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Preserving the Balance of Nature

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Dear Mr Dumpleton

RE: LITHGOW ENVIRONMENT GROUP RESPONSE TO THE COALPAC RESPONSE TO THE 14/12/2012 PAC REVIEW MAIN REPORT RECOMMENDING REFUSAL OF THE COAPAC CONSOLIDATION PROJECT

Coalpac and their consultants are essentially treating the PAC1 Commissioners with contempt, and whilst petulantly making a contrived effort to appear to address some of the Recommendations, the overwhelming impression is one of a lack of commitment, to say whatever it takes to get approval, knowing full-well that afterwards a never ending stream of Modifications can relax any conditions.

The separation distances from Cullen Bullen have not been modified at all, the only concession being to remove the Hillcroft and sandmining components which are a long way from Cullen Bullen and behind Tyldsley Hill, resulting in only negligible reductions of noise, dust and blasting impacts. .

The Lithgow Environment Group (LEG) believes that the PAC2 must consider this Proposal in the context of other mining approvals in NSW. The only other community that LEG is aware of where open-cut mining occurs within 500 metres of a residential village is Camberwell in the Hunter Valley, where the Ashton Coal Mine[27] has open-cuts to within 400 metres of that village. However the vast majority (49) of the 56 residences in Camberwell have been purchased by Ashton Coal.

Even so, to protect residents of Camberwell, the Ashton Coal approval limits blasts to 1 a day, 5 per week, and open cut mining operations to day and evening periods only[27]. Coalpac are proposing up to 10 blasts a day, 40 per week (Vol.2, Appendix H, Section 4.12)[18], and 24/7 mining operations. It appears that Cullen Bullen is being treated more poorly than any other NSW mine-affected village.

Coalpac propose to reduce the area to be cleared by 196 Ha[16]. **However** this 196 Ha reduction will only save an additional 89 Ha of Ben Bullen SF and the Gardens of Stone 2 Proposal area, because 107 Ha of that 196 Ha is on private property at Hillcroft.

The downside is that the best Biodiversity Offset Area has now been lost to the Proposal, because Hillcroft was the only offset containing vegetation classes and threatened flora species corresponding to those that will be removed by the Project, including critically endangered *Grassy Box Woodland*, *Eucalyptus canonnii*, and *Persoonia marginata,* listed under the EPBC and TSC Act.

In total 15,428 individuals of *Eucalyptus cannonii* will be removed, but to date not a single replacement tree has been provided in any Biodiversity Offset. Table 8 of the Main Report[16] clearly shows that none of the Proposed Offset Properties contain any actual *Eucalyptus cannonii*. The Properties 3, 6, 7, 8 only list *Eucalyptus cannonii* as being recorded within 5 km of the property.

LEG has consistently questioned the adequacy of the Flora Assessment, the true descriptions and extent of the vegetation communities, and whether all likely to occur threatened plant species have been identified. Coalpac again fail to adequately address this and PAC1 Recommendations 49 & 55.

Coalpac totally rebuff the PAC1 Recommendation 47 that a 300 metre buffer zone be maintained to protect threatened species and fauna that use the pagoda landforms, and seemingly vilify and deride the PAC1 for daring to reach such a well-balanced resolution.

In a self-serving attempt to minimise the area of pagoda landforms in need of protection, they defy universally accepted science on Sandstone Pagoda Landscapes by concocting jargon like Significant Pagoda Landform (SPL). They allege that pagodas must be more than 10m high and 10 ha in area, that 'smoothy' or beehive pagodas, and that pagodas do not exist north of Cullen Bullen.

<u>Coalpac's message is loud and clear – they have every intention of minimising the protections and maximising the cliff falls and pagoda damage in the out-of-site areas north-east of Cullen Bullen.</u>

Coalpac claim a 25% or 11.9 Ha reduction of the disturbance area next to pagodas, but given that the Disturbance Boundary is 48.28 km long this claim appears to be false. There certainly does not appear to be any evidence on the maps that the disturbance area next to pagodas has been reduced?

In response to PAC1 Recommendation 46 Coalpac claim that "*No highwall will be carried out under the significant rock features within the SPL*", but Figure 7B clearly shows that this is untrue.

Coalpac have ignored the mapping provided by LEG showing that cliff lines and pagodas in the area are already unstable due to past underground mining by Invincible Colliery in the Lithgow Coal Seam, and fail to acknowledge the appalling history of subsidence cracks and cliff falls in Ben Bullen SF.

The PAC Review Main Report of 14 December 2012[31] is the most comprehensive and professional assessment of a mining project that has ever been undertaken in the Lithgow region. Yet Coalpac have still not made any real changes to the EA exhibited in March 2012, and are basically treating the PAC1 Commissioners and Recommendations with disdain.

The Lithgow Environment Group therefore contends that this revised proposal does not adequately address the concerns of PAC1, and urge the PAC2 to refuse development consent for the following reasons –

1. INACCURATE DESCRIPTIONS OF VEGETATION COMMUNITIES

Lithgow Environment Group agrees with the PAC1 and OEH concerns about the accuracy of the Proponent's vegetation community descriptions, and with **Recommendations 45 to 55**.

