Greater Blue Mountains Area

2017 Conservation Outlook Assessment

SITE INFORMATION

Country:
Australia
Inscribed in: 2000
Criteria:
(ix) (x)

Site description:

The Greater Blue Mountains Area consists of 1.03 million ha of sandstone plateaux, escarpments and gorges dominated by temperate eucalypt forest. The site, comprised of eight protected areas, is noted for its representation of the evolutionary adaptation and diversification of the eucalypts in post-Gondwana isolation on the Australian continent. Ninety-one eucalypt taxa occur within the Greater Blue Mountains Area which is also outstanding for its exceptional expression of the structural and ecological diversity of the eucalypts associated with its wide range of habitats. The site provides significant representation of Australia's biodiversity with ten percent of the vascular flora as well as significant numbers of rare or threatened species, including endemic and evolutionary relict species, such as the Wollemi pine, which have persisted in highly-restricted microsites.

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SUMMARY

2017 Conservation Outlook

GOOD WITH SOME CONCERNS

Finalised on 09 Nov 2017

The site has a high value for the protection of natural biological processes and its values remain relatively intact, but improved management of vertebrate pests, fire and the impacts of coal mining and urban development in adjacent areas is required. Most of the current threats are from activities outside the WHA boundary including coal mining. Although these threats are high they are capable of being resolved by better planning and management. However, the large size and extensive perimeter of the site and the existence of major enclaves (inholdings) is creating management difficulties. Achieving a high level of conservation will require even greater levels of cooperation particularly with regard to protection of the GBMWH on adjacent lands.

Current state and trend of VALUES

Low Concern

Trend: Stable

The site has a high value for the protection of natural biological processes but improved management of vertebrate pests, fire and the impacts of coal mining and urban development in adjacent areas is required. Most of the natural plant communities and habitats of the site remain close to pristine. However, the site is threatened by potential spread of vertebrate pests, and weeds.

Overall THREATS

High Threat

Most of the current threats are from activities outside the WHA boundary including coal mining. Although these threats are high they are capable of being mitigated by better planning and management of adjacent land uses. The main potential threats are from urban development in the major corridor through the site and from infrastructure development supporting the growth of Sydney.
Climate change threatens the values of the reserves.

**Overall PROTECTION and MANAGEMENT**

*Mostly Effective*

The site has an effective management system in place and benefits from a strong legal framework, but the relatively high boundary to area ratio is such that the site is exposed to many threats from outside. Major efforts have been made to co-ordinate management but problems remain because of the need to provide improved protection from threats from outside the site boundaries.
FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ A centre of diversification for the Australian scleromorphic flora
   Criterion:(ix)

   The Greater Blue Mountains include outstanding and representative examples in a relatively small area of the evolution and adaptation of the genus Eucalyptus and eucalypt-dominated vegetation on the Australian continent. The site contains a wide and balanced representation of eucalypt habitats including wet and dry sclerophyll forests and mallee heathlands, as well as localised swamps, wetlands and grassland. It is a centre of diversification for the Australian scleromorphic flora, including significant aspects of eucalypt evolution and radiation. Representative examples of the dynamic processes in its eucalypt-dominated ecosystems cover the full range of interactions between eucalypts, understorey, fauna, environment and fire. The site includes primitive species of outstanding significance to the evolution of the earth’s plant life, such as the highly restricted Wollemi pine (Wollemia nobilis) and the Blue Mountains pine (Pherosphaera fitzgeraldii). These are examples of ancient, relict species with Gondwanan affinities that have survived past climatic changes and demonstrate the highly unusual juxtaposition of Gondwanan taxa with the diverse scleromorphic flora (World Heritage Committee, 2013).

