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Submission - Warragamba Dam Raising Project - SSI-8441 -

Warragamba Catchment Area and the Blue Mountains World Heritage National Parks - impact of raising the dam wall on biodiversity and cultural heritage of national conservation significance.

The Warragamba Catchment Area includes parts of the Wollondilly, Nattai, Little, Tonalli, Cox's and Kowmung River systems. The Warragamba Catchment includes parts of the Blue Mountains, Kanangra-Boyd and Nattai National Parks and Yerranderie and Burragorang State Conservation Areas reserved under the NSW National Parks and Wildlife Act (NPW Act). The National Parks are collectively referred to as the Greater Blue Mountains National Parks. The majority of the land contained in these reserves and the Warragamba Catchment Area (70%) are included in the Blue Mountains World Heritage Area however the Burragorang and Yerranderie SCA's are not included. A large portion of these lands are also Declared Wilderness Areas under the NPW Act. The Burragorang area within the Warragamba Catchment Area is an Aboriginal name for parts of the Wollondilly, Tonalli, Nattai and Cox's River valleys and the name that has been given to the impoundment of Warragamba Dam, Lake Burragorang. The Burragorang area, much of which is included in the Yerranderie SCA and Nattai NP, includes most of the Temperate Grassy Box Woodland ecosystems contained in the Warragamba Catchment Area.

This submission details concerns regarding the ecological impacts of raising the Warragamba Dam wall on the Greater Blue Mountains National Parks and other Reserves and the Blue Mountains World Heritage Area and the failure of the EIS to adequately assess and describe the impacts of this project on these areas of national conservation significance.

Outstanding Biodiversity of National Conservation Significance within the Warragamba Catchment Area.

1. The Warragamba Catchment Area contains a diversity of ecosystems reflecting the diversity of geology and climatic conditions. Seventy - seven different vegetation communities have been described for the area of which seven are considered Endangered Ecological Communities (EEC's) under the Biodiversity Conservation Act (2016) (NPWS 2003).
2. The vegetation communities referred to collectively as the Grassy Box Woodlands on the middle and upper Wollondilly River valley, also known as the Burragorang area, are some of the most intact and extensive examples of Temperate Grassy Box Woodland ecosystems

surviving in all south-eastern Australia. They are considered part of the Endangered Ecological Community White Box-Yellow Box- Blakely's Red Gum EEC which is listed under both State and Federal Threatened Species Acts. Grassy Box Woodland habitat will be lost to flooding should the dam wall be raised.

3. Grassy Box Woodlands in the "Joorilands" area on the Wollondilly River in Yerranderie SCA are some of the best examples of 'old growth' Grassy Box Woodland surviving in the Greater Sydney Region, and potentially throughout NSW.
4. Open areas between woodland patches have been mapped by NPWS (2003) as cleared. Open areas need to be re-assessed as much of these areas are predominantly native grasses and forbs and therefore qualify as a Derived Native Grassland under State and Federal Threatened Species Acts and are therefore considered to form part of the EEC. These native grasslands provide important habitat for many woodland species and significant areas of native grasslands will be flooded should the dam wall be raised. Within the Warragamba Special Area 22,000 ha have been identified as cleared of which a large proportion will be native grassland and should be mapped as such.
5. Temperate Grassy Box Woodlands have been highly cleared for agriculture and are some of the most threatened ecosystems in Australia (Keith 2004). Most of the Grassy Box Woodlands occur on the western slopes and tablelands of the Great Dividing Range where they have been used for grazing and cropping since European settlement and are known as the Wheat-Sheep Belt. In many of these areas as little as 5% of the original woodland tree cover remains.
6. The Grassy Box Woodlands of the Burragorang are some of the most intact examples of these ecosystems remaining in all south-eastern Australia. Domestic stock were removed in the late 1950's due to the dam construction and introduced pastures were not widely used leaving largely intact native grasslands. Much of the original native fauna survives including the Dingo, which has been exterminated from most of NSW. The Dingo, a top order native predator, co-exists with other native predators the Wedge-tail Eagle, Spotted-tailed Quoll and Lace Monitor which exist in a natural equilibrium with their native prey species, the Eastern Grey Kangaroo, Eastern Wallaroo, Swamp Wallaby, Red-necked Wallaby, threatened Brush-tailed Rock Wallaby, Wombat and Emu. This may be one of the only locations in Australia where the natural equilibrium between native predators and native prey can still be found in a Temperate Grassy Woodland ecosystem. The Dingoes of Burragorang should be nominated for listing as an endangered population under the Biodiversity Conservation Act (2016).