In this section we maintain that the most recent assessment (Coalpac Consolidation Project, Response to PAC Merit Review, Hansen & Bailey, Appendix E, Part 1, 2 & 3. March 2013) once again fails to adequately address **Recommendations 49 and 55** in particular -

> ***Recommendation 49****: The Commission recommends that concerns about the adequacy of the flora assessment and identification of the vegetation associations present in the Project area be resolved to the satisfaction of OEH prior to approval of any extension to open-cut mining in the Project area and prior to any assessment of adequacy or otherwise of the biodiversity offset package.*
>
> ***Recommendation 55****: The Commission recommends that, until the baseline biodiversity characteristics of the site have been resolved to the satisfaction of OEH [Office of Environment and Heritage], assessment of the adequacy or otherwise of the revised offset package should not proceed. The Commission also recommends that particular attention be given in the assessment to the essential nature of the trade-off being proposed, i.e. it is a proposal designed to exchange a number of fragmented areas that generally require extensive rehabilitation work and are currently not considered suitable for reservation, for a single area of high quality habitat that adjoins other areas of high quality habitat and is already proposed for reservation."*

Cumberland Ecology[15] claim that their vegetation community mapping was based on field surveys of the Project Area, and the mapping of Benson & Keith (1990)[8] and the DEC (NSW) (2006)[20]. However Lithgow Environment Group's field surveys of the Project Area differ in several key respects –

1.1 Box Gum Woodland and Derived Native Grassland (EEC TSC Act, CEEC EPBC Act)

Cumberland Ecology (page 3.2, Appendix E, Part 1) point out that Box Gum Woodland and Derived Native Grassland was not recorded in the mapping of Benson & Keith (1990) or DEC (NSW) (2006). Benson & Keith's mapping was on a broader regional scale of 1:100,000, DEC (2006) was 1:25000.

However Cumberland Ecology *incorrectly* state on page 5.5, Appendix E, Part 1 that Benson & Keith mapped those Box Gum Woodland areas as "*10i Talus-slope Woodland".* The Wallerawang Map Sheet clearly identifies those areas acknowledged by Cumberland Ecology as being Box Gum Woodland and Derived Native Grassland as "*10h Tableland Grassy Woodland Complex*".

Cumberland Ecology then righteously claim that -

> *"…despite the significant ramifications on the Project of the discovery of this vegetation community [*Box Gum Woodland] *it was included in the vegetation map prepared by Cumberland Ecology".*

Surely the very reason the EP&A Act requires a Proponent to prepare an EA is to identify the presence or otherwise of Threatened Species and EEC's within a Project Area, regardless of the "*ramifications on the Project"*? Indeed it is a legal requirement under the EPBC and TSC Act's. Coalpac have still not

explained how/why they failed to identify *Persoonia marginata (*Vulnerable EPBC and TSC Act*)* despite the fact it occurred in great abundance in this very same Box Gum Woodland EEC, or how/why they failed to identify the most significant Aboriginal Cave Art Heritage Site within the Project Boundary?

LEG has consistently maintained that the true extent of Box Gum Woodland and Derived Native Grassland within the Project Area has not been adequately mapped. We raised this in submissions to -

- DSEWPAC (EPBC No: 2010 5776) in our EPBC referral in May 2011
- Meeting with DSEWPAC staff on 9 September 2011
- Original submission to the DoP on 28 May 2012, and
- Presentation to the PAC Panel on 19 September 2012

Once again the Lithgow Environment Group believes that this latest March 2013 assessment –

- Has still not mapped the true extent of Box Gum Woodland within the Project Area,
- Has not conserved a single additional hectare of this Critically Endangered EEC, and
- Has removed the 1097 Ha Hillcroft Biodiversity Offset Area from the Proposal, which was the only Offset containing vegetation classes and threatened flora species corresponding to the threatened vegetation classes that will be lost, including critically endangered Grassy Box Woodland, *Eucalyptus cannonii* (*Vulnerable*) and *Persoonia marginata (Vulnerable)*.

Lithgow Environment Group again maintains that Coalpac's assessment of Box Gum Woodland and Derived Native Grassland fails to adequately address PAC1 Recommendations 49 and 55.

1.2 10h Tableland Grassy Woodland

Cumberland Ecology *incorrectly* state on p. 5.5, Appendix E, Part 1 that Benson & Keith[8] mapped the slopes and forested valley floor in the project area as *"10i Talus-slope Woodland". T*he only areas of "*10i Talus-slope Woodland"* on the Benson & Keith (1990)[8] Wallerawang Map Sheet are in the Wolgan and Capertee Valleys. It does not occur in the proposal area. Benson & Keith mapped the slopes and forested valley floor in the Project Area as *"10h Tableland Grassy Woodland Complex".*

This *misidentification* by Cumberland Ecology may have serious biodiversity ramifications, because the PAC1 and OEH identified "*10h Tableland Grassy Woodland Complex*" as being poorly conserved in the local area. Benson & Keith (1990)[8] state on page 319, Cunninghamia, Volume 2, No. 2 -

> *"This community [10h Tableland Grassy Woodland] appears to have been particularly common from Blackmans Flat to Wallerawang but has now been largely cleared."*

The '*Tablelands Grassy Woodland Complex'* is where the majority of the thirteen threatened vertebrate species are found.

Cumulative vegetation losses at Lambert's Gully Mine, Ivanhoe, Pine Dale and Neubeck's Creek mines all impact on map unit *10h - Tablelands Grassy Woodland Complex*.

More detailed 1:25,000 mapping by DEC (NSW) 2006 shows that the vegetation units MU4, 20, 33, 37 and possibly others may become critically endangered within the broader (10h) community.