▶ An outstanding diversity of habitats and plant communities
   Criterion:(x)

   The site includes an outstanding diversity of habitats and plant communities
that support its globally significant species and ecosystem diversity (152 plant families, 484 genera and c. 1,500 species). A significant proportion of the Australian continent’s biodiversity, especially its scleromorphic flora, occur in the area. Plant families represented by exceptionally high levels of species diversity here include Myrtaceae (150 species), Fabaceae (149 species), and Proteaceae (77 species). Eucalypts (Eucalyptus, Angophora and Corymbia, all in the family Myrtaceae) which dominate the Australian continent are well represented by more than 90 species (13% of the global total). The genus Acacia (in the family Fabaceae) is represented by 64 species. The site includes primitive and relictual species with Gondwanan affinities (Wollemia, Pherosphaera, Lomatia, Dracophyllum, Acrophyllum, Podocarpus and Atkinsonia) and supports many plants of conservation significance including 114 endemic species and 177 threatened species. The diverse plant communities and habitats support more than 400 vertebrate taxa (of which 40 are threatened), comprising some 52 mammal, 63 reptile, over 30 frog and about one third (265 species) of Australia’s bird species. Charismatic vertebrates such as the platypus and echidna occur in the area. Although invertebrates are still poorly known, the area supports an estimated 120 butterfly and 4,000 moth species, and a rich cave invertebrate fauna (67 taxa) (World Heritage Committee, 2013).

**Assessment information**

**Threats**

**Current Threats**

**High Threat**

Many of the current threats are from activities outside the WHA boundary. Management of these threats could benefit from a broad planning overlay (or buffer zone) over adjacent lands identifying the source of these threats and limiting these activities.
► Fire/ Fire Suppression

**High Threat**

**Inside site, throughout (>50%)**

Hazard reduction to protect urban areas in the central corridor interferes with natural processes and threatens the Grose Valley Wilderness. (Hammil et al., 2010; Tasker et al., n.d.). Climate change impacts could shift fire regimes in what is already one of the world’s most fire prone ecosystems. Main threats relate to the impact of altered or inappropriate fire regimes on the ecological, biological and evolutionary processes within the eucalypt dominated ecosystems, and the impact of inappropriate fire regimes on the quality of habitats for the in-situ conservation of the biological diversity of primitive species with Gondwana affinities and, of rare or threatened plants and animals.

► Water Pollution

**High Threat**

**Inside site, widespread (15-50%)**

The Wollangambe, Wolgan and Colo Rivers are affected by polluted water from collieries. The Colo is a dedicated Wild River (Benson et al., 2012; Hansen, 2010).

► Other

**High Threat**

**Inside site, scattered (5-15%)**

Long wall coal mining close to the boundary of the World Heritage Area threatens cliff collapse, water pollution, lowering of water tables, desiccation of swamps and the loss of water in lakes. In the Thirlmere Lakes the water levels have been reduced between 1.5 and 2.5 metres. Subsidence from mining causes drying out of peat, swamp collapse and the killing of swamp vegetation. The threats are greatest in the Gardens of Stone area on the Newnes Plateau (Department of Sustainability, Environment, Water, Population and Communities, 2013; Goldrey et al., 2010, Pells Consulting, 2012). This may permanently alter water flow into the WHA that maintains stream flow.
Tourism/ Recreation Areas

Low Threat
Inside site, localised(<5%)

The development of the Emirates 6 star resort inside the Wollemi National Park was negotiated as a land swap of previously disturbed farmland within the park for high conservation freehold land. The process has been stalled because the land swap is subject to negotiating an Indigenous Land Use Agreement and this has not been finalised. The section of the Resort on park is subject to a 21 year lease to allow the land swap to be resolved.

Invasive Non-Native/ Alien Species

High Threat
Inside site, throughout(>50%)

The main current threat is from the root rot pathogen Phytophthora cinnamomi which causes vegetation dieback. It is spread by human activities (including boots, bikes and vehicles) and moves from ridge tops down slopes and water courses (Blue Mountains World Heritage Institute, 2012; Chapple et al., 2011; National Parks and Wildlife Service, 2012). Invasive plant and animal pests (including carp, deer, dogs, foxes, goats, pigs, rabbits, cats, cattle) are managed in national parks management plans and implemented in cooperation with neighbours.

