / Drakensberg Park 15. Atlantic Forest South-East Reserves 16. Mount Wuyi 17. Mount Kenya National Park/Natural Forest 18. Pyrénées - Mont Perdu 19. Lake Baikal 20. Laponian Area 21. Volcanoes of Kamchatka 22. Waterton Glacier International Peace Park	1. Kenya Lake System in the Great Rift Valley 2. Putorana Plateau 3. South China Karst 4. Jeju Volcanic Island and Lava Tubes 5. Purnululu National Park 6. Puerto-Princesa Subterranean River National Park 7. Carlsbad Caverns National Park	1. Lakes of Ounianga 2. Pantanal Conservation Area 3. iSimangaliso Wetland Park 4. Virgin Komi Forests**	1. Rock Islands Southern Lagoon 2. Ningaloo Coast 3. Phoenix Islands Protected Area 4. Lagoons of New Caledonia 5. Malpelo Fauna and Flora Sanctuary 6. Islands and Protected Areas of the Gulf of California 7. Ilulissat Icefjord 8. Brazilian Atlantic Islands 9. Desembarco del Granma National Park 10. Macquarie Island 11. Belize Barrier Reef Reserve System 12. Gough and Inaccessible Islands

* It is important to note that the main reasons behind the application of criterion (vii) might be related to other elements than the individual natural features of the physical landscape.
* *Comprises mountains and lowlands.

3.3.3. Relationship between the two ideas

As mentioned in relation to the current interpretation of criterion (vii), a property can meet both ideas within the criterion, that is, it can contain superlative natural phenomena and areas of exceptional natural beauty and aesthetic importance. The analysis of the IUCN evaluation reports shows that some of the more recent justifications provided for the application of criterion (vii) clearly address one or both ideas and, in this case, describe how they are interrelated.

Very often, however, the justifications read as if the two ideas are not distinct but rather represent just one idea and are presented as if their meaning is the same, as illustrated in the following examples:

- Belize Barrier Reef Reserve System, Belize (vii, ix, x – 1996) – "It also meets criterion (iii) [now (vii)] as a superb natural phenomenon with diverse and luxuriant reef growth and spectacular underwater scenery" (IUCN evaluation 1996);

- Laponian Area, Sweden (iii, v, vii, viii, ix – 1996) – "The area meets criterion iii [now (vii)] with its great variety of natural phenomena of exceptional beauty" (IUCN evaluation 1996);

- Jeju Volcanic Island and Lava Tubes, Republic of Korea (vii, viii – 2007) – "The Geomunoreum lava tube system, which is regarded as the finest such cave system in the world, has an outstanding visual impact even for those experienced with such phenomena" (IUCN evaluation 2007).

The review also shows that sometimes references to superlative natural phenomena in the evaluations reports are included in the comparison with other areas but are not used in the justification of the application of the criterion. For example, in the Kenya Lake System in the Rift Valley (vii, ix, x – 2011), in the comparison with other areas, it is stated that "The extremely large numbers of Lesser Flamingos moving between the three components of the nominated property is considered as one of the world's most spectacular wildlife phenomena " (IUCN evaluation 2011); in the justification of criterion (vii) there is reference to this species concentration but it is not explicitly said that it is a superlative natural phenomenon. The Ningaloo Coast, Australia (vii and x – 2011) provides another example; the justification given by IUCN for applying criterion (vii) relates to the aggregations of up to 300-500 Whale Sharks, making this the largest documented aggregation in the world. However, it is unclear if such aggregations were considered as a superlative natural phenomenon or just contributing to the overall natural beauty of the property. In the nomination file, the aggregations of whale sharks were put forward as a superlative natural phenomenon.

In most cases, the two ideas within criterion (vii) – superlative natural phenomena and exceptional natural beauty – are often presented in an interconnected way. The Monarch Butterfly Biosphere Reserve (Mexico), inscribed under criterion (vii) alone is probably the most striking and specific case as to the application of criterion (vii) based on the idea of superlative natural phenomena. Even so, the justification used also points to aesthetic values when it refers to "The millions of monarch butterflies bend tree branches by their weight, fill the sky when they take flight, and make a sound like light rain with the beating of their wings. Witnessing this unique phenomenon is an exceptional experience of nature" (IUCN evaluation 2008).

While clear justifications as to why the property meets one or both of the two ideas within criterion (vii) are rare, over the period considered, IUCN's evaluations have become increasingly

rigorous, better justified and clearer as to why a given property meets criterion (vii). The recent case of the Lakes of Ounianga (Chad) provides a good example where clear references were made as to why the property met both ideas within criterion (vii) even if they are interrelated:

> The nominated property represents an exceptional example of permanent lakes in a desert setting, a remarkable natural phenomenon which results from an aquifer and associated complex hydrological system which is still to be fully understood. The nominated property also displays a range of striking aesthetic features, with varied coloration associated with the different lakes and their vegetation, and the presence of dramatic natural desert landforms that all contribute to the exceptional natural beauty of the landscape of the property. The shape and distribution of the lakes, combined with the effect of the wind moving the floating vegetation in the lakes, gives the impression of 'waves of water flowing in the desert' (IUCN evaluation 2012).

In addition, this justification for criterion (vii) is supported by a comparison with other areas that also addresses both ideas of the criterion.

As the above discussion confirms that although criterion (vii) is currently interpreted as including two distinct ideas, making such a distinction remains a challenge. This example from Lakes of Ounianga (Chad) illustrates a structured approach to the assessment of criterion (vii) that should be considered in future application of criterion (vii).

Values conveyed

The review shows that the focus has mostly been on the aesthetic values of the properties even when superlative natural phenomena are considered. But if, under the current interpretation of the criterion, superlative natural phenomena are a distinct idea from exceptional natural beauty and aesthetic importance then this raises the question of whether they convey different values. The review shows that whereas superlative natural phenomena have been often associated with animal concentrations and migrations, other biological and geological processes have started to be considered as in the case of iSimangaliso Wetland Park (South Africa) and the Lakes of Ounianga (Chad); both of these examples suggest their potential scientific values.

Measurable dimensions

The assessment of natural phenomena, as suggested in the *Preparing World Heritage Nominations* resource manual, can sometimes be based on measurable dimensions but not always. The findings in this chapter confirm that a measurable dimension was considered in the assessment of all the properties inscribed under criterion (vii) alone related to superlative natural phenomena, but for other properties where other criteria were also considered, this was not necessarily the case. Where applicable, this measurable dimension of the criterion was used for comparisons with other similar areas but the justification of the application of the criterion was not necessarily dependent on it. That is, measurements alone cannot fully explain why a property can be considered as having Outstanding Universal Value. Assessing values remains a qualitative assessment. Criterion (vii) is one of the ten criteria for the assessment of Outstanding Universal Value, thus the term 'superlative' needs to be carefully defined in relation to it.

Even if 'superlative natural phenomena' can sometimes be objectively measured or its assessment is based on measurable dimensions, the inclusion of properties containing such phenomena on the World Heritage List should not be misunderstood as a competition towards a

'book of records'. The findings also show that rarely any individual feature measured to be the highest or largest on Earth has been singled out to justify the inscription. Natural properties proposed for inscription need to be considered to have Outstanding Universal Value from the point of view of science, conservation or natural beauty.

Two issues emerge here. Firstly, which natural phenomena may be considered as the basis for assessment of Outstanding Universal Value; second, how to measure and assess whether they are superlative or not. As already mentioned, findings from this chapter showed that natural phenomena can generally be understood to include natural features and processes, but the question remains which phenomena can be considered as 'superlative'. At present, there is no definition available that specifies how the term 'superlative' should be understood in the context of the interpretation of criterion (vii). *Cambridge Advanced Learner's Dictionary* offers the following explanations. First, 'superlative' means that "the thing or person being described has more of the particular quality than anything or anyone else of the same type" (2008: 1463). Second, that this thing or person is "of the highest quality, the best" (bis). The first explanation can be seen in line with IUCN's interpretation that 'superlative natural phenomena' can be objectively measured and assessed, if interpreted as having more of a particular quality than anything else of the same type. The word 'measured' therefore should not be restrictively interpreted as in terms of numbers only. In addition, this explanation is important as it refers to more of a particular quality in relation to anything else of the same type. Such an approach supports the findings that a measurable dimension is often used in IUCN's evaluation reports in the comparison with other areas. Measurable dimensions, particularly in relation to comparisons with similar areas, can be used to support the justification of the application of criterion (vii) but are not the sole element in the assessment of values. This assessment needs to be based on the 'quality' or value identified.

To help clarify this point, it is important to recall the notion of attributes in relation to values. Attributes include the physical elements of the property, and may include the relationships between physical elements, essence, meaning and, at times, related processes, that convey the values of a property. Based on the guidance included in the *Preparing World Heritage Nominations* resource manual, "For natural properties they can be specific landscape features, areas of habitat, aspects relating to environmental quality (such as intactness, high / pristine environmental quality), scale and naturalness of habitats, and size and viability of wildlife populations" (UNESCO 2011b). Comparison of quantifiable measurements of attributes and, in particular physical elements, is possible but a quantifiable measurement of values is not as values are intangible.

For instance, the comparison of the number and density of marine lakes in Rock Islands Southern Lagoon (RISL) (Palau) and in other properties can be done as a quantifiable measurement. IUCN's evaluation in its comparison with other areas mentions that "One measurable aspect of 'superlative natural phenomena' in RISL is the occurrence of marine lakes in high number and density" (IUCN evaluation 2012). The value of the property however that justifies part of the application of criterion (vii) is not that it has 52 marine lakes but that the property is valuable from a scientific point of view because it has the highest number and density of marine lakes in the world. As explained in IUCN's evaluation report of this property, "The physical feature of marine lakes as seawater bodies entirely surrounded by land exhibits biogeographic, ecological, and evolutionary characteristics of 'islands' surrounded by ocean" (IUCN evaluation 2012). The marine lakes were also identified as the main attribute for the application of criterion (ix) as they "represent an outstanding example of how marine ecosystems and communities develop, and make the lakes valuable as "natural laboratories" for

scientific study of evolution and speciation" (bis). Thus the marine lakes convey the scientific value of the property. In addition, the aesthetic values of the property were also recognized.

3.4. Summary of findings and observations

In total, 133 properties (110 natural properties and 23 mixed properties) have been inscribed with this criterion. These properties have usually been inscribed in combination with other natural criteria. Only 9 properties in total were inscribed with criterion (vii) alone and 3 since 1995. Of the 29 mixed properties on the World Heritage List, 23 have used criterion (vii) and of these 8 properties have criterion (vii) as the only natural criterion. Since 1995, only 6 mixed properties have been inscribed and only 1 has (vii) as the sole natural criterion. Overall, the use of criterion (vii) has declined over time, however, it is still the most commonly used criterion for natural sites and there is still an average of 2 properties inscribed with (vii) each year since 2000. In addition, a review of tentative lists indicated that 251 properties from 95 States Parties are considered to potentially meet criterion (vii), so additional nominations are anticipated in the future.

The review of the six mixed properties inscribed with criterion (vii) in combination with cultural criteria since 1995 indicates that the natural and cultural values of some properties remain quite distinct. In other cases, there are cross-relationships among the natural and cultural values, raising the question of the potential contribution of certain cultural elements with visual landscape presence to the assessment of natural beauty within criterion (vii) on mixed properties. In addition, cultural criteria may also recognize aesthetic value on mixed properties and this raises the question of the relationship of the concept of cultural beauty to that of natural beauty, thus additional clarification is needed. These are further explored in chapter 5 developed by ICOMOS.

The analysis of the use of criterion (vii) alone shows that it has continued to be limited with nine total inscriptions, six during the first phase and only three inscriptions since 1995. Five, of the total of nine properties, contain superlative natural phenomena and the justifications used for the application of criterion (vii) were all based to some degree on a measurable dimension. Those justifications also made references to aesthetic values, which seem to derive from the existence of the phenomenon itself. The remaining four properties, all located in China, were inscribed for their exceptional natural beauty and aesthetic importance without any reference to superlative natural phenomena.

The two ideas of 'superlative natural phenomena' and 'exceptional natural beauty and aesthetic importance' are often presented as interrelated and the distinction between the two is often unclear. Over the period considered, IUCN's evaluations have become increasingly rigorous, better justified and clearer as to why the property meets criterion (vii). A more structured approach to the assessment of criterion (vii) that clearly addresses how the property meets just one of those ideas or both should be systematically used in the future, as illustrated by the case of the Lakes of Ounianga (Chad).

The findings also show that the focus has mostly been on the aesthetic values of the properties and primarily on visual character even when superlative natural phenomena are considered. However, if under the current interpretation of the criterion, superlative natural phenomena are a distinct idea from exceptional natural beauty and aesthetic importance, this also implies there may be different values conveyed. The review shows that whereas superlative natural phenomena have often been associated with animal concentrations and migrations, other biological and geological processes have started to be considered, thus indicating scientific

value of certain superlative natural phenomena. In a few cases, and, in particular in older nominations, 'superlative natural phenomena' were also associated with impressive or dramatic expressions of natural features. In the few cases where the State Parties argued in the nominations files that the property met criterion (vii) for containing superlative natural phenomena, the phenomena proposed were all related to processes rather than natural features. This finding demonstrates that 'superlative natural phenomena' has a wider interpretation than what is presently included in existing guidance and indicates they can have scientific values.

The assessment of natural phenomena, as suggested in the *Preparing World Heritage Nominations* resource manual, can sometimes be based on measurable dimensions but not always. The findings in this chapter confirm that a measurable dimension was considered in the assessment of all the properties inscribed under criterion (vii) alone related to superlative natural phenomena, but for other properties, where other criteria were also considered, this was not necessarily the case. Measurable dimensions particularly in relation to comparisons with similar areas can be useful to support the justification of the application of criterion (vii) but are not the sole element in the assessment of values. This assessment needs to be based on the 'quality' or value identified. Therefore, the word 'measured' used in the guidance provided in the *Preparing World Heritage Nominations* resource manual should not be restrictively interpreted as in terms of numbers only. In addition, this explanation is important as it refers to more of a particular quality in relation to anything else of the same type, as supported by the definitions found for the term 'superlative'. Even if measurable dimensions are used, the inclusion of properties containing such superlative phenomena on the World Heritage List should not be misunderstood as a competition towards a 'book of records'. The findings show that any individual feature measured to be the highest or largest on Earth has rarely been singled out to justify the inscription.

Properties inscribed for their exceptional natural beauty and aesthetic importance are often spectacular physical landscapes mainly in mountainous and coastal areas. In recent years, emphasis is towards simultaneous presence of various natural features of the physical landscape or individual features because of high number and density especially over relatively limited areas. The findings show that while IUCN's evaluations are increasingly thorough in their assessment, further application of recognized methodologies is needed. For this purpose chapter 6 looks at current research and methodologies for assessing aesthetics of natural environments that can inform a more rigorous and systematic application of criterion (vii).

4. ESTABLISHED PRACTICE IN THE ASSESSMENT OF CRITERION (VII)

Through a review of IUCN's evaluation reports[8] since 1995, this chapter examines the key trends in IUCN's practice in the assessment of criterion (vii). This includes a review of the approaches used to identify and describe values and associated attributes, and to make comparisons with other areas.[9] IUCN's established practice is assessed in relation to current guidance to identify areas that can be strengthened. The final section summarizes the findings and conclusions of this review.

4.1 Key trends in the assessment of criterion (vii)

Between 1995 and 2012, there has been an increasing level of complexity in the nomination and evaluation of properties proposed for inscription under criterion (vii) on the World Heritage List. Review of the statutory documents, focusing on IUCN's evaluation reports, revealed that, over this period and particularly since 2005, evaluations have become increasingly structured and better informed by a wider set of consultations, and justifications provided for the application of criterion (vii) are more detailed and explanatory as to the values recognized. The current approach for the assessment of criterion (vii) is primarily expert-based as the identification and definition of values and attributes that convey those values are generally developed by professionals with expert knowledge of the property and other similar areas.

4.1.1. Use of descriptions of attributes to identify and define values

The review of the evaluation reports revealed that, similar to other natural criteria, the identification and definition of values related to criterion (vii) involves selection of key natural features or combinations of features and natural processes as attributes that convey values. These attributes are then used to support comparisons with other areas and, through a series of descriptions, to elaborate justifications for the property meeting (or not meeting) this criterion. Identification of attributes is, from review of the files, expert-based.

Many of the files, particularly since 2005, included increasingly well-developed descriptions of attributes. A review of these descriptions indicates some are common and apply to many types of natural environments, such as dramatic contrast in elevation, contrast between rock faces and vegetation, and diversity of colors. Other descriptions are more specific to particular types of landscapes such as deserts, freshwater lakes and wetlands, marine or coastal areas, or forests.

The descriptions of attributes and definition of values draw on knowledge of natural and geological science and global typological frameworks that have been established (see further discussion below). As a result, description of attributes often reflect an influence of this knowledge base that demonstrates a "cognitive" approach to aesthetics, as defined in environmental aesthetics and advocated by a number of philosophers working on the aesthetics of nature (see Section 6.1 and Carlson 2012).

[8] Other statutory documents, and nomination files in particular, were also used where needed for cross-references.

[9] The term 'comparisons with other areas' reflects the terminology used in IUCN's evaluation reports and is distinct from the term 'comparative analysis' used for comparisons included in the nomination files presented by State Parties.

For example, in relation to desert landscapes, IUCN in its evaluation of the Wadi Rum Protected Area (Jordan) noted that:

> Wadi Rum is recognized globally as a superlative desert landscape. The desert scenery can be regarded as iconic and illustrates a series of dramatic and varied landforms that are excellent examples of various components of desert geomorphic systems. Key attributes of the aesthetic values of the property include the diversity and sheer size of its landforms, together with the mosaic of colors, vistas into both narrow canyons and very large wadis, and the scale of the cliffs within the property (IUCN evaluation 2011).

After comparison with comparable properties, IUCN also noted that "the dramatic niche and columnar weathering in Rum is however not present to anything like the same extent in these [other] properties" (bis). In this example, both the description and the findings of the comparative analysis use a combination of key natural features and descriptions of them in the argument for criterion (vii). The identification of the natural features that convey value, in this case aesthetic value, complemented by descriptions on how they convey those values, support the justification of why the property contains areas of exceptional natural beauty and aesthetic importance, thus meeting criterion (vii).

Often the attributes identified for criterion (vii) are the same or similar to those identified for other natural criteria. For example, in the IUCN evaluation for The Dolomites (Italy):

> The distinct and dominant landscape feature of the Dolomites is their spectacular limestone features such as pinnacles, peaks and towers, almost always reaching hundreds of metres in height. Such a concentration of spectacular towers, peaks and pinnacles and high vertical walls (e.g. Agner, Burel, Civetta, Marmolada, Sass Maor, Torre di Luganaz, Tofane) is outstanding in the global context. The Agner north wall is almost comparable in height with the famous Eiger north wall (1,800 m) in the Swiss Alps Jungfrau-Aletsch property, and one of the highest walls in any limestone mountains in the world. These features are both the basis for the application of criterion (vii) and (viii) in relation to the geomorphological values of the property (IUCN Evaluation 2008).

It is not unusual that the same attributes convey different values if the property is nominated under different criteria; the diversity of values is part of its overall significance.

The identification of attributes and development of descriptions on how they convey the values identified are foundational to the justification that the property has Outstanding Universal Value; however, this is more explicit in some the files of some properties than in others. Attributes are equally foundational for comparing the property with other areas to ascertain whether this combination of values and attributes is already represented on the World Heritage List or not and that when compared globally with other properties there is a strong claim that the property has Outstanding Universal Value.

While the identification of attributes is an important process, it is not an end in itself but rather a means to an end: that of defining the values of the property. Thus it is important that descriptions of attributes are used to clearly support the justifications of the values that those attributes convey. Findings in chapter 3 showed that justifications for the application of criterion (vii) are often unclear in the distinction between 'superlative natural phenomena' and 'exceptional natural beauty and aesthetic importance' and what values are being conveyed. It is important to recall that Article 2 of the World Heritage Convention which defines what shall be

considered as natural heritage states that natural properties will be considered of Outstanding Universal Value from the point of view of science, conservation or natural beauty. Criterion (vii) embodies natural beauty but also, as the case history in chapter 3 showed, superlative natural phenomena can also be considered from a scientific point of view, particularly when it relates to natural processes. Therefore, it would be important that in future evaluations of properties nominated under criterion (vii), IUCN's justifications for meeting the criterion (or not) define clearly what values are considered and that the descriptions of the attributes support such justification.

4.1.2. Use of existing global typological frameworks to make comparisons with other areas

In most cases, identification of other sites for global comparison are based on typological similarities to the nominated property within established international frameworks of natural landscapes, that is, for example, comparisons of mountains with mountains, deserts with deserts. The global frameworks are based on biogeographical provinces (and include, for example, tropical rainforests, warm deserts and semi-deserts) or geological themes or other similar categories used to identify comparable properties (and include, for example, geological themes such as volcanoes/volcanic systems, mountain systems, and coastal systems) (Uvardy 1975; Dingwall et al. 2005; Goudie and Seeley 2011). (For additional discussion on potential development of typological global framework for aesthetic values, see section 6.3 and chapter 7).

A common approach is to identify the key natural features and related descriptions that are the primary attributes that convey the property's values (as mentioned in the previous section). These attributes then serve as a basis for making comparisons of the nominated property with similar ones selected by using the appropriate existing typological framework. In many cases, the attributes contributing to criterion (vii) are the same or closely related to those supporting one or more of the other natural criteria.

For example, the nomination of South China Karst, China (vii, viii – 2007), was "accompanied by a comprehensive global comparative analysis that has been developed with an extensive dialogue within the international karst community, and provides an exemplary standard for other nominations" (IUCN evaluation 2007). Using this comparative analysis as a basis, IUCN's comparison with other areas in the evaluation report looked at each of the three components of the serial property and its key features and compared it with those in other properties as presented in the following extract:

> The Libo Karst is nominated because of its cone karst, and is also considered by reviewers to display unrivalled features, although exceptional karst cones are found in other humid tropical landscapes, the most famous ones being those of Gunung Sewu on Java. Cone karst is also a prominent feature in three existing World Heritage properties: Gunung Mulu National Park, Malaysia; Phong Nha-Ke Bang National Park, Viet Nam and Puerto-Princesa Subterranean River National Park, Philippines. On the other hand, Purnululu National Park, Australia is an outstanding example of cone karst formed in sandstone. Mulun Nature Reserve in Guangxi, which is adjacent to the Libo cluster and considered to be less disturbed and of complementary value to this cluster, is proposed for inclusion within the next phase of the nomination. Both the Libo Karst on its own, and in combination with the proposed future extension into Mulun, can be regarded as the world type site for cone karst. The Libo cluster is also nominated for its biodiversity values, although a number of large and rare mammals are either absent or very limited

> in their abundance. While the overall biodiversity of the Libo cluster is comparable with the forested karst regions of Southeast Asia, other World Heritage properties in Southeast Asia, being more tropical, generally contain a larger number of species (bis).

The overall analysis demonstrated that the comparison "provide[d] clear support for the outstanding universal value of the Shilin and Libo clusters, however the case for the Wulong cluster is not convincing" (bis), leading IUCN to recommend only the inscription of the first two clusters.

This example shows that the overall comparison is based on the key attributes of the property, however, this is a general comparison and does not make specific comparisons in relation to each of the criteria proposed for inscription. There are also no specific references in the comparison in relation to the ideas of 'superlative natural phenomena' or 'exceptional natural beauty and aesthetic importance' of criterion (vii). Nevertheless, IUCN's evaluation considered that the property met criterion (vii) because the property "represents one of the world's most spectacular examples of humid tropical to sub-tropical karst landscapes.…[and that] The cone and tower karsts of Libo, also considered the world reference site for these types of karsts, form a distinctive and beautiful landscape" (bis).

The review of IUCN's evaluation reports of properties inscribed under criterion (vii) since 1995, demonstrates that a large number of them do not include specific comparisons in relation to criterion (vii) or the other criteria for which the properties were nominated, rather the comparisons remain general. A few, more recent cases since 2005, have started to make specific comparisons on each criteria showing that IUCN's established practice on the assessment of criterion (vii) has evolved over the period considered and has become increasingly rigorous. This same trend appears to be reflected in nominations as well. An example can be found in the evaluation of the Ningaloo Coast (Australia) (see box 4.1).

In some cases, IUCN's comparisons are supported by measurable dimensions. For instance, number of species is an important measurable dimension in the assessment of criterion (x) (*to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation*). Guidance in the *Preparing World Heritage Nominations* resource manual emphasizes that superlative natural phenomena can often be measured. As mentioned in section 3.2.2, properties such as Sagarmatha (Nepal) or Mount Kilimanjaro (Tanzania) were described in quantifiable measurements – the first as the highest point of earth's surface and the second as the highest mountain in Africa and the largest single-standing mountain in the world. Yet, in practice, this has rarely been used as the sole justification and, if so, mostly in earlier nominations.