DEC (NSW) (2006)[20] found the following in the study area of 157,356 Ha -

- 71 Ha of *MU4 Sheltered Gully Brown Barrel Ferny Forest*,
- 797 Ha of *MU35 Tableland Gully Mountain Gum - Broad-leaved Peppermint Grassy Forest*,
- 1,041 Ha of *MU 33 Tableland Broad-leaf Peppermint – Brittle Gum – Red Stringy Open Forest*
- 1925 Ha of *MU44 Sandstone Plateau Tea-tree – Dwarf Sheoak – Banksia Rocky Heath,*
- 1586ha of *MU11 Tableland Gully Snow Gum - Ribbon Gum Montane Grassy Forest,*
- 3,048 Ha of *MU 37 Cox's Permian Red Stringybark - Brittle Gum Woodland*,
- 1925 Ha of *MU44 Sandstone Plateau Tea-tree – Dwarf Sheoak – Banksia Rocky Heath,*
- Only 4 Ha of *MU1 Sandstone Canyon Warm Temperate Rain*forest,

These vegetation communities are all components of the Tablelands Grassy Woodland Complex which the PAC1 and OEH sate are poorly conserved, and all are at risk of being open-cut mined.

Ben Bullen State Forest represents the most appropriate locality for this rare vegetation type to be reserved under the *National Parks and Wildlife Act, 1974*.

The Lithgow Environment Group therefore maintains that Cumberland Ecology's incorrect assertions about poorly conserved vegetation community of *10h Tableland Grassy Woodland* as mapped by Benson and Keith (1990) proves that this latest assessment once again fails to adequately address the PAC1 **Recommendations 49 and 55.**

1.3 MU 13 Tableland Gully Ribbon Gum - Blackwood - Applebox Forest

The PAC 1 stated that three vegetation communities recorded from the Project Area are considered by the OEH to be poorly reserved, and recommends that impacts to these communities be avoided. These are *Ribbon Gum Grassy Forest on alluvial flats, Mountain Gum - Apple Box - Blakely's Red Gum Grassy Forest*, and *Broad-leaved Peppermint - Brittle Gum - Red Stringybark Grassy Open Forest*.

Cumberland Ecology claim on page 8.1, Appendix 3, Part 2, that these vegetation communities have not been identified in any recognised mapping. Nevertheless Lithgow Environment Group has sighted *Tableland Gully Ribbon Gum – Blackwood – Applebox Forest* north and east of Invincible.

LEG also believes that a significant portion of what Cumberland Ecology mapped as *Tableland Gully Ribbon Gum – Blackwood – Applebox Forest* and/or *Exposed Blue Mountains Sydney Peppermint – Silvertop Ash Shrubby Woodland* in the Project Area may in fact be yet another poorly reserved vegetation community - *MU 4: Sheltered Gully Brown Barrel Ferny Forest* (see 1.4 below).

Cumberland Ecology acknowledges that 93 Ha of *Tableland Gully Ribbon Gum – Blackwood – Applebox Forest* will be removed by the proposal. LEG believes that a much larger area may be lost.

The Lithgow Environment Group has also sighted *Mountain Gum - Apple Box - Blakely's Red Gum Grassy Forest* in an area mapped by Cumberland Ecology as the more common *Tableland Gully Mountain Gum - Broad-leaved Peppermint Grassy Fores*t. *Mountain Gum-Apple Box-Blakely's Red Gum Grassy Forest* is poorly reserved in the area and cumulative losses to mining are a real issue.

In 2010 *Thesium australe* (Vulnerable) was recorded in a remnant of Tablelands Grassy Woodland Complex at Pine Dale Mine[29]. A major population of Endangered Bathurst Copper Butterfly also occurs at Pine Dale[30]. Coalpac's Flora Assessment failed to identify 4 populations of *Bursaria spinosa ssp lasiophylla (*host plant for the Endangered Bathurst Copper Butterfly) within the Proposal Area.

Few if any of the proposed Biodiversity Offsets contain *Ribbon Gum Grassy Forest on Alluvial Flats*, *Mountain Gum - Apple Box - Blakely's Red Gum Grassy Forest*, or *Broad-leaved Peppermint - Brittle Gum - Red Stringybark Grassy Open Forest*. Ben Bullen State Forest represents the most appropriate locality for these rare vegetation types to be reserved under the *National Parks and Wildlife Act*.

Lithgow Environment Group therefore maintains that Cumberland Ecology's inadequate assessment of the poorly reserved *Ribbon Gum Grassy Forest on Alluvial Flats*, *Mountain Gum-Apple Box-Blakely's Red Gum Grassy Forest*, and *Broad-leaved Peppermint-Brittle Gum-Red Stringybark Grassy Open Forest* within the Project Area fails to adequately address the PAC1 **Recommendations 49 and 55.**

1.4 MU 4: Sheltered Gully Brown Barrel Ferny Forest

In its submission to the DoP on 28 May 2012 the LEG listed over 100 plant species not identified in the Coalpac Flora Assessment. One of those was Brown Barrel (*Eucalyptus fastigata*), an imposing 40 m tree that is hard to miss. It occurs often in pure stands on slopes, gullies and gorges in the project area.

The failure to identify Brown Barrel in the Flora Assessment may have prevented the vegetation community of *MU 4: Sheltered Gully Brown Barrel Ferny Forest* from being identified.

Much of the area containing Brown Barrel was mapped by Cumberland Ecology as *Exposed Blue Mountains Sydney Peppermint- Silvertop Ash Shrubby Woodland (*the most common vegetation type in the region *),* and/or *Tableland Gully Ribbon Gum – Blackwood – Applebox Forest*. The OEH identify that *MU 4: Sheltered Gully Brown Barrel Ferny Forest* is poorly reserved.