7. The Grassy Box Woodlands of the Burratorang also support a wide diversity of woodland birds including 25 threatened species. It includes one of the most threatened species in Australia, the Regent Honeyeater, which is listed as Critically Endangered under State and Federal threatened species Acts and has been recorded breeding in the Burratorang area recently. The proposal to raise the dam wall would destroy critical breeding habitat of the Regent Honeyeater and have dire consequences for the species survival in Australia, pushing the species towards extinction. With as few as 350 individual Regent Honeyeaters known to be surviving in Australia and less than half a dozen known contemporary breeding sites any loss of breeding habitat could have disastrous impacts for the species. In addition, it is estimated more than 50 percent of remaining feeding and breeding habitat of the Regent Honeyeater was burnt in the 2019/20 bushfires. The protection of remaining unburnt feeding and breeding habitat is critical. The National Recovery Plan for Regent Honeyeater identifies breeding habitat as *habitat critical for survival* of the species and that “*It is essential that the highest level of protection is provided to these areas*. Any loss of critical breeding habitat in the Burratorang cannot be offset.
8. Other threatened woodland birds include the Swift Parrot, Turquoise Parrot, Little Lorikeet, Diamond Firetail, Hooded Robin, Scarlet Robin, Flame Robin, Brown Treecreeper, Varied Sittella, Speckled Warbler, Painted Honeyeater, Black-chinned Honeyeater, Dusky Woodswallow, Barking Owl and Masked Owl. Woodland birds have declined dramatically throughout much of their range across the slopes and tablelands of NSW and include some of the most threatened species in NSW (DECC 2007, DPIE 2021).
9. Other threatened woodland fauna includes the Squirrel Glider, Koala, Brush-tailed Rock Wallaby and Eastern Free-tailed Bat (DECC 2007). The colony of Brush-tailed Rock Wallaby on the Wollondilly River is one of the few remaining in a Grassy Woodland ecosystem in the entire Sydney Basin. The presence of the Dingo may benefit the Brush-tailed Rock Wallaby by suppression of the introduced Fox. Surveys for the Koala have not been extensive or comprehensive and this species may be more abundant and widely distributed than currently known, especially in woodland habitats. Restricted access into the catchment has limited the number of fauna surveys and other rare and threatened species may yet be found. One species, the threatened Brush-tailed Phascogale, a small tree-dwelling carnivorous marsupial, could be present. It may yet be detected by modern camera survey techniques.
10. The uniqueness and irreplaceability of the Grassy Box Woodlands and other Dry Open Forests ecosystems of the Burratorang area should be recognised in their entirety for their outstanding national conservation significance and identified as a scientific reference area for the management of such ecosystems throughout south-eastern Australia. This may be the most intact example of a Temperate Grassy Box

Woodland ecosystem surviving in south-eastern Australia where the flora and vegetation communities are in good condition, including “old growth woodland”, the fauna is diverse and includes an array of threatened woodland birds, including the Regent Honeyeater, which exist with native grazers and native predators in a natural equilibrium, including the Dingo, and the streams and rivers are in excellent condition and support populations of Platypus and Water Rat and Southern Myotis microbat. These ecosystems should be nominated in their entirety as an Endangered Ecological Community and/or an Area of Outstanding Biodiversity under the Biodiversity Conservation Act (2016) and Environment Protection and Biodiversity Conservation Act (1999).