Potential Threats

High Threat

The main potential threats arise from urban related developments in the major corridor through the site and adjacent lands to the east of the site. These threats include fire management regimes, flood mitigation and airport development. These are all ‘high’ threats which incrementally threaten World Heritage values. Climate change and associated changes in weed and feral animals populations as well as fire regimes further threaten values.

Water Pollution

High Threat
Exploration for coal seam gas has commenced in the Putty Enclave. While there are no up to date reports on progress if this development goes ahead it could threaten the Colo Wild River and the Wollemi Wilderness with water pollution (IUCN Consultation, 2017).

**Dams/ Water Management or Use**

*High Threat*

**Inside site, scattered(5-15%)**

The proposal to raise the height of the Warragamba Dam wall by 14 meters for temporary flood mitigation purposes would, if implemented, inundate parts of the Wollondilly, Kedumba, Kowmung and Cox Rivers in the Nattai, Blue Mountains, and Kanangra-Boyd National Parks, the Nattai and Kanangra-Boyd Wilderness Areas and the Kowmung Wild River, killing vegetation and depositing sediment). The most recent NSW Government proposal to raise the height of the dam wall has been determined a controlled action under the EPBC Act (Referral no. 2017/7940). The proposal is being assessed under a Cwth and NSW bilateral agreement and an EIS is being prepared. (IUCN Consultation, 2017). (http://www.waternsw.com.au/projects/warragamba-dam-raising).

**Housing/ Urban Areas**

*High Threat*

**Inside site, scattered(5-15%)**

A new Growth Plan for the Sydney Metropolitan Area could result in denser urban development in the central corridor causing hardening of surfaces, greater storm water run off and water and air pollution. This will also increase pressure for increased hazard reduction to manage fire risk to new developments.

**Temperature changes**

*High Threat*

**Inside site, throughout(>50%)**

There is concern that climate change could result in more virulent forms of
Phytophthora cinnamomi and affect natural fire regimes through a greater incidence of fires (Blue Mountains World Heritage Institute, 2006; IUCN Consultation, 2017).

▶ Commercial/Industrial Areas, Tourism/Recreation Areas

**High Threat**

**Inside site, widespread (15-50%)**

**Outside site**

An Environmental Impact Statement for the proposed airport has been approved by the Australian Government. The proposed airport is approximately seven kilometres from the boundary of the World Heritage area. The EIS found that construction of the proposed airport would have no direct impacts on the GBMWHA or its World Heritage values. Detailed assessment was undertaken of possible indirect impacts from aircraft overflights, including consideration of a number of tourism and wilderness areas within the GBMWHA. This assessment included noise, air quality, visual impacts and the potential for dumping of fuel (http://westernsydneyairport.gov.au/media-resources/resources/environmental-assessment/index.aspx). Despite this, the presence of aircraft above major tourist sites and wilderness areas will add to the incremental negative impacts of Sydney's growth on the site. While the construction and operation of the airport infrastructure was found to have no direct impacts on the World Heritage values, the flight paths have not yet been determined or assessed. These flight paths will be the subject of a separate referral under the EPBC Act at which time the potential threat to World Heritage values from aircraft noise will be further assessed (IUCN Consultation, 2017).

**Protection and management**

**Assessing Protection and Management**

▶ **Relationships with local people**

**Highly Effective**

The nomination of the World Heritage Area back in 2000 was strongly
supported by local communities and the Blue Mountains City Council. There is an Advisory Committee which includes local representatives and traditional owners. There is also a Greater Blue Mountains Aboriginal Reference Group. A Strategic Plan (National Parks and Wildlife Service, New South Wales, 2009) has been developed which helps to coordinate management of the 8 protected areas which make up the GBMWHA.

