

**Europe / North America**

# **The Dolomites**

**Italy**





## WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

### THE DOLOMITES (ITALY) – ID No. 1237 Rev

**Background note:** The nomination of the Dolomites was originally submitted in January 2006 and comprised a serial nomination of 27 component parts covering an area of 126,735.45 ha. Following discussion during the evaluation process at that time, the State Party subsequently submitted a revised nomination document consisting of 13 component parts of varying sizes, and this was considered by the World Heritage Committee at its 31<sup>st</sup> Session (Christchurch, 2007). Following the recommendations of IUCN, the nomination was deferred, and the State Party was advised to refocus the nomination around criteria (vii) and (viii), considering the aesthetic, geological and, in particular, geomorphological values of the Dolomites, and with a reduced number of more coherent components to convey these values at a landscape scale. Subsequently, on 29 January 2008, the State Party submitted a new and revised nomination including a series of nine component parts of varying sizes, which is the subject of this evaluation.

#### 1. DOCUMENTATION

- i) **Date nomination received by IUCN:** 15<sup>th</sup> March 2008.
- ii) **Additional information officially requested from and provided by the State Party:** IUCN requested supplementary information on 1<sup>st</sup> October 2008 following its evaluation mission, and on 10<sup>th</sup> December 2009 following consideration by the World Heritage Panel. The State Party submitted supplementary information on 27<sup>th</sup> February 2009 to provide consolidated responses to these requests.
- iii) **IUCN Data Sheet:** Sourced from nomination document.
- iv) **Additional literature consulted:** Embleton, C. (ed.) (1984). **Geomorphology of Europe**. Macmillan, London; Hancock, P.L. and Skinner, B.J. (eds.) (2000). **The Oxford Companion to the Earth**. Oxford University Press; Dingwall, P. and Badman, T. (2005). **Geological World Heritage: A Global Framework**. IUCN; Thorsell, J. and Hamilton, L. (2002). **A Global Overview of Mountain Protected Areas on the World Heritage List**. IUCN; Weidert, W.K. (ed.) (2001). **Klassische Fundstellen der Paläontologie**. Goldschneck Verlag, Korb.
- v) **Consultations:** 9 external reviewers in 2008-2009 (in addition to 9 external reviewers in 2006-2007). Extensive consultations were undertaken during the earlier and the present field visit with representatives of local governments and authorities, technical staff working in the different nature parks and reserves, geology, geomorphology and landscape experts, researchers and with other stakeholders in the property, including representatives of local communities and economic interests.
- vi) **Field visit:** Martin Price and Bastian Bomhard, September 2008.
- vii) **Date of IUCN approval of this report:** 27<sup>th</sup> April 2009.

#### 2. SUMMARY OF NATURAL VALUES

The Dolomites are a mountain range in the northern Italian Alps, including 18 peaks which rise to above 3,000 m. The nominated property comprises a series of nine component parts that together are regarded by the State Party as encompassing the most significant landscape and earth science values of the Dolomites mountain range as a whole. The areas exclude significant infrastructure, mainly associated with tourism. The total area of the nominated property is 141,903 ha. Buffer zones surround each of the different component parts and together include an

area of 89,267 ha. The buffer zones do not form part of the nominated serial property, but are designed to support its conservation. The names and areas of the different component parts of the nominated property are provided in Table 1.

The landscapes and geomorphology of the Dolomites are characterised by vertical walls, with sheer cliffs which are sometimes over 1,500 m in height, and a high density of extremely narrow, deep and long valleys. The density of pinnacles, peaks and towers, almost always reaching hundreds of metres in height, is a dominant feature of the landscape. The

**Table 1:** Area of the of the nominated property and buffer zones.

	Name of component part of nominated property	Area of component part (ha)	Buffer zone (ha)	Province
1	Pelmo-Croda da Lago	4,343.6	2,427.3	Belluno
2	Marmolada	2,207.5	578.0	Trento, Belluno
3	Pale di San Martino – San Lucano – Dolomiti Bellunesi – Vette Feltrine	31,665.7	23,668.9	Trento, Belluno
4	Dolomiti Friulane / Dolomits Furlanis e d'Oltre Piave	21,460.6	25,027.6	Pordenone, Udine, Belluno
5	Dolomiti Settentrioriali / Nördliche Dolomiten	53,586.0	25,182.3	Trento,, Bolzano, Belluno
6	Puez-Odle / Puez-Geisler / Pöz-Odles	7,930.3	2,863.5	Bolzano
7	Sciliar-Catinaccio / Schlern-Rosengarten – Latemar	9,302.1	4,770.7	Trento, Bolzano
8	Rio delle Foglie / Bletterbach	271.6	547.4	Bolzano
9	Dolomiti di Brenta	11,135.4	4,201.0	Trento
	<b>Total</b>	<b>141,902.8</b>	<b>89,266.7</b>	

characteristic rock type of the range is dolomite (also called dolostone or dolomitic limestone), a carbonate rock formed from the mineral dolomite (Calcium Magnesium Carbonate). The rock type, mineral, and the Dolomite mountain range itself are named after the 18<sup>th</sup> century French mineralogist Déodat de Dolomieu, who was the first to describe dolomite from this area. Mountains developed in this mineral cover much of the property and are distinctive due to their pale colour. The nominated serial property comprises a diversity of landscapes that are spectacular not only because of their physical characteristics, but which also responds to natural changes in light to create views of great natural beauty.