In some comparative analyses within nominations, measurable dimensions are identified as a key element to support the argument that the property contains superlative natural phenomena. In these cases, comparison with other similar phenomena in other similar types of landscapes globally is used to determine the relative scale of the phenomenon (generally, largest or most extensive). In some of these cases, the comparable properties are identified through the use of existing frameworks. For example, in the case of Lakes of Ounianga (Chad) inscribed only under criterion (vii), the comparative analysis provided by the State Party compared the nominated property with 23 other properties in desert ecosystems of the Sahara, the Sahel, Peru and Chile. In addition, the comparative analysis looked at the existence of lakes within desert environments. Based on that analysis, IUCN's comparison with other areas observed that

Box 4.1 - Extract of IUCN's evaluation of the Ningaloo Coast (Australia) in relation to the comparison with other areas based on criterion (vii):

Key features in relation to criterion (vii) are the large aggregations of whale sharks (*Rhincodon typus*) along with important aggregations of other fish species and marine mammals and the contrast and beauty of an arid coast next to a vivid reef and seascape. The rare aggregation of the whale shark, the largest fish in the world, is one of the main features highlighted under this criterion. Although whale shark aggregations occur in other parts of the world such as the Seychelles, Djibouti, Thailand and Belize with predictable periodicity, the aggregations in Ningaloo following the mass coral spawning and seasonal nutrient upwelling cause a peak in productivity that leads approximately 300-500 individuals to gather, making this the largest whale shark aggregation documented in the world.

The most exceptional aggregations of (a) single species contribute to the justification of inscription of the Monarch Butterfly Biosphere Reserve (Mexico), although inscriptions based on the presence of a single species alone are in general not sufficient basis to determine OUV. Several other properties are also recognized for important gatherings of single or multiple species, such as Malpelo Fauna and Flora Sanctuary (Colombia), the West Norwegian Fjords (Norway), and the Islands and Protected Areas of the Gulf of California (Mexico). Other examples include the Brazilian Atlantic Islands of Fernando de Noronha and Atol das Rocas Reserves known for major resident aggregations of dolphins and iSimangaliso Wetland Park (South Africa) featuring massive marine turtle nesting sites.

Many of the features of the Ningaloo Coast are comparable to other places. Aesthetically and in terms of beauty of landscapes and seascapes, it is the rare mix of largely intact marine, coastal and terrestrial environments that makes the nominated property exceptional. Furthermore, the lush and colourful underwater scenery provides a stark and spectacular contrast with the arid and rugged land (IUCN evaluation 2011).

> the Lakes of Ounianga are the most important in terms of the permanent volume of freshwater and are also the deepest (with a maximum of 27 meters depth in Lake Yoan) of all comparable properties in hyper-arid deserts. The fact that the lakes maintain permanent freshwater in an area where the highest potential evaporation has been recorded is outstanding and gives an indication of a complex underwater hydrological system which is still to be fully understood" (IUCN evaluation 2012).

Thus, the measurable dimensions are the permanent volume of freshwater and depth of the lakes but the natural phenomenon is that the lakes maintain permanent freshwater due to the underwater hydrological system, despite high evaporation. In the case of properties with animal concentrations or migrations, comparisons are made with sites that have the same or other species often with similar behavior patterns. For instance in the nomination of the Monarch Butterfly Biosphere Reserve (Mexico), the State Party compared the property with other World Heritage properties and protected areas where species migration represents a superlative natural phenomenon. This comparison was based on migration region, migration distance and number of migrating individuals. IUCN, in its evaluation report, also compared the monarch migration to other insect migrations and concluded that "of the many insect migrations none compares with that of the monarch butterfly in terms of length, regularity, singularity and visibility on site" (IUCN evaluation 2008).

The guidance in the Preparing World Heritage Nominations resource manual also mentions using, "to the extent possible, measurable indicators of scenic beauty" (UNESCO 2011b), however, few examples were found in the nomination files. One example is the nomination for the Putorana Plateau (Russian Federation); in this case, the comparative analysis on criterion (vii) focuses on three categories based on "landscape elements": sites with mountain fiords/fiord lakes, sites with flat-topped mountains and waterfalls, and sites with trappean landscape. A table was used to compare 10 sites across these three categories to assess relative aesthetic value (Nomination file 2010). Based on this analysis, it is argued that the Putorana Plateau, "in spite of visual resemblance in terms of certain parameters to some other regions… has a unique combination of a few key landscape elements (large fiord-like lakes, numerous waterfalls, and trappean 'steps') and thus has no analogues among existing WH sites" (bis).

In general, however, rather than relying on measurable indicators, comparisons have been based on qualitative descriptions of attributes as the basis for the application of criterion (vii), particularly for those that convey aesthetic values. Such an example can again be found in relation to the Lakes of Ounianga (Chad). Whereas in relation to superlative natural phenomena, the comparison was supported by a measurable dimension, the assessment of aesthetic values needed a different approach. IUCN supplemented the nomination's justification for natural beauty by conducting "a systematic comparison of the nominated property with recorded images from the 23 properties included in the comparative analysis prepared by the States Party as well as with other desert properties worldwide" (IUCN evaluation 2012).

From this assessment, "a number of 'key distinctive features' [were] found in the Lakes of Ounianga that can be regarded as making the property exceptional:

- The shape and distribution of the lakes, combined with the effect of wind moving the floating vegetation in the lakes, is an exceptional visual phenomenon…
- The beauty of the lakes, of various shapes, colours, and chemical compositions…diversity of colours (green, pale blue, dark blue and reddish)…
- The property is located in a depression surrounded by sandstone cliffs which are natural outlook points…
- The shape and distribution of the lakes, which are aligned along parallel geological structures and separated by sand dunes…
- The overall setting…surrounded by some striking land forms that have been sculpted by the wind, resulting in a diversity of curious shapes and colours" (bis).

Measurable dimensions provide a basis for comparisons as illustrated, in particular in the Monarch Butterfly Biosphere Reserve (Mexico) based on, for example, migration distance and number of migrating individuals. In addition, as the example from Putorana Plateau (Russian Federation) shows, the use of measurable indicators related to scenic beauty or aesthetic importance based on the identification of certain types of key attributes can support comparisons. While it is challenging to make comparisons of qualitative descriptions of attributes, there are some examples that illustrate this approach, such as Lakes of Ounianga

(described previously). In both cases, comparisons require knowledge and descriptions of the attributes of other sites[10].

As part of the comparative analysis of properties nominated under criterion (vii), it is also important to demonstrate that there is internationally shared value of superlative natural phenomena or exceptional natural beauty in addition to being valued within its immediate context or at the national or regional level. Some properties, for example, have been reported as a "world reference site" for a type of feature such as the stone forests of Shilin, South China Karst (China) or have 'iconic status" of desert landscapes such as Wadi Rum Protected Area (Jordon). Historical or contemporary documentation has been used to indicate that places and, in some cases, particular features, have been valued for their natural beauty or as a natural phenomenon for a long time. Some of these sources of evidence that demonstrate aesthetic landscape values at an international level include works of art, literature, cinema, and music can also be taken into consideration. Claims as significant international tourism destinations and tourism data have also been used. (For further discussion on the evidence for international value of the Great Barrier Reef (Australia), see Context Pty Ltd in preparation.) Evidence that the values under criterion (vii) are internationally shared could also be provided by information from studies on perceptions of aesthetic values and related attributes from different countries. There may be potential future applications of the internet for web-based surveys or use of crowd-sourcing.

4.2. Summary of findings and observations

This review of IUCN's evaluation reports since 1995, revealed an evolution of a general practice for assessment of criterion (vii) that is similar to the approach used for other natural criteria. Between 1995 and 2012, there has been an increasing level of complexity in the nomination and evaluation of properties proposed for inscription on the World Heritage List. Over this period and particularly since 2005, evaluations have become increasingly structured and better informed by a wider set of consultations, and justifications provided are more detailed and explanatory as to the application of criterion (vii).

IUCN's approach for the assessment of criteria (vii) is primarily expert-based as the identification and definition of values and attributes that convey those values are generally developed by professionals with expert knowledge of the property and other similar areas. Important components of this practice are the use of descriptions of attributes to identify and define values and the use existing global frameworks to make comparisons with other areas.

The findings of the review show that the following areas where the current practice for the assessment of criterion (vii) could be strengthened:

1) Make clear distinctions between the two ideas within criterion (vii) and clarify what values are conveyed

Similar to other natural criteria, the identification and definition of values related to criterion (vii) involves selecting key natural features or combinations of features and natural processes as attributes that convey those values. These attributes are then used to support comparisons with other areas and, through a series of descriptions, to elaborate justifications for the property meeting (or not meeting) this criterion. Whereas the identification of attributes is an important

[10] These examples are used to illustrate that comparisons can be based on measurable indicators or qualitative descriptions but does not judge the quality of the information presented or its overall result.

process, so is the identification and definition of the values those attributes convey. Thus it is fundamental that descriptions of attributes are used to clearly support the justifications of the application of criterion (vii) in the evaluation reports.

Findings in chapter 3 showed that justifications for the application of criterion (vii) are often unclear in the distinction between 'superlative natural phenomena' and 'exceptional natural beauty and aesthetic importance' and what values are considered. It is important to indicate if the property meets one or both ideas of criteria (vii) and what values are conveyed. In addition, findings in Chapter 3 demonstrated that while there is an overall focus on aesthetic values and primarily on visual character, superlative natural phenomena can also be considered from a scientific point of view, particularly related to natural processes. Therefore, it would be important that in future evaluations of properties nominated under criterion (vii), IUCN's justifications for meeting the criterion (or not) define clearly which idea(s) are represented and what values are conveyed and that the science- based descriptions of the attributes support such justification.

2) Identify key attributes to support comparisons and link descriptions of how they convey the property's values to support justifications of the application of criterion (vii)

Identifying key attributes that convey the property's value(s) is foundational to support comparisons with other areas, and has increasingly become more specific in IUCN's evaluations. However, this is more explicit in some evaluation reports than in others, thus it should be considered as a fundamental element in the overall process in future evaluations. (See chapter 6 and in section 6.3, in particular, for discussions on methodologies that could be adapted for more systematic procedures.)

In addition, findings of the review of the IUCN's evaluation reports showed that only a few examples since 2005 included specific comparisons on criterion (vii). Therefore, descriptions of those key attributes based on the conclusions of those comparisons should support the justifications for the application of criterion (vii).

3) Develop specific comparisons based on the application of criterion (vii) and the ideas it embodies

Findings demonstrate that a large number of IUCN evaluation reports do not include specific comparisons in relation to criterion (vii) or the other criteria for which the properties were nominated but remain general. A few, more recent cases since 2005, have started to make specific comparisons on each criteria showing that IUCN's established practice on the assessment of criterion (vii) has evolved over the period considered and has become increasingly rigorous. Such practice should be systematically used in the future.

In some cases, IUCN's comparisons are supported by measurable dimensions in relation to superlative natural phenomena, but the findings (both from this chapter and the previous one) show that measurable dimensions are insufficient to identify and define values. Thus, the existing guidance in the *Preparing World Heritage Nominations* resource manual that suggests that superlative natural phenomena can often be measured needs to be further expanded. At present, this guidance can, in fact, limit the idea of superlative natural phenomena by providing only examples such as the deepest canyon, highest mountain or highest waterfall. A revision of this guidance should be considered based on the conclusions and recommendations of this study.

Guidance in that same resource manual suggests that comparisons of natural beauty and aesthetic importance should be based, to the extent possible, on comparisons of measurable indicators of scenic beauty. Findings show that this has not been used in practice in the nomination files or in IUCN's evaluation reports. In some cases, the identification of certain types of key attributes (as described in the previous point) can be used as a basis to develop such indicators. In other cases, qualitative descriptions can be developed for attributes. The term 'measurable' should not therefore be strictly interpreted as the size, amount, or degree in quantitative assessments but also to include systematic, rigorous qualitative descriptions. Though developing such qualitative assessments can be challenging, a clear framework for making comparisons based on key attributes of the property is essential. Chapter 6 looks at recognized methodologies for assessing aesthetics of natural environments that can inform how to support a more rigorous and systematic application of criterion (vii).

5. AESTHETIC CONSIDERATIONS IN THE APPLICATION OF CULTURAL CRITERIA: THE APPLICATION OF THE CONCEPT OF CULTURAL BEAUTY[11]

5.1 Concept of aesthetic importance as a component of Outstanding Universal Value for cultural properties

In this section, ICOMOS notes how the philosophical concepts of cultural and natural beauty have evolved somewhat differently over time, with those of cultural beauty also evolving in different ways in different parts of the world. Within many traditional and indigenous cultures there also exist ideas of landscape beauty related to integrated, holistic views of the world, which do not always make distinctions between nature and culture. While in many other traditional societies nature that is seen as sacred and nature that is managed to produce food are perceived in different ways but nevertheless within an integrated overall landscape perception that often embraces ideas of harmony.

All of these ideas have a bearing on the way cultural beauty is recognized within the World Heritage Convention.

Aesthetics in the World Heritage Convention

Article 1 of the World Heritage Convention defines cultural heritage as comprising:

> **monuments**: architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;
>
> **groups of buildings**: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science;
>
> **sites**: works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view (UNESCO 1972).

The Outstanding Universal Value (OUV) of cultural heritage thus can be related to 'the point of view of art' for monuments and groups of buildings, and to the 'aesthetic point of view' for sites that may include the combined works of nature and man.

As discussed in section 2.1, the Convention also sets out that OUV for natural heritage can be related from the 'aesthetic point of view' for natural features, and from 'the point of view of natural beauty' for natural sites or delineated natural areas (see Chapter 2).

However, the evaluation of these aesthetic points of view for cultural and natural heritage has differed in terms of the way they have been recognized within the criteria adopted by the

[11] Chapter developed by ICOMOS: lead author Susan Denyer, World Heritage Adviser, ICOMOS, with input from members of ICOMOS International Scientific Committees and other experts, in particular Guo Zhan, Kristal Buckley, Alfredo Conti, Regina Durighello, Monica Luengo, Feng Han, Nancy Pollock Ellwand, and Juliet Ramsay.

Committee as set out in Operational Guidelines. For natural properties, the aesthetic dimension has been articulated within one criterion (vii), which recognizes outstanding natural beauty or aesthetic importance. By contrast, for cultural properties, the aesthetic dimension has not been articulated within a single criterion as outstanding cultural beauty which could be seen to parallel criterion (vii). Instead, aesthetic/artistic dimensions of cultural beauty have been recognized by the Committee variously within all the individual cultural criteria, as will be demonstrated below in Section 5.2.

Evolution of wording of cultural criteria

The ICOMOS contribution to the informal expert meeting convened at Morges in 1976 to discuss possible criteria (see section 2.3) included two suggested criteria for cultural properties (numbered 1) and 3)) that articulated aesthetic value. These were (emphasis added):

> *1) Properties which represent a **unique artistic achievement**, including the masterpieces of internationally renowned architects and builders.*
>
> *3) Properties which are the best or most significant examples of important types or categories representing a high intellectual, social or **artistic** achievement.*

Formal criteria were first adopted by the Committee in 1977, and in 1978 the first version of the Operational Guidelines included the following wording for criteria (i) and (iv) (emphasis added):

> *(i) represent a unique **artistic or aesthetic** achievement, a masterpiece of the creative genius;*
>
> *(iv) be among the most characteristic examples of a structure, the type representing an important cultural, social, **artistic**, scientific, technological or industrial development;*

By 1983 the wording for these two criteria was revised as follows:

> *(i) represent a unique **artistic achievement**, a masterpiece of the creative genius;*
>
> *(iv) be an outstanding example of a type of structure which illustrates a significant stage in history;*

with the word ‘aesthetic’ being removed from criterion (i) and ‘artistic’ from criterion (iv). These omissions have continued to the present version of the Operational Guidelines. The word ‘artistic’ was also removed from criterion (i) in the 1996 revisions. Thus the two criteria now read:

> *(i) represent a masterpiece of human creative genius;*
>
> *(iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;*

There is therefore currently no reflection in the criteria of the wording in the Convention on the artistic/aesthetic point of view for cultural properties.

As stated by Jukka Jokilehto in *What is OUV?,* even though the words 'artistic' and 'aesthetic' no longer appear in the criteria,

> the aesthetic/artistic dimension plays a role in several criteria. In many cases the 'masterpiece of human creative genius' (criterion i) refers to masterpieces of art; this also concerns the exchange of artistic trends regarding 'monumental arts, town-planning or landscape design' (criterion ii); certain historical types of buildings and ensembles (criterion iv) have their aesthetic dimensions and this also holds true for examples of settlements (criterion v); criterion (vi) is often associated with artistic works and artistic depictions (ICOMOS 2008).

5.2 ICOMOS analysis of cultural properties inscribed for their aesthetic/artistic importance

ICOMOS has undertaken an analysis of the way cultural criteria have been used to reflect ideas of aesthetic/artistic importance in properties inscribed between 1978 and 2012. The report of the analysis is attached at Annex 2. This analysis was limited to properties where aesthetic/artistic importance and thus cultural beauty was considered to contribute to Outstanding Universal Value. In many other properties ideas of cultural beauty may be of enormous importance for local societies but as these ideas were not articulated as part of the justification for Outstanding Universal Value at the time of nomination, or were not considered to be of exceptional value, they are not reflected in the justification for the criteria.

The following summary of the analysis demonstrates the way all six cultural criteria have been used to justify aesthetic/artistic dimensions in terms of ideas of beauty, harmony, visual creativity, places that provide pleasure, and technical creativity. What becomes clear, as set out below, is that for nearly all properties, these ideas are not universal ideas that have been applied in some sort of scientific way, but are aspects of the property that relate to the geo-cultural contexts within which the property evolved or developed. Section 5.3 explores further the way ideas on beauty and aesthetic achievement in the context of places and landscapes have evolved in different ways around the world.

The following sections provide examples to show how all the criteria have been used to reflect aesthetic/artistic importance and cultural beauty. (In all quotes the emphasis has been added.) This list is not exhaustive – the full list is provided in the complete ICOMOS analysis (Annex 2).

Criterion (i)

Before the wording of criterion (i) was changed in 1983, the phrase 'aesthetic achievement' was widely used in the justifications. Examples include the eleven Rock Hewn Churches of Lalibela (Ethiopia), built as a substitute for the holy places of Jerusalem and Bethlehem and still a focus for pilgrimage and devotion. They were inscribed in 1978 as a "**unique artistic achievement, in their execution, size and the variety and boldness of their form"** (ICOMOS evaluation 1978). Likewise the Ancient City of Damascus (Syrian Arab Republic), with its Great Mosque, and other major monuments of different periods such as the Citadel, the Azem Palace, madrasas, khans, public baths and private residences, was similarly inscribed in 1979 for the way it "testifies to the **unique aesthetic achievement** of the civilizations which created it". Other examples are the Natural and Culturo-Historical Region of Kotor (Montenegro), the Site of Palmyra (Syrian Arab Republic), the Ajanta and Ellora Caves (both in India), Machu Picchu (Peru), the Tikal National Park (Guatemala)**,** a mixed property that was recognized for its **"artistic value, in that it unites the great urban achievements of the Mayas with the**

surrounding tropical forests and their immense variety of flora and fauna", and the Fort and Shalamar Gardens Lahore (Pakistan), which were seen to comprise an "**outstanding repertory of the forms of Mughal architecture at its artistic and aesthetic heigh**t".

Even after the wording of the criterion was changed, the phrase 'aesthetic achievement' was still used for some properties such as Historic Centre of Saint Petersburg and Related Groups of Monuments (Russian Federation), which was inscribed in 1990 for its "**unique artistic achievement in the ambition of the program**, the coherency of the plan and the speed of execution. St. Petersburg which he [Peter the Great] wished to be t**he most beautiful city** (ICOMOS evaluation 1990)". Interestingly the justification specifically relates the idea of beauty back to the time of the city's construction.

The notion of aesthetic or artistic achievement still persisted in many other justifications but without the precise phrase being registered. Studley Royal Park including the Ruins of Fountains Abbey (United Kingdom), was inscribed in 1986 for its "originality and **striking beauty to the fact that a humanised landscape** was created around the largest medieval ruins in the United Kingdom (ICOMOS evaluation 1986)". While for the Pre-Hispanic City of Chichen-Itza (Mexico), inscribed in 1988 **c**riterion (i) was justified for the way the "monuments of Chichen Itza, particularly in the northern group, which includes the Great Ball Court, are among the undisputed masterpieces of Mesoamerican architecture **because of the beauty of their proportions**, the refinement of their construction and the splendour of their sculpted decorations (ICOMOS evaluation 1988)".

Criterion (i) has been used from an early date to recognize the aesthetic value of designed landscapes, as in the Summer Palace (China), 'natural' landscapes and also urban landscapes. Even in early inscriptions, the aesthetic value of landscapes was seen as a reflection of the fusion between culture and nature. For instance for Mount Taishan (China), the landscape of one of the five sacred mountains in traditional China is seen as a **"unique artistic achievement"** with its architectural features being **"the final touches by human hands to the elements of a splendid natural site** (ICOMOS evaluation 1987)". In other words the fusion of culture and nature is recognized as having attained the highest artistic dimensions within the framework of the culture of Imperial China.

For Mount Athos (Greece), a mixed site inscribed in 1988, the justification referred to "the transformation of a mountain into a sacred place [that] made Mount Athos a unique artistic creation **combining the natural beauty of the site with the expanded forms of architectural creation** (ICOMOS evaluation 1988)."

The urban site of Venice (Italy) was seen to present "**an unforgettable landscape whose imponderable beauty inspired Canaletto, Guardin Turner and many other painters** (ICOMOS evaluation 1987)**"** while the grandiose Neo-classical Palladian crescents, terraces, and squares spread out over the surrounding hills and set in its green valley in Bath (United Kingdom), were as **"a demonstration par excellence of the integration of architecture, urban design, and landscape setting, and the deliberate creation of a beautiful city** (ICOMOS evaluation 1987)". In both cases the beauty was recognized at the time the properties were being developed.

In a number of inscriptions the visually harmonious relationship between monuments and their landscape setting is part of the justification, such as at Kizhi Pogost (Russian Federation), which was seen as a "**a unique artistic achievement.** Not only does it combine two multi-cupola churches and a bell tower within the same enclosure, but these unusually designed, perfectly

proportioned **wooden structures are in perfect harmony with the surrounding landscape** (ICOMOS evaluation 1990)." For the Potala Palace, Lhasa (China), its justification was related both to "**outstanding work of human imagination and creativity for its design, for its decoration,"** and for **"its harmonious setting within a dramatic landscape** (ICOMOS evaluation 1994)." And for the Itsukushima Shinto Shrine (Japan), the setting of "traditional **architecture of great artistic and technical merit** against a dramatic natural background" was seen to be **"creating a work of art of incomparable physical beauty** (ICOMOS evaluation 1996)."

Criterion (ii)

Kalwaria Zebrzydowska, the Mannerist Architectural and Park Landscape Complex and Pilgrimage Park (Poland)**,** is a cultural landscape of great spiritual significance in which a series of symbolic places of worship relating to the Passion of Jesus Christ and the life of the Virgin Mary was laid out in the landscape at the beginning of the 17th century. Criterion (ii) was used to justify the way the property was seen as **"a cultural landscape of great beauty and spiritual quality in which natural and man-made elements combine in a harmonious manner** (ICOMOS evaluation 1999)." In this case the 'natural' elements were not pure nature but rather the pastoral, agricultural and forest landscape of the monastic tenants.

For the Historic Centre of Urbino (Italy), criterion (ii) was used to recognize the way "some of the **most outstanding humanist scholars and artists of the Renaissance … created there an exceptional urban complex of remarkable homogeneity** (ICOMOS evaluation 1998)" the influence of which carried far into the rest of Europe.

Criterion (iii)

Mount Wuyi (China), with its series of exceptional archaeological sites, including the Han City established in the 1st century BCE, and a number of temples and study centers associated with the birth of Neo-Confucianism in the 11th century CE, was justified under criterion (iii) as "**a landscape of great beauty that has been protected for more than twelve centuries** (ICOMOS evaluation 1999)."

Within North Africa**,** The Qal'a of Beni Hammad (Algeria) was inscribed in 1980 only under criterion (iii). The remains of the fortified capital of the Hammad Empire is seen as a remarkable archaeological site located in a "**mountainous setting of striking beauty on the southern flank of Djebel Maâdid**" that bears witness to the "great refinement of the Hammad civilization, an original architecture and the palatial culture of North Africa."