**Legal framework and enforcement**  
*Mostly Effective*

The site has an adequate legal framework which ensures effective coordination between the federal, State and local Governments and their agencies. The protected areas within the WHA are protected by means of the federal Environment Protection and Biodiversity Conservation Act, the National Parks and Wildlife Act, and the Wilderness Act (National Parks and Wildlife Service, New South Wales, 2009). However there is no formal buffer zone surrounding the property.

**Enforcement**  
*Mostly Effective*

Law enforcement is carried out by NSW NPWS under the NSW National Parks and Wildlife Act and Wilderness Act. Resources for enforcement are limited.

**Integration into regional and national planning systems**  
*Mostly Effective*

The Strategic Plan for the Greater Blue Mountains World Heritage Area, 2009 (National Parks and Wildlife Service, New South Wales, 2009) provides for the integration of management. It is due to be reviewed in 2019. Additional coordination is provided through the Water Catchment Management Act.

**Management system**  
*Mostly Effective*

The property consists of seven adjacent national parks and a single karst conservation reserve (World Heritage Committee, 2013). There are management plans for each of the 8 protected areas in the WHA (Blue Mountains National Park Plan of Management, 2001; Kanangra-Boyd National
Park Plan of Management, 2001; Wollemi National Park Plan of Management, 2001; Nattai National Park Plan of Management 2001; Gardens of Stone National Park Plan of Management, 2009; Thirlmere Lakes National Park draft Plan of Management, 2014; Yengo National Park Plan of Management, 2009; and Jenolan Karst Conservation Reserve Draft Plan of Management, 2012), but some are in need of updating. The Greater Blue Mountains World Heritage Area Strategic Plan (National Parks and Wildlife Service, New South Wales, 2009) is an outstanding example of the coordination of planning and management of an area of 1,032,649 hectares in 8 protected areas. It is also a good example of local (12 Local Government Areas), State, and federal cooperation.

▶ **Management effectiveness**

**Mostly Effective**

The EPBC Act, the National Parks and Wildlife Act, the Wilderness Act and the GBMWHA Strategic Plan are the main planning tools but the relatively high boundary to area ratio is such that the WHA is exposed to many threats from outside. This requires more effective planning and management of adjacent areas including enclaves and in particular the lands in the Warragamba Catchment (National Parks and Wildlife Service, New South Wales, 2009; Department of the Environment, World Heritage and The Arts, n.d.).

▶ **Implementation of Committee decisions and recommendations**

**Data Deficient**

No recent Committee Decisions.

▶ **Boundaries**

**Some Concern**

The boundary of the GBMWHA is relatively lengthy and the WHA includes some major enclaves. Boundary anomalies affecting integrity have been mentioned in the Statement of Outstanding Universal Value (World Heritage Committee, 2013). The GBMWHA Advisory Committee has recommended modification of the WHA boundaries to include the additions to the reserves made since 2000 (over 36,000 hectares). The GBMWHA Advisory Committee also recommend extensive expansion of over 230,000 hectares of significant
natural areas adjacent to the GBMWHA (Benson et al., 2012).

► **Sustainable finance**
  Mostly Effective

  The site is managed under finance for the NPWS (NSW) and National Heritage Trust (National Parks and Wildlife Service, New South Wales, 2009). No recent information on the current levels of funding is available.

► **Staff training and development**
  Mostly Effective

  Staff training is executed through the NSW National Parks and Wildlife Service (National Parks and Wildlife Service, New South Wales, 2009).

► **Sustainable use**
  Mostly Effective

  The protected areas in the GBMWHA make a major contribution to sustainable land use, particularly through catchment protection and water supply (National Parks and Wildlife Service, New South Wales, 2009).

► **Education and interpretation programs**
  Mostly Effective

  There are a large number of national and international visitors to the GBMWHA and visitor information centres are located at the major attraction hubs (National Parks and Wildlife Service, New South Wales, 2009).