11. Moist forest types along the Nattai, Little and Kowmung Rivers support threatened species such as the Yellow-bellied Glider, Spotted-tailed Quoll, Glossy Black-cockatoo, Gang Gang Cockatoo, Powerful Owl, Sooty Owl, Greater Broad-nosed Bat, Eastern Bent-wing Bat and Large-eared Pied Bat. Extensive areas of habitat of these species will be lost to flooding along the rich riverine flats where biodiversity is concentrated, should the dam wall be raised (DECC 2007).
12. Moist forest types on the Kedumba, Nattai and Little Rivers support Burratorang River Flat Forest which in places supports the threatened Camden White Gum *Eucalyptus benthamii* (NPWS 2003). Some of the last stands of this Nationally Threatened species will be lost to flooding should the dam wall be raised.
13. The creek and river systems of the Warragamba Catchment support important populations of the unique and iconic Platypus as well as Water-rat and threatened microbat, the Large-footed Myotis (DECC 2007). These species forage largely in and above shallow and protected waters of rivers and creeks and are not likely to use the deep waters of the dam impoundment (Grant 2007). Sixty-five kilometres of wilderness river and creek habitats of these species will be lost should the dam wall be raised removing significant areas of feeding and breeding habitat of the Platypus. The protected creeks and rivers of the Warragamba Catchment provide critical refuge for the Platypus and other aquatic fauna in NSW in times of drying climate, continued land clearing and intense competition for water resources. The assessment of the impact of this proposal on the conservation of Platypus populations and other aquatic fauna was completely inadequate and largely non-existent.
14. The area to be impacted by raising the dam wall includes several matters considered of National Environmental Significance including;
 - a. 1 World Heritage property
 - b. 1 National Heritage property
 - c. 12 threatened ecological communities
 - d. 78 threatened species of flora and fauna
 - e. 16 species of migratory fauna

Failure of the EIS to assess impacts of raising the dam wall on biodiversity

1. The EIS did not adequately assess the impacts of the project on biodiversity. Many areas to be impacted by rising flood waters were not surveyed at all including the Kowmung River, Cedar Creek, Lacys Creek, Green Wattle Creek, Werriberri Creek, Brimstone Creek and Ripple Creek.
2. The amount of survey effort for the large area to be impacted was very low. There was limited use of remote cameras, ultrasonic detectors and songmeters to detect rare and threatened fauna, especially in remote locations. There was a limited amount of spotlighting.
3. Flora survey was completely inadequate with only 95 survey plots done and less than 50% of the study area subject to ground truthing.
4. There were very limited amphibian surveys at very few sites and areas and no targeted searches for the threatened Booroolong Frog and Stuttering Frog. Consideration of the Booroolong Frog was dismissed on the basis it does not occur in easterly flowing streams which is incorrect (DECC 2007) and it may be present in the western part of the catchment with records known from the Kowmung River (DPIE, 2021). The Stuttering Frog is known from the western part of the catchment and modelling suggests a broader distribution through the catchment and consideration of impacts on this species should be made.
5. Large areas of predicted habitat of the Critically Endangered Regent Honeyeater which would be impacted by flooding were not surveyed. These areas may provide critical breeding and feeding areas for this species which is threatened with extinction. Loss of these habitats cannot be offset.
6. Insufficient survey was undertaken for the threatened Brush-tailed Rock Wallaby, Koala, Squirrel Glider, Yellow-bellied Glider, Greater Glider, Eastern Pygmy Possum and Brush-tailed Phascogale.
7. Insufficient survey was undertaken for threatened microbats including the Southern Myotis or Fishing Bat. Insufficient survey was undertaken in creeks and rivers impacted by the proposal for the iconic Platypus and Water Rat. No targeted survey was undertaken for these species. The impact of the proposal on these species remains largely unknown.
8. The full suite of habitats utilised by the threatened Eastern Pygmy Possum were not identified vastly underestimating the area of potential habitat to be impacted.
9. The full biological and scientific value of the Grassy Box Woodland ecosystem in its entirety was not assessed and therefore the scale of the impacts on this threatened ecosystem were not fully assessed.