MU 4 Sheltered Gully Brown Barrel Ferny Forests often occur in rocky gorges and canyons in the Project Area associated with pagoda landform. Occasional remnants of *MU 1 Sandstone Canyon Warm Temperate Rainforests* such as *Callicoma serratifolia*, *Quintinia sieberi*, *Elaeocarpus reticulatus* and other rainforest elements also occur, for example in the northern areas near the Aboriginal Hand Stencil Site that Coalpac failed to identify, and elsewhere within the Project area.

The OEH description for *MU4 Sheltered Gully Brown Barrel Ferny Forests* lists Threatened Species as a Definite: *Derwentia blakelyi,* and Possible: *Eucalyptus cannonii, Prostanthera stricta*, *Euphrasia bowdeniae*, and *Lastreopsis hispida.* LEG has recorded *D. blakelyi and Acacia asparagoides* (ROTAP 2R) in MU4. Potentially up to 91.5 Ha of what may constitute MU4 will be removed by this Proposal.

Cumulative losses of MU 4 will occur if future Pine Dale Mine proposals are approved. None of the proposed Offsets contain *MU 4: Sheltered Gully Brown Barrel Ferny Forest.* Ben Bullen SF is the most appropriate locality to reserve this rare vegetation type under the *National Parks & Wildlife Act, 1974*.

LEG therefore maintains that Coalpac's failure to identify Brown Barrel on slopes, gullies and rocky gorges in the proposal has resulted in the poorly reserved *MU 4: Sheltered Gully Brown Barrel Ferny Forest* not being identified. This fails to adequately address PAC1 **Recommendations 49 and 55**.

1.5 Tablelands Frost Hollow Grassy Woodlands (EEC, TSC Act)

In 2011 the NSW Scientific Committee made a Final Determination to list Tablelands Frost Hollow Grassy Woodlands as an ENDANGERED ECOLOGICAL COMMUNITY in Part 3 of Schedule 1 of the Act.

Tablelands Frost Hollow Grassy Woodlands consist of the vegetation communities *Tableland Gully Snow Gum – Ribbon Gum Grassy Forest (MU11),* and *Tableland Hollows Black Gum – Black Sally Grassy Open Forest (MU15).*

Tablelands Frost Hollow Grassy Woodlands are yet another component of the Tablelands Grassy Woodland Complex, which the PAC1 and OEH considered to be poorly reserved, and recommended that impacts to these communities be avoided.

The Neubeck Coal Project site contains Tablelands Frost Hollow Grassy Woodlands[13]. The main components are *Eucalyptus pauciflora* (Snow Gum), *E. rubida* (Candlebark), *E. stellulata* (Black Sallee), *E. viminalis* (Ribbon Gum), and *E. bridgesiana (Apple Box).* The Vulnerable threatened species *Eucalyptus aggregata, Eucalyptus cannoni,* and *Thesium australe* also occur on site.

The proximity of this EEC to the Coalpac Proposal Area (<1km) suggests that it is also likely to occur in frost hollows within the proposal area, for example near Invincible Colliery (Lot 12 DP877190), and the gully extending to the east across the highway from the Carleon Coachouse.

In September 2012 Centennial Coal lodged a briefing paper for the Neubeck Coal Project[13], DGR's have been issued, and given the mining approvals history in Blackmans Flat this EEC will be lost.

Open-cut mining poses the single greatest threat to this EEC. Other Threats to Tablelands Frost Hollow Grassy Woodlands include climate change, fragmentation, fertilizers, tree dieback, trampling and grazing by domestic livestock, weed invasion and altered fire regimes.

Due to the proximity of this EEC to the Coalpac Proposal Area (<1km) and known future cumulative losses of this EEC in the Blackmans Flat/Cullen Bullen area, Lithgow Environment Group urges PAC2 to require Coalpac to undertake a detailed survey for the EEC of *Tablelands Frost Hollow Grassy Woodlands* within the Project Area, to adequately address the PAC1 **Recommendations 49 and 55**.

1.6 CUMULATIVE LOSSES OF ENDANGERED ECOLOGICAL COMMUNITIES

The revised (March 2013) project proposes to remove 16.21 Ha of CRITICALLY ENDANGERED *Box Gum Woodland* and 0.27 ha of *Derived Native Grassland* listed as under the EPBC Act and the TSC Act, and 1.96 ha of *Box Gum Woodland Derived Native Grassland* listed under the TSC Act only.

Removal of the Hillcroft Offset equates to a 1097 Ha loss to the Project of the only offset containing vegetation classes and threatened flora species corresponding to what will be removed, including Grassy Box Woodland EEC, *Eucalyptus cannonii* (Vulnerable) and *Persoonia marginata* (Vulnerable). In cumulative terms this will be the third mining development in the area to have destroyed Grassy Box Woodland *EEC*. The others were Lamberts Gully Mine and Ivanhoe North Mine. Many hectares of this EEC were probably destroyed by previous Cullen Valley Mine works (just as many 1000's of *Persoonia marginata* would have been destroyed) because the Flora Consultant failed to identify this EEC in the Feldmast Coal Project (1998)[39] and Cullen Valley Mine Extension Project (2003)[36].