► **Tourism and interpretation**
  Mostly Effective

  Information centres are located at the major attraction hubs.

► **Monitoring**
  Highly Effective

  The NSW State of the Parks system assesses management effectiveness for the reserves that make up the WHA. The NPWS works to support the conservation of the property through applied research and community
engagement. This includes some aspects of monitoring of the integrity of the ecosystems.

▶ Research
Mostly Effective

Research is carried out by the federal and state agencies and the Blue Mountains World Heritage Institute (National Parks and Wildlife Service, New South Wales, 2009), as well as universities. Assessment is continuing into the additional national and heritage values of the site and some adjacent lands. Relevant research is documented in the NSW State of the Parks system.

Overall assessment of protection and management
Mostly Effective

The site has an effective management system in place and benefits from a strong legal framework, but the relatively high boundary to area ratio is such that the site is exposed to many threats from outside. Major efforts have been made to co-ordinate management but problems remain because of the need to provide improved protection from threats from outside the site boundaries.

▶ Assessment of the effectiveness of protection and management in addressing threats outside the site
Some Concern

There is some concern about the long boundary and major enclaves. Attention is needed to the additional values and areas which would add to the OUV and the integrity of the WHA.

▶ Best practice examples

The NSW State of the Parks system is a best practice system for assessing management effectiveness. The GBMWHA is one of the only sites in Australia with a dedicated site based research and community engagement institute - the Blue Mountains World Heritage Institute which is a not for profit organisation. The Greater Blue Mountains World Heritage Area Strategic Plan (National Parks and Wildlife Service, New South Wales, 2009) is an outstanding example of the coordination of planning and management of an
area of 1,032,649 hectares in 8 protected areas. It is also an excellent example of local (12 Local Government Areas), State, and federal cooperation.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► A centre of diversification for the Australian scleromorphic flora

High Concern
Trend: Data Deficient

The site has a high value for the protection of natural biological processes but improved management of vertebrate pests, fire and the impacts of coal mining and urban development in adjacent areas is required. (Hansen, 2010; National Parks and Wildlife Service, New South Wales, 2012; Tasker et al., n.d.)

► An outstanding diversity of habitats and plant communities

Low Concern
Trend: Stable

Most of the natural bushland of the site remains close to pristine. The plant communities and habitats occur as an extensive, largely undisturbed matrix almost entirely free of structures, earthworks and other human intervention (World Heritage Committee, 2013). However, the site is threatened by the potential spread of vertebrate pests and weeds. More than 60 declared noxious weeds are known to occur in the GBMWHA and many hundreds of environmental weeds of concern have the potential to invade disturbed areas (National Parks and Wildlife Service, New South Wales, 2009).

Summary of the Values
Assessment of the current state and trend of World Heritage values

Low Concern  
Trend: Stable

The site has a high value for the protection of natural biological processes but improved management of vertebrate pests, fire and the impacts of coal mining and urban development in adjacent areas is required. Most of the natural plant communities and habitats of the site remain close to pristine. However, the site is threatened by potential spread of vertebrate pests, and weeds.

Additional information

Benefits

Understanding Benefits

Flood prevention, Water provision (importance for water quantity and quality), Pollination

The site provides major ecosystem services to Sydney region by water flow and quality, cleaning air, providing pollinators, regulating floods and drought flow of water to rivers, stopping river sedimentation, etc.

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - High, Trend - Increasing
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - Low, Trend - Continuing
- Invasive species: Impact level - Moderate, Trend - Continuing
- Habitat change: Impact level - Moderate, Trend - Continuing

Water provision (importance for water quantity and quality)

The site protects the catchment for Australia’s largest city, Sydney. Joint
management arrangements are in place between the NPWS and catchment management authorities.