10. Overall threatened species surveys were substantially less than guideline requirements and field surveys were generally inadequate. When field surveys were acknowledged to be inadequate expert reports were often not obtained.
11. The EIS did not adequately assess the impact of the proposal on Matters of National Environmental Significance.
12. The EIS did not undertake post-fire field assessments, following the 2019/20 fires, to address the concerns raised by the Commonwealth Department of Agriculture, Water and Environment and the NSW National Parks and Wildlife Service in regard to the consistency of the World Heritage Impact Assessment. This should be completed before the EIS is presented to the World Heritage Centre.
13. The irreplaceable loss of biodiversity that is proposed to be mitigated by Biodiversity Offsets despite the knowledge that many species and communities cannot be offset as they are now so rare or occur nowhere else. The true cost of these offsets if the true impact of the flooding i.e., the area impacted by “temporary inundation”, is considered is likely to be more than \$2 billion although the EIS does not calculate the biodiversity offset liability and the government doesn’t disclose the true cost to the community.

Impacts on Natural Landscapes and Cultural Heritage

1. The Kowmung River is a declared wild river one of the most pristine rivers surviving in NSW as its catchment is largely contained within National Park and water catchment. Sixty-five kilometres of wild rivers will be lost including a further five kilometres of the pristine Kowmung River, should the dam wall be raised. The EIS did not adequately assess the impact of the proposal on this wild river.
2. The valley areas of the rivers of the catchment contain potentially thousands of important Aboriginal sites, many of which would not be documented, and the landscape as a whole is of great significance to Aboriginal people. Raising the dam wall will flood thousands of hectares of lands of great cultural significance to Aboriginal people and destroy 1541 identified cultural heritage sites. The government has not sought the approval of the Aboriginal community to proceed with the project to raise the dam wall and flood Aboriginal cultural sites and landscapes of great significance to the Aboriginal people and the community at large. The Gundungurra traditional owners have not given free, prior and informed consent for the dam proposal to proceed as required as provided in advice from the NSW National Parks and Wildlife Service and the Commonwealth Department of Agriculture, Water and Environment.

3. Inadequate assessment of Aboriginal cultural heritage with less than 30% of the impact area assessed for sites of cultural significance and no assessment of the significance of the landscape at large. There was no field assessment post the extensive fires of 2019/20.
4. The Commonwealth Department of Environment and the International Council on Monuments and Sites have both identified very serious failings in the assessment of the impact on the cultural heritage of the Gundungurra traditional owners.
5. Sites of European Historic Heritage, such as the pastoral property of “Joorilands”, will be impacted by rising dam waters should the dam wall be raised.
6. Five thousand seven hundred hectares of National Parks and Reserves and Declared Wilderness Areas, including 1300 hectares contained in the Greater Blue Mountains World Heritage Area, will be lost to flooding should the dam wall be raised. The area of World Heritage Area lost would be even greater if the Yerranderie and Burragorang SCAs had been rightly upgraded to National Park and properly included in the Greater Blue Mountains World Heritage Area as they deserve.
7. The future integrity of the Blue Mountains World Heritage Area will be at risk if the dam wall is raised and thousands of hectares of National Parks and Reserves are lost to flooding, raising the possibility of de-listing.
8. The iconic multi-day Katoomba to Mittagong bushwalk will be severed and camp sites flooded by rising dam waters should the dam wall be raised. This would erode opportunities to further promote this iconic wilderness walk as one of Australia’s great walks, contributing to regional tourism of the Blue Mountains and Southern Highlands.

Impact of Raising the Dam Wall by 14 to 17 m.

1. Raising the dam wall by at least 14 m or more will flood thousands of hectares of threatened and endangered ecosystems and their threatened flora and fauna, in particular a Temperate Grassy Box Woodland ecosystem of national conservation and scientific significance.
2. Flooding will destroy thousands of significant Aboriginal cultural sites and destroy landscapes of great cultural significance.
3. Flooding will destroy 65 kilometres of Wilderness Rivers.
4. Flooding will destroy thousands of hectares of habitat contained in the World Heritage listed Blue Mountains National Parks.
5. Flooding will destroy thousands of hectares of Declared Wilderness.
6. Flooding will impact on iconic bushwalks such as the Katoomba to Mittagong walk.
7. Flooding will impact on historic pastoral properties.

8. Flooding the Blue Mountains National Parks will threaten the World Heritage status of these reserves which will have a direct impact on tourism for Blue Mountains communities.

What Raising the Dam Wall won't do.

1. Professor Jamie Pittock (ANU) said raising the Warragamba Dam wall won't prevent large flood events from affecting the communities of the Hawkesbury-Nepean floodplains. Forty-five percent of flood waters originate from the Nepean and Grose Rivers and other catchments below the dam wall.