Perhaps the simplest justification of this criterion for aesthetic reasons is for the Villa d'Este, Tivoli *(*Italy), whose gardens were seen to illustrate "**in an exceptional manner"** the "**principles of Renaissance design and aesthetics** (ICOMOS evaluation 2001)."

The most recent inscription to recognize aesthetic harmony under criterion (iii) is for the Cultural Landscape of Bali Province: The *Subak* System as a Manifestation of the *Tri Hita Karana* Philosophy (Indonesia), inscribed in 2012. The congregations of water temples, that have underpinned the water management of the *subak* landscape since at least the 12th century, reflect the ancient philosophical concept of *Tri Hita Karana and* aim to **"sustain an harmonious relationship with the natural and spiritual world** (ICOMOS evaluation 2012)".

Criterion (iv)

Sana'a (Yemen), was seen to meet criterion (iv) as "an outstanding example of a homogeneous architectural ensemble reflecting the spatial characteristics of the early years of Islam, the city in its **landscape has an extraordinary artistic and pictorial quality** (ICOMOS evaluation 1986)." While the Selimiye Mosque and its social Complex (Turkey), was inscribed under both criterion (i) and (iv), it was the justification of the latter that encapsulated its visual exceptionality. "The interior decoration using Iznik tiles from the peak period of their production testifies to a great art form never to be excelled in this material. The mosque with its charitable dependencies **represents the most harmonious expression ever achieved of the külliye, this most peculiarly Ottoman type of complex** (ICOMOS evaluation 2011)." Both of these properties reflect the ideals and precepts of Islam and of order, composition and symmetry that aimed to stimulate sensible (i.e. related to the senses) and intellectual responses.

The Val d'Orcia (Italy), was seen succinctly as an "exceptional reflection of the way the landscape was re-written in Renaissance times to reflect the ideals of good governance and to **create an aesthetically pleasing picture** (ICOMOS evaluation 2004)." where the beauty was a deliberate part of its creation, and reflected a humanized rather than a religious ideal.

The Changdeokgung Palace Complex (Korea , Republic of), was recognized under criterion (iv) as an outstanding example of Far Eastern palace architecture and garden design, **"exceptional for the way in which the buildings are integrated into and harmonized with the natural setting** (ICOMOS evaluation 1997)". The Complex reflected both functionally and symbolically a Confucian ideology that portrayed the Joseon Dynasty's unique outlook on the world.

Criterion (v)

The Fujian *Tulou* (China), are large, technically sophisticated and dramatic earthen defensive buildings, built between the 13th and 20th centuries, in a highly sensitive setting in fertile mountain valleys. The relationship of the massive buildings to their landscape was acknowledged under criterion (v) to "embody both **Feng Shui principles and ideas of landscape beauty and harmony** (ICOMOS evaluation 2008)."

By contrast, the Rice Terraces (Philippines), were inscribed under criterion (v) as "**an outstanding example of land-use that resulted from a harmonious interaction between people and its environment which has produced a steep terraced landscape of great aesthetic beauty".** This beauty was not acknowledged as being related to the intentions of the Ifugoa people who developed the stone terraces over time.

Similarly the Pico Island landscape (Portugal), which reflects a unique response to viniculture on a small volcanic island that has produced an "**extraordinarily beautiful human made landscape of small, stone walled fields that is testimony to generations** of small-scale farmers (ICOMOS evaluation 2004)" is acknowledged as being a landscape whose beauty is 'accidental', that is a landscape not deliberately created as a thing of beauty.

It is therefore the case that neither the Rice Terraces of the Philippines nor the Pico Island landscapes, were inscribed as landscapes whose beauty was specifically linked to the cultures of the communities who created them. This is not to suggest that such a link did not exist but rather that it was not part of the justification for inscription.

Criterion (vi)

For West Lake Cultural Landscape of Hangzhou (China), criterion (vi) recognized the ideas that underpinned the beauty of the lake and its surroundings landscape and their direct links to the landscape. "The Tang and Song culture of demonstrating **harmony between man and nature by improving the landscape to create pictures of great beauty**, captured by artists and given names by poets, is highly visible in the West Lake Landscape, with its islands, causeways, temples, pagodas and ornamental planting. The value of that tradition has persisted for seven centuries in West Lake and has spread across China and into Japan and Korea, turning it into a tradition of outstanding significance (ICOMOS evaluation 2011)."

Similarly for the Koutammakou the Land of the Batammariba (Togo), the property was seen to be an eloquent testimony to the strength of "**spiritual association between people and the landscape, as manifested in the harmony between the Batammariba and their natural surroundings"** and the aesthetic value of their particular type of dwellings, was seen to be **"the result of the creative genius of the Batammariba: 'those who model the earth'** or, by extension, 'the good masons' according to the translation of some anthropologists."

Summary

The examples set out above from the ICOMOS analysis have highlighted the way criteria (i) to (vi) have been used to justify aesthetic / artistic importance or the cultural beauty of properties. These dimensions are commonly not the only ones that underpin OUV and are nearly always related to others such as design, town planning, landscape planning, etc.

The aesthetic/artistic dimension is usually one that has long been recognized at the property, and is an integral part of its inception or development rather than a dimension that has been 'discovered' in the 20th or 21st centuries. The creativity that it embodies may be related to an individual but more often it is the result of collective or communal responses emerging within a cultural framework that relates to ideas of harmony, beauty, form and order. In some properties the harmony or perceived beauty is related to the way buildings or towns have been inserted into their surrounding landscape. Sometimes this landscape is described as 'natural' but the reality in most such properties is that the landscape is 'managed' nature rather than the natural environment.

The aesthetic/artistic dimensions may have a long history of recognition such as is the case of West Lake, China, where its landscape has been acknowledged as a reflection of ideas of artists and poets since the Tang Dynasty and where its artistic value has been articulated in words since the Song Dynasty. Or Val d'Orcia, Italy, where the landscape became influential as a result of it being painted by Renaissance painters as an ideal landscape, an association that has persisted until the present.

In a few properties, such as the Rice Terraces of the Philippines, and the Pico Islands, the beauty that is acknowledged in the landscape as contributing to Outstanding Universal Value is seen to have been 'discovered', rather than being part of its creation or development. In these properties, the combined social, cultural and sacred traditions are seen to have helped to create landscapes of great beauty that express the harmony between humankind and the environment. This is not to infer that these societies did not have ideas of cultural beauty related to landscapes but rather that these were not put forward as part of the justification for Outstanding Universal Value.

One omission to be noted is the comparative absence of acknowledged aesthetic value for properties from Africa. The Tombs of the Buganda Kings at Kasubi, Uganda are inscribed under criterion (i) as a master piece of human creativity both in their conception and execution, but for landscapes only the Koutammakou the Land of the Batammariba, Togo, is inscribed for the harmony resulting from the fusion between the actions of people and nature. The Cliffs of Bandiagara, Land of the Dogons, Mali, is inscribed as a mixed site under criteria (v) and (vii) and, mention of aesthetics is confined to the justification for criterion (vii), even though the Bandiagara escarpment is an example, par excellence, of a cultural landscape whose visual dimensions reflect in an extraordinary way the world vision and creation beliefs of the Dogon people.

For cultural properties, as with natural properties, the comparative analysis sets out to demonstrate that no other property exists either on the World Heritage List or elsewhere that exhibits a similar combination of attributes and value. For cultural properties, if the value of the property is seen to be an exceptional manifestation of a cultural response that is specific to a particular area or region the comparative analysis is usually carried out within the geo-cultural area within which the property is found. If the manifestation is related to processes or historical circumstances that occur more widely, then the analysis may be more widespread or even global. In relation to aesthetic/artistic value, the comparative analysis will be considering aesthetic/artistic attributes together with the other attributes of the property that all together manifest its OUV. And in almost all cases those aesthetic/artistic dimensions will be related to the cultural systems that underpinned the creation or development of the property.

5.3 Overview of the development of concepts related to cultural and natural beauty

The development of formal philosophical ideas on cultural beauty related to places has had a long history and has developed in different ways around the world. It is important to underscore that ideas on aesthetics have not only been confined to the realm of philosophy as in many societies they are embedded in the rituals of daily life.

The beauty of places, particularly landscapes has often been articulated in terms of the beauty of nature even though what is being referred to is landscape rather than the natural environment. This has led to some confusion as the phrase ‘natural beauty’ has sometimes been used to refer to managed landscapes as well as to natural environments.

For instance, the nature associated with ideas of Arcadia amongst ancient Greek and Roman writers, and the nature associated with a re-discovery of those ideas in Europe in the 18th century, was not ‘wild’ nature but nature shaped by grazing animals without whom the uplands would have been much more clothed with vegetation. Similarly the exceptional ideas of beauty associated with the fusion of people and nature that developed in China over the past two thousand years relate to nature in landscapes that have never excluded human activities, an idea of nature based on humanism and aesthetics in which there was no differentiation between ‘wild’ nature and ‘managed’ nature. Nature was the natural environment within which people lived.

The word ‘nature’ has thus been used to encompass both what might be called ‘untamed’ nature and also ‘managed’ nature that is part of peoples’ livelihoods and has been shaped by societies over time.

Whether or not beauty is inherent and objective or is a subjective response has been long debated by Western philosophers. Although Aristotle had linked responses to beauty with ideas of harmony, he nevertheless considered beauty as objective or inherent. During the 18th century there were major philosophical developments in the field of aesthetics of nature and a more subjective response emerged. Many philosophers were involved such as Hume, Hutcheson, Shaftesbury and Burke, but it was Emmanuel Kant who crystalised the ideas on the notion of the superiority of natural beauty over the constructs of art and on the notion of aesthetic pleasure derived from beauty through a response that did not need to be based on knowledge – or indeed any outside intervention.

In terms of applying these ideas to nature, three strands could be identified by the end of the 18th century. These were beautiful landscapes, often parks and gardens that had been deliberately created, sublime landscapes, such as wild mountains that could evoke feelings of awe, and Picturesque landscapes which were to a degree a fusion between the other two. So natural beauty was recognized in many types of landscape, not all of which could be seen as truly 'natural'.

In the first quarter of the 19th century the thrust of philosophical ideas on aesthetics changed again away from nature to culture. This shift was initiated by Hegel who considered that art rather than nature was the highest expression of the spirit. Following Hegel, art rather than nature became the main subject of philosophical debate in Europe for the rest of the century.

Of the three ways of looking at landscape, the Picturesque ideal, popularized by William Gilpin and Uvedale Price, came to have the greatest impact in terms of writers and artists engaging with landscapes. Picturesque meant seeing landscape as a picture and initially seeing it without pre-conceptions. However the idea of the Picturesque quickly became bound up with other artistic ideas and linked to Classical Arcadian visions of pastoralism and harmony between people and nature.

The Picturesque provided an aesthetic ideal for tourists, who pursued picturesque scenery with evidence of human presence in for instance the Alps, the Lake District, and the Scottish Highlands. In time these ideas prompted further ideas on the protection of valued landscapes, particularly in the writings of William Wordsworth, and on ideas as to how nature might be improved to make it more picturesque.

Such a popular interest in the Picturesque continued into the 19th and early 20th centuries and greatly influenced the protection of landscapes in terms of which landscapes in Europe were protected. For instance, views across the Elbe Valley, Germany, were protected from the end of the 19th century, and from the second decade of the 20th century so were the higher Alpine valleys in Switzerland, both for their picturesque qualities.

Although in the 19th century in Europe there had been a decline in interest in the philosophical study of the aesthetics of nature, in America in the second half of the century writers were beginning to take notions of the Picturesque, which celebrates interventions of people in the landscape, and turn them round to find beauty in the absence of human activity. The American naturalist, John Muir, came to see the natural environment and especially 'wild' nature as aesthetically beautiful and to find ugliness where nature was subject to human intervention. Such views contributed to the emergence of protected National Parks in North America, protected as wilderness but also for their natural beauty and also to ideas on a perceived dichotomy between culture and nature.

It was not until the third quarter of the 20th century that there was a more general revival of interest in Europe and elsewhere in the aesthetics of 'wild' nature or the natural environment. Environmental ethics, a new sub-discipline of philosophy, was defined that encompasses ideas on natural beauty, differentiates the subject from the aesthetics of art, and explores whether the natural environment could be said to have intrinsic value. The history of these philosophical ideas is described in the next section 6.1.

While some Western philosophers have looked at nature as something separate from human society, Chinese philosophers have consistently looked at the totality of the world and have not seen the physical world as something separate from people. Nature and landscape are both seen as part of culture, and nature has always been seen as something into which people are absorbed.

The term cultural landscape has sometimes been viewed in China as a western concept that reflects a very specific approach to landscape in which people are the subject, and landscapes and the environment are the object. However, in reality, the term could and should be seen to manifest the idea of landscape being a fusion between people and their physical world and reflecting a harmony or unity with nature.

Such a view has existed in China since the end of the Spring and Autumn period up to 475 BCE and the beginning of the Warring States period 475-221BCE when many philosophical schools emerged including Confucianism and Daoism. Confucius promoted the idea of harmony, particularly between people and nature. Nature has all the characteristics of humans and to know nature one must first know oneself. These ideas were set out in *Analects of Confucius* in which he said that "The wise find pleasure in water; the virtuous in mountains" and laid the foundations for a symbolic view of landscapes: the wise are active like flowing water, while the virtuous are tranquil and steady like mountains. Laozi the founder of Daoism believed that the greatest beauty is in nature and the greatest aim is to seek oneness with nature. Daoism created a view of nature that was both romantic and aesthetic.

Nature was thus greatly valued by both Confucianism and Daoism, but Confucianism valued nature from a moral perspective, while Daoism saw the meaning of life in nature. From both of these emerged the Chinese philosophy that nature underpins life. Nature is a place in which to enjoy life; to be in harmony with everything including nature is the basic principle of life.

It was writers and artists in the 5th and 6th centuries AD that took these ideas and translated them into images and words and captured the essence of landscape in aesthetic terms. The beauty of nature came to be something to be sought out. In the Tang Dynasty, the idea that improved nature had much more value than untamed nature took hold: nature can only properly present its beauty through culture. Landscapes began to be improved through the addition of buildings and plants, and gardens were created as miniature version of the natural landscape, processes that reached their apex in the Song Dynasty as exemplified in the landscapes of West Lake.

In pre-modern Japan, unlike in many other parts of the world, aesthetics were part of everyday life and integrated into social, cultural and political practices as a central part of national identity. Japanese artistic traditions were highly social as well as intensely aesthetic. The twin spiritual foundations of these traditions may be found in Shinto nature worship and the ideals of Buddhist philosophy.

For at least four centuries scenic landscapes have been designated at local level to reflect their scenic qualities, such as the 100 scenic places of Edo (Tokyo) and the 36 views of Mount Fuji. And at a national level the three most celebrated scenic places, *nihon sankei*, were first codified in 1643. These include the Itsukushima Shinto Shrine in Hiroshima Prefecture inscribed as "the supreme example of this form of religious centre, setting traditional architecture of great artistic and technical merit against a dramatic natural background and thereby creating a work of art of incomparable physical beauty." As in China, the essence of beautiful landscapes was created in gardens with the shapes of rivers and lakes and forests expressed in a poetic way.

Many other cultural systems could be set out to show how perceptions of beauty have evolved in very different ways. In India, for example, ideas of beauty are associated with representing spiritual or philosophical ideas symbolically.

Islamic philosophers saw beauty as related to order, composition, and symmetry, which, in turn, were associated with ideas of perfection. In landscapes, the one factor that can be said to provide a link across the Islamic world is water: irrigation underpinned agricultural development and allowed the desert to bloom. Beautiful landscapes were productive landscapes that surrounded cities and estates, and water engineering reached exceptional heights within the elaborate formal gardens that were created as exemplars of order, composition and symmetry.

In parts of Africa, the landscape was seen as a map that reflected the way the world had emerged, people's relationship with that world, as well as a harmony with natural surroundings. While, in Australia, aboriginal people, see themselves as an integral part of the landscape – or their country – not set back from it. And a precisely similar view is taken by reindeer people of Siberia, and many other societies around the globe.

Thus, cultural beauty related to places, and particularly to landscapes, is in many parts of the world a long established notion related to ideas on harmony, order or balance, or associated in some way with ideas of perfection, and made explicit in, for example, exceptional buildings, or the arrangement of buildings in a town, or the placing of buildings within the landscape, or the way a society interacts with nature, and all of these might be linked to evoked emotions of pleasure, or ideas of well-being, or a strong sense of place.

For cultural properties, the aesthetic attributes normally relate to the way the property manifests its cultural associations. The aesthetic dimensions, or its beauty, are related to the property's geo-cultural context; they are an expression of the way the property developed and the way the property presented itself. They reflect a shared understanding of a particular society and the ideas that it espoused at a particular time.

In the case of natural beauty, the philosophical ideas on the aesthetics of nature have also had a long historical development around the world. During the past century and a quarter this has been focused, in particular, on aesthetic values for natural areas, places that could be seen to be largely untouched by human processes (see chapter 6 for further discussion on the use of the term 'natural beauty' and Operational Guidelines for a definition of natural areas (UNESCO 2012)).

5.4 Conclusion and recommendations

Philosophical ideas on the beauty of nature and landscape span many centuries and many continents. In the last one hundred and twenty years, a philosophical shift has occurred in some areas of thought between ideas of beauty related to landscapes reflecting cultural interventions

or cultural associations, and ideas of beauty relating to natural areas that are sometimes perceived to be 'untamed' nature (see chapters 5 and 6).

Today, perhaps due, in part, to the emergence of these ideas, there are differences in the way cultural and natural beauty of properties are assessed within the World Heritage Convention. Given that the Convention is one of the main international instruments that brings together culture and nature, it would be desirable if there could be an improved understanding of the relationship between cultural and natural beauty.

Therefore ICOMOS considers that, it would be helpful if more guidance were to be developed on the recognition of aesthetic/artistic value or cultural beauty for all the cultural criteria, and also in relation to aesthetic value or natural beauty for criterion (vii). Such guidance could consider ways of articulating notions of beauty within a wide inter-disciplinary context.

6. AESTHETIC APPRECIATION OF NATURAL ENVIRONMENTS: FINDINGS FROM SELECTIVE LITERATURE REVIEW RELEVANT TO THE APPLICATION OF CRITERION (VII)

This chapter includes a review of current scholarship and methodologies for assessing aesthetic value of natural environments, focusing on areas relevant to the second idea embodied in criterion (vii), that of 'exceptional natural beauty and aesthetic importance'. This chapter begins with a brief history of the aesthetic appreciation of nature, as a complement to the development of the concept of cultural beauty outlined in chapter 5. It also reviews contributions from the field of applied and comparative environmental aesthetics, in particular, related to understanding aesthetic appreciation of nature in the context of conservation. This chapter identifies ideas from current practice that can inform ways to strengthen the application of criterion (vii) in relation to aesthetic values.

As there is an extensive, multidisciplinary body of work related to assessing aesthetics of natural environments, the review in this study is selective and relies primarily on previous literature reviews. Most of the literature identified originates in the United States, Canada, United Kingdom and, to some extent, other European countries, as well as some references from Australia, New Zealand, Japan, and China. Some of this research is international in scope, such as cross-cultural comparisons in landscape preferences. Even so, the geographical limitations of this review are acknowledged and, given the importance of considering different cultural perspectives, a broader literature review is needed (see recommendations in section 7.2).

6.1. Development of appreciation of natural beauty and the emergence of environmental aesthetics in the twentieth century: implications for conservation

6.1.1. Development of appreciation of natural beauty

The appreciation of natural beauty has a long and deep history and much of this history is shared with the development of the concept of cultural beauty (described in the previous chapter 5). Aesthetics has been a focus of philosophers since the time of Socrates (460-399 B.C.) (Lothian 1999; Eco 2012). Over time, there have been philosophical debates about whether nature, as well as art, is an appropriate subject for aesthetics. In China, for example, recognition of nature as an aesthetic object started around the third century and in the fifth century, aesthetic principles for appreciation of nature were developed (Han 2012 and see chapter 5 for further discussion on the history of aesthetics from an international perspective).

In eighteenth century Europe, the study of aesthetics of nature flourished and this era is acknowledged for its substantial influence on development of western aesthetic philosophy (Lothian 1999). As this field of philosophy developed, three distinct ideas emerged: beautiful, sublime and picturesque. Each were described in contrast to the others:

> objects experienced as beautiful tend to be small and smooth, but subtly varied, delicate, and "fair" in color, while those experienced as sublime, by contrast, are powerful, vast, intense, terrifying, and 'definitionless'. Picturesque items are typically in the middle ground between those experienced as either sublime or beautiful, being complex and eccentric, varied and irregular, rich and forceful, and vibrant with energy (Carlson 2012: 1.1).

The writings of William Gilpin, Uvedale Price, and Richard Payne Knight developed the theory of the picturesque which incorporated evidence of human presence in nature. By the late

eighteenth century, this theory "provided an aesthetic ideal for English tourists, who pursued picturesque scenery in the Lake District, the Scottish Highlands, and the Alps" (Carlson 2012: 1.2). In fact, throughout the nineteenth and into the twentieth century, "the idea of the picturesque remained a dominant influence on popular aesthetic experience of nature" and became associated with selection of places for tourism and for conservation (Carlson 2012: 1.2, 2.1; see additional discussion below).

In North America, the idea of the picturesque was expressed through paintings of Thomas Cole, Frederic Edwin Church, and Albert Bierstadt and photographers such as Carleton Watkins depicting the vast monumental western landscapes as their subject (Runte 1997). In mid-nineteenth century, a new dimension of the appreciation of the aesthetics of natural environments developed. This movement, influenced by the nature writings of Henry David Thoreau and American naturalist John Muir, was increasingly shaped by knowledge of the natural sciences. In contrast to the ideas of the picturesque, Muir's writings on his aesthetic experience in the Sierra mountains reflected his interest in geology and his appreciation of wild nature (Carlson and Lintott 2008).

6.1.2. Aesthetics of natural environments as an impetus for conservation in the mid-nineteenth and early twentieth centuries

Beginning in the mid to late nineteenth century, the aesthetic values of many places around the world began to be recognized and protected through a variety of conservation designations. The growth of governmental designation of parks and protected areas in many countries at that time demonstrates that the "aesthetic experience of nature has been and continues to be a vitally important factor in the protection and preservation of natural environments [and] this relationship between aesthetic appreciation and environmentalism has a long and interesting history" (Carlson 2010: 290).

A few examples from countries around the world illustrate the importance of aesthetics of natural environments in identifying places for protection. In the United States., for example, the protection of Yosemite Valley in the mid-nineteenth century and the subsequent designation of Yellowstone National Park in 1872 were based primarily on scenic value. The remarkable scale and unusual nature of the Mariposa grove of redwoods (in Yosemite) and the geysers (in Yellowstone) were considered particularly worthy of protection (Hargrove 1979; Runte 1997; Carlson 2010). Aesthetic appreciation of natural environments has continued to influence "a number of landmark decisions concerning the preservation of some of North America's most magnificent environments" (Carlson and Lintott 2008: 1).

Japan's national designation system for places of scenic beauty was established in the early twentieth century and provides another important example (Inaba 2012). In 1919, a Law for the Preservation of Historic Sites, Places of Scenic Beauty and Natural Monuments, adopted as the first nature conservation law in Japan, designated and protected places of scenic beauty. These included natural environments such as volcanoes, mountains, and plains and also cultural environments including parks and gardens. Similar systems for the protection of natural beauty were established in France and Italy in the early twentieth century (Inaba 2012 and see discussion in chapter 5).

In 1949, England began designating National Parks and Areas of Outstanding Natural Beauty using "natural beauty" as one of the touchstone criteria (Stolton and Dudley 2008; Selman and Swanwick 2010). "Much of the early nature conservation movement [in England] was, in fact,

motivated by the aesthetic and psychological benefits of nature" (Selman and Swanwick 2010: 8).

In 1962, the General Conference of the UNESCO passed a *Recommendation concerning the Safeguarding of the Beauty and Character of Landscapes and Sites* (UNESCO 1962). The General Conference noted

> *Considering* that at all periods men have sometimes subjected the beauty and character of landscapes and sites forming part of their natural environment to damage which has impoverished the cultural, aesthetic and even vital heritage of whole regions in all parts of the world …
>
> *Considering* that this phenomenon affects the aesthetic value of landscapes and sites, natural or man-made, and the cultural and scientific importance of wild-life…
>
> *Considering* therefore, that it is highly desirable and urgent to consider and adopt the necessary steps with a view to safeguarding the beauty and character of landscapes and sites everywhere, whenever it is still possible to do so… (UNESCO 1962).

In the years before the 1972 World Heritage Convention, many countries were becoming increasingly concerned by the degradation and imminent loss of landscape beauty (Selman and Swanwick 2010).