The landscapes of the Dolomites also have a renowned international significance for geomorphology. There is a wide range of different types of terrain with varying erodibility and geo-mechanical characteristics, producing diverse landforms and illustrating many different processes. Most notable are the distinctive landforms created in the extensive dolomitic rocks that include many steeples, pinnacles, and rock walls. The property also contains interesting glacial landforms, as well as karst systems. A further key feature is the dynamic nature of the landscape creating frequent landslides, floods, and avalanches.

The geological significance of the Dolomites lies in its representation of a large part of the Mesozoic Era in a continuous manner, as well as some sequences of earlier and later stratigraphy. The nominated property contains important reference areas for the Triassic period and one of the best examples of the preservation of Mesozoic carbonate platform systems, including accompanying fossil records of reef-building organisms. The sequence documents

recovery and evolution of life following the largest recorded extinction event in geological time at the boundary of the the Permian Triassic periods, and interaction between volcanism and carbonate sedimentation. There are a number of sequences within the nominated property which are regarded as type sections and the Ladinian stage of the Triassic period takes its name from a location in the Dolomites. As a whole, the Dolomites permit the accurate reconstruction of the evolution of a passive continental margin (a margin between land and sea that does not feature a subduction zone, such as the modern day Atlantic margin of North America) and successive phases of continental collision and evolution over more than 250 million years.

The nomination provides an extensive and detailed technical summary of the values of the property. The description does not provide for easy understanding of the values of the property, nor make it easy to distinguish the features of the greatest significance from those of local or regional importance. However it does, as a whole illustrate the combination of geomorphological and geological values that taken together give the nominated property a long established and exceptional international importance for the earth sciences. A summary of some of the features emphasised in the nomination within each of the nominated component parts is provided in Table 2.

Pioneering studies on stratigraphy, mineralogy, sedimentology and palaeontology have been undertaken in the Dolomites by leading geologists since the 18<sup>th</sup> century. The area has provided a natural laboratory for a large number of scientists who have studied and worked here, including Giovanni Arduino (1714-1795), Déodat de Dolomieu (1750-1801),

**Table 2:** Key features of the component parts of the property

Name of component part of nominated property	Key features (brief summary)
1. Pelmo-Croda da Lago	<ul style="list-style-type: none"> <li>Dramatic landscape with wide range of landforms including towers, plateaux, ledges and landslides, and evidence of last glacial maximum.</li> <li>Late Permian to early Jurassic succession, presenting rock and fossil records, tectonic and sedimentological across an interval of c.100 million years.</li> </ul>
2. Marmolada	<ul style="list-style-type: none"> <li>Includes the highest summit of the Dolomites (3343m), known as “the Queen of the Dolomites”, a rocky massif with high relief and vertical walls.</li> <li>Geological record of Triassic sedimentary platform and overlying volcanic sediments.</li> </ul>
3. Pale di San Martino – San Lucano – Dolomiti Bellunesi – Vette Feltrine	<ul style="list-style-type: none"> <li>Horseshoe-shaped component with typical dolomite landscapes including cliffs, plateaux, valleys, pinnacles and walls.</li> <li>One of the most complete stratigraphic series of the Dolomites from early Palaeozoic to the Cretaceous.</li> </ul>
4. Dolomiti Friulane / Dolomiti Furlanis e d'Oltre Piave	<ul style="list-style-type: none"> <li>Many sheer rock walls, pinnacles, towers and valleys.</li> <li>Stratigraphic succession dominated by dolomitic-calcareous rocks with repeated stratigraphy due to faulting.</li> </ul>
5. Dolomiti Settentrionali / Nördliche Dolomiten	<ul style="list-style-type: none"> <li>Extensive areas of mountainous topography. Three main mountain groups, with significant plateaux in the northwestern part and rocky cliffs further south.</li> <li>The most complete stratigraphic sequence of the Dolomites, with three dimensional exposures of carbonate platforms. Fossil records of international significance documenting recovery of life after the Permian-Triassic extinction, and include important reef and plant fossil remains.</li> </ul>
6. Puez-Odle / Puez-Geisler / Pöz-Odles	<ul style="list-style-type: none"> <li>Two large dolomite plateaux isolated by sheer escarpment ridges and with some of the highest peaks of the Dolomites, and displaying a typical dolomite landscape.</li> <li>Well preserved stratigraphic succession with little deformation, and internationally important stratigraphic and fossil bearing horizons.</li> </ul>
7. Sciliar-Catinaccio / Schlern-Rosengarten – Latemar	<ul style="list-style-type: none"> <li>Wide variety of landforms with sheer dolomite peaks and high relief.</li> <li>Key Triassic stratigraphic and palaeontological localities, including the Latemar Reef exposure of an isolated carbonate platform, subject of many international studies.</li> </ul>
8. Rio delle Foglie / Bletterbach	<ul style="list-style-type: none"> <li>Deep and meandering gorge, creating the important exposure of geology that is the key value of this component.</li> <li>Well exposed succession of Permian-Triassic rocks, particularly important for documenting Permian palaeoenvironments and trace fossil remains of vertebrate life at that time.</li> </ul>
9. Dolomiti di Brenta	<ul style="list-style-type: none"> <li>Spectacular structural and climatic landforms including rock towers, steeples, ledges, cirques, landslides and a well developed karst system.</li> <li>Extensive exposures document the structural and stratigraphic evolution of the south alpine passive margin and tectonic history of the Dolomites.</li> </ul>