Alternatives to Raising the Dam Wall.

1. Use funds to buy back highly flood prone properties.
2. Use funds to build high level evacuation roads so existing residents on the floodplain can evacuate from flood waters.
3. Do not further develop flood prone lands for housing, especially anything below the 1:500 flood levels.
4. Use funds to expand or duplicate the desalinisation plant to provide guaranteed water supply and keep water storage levels in the current dam below maximum.

Benefits of an Alternative Strategy.

1. This alternative strategy will save threatened ecosystems and species in the World Heritage listed National Parks and Declared Wilderness Areas, and other NPWS Reserves, especially the Regent Honeyeater, Grassy Box Woodlands, Burratorang River Flat Forest and Camden White Gum.
2. Will not further impact on sites and landscapes that are of very great cultural significance to Aboriginal people.
3. Will not further impact on pristine and Wilderness Rivers and their flora and fauna.
4. Will not impact on iconic bushwalking routes and camp sites.
5. Will not further impact on sites of early European pastoral heritage.
6. Will guarantee that government funds spent on expanding or doubling the desalinisation plant will better secure drinking water supply. Increasing the height of the dam wall will not guarantee water supply if rainfall declines in the catchment.
7. Will ensure that current residents on the Hawkesbury-Nepean floodplain can safely evacuate floodwaters.
8. Will ensure those residents at high risk of flooding are duly compensated to re-locate.

Conclusion.

The uniqueness and condition of the grassy box woodland ecosystems of the Warragamba Catchment Area warrant them being given special status as a Scientific Reference Area which should be protected by their inclusion as an Area of Outstanding Biodiversity Value or listed as an Endangered Ecological Community under the Biodiversity Conservation Act 2016 and Environment Protection and Biodiversity Conservation Act (1999).

The suite of ecosystems that are contained within the Warragamba Catchment Area and the Blue Mountains World Heritage National Parks and other NPWS reserves rival the biodiversity of Kakadu or the Kimberly regions of northern Australia. The protection of these ecosystems in their entirety is crucial to maintaining the biological integrity of the Blue Mountains World Heritage National Parks and their World Heritage status.

Restricted access into the catchment for the public and limited fauna surveys by staff and scientists mean that the value of the catchment lands to flora and fauna is yet to be fully discovered or appreciated.

The EIS is completely inadequate in assessing the impact on biodiversity and cultural heritage and ask that the government halt this proposal to raise the dam wall that will destroy World Heritage Areas, National Parks, Wilderness Areas and Wild Rivers, ecosystems of national conservation significance and landscapes of great cultural significance to Aboriginal people and seek other avenues to achieve flood protection for existing residents downstream and means of securing future water supplies.

References

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- Grant, T. (2007) *Platypus.* CSIRO publishing, Australia.
- Keith, D. (2004) *Ocean Shores to Desert Dunes the Native Vegetation of New South Wales and the ACT.* Department of Environment and Conservation, Hurstville, NSW.
- NPWS (2003) *The Native Vegetation of the Warragamba Special Area. Part A and Part B.* Unpublished report commissioned by the Special Areas Plan of Management (SASPoM) and produced by the Conservation Assessment and Data Unit, Central Conservation Programs and Planning Division, Department of Environment and Conservation (DEC), Hurstville.



Figure 1: Eastern Grey Kangaroo in Grassy Box Woodland, Burragorang, Nattai National Park. Bonum Pic in the background.



Figure 2: Old Growth Grey Gum *Eucalyptus moluccana* in Grassy Box Woodland at Joorilands, Wollondilly River, Yerranderie State



Figure 3: Regent Honeyeater, Critically Endangered, Grassy Box Woodland, Burraborang, Yerranderie State Conservation Area.



Figure 4: Dingo, Grassy Box Woodland, Joorilands, Yerranderie State Conservation Area.



Figure 5: Joorilands shearing shed, historic pastoral property, Yerranderie State Conservation Area.



Figure 6: Possible Aboriginal scar tree. Old Growth Grassy Box Woodland, Joorilands, Yerranderie State Conservation Area.