Cumulative losses of Grassy Box Woodland in the wider region must also be considered –

- **Moolarben Coal Complex Stage 2** (08_0135) - will clear over 900 Ha of native forest including **123 Ha** of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland EEC. Moolarben Stage 1 has already removed many Hectares. http://www.environment.gov.au/epbc/notices/assessments/2007/3297/approval-decision.pdf
- **Ulan Coal Continued Operations** (MP 08_0184) – will clear 409 Ha including **69 Ha** of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland. http://www.edo.org.au/edonsw/site/pdf/casesum/110207hel_ulan_statement_of_facts_and_contentions.pdf
- **Maules Creek mine** (not including Boggabri Coal and Tarrawonga Mine) will clear over 1,300 Ha of Koala habitat in Leard State Forest, including **700 Ha** of critically endangered Box Gum woodland. http://www.environment.gov.au/minister/burke/2013/mr20130211a.html
- **Mt Arthur Coal Project** - proposes to remove **693.8 Ha** of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland. http://www.bhpbilliton.com/home/aboutus/regulatory/Documents/Mt%20Arthur%20Coal%202012/Mt%20Arthur%20Coal%20Extension%20Project_EPBC%202011-5866.pdf
- The controversial **Mt Penny Coal Pty Ltd** - a wholly owned subsidiary of Cascade Coal, lodged an EPBC Act Referral in June 2011. Of the 650.26 Ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland EEC found in the study area, 48.5% or **315.09 Ha** is within the development footprint proposed to be cleared in just the first stage. http://www.mtpennycoal.com.au/media/1690/epbc-act-referral-document.pdf

The above is only a small snapshot of the huge area of Critically Endangered Grassy Box Woodland that is currently being lost to just one sector of the mining industry, let alone the cumulative losses occurring on a daily due to other development, farm clearing, grazing, weed invasion etc.

The Commonwealth Listing Advice for Grassy Box Woodland in 2005 stated that 93% of the NSW population had been cleared, and that the remaining remnants were highly fragmented. The TSSC further stated that while this ecological community does occur in a number of reserves, most reserves contain only small occurrences, and those remnants have usually been modified by historical land use. *http://www.environment.gov.au/biodiversity/threatened/communities/pubs/box-gum.pdf*

The EEC of Tablelands Frost Hollow Grassy Woodlands occurs on the adjacent Neubeck Coal Project site[13], in association with the Vulnerable *Eucalyptus aggregata, Eucalyptus cannoni,* and *Thesium australe*. In September 2012 Centennial Coal lodged a briefing paper for the Neubeck Coal Project[13], DGR's have been issued, and the past history of mining approvals in the Blackmans Flat area virtually guarantees that this Endangered Ecological Community will also be lost.

Tablelands Frost Hollow Grassy Woodlands are yet another component of the *Tablelands Grassy Woodland Complex*, which the PAC1 and OEH considered to be poorly reserved, and recommended that impacts to these communities be avoided. Ignoring this advice could lead to the EEC of Tablelands Frost Hollow Grassy Woodlands becoming locally extinct in the Lithgow LGA.

Approval of the Coalpac Project will once again ignore the cumulative past, present, and known future losses of Endangered Ecological Communities in the Lithgow area and wider region.

Further, the Biodiversity Offset and re-vegetation conditions do not address the root cause of the problem - further loss of a very scarce, good condition, mature remnant, as occur here. Any loss of a Critically Endangered community is a substantial loss, and cannot be "offset" because there is simply not enough Grassy Box Woodland EEC (or Tablelands Frost Hollow Grassy Woodlands EEC) left to replace it. Repeated compromises accumulate to substantially impact upon Endangered EC's - vegetation community's which theoretically should be given the highest possible level of protection.

The project-by-project, EEC-by-EEC, species-by-species approach currently used by the DoP without considering Cumulative Impacts is poorly-suited to dealing with biodiversity loss, which can only be addressed by regional and strategic approaches, backed up by strong environmental bottom lines.

Ben Bullen State Forest represents the most appropriate locality for these Endangered vegetation communities to be reserved under the *National Parks and Wildlife Act, 1974*.

LEG urges the PAC2 to require a rigorous Cumulative Impact Assessment of EEC's in the region.

2. THREATENED PLANT SPECIES

The OEH (Submission R6) to the original Coalpac Proposal stated that:

> *The following species that were identified in a previous EA (July 2011) as "could potentially occur" but which were not targeted for survey are: Acacia bynoeana, Prostanthera stricta, Darwinia peduncularis, Persoonia acerosa, Thesium australe and Euphrasia arguta. Although for each of these species the proponent states "Not detected during past or current surveys", highly cryptic species that occur at low densities such as Acacia bynoeana are extremely unlikely to be detected unless they are targeted for survey.*

In LEG's submission to PAC1 we advised that *Derwentia blakelyi*, *Chiloglottis palachila, Genoplesium superba, Prostanthera hindii,* and *P. cryptandroides* had been recorded near the Proposal area, and were likely to occur. LEG also advised that the EA failed to identify the ROTAP's *Acacia asparagoides*, *Leionema lamprophyllum ssp. orbiculare*, *Leucochrysum graminifolium*, and *Philotheca obovalis*, and that other ROTAP's including *Banksia penicillata* and *Pseudanthus divaricatissimus* may occur.

Since the PAC1 hearing in September 2012 LEG has recorded the latter species near the Project Area.

In the latest March 2013 assessment Cumberland Ecology[9] undertook desktop surveys for most of the above, but did not conduct any additional targeted surveys. They failed to address *Derwentia blakelyi, Chiloglottis palachila, Genoplesium superba,* and *Prostanthera cryptandroides.*

The most recent assessment concentrates on threatened species in pagoda communities, but ignores threatened flora species in gully habitats (eg. *Derwentia blakelyi*), most of which will be entirely wiped out by the Proposal. The assessment also contains several errors and omissions.