6.1.3. Emergence of environmental aesthetics in the twentieth century and application to conservation

Today, the field of aesthetics "studies the way in which humans experience the world through their senses. It is especially concerned with the appreciation of particular objects when they strike the senses in a pleasing manner" (Carlson 2011: section 1). The term 'aesthetics' is a transliteration of the Greek *aisthësis*, whose literal meaning is perception by the senses (Berleant 2010: 341). In the mid-eighteenth century, the German philosopher, Alexander Baumgarten defined aesthetics as "the science of sensory knowledge directed toward beauty" so that the "very identity of aesthetics rests on the centrality of sense perception" (Berleant 2010: 341). The definition of aesthetics today focuses on the sensory response as an interaction between people and landscape (Daniel 2001; Gobster et al. 2007; Churchward et al. 2013). In practice, there is often a focus on the visual quality given that vision is a highly developed sense. It is acknowledged, however, that other senses can also contribute to aesthetic experiences.

The field of environmental aesthetics, focusing on the aesthetic appreciation of natural environments, is a relatively recent sub-field of aesthetics that emerged in the 1960s (Carlson and Berleant 2004; Carlson and Lintott 2008; Carlson 2012). In the last third of the twentieth century, aesthetics philosophy had a renewed interest in nature in North America; in contrast to the mid-twentieth century when the focus of aesthetics was primarily on art. The revival of interest in the aesthetics of nature was fueled by growing public concern about environmental degradation including the loss of landscape aesthetic quality (as described above; see Carlson 2012). The contemporary field of environmental aesthetics has roots in the field of aesthetics in the eighteenth and nineteenth centuries (described briefly above). Many of the ideas inherited from this time continue to influence contemporary environmental aesthetics, particularly as applied to conservation (Lothian 1999; Carlson 2012).

The field of applied and comparative environmental aesthetics has much to offer the assessment and understanding of the aesthetics of natural environments (Carlson and Lintott 2008; Carlson 2010; Berleant 2010; Sepanmaa 2010; Brady 2006; Brady 2003). One school of thought in environmental aesthetics asserts that scientific knowledge is central to aesthetic appreciation of nature (Carlson 1979; Parsons 2002; Carlson 2012). This approach argues that,

> aesthetic appreciation of nature requires knowledge of natural history—the knowledge provided by the natural sciences and especially sciences such as geology, biology, and ecology. The idea is that scientific knowledge about nature can reveal the actual aesthetic qualities of natural objects and environments in the way in which knowledge about art history and art criticism can for works of art (Carlson 2012: 3.1; see also Eaton 2004 and Carlson 2008).

There are some similarities to the current application of criterion (vii) that combines aesthetic appreciation of nature with knowledge of science. In the case of criterion (vii), scientific knowledge of the particular typology informs both the selection and description of attributes and comparisons with other areas (see description of current established practice in chapter 4).

Objectivity in evaluation of aesthetic values is important in arguing for conservation (Carlson and Lintott 2008; Thompson 2008). Australian philosopher Thompson has argued that,

> aesthetic judgments are, or can be, objective…we can and do give reasons for our aesthetic judgments. Critics are expected to provide a justification for why they think a work of art ought to be valued… [this] makes it possible to believe that aesthetic judgments can be objective even though there is a considerable amount of disagreement about what should be valued and why. …The mere fact that people have different opinions about what is especially beautiful in nature does not mean that aesthetic judgments about nature are not objective…. It does mean that we have to consider what reasons people can give for their preferences. …To satisfy the objectivity requirement an environmental aesthetic must not only provide a general strategy for justifying value claims; it should also be able to make and justify, however tentatively, comparative evaluations of natural beauty (Thompson 2008: 256-257).

In developing the relative claims of aesthetic value can be supported with

> Scientific knowledge, particularly knowledge of natural history of a particular environment or creature, [and this knowledge] plays a role analogous to the role of art history and art criticism. It makes proper appreciation [of nature] possible and at the same time provides a basis for judgments about aesthetic worth. …We can make and justify claims about the relative merits of natural things; we can give reasons for saying that some things in nature are of very great aesthetic worth (bis: 256, 265).

Transparency about how descriptions are developed and how relative assessments are being made is central to this argument for objectivity (for further discussion on objectivity, see discussion on methodologies in section 6.2).

It should be noted, however, that other schools of thought argue that experience of nature is not dependent upon scientific knowledge of the landscape but instead is based on multi-sensory experience (Berleant 2004). Today, there is a conceptual shift that is creating a combined model of aesthetic appreciation. Carlson noted that “this kind of bringing together and balancing of feeling and knowing, of emotion and cognition, is the very heart of aesthetic experience”

(Carlson 2010: 306). Concurrently, the field of environmental aesthetics is broadening its focus from primarily natural areas to include both rural and urban "human-influenced environments" while acknowledging the contributions of other fields to this inquiry (Carlson 2012: 4.1; see also Carlson 2008 and Parsons and Carlson 2008). This new direction includes consideration of the aesthetics of agricultural or industrial cultural landscapes and urban landscapes. This more holistic approach may, in the future, serve as the basis for development of more integrated cross-disciplinary methodologies and may enrich future discussions on the relationship between natural beauty and cultural beauty (see chapters 3, 4 and 5).

There have also been recent arguments advanced for further work on aesthetics across cultures (Berleant 2010; Saito 2010). Saito has proposed that environmental aesthetics can be "globalized" arguing that "the field has much to gain by studying diverse cultural traditions regarding their attitude toward and practice with nature and the environment" (Saito 2010: 373, 385). Berleant also has argued for "comparative aesthetics" to "identify resemblances and commonalities among different traditions and take note of irreducible differences. The growing interest in identifying contrasting features in western and eastern aesthetics offers a broad brush whose individual strokes may reveal illuminating subtleties" (Berleant 2010: 347).

Applied and comparative environmental aesthetics have much to offer understanding the aesthetics of natural environments. Certainly, it is useful to consider ways to enhance the objectivity of aesthetics evaluations (see also discussion on objectivity in section 6.2 below). It will also be useful to further explore the integration of scientific knowledge and sensory perception as well as the aesthetics of places with cultural and natural values. A better understanding of cross-cultural aesthetics is also needed. Consequently, following future developments in this field and engaging some of the current scholars in discussion on the evaluation of aesthetic value may be useful.

6.2. Assessing aesthetics of natural environments: Findings from a selective literature review relevant to the application of criterion (vii)

This literature review focused on landscape preference research and methodologies used to assess aesthetics of natural environments. There is a breadth and diversity of multidisciplinary social science research that has been conducted over the past 40 years. Therefore, this section uses several recent literature reviews to gain a perspective on this work (University of Newcastle 2002; Swanwick et al. 2007, Swanwick 2009, Selman and Swanwick 2010, Churchward et al. 2013 supplemented with Hartig 1993; Tveit et al. 2006; Ode et al. 2008; Fry et al. 2009; Hunziker 2009; Ode et al. 2009; and Ode et al. 2010). It is interesting to note that this field of research on aesthetics of natural environments was also stimulated in the 1960s and 1970s by the environmental concerns including threats to natural beauty and, in some countries, such as the United Kingdom and the United States, legislative initiatives (Zube et al. 1982). Similar concerns influenced the field of environmental aesthetics, as discussed in section 6.1.

The findings from this review offer ideas to consider for strengthening the application of criterion (vii). Observations on the potential ideas are discussed in the next section 6.3 and support some of the recommendations in section 7.2.

6.2.1. Research findings on landscape preference

There is an extensive multidisciplinary social science literature on perceptions and preferences for natural environments. Swanwick recently observed that,

> over the years there has been widespread academic interest in landscape perceptions and people's attitude and preferences, especially the question of why we like some landscapes better than others. Researchers from a broad range of disciplines including cultural geography, psychology, philosophy, sociology and anthropology – as well as from professional areas, notably planning and landscape architecture, have investigated this and related questions (Swanwick 2009: 566).

This area of research continues to be very active and "there is an expanding body of knowledge on landscape preferences worldwide" (Soliva et al. 2010: 674).

Relationship between aesthetic experience and landscape character

Landscape aesthetic experience has been defined as "a feeling of pleasure attributable to directly perceivable characteristics of spatially and/or temporally arrayed landscape patterns" (Gobster et al. 2007: 964). Many empirical studies have examined various aspects of landscape character and their contribution to aesthetic experience. Most studies have focused on visual quality, as sight is the dominant sense, and only a few investigate the aesthetic impact from other senses. For example, there is recent research on natural soundscapes indicating noise can adversely impact landscape assessments (Benfield et al. 2010).

Preferences for natural environments

This body of research has, using a variety of methods, investigated preferences for natural environments (as well as other types of environments such as rural and urban landscapes) and, in some cases, particular landscape components. In their literature review, Selman and Swanwick, note that "during the past 20 years or so, there has been an empirical trend towards demonstrating how (positive) landscape attributes are linked to human preference….relating to aesthetic appreciation based on recordable features" (Selman and Swanwick 2010: 5).

There are "certain physical landscape characteristics that have been repeatedly shown to be related to landscape preferences, with little variation among user groups" including:

- Surface water (lakes, streams, open water wetlands). Presence and/or amount of surface water viewed are associated with higher visual quality.
- Relief. More relief is associated with higher visual quality.
- Woodlands. Presence is associated with *spaciousness*: e.g., area/edge index, proportion of view occupied by woodlands.
- Land use. While 'land use' classification systems vary among studies and among places across time, the land use concept is robustly associated with visual quality. This characteristic has been found to be related to preference when it is used to represent *naturalism*…. In that case, the more natural the land use appears to be, the stronger the landscape preference (Churchward et al. 2013: 41).

These findings are similar to those from previous literature reviews. For example, "there is a general consensus that scenes with the right combination of water, relief and forest are universally valued for scenic appeal" (University of Newcastle 2002: 1). Another previous literature review summarized the general physical attributes of different types of environments that influence preferences, reporting that "four variables have been found to be important in preference: the degree to which a scene is natural or manmade, the extent of topographic variation, the presence or absence of water, and the scale and openness of the scene, with

naturalness appearing to be the most significant" (Hagerhall et al. 2004: 247). Similar results have been found by other researchers indicating that landscape preferences are positively enhanced by naturalness or what people perceive as naturalness (Tveit et al. 2006: 245; Selman and Swanwick 2010).

6.2.2. Methodologies for assessing aesthetics of natural environments

A diversity of methodologies has developed over the past 40 years of research on the aesthetics of natural environments. This brief review identifies some of the current directions in this field and several characteristics that contribute to the effectiveness of methodologies.

As noted in the *Preparing World Heritage Nominations* resource manual, "there are many intellectual approaches to concepts of the beauty and aesthetics of natural areas… adopting one or more recognized approaches is essential" (UNESCO 2011b: 40). The variety of methods has been noted by others based on literature reviews. For example, "a vast amount of academic research [has been] carried out into landscape perceptions and preferences from many disciplines, using differing methods, ranging from the problem-based statistical approach in forestry to more theoretical, qualitative work in environmental psychology" (University of Newcastle 2002:1).

The methods vary from quantitative to qualitative, including descriptive approaches. In many countries, descriptive methods have increasingly been adopted (University of Newcastle 2002; Churchward et al. 2013). One useful example, originated in the United Kingdom, is the Landscape Character Assessment (LCA) This is a well-documented methodology that systematically describes the landscape and uses that information to inform judgments including those related to scenic value, protected area designation, and environmental impact assessments (Landscape Institute and Institute of Environmental Management and Assessment 2002; Swanwick and Land Use Consultants 2002). Today, LCA, or some closely related approach, is in use in many other European countries and has been referenced in visual impact assessment work in New Zealand, Australia and Hong Kong, China (Ode et al. 2008; Swanwick 2009; Churchward et al. 2013). Some examples from LCA are included in the discussions on methodology below to provide a practical perspective. LCA guidance is particularly useful as it articulates ways to address similar challenges to those faced in the assessment of aesthetic values under criterion (vii) (see a brief description of LCA in Annex 3).

The following sections are organized around several characteristics that can be considered in selecting, implementing or strengthening an approach to aesthetic value assessments.

Methods for inventory of landscape character

In most methodologies, the landscape is described through some type of inventory of landscape character and this provides a foundation for identifying selected aspects that contribute to aesthetic or scenic value. 'Landscape character' is a term used to describe "the physiographic, ecological and/or cultural features that distinguishes a landscape as a recognizable type" and is distinct from the term "scenic value" which is defined as "an assessment of the attractiveness or the aesthetic experience of a particular landscape" (Churchward et al. 2013: 17). In some methods, such as LCA, the landscape description is deliberately separated from identifying components that contribute to aesthetic value as this involves making judgments (see additional discussion below).

A recent review of visual impact methodologies in the United States and several other countries indicated that most procedures establish "a geographic framework based on landscape physiographic" and "use both desk studies and field investigations to document and map" the landscape in addition to other factors related to impact assessment (Churchward et al. 2013: 17). This review also noted that,

- the United States systems "deconstruct landscape character into separate landscape resources or components (landform, vegetation, human-made)" whereas the United Kingdom method "focuses on an integrated approach to describing and mapping landscape character which incorporates aesthetic and perceptual aspects as part of this character";
- most of the United States methods "describe the pattern elements (form, line, color, texture) for each landscape component as part of its landscape character"; and
- most of the United States systems "evaluate additional pattern characteristics thought to contribute to scenic quality" such as dominance, scale, diversity, continuity, variety, degree of deviation, intactness, adjacent scenery, scarcity" (Churchward et al. 2013: 18).

LCA, for example, uses a structured and systematic approach to identifying character and distinctiveness as well as value (as noted above, these are two separate processes). Landscape character is defined as "a distinct and recognizable pattern of elements that occur consistently in a particular type of landscape" (Swanwick and Land Use Consultants 2002: 9). The description of landscape character requires systematic investigation of a wide variety of natural and geological processes and landforms. Development of this landscape description is guided by checklists and documented through maps as well as annotated photographs or sketches, accompanied by descriptions identifying the key characteristics for this type of landscape. While there is a focus on physical elements and their relative significance in landscape character, aesthetic and perceptual aspects are also included. LCA guidance notes that some of the "aesthetic aspects of landscape character can still be recorded in a rigorous and systematic, if not wholly objective or value-free way" (Swanwick and Land Use Consultants 2002: 34). Vocabulary that can be used to describe a range of aesthetic aspects is included, however, this is not intended to be comprehensive (see Annexes 3 and 4). Areas with similar landscape character have been mapped and this has been used to develop a national typology and more recently, a Character of England map that provides a national framework for more detailed assessment by local authorities and others (Swanwick and Land Use Consultants 2002).

Approach to making judgments on landscape aesthetic value

As noted above, LCA is used to inform decision-making, such as designation. For this purpose, the LCA emphasizes that the rationale behind the approach to making related judgments must be "clearly explained and transparent" as well as "the reasons for adopting a particular approach to making judgments" and "the extent and nature of stakeholder involvement" (Swanwick and Land Use Consultants 2002: 58). "In deciding on the approach to making judgements there must be a clear rationale which is explained to the assessment's users. This will help make the assessment and its application more robust and accountable" (Swanwick and Land Use Consultants 2002: 53). The guidance also notes that "judgements based on LCA need to take into account several factors… who is going to be involved in making the judgements…. [and] some assessments may still rely on judgements made by professionals…." and the importance of involving stakeholders in this part of the process "if the judgements are to command wide support and are to be as fully informed as possible" (Swanwick and Land Use Consultants 2002: 52).

In Natural England's 2011 *Guidance for assessing landscapes for designation as National Park or Area of Outstanding Natural Beauty in England (AONB)*, LCA is used as the main technique in the process of assessing landscapes for designation,

> Both characterization and evaluation can use the techniques of LCA to gather information in a structured way... In the context of AONB [and National Park designation] the value that is being assessed equates to the statutory criteria for designation, one of which is natural beauty (Natural England 2011: 7).

As "the systematic evaluation of natural beauty can be a complex exercise requiring careful assessment and judgement…", Natural England has developed a list of "factors that contribute to natural beauty" and "a practical framework for an evidence-base which assists in making judgments about natural beauty in a rigorous and transparent way" (Natural England 2011:12). The factors related to natural beauty, drawn from the landscape value criteria included in the LCA guidance (Swanwick and Land Use Consultants 2002), include landscape quality, scenic quality, relative wildness, relative tranquility, natural heritage features, and cultural heritage. These lists are not meant to be exhaustive, but to provide guidance with recognition that other factors may be relevant in some circumstances (for additional detail, see Natural England 2011: Appendix 1, Evaluation Framework for Natural Beauty Criterion). In England, the Countryside Agency has prepared LCAs for existing AONBs in order to provide a clear statement about their landscape values and to raise public awareness of their special qualities.

Characteristics to consider in methods for assessing aesthetic value

As described above, assessing the aesthetic value of a landscape and identifying elements that contribute to its scenic quality is a different process than preparing an inventory that systematically describes and documents landscape character. Even so, this distinction is not always clearly identified. For this reason, LCA, for example, explicitly "draws an important distinction between two stages: the relatively value-free process of characterization of the landscape" by mapping, classification and description and "the subsequent making of judgments based on knowledge of landscape character" (Swanwick and Land Use Consultants 2002:9). LCA is used, for example, as part of the designation process for National Parks and Areas of Outstanding Natural Beauty, in particular, for identification and boundaries, based in part, on assessments of natural beauty (Swanwick and Land Use Consultants 2002; Natural England 2011). Another common application is in impact assessments (Landscape Institute and Institute of Environmental Management & Assessment 2002; Churchward et al. 2013).

There are many different ways to identify and describe the characteristics of landscapes that relate to their aesthetic value (see Table 6.1).

Research has demonstrated that different approaches and methodologies for characterizing landscapes and perceptions of aesthetic quality vary in their reliability and validity (Palmer and Hoffman 2001; Churchward et al. 2013).

- Reliability

The term "reliability" is used to describe the extent to which the results are replicable by different evaluators. Research has shown that reliability differs with the type of landscape characterization used (see Table 6.1). Consequently, consideration of an acceptable level of "reliability of the landscape characteristics as measures related to visual quality" or scenic beauty is important for credibility of landscape assessments (Churchward et al. 2013: 39).

Table 6.1 Classifications of different approaches to characterizing landscapes related to aesthetic experience (from Churchward et al. 2013: 39)**.**

	Physical characteristics of		Connotative characteristics of landscapes	
Palmer 2000	Directly measured physical characteristics (e.g., percent tree or water cover, length or area of the view, relative	Human judged: Denotative characteristics (naturalism, development, spaciousne	Compositional attributes (contrast of: line form color texture scale, scale dominance, spatial dominance, visual impact severity)	Informational attributes (mystery, coherence, complexity, legibility)
Daniel and Vining 1983	Psychophysical model		Formal aesthetic model	Psychological model
Zube, Sell, Taylor, 1982	Psycho-physical characteristics, numerically measured		Expert: art, design, ecology characteristics (e.g., form, line color texture) Experiential: descriptions of everyday experience	Cognitive(e.g., Psychobiologi-cal and evolutionary conceptualiza-tion, culture and personality effects)
Gobster and Chenoweth 1989	Physical (e.g., area, width, depth, edge, velocity)		Artistic (e.g., line form color texture)	Psychological (e.g., mystery, coherence, complexity, legibility)
Stamps 1997	Criteria by which all judges get the same answer (e.g., standardized mean difference)		Characterizations of feelings (e.g., "respect," "harmony," "desirable," "consistent," "adequate," "appropriate," "consistent," "good proportions," "enhance," and "compatible")	

Use of multiple independent evaluators can also improve reliability (Churchward et al. 2013). The LCA also has developed guidance on techniques and vocabulary and also examples of assessments that can be used as models and adapted to a given environment (see Annexes 3 and 4). This helps to provide a level of consistency across assessments by different individuals (Swanwick and Land Use Consultants 2002).

- Validity

In the case of assessing aesthetic value, it is important to select “landscape characteristics that can validly represent visual quality” (Churchward et al. 2013: 37). In other words, identifying

those components or areas of the landscape that contribute to scenic quality. For example, findings from empirical research on the visual perception of landscapes can be used to inform selection of "landscape characteristics that validly represent visual quality…and are practical to measure" (Churchward et al. 2013: 37). Identifying components can be done by experts and/or by engaging the public and stakeholders (see also discussion on roles of experts and stakeholders below).

These characteristics and others were included in a set of criteria for evaluating visual impact assessment procedures, based on a research literature review (see Box 6.1 below).

Box 6.1: Criteria for evaluating visual impact assessment procedures developed based on research findings (Churchward et al. 2013: 37).

These evaluative criteria prescribed desirable overarching characteristics of visual impact assessment methods and procedures (from Churchward et al. 2013: 39).

1. Objective–The procedure is designed to eliminate individual bias.
2. Valid-–The procedure can be defended as measuring what it intends to measure.
3. Reliable–Adequately-trained professionals following the procedure reach the same conclusion.
4. Precise–The data required by the procedure are measured at a grain or scale sufficiently fine to validly measure or describe characteristics of substantive interest, and sufficiently coarse to be pragmatically implemented.
5. Versatile–The procedure supports valid assessment of different types of proposed changes from the perspectives of different viewer groups interacting with different landscape settings.
6. Pragmatic–The procedure can be easily and efficiently implemented by a trained professional.
7. Understood easily –The procedure and resultant assessments are accessible by the public and decision makers.
8. Useful–The procedure and resultant assessments affect location, design, or mitigation decisions.
9. Consistently implemented–The procedure can be consistently applied among different projects and individual assessments are consistent with the chosen procedure.
10. Legitimate–The procedure is supported by laws, regulations or other legal mechanisms, uses socially/culturally accepted standards, and uses scientifically accepted standards.

- Roles of experts and stakeholders

A recent review of methodologies both in the United States and several other countries, notes that most procedures rely on professional judgment, applying a system of expert-determined criteria to inventory and evaluate landscape visual qualities (Churchward et al. 2013). For example, in the case of Scottish Natural Heritage, staff with relevant academic expertise and professional training and experience, conduct landscape assessments as well as visual impact assessments (University of Newcastle 2002: 2).

There is, however, increasing interest and recognition of the importance of incorporating greater public or stakeholder knowledge and perspectives into landscape inventories and aesthetic assessments. For example, a review of international practice across eight countries concluded that there is "a growing recognition …that public views, preferences and perceptions should be incorporated into landscape policy and practice" (University of Newcastle 2002): 35). Some of the recent interest in people's perception and experience of landscapes in many European countries can be attributed to the European Landscape Convention (Council of Europe 2000).

In many cases, methods combine the role of experts with a parallel process of public or stakeholder engagement "using methods such as 'constituent surveys' to obtain information on preferences…" (University of Newcastle 2002: 31) For example, while expert professional judgment is an important element of the LCA, the expert-based process is informed by the involvement of different groups of stakeholders including the general public. There are opportunities in the process for a "wide range of stakeholders to contribute to characterization, each contributing their own judgements about variations in character" (Swanwick and Land Use Consultants 2002: 10). In LCA, "landscape value" is defined as "the relative value or importance that stakeholders attach to different landscapes and their reasons for valuing them" (Swanwick and Land Use Consultants 2002: 57). There is continuing exploration of various approaches to effective stakeholder involvement in LCA (Swanwick et al. 2003). Use of scientific methods to represent public perceptions and drawing on findings of peer-reviewed literature can also enhance the understanding of aesthetic values (Churchward et al. 2013). Some of these methodologies can also be used to gather perspectives from beyond the local communities to include national and international publics, an important component in preparing nominations for World Heritage (see discussion in section 4.1).

In addition to contributing to the nomination documents, engagement of the public and stakeholders can also serve several other purposes. As this type of engagement, encouraged in the current guidance on World Heritage nominations, can build awareness, greater understanding of aesthetic values and encourage commitment to conservation of those values and assist with management and monitoring over time (UNESCO 2011b; Campos et al. 2012). In addition, gathering information on local, regional, national, and where possible, international perceptions of aesthetic values and attributes of a landscape can provide insights into shared preferences and identify differences in perspectives. Other important values may also emerge from efforts to understand and identify aesthetic values (see discussion below).

Other values and their relationship to aesthetic values

It is important to acknowledge that "people value landscape for many different reasons, not all of them related to traditional concepts of aesthetics and beauty" including, for example, a wide range of natural resource and scientific values as well as social, community, cultural, and economic values (Swanwick and Land Use Consultants 2002: 3). Consequently, some methods for assessing aesthetic values, in particular through various ways of stakeholder engagement, can provide an opportunity to understand landscape preferences and also gain knowledge about other values. In the long term, compiling information on perceptions of aesthetic qualities from a variety of stakeholders would, over time, serve to broaden understanding of aesthetic values from various parts of the world.