Alexander von Humboldt (1769-1859), Leopold von Buch (1774-1855), Edmund von Mojsisovics (1839-1907) and Ferdinand von Richthofen (1833-1905). The nomination also presents a range of artistic responses to the Dolomites such as the work of Albrecht Dürer (1471-1528) and Johann Wolfgang von Goethe (1749-1832), which emphasise the long standing regard for the landscapes within the nominated property.

Although not a primary basis of the nomination, the nominated property includes areas of national and regional importance for biodiversity. The flora of the Dolomite region includes c. 2,400 plants. The nominated property does not include areas representing all of this floristic diversity, however most

of its components have important flora, for instance the Dolomiti Bellunesi alone has 1,350 species, a quarter of Italy's flora, and 55 forest types. As with the flora, the fauna is typical for the region, but it is very diverse due to the great number of different habitats, altitudinal levels and the region's pivotal biogeographic location. Two major factors stand out. A gradual recolonisation of remoter areas by large carnivores is occurring, and has been facilitated by a diminishing human use and disturbance of both valley lands and alpine pastures. This has encouraged the return of animals such as bear and lynx, previously killed to protect livestock. This diminution of use also encourages the upward and downward spread of forest on the slopes, potentially enhancing the resilience of the area to climate change.

### 3. COMPARISONS WITH OTHER AREAS

IUCN starts its comparative approach to this nomination from the standpoint of identifying whether the Dolomites as a whole (as opposed to the individual component parts nominated) can be considered to be a mountain area of potential Outstanding Universal Value.

The Dolomites are widely regarded as one of the most attractive parts of the European Alps, although they are far from being the highest, or containing the largest glaciers. Their reputation is due to the combination of the colour of the rocks, varying at different times of day and in different weather conditions, and their verticality and variety of form. The degree of dissection of the landscape, with broad valleys between near-vertical cliff faces, makes the mountains unusually accessible and visually impressive. Comparable areas in the Alps include the northern calcareous Alps in Austria and Germany, and the calcareous western pre-Alps in France. However, these mountain areas are less impressive and colourful than the Dolomites. The values within the Dolomites are clearly distinct from the World Heritage property of Swiss Alps Jungfrau-Aletsch in Switzerland, due to the entirely different mountain topography and relative lack of glaciers. Elsewhere in Europe, the mixed World Heritage property of the Pyrénées - Mont Perdu (France and Spain) has spectacular limestone formations.

There are many spectacular mountain landscapes elsewhere in the world, and more than 60 mountain areas are already inscribed as natural or mixed properties on the World Heritage List. However, these differ significantly from the Dolomites in terms of either their geology (e.g., volcanic rocks: Kamchatka, Russia, Hawaii Volcanoes National Park, USA, Tongariro National Park, New Zealand, Teide National Park, Spain) and/or their climatic conditions (e.g., Los Glaciares, Argentina, Canaima National Park, Venezuela). As the glaciers which remain in the Dolomites are rather small, sites which are principally glaciated at the current time, such as Sagarmatha (Nepal) are not comparable. Amongst limestone mountain ranges, notable properties include those in North America, where spectacular limestone mountains are found in Waterton Glacier International Peace Park (Canada and USA) and the Canadian Rocky Mountain Parks.

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. Supporting evidence from IUCN's desk reviews, evaluation mission and the material in the nomination regarding the physical landscape of the property and the responses over time to its natural beauty in the form of paintings and other artwork provide important supporting evidence for the application of criterion vii to the nominated property.

The most important interval of the stratigraphic succession within the Dolomites is that of the Permo-Triassic period, including its record of the Permian/Triassic boundary. The nomination notes that this interval of time is well represented in other mountain areas including in Switzerland, Germany, Austria, Hungary, Slovenia, Canada and the USA, and parts of the Himalayan range. Whilst these values are significant for geologists, IUCN notes that stratigraphic boundary sites have previously been regarded as potentially too large a topic for World Heritage listing.