LEG has consistently pointed out that the Project Area specifically, and Ben Bullen State Forest in general, has been the subject of dozens of Flora Assessments for Mining Projects over the past 50+ years. Despite this LEG has recorded over 100 plant species that were not listed on the NSW Wildlife

Atlas[5] as occurring in Ben Bullen SF, and continue to find threatened species, ROTAP's, rare and unusual species, and species outside their known range that have not previously been recorded.

To put it bluntly, the Flora Assessments conducted for Mining Projects in Ben Bullen SF over the past 50+ years have been worthless. As Cumberland Ecology righteously stated - *"…despite the significant ramifications on the Project of the discovery of this vegetation community* [Box Gum Woodland] *it was included in the vegetation map prepared by Cumberland Ecology".* Nevertheless they then failed to identify a huge population of the vulnerable *Persoonia marginata*. This latest Assessment id simply a continuation of the historic local mining trend of reductionism, cover-up, denial, and lies.

The reality is that any of the endangered flora species recorded in similar habitats in the local and wider region have the potential to occur in Ben Bullen SF, they just have not been recorded yet.

Of major concern are the following -

2.1 Eucalyptus cannonii (Vulnerable TSC and EPBC Act)

In April 2010 Cumberland Ecology in a Draft Report[18] stated that - **"Cumberland Ecology (2010) estimates over <u>100 000 individuals</u>** [of Eucalyptus cannonii] **inhabit the exploration area."**

Hansen and Bailey lodged an EPBC Referral for the Coalpac Consolidation Project on 21 October 2010 acknowledging that *E. cannonii* would be impacted but failed to mention **<u>100 000 individuals</u>** .

In March 2012 [EA, Appendix J, page s.7) Cumberland Ecology reported that the Project impact on threatened biodiversity within the Project Disturbance Boundary included the removal of *"278 Ha of known and potential Eucalyptus cannonii habitat constituting an estimated **19,219** individuals".* Coalpac partially offset that loss by claiming that the Hillcroft Biodiversity Offset contained **5530** individuals of *E. cannonii .* Hillcroft and those 5530 trees have now been removed as an Offset.

In March 2013 [Page 3.8, Appendix E, Part 1] Cumberland Ecology reported a 27% reduction of impacts because Hillcroft was removed, and estimated the loss had fallen to **15,428** individuals.

Table 8 of the Main Report reveals that none of the Proposed Offsets contains any *E. cannonii*. Property 3, 6, 7, 8 only list *E. cannonii* as being recorded within 5 km of the property.

<u>Therefore the current Project status stands at somewhere between 15,428 and 100,000 individual *E. cannonii* to be lost – and to date not a single replacement tree has been provided in any Offset.</u>

Coalpac have also failed to adequately assess the Cumulative Losses of *Eucalyptus cannonii* –

- The EA for Lamberts Gully Mine (International Environmental Consultants Pty Ltd 2006) identified *Eucalyptus cannonii* on site. Many individuals would have been lost since open-cut mining commenced on the old Eastern and Western Main Mine leases in 1998.
- Enhance Place Mine also open-cut mined parts of the old Eastern and Western Main Mine between 1998 and 2005, and thus many more *E. cannonii* would have been lost.

- SKM (August 2010) for the Mt Piper Power Station Ash Placement Project found *E. cannonii* was locally abundant on the proposed Ash placement area, along the route of the proposed Pipers Flat Coal Conveyor & Rail Loop, and the site of the proposed power station extension.
- Geoff Cunningham Natural Resource Consultants (June 2010) in the EA for Pine Dale Mine Yarraboldy Extension failed to identify *E. cannonii*. An unknown number of trees have since been destroyed. DGR's have been issued for Pine Dale Mine to open-cut mine 200 Ha of Ben Bullen SF containing 100's of *E. cannonii,* and they have plans to mine a further 300 Ha.
- DGR's have been issued for the Neubeck Coal Project. More *E. cannonii* as well as *E. aggregata (Vulnerable),* and *Thesium australe* (Vulnerable) will be lost,
- More *E. cannonii* were lost during previous Invincible and Cullen Valley Mine operations,
- More *E. cannonii* were lost at Centennial Coals's Ivanhoe North Open-cut mine,
- More *E. cannonii* were lost at Charbon Colliery near Kandos.

In 1999 Hunter & White[37] suggested de-listing *E. cannonii* from the NSW TSC Act because of the supposed substantial populations in reserves. This was based on estimates by mine consultant Lembit (2000)[38] that 15,000 *E. cannonii* occurred within the Gardens of Stone NP.

However Hunter & White (1999)[37] and Lembit (2000)[38] failed to consider the abundance of intergrades. Washington (2001)[60] more accurately estimated the 'pure' form of *E. cannonii* in the Gardens of Stone NP to be 2000 - 3000 individuals, and the total reserved population to be well below 10,000.

Hunter & White (1999)[37] also suggested de-listing *E. cannonii* from the NSW TSC Act because of 'lowered clearing threats'. However since 1999 the clearing threat has increased substantially due to the massive expansion of open-cut mining into green-field vegetated areas and State Forests.

<u>In summary, the frightening reality is that Coalpac's proposal to destroy 15,428 individual *E. cannonii* exceeds the highest (15, 000) and lowest (<10,000) estimate of the total reserved population in NSW.</u>

LEG urges the PAC2 to conduct a rigorous and independent assessment of the true conservation status of *Eucalyptus cannonii* in NSW before approving the Coalpac Consolidation Project.