An important related area of research is the influence of culture on landscape preferences and perceptions. Many studies show strong similarities for landscape preferences across cultures from countries representing different regions of the world (Buhyoff et al. 1983; Tips and Savasdisara 1986; Palmer et al. 1990; Palmer 2004; Selman and Swanwick 2010). Even so,

there have also been research findings that indicate influence of cultural perspective on preferences. For example, Swanwick reported that while there does appear to be some evidence for differences between cultural and ethnic groups "there are no clear-cut patterns" (Swanwick 2009: 571). Swanwick also noted that while cultural background and ethnic origin may influence preferences, "these are not easily translated into universal predictors" (Swanwick et al. 2007: 20).

Based on their literature review of scenic landscape assessment research over 30 years, Parsons and Daniel concluded that "while similarities in landscape preferences tend to be greater among similar cultures… and less so among dissimilar ones…even among dissimilar cultures there is evidence of substantial overlap in how people understand and evaluate environments" (Parsons and Daniels 2002: 47). In their conclusion, Selman and Swanwick note that from their perspective "it is clear that societies and cultures do vary in their assessment of the relative beauty of different landscapes," while "not necessarily undermining the statistical and deterministic basis of landscape preference" as "many [landscape] qualities appear to be consistently recognized across time and place" (Selman and Swanwick 2010: 7).

While it is difficult to summarize the findings from this area of research, it appears that there is good evidence of many shared preferences across cultures even though there is also some evidence of cultural influence on preferences. Given that there may be cultural influence on preferences and perceptions, this needs to be taken into consideration in assessments of aesthetic value. Further research in this area is needed (see recommendations in section 7.2).

Recent interest in broadening the scope of aesthetic values

There has been some interest in broadening the scope of aesthetic values beyond visual and other sensory experience to include a range of other social and cultural values (Dakin 2003; Sevenant and Antrop 2010; Stephenson 2010; Churchward et al. 2013). There are, for example, two projects in Australia being conducted in parallel with this study. An initiative by the Australian Heritage Council (AHC) responds to current issues related to "the application of methodologies for assessing the aesthetic value of places nominated to the National Heritage List" (Australian Heritage Council 2012: 1). These issues concern the application of methods for assessing aesthetic value across diverse landscapes with a great range of natural and cultural heritage and inclusion of indigenous and non-indigenous perspectives. While this work is on-going, an initial workshop in May 2012 was designed to analyze and evaluate some of the existing methodologies. Participants agreed that it is important to integrate methods from natural and social science to identify values that are shared across and between cultures. They also agreed to offer assistance to communities in articulating their values, including aesthetics, as an important component of methodologies used. They will continue to develop "a more holistic and integrated approach to aesthetic values that addresses cross-cultural perspectives" (Australian Heritage Council 2012: 13).

The second project on identifying, defining, and assessing the aesthetic values of the Great Barrier Reef is being conducted for Heritage & Wildlife Division, Australia Sustainability, Environment, Water, Population & Communities (Context Pty Ltd in preparation). Importantly, this project defines aesthetic values to include sensory, experiential and emotional response to place. This definition extends beyond the visual environment with a broader conceptualization. The environmental and experiential attributes that convey these values can be both tangible (physical or material expressions) and intangible cultural expressions (for example ritual, traditions, knowledge systems, language, and performance). To assess the aesthetic values of the Great Barrier Reef, this project designs new integrated methodologies that draw from

Australian heritage practice and other established procedures and uses multiple sources of existing data for the analysis. This new approach recognizes that "aesthetic values are influenced by culture, experience, expectations and past experience, our approach has been to seek out data on aesthetic values that are broadly shared" (Context Pty Ltd in preparation). The methodology defines two types of aesthetic attributes, environmental and experiential, and maps attributes which can then be used to support integrity analysis, management planning and impact assessments. Of particular interest, this project develops a typology for environmental and experiential attributes of aesthetic value that defines "distinctive types of environments broadly using existing frameworks such as broad geomorphological types as a means of understanding the variability in the landscape…" (Context Pty Ltd in preparation). This is, in a sense, an adaptation of existing typological frameworks for analysis and comparison of attributes of aesthetic values, in this case, within the Great Barrier Reef World Heritage Site.

While these two projects are focused on Australia, as they proceed, they can contribute to the international discussions on the breadth of the scope of aesthetic values and their attributes as well as offer ideas for development of new integrated methodologies.

6.3 . Summary of findings and observations

This review demonstrates that there are opportunities to import some of the findings and methodologies from social science research and insights from the field of environmental aesthetics to inform assessment of criterion (vii) and make it more systematic, rigorous and transparent. There are also opportunities to develop partnerships with the social science community and other professionals with expertise in landscape aesthetic assessment.

Applied environmental aesthetics has contributed insights into practical conservation concerns such as objectivity for aesthetic assessments and the role of scientific knowledge in aesthetic appreciation of nature. There is also potential for future contributions in the exploration of cross-cultural aesthetic perspectives.

This review also demonstrated the wealth of multidisciplinary social science research that has been conducted on the aesthetics of natural environments over the past 40 years. There is a body of research on landscape preferences and findings indicate discernible patterns of visual preferences for natural environments. For example, certain general characteristics of natural environments consistently evoke positive preferences such as water, topographic variation, woodlands, and naturalness. This is consistent with some of the references to properties as 'pristine', 'nearly pristine' or 'relatively undisturbed' in the justifications for application of criterion (vii) (see chapter 3).

A diversity of methodologies has developed over the past 40 years of research on the aesthetics of natural environments. The findings and methodologies address two of the challenges in application of criterion (vii) (identified in section 2.4): identifying and defining attributes that convey aesthetic value and conducting comparisons with other areas in a global context.

Observations for strengthening the application of criterion (vii) by importing knowledge and methodologies from research and practice

- Systematic identification and description of attributes that convey aesthetic value

In most methodologies, the landscape is described through some type of inventory of landscape character and this provides a foundation for identifying selected aspects that contribute to aesthetic or scenic value. In many cases (such as Landscape Character Assessment (LCA)), the analytical and descriptive characterization provides a spatial framework that can be used as a basis for assessments of aesthetic value.

There are many different methods for selecting and describing characteristics of landscapes that relate to aesthetic value, each with different strengths and limitations. Certain characteristics of the methodology can make assessments more systematic and rigorous. Other considerations in the selection of methodologies include ways to enhance objectivity, transparency, validity, and reliability. Validity relates to the level of confidence that the attributes selected convey aesthetic value and reliability indicates that various professionals and stakeholders would come to similar conclusions about the relative merits of aesthetic value.

While methods vary from quantitative to qualitative, the literature review revealed that a descriptive approach, similar to the one that has developed for criterion (vii) (see section 4.1.1), is used in many countries and for many types of landscapes. Some approaches have developed guidance on vocabulary for qualitative descriptions of landscapes (see information on LCA in Annexes 3 and 4). While there is a focus on physical elements and their relative significance in landscape character, aesthetic and perceptual aspects are also included and have methods to record these systematically.

Methodologies for aesthetic assessments include a variety of documentation techniques for mapping attributes or annotating photographs or sketches, and these could be adapted for nominations. Mapping attributes is recommended in the *Preparing World Heritage Nominations* resource manual and indicates that this process can assist in establishing boundaries and assessing integrity as well as for monitoring, management, and impact assessments. In addition, although the focus has generally been on visual aspects, there are methods being used to document other sensory experiences, in particular, research on soundscapes.

As there are many methods with different assumptions, limitations and strengths, it is important for transparency to describe the methodology that is used for assessment of aesthetic value. In the World Heritage context this information can be included in a nomination or evaluation report, however, at present, this is rarely included in the files (see chapter 4).

- Comparisons with other areas in a global context

In the current practice for application of criterion (vii), existing global typological frameworks are used to identify other sites with similar values for comparative analyses (see chapter 4). For many of the properties nominated under criterion (vii), comparisons based on qualitative assessments of aesthetic values have been challenging, however, some approaches have been initiated recently. In the IUCN evaluation of the Lakes of Ounianga, Chad (described in chapter 4), for example, a systematic comparison of images from 23 desert sites worldwide was included in the comparative analysis. This visual comparison among a number of sites based on a number of key features contributed to the case for inscription of the nominated property under criterion (vii).

This example demonstrates that it may be useful to further adapt existing global typologies as part of a framework for comparisons of properties with aesthetic value based on qualitative assessments. Adaptation of the existing typological frameworks for global comparisons can be informed by review of existing World Heritage properties with aesthetic value from particular

landscape types. Experience and knowledge from similar approaches applied in other countries, such as those implementing a LCA can be used to guide development of this framework. Additional insights may be provided by a current project on defining the aesthetic values of the Great Barrier Reef (for the Australian Department of Sustainability, Environment, Water, Population & Communities) that is developing a typology of environmental and experiential attributes adapted from existing geomorphological frameworks (described in section 6.2). Any existing relevant research on landscape preferences or landscape character can also be included in this process. To initiate and evaluate this idea in the World Heritage context, development of a prototype for one of the landscape typologies would ideally be prepared through a participatory process involving people with expertise in the particular typology from different parts of the world as well as others with expertise in social science and experience with landscape assessment. The resulting typological framework for that type of landscape would represent a shared perception of the key characteristics, including common aesthetic attributes, and could serve as a basis for comparison of multiple sites. A similar approach can be considered for superlative natural phenomena as well.

In making relative judgments of landscapes, it is important to make the criteria and the rationale transparent. In designation of protected areas, for example, which requires assessment and judgment, there is a set of factors that contribute to natural beauty and a practical framework for an evidence-based process (see discussion in 6.2.2). This emphasis on transparency of how aesthetic descriptions are developed and how relative assessments of value are made reflects the field of environmental aesthetics discussion on objectivity (see section 6.1.3).

- Roles of experts and engaging stakeholders

The existing nomination and evaluation process within World Heritage is primarily expert-based, relying on professional judgment. Given the scientific base for many aesthetic attributes in the assessment of criterion (vii), involving people with expertise on relevant landscape typologies is appropriate and particularly useful. In addition, as demonstrated in the literature review, many of the methodologies for landscape description and comparison are drawn from social sciences, so it is important to involve experts knowledgeable and experienced with quantitative and qualitative landscape assessments. In the context of *Preparing World Heritage Nominations*, this expertise could be added to a nomination team and, in particular, on the comparative analysis team. Similarly, such expertise could be added to reviews of nominations proposed under criterion (vii) as part of the overall IUCN evaluation process.

As demonstrated in the literature, involving multiple individuals in assessment of attributes and comparative analyses can enhance reliability. In the context of World Heritage, involving professionals from different parts of the world is also useful as different cultural perspectives are represented (see discussion in section 6.2.2). LCA offers guidance on techniques and vocabulary that can be adapted to different environments and provides a level of consistency across similar types of areas that may be assessed by different individuals. A similar type of guidance could be developed for assessment of aesthetic values under criterion (vii).

While many assessment methods are expert-based, there is an increasing interest and recognition of the importance of incorporating public or stakeholder preferences into the process. In many cases, methodologies combine the role of experts with a parallel process of public and stakeholder engagement. Use of expert assessments can be combined with public perceptions represented through social science methods and also by drawing on findings of peer-reviewed literature to enhance the understanding of aesthetic values and inform selection and documentation of attributes. Gathering information on local, regional, national, and where

possible, international perceptions of aesthetic values and attributes of a landscape can provide insights into shared preferences and identify differences in perspectives. As part of the comparative analysis of properties nominated under criterion (vii), it is important to include evidence that the aesthetic values of a nominated property are shared beyond the State Party and social science data can support this justification, in addition to other types of information (discussed in chapter 4).

Information on other social, cultural and environmental values may also emerge from efforts to understand and identify aesthetic values. Engagement of the public and key stakeholders, encouraged in the current guidance on World Heritage nominations (in particular the *Preparing World Heritage Nominations* resource manual), can build awareness, greater understanding of aesthetic values and commitment to conservation, management and monitoring over time. In the long term, information on aesthetic qualities as perceived by the local, national and international populations would serve to broaden understanding of aesthetic values from various parts of the world.

This brief review demonstrates that there is detailed knowledge, methodologies and experience available that can be adapted to strengthen the application and assessment of criterion (vii), making it as systematic, rigorous and transparent as possible.

Relationship between concepts of natural and cultural beauty

Natural beauty, the aesthetic appreciation of natural areas, has been an impetus for conservation for many years in many countries around the world. The historical development of appreciation of beauty of natural environments has a long and parallel history with the appreciation of cultural beauty (see chapter 5 and section 6.1). In the context of World Heritage, natural beauty refers to the aesthetic qualities of natural environments, describing the response of people to nature whereas cultural beauty focuses on cultural environments. Even so, more clarity is needed on the relationship of the two concepts of natural and cultural beauty as well as a better understanding of the recognition of aesthetic values through application of criterion (vii) and through the cultural criteria.

New directions in the definition and assessment of aesthetic value

There are some new directions in assessment of aesthetic value that may have implications for application of criterion (vii). There has been recent interest in broadening the scope of aesthetic values beyond sensory experience to include a wider range of other social, cultural, and environmental values. This broadened definition of aesthetic value would require new methodologies and further consideration, in the World Heritage context, of interface with cultural values. There are, for example, two projects in Australia currently underway to develop new methodologies that provide a more holistic and integrated approach to aesthetic values and address cross-cultural perspectives. While these two projects are focused on Australia, as they proceed, they can contribute to the international discussions on the breadth of the scope of aesthetic values and their attributes as well as offer ideas for development of new integrated methodologies.

Future discussions on expanded definitions of aesthetics and associated new methodologies, and further examination of the relationship of natural and cultural beauty, will depend on collaboration of IUCN, ICOMOS, ICCROM and other organizations as well as natural and cultural heritage professionals and those with expertise in aesthetic value assessment.

7. CONCLUSIONS AND RECOMMENDATIONS

This study has presented an opportunity to look at the application of criterion (vii) over time, reflect on current practice in recent nominations and IUCN's assessment of this criterion, and assess trends in related disciplinary fields. In addition, in coordination with ICOMOS, this study reviews aesthetic considerations in the application of cultural criteria. This chapter highlights the key findings and conclusions of this study, identifies key challenges, and makes recommendations on ways to strengthen application of criterion (vii) in the future.

7.1 Summary of key findings and conclusions

The wording for criterion (vii) in the *Operational Guidelines* has been modified several times since 1978, with the most notable change in 1994; since then the text has remained unchanged. IUCN interprets the current wording as including two distinct ideas: (1) superlative natural phenomena and (2) exceptional natural beauty and aesthetic importance; and considers that nominations of new sites proposed under this criterion can address one or the other of these ideas or both.

This study conducted a case history of the application of criterion (vii) over the last 15 years and also reviewed the statutory files, focusing on the 45 properties inscribed since 1995 at the time of the last wording changes in the criteria. Between 1995 and 2012, there has been an increasing level of complexity in the nominations and evaluations of properties proposed for inscription with criterion (vii) on the World Heritage List. Over this period and particularly since 2005, evaluations have become increasingly structured and better informed by a wider set of consultations, and justifications provided are more detailed and explanatory as to the application of criterion (vii).

Even so, the findings indicate that several challenges remain in the application and assessment of criterion (vii):

e) assessing how superlative natural phenomena can be objectively measured and assessed and clarifying values that are conveyed;

f) assessing natural beauty and aesthetic importance using recognized approaches that are systematic, rigorous and transparent;

g) conducting a comparative analysis in a global context based on a structured framework equivalent to that used for other natural criteria; and

h) clarifying the relationship between aesthetic values represented in criterion (vii) with aesthetic considerations in the application of cultural criteria.

The following brief overview of key findings and conclusions provides background for the recommendations (in section 7.2).

Overview of current status of properties inscribed with criterion (vii)

As of December 2012, 133 properties (110 natural properties and 23 mixed properties) have been inscribed with this criterion:

- Most commonly criterion (vii) has been used in combination with other criteria. Only rarely, in 9 cases, have properties been inscribed with criterion (vii) alone and only 3 have been inscribed since 1995.

- Of the 29 mixed properties on the list, 23 have used criterion (vii) and of these 8 have criterion (vii) as the only natural criterion. Since 1995, only 6 mixed properties have been inscribed and only one has (vii) as the sole natural criterion.

- Overall, the use of (vii) has declined over time, however, it is still the most commonly used natural criterion. There have been an average of two properties inscribed with (vii) each year over the last ten years.

- A review of tentative lists indicates that 251 properties from 95 States Parties are proposed using criterion (vii), so additional nominations each year are anticipated.

Relationship between superlative natural phenomena and areas of exceptional natural beauty and aesthetic importance

Existing guidance in the *Preparing World Heritage Nominations* resource manual interprets criterion (vii) as including two distinct ideas. This resource manual also states that the first idea, 'superlative natural phenomena' can often be objectively measured and assessed (e.g. the deepest canyon, the highest mountain, the largest cave system, the highest waterfall) whereas 'exceptional natural beauty and aesthetic importance' are harder to assess.

A detailed examination of the 45 properties inscribed under criterion (vii) since the last wording changes in the 1994 *Operational Guidelines*, reveals that the two ideas are most often used in combination and the focus has been on the aesthetic values (and primarily on the visual character) of the properties even when superlative natural phenomena are considered.

The review also shows that in a few cases and, in particular, in older nominations, superlative natural phenomena were associated with impressive or dramatic expressions of natural features. In addition, superlative natural phenomena have often been associated with animal concentrations and migrations, however, more recently, other biological and geological processes have been considered. In those few cases of recent nomination files where the States Parties argued that the property met criterion (vii) for containing superlative natural phenomena, the phenomena proposed were all related to processes rather than natural features. Based on these findings, superlative natural phenomena can be understood to generally refer to impressive or dramatic expressions of natural features and processes which can possess scientific and/or aesthetic values. Thus the term 'superlative' can be defined as having more of a particular quality than anything else of the same type. Therefore assessments of 'superlative natural phenomena' need to be based on the 'quality' or value identified.

These findings point to the conclusion that superlative natural phenomena can have a wider interpretation than what is presently included as guidance in the resource manual and can be considered from a scientific point of view, particularly when they relate to natural processes. This finding also reinforces the validity of the application of criterion (vii) as any other natural criteria.

Properties inscribed for their exceptional natural beauty and aesthetic importance are often spectacular physical landscapes primarily mountainous and coastal areas. In recent years, emphasis has been towards describing the simultaneous presence of various natural features of

the physical landscape or individual features because of their occurrence in high numbers and/or high density especially over relatively limited areas.

The aesthetic characteristics of the properties described are primarily visual, given that sense of sight is highly developed. The emphasis on visual aspects of the physical landscape is also consistent with the findings of landscape preference research that has demonstrated that certain general characteristics of natural environments consistently evoke positive preferences such as water, topographic variation, woodlands, and naturalness. Even so, the findings indicate there are occasional references to soundscapes, in particular, and other sensory aspects of natural beauty that contribute to aesthetic experience. While the findings show that nominations and IUCN's evaluations are increasingly thorough, more use of recognized methodologies for assessing aesthetics of natural environments can inform a more rigorous and systematic application of criterion (vii) in relation to aesthetic values.

Established practice in the application of criterion (vii)

Although there is a great diversity among nominated properties, findings from the review of nominations and IUCN's evaluation reports between 1995 and 2012 reveal an evolution of a general practice for assessment of criterion (vii) that is similar to the approach used for other natural criteria. Over this period, evaluations have become increasingly structured and better informed by a wider set of consultations and global comparisons. Even so, comparison of current practice with existing guidance and review of research methodologies in related fields concludes that application of criterion (vii) can be strengthened (see section 7.2 Recommendations).

Important components of this established practice are:

1) distinction between two ideas within criterion (vii) and values conveyed;

2) descriptions of attributes to identify and define values; and

3) use of existing global frameworks to make specific comparisons based on application of criterion (vii) and the ideas it embodies.

Distinction between two ideas within criterion (vii) and values conveyed.

Findings show that generally there is no clear distinction between these two ideas in the justifications given for the application of criterion (vii). Findings also demonstrate that while there is an overall focus on aesthetic values and primarily on visual character, superlative natural phenomena can also be considered from a scientific point of view, particularly when it relates to natural processes. Making such a distinction between the two ideas of criteria (vii) is important in order to convey if the property meets one or both ideas and what values are conveyed. Therefore, it would be important that in future nominations and evaluations of properties under criterion (vii), the justifications for meeting the criterion define clearly what values are considered and that the descriptions of the attributes support such a justification.

Descriptions of attributes to identify and define property's values to support justifications of the application of criterion (vii).

Identifying key attributes that convey the property's value(s) is essential to support comparisons with other areas and ultimately, to support management. The identification and description of

attributes to support the justification of criterion (vii) have increasingly become more detailed in recent nominations and IUCN's evaluations, however, this is more explicit in some property files than in others.

The assessment of natural phenomena as suggested in the *Preparing World Heritage Nominations* resource manual, can sometimes be based on measurable dimensions but not always. Even so, the findings show that measurable dimensions alone are insufficient to identify and define values. Thus, the existing guidance in the resource manual suggests that superlative natural phenomena can often be measured may limit the idea of superlative natural phenomena by providing only a few examples such as the deepest canyon, highest mountain or highest waterfall. Exemplary dimensions are generally not the sole measure of (vii) but perhaps an indicator of attributes that, in combination, may make the case for the values. Therefore, the use of measurable dimensions in relation to superlative natural phenomena can be used to support the justification of the application of criterion (vii) but should not be seen as the sole element in the overall assessment of values.

The *Preparing World Heritage Nominations* resource manual also suggests that comparisons of natural beauty and aesthetic importance should be based, to the extent possible, on measurable indicators of scenic beauty. But few examples of this approach are used in practice in the nomination files, rather the justifications are, in general, supported with qualitative descriptions (see additional discussion under established practice below).

Use of existing global frameworks to make specific comparisons based on application of criterion (vii) and the ideas it embodies.

The findings show that, in most recent cases, identification of other sites for global comparison is based on typological similarities to the nominated property within established global frameworks of natural landscapes so that, for example, mountains are compared with mountains, and deserts with deserts. A common approach is to identify the key natural attributes (and related descriptions detailing how the attributes convey the property's values) and use these attributes as a basis for comparing the property with similar ones by using the appropriate existing global framework.

Findings demonstrate that a large number of nominations and IUCN's evaluation reports do not include specific comparisons in relation to criterion (vii) or the other criteria for which the properties were nominated but remain general. A few, more recent cases since 2005, have made specific comparisons on each criteria, including on criterion (vii). To provide a strong claim for the application of criterion (vii), the comparative analysis should include specific comparisons for the ideas embodied in this criterion.

In some cases, comparisons with other properties are supported by measurable dimensions, in relation to superlative natural phenomena. The findings show that rarely has any individual feature measured to be the highest or largest on Earth been singled out to justify the inscription. The *Preparing World Heritage Nominations* resource manual also suggests that comparisons of natural beauty and aesthetic importance should be based, to the extent possible, on measurable indicators of scenic beauty. But few examples of this approach are used in practice in the nomination files. In general, rather than relying on measurable indicators, comparisons have been based on qualitative descriptions of attributes as the basis for the application of criterion (vii). In such cases, the term 'measurable' in the current guidance rather than being strictly interpreted as the size, amount, or degree as in quantitative assessments but also to include systematic, rigorous qualitative descriptions.

The findings also indicate that, for many properties nominated under criterion (vii), comparisons based on qualitative assessments of aesthetic values have been challenging. However, some new approaches have been initiated recently, for example, in the IUCN evaluation of the Lakes of Ounianga, Chad (described in chapter 4). This example demonstrates that it may be useful to further develop existing global typologies as part of a framework for comparisons of properties with aesthetic value based on qualitative assessments. For discussion on further developing typological frameworks for criterion (vii), see Recommendation 4.

As part of the comparative analysis of properties nominated under criterion (vii), it is important to take into consideration other types of evidence that the values of a nominated property are shared beyond the State Party. The findings reveal that several types of evidence have been used. Some properties, for example" have been documented as a "world reference site" for a type of feature or have "iconic status." Historical or contemporary documentation has been used to indicate that places and, in some cases, particular features, have been valued for their natural beauty or as a natural phenomenon for a long time. Some of the sources of evidence that demonstrate aesthetic landscape values at an international level include works of art, literature, cinema, and music. Claims have also been based on significant international tourism destinations and tourism data have also been used. As discussed previously, evidence can also be gathered through social science research on internationally shared value of superlative natural phenomena or areas of exceptional natural beauty.

Findings of literature review relevant to strengthening the application of criterion (vii)

The guidance in the *Preparing World Heritage Nominations* resource manual emphasizes that claims for the application of criterion (vii) for exceptional natural beauty and aesthetic importance must be supported by rigorous intellectual analysis and adopt one or more recognized approaches. While the findings show that nominations and IUCN's evaluations are increasingly thorough in their assessment of natural beauty, application of recognized methodologies for assessing aesthetics of natural environments is limited.

The review of social science literature and, in particular, the review of methodologies, concludes that there is knowledge and experience available from research over the past forty years that can be used to strengthen the application of criterion (vii). A diversity of methodologies has been developed for the assessment of aesthetic value of natural environments. There are established methodologies for inventorying landscapes that can be used to systematically identify and describe attributes that convey aesthetic value. This type of approach can systematically develop detailed qualitative descriptions within a standard structured framework.

There are many different methods for selecting and describing characteristics of landscapes that relate to aesthetic value, each with different strengths and limitations. Certain characteristics of the methodology can make assessments more systematic and rigorous. Other considerations in the selection of methodologies include ways to enhance objectivity, transparency, validity, and reliability. Validity relates to the level of confidence that the attributes selected convey aesthetic value and reliability indicates that various professionals and stakeholders would come to similar conclusions about the relative merits of aesthetic value. As there are many methods with different assumptions, limitations and strengths, it is important for transparency to describe the methodology that is used for assessment of aesthetic value. At present, this information is not usually included in the nomination or evaluation report.

While methods vary from quantitative to qualitative, the literature review reveals that a descriptive approach, similar to the one that has developed for criterion (vii), is used in many

countries and for many types of landscapes. Some approaches have developed guidance on vocabulary for qualitative descriptions of landscapes. While there is a focus on physical elements and their relative significance in landscape character, aesthetic and perceptual aspects are also included and there are methods to record these characteristics systematically. Methodologies for aesthetic assessments also include a variety of documentation techniques for mapping attributes or annotating photographs or sketches, and these could be adapted for nominations. Mapping attributes is recommended in the *Preparing World Heritage Nominations* resource manual, indicating that this process can assist in establishing boundaries and assessing integrity as well as for monitoring, management, and impact assessments. In addition, although the focus has generally been on visual aspects, there are methods being used to document other sensory experiences, in particular, research on soundscapes.

The existing nomination and evaluation processes are primarily expert-based, relying on professional judgment. The literature review reveals many assessment methods are expert-based, however, there is an increasing recognition of the value of incorporating public or stakeholder preferences into those processes. In many cases, methodologies combine the role of experts with public and stakeholder perceptions represented through social science methods. Gathering information on local, regional, national, and, where possible, international knowledge and perceptions of aesthetic values and attributes of a natural area can provide insights into shared preferences and identify differences in perspectives.

In conclusion, the literature review demonstrates that additional integration of knowledge and methods from social science and related fields would contribute to a more systematic, rigorous and transparent application of criterion (vii) in relation to aesthetic values, in particular. Consequently, there are opportunities to develop partnerships with the social science community and professionals with expertise in landscape assessment. In addition, this review concludes that professional expertise would be useful in preparation of nominations proposed with criterion (vii) and in their evaluation.

Aesthetic considerations in the application of cultural criteria: the application of the concept of cultural beauty

ICOMOS' contribution reviewed the concept of aesthetic/artistic value or cultural beauty as it has been recognized through the application of cultural criteria. ICOMOS also considers how ideas on aesthetic value have emerged over time and in different parts of the world and how they are often deeply rooted in cultural traditions. Aesthetic dimensions of cultural beauty are an expression of the way the property developed and they reflect a shared understanding of a particular society and the ideas that it espoused at a particular time. Thus, for cultural properties, acknowledgement of aesthetic value reflects its cultural context and the way this is manifest within a property.

Based on its review, ICOMOS suggests that it would be helpful if more guidance were to be developed on the recognition of aesthetic/artistic value or cultural beauty for all the cultural criteria, and also in relation to aesthetic value or natural beauty for criterion (vii). In addition, acknowledging the similarities and distinctions between the concepts of cultural and natural beauty, it would be useful to examine further these two concepts in order to provide more clarity on the application of cultural criteria and of criterion (vii) for future nominations and evaluations in general, and for mixed properties, in particular (see Recommendation 5).

Cultural perspectives on landscape preferences and new directions in the definition and assessment of aesthetic value

This literature review for this project was not able to fully examine the wide range of different cultural perspectives on aesthetic values of natural environments. Consequently, this remains an important area to continue to explore with different cultural perspectives and with local and indigenous communities. An important related area of research is better understanding the influence of cultural differences on landscape preferences and perceptions. Many studies provide evidence of shared preferences across cultures even though there is also some evidence of cultural influence on preferences, so further research in this area is needed. Given the importance of considering different cultural perspectives, a broader literature review is needed. In particular, it would be useful to identify more information on relevant methodologies and other research findings from other countries and a diversity of cultures.

The literature review also reveals some new directions in assessment of aesthetic value that may have implications for application of criterion (vii). There has been recent interest in broadening the scope of aesthetic values beyond sensory experience to include a wider range of other social, cultural, and environmental values. This broadened definition of aesthetic value would require new methodologies and further consideration, in the World Heritage context, of interface with cultural values. There are, for example, two projects in Australia currently underway to develop new methodologies that provide a more holistic and integrated approach to aesthetic values and address cross-cultural perspectives (see section 6.2). While these two projects are focused on Australia, as they proceed, they can contribute to the international discussions on the breadth of the scope of aesthetic values and their attributes as well as offer ideas for development of new integrated methodologies and typological frameworks.

7.2. Recommendations for a more systematic application of criterion (vii)

These recommendations build on the main findings and conclusions from the different reviews carried out in this study and they respond to the identified key challenges in the application of criterion (vii). These recommendations focus on ways to improve the application and assessment of criterion (vii) in a more structured, systematic, and transparent way in both nominations and evaluations.

In developing these recommendations, comparisons were made between current practice and existing guidance in the *Preparing World Heritage Nominations* resource manual. This comparison identified areas for improvement in the application of criterion (vii) and, in some cases, ways to enhance the existing guidance. Some recommendations can be specified in detail based on current knowledge, whereas others will require additional discussion, further information or research and new partnerships.

Strengthen established practice in the application of criterion (vii)

Findings in this study reveal an evolution of a general practice for application of criterion (vii) that has become increasingly structured and better informed by a wider set of consultations and global comparisons. Even so, comparison of current practice with existing guidance and a review of research findings and methodologies in related fields, concludes that the application of criterion (vii) can be strengthened as described in the following three recommendations.

Recommendation 1. Criterion (vii) is considered to have two distinct ideas, which are relevant to its application. Nominations under this criterion should therefore make clear whether the nominated property is considered to contain a) superlative natural phenomenon, b) areas of exceptional natural beauty and aesthetic importance, or both and what values are conveyed.

Findings show that a clear distinction between these two ideas is not usually made in the justifications for the application of the criterion. Therefore, it is important that in future nominations and evaluations of properties proposed under criterion (vii), justifications for meeting the criterion make such a distinction in order to convey if the property meets one or both ideas of criteria (vii) and what values are conveyed.

Generally, natural phenomena can be understood to refer to impressive or dramatic expressions of natural features and processes that possess scientific and/or aesthetic values. Thus, 'superlative natural phenomena' can have a wider interpretation than what is presently included in the guidance, particularly when it comes to biological and geological processes and their scientific value. In addition, the term 'superlative' means that such a natural phenomenon (process or feature, or combination of them) has more of the particular quality than anything else of the same type'. Therefore assessments of 'superlative natural phenomena' need to be based on the 'quality' or value identified.

For properties nominated under criterion (vii) for their exceptional natural beauty and aesthetic importance, consideration should be given to the simultaneous presence of various natural features of the physical landscape or individual features because of their high number and density especially over relatively limited areas. In addition, visual aspects of the physical landscape should continue to be emphasized as supported by the findings on landscape preferences. Even so, soundscapes and other sensory aspects of properties should be consistently considered. Other aspects that contribute to the overall quality of the aesthetic experience should also be consistently recognized.

***Recommendation 2. Justifications of the application of criterion (vii) should be supported by clear evidence of a rigorous and systematic identification of attributes that convey the values of the nominated property*.**

Identifying attributes that convey the property's value is foundational to support comparisons with other areas and ultimately management. Identification and description of attributes have become increasingly more specific in nominations and IUCN evaluations. However, descriptions of attributes are more explicit in some nominations and evaluation reports than in others, thus it should be considered as a fundamental element in the overall process in the future and be rigorous and systematic.

As noted previously, the existing guidance in the *Preparing World Heritage Nominations* resource manual that suggests that superlative natural phenomena can often be measured can limit the idea of superlative natural phenomena by providing only a few examples (e.g. the deepest canyon, highest mountain or highest waterfall). The same guidance suggests that comparisons of natural beauty and aesthetic importance should be based, to the extent possible, on measurable indicators of scenic beauty. But few examples of this approach are used in practice in the nomination files. Rather, in general, qualitative descriptions of attributes (rather than use of solely measurable dimensions) have been used to support the justifications for the application of criterion (vii) (see additional discussion below). Thus, the term 'measurable' in the current guidance rather than being strictly interpreted as quantitative assessments should be defined to also include systematic, rigorous qualitative descriptions. Though developing such qualitative assessments can be challenging, a clear framework for making comparisons based on key attributes of the property is essential (see additional discussion below).

Guidance in the *Preparing World Heritage Nominations* resource manual also emphasizes that claims for the application of criterion (vii) for exceptional natural beauty and aesthetic

importance must be supported by rigorous intellectual analysis. The resource manual on preparing nominations also states that adopting one or more recognized approaches is essential as merely asserting that a property has exceptional natural beauty and providing attractive photographs is inadequate. Even so, review of the files indicates that application of recognized methodologies for assessing aesthetics of natural environments is limited.

The review of literature concluded that there is knowledge and experience available that can be used to strengthen the application of criterion (vii). In particular, there are established methodologies for inventorying and assessing landscapes that can be used to systematically identify, describe, and document attributes that convey aesthetic value. This type of approach can systematically develop detailed qualitative descriptions within a standard structured framework. Selection of a methodology should consider characteristics that make assessments more systematic and rigorous and enhance objectivity, transparency, validity, and reliability. It is important for transparency to describe the methodology that is used for assessment of aesthetic value as, at present, this information is not usually included in the nomination or evaluation report.

While methods vary from quantitative to qualitative, the literature review reveals that a descriptive approach, similar to the one that has developed for criterion (vii), is used in many countries and for many types of landscapes. Some approaches have developed guidance on vocabulary for qualitative descriptions of landscapes and a similar approach would be useful to add to existing guidance on criterion (vii). Methodologies for aesthetic assessments also include a variety of documentation techniques for mapping attributes or annotating photographs or sketches, and these could be adapted for nominations. Mapping attributes is recommended in the *Preparing World Heritage Nominations* resource manual indicating that this process can assist in establishing boundaries and assessing integrity as well as for monitoring, management, and impact assessments. In addition, although the focus has generally been on visual aspects, other aspects that contribute to the overall quality of the aesthetic experience should also be consistently recognized. In addition, other sensory aspects of properties should be more consistently considered, such as soundscapes.

Community perceptions represented through social science methods can be combined with expert assessments to enhance the understanding of aesthetic values and inform selection of attributes. Participation of local people and other stakeholders - and of indigenous communities in particular – is already encouraged in the current guidance on *Preparing World Heritage nominations* resource manual; even so, this should be specifically encouraged in relation to aesthetic assessments. This is also important since community engagement can build awareness, greater shared understanding of aesthetic values and commitment to conservation, management and monitoring over time.

As additional integration of knowledge and methods from social science and related fields would contribute to a more systematic, rigorous and transparent application of criterion (vii) in relation to aesthetic values, this is recommended. In addition, involving professionals with recognized expertise in fields related to aesthetics of natural environments as part of the nomination team and in IUCN's evaluation process can provide access to knowledge and methods for documentation to support such rigorous analysis.

Recommendation 3. Nominations under criterion (vii) should provide the same degree of global comparative analysis as is expected in relation to other criteria. It is noted that the assessment of natural beauty and aesthetic importance, in particular, is challenging, but if a nomination advances a claim for outstanding universal value in relation to such

values, assessments require clear evidence and a rigorous identification and comparison of the attributes that convey those values.

The intention of criterion (vii) is to recognize properties that are the most significant in relation to a universal global frame of reference while acknowledging that cultural perceptions of natural landscapes may introduce some variation in aesthetic assessments. Thus, as for other natural criteria, comparative analysis of properties nominated under criterion (vii) needs to be global in scope and based on a typological approach. This is in contrast to comparisons based on a geo-cultural context that can be regional in scope and are used in consideration of aesthetic values in the application of cultural criteria (see Chapter 5 for further discussion). The identification of sites for global comparison for criterion (vii) should continue to be based on typological similarities to the nominated property within established global frameworks of natural landscapes, that is, comparisons of mountains with mountains, deserts with deserts.

Findings demonstrate that a large number of nominations and IUCN evaluation reports do not include specific comparisons in relation to criterion (vii) or the other criteria for which the properties were nominated but remain general. A few, more recent cases since 2005 make specific comparisons on each criteria, including on criterion (vii) and this should become a consistent practice. To provide a strong claim for the application of criterion (vii), the comparative analysis should systematically include specific comparisons for the ideas embodied in this criterion. Such comparisons should be based on the identification of the key attributes that convey those ideas (see also discussion on quantitative and qualitative description of attributes above).

To some extent and where possible, comparisons can be supported by measurable dimensions, particularly in relation to superlative natural phenomena – this is especially relevant when the term 'superlative' can be defined as having more of a particular quality than anything else of the same type. Similarly, comparisons of natural beauty and aesthetic importance should be based, to the extent possible, on comparisons of measurable indicators of scenic beauty or, as discussed previously, on systematic, qualitative descriptions. 'Measurable' should in these cases (as discussed earlier) not be strictly interpreted as the size, amount, or degree as in quantitative assessments but can also include qualitative descriptions that allow rigorous global comparisons. Though developing such qualitative assessments can be challenging, use of a clear framework for making comparisons based on key attributes of the property is essential.

As the comparative analysis of properties nominated under criterion (vii) needs to be of global scope, the recognition of natural beauty being valued just within its immediate cultural context, even if at the national or regional level, is insufficient. The findings reveal that, as part of the comparative analysis of some properties nominated under criterion (vii), several types of evidence have been used. For example, citing those properties that are world reference sites or providing historical or contemporary documentation of places recognized for natural beauty as well as related works of art, literature, cinema and music. As discussed previously, evidence can also be gathered through social science research on internationally shared value of property's superlative natural phenomena or exceptional natural beauty. There may also be potential future applications of the internet for web-based surveys or use of crowd-sourcing if rigorously designed and systematically conducted.

The existing nomination and evaluation process within World Heritage is primarily expert-based, relying on professional judgment. As demonstrated in the literature review (see chapter 6), involving multiple individuals in assessment of attributes and comparative analyses can

enhance reliability. In the context of World Heritage, involving professionals from different parts of the world is also important as different cultural perspectives are represented.

Given the scientific base for many attributes in the assessment of criterion (vii), involving people with expertise on relevant landscape typologies is appropriate and particularly useful. In addition, as demonstrated in the literature review, many of the methodologies for natural landscape description and comparison are drawn from social sciences, so it is important to involve experts knowledgeable and experienced with quantitative and qualitative landscape assessments (as noted above). This expertise could be added to a nomination team and, in particular, on the comparative analysis team. Similarly, such expertise could be added to reviews of nominations proposed under criterion (vii) as part of the overall IUCN evaluation process.

The literature review reveals that while many assessment methods are expert-based, there is an increasing interest and recognition of the importance of incorporating public or stakeholder preferences and knowledge into the process. In many cases, methodologies combine the role of experts with public and stakeholder perceptions represented through social science methods. Gathering information on local, regional, national, and where possible, international perceptions of aesthetic values and attributes of a landscape can provide insights into shared preferences and identify differences in perspectives (see additional discussion above).

In summary, to support strengthening the application of criterion (vii), additions to the existing guidance in the *Preparing World Heritage Nominations* resource manual should be considered based on the conclusions and recommendations of this study.

Considerations for developing further guidance through additional research and discussion

Recommendation 4. Further develop existing global typologies as a framework for comparisons of properties proposed under criterion (vii).

As discussed previously, it may be useful to further develop existing global typologies as part of a framework for comparisons of properties with aesthetic value based on qualitative assessments. This development of the existing typological frameworks for global comparisons can be informed by review of existing World Heritage properties with aesthetic value from particular landscape types. Experience and knowledge from similar approaches applied in other countries can be used to guide development of this framework. Additional insights, for example, may be provided by a current project on defining the aesthetic values of the Great Barrier Reef that is developing a typology of environmental and experiential attributes (described in section 6.2). Any existing relevant research on landscape preferences or landscape character can also be included in this process.

To initiate and evaluate this idea in the World Heritage context, development of a prototype for one of the landscape typologies would ideally be prepared through a participatory process involving people with expertise in the particular typology from different parts of the world as well as others with expertise in social science and experience with landscape assessment. The resulting typological framework for that type of landscape would represent a shared perception of the key characteristics, including common aesthetic attributes, and could serve as a basis for comparison of multiple sites. A similar approach can be considered for superlative natural phenomena as well.

Recommendation 5. Examine the relationship between concepts of natural and cultural beauty to provide clarity for future nominations and evaluations.

ICOMOS examined the concept aesthetic/artistic value or cultural beauty as it has been recognized through the application of cultural criteria (see chapter 5). Based on this review, ICOMOS suggests it would be helpful if more guidance were to be developed on the recognition of aesthetic/artistic value or cultural beauty for all the cultural criteria and also in relation to aesthetic value or natural beauty for criterion (vii). Such guidance could consider ways of articulating notions of beauty within a wide inter-disciplinary context.

Recommendation 6. Examine cultural perspectives on landscape preferences and new directions in the definition and assessment of aesthetic value.

6.A. Conduct a broader literature review that explores cultural perspectives on landscape preferences.

This project was not able to fully examine the wide range of different cultural perspectives on aesthetic values of natural environments. Consequently, this remains an important area to explore with different cultural perspectives and with local and indigenous communities. An important related area of research is better understanding of the influence of cultural differences on landscape preferences and perceptions. Many studies provide evidence of shared preferences across cultures even though there is also some evidence of cultural influence on preferences, so further research in this area is needed. Given the importance of considering different cultural perspectives, a broader literature review is also needed. In particular, it would be useful to identify more information on relevant methodologies and other research findings from other countries and a diversity of cultures.

6.B. Examine new directions in the definition and assessment of aesthetic value for the implications for application of criterion (vii).

There are some new directions in assessment of aesthetic value that may have implications for application of criterion (vii). There has been recent interest in broadening the scope of aesthetic values beyond sensory experience to include a wider range of other social, cultural, and environmental values. This broadened definition of aesthetic value would require new methodologies and further consideration, in the World Heritage context, of interface with cultural values. There are, for example, two projects in Australia currently underway to develop new methodologies that provide a more holistic and integrated approach to aesthetic values and address cross-cultural perspectives (see section 6.2). While these two projects are focused on Australia, as they proceed, they can contribute to the international discussions on the breadth of the scope of aesthetic values and their attributes as well as offer ideas for development of new integrated methodologies.

Future discussions on expanded definitions of aesthetics and associated new methodologies, and further examination of the relationship of natural and cultural beauty, will depend on collaboration of IUCN, ICOMOS, ICCROM and other organizations as well as natural and cultural heritage professionals and those with expertise in aesthetic value assessment.

BIBLIOGRAPHY

Ahnert, F. (1998) *Introduction to Geomorphology*. London: Armold.
Australian Heritage Council (2012) "Outcomes report, Aesthetic Methodology Workshop, 22 March 2012," Canberra, Australia.

Badman, T. (2010) "World Heritage and Geomorphology", in Migoń, P. (ed.) *Geomorphological Landscapes of the World*. Heidelberg – Dordrecht: Springer, pp. 357-368.

Badman, T., Bomhard, B., Fincke, A., Langley, J., Rosabal, P. and Sheppard, D. (2008) *Outstanding universal value: Standards for natural world heritage.* Gland, Switzerland: lUCN.

Benfield, J.A., Bell, P.A., Troup, L.J., and Soderstrom, N.C. (2010) "Aesthetic and affective effects of vocal and traffic noise on natural landscape assessment," *Journal of Environmental Psychology* 30: 103-111.

Berleant, A. (2004) "The Aesthetics of Art and Nature," in (Carlson, A. and Berleant, A. (eds.) *The Aesthetics of Natural Environments,* Peterborough: Broadview Press, pp. 76-88.

Berleant, A. (2010) "Reconsidering Scenic Beauty," *Environmental Values* 19: 335-350.

Brady, E. (2003) *Aesthetics of the Natural Environment*. Tuscaloosa: The University of Alabama Press.

Brady, E. (2006) "Aesthetics in Practice: Valuing the Natural World," *Environmental Values* 15: 277-291.

Brady, E. (2007) *Environmental Aesthetics*, Edinburgh: [publisher]

Buhyoff, G.J. and Wellman, J.D. (1983) "Landscape Preference Metrics: An International Comparison," *Journal of Environmental Management* 16: 181-190.
Cambridge Advanced Learner's Dictionary (2008). Cambridge: Cambridge University Press.

Cameron, C. and Rössler, M. (2011) "Voices of the pioneers: UNESCO's World Heritage Convention 1972-2000," *Journal of Cultural Heritage Management and Sustainable Development* 1 (no. 1): 42-54.

Campos, M. , Velazquex, A., Verdinelli, G.B., Priego-Santander, A. G., McCall, M.K., and Boada, M. (2012) "Rural People's Knowledge and Perception of Landscape: A Case Study from the Mexican Pacific Coast," *Society and Natural Resources* 25: 759-774.

Carlson, A. (1979) "Appreciation and the Natural Environment," *Journal of Aesthetics and Art Criticism* 37: 267–276.

Carlson, A. (2008) "Aesthetic Appreciation of the Natural Environment," in Carlson, A. and Lintott, S. (eds.) *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*, New York: Columbia University Press, pp. 119-132.

Carlson, A. (2010) “Contemporary Environmental Aesthetics and the Requirements of Environmentalism,” *Environmental Values* 19: 289-314.

Carlson, A. (2011) “Environmental Aesthetics,” in E. Craig (ed.), *Routledge Encyclopedia of Philosophy*, London: Routledge. http://www.rep.routledge.com/article/M047

Carlson, A. (2012) “Environmental Aesthetics,” in E.N. Zalta (ed.) *The Stanford Encyclopedia of Philosophy* (Summer 2012 Edition), http://plato.stanford.edu/archives/sum2012/entries/environmental aesthetics/

Carlson, A. and Berleant, A. (eds.) (2004) *The Aesthetics of Natural Environments,* Peterborough: Broadview Press.

Carlson, A. and Lintott, S. (eds.) (2008) *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*, New York: Columbia University Press.

Churchward, C., Palmer, J.F., Nassauer, J.I., and Swanwick, C.A. (in press) *Evaluation of Methodologies for Visual Impact Assessment, Final Report #NCHRP741,* Washington, D.C.: National Cooperative Highway Research Program, Transportation Board of the National Academies.

Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment, Guidance for England and Scotland*. Countryside Agency: Cheltenham, England and Scottish Natural Heritage: Battleby, Scotland.

Dingwall, P., Weighell, T., and Badman, T. (2005) *Geological World Heritage: A Global Framework*. Gland, Switzerland: IUCN.

Dramstad, W.E., Tveit, M.S., Fjellstad, W.J., and Fry, G.L.A. “Relationships between visual landscape preferences and map-based indicators of landscape structure,” *Landscape and Urban Planning* 78: 465-474.

Eaton, M.M. (2004) “Fact and Fiction in the Aesthetic Appreciation of Nature,” in Carlson, A. and Berleant, A. (eds.), *The Aesthetics of Natural Environments,* Peterborough: Broadview Press, pp. 170-181.

Eco, U. (ed.) (2012) *History of Beauty.* New York: Rizzoli.

Evans, I.S. (2011) “Geomorphometry and landform mapping: What is a landform?” *Geomorphology* 137: 94-106.

Fredrickson, L.M. and Anderson, D.H. (1999) “A Qualitative Exploration of the Wilderness Experience as a Source of Spiritual Inspiration,” *Journal of Environmental Psychology* 19: 21-39.

Fry, G., Tveit, M.S., Ode, A., and Velarde, M.D. (2009) “The ecology of visual landscapes: Exploring the conceptual common ground of visual and ecological landscape indicators,” *Ecological Indicators* 9: 933-947.

Gobster, P.H., Palmer, J.F., and Crystal, J.H. (2003) “Ervine H. Zube (1931-2002), The Significance and Impact of His Contributions to Environment-Behavior Studies,” *Environment and Behavior* 35 (2): 165-186.

Goudie, A.S. (ed.) (2004). *Encyclopedia of Geomorphology*. London: Routledge, vol. 1 & 2.

Goudie, A. and Seely, M. (2011) *World Heritage Desert Landscapes: Potential Priorities for the Recognition of Desert Landscapes and Geomorphological Sites on the World Heritage List.* Gland, Switzerland: IUCN.

Gray, M. (2003) *Geodiversity*. Chichester: Wiley.

Hagerhall, C.M., Purcell, T., and Taylor, R. (2004) “Fractal dimension of landscape silhouette outlines as a predictor of landscape preference,” *Journal of Environmental Psychology* 24: 247-255.

Han, F. (2006) “Chinese View of Nature: Tourism in China’s Scenic and Historic Interest Areas”, thesis, Queensland University of Technology, Australia

Han, F. (2012) “Cultural landscapes: a Chinese way of seeing nature,” in Taylor, K. and Lennon, J.L. (eds), *Managing Cultural Landscapes*, London: Routledge, pp. 90-108.

Hargrove, E.C. (1979, reprinted in 2008) in Carlson, A and Lintott, S. (eds.) *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*, New York: Columbia University Press,
pp.29-48.

Hartig, T. (1993) “Nature experience in transactional perspective,” *Landscape and Urban Planning* 25: 17-36.

Hettinger, N. (2008) “Objectivity in Environmental Aesthetics and the Protection of the Environment,” in Carlson, A. and Lintott, S. (eds.) *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*, New York: Columbia University Press,
pp. 413-438.

Hose, T.A. (2012) “Appreciating Physical Landscapes: Geotourism 1670-1970, 22nd-23rd October 2012, Abstracts Book”. London: The Geological Society/History of Geology Group.

Horenz, M. (2011) “Analysis and Critique of IUCN’s Evaluation of Criterion (vii)” unpublished paper prepared for World Heritage Studies, Brandenburg University of Technology Cottbus, Germany.

Hunziker, M., Buchecker, M., and Hartig, T. (2009) “Space and Place – Two aspects of the human-landscape relationship,” in Kienast, O. Wildi and S. Ghosh (eds.) *A Changing World. Challenges for Landscape Research*, pp. 47-62.

ICOMOS, ICCROM, IUCN, and UNESCO World Heritage Centre (July 2010) *Guidance on the preparation of retrospective Statements of Outstanding Universal Value for World Heritage Properties*, Paris: UNESCO.

IUCN (2005) *Proceedings of the IUCN-WCPA World Heritage Workshop, "Enhancing the IUCN Evaluation Process of World Heritage Nominations, A contribution to achieving a credible and balanced World Heritage List,"* 24th-28th November 2005, at the International Academy for Nature Conservation Isle of Vilm, Germany.

Inaba, N. (2012) "Cultural landscapes in Japan: a century of concept development and management challenges," in Taylor, K. and Lennon, J.L. (eds), *Managing Cultural Landscapes*, London: Routledge, pp. 90-108.

Johkileto, J. (2008) "What is OUV?" ICOMOS , Paris, France.

Lothian, A. (1991) "Landscape and the philosophy of aesthetics: is landscape quality inherent in the landscape or in the eye of the beholder?" *Landscape and Urban Planning* 44: 177-198.

Moore, R. (2008) *Natural Beauty: A Theory of Aesthetics Beyond the Arts*, Peterborough: Broadview Press.

Natural England (2011) *Guidance for assessing landscapes for designation as National Park or Area of Outstanding Natural Beauty in England*, www.naturalengland.org.uk

Nesje, A. (2010) "Fjords of Norway: Complex Origin of a Scenic Landscape," in Migoń, P. (ed.) *Geomorphological Landscapes of the World*, Springer: Heidelberg – Dordrecht, pp. 223-234.

Ode, A., Tveit, M.S., and Fry, G. (2008) "Capturing Landscape Visual Character Using Indicators: Touching Base with Landscape Aesthetic Theory," *Landscape Research* 33 (1): 89-117.

Ode, A., Fry, G., Tveit, M.S., Messager, P., and Miller, D. (2009) "Indicators of perceived naturalness as drivers of landscape preference," *Journal of Environmental Management* 90: 375-383.

Ode, A., Hagerhall, C.M. and Sang, N. (2010) "Analyzing Visual Landscape Complexity: Theory and Application," *Landscape Research* 35 (1): 111-131.

Parsons, G. (2002) "Nature Appreciation, Science, and Positive Aesthetics," *British Journal of Aesthetics* 42: 279-295.

Parsons, R. and Daniel, T.C. (2002) "Good looking: in defense of scenic landscape aesthetics," *Landscape and Urban Planning* 60: 43-56.

Roase, D. B. (1996) "Nourishing Terrains, Australian Aboriginal Views of Landscape and Wilderness", Australian Heritage Commission, Australia.

Rössler, M. (2002) "UNESCO World Heritage Centre Background Document on UNESCO World Heritage Cultural Landscapes," prepared for the FAO Workshop and Steering Committee Meeting of the GIAHS (Globally Important Ingenious Agricultural Heritage Systems) project, Rome, 5-7 August 2002.

Runte, A. (1997) *National Parks: The American Experience*. Lincoln and London: University of Nebraska Press.

Saito, Y. (2008) "Appreciating Nature on its Own Terms," in Carlson, A. and Lintott, S. (eds.) *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*, New York: Columbia University Press, pp. 151-168.

Saito, Y. (2010) "Future Directions in Environmental Aesthetics," *Environmental Values* 19: 373-391.

Selman, P. and Swanwick, C. (2010) "On the Meaning of Natural Beauty in Landscape Legislation," *Landscape Research* 35 (1): 3-26.

Sepanmaa, Y. (2010) "From Theoretical to Applied Environmental Aesthetics: Academic Aesthetics Meets Real-World Demands," *Environmental Values* 19: 393-405.

Soliva, R., Bolliger, J., and Hunziker, M. (2010) "Differences in Preferences towards Potential Future Landscapes in the Swiss Alps," *Landscape Research* 35 (6): 671-696.

Stott, P. (2011) "The World Heritage Convention and the National Park Service, 1962-1972," *George Wright Forum* 28 (no. 3): 279-290.

Swanwick, C. (2002) *Recent practice and the evolution of landscape character assessment*, Topic Paper 1. Countryside Agency: Cheltenham, England and Scottish Natural Heritage: Battleby, Scotland.

Swanwick, C. (2009) "Society's attitudes to and preferences for land and landscape," *Land Use Policy* 26S: 562-575.

Swanwick, C., Bingham, L. and Parfitt, A. (2003) *Landscape Character Assessment - How stakeholders can help,* Topic Paper 3. Countryside Agency: Cheltenham, England and Scottish Natural Heritage: Battleby, Scotland.

Swanwick, C., Hanley, N., and Termansen, M. (2007) *Scoping Study on Agricultural Landscape Valuation,* Final Report to DEFRA [location?]

Thompson, J. (2008) "Aesthetics and the Value of Nature," in in Carlson, A. and Lintott, S. (eds.) *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*, New York: Columbia University Press, pp. 254-267.

Thorsell, J. (ed) (1992) *From Strength to Strength: World Heritage in its 20th Year*, *report on the 1992 World Parks Congress.* IUCN: Gland, Switzerland and Cambridge, U.K.

Tips, W.E.J. and Savasdisara, T. (1986) "Landscape Preference Evaluation and Sociocultural Background: A Comparison Among Asian Countries," *Journal of Environmental Management* 22: 113-124.

Thorn, C.E. (1988) *An Introduction to Theoretical Geomorphology*, Unwin Hyman: Boston.

Tveit, M., Ode, A., and Fry, G. (2006) “Key Concepts in a Framework for Analysing Visual Landscape Character,” *Landscape Research* 31 (3): 229-255.

Twidale, C.R. (2010) “Uluru (Ayers Rock) and Kata Tjuta (The Olgas): Inselbergs of Central Australia”, in Migoń, P. (ed.) *Geomorphological Landscapes of the World*, Springer: Heidelberg – Dordrecht, pp. 321-332.

Udvardy, M. D.F. (1975) *A Classification of the Biogeographical Provinces of the World*, IUCN Occasional Paper No. 18. IUCN: Morges, Switzerland.

UNESCO (1962) *Recommendation concerning the Safeguarding of Beauty and Character of Landscapes and Sites,* 11 December 1962, Paris.

UNESCO (1972) *Convention Concerning the protection of the world cultural and natural heritage adopted by the General Conference at its seventeenth session,* 16 November 1972, Paris.

UNESCO (1976) ‘Informal consultation of intergovernmental and non-governmental organizations on the implementation of the Convention concerning the Protection of the World Cultural and Natural Heritage,’ Final Report, 19-29 May 1976 in Morges. Switzerland.

UNESCO (1977) *Operational Guidelines for the Implementation of the World Heritage Convention,* CC-17/CONF.OOl/8 Rev., 20 October 1977, UNESCO: Paris.

UNESCO (1983) *Operational Guidelines for the Implementation of the World Heritage Convention*. UNESCO: Paris.

UNESCO (1988a) Report of the Rapporteur for the Twelfth Session of the Bureau, UNESCO, Paris, 14-17 June 1988, SC-88/CONF.007/13, 10 August 1988.

UNESCO (1988b) “Examination of Nominations with a Combination of Cultural and Natural Elements,” SC-88/CONF.001/10, 18 October 1988, background paper for Item 7 of the Provisional Agenda for World Heritage Committee Twelfth session, 5-9 December 1988, Brasilia, Brazil.

UNESCO (1988c) Background paper SC-88/CONF.001/8, 24 October 1988 for Item 12 of the Provisional Agenda for World Heritage Committee Twelfth session, 5-9 December 1988, Brasilia, Brazil.

UNESCO (1988d) World Heritage Committee Decision 12COM IX.28-32 from Twelfth session, 5-9 December 1988, Brasilia, Brazil.

UNESCO (1991a) Background paper SC-91/CONF.002/10, 18 November 1991 for Item 13 of the Provisional Agenda for the World Heritage Committee Fifteenth Session, 9-13 December 1991, Carthage, Tunisia.

UNESCO (1991b) “World Heritage Committee Decision SC-91/CONF.002/15, 12 December 1991 related to 56. Revision of the Operational Guidelines for the Implementation of the World Heritage Convention at the Fifteenth Session, 9-13 December 1991, Carthage, Tunisia.

UNESCO (1992a) Background paper WHC-92/CONF.002/10, 11 October 1992, prepared for Item 14 of Provisional Agenda: Revisions of the Operational Guidelines for the Implementation of the World Heritage Convention, World Heritage Committee meeting, 7-14 December 1992, Santa Fe, New Mexico, USA.

UNESCO (1992b) World Heritage Committee Decision WHC-92/CONF.002/12, 12 December 1992, 7-14 December 1992, Santa Fe, New Mexico, USA.

UNESCO (1996) "Information Document: Report of the Expert Meeting on Evaluation of general principles and criteria for nominations of natural World Heritage sites (Parc national de la Vanoise, France, 22 to 24 March 1996), WHC-96/CONF.202/INF.9, Paris, 15 April 1996.

UNESCO (2002) "Report of the March 2002 Drafting Group for the revision of the *Operational Guidelines for the Implementation of the World Heritage Convention* held at UNESCO Headquarters in Paris, France from 18-22 March 2002," WHC-02/CONF.202/14A Paris, 23 May 2002, prepared for the WORLD HERITAGE COMMITTEE Twenty-sixth session, Budapest, Hungary 24 - 29 June 2002

UNESCO (2004) Summary Record / Résumé des interventions, 1 June / juin 2004, WHC-03/6 EXT.COM/INF.8, p. 43, 5.252.

UNESCO (2005) "Item 9 of the Provisional Agenda: Assessment of the conclusions and recommendations of the special meeting of experts (Kazan, Russian Federation, 6-9 April 2005) Keynote speech by Ms. Christina Cameron and presentations by the World Heritage Centre and the Advisory Bodies," WHC-05/29.COM/INF.9B, 15 June 2005.

UNESCO (2008) Background paper WHC-08/32.COM/9 prepared for Item 9 of the Provisional Agenda: Discussion on outstanding universal value," World Heritage Committee Thirty second Session, 2 -10 July 2008, Quebec City, Canada.

UNESCO (2011a) Background paper WHC-11/35.COM/9A prepared for Agenda Item on Evaluation of the Global Strategy and the PACT Initiative, World Heritage Committee Thirty-fifth session, 19-29 June 2011, UNESCO, Paris.

UNESCO (2011b) *Preparing World Heritage Nominations* (second edition, 2011), UNESCO: Paris.

UNESCO (2012) *Operational Guidelines for the Implementation of the World Heritage Convention,* UNESCO: Paris.

University of Newcastle (2002) *Public and Professional Attitudes to Landscape: Scoping Study.* Scottish Natural Heritage: Battleby, Scotland.

Wray, R.A.L. (2010) "The Gran Sabana: The World's Finest Quartzite Karst?", in Migoń, P. (ed.) *Geomorphological Landscapes of the World*, Springer: Heidelberg – Dordrecht, pp. 79-88.

Zube, E.H., Sell, J.L., and Taylor, J. G. (1982) "Landscape Perception: Research, Application, and Theory," *Landscape Planning* 9: 1-33.

List of 133 properties inscribed on the basis of criterion (vii)

Property Number	Property	State Party	Date inscribed	Type of site	Criteria	Region
1400	Lakes of Ounianga	Chad	2012	Natural	(vii)	Africa
1386	Rock Islands Southern Lagoon	Palau	2012	Mixed	(iii) (v) (vii) (ix) (x)	Asia and the Pacific
1369	Ningaloo Coast	Australia	2011	Natural	(vii)(x)	Asia and the Pacific
1377	Wadi Rum Protected Area	Jordan	2011	Mixed	(iii)(v)(vii)	Arab States
1060	Kenya Lake System in the Great Rift Valley	Kenya	2011	Natural	(vii)(ix)(x)	Africa
1335	China Danxia	China	2010	Natural	(vii)(viii)	Asia and the Pacific
1317	Pitons, cirques and remparts of Reunion Island	France	2010	Natural	(vii)(x)	Europe and North America
1325	Phoenix Islands Protected Area	Kiribati	2010	Natural	(vii)(ix)	Asia and the Pacific
1234	Putorana Plateau	Russian Federation	2010	Natural	(vii)(ix)	Europe and North America
1237	The Dolomites	Italy	2009	Natural	(vii)(viii)	Europe and North America
1292	Mount Sanqingshan National Park	China	2008	Natural	(vii)	Asia and the Pacific
1115	Lagoons of New Caledonia: Reef Diversity and Associated Ecosystems	France	2008	Natural	(vii)(ix)(x)	Europe and North America
1290	Monarch Butterfly Biosphere Reserve	Mexico	2008	Natural	(vii)	Latin America and the Caribbean
1248	South China Karst	China	2007	Natural	(vii)(viii)	Asia and the Pacific
1264	Jeju Volcanic Island and Lava Tubes	Korea, Republic of	2007	Natural	(vii)(viii)	Asia and the Pacific
1258	Teide National Park	Spain	2007	Natural	(vii)(viii)	Europe and North America
1216	Malpelo Fauna and Flora Sanctuary	Colombia	2006	Natural	(vii)(ix)	Latin America and the Caribbean
1182	Islands and Protected Areas of the Gulf of California	Mexico	2005	Natural	(vii)(ix)(x)	Latin America and the Caribbean
1195	West Norwegian Fjords – Geirangerfjord and Nærøyfjord	Norway	2005	Natural	(vii)(viii)	Europe and North America
1149	Ilulissat Icefjord	Denmark	2004	Natural	(vii)(viii)	Europe and North America
1167	Tropical Rainforest Heritage of Sumatra	Indonesia	2004	Natural	(vii)(ix)(x)	Asia and the Pacific
1161	Pitons Management Area	Saint Lucia	2004	Natural	(vii)(viii)	Latin America and the Caribbean
1094	Purnululu National Park	Australia	2003	Natural	(vii)(viii)	Asia and the Pacific

1083	Three Parallel Rivers of Yunnan Protected Areas	China	2003	Natural	(vii)(viii)(ix)(x)	Asia and the Pacific
1000	Brazilian Atlantic Islands (etc)	Brazil	2001	Natural	(vii)(ix)(x)	Latin America and the Caribbean
1037	Swiss Alps Jungfrau-Aletsch	Switzerland	2001	Natural	(vii)(viii)(ix)	Europe and North America
999	Pantanal Conservation Area	Brazil	2000	Natural	(vii)(ix)(x)	Latin America and the Caribbean
1013	Gunung Mulu National Park	Malaysia	2000	Natural	(vii)(viii)(ix)(x)	Asia and the Pacific
985	uKhahlamba / Drakensberg Park	South Africa	2000	Mixed	(i)(iii)(vii)(x)	Africa
893	Atlantic Forest South-East Reserves	Brazil	1999	Natural	(vii)(ix)(x)	Latin America and the Caribbean
911	Mount Wuyi	China	1999	Mixed	(iii)(vi)(vii)(x)	Asia and the Pacific
889	Desembarco del Granma National Park	Cuba	1999	Natural	(vii)(viii)	Latin America and the Caribbean
652	Puerto-Princesa Subterranean River National Park	Philippines	1999	Natural	(vii)(x)	Asia and the Pacific
914	iSimangaliso Wetland Park	South Africa	1999	Natural	(vii)(ix)(x)	Africa
629	Macquarie Island	Australia	1997	Natural	(vii)(viii)	Asia and the Pacific
800	Mount Kenya National Park/Natural Forest	Kenya	1997	Natural	(vii)(ix)	Africa
773	Pyrénées - Mont Perdu	Spain,France	1997	Mixed	(iii)(iv)(v)(vii)(viii)	Europe and North America
764	Belize Barrier Reef Reserve System	Belize	1996	Natural	(vii)(ix)(x)	Latin America and the Caribbean
754	Lake Baikal	Russian Federation	1996	Natural	(vii)(viii)(ix)(x)	Europe and North America
765	Volcanoes of Kamchatka	Russian Federation	1996	Natural	(vii)(viii)(ix)(x)	Europe and North America
774	Laponian Area	Sweden	1996	Mixed	(iii)(v)(vii)(viii)(ix)	Europe and North America
719	Virgin Komi Forests	Russian Federation	1995	Natural	(vii)(ix)	Europe and North America
740	Gough and Inaccessible Islands	United Kingdom of Great Britain and Northern Ireland	1995	Natural	(vii)(x)	Europe and North America
721	Carlsbad Caverns National Park	United States of America	1995	Natural	(vii)(viii)	Europe and North America
354	Waterton Glacier International Peace Park	United States of America and Canada	1995	Natural	(vii)(ix)	Europe and North America
685	Doñana National Park	Spain	1994	Natural	(vii)(ix)(x)	Europe and North America
682	Bwindi Impenetrable National Park	Uganda	1994	Natural	(vii)(x)	Africa

684	Rwenzori Mountains National Park	Uganda	1994	Natural	(vii)(x)	Africa
701	Canaima National Park	Venezuela (Bolivarian Republic of)	1994	Natural	(vii)(viii)(ix)(x)	Latin America and the Caribbean
672	Ha Long Bay	Viet Nam	1994	Natural	(vii)(viii)	Asia and the Pacific
662	Yakushima	Japan	1993	Natural	(vii)(ix)	Asia and the Pacific
653	Tubbataha Reefs Natural Park	Philippines	1993	Natural	(vii)(ix)(x)	Asia and the Pacific
630	Fraser Island	Australia	1992	Natural	(vii)(viii)(ix)	Asia and the Pacific
638	Huanglong Scenic and Historic Interest Area	China	1992	Natural	(vii)	Asia and the Pacific
637	Jiuzhaigou Valley Scenic and Historic Interest Area	China	1992	Natural	(vii)	Asia and the Pacific
640	Wulingyuan Scenic and Historic Interest Area	China	1992	Natural	(vii)	Asia and the Pacific
578	Shark Bay, Western Australia	Australia	1991	Natural	(vii)(viii)(ix)(x)	Asia and the Pacific
609	Komodo National Park	Indonesia	1991	Natural	(vii)(x)	Asia and the Pacific
608	Ujung Kulon National Park	Indonesia	1991	Natural	(vii)(x)	Asia and the Pacific
573	Air and Ténéré Natural Reserves	Niger	1991	Natural	(vii)(ix)(x)	Africa
588	Danube Delta	Romania	1991	Natural	(vii)(x)	Europe and North America
591	Thungyai-Huai Kha Khaeng Wildlife Sanctuaries	Thailand	1991	Natural	(vii)(ix)(x)	Asia and the Pacific
547	Mount Huangshan	China	1990	Mixed	(ii)(vii)(x)	Asia and the Pacific
494	Tsingy de Bemaraha Strict Nature Reserve	Madagascar	1990	Natural	(vii)(x)	Africa
551	Te Wahipounamu – South West New Zealand	New Zealand	1990	Natural	(vii)(viii)(ix)(x)	Asia and the Pacific
421	Tongariro National Park	New Zealand	1990	Mixed	(vi)(vii)(viii)	Asia and the Pacific
548	Río Abiseo National Park	Peru	1990	Mixed	(iii)(vii)(ix)(x)	Latin America and the Caribbean
516	Cliff of Bandiagara (Land of the Dogons)	Mali	1989	Mixed	(v)(vii)	Africa
509	Mosi-oa-Tunya / Victoria Falls	Zambia,Zimbabwe	1989	Natural	(vii)(viii)	Africa
486	Wet Tropics of Queensland	Australia	1988	Natural	(vii)(viii)(ix)(x)	Asia and the Pacific
455	Meteora	Greece	1988	Mixed	(i)(ii)(iv)(v)(vii)	Europe and North America
454	Mount Athos	Greece	1988	Mixed	(i)(ii)(iv)(v)(vi)(vii)	Europe and North America

335	Nanda Devi and Valley of Flowers National Parks	India	1988	Natural	(vii)(x)	Asia and the Pacific
485	Hierapolis-Pamukkale	Turkey	1988	Mixed	(iii)(iv)(vii)	Europe and North America
487	Henderson Island	United Kingdom of Great Britain and Northern Ireland	1988	Natural	(vii)(x)	Europe and North America
447	Uluru-Kata Tjuta National Park	Australia	1987	Mixed	(v)(vi)(vii)(viii)	Asia and the Pacific
419	Gros Morne National Park	Canada	1987	Natural	(vii)(viii)	Europe and North America
437	Mount Taishan	China	1987	Mixed	(i)(ii)(iii)(iv)(v)(vi)(vii)	Asia and the Pacific
410	Sian Ka'an	Mexico	1987	Natural	(vii)(x)	Latin America and the Caribbean
403	Kilimanjaro National Park	Tanzania, United Republic of	1987	Natural	(vii)	Africa
355	Iguaçu National Park	Brazil	1986	Natural	(vii)(x)	Latin America and the Caribbean
390	Škocjan Caves	Slovenia	1986	Natural	(vii)(viii)	Europe and North America
380	Garajonay National Park	Spain	1986	Natural	(vii)(ix)	Europe and North America
369	Giant's Causeway and Causeway Coast	United Kingdom of Great Britain and Northern Ireland	1986	Natural	(vii)(viii)	Europe and North America
387	St Kilda	United Kingdom of Great Britain and Northern Ireland	1986	Mixed	(iii)(v)(vii)(ix)(x)	Europe and North America
338	Manas Wildlife Sanctuary	India	1985	Natural	(vii)(ix)(x)	Asia and the Pacific
333	Huascarán National Park	Peru	1985	Natural	(vii)(viii)	Latin America and the Caribbean
357	Göreme National Park and the Rock Sites of Cappadocia	Turkey	1985	Mixed	(i)(iii)(v)(vii)	Europe and North America
303	Iguazu National Park	Argentina	1984	Natural	(vii)(x)	Latin America and the Caribbean
304	Canadian Rocky Mountain Parks	Canada	1984	Natural	(vii)(viii)	Europe and North America
280	Salonga National Park	Democratic Republic of the Congo	1984	Natural	(vii)(ix)	Africa
289	Lake Malawi National Park	Malawi	1984	Natural	(vii)(ix)(x)	Africa
284	Chitwan National Park	Nepal	1984	Natural	(vii)(ix)(x)	Asia and the Pacific
308	Yosemite National Park	United States of America	1984	Natural	(vii)(viii)	Europe and North America

302	Mana Pools National Park, Sapi and Chewore Safari Areas	Zimbabwe	1984	Natural	(vii)(ix)(x)	Africa
225	Pirin National Park	Bulgaria	1983	Natural	(vii)(viii)(ix)	Europe and North America
256	Wood Buffalo National Park	Canada	1983	Natural	(vii)(ix)(x)	Europe and North America
205	Talamanca Range-La Amistad Reserves / La Amistad National Park	Costa Rica,Panama	1983	Natural	(vii)(viii)(ix)(x)	Latin America and the Caribbean
260	Sangay National Park	Ecuador	1983	Natural	(vii)(viii)(ix)(x)	Latin America and the Caribbean
258	Gulf of Porto: Calanche of Piana, Gulf of Girolata, Scandola Reserve	France	1983	Natural	(vii)(viii)(x)	Europe and North America
274	Historic Sanctuary of Machu Picchu	Peru	1983	Mixed	(i)(iii)(vii)(ix)	Latin America and the Caribbean
261	Vallée de Mai Nature Reserve	Seychelles	1983	Natural	(vii)(viii)(ix)(x)	Africa
259	Great Smoky Mountains National Park	United States of America	1983	Natural	(vii)(viii)(ix)(x)	Europe and North America
179	Tassili n'Ajjer	Algeria	1982	Mixed	(i)(iii)(vii)(viii)	Arab States
186	Lord Howe Island Group	Australia	1982	Natural	(vii)(x)	Asia and the Pacific
181	Tasmanian Wilderness	Australia	1982	Mixed	(iii)(iv)(vi)(vii)(viii)(ix)(x)	Asia and the Pacific
195	Taï National Park	Côte d'Ivoire	1982	Natural	(vii)(x)	Africa
196	Río Plátano Biosphere Reserve	Honduras	1982	Natural	(vii)(viii)(ix)(x)	Latin America and the Caribbean
185	Aldabra Atoll	Seychelles	1982	Natural	(vii)(ix)(x)	Africa
145	Los Glaciares	Argentina	1981	Natural	(vii)(viii)	Latin America and the Caribbean
154	Great Barrier Reef	Australia	1981	Natural	(vii)(viii)(ix)(x)	Asia and the Pacific
147	Kakadu National Park	Australia	1981	Mixed	(i)(vi)(vii)(ix)(x)	Asia and the Pacific
159	Darien National Park	Panama	1981	Natural	(vii)(ix)(x)	Latin America and the Caribbean
25	Djoudj National Bird Sanctuary	Senegal	1981	Natural	(vii)(x)	Africa
156	Serengeti National Park	Tanzania, United Republic of	1981	Natural	(vii)(x)	Africa
150	Mammoth Cave National Park	United States of America	1981	Natural	(vii)(viii)(x)	Europe and North America
151	Olympic National Park	United States of America	1981	Natural	(vii)(ix)	Europe and North America
136	Garamba National Park	Democratic Republic of the Congo	1980	Natural	(vii)(x)	Africa

100	Durmitor National Park	Montenegro	1980	Natural	(vii)(viii)(x)	Europe and North America
134	Redwood National and State Parks	United States of America	1980	Natural	(vii)(ix)	Europe and North America
71	Dinosaur Provincial Park	Canada	1979	Natural	(vii)(viii)	Europe and North America
72	Kluane / Wrangell-St Elias / Glacier Bay / Tatshenshini-Alsek	Canada,United States of America	1979	Natural	(vii)(viii)(ix)(x)	Europe and North America
98	Plitvice Lakes National Park	Croatia	1979	Natural	(vii)(viii)(ix)	Europe and North America
63	Virunga National Park	Democratic Republic of the Congo	1979	Natural	(vii)(viii)(x)	Africa
120	Sagarmatha National Park	Nepal	1979	Natural	(vii)	Asia and the Pacific
33	Belovezhskaya Pushcha / Białowieża Forest	Poland,Belarus	1979	Natural	(vii)	Europe and North America
99	Natural and Cultural Heritage of the Ohrid region	the Former Yugoslav Republic of Macedonia	1979	Mixed	(i)(iii)(iv)(vii)	Europe and North America
75	Grand Canyon National Park	United States of America	1979	Natural	(vii)(viii)(ix)(x)	Europe and North America
24	Nahanni National Park	Canada	1978	Natural	(vii)(viii)	Europe and North America
1	Galápagos Islands	Ecuador	1978	Natural	(vii)(viii)(ix)(x)	Latin America and the Caribbean
9	Simien National Park	Ethiopia	1978	Natural	(vii)(x)	Africa
39	Ngorongoro Conservation Area	Tanzania, United Republic of	1978	Mixed	(iv)(vii)(viii)(ix)(x)	Africa
28	Yellowstone National Park	United States of America	1978	Natural	(vii)(viii)(ix)(x)	Europe and North America

ICOMOS Analysis of properties inscribed under cultural criteria (i) to (vi) for their 'cultural beauty'

Summary Chart

This sets out all properties where cultural beauty was acknowledged as part of the justification for criteria or is included in the Statement of Universal Value.

For the purpose of this analysis, cultural beauty is defined as an aesthetic dimension, which is the product of some form of cultural tradition or interaction between people and their environment.

Year	State Party	Relevant Properties Names	Criteria
1978	Ethiopia	Rock-Hewn Churches, Lalibela	(i)(ii)(iii)
1979	Syrian Arab Republic	Ancient City of Damascus	(i)(ii)(iii)(iv)(vi)
	France	Chartres Cathedral	(i)(ii)(iv)
		Mont-Saint-Michel and its Bay	(i)(iii)(vi)
	Montenegro	Natural and Culturo-Historical Region of Kotor	(i)(ii)(iii)(iv)
	Guatemala	Tikal National Park	(i)(iii)(iv)(ix)(x)*
1980	Algeria	Al Qal'a of Beni Hammad	(iii)
	Syrian Arab Republic	Site of Palmyra	(i)(ii)(iv)
	Italy/Holy See	Historic Centre of Rome, the Properties of the Holy See in that City Enjoying Extraterritorial Rights and San Paolo Fuori le Mura,	(i)(ii)(iii)(iv)(vi)
1981	Pakistan	Fort and Shalamar Gardens in Lahore	(i)(ii)(iii)
	Australia	Kakadu National Park	(i)(vi)(vii)(ix)(x)*
	France	Palace and Park of Fointainbleau	(ii)(vi)
	Germany	Würzburg Residence with the Court Gardens and Residence Square	(i)(iv)
1982	Algeria	M'Zab Valley	(ii)(iii)(v)
	Italy	Historic Centre of Florence	(i)(ii)(iii)(iv)(vi)
1983	India	Ajanta Caves	(i)(ii)(iii)(vi)
		Ellora Caves	(i)(iii)(vi)
	France	Place Stansilas, Place de la Carrière and Place d'Alliance in Nancy	(i)(iv)
	Switzerland	Old City of Berne	(iii)
	Peru	City of Cuzco	(iii)(iv)
		Historic Sanctuary of Machu Pichu	(i)(iii)(vii)(ix)*
1984	Spain	Historic Centre of Cordoba	(i)(ii)(iii)(iv)
1985	No relevant listings found		
1986	Yemen	Old City of Sana'a	(iv)(v)(vi)
	United Kingdom	Studley Royal Park including the Ruins of Fountains Abbey	(i)(iv)
1987	China	Mount Taishan	(i)(i)(iii)(iv)(v)(vi)(vii)*
	Italy	Venice and its Lagoon	(i)(ii)(iii)(iv)(v)(vi)
	Spain	Cathedral, Alcazar and Archivio de Indias in Seville	(i)(ii)(iii)(vi)
	United Kingdom	City of Bath	(i)(ii)(iv)
1988	United Kingdom	Canterbury Cathedral, St Augustine's Abbey, and St Martin's Church	(i)(ii)(vi)
	Greece	Mount Athos	(i)(ii)(iv)(v)(vi)(vii)*
	Mexico	Pre-Hispanic City of Chichen-Itza	(i)(ii)(iii)
1989	Portugal	Monastery of Alcobaça	(i)(iv)
1990	Uzbekistan	Itchan Kala	(iii)(iv)(v)
	Russian Federation	Historic Centre of Sant Peterburg and Related Groups of Monuments	(i)(ii)(iv)(vi)
		Kizhi Pogost	(i)(iv)(v)
		Kremlin and Red Square	(i)(ii)(iv)(vi)
	Germany	Palaces and Parks of Potsdam and Berlin	(i)(ii)(iv)
1991	France	Cathedral of Notre-Dame, Former Abbey	(i)(ii)(vi)

		of Saint-Rémi and Palace of Tau, Reims	
1992	Czech Republic	Historic Centre of Prague	(ii)(iv)(vi)
		Historic Centre of Telc	(i)(iv)
1993	Yemen	Historic Town of Zabid	(ii)(iv)(vi)
	Russian Federation	Architectural Ensemble of the Trinity Sergius Lavra in Sergies Posad	(ii)(iv)
1994	China	Historic Ensemble of the Potala Palace, Lhasa	(i)(iv)(vi)
		Temple and Cemetery of Confucius and the Kong Family Mansion in Qufu	(i)(iv)(vi)
1995	Philippines	Rice Terraces of the Philippine Cordilleras	(iii)(iv)(v)
	Portugal	Cultural Landscape of Sintra	(ii)(iv)(v)
	France	Historic Centre of Avignon: Papal Palace, Episcopal Ensemble and Avignon Bridge	(i)(ii)(iv)
	Uruguay	Historic Quarter of the City of Colonia del Sacramento	(iv)
1996	Japan	Itsukushima Shinto Shrine	(i)(ii)(iv)(vi)
	China	Lushan National Park	(ii)(iii)(iv)(vi)
	France	Canal du Midi	(i)(ii)(iv)(vi)
1997	Korea, Republic of	Changdeokgung Palace Complex	(ii)(iii)(iv)
	China	Classical Gardens of Suzhou	(i)(ii)(iii)(iv)(v)
		Old Town of Lijiang	(i)(ii)(iii)(iv)(v)
	Italy	Portovenere, Cinque Terre, and the Islands (Palmaria, Tino and Tinetto)	(ii)(iv)(v)
	France/Spain	Pyrénées – Mont Perdu	(iii)(iv)(v)(vii)(viii)*
1998	China	Summer Palace, an Imperial Garden in Beijing	(i)(ii)(iii)
	Italy	HIstoric Centre of Urbino	(ii)(iv)
1999	Japan	Shrines and Temples of Nikko	(i)(iv)(vi)
	China	Mount Wuyi	(iii)(vi)(vii)(x)*
	Poland	Kalwaria Zebrzydowska: the Mannerist Architectural and Park Landscape Complex and Pilgrimage Park	(ii)(iv)
2000	China	Imperial Tombs of the Ming and Qing Dynasties	(i)(ii)(iii)(iv)(vi)
	Italy	City of Verona	(ii)(iv)
	Germany	Garden Kingdom of Dessau-Wörlitz	(ii)(iv)
	France	The Loire Valley between Sully-sur-Loire and Chalonnes	(i)(ii)(iv)
	Austria	Wachau Cultural Landscape	(ii)(iv)
2001	Uganda	Tombs of Buganda Kings and Kasubi	(i)(iii)(iv)(vi)
	Italy	Villa d'Este, Tivoli	(i)(ii)(iii)(iv)(vi)
2002	No relevant listings found		
2003	Italy	*Sacri Monti* of Piedmont and Lombardy	(ii)(iv)
	United Kingdom	Royal Botanic Gardens, Kew	(ii)(iii)(iv)
2004	Togo	Koutammakou, the Land of the Batammariba	(v)(vi)
	Germany/Poland	Muskauer Park/Park Muzakowski	(i)(iv)
	Italy	Val d'Orcia	(iv)(vi)
	Portugal	Landscape of the Pico Island Vineyard Culture	(iii)(v)
2005	China	Historic Centre of Macao	(ii)(iii)(iv)(vi)
	Italy	Syracuse and the Rocky Necropolis of Pantalica	(ii)(iii)(iv)(vi)
2006	Ethiopia	Harar Jugol, the Fortified Historic Town	(ii)(iii)(iv)(v)
	Spain	Vizcaya Bridge	(i)(ii)
2007	No relevant listings found		
2008	China	Fujian *Tulou*	(iii)(iv)(v)
	Italy/Switzerland	Rhaetian Railway in the Albula/Bernina Landscapes	(ii)(iv)
	Cuba	Historic of Camagüey	(iv)(v)
	Mexico	Protective town of San Miguel and the sanctuary of Jésus Nazareno de	(ii)(iv)

		Atotonilco	
2009	China	Mount Wutai	(ii)(iii)(iv)(vi)
2010	Iran (Islamic Republic of)	Sheikh Safi al-din Khānegāh and Shrine Ensemble in Ardabil	(i)(ii)(iv)
	France	Episcopal City of Albi	(iv)(v)
	Brazil	São Francisco Square in the Town of São Cristóvão	(ii)(iv)
2011	Turkey	Selimiye Mosque and its Social Complex	(i)(iv)
	Iran (Islamic Republic of)	The Persian Garden	(i)(ii)(iii)(iv)(vi)
	China	West Lake Cultural Landscape of Hangzhou	(ii)(iii)(vi)
	Spain	Cultural Landscape of the Serra de Tramuntana	(ii)(iii)(vi)
2012	Morocco	Rabat, Modern Capital and Historic City: a Shared Heritage	(ii)(iv)
	Indonesia	Cultural Landscape of Bali Province: the *Subak* System as a Manifestation of the *Tri Hita Karana* Philosophy	(ii)(iii)(v)(vi)

Regional Colour Code

Africa	
Arab States	
Asia and the Pacific	
Europe and North America	
Latin America and the Caribbean	

*Mixed Properties

- Note that mixed properties were not added to this list where the natural criteria referred to beauty or harmony but the cultural criteria did not.

Brief description of Landscape Character Assessment

Landscape Character Assessment (LCA), an approach developed in the U.K. twenty years ago, provides a perspective on a methodology for describing landscapes and making judgments related to designation. LCA is a well-documented descriptive methodology that systematically inventories the landscape and uses that information to make judgments including those related to visual quality and protected area designation (Countryside Agency and Scottish Heritage 2002).

Over the years, the LCA has been continually reviewed and adapted based on experience in the field as well as research findings. In a number of papers, Swanwick has described the evolution of LCA following the disillusionment with "landscape evaluation" which became the term used for expert-based, quantitative approaches designed to determine landscape value that were developed in the 1970s (Swanwick 2002; University of Newcastle 2002).

LCA, or some adaptation, is now used in all countries of the U.K. and the Republic of Ireland. More recently, LCA has been used to inform implementation of landscape character assessments in many other European countries including Denmark and Sweden. LCA has also been referenced in visual impact assessment work in New Zealand, Australia and Hong Kong (Swanwick 2009: 265; Ode et al. 2008:90; Churchward et al. in press). After an extensive literature review, Tveit et al. describes the LCA as one of the three most widely applied practical frameworks for analyzing visual qualities (Tveit et al. 2006: 230).

Inclusion of the brief description of LCA does not suggest direct transferability to the World Heritage context, rather it is included here as this descriptive approach has some similarities to the current approach used for assessing aesthetic value under criterion (vii). Also, this application of this methodology faces some similar challenges and has developed certain aspects that may be useful to consider in strengthening the current IUCN approach to criterion (vii). While the U.K. landscape does not represent the diversity of landscapes globally, it is the methodology, not the landscape to which it is applied, that is relevant to this study.

LCA is focused around the concept of landscape character - that is, what makes landscapes distinctive and different from each other. LCA has emerged as an instructive example of a way of looking at landscape because it provides a structured and systematic approach to identifying character and distinctiveness as well as value (Countryside Agency and Scottish Heritage 2002: 3). A fundamental principle of the LCA is distinguishing between describing landscape character and making judgments based on this information to inform a range of decision-making. LCA is used, for example, as part of the designation process for National Parks and Areas of Outstanding Natural Beauty (Natural England 2011). Three other principles central to this approach include: an emphasis on landscape character (rather than quality or value), roles for objectivity and subjectivity in the process, and potential for application at different scales (Countryside Agency and Scottish Heritage 2002: 8).

Landscape character is defined as

> a distinct and recognizable pattern of elements that occur consistently in a particular type of landscape… understanding landscape character requires

> systematic investigation of many factors such as geology and landform, soils and the vegetation associated with them and both the historical and current influences of human land use and settlement… the interactions between all these factors create the character of the landscape" (Countryside Agency and Scottish Heritage 2002: 9).
>
> Although part of the process is about recording individual landscape components, the focus is upon the way that these elements come together to create character in different places, including the aesthetic and perceptual qualities of the landscape as a whole" (Swanwick 2009: 265).

Character area descriptions are in a standard format that includes descriptive and analytical information and collectively provide a common framework for developing policy and practical initiatives. In addition to the physical characteristics the guidance notes that

> it is important, however, to give equal attention to the more experiential aspects of the landscape covering aesthetic and perceptual dimensions of landscape character. Some of the more aesthetic aspects of landscape character can still be recorded in a rigorous and systematic, if not wholly objective or value-free, way. Aesthetic aspects, for example, could include: scale, enclosure, diversity, texture, form, line, colour, balance, movement, pattern – each with a series of descriptors for example, scale may be described as intimate, small, large and vast" (Countryside Agency and Scottish Heritage 2002: 34).

The guidance also notes that

> perceptual aspects may be more subjective and responses to them might be more personal and coloured by the experience of the individual. Such factors include a sense of wildness, sense of security, the quality of light and perceptions of beauty or scenic attractiveness. There are also some factors that can be perceived or experienced by senses other than sight, such as noisiness or tranquility and exposure to the elements. Judgements about all of these, and other relevant perceptions, need to be incorporated into surveys in a transparent way, acknowledging the extent of subjectivity that is involved. … It should be noted that even in these areas of perception, an element of objectivity can inform such judgements" (Countryside Agency and Scottish Heritage 2002: 34-5).

If LCA is to play a part in informing decision-making, such as designation, the rationale behind the approach to making judgments must be "clearly explained and transparent" as well as the reasons for adopting a particular approach to making judgments" and "the extent and nature of stakeholder involvement" (Countryside Agency and Scottish Heritage 2002: 58). "In deciding on the approach to making judgements there must be a clear rationale which is explained to the assessment's users. This will help make the assessment and its application more robust and accountable" (Countryside Agency and Scottish Heritage 2002: 53). The guidance also notes that "judgements based on LCA need to take into account several factors… who is going to be involved in making the judgements…. [and] some assessments may still rely on judgements made by professionals…." and the importance of involving stakeholders in this part of the process "if the judgements are to command wide support and are to be as fully informed as possible" (Countryside Agency and Scottish Heritage 2002: 52).

In Natural England's 2011 *Guidance for assessing landscapes for designation as National Park or Area of Outstanding Natural Beauty in England* LCA is used as the main technique used in the process of assessing landscapes for designation.

> Both characterization and evaluation can use the techniques of LCA to gather information in a structured way. .. In the context of AONB and National Park designation, the value that is being assessed [in the judgement aspect] equates to the statutory criteria for designation, one of which is natural beauty" (Natural England 2011: 7).

As "the systematic evaluation of natural beauty can be a complex exercise requiring careful assessment and judgement… Natural England has developed a list of "factors that contribute to natural beauty" and "a practical framework for an evidence-base which assists in making judgments about natural beauty in a rigorous and transparent way (Natural England 2011:12). The factors related to natural beauty, drawn from the landscape value criteria included in the LCA Guidance 2002, include landscape quality, scenic quality, relative wildness, relative tranquility, natural heritage features, and cultural heritage. These lists are not meant to be exhaustive, but to provide guidance and other factors may be relevant in some circumstances (for additional detail, see Natural England 2011: Appendix 1 Evaluation Framework for Natural Beauty Criterion). In England, the Countryside Agency has prepared LCAs for existing AONBs in order to provide a clear statement about their landscape values and to raise awareness of their special qualities.

Observations and findings from this case study on LCA

In summary, the following aspects of LCA are particularly relevant to the application of criterion (vii) regarding assessment of natural beauty and aesthetic importance:

- **Consistency and flexibility**

While detailed guidance is available, the approach is also not overly prescriptive and is intended to be adapted to each situation. The LCA offers a framework of techniques and vocabulary that can be adapted to a given environment but also provides a level of consistency across similar types of areas that may be assessed by different individuals (Countryside Agency and Scottish Heritage 2002: 45).

- **Distinction between describing landscape character and making judgments**

The LCA process "draws an important distinction between two stages: the relatively value-free process of characterisation of the landscape" by mapping, classification and description and "the subsequent making of judgements based on knowledge of landscape character" (Countryside Agency and Scottish Heritage 2002:9).

- **Objectivity/subjectivity and transparency**

The LCA approach combines both objectivity and subjectivity (Swanwick et al. 2007: 16). The Countryside Agency and Scottish Natural Heritage have noted that "in LCA it is accepted that there is a role for subjective inputs, but these must be made in a

systematic and transparent way. The process of characterisation should be an objective process in the main, while making judgements to inform decisions involves an element of subjectivity which can be clarified by using criteria agreed beforehand" (Countryside Agency and Scottish Heritage 2002: 10). The LCA, in response to a growing recognition for judgments to be based on clear and transparent criteria, has developed a "set of criteria and factors to be considered, which have been refined through debate and further examination" (Swanwick 2009: 567).

- **Role of experts and stakeholders**

Expert professional judgment is an important element of the LCA. Even so, the expert-based process is informed by the involvement of different groups of stakeholders including the general public. There are opportunities in the process for a "wide range of stakeholders to contribute to characterization, each contributing their own judgements about variations in character" (Countryside Agency and Scottish Heritage 2002: 10). There is also continuing exploration of various approaches to effective stakeholder involvement (Swanwick et al. 2003).

- **Adaptability and continual refinement of the approach**

The LCA method developed over a period of 15-20 years and during that time has been continuously refined in the light of experience and research, and is expected to continue to evolve in the future. Natural England is, in fact, just embarking on a new set of descriptions for each of the 159 NCAs in England (see http://publications.naturalengland.org.uk/category/587130). To support continual learning and adaptation there is a "Countryside Character Network" that provides a forum for exchanging experience on the use of LCA (see www.countryside.gov.uk/cci/character_network).

Aesthetic aspects of landscape character (from Countryside Agency and Scottish Natural Heritage 2002: 34).

SCALE	Intimate	Small	Large	Vast
ENCLOSUR	Tight	Enclosed	Open	Exposed
DIVERSITY	Uniform	Simple	Diverse	Complex
TEXTURE	Smooth	Textured	Rough	Very
FORM	Vertical	Sloping	Rolling	Horizonta
LINE	Straight	Angular	Curved	Sinuous
COLOUR	Monochron	Muted	Colourful	Garish
BALANCE	Harmoniou	Balanced	Discordant	Chaotic
MOVEMENT	Dead	Still	Calm	Busy
PATTERN	Random	Organised	Regular	Formal

Selected aesthetic factors in Landscape Character Assessments (from Countryside Agency and Scottish Natural Heritage 2002:35)

Balance and Proportion

The relative quantities of different elements within the view affect balance and proportion. Criteria such as a 1/3 to 2/3 relationship (rule of thirds) can be used to assess how well balanced the landscape is in aesthetic terms. Temporal effects should be considered. Proportions may change with the seasonal addition or loss of elements.

Scale

Here the overall scale of the landscape must be assessed once the factors that define it have been established. These include the degree of enclosure by landform or woodland and the main positions from which the landscape is viewed - scale increases with elevation and distance. Scale is closely related to balance, proportion and enclosure.

Enclosure

Where elements are arranged so that they enclose space, this has an effect on the overall composition so that the space and mass become as one. It also has a great effect on scale due to the interaction of the height of the enclosing elements and the distance between them.

Texture

This varies according to scale, but can be defined in relative terms as coarse, intermediate or fine. Texture is determined by crops, tree cover, size of trees, species, size of fields, etc. It is an important contributor to design unity and diversity, susceptible to change by addition or loss of elements.

Colour

This refers to the dominant colours of fields, woodlands, the built environment and other landscape elements. It includes any notable seasonal effects due to farming activity and seasonal change.

Diversity

This needs to be assessed in two ways. First, within the boundaries of the landscape type the minor variations of the landscape should be assessed to determine overall how uniform or diverse the landscape is. Second, the diversity of a typical composition should be evaluated. Additionally, trends for change should be borne in mind, that is whether the degree of diversity is increasing or decreasing.

Unity

The repetition of similar elements, balance and proportion, scale and enclosure, all contribute to unity. The degree to which contrasting elements disrupt a composition depends also on the context. For example a single quarry in the midst of another- wise unified landscape pattern may cause a high degree of discontinuity.

Form

This term describes the shapes of fields, woods, of linear features, of landform. e.g. rectangular, curvilinear, rounded, flat, etc. It is a very important factor in defining ancient or planned landscapes. We pick out forms and shapes very quickly, often on slight evidence.

Source: Based on Forest Authority England (1992) Forest Authority Guidelines on landscape assessment for Indicative Forestry Strategies. Unpublished draft, as in CCP 423, Countryside Commission.