Whilst the Dolomites can be regarded as one of the world's important Mesozoic successions, others of equal importance in different depositional environments are found in many other countries and continents. The Dorset and East Devon Coast World Heritage property (United Kingdom) contains a succession through the Triassic, Jurassic and Cretaceous periods, in combination with a number of internationally important vertebrate fossil sites and classic coastal geomorphology. Fossil values of the Triassic period are already included on the World Heritage List in the Ischigualasto / Talampaya Natural Parks (Argentina) and Monte San Giorgio (Switzerland). The values of these properties, which are unequalled in their display of vertebrate fossils, exceed those of the Dolomites in conveying the diversity of terrestrial and marine life in the Triassic period.

Nevertheless, the nomination presents a detailed argument, supported by comparative analysis of 19 other areas around the world, that the Mesozoic carbonate platforms ("fossilized atolls") of the Dolomites are of global significance, particularly in terms of the evidence they provide of the evolution of the bio-constructors after the Permian/Triassic boundary and of the preservation of depositional geometries and original relationships between the bio-constructed bodies and their surrounding basins. IUCN considers that the stratigraphic and fossil values are not, on their own, sufficient to be regarded as of Outstanding Universal Value, however they are an important supporting factor in considering the application of the relevant World Heritage criteria.



Lastly, IUCN notes that the property has also been subject to a rigorous process of comparative analysis in relation to the selection of the nine component parts within the wider Dolomites region. Overall there is an excess of detailed information on the individual component parts of the property within the nomination. However, the synthesis of the series as a whole is well done, and IUCN notes the presentation of a clear diagram showing the contribution of each component part to the values within the series as a whole as an innovative example of good practice. IUCN recommends that this diagram is noted as an example for application in other serial properties, and has therefore included it as an annex to this evaluation report.

In summary, on the basis of the above comparative analyses, IUCN concludes that the Dolomites can comfortably be argued to respond to the requirements of natural criterion (vii) in relation to their aesthetic values. The geomorphological values of the Dolomites, supported by the geological values in terms of stratigraphy and palaeontology also provide a basis for the application for criterion (viii) that relates well to the values within recent inscriptions under this criteria, although the geological values would not provide a basis for inscription alone. The selection of components to create the series has been carried out thoroughly and with clear thought regarding the complementarity of the different component parts selected.

## 4. INTEGRITY

### 4.1 Protection

The situation in relation to the legal status of the different components of the property is complex. The nomination document lists a very large number and diversity of applicable regulations in each component and province. Four of the components are within a single province; three are on the territory of two provinces with different legal regulations; and two are on the territory of three provinces. Legal protection derives from European, national, and provincial legislation. IUCN requested supplementary information regarding the protection status of the nominated property. In the response the State Party confirms that existing legal protection extends to 99.8% of the nominated property, and to 98% of the area included in buffer zones. One component part of the nominated property is largely within a national park and most of the others are protected as provincial nature parks. Overall, 71% of the nominated area is protected within a national park or provincial nature parks; 94% and 83% are protected as Sites of Community Importance (SCI) or Specially Protected Zones (SPZ), respectively, within the Natura 2000 network of the European Union, under its Habitats (92/43/EEC) and Birds (79/409/EEC) Directives; and

86% are protected by article 142 of the national Code of Cultural Heritage and Landscape, most recently modified in March 2008, which states that, inter alia, areas above 1,600 metres have a special level of protection. The small Rio delle Foglie/Bletterbach component is protected as a natural monument by provincial legislation. The legal complexity is also reflected in different management arrangements for the different components, as discussed below. Very small “unprotected” areas remain within the buffer zones as a result of efforts to link the component parts of the serial property and/or streamline (e.g. simplify) boundaries, and the inclusion of these areas in the nomination is acceptable.

The nomination outlines the land tenure situation for each component within the series. The majority of the nominated property is in public ownership. However, public property, under the definition applied in the nomination, does not mean state-owned property only, but also includes land managed by regional, provincial, and municipal authorities. Therefore, a significant part of the property is under the ownership of municipalities and private owners. This is likely to represent a challenge for future management in relation to both coordination between the different levels involved and also the development and implementation of an effective overall management system.

IUCN considers the protection status of the nominated property meets the requirements set out in the *Operational Guidelines*.

### 4.2 Boundaries

The boundaries of the nine components of the nominated property and buffer zones are all clearly mapped, and logical. Their boundaries follow, wherever possible, the boundaries of existing protected areas (eight nature parks, one national park and a number of Natura 2000 sites or the 1,600 meter contour). The boundaries exclude infrastructure and intensive-use areas but include a selection of component parts that can be accepted to include all areas that are essential for maintaining the beauty of the property and all or most of the key interrelated and interdependent earth science elements in their natural relationships, as required in the *Operational Guidelines*. The State Party provided in its supplementary information clear explanations, including detailed topographic maps, for a range of minor amendments to the originally submitted boundaries. These were made to correct earlier mapping errors and in response to advice from IUCN on establishing rationalised boundaries, tied to the integrity requirements of the nominated property.

IUCN considers that the boundaries of the nominated property meet the requirements set out in the *Operational Guidelines*.