2.2 Eucalyptus aggregata (Vulnerable TSC Act)

Coalpac have once again failed to address cumulative losses of *Euclyptus aggregata*. Whilst they identified approximately 20 *Eucalyptus aggregata* individuals occurring on Lot 12 DP877190, part of Invincible Colliery's 2008 offset adjacent current Invincible Colliery open-cuts, they ignore the obvious – many more individual E. *aggregata* were probably destroyed in that area.

E. aggregata also occurs on the adjacent Neubeck Coal Project site[13], in an ECC of Tablelands Frost Hollow Grassy Woodlands in association with Vulnerable *E. cannonii* and *Thesium australe*.

In September 2012 Centennial Coal lodged a briefing paper for Neubeck Coal Project[13], DGR's have been issued, and the history of past mining approvals in the Blackmans Flat area virtually guarantees

that this EEC and the Vulnerable E. *aggregata, E. cannonii* and *Thesium australe,* and the Tablelands Frost Hollow Grassy Woodlands EEC will be destroyed.

Given that the Neubeck Coal Project adjoins Pine Dale Mine, it is highly likely that more *E. aggregata* have been lost since open-cut operations commenced in 2005 in Area A, B and C, and subsequently the Yarraboldy Extension. DGR's have been issued for Pine Dale to open-cut mine a further 200 Ha, and they have plans to mine at least a further 300 Ha after that.

Given the proximity of this area to Lamberts Gully, Enhance Place Mine, Mt Piper Power Station, and Mt Piper Ash Placement areas, more *E. aggregata* have inevitably lost to those projects as well.

LEG urges the PAC2 to require Coalpac to a rigorous assessment of the true conservation status of *Eucalyptus aggregata* in the Project Area and wider region before approving this Project.

2.3 Derwentia blakelyi (Vulnerable TSC Act)

LEG and the Wildlife Atlas[5] record *Derwentia blakelyi* occurring just 1 km from the project boundary in similar vegetation communities to those occurring within the Project Area, including in *MU 4: Sheltered Gully Brown Barrel Ferny Forest*, *Tableland Gully Snow Gum – Grassy Forest*, and *Tableland Gully Ribbon Gum – Blackwood – Apple Box Forest* to the east and south.

OEH descriptions for the above 3 vegetation community's identify *Derwentia blakelyi* as a Definite threatened species component of those communities.

Cumulative losses are likely to occur at Pine Dale Mine where a significant population of over 200 individual plants is currently under threat of being lost. Pine Dale Mine has future expansion plans which could destroy a significant proportion of the remaining populations in Ben Bullen State Forest.

LEG firmly believes that *Derwentia blakelyi* is likely to occur in the Project Area, and contends that a targeted survey must be undertaken for this threatened species so that it can be avoided if possible.

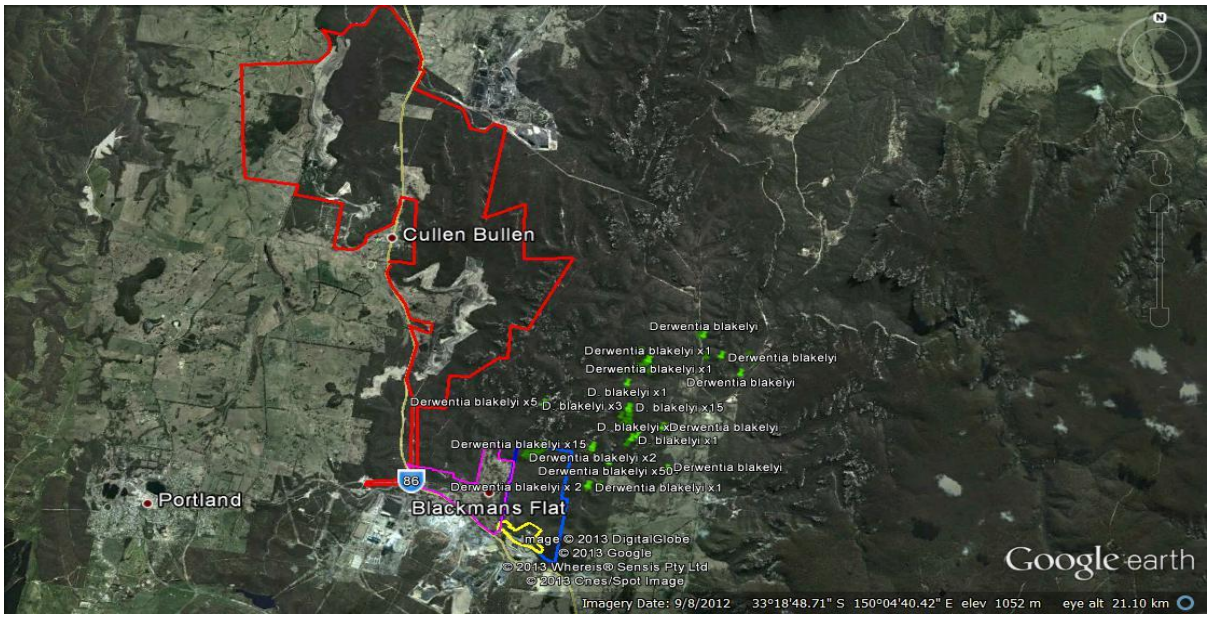


Fig A: *Derwentia blakelyi records Ben Bullen SF (--Coalpac, -- Nuebecks Creek Mine, -- Pine Dale Mine)*

*2.4 Chiloglottis palachila (*ROTAP: 3RC-)

LEG band the Wildlife Atlas[5] record *Chiloglottis palachila* in Sunny Corner just 6 km east of the proposal, in *Tableland Scribbly Gum – Stringybark Shrubby Open Forest* similar to a large part of the area that has already been cleared by, and is proposed to be further cleared by Coalpac.