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - Low, Trend - Increasing
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - Low, Trend - Continuing
- Invasive species: Impact level - Moderate, Trend - Continuing
- Habitat change: Impact level - Low, Trend - Continuing

▶ Outdoor recreation and tourism

Highly attractive natural scenery and extensive wilderness areas – close proximity to Sydney (5 million people)

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - Low, Trend - Increasing
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - Low, Trend - Continuing
- Invasive species: Impact level - Low, Trend - Continuing
- Habitat change: Impact level - Moderate, Trend - Increasing

▶ Importance for research

Valuable for explanation of natural processes in evolution of landscapes

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - High, Trend - Increasing
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - Low, Trend - Continuing
- Invasive species: Impact level - Low, Trend - Continuing
- Habitat change: Impact level - Low, Trend - Continuing

▶ Contribution to education

Valuable for building knowledge. Close to several Universities.
Factors negatively affecting provision of this benefit:
- Climate change: Impact level - Low, Trend - Increasing
- Pollution: Impact level - Low, Trend - Continuing
- Overexploitation: Impact level - Low, Trend - Continuing
- Invasive species: Impact level - Low, Trend - Continuing
- Habitat change: Impact level - Low, Trend - Continuing

Summary of benefits

The GBMWHA contains over 1 million hectares of protected areas and has key benefits on a local, regional and global level of nature conservation with exceptional representation of Eucalyptus dominated sclerophyll ecosystems and biodiversity; recreation for the highly attractive natural scenery and extensive wilderness areas and close proximity to Sydney (4.5 million people); education for the explanation of natural processes in evolution of landscapes and scientific research for building knowledge.

On a regional level the site provides major ecosystem services to the Sydney region by water flow and quality, cleaning air, providing pollinators, regulating floods and drought flow of water to rivers, stopping river sedimentation, etc; and watershed protection as the site protects the drinking water catchment for Australia’s largest city, Sydney.

The site is not listed for cultural associations although does have strong cultural and spiritual connection for the 6 Aboriginal Language groups that share Country. The site contains, or is closely associated with a number of declared Aboriginal places: the Three Sisters, The Gully, Kings Tableland, Red Hands Cave, Euroka, Mt Yengo, Shaws Creek, Blackfellows Hand Cave.

Projects

Compilation of active conservation projects

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<th>№</th>
<th>Organization/individuals</th>
<th>Project duration</th>
<th>Brief description of Active Projects</th>
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Greater Blue Mountains Area - 2017 Conservation Outlook Assessment

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<td>Priority research needs</td>
<td>The GBMWHA Advisory Committee have developed a list of priority research projects for the reserves. These projects should be implemented.</td>
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<td>Management effectiveness monitoring</td>
<td>Ensure State of the Parks assessments are continued for the reserves that make up the GBMWHA</td>
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# REFERENCES

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<td>12</td>
<td>Department of the Environment, World Heritage and The Arts (no date) The Greater Blue Mountains Area Characteristics.</td>
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<tr>
<td>13</td>
<td>EPBC Act referral 2017/7940 Warragamba Dam raising (Water NSW) <a href="http://epbcnotices.environment.gov.au/_entity/annotation/8a">http://epbcnotices.environment.gov.au/_entity/annotation/8a</a>...</td>
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<td>14</td>
<td>Goldrey, D., Mactaggart, B., and Merrick, N. (2010) Determining whether or not significant impact has occurred in Temperate Highland Peat Swamps on Sandstone Within the Angus Place Colliery Base on Newnes Plateau.</td>
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<td>15</td>
<td>Gundungurra Area Agreement 2015, Indigenous Land Use Agreement, NI2014/001, Native Title Tribunal 2015</td>
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<td>16</td>
<td>Hammill, K., and Tasker, L. (2010) Vegetation, Fire and Climate Change in the Greater Blue Mountains World Heritage Area, Department of Climate Change and Water, National Parks and Wildlife Service, NSW.</td>
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