### 4.3 Management

A management framework for the whole of the originally nominated series was provided with the original nomination. This provided an impression of the responsibilities of the different park authorities (monitoring, communication, information and promotion). However, common objectives and a strategy for the management of the entire series do not exist, and this document stated that *“the greatest difficulty encountered in proposing a unitary conservation plan lies in the impossibility of harmonising, at least over the short-medium term, the legislative systems of the various Provinces and Regions concerning the safeguarding of nature”*. IUCN notes that this difficulty remains a reality, though steps are being taken to address it.

IUCN requested information on the status of the overall management system for the property and the status of site management plans and resources as supplementary information from the State Party. The State Party's response provides a full assessment of the position and the key points of this are as follows.

#### Overall management system and resources

The State Party in its supplementary information sets out a strategy for ensuring the coordinated management of the nominated serial property. This confirms that an overall management system had not been established at 28<sup>th</sup> February 2009, and outlines the steps being taken to address this shortcoming of the nomination. It confirms firstly that an institutional arrangement has been prepared via a special Foundation called “Dolomiti – Dolomiten – Dolomitis – Dolomites UNESCO” in which all five provinces involved in the property will participate.

The supplementary information undertakes that this will be established in the event of a positive decision of the Committee for inscription, and outlines the management structure and provides the legal documentation that has already been agreed by all provinces. It is also indicated that a staff resource will be provided and an annual budget of Euro 400,000 per year (with an additional Euro 200,000 in the first year of operation), to be spread between all five provinces. Whilst the effectiveness of such an organisation can only be judged after it becomes operational, IUCN considers that the structure and operation provided for appear to be positive and with a strong potential to be effective.

The nomination also outlines significant progress and plans in relation to the creation of an overall management system. This includes the outputs of a working group that has identified a series of key themes and goals, and details of a planned series of six workshops to further develop thinking during 2009, including a number that will take place between the finalisation of this evaluation report by IUCN and

the meeting of the World Heritage Committee in June 2009. Despite this progress, the nomination and supplementary information do not appear to make a firm commitment to the timescale to complete the overall management system. As this is a requirement for inscription the Committee will need to verify the intentions of the State Party in this regard. IUCN considers that it should certainly be feasible to have an overall management plan in place before the 35<sup>th</sup> Session of the Committee in 2011, if not sooner, based on the evidence of progress provided by the State Party.

#### Management plans for the different component parts of the nominated property

The situation regarding management planning for the different component parts of the nominated property is also summarised within the supplementary information to the nomination provided by the State Party, following a request from IUCN. This information explains clearly the complex situation concerning the site management plans and indicates that the situation regarding management planning shows considerable achievements, but that not all component parts have management plans. The supplementary information notes that all of the component parts of the property are managed according to the measures set in land plans. Whilst these plans extend some way towards addressing a range of uses, they are in essence regulatory documents and do not include many of the key management activities that would normally be expected within a protected area.

Seven of the nine component parts are covered by a more developed management plan, although coverage is complete in only two component parts, and near complete (>90%) in two more. Three components have partial coverage of management plans between 61-76% of their areas. Two matrices provide information on present and planned actions / fields of action. These also indicate many areas of commonality between the nine components, but also a series of activities that are only in place in some components, but not in others.

The budgets of the different components included in the nomination are considerable; there have been some significant investments in infrastructure, and many people work in these sites, employed by the various authorities, tourist enterprises, refuges, etc. However, the nomination and the supplementary information do not indicate how the staff and resources will be coordinated to provide added value for an eventual World Heritage property.

The IUCN field visit showed that there is considerable support for the nomination from diverse stakeholders (e.g. researchers, communes, museums, tourist operators, operators of refuges, and educational professionals). Detailed information on the processes of stakeholder consultation that took

place in the preparation of the nomination is provided in the supplementary information to the nomination provided by the State Party, following a request from IUCN.

In summary, whilst there is considerable progress, IUCN considers the management of the nominated property does not meet the expectations set out in the *Operational Guidelines* at the present time. This is due to the lack of management plans for some of the nominated component parts, and a lack of an overall management system for the nominated property as a whole. IUCN notes that explicit timescales to provide such plans are not specified within the nomination.

#### 4.4 Threats and human use

The Dolomites are a major tourist destination from within the Alps and beyond. Detailed information on tourist numbers is provided in the nomination document and supplementary information. Tourism pressure and development is a key issue within the nominated property, and a number of well-known locations have been expressly excluded from the nomination because of the existence of tourist infrastructure, especially for skiing. In one component part (Marmolada), there is a cable car and associated ski lifts, and in another component part (Tofane, part of component 5) there is also a cable car, which is closed in winter. IUCN considers that given the scale of the property neither of the cable cars creates an overriding impact on the natural values of the property, and excluding them from the property is not necessary, provided that they remain carefully managed to avoid any additional growth of their impact. According to the State Party, the ski lifts on the Marmolada are expected to be removed in the near future and the affected terrain (which is not vegetated) to be restored.