LEG has recorded non-flowering *Chiloglottis spp* at 10 separate locations in virtually every vegetation type occurring within the project area . However because this species is difficult to find in flower LEG has been unable to confirm whether any of these Ant Orchids are in fact *C. palachila.*

LEG firmly believes that *Chiloglottis palachila* is likely to occur in the Project Area, and contends that a targeted survey must be undertaken for this ROTAP species so that it can be avoided if possible.

2.5 Genoplesium superba (Endangered, TSC Act and EPBC Act)

Lithgow Environment Group has sighted *Genoplesium spp* at 2 locations within the proposal area, but on both occasions this Orchid had finished flowering and identification was not possible.

Genoplesium superba has been recorded[5] 12 km to the east in Newnes State Forest, and is likely to occur within the Proposal Area. It is unlikely to occur in any of the Biodiversity Offsets. LEG urges the DoP to require a targeted survey for this Endangered orchid so that it can be avoided if possible.

2.6 Thesium australe (Vulnerable, TSC Act)

Cumberland Ecology report on Page F9, Appendix E, Part 3 - *"The closest record of this species [*Thesium australe] *to the Project is approximately180 km to the north. Locations of records of the species can be found in Figure F.5".* This statement and Figure F.5 are incorrect.

The NSW Herbarium holds a record for *Thesium australe* dated 20 April 2012 from a specimen collected by E.C. Ransom in Blackmans Flat one km south of the Project Boundary (see below).

Herbarium	National Herbarium of New South Wales
Catalogue number	NSW 895972
Basis of record	Preserved Specimen
Determiner	Wiecek, B. M.
Determination date	2012-04-20
Collector	"Sansom, R.C." Supplied as ""Sansom, R. C.""
Collecting date	2012-04-18
Locality	Blackmans Flat 15 km W of Lithgow .

Photo 1: Thesium australe (Vulnerable) – Pine Dale Mine, Blackmans Flat 8-4-2012

LEG informed the DoP on 28 May and PAC1 on 9 September 2012 that *Thesium australe* had been recorded at Pine Dale Mine in Tablelands Grassy Woodland Complex, the same vegetation type proposed to be largely cleared by Coalpac. It is unlikely to occur in any of the Biodiversity Offsets, and is a parasitic plant so is unlikely to survive relocation. LEG requests a targeted survey to adequately address the PAC1 **Recommendations 49 and 55**.

3.4 Euphrasia arguta (Critically Endangered, TSC and EPBC Acts)

Euphrasia arguta is listed as Critically Endangered under both the TSC and EPBC Acts. It was until 2008 thought to be extinct. Cumberland Ecology state on page F11, Appendix E, Part 3 that:

> "*The closest record of this species to the Project is approximately 212 km to the north-east. Locations of records of the species can be found in Figure F.6."*

<u>This statement and Figure F.6 are incorrect.</u>

The NSW Herbarium holds at least 4 specimens collected from the Mudgee, Lue and Rylstone areas[5]. Rylstone is only 50km north of the Proposal Area. It was these records that no doubt prompted the OEH (Submission R6) to recommend a targeted survey for *Euphrasia arguta.*

LEG informed the DoP on 28 May 2012 and PAC1 on 9 September 2012 that a yet to be identified Euphrasia species had been recorded at Pine Dale Mine, in similar vegetation communities to those which occur within the Coalpac Proposal Area (ie. interface between *Tableland Scribbly Gum – Stringybark / Tableland Gully Ribbon Gum / Silvertop Ash Woodland*). Approximately 100 plants were found growing near *Derwentia blakelyi* (Vulnerable) and *Eucalyptus cannonii* (Vulnerable).

No Euphrasia species has previously been recorded in Ben Bullen State Forest, despite the fact that literally dozens of Flora Assessments have been conducted by mining companies in the Blackmans Flat area specifically and Ben Bullen State Forest in general over the preceding 50+ years.

At the time of discovery the plants were not flowering. It has been identified by the NSW Herbarium as *Euphrasia collina ssp. speciosa*. That specimen was retained because it had unusual features.

None of the Biodiversity Offsets are likely to contain Euphrasia spp, as they are a highly cryptic species that occur at low densities. They are semi-parasitic and are prone to grazing and disturbance.

This Euphrasia discovery at Pine Dale Mine demonstrates to LEG that despite the dozens of Flora Surveys conducted for mining projects in the Blackmans Flat area specifically and Ben Bullen SF in general over the past 50 years, many plant species are yet to be recorded.

The Critically Endangered *Euphrasia arguta* may well occur within the Proposal Area. LEG requests a targeted survey to adequately address the PAC1 **Recommendations 49 and 55**..

2.8 Pseudanthus divaricatissimus (ROTAP 3Rca)

Figure C.4 is incorrect. Cumberland Ecology mapped the nearest population of *P. divaricatissimus* some 6 km to the north-east. *P. divaricatissimus* has in fact been recorded at 3 locations in the Gardiners Gap area of Ben Bullen SF[5], less than 3km from the Proposal Area. Cumberland ecology claim that this species has a wide distribution, but fail