Existing and future tourism developments within and in particular adjacent to the nominated property, for example in relation to further development of hotels, refuges, shelters and trails, do pose a serious threat despite existing tourism management efforts in some of the component parts. Tourism facilities and activities are at the limits of tolerance for natural World Heritage properties in some the component parts of the property (e.g. Marmolada, component 2 and Tre Cime, part of component 5). They also have significant impacts within the buffer zones of the nominated property. There is a need for more effective planning, management and regulation of tourist facilities and activities, consistent with the carrying capacity of the nominated property.

The overall management system should include an integrated tourism management strategy which ensures that natural values are not compromised by inappropriate tourism development. Reduction in pressure in areas such as those mentioned above

requires consideration. In particular, there is a need for effective strategies and measures to manage and minimise tourism impacts within tourist zones, and to protect important natural wilderness-like areas, such as the Dolomiti Friulane, from tourism impacts. Such an integrated tourism management strategy should also address and develop effective strategies and measures for the management of specific activities, such as climbing. This strategy should both take account of the nominated property and its buffer zones, as well as of the wider region in order to be effective. It will not be possible to devise an effective tourism strategy by focussing on the nominated property alone. The supplementary information provided by the State Party includes information on visitation as a precursor to the creation of this strategy, and also indicates that a key role of the new foundation will be to consider these issues as a priority.

Public roads have been excluded from the nominated series wherever possible, including in response to advice from IUCN following its field visits. Roads not open to the public can be found in many areas within the series. In forested areas, these roads are in use for forestry activities and also hunting (hunting is prohibited in all parks in all provinces except for Bolzano). Several roads are also found in high mountain areas above the treeline. These roads remain from World War I and are now used to supply and service refuges and shelters.

Limited forest exploitation (sanitary cuttings) is permitted in forests within the nominated property. The intensity of these forestry activities is low and commonly limited individual trees. However, no legal prohibition of clear cuttings exists. Summer pasture activities are found within the nominated property as well. While cattle are limited to the few fertile grazing grounds, sheep are found in many places within the nominated property.

In conclusion, IUCN considers that the nominated property does not fully meet the conditions of integrity, as the provision for the effective management of the property is not yet fully satisfactory. The key missing elements are an established overall management system for the property as a whole, missing management plans for two component parts, and a lack of complete coverage of management plans in a number of the other component parts. There is currently no timescale established by the State Party to put these plans in place.

## 5. ADDITIONAL COMMENTS

### 5.1 Justification for serial approach

When IUCN evaluates a serial nomination it asks the following questions:



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

A serial approach is justified in relation to the nomination of the Dolomites in order to bring together key areas that together represent the most significant natural values of the mountain range as a whole.

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

The nine component parts proposed in the current nomination are functionally linked in the sense of representing complementary natural values of the Dolomites. This relates to the range of landscape and geomorphological values, and the representation of the continuous geological succession of the region. This corresponds well to the expectations of the *Operational Guidelines* in relation to the relevant criteria.

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

There is not yet an overall management framework for the property. Detailed discussion of this is provided in section 4.3.

## 6. APPLICATION OF CRITERIA

This serial property has been nominated under two natural criteria: (vii) and (viii).

**Criterion (vii): Superlative natural phenomena or natural beauty and aesthetic importance**

The Dolomites are widely regarded as being among the most attractive mountain landscapes in the world. Their intrinsic beauty derives from a variety of spectacular vertical forms such as pinnacles, spires and towers, with contrasting horizontal surfaces including ledges, crags and plateaux, all of which rise abruptly above extensive talus deposits and more gentle foothills. A great diversity of colours is provided by the contrasts between the bare pale-coloured rock surfaces and the forests and meadows below. The mountains rise as peaks with intervening ravines, in some places standing isolated but in others forming sweeping panoramas. Some of the rock cliffs here rise more than 1,500 m and are among the highest limestone walls found anywhere in the world. The distinctive scenery of the Dolomites has become the archetype of a “dolomitic landscape”. Geologist pioneers were the first to be captured by the beauty of the mountains, and their writing and subsequent

painting and photography further underline the aesthetic appeal of the property.

IUCN considers that the nominated property meets this criterion.

**Criterion (viii): Earth's history, geological and geomorphic features and processes**

The Dolomites are of international significance for geomorphology, as the classic site for the development of mountains in dolomitic limestone. The area presents a wide range of landforms related to erosion, tectonism and glaciation. The quantity and concentration of extremely varied limestone formations is extraordinary in a global context, including peaks, towers, pinnacles and some of the highest vertical rock walls in the world. The geological values are also of international significance, notably the evidence of Mesozoic carbonate platforms, or “fossilized atolls”, particularly in terms of the evidence they provide of the evolution of the bio-constructors after the Permian/Triassic boundary, and the preservation of the relationships between the reefs they constructed and their surrounding basins. The Dolomites also include several internationally important type sections for the stratigraphy of the Triassic Period. The scientific values of the property are also supported by the evidence of a long history of study and recognition at the international level. Taken together, the combination of geomorphological and geological values creates a property of global significance.

IUCN considers that the nominated property meets this criterion.

IUCN considers that protection status and boundaries of the nominated property do not fully meet the conditions of integrity; as the requirements for management are not met due to the current lack of an overall management system for the nominated property. There is also currently a lack of site management plans within some of the component parts of the property. Although there can be significant optimism regarding the potential to address these needs, the lack of these plans is clearly a concern at the present time.

IUCN notes that in similar circumstances it has been the recent practice of the World Heritage Committee to inscribe properties on the World Heritage List, with a request for the State Party to complete the required management plans within a given timescale. In the case of the Dolomites, IUCN considers that a timescale of at least 18 months would be required to put in place the necessary plans. Thus, if the Committee wishes to inscribe the property at this stage, IUCN recommends that it adopts the recommendation below, but that it first confirm that the State Party is in agreement to a clear programme and timescale to

establish the necessary overall management of the nominated property (as specified in paragraph 4 of the draft decision). This would ensure that the decision is fully in line with paragraph 115 of the *Operational Guidelines*, and would also recognise that there is a significant process already underway to establish the required overall management system. IUCN also recommends that the Committee may wish to consider the alternative strategy to refer the property back to the State Party to allow these plans to be put in place prior to inscription.

## 7. RECOMMENDATIONS

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

The World Heritage Committee,

1. Having examined Documents WHC-09/33.COM/8B and WHC-09/33.COM/INF.8B2,
2. Inscribes **The Dolomites, Italy**, on the World Heritage List on the basis of natural criteria (vii) and (viii);
3. Adopts the following **Statement of Outstanding Universal Value**:

### **Brief synthesis**

*The nine components of The Dolomites World Heritage Property protect a series of highly distinctive mountain landscapes that are of exceptional natural beauty. Their dramatic vertical and pale coloured peaks in a variety of distinctive sculptural forms is extraordinary in a global context. This property also contains an internationally important combination of earth science values. The quantity and concentration of highly varied limestone formations is extraordinary in a global context, whilst the superbly exposed geology provides an insight into the recovery of marine life in the Triassic period, after the greatest extinction event recorded in the history of life on Earth. The sublime, monumental and colourful landscapes of the Dolomites have also long attracted hosts of travellers and a history of scientific and artistic interpretations of its values.*

### **Criteria**

**Criterion (vii):** *The Dolomites are widely regarded as being among the most attractive mountain landscapes in the world. Their intrinsic beauty derives from a variety of spectacular vertical forms such as pinnacles, spires and towers, with contrasting horizontal surfaces including ledges, crags and plateaux,*

*all of which rise abruptly above extensive talus deposits and more gentle foothills. A great diversity of colours is provided by the contrasts between the bare pale-coloured rock surfaces and the forests and meadows below. The mountains rise as peaks with intervening ravines, in some places standing isolated but in others forming sweeping panoramas. Some of the rock cliffs here rise more than 1,500 m and are among the highest limestone walls found anywhere in the world. The distinctive scenery of the Dolomites has become the archetype of a "dolomitic landscape". Geologist pioneers were the first to be captured by the beauty of the mountains, and their writing and subsequent painting and photography further underline the aesthetic appeal of the property.*

**Criterion (viii):** *The Dolomites are of international significance for geomorphology, as the classic site for the development of mountains in dolomitic limestone. The area presents a wide range of landforms related to erosion, tectonism and glaciation. The quantity and concentration of extremely varied limestone formations is extraordinary in a global context, including peaks, towers, pinnacles and some of the highest vertical rock walls in the world. The geological values are also of international significance, notably the evidence of Mesozoic carbonate platforms, or "fossilized atolls", particularly in terms of the evidence they provide of the evolution of the bio-constructors after the Permian/Triassic boundary, and the preservation of the relationships between the reefs they constructed and their surrounding basins. The Dolomites also include several internationally important type sections for the stratigraphy of the Triassic Period. The scientific values of the property are also supported by the evidence of a long history of study and recognition at the international level. Taken together, the combination of geomorphological and geological values creates a property of global significance.*

### **Integrity**

*The nine component parts that make up the property include all areas that are essential for maintaining the beauty of the property and all or most of the key interrelated and interdependent earth science elements in their natural relationships. The property comprises parts of a national park, several provincial nature parks and Natura 2000 sites, and a natural monument. Buffer zones have been defined for each component part to help to protect from threats from outside*

*its boundaries. The natural landscapes and processes that are essential to maintaining the property's values and integrity are in a good state of conservation and largely unaffected by development.*

#### **Management and protection requirements**

*As a serial property, the Dolomites require an adequately resourced, inter-provincial governance arrangement that ensures all five provinces with territory in the property are bound together within a common management system, and with an agreed joint management strategy and a monitoring and reporting framework for the property as a whole. Common policies and programmes for the management of public use and the presentation of the property are also required for the property and its buffer zones. The property requires protection from tourism pressures and related infrastructure.*

*Each of the component parts of the serial property requires its own individual management plan, providing not only for the protection and management of land use, but also the regulation and management of human activities to maintain its values, and in particular to preserve the qualities of its natural landscapes and processes, including extensive areas which still have wilderness character. Areas that are subject to more intensive visitation need to be managed to ensure visitor numbers and activities are within the capacity of the property in relation to the protection of both its values and the experience of visitors to the property. Adequate resources and staffing, and coordination between the staff teams in the different components of the property are also essential.*

4. Notes that the decision to inscribe the property is made on the understanding that the State Party is in agreement with the following requests of the Committee, which should be implemented prior to the 35<sup>th</sup> session of the Committee in 2011 in order to address fully the requirements of the *Operational Guidelines*:

a) That the anticipated inter-provincial foundation: "Dolomiti – Dolomiten – Dolomitis – Dolomites UNESCO" is established following the inscription of the property and provided with the budget indicated by the State Party.

b) That an action-oriented overall management strategy for the whole of the serial property is developed, in consultation with the full range of relevant stakeholders, to establish (i) governance arrangements for the effective management of the property; (ii) operational

management actions, in relation to key themes specific to the nominated World Heritage property and the criteria for which it is inscribed; (iii) monitoring and reporting on the State of Conservation of the property as a whole and the management effectiveness of the property and (iv) practical options to achieve the financial sustainability for conserving and managing the property.

c) That individual management plans for each one of the component parts of the serial property are completed to ensure consistent and effective delivery of the overall framework, as well as effective local management of conservation and use appropriate to the component part in question.

d) That a comprehensive strategy is developed for tourism and visitor use covering the property, its buffer zones and considering appropriate links to the wider region, in order to fully consider the requirements for maintaining the Outstanding Universal Value and conditions of integrity of the property under the scenario of expected increase in visitation after the inscription. This strategy should aim to manage visitor levels in areas already at or over capacity, to prohibit intensification of infrastructure or inappropriate uses that could impact the values of the property, and to ensure effective presentation and tourism benefits compatible with the long-term conservation of the property.

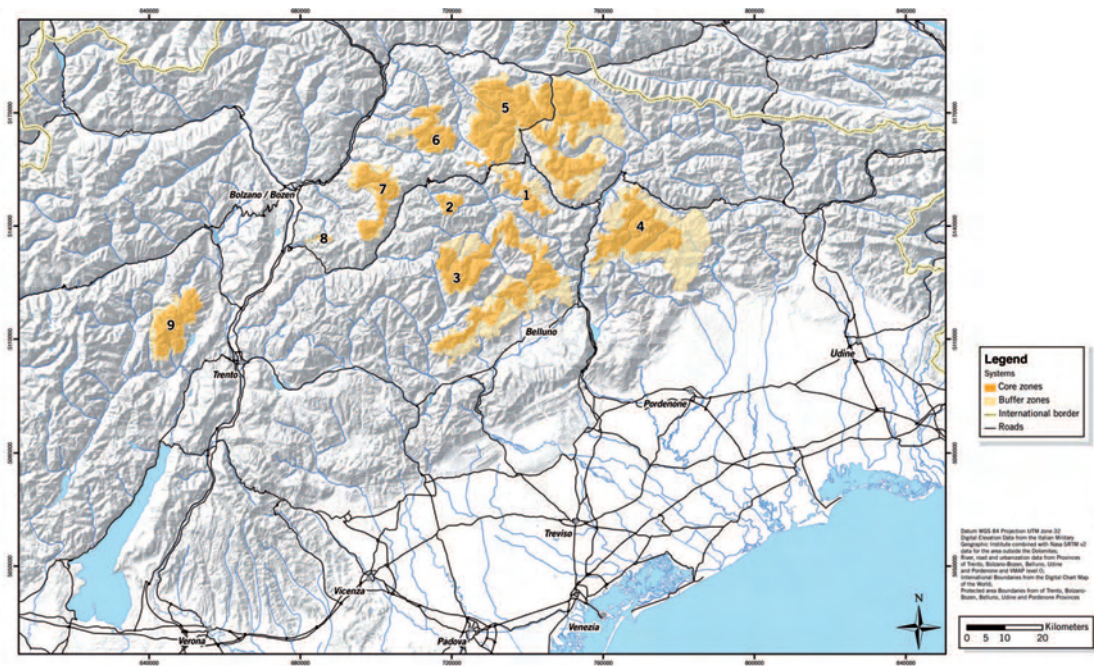
5. Commends the State Party for the considerable efforts in implementing previous recommendations regarding the establishment of an appropriate serial property and for the measures taken to establish overall management arrangements for the property, and also takes note of the presentation of the different component parts in relation to the values of the property as a whole as an example of good practice;
6. Requests the State Party to invite a mission to the property in 2011 to assess progress with the implementation of the overall management framework and governance for the property, the establishment of management plans for the different component parts of the property, and the establishment of a tourism strategy, in order to allow the World Heritage Committee to assess the progress that has been made in relation to its requests noted above.



Map 1: General location of nominated property



Map 2: Boundaries of nominated property



**Diagram 1:** Diagram showing relationship of the component parts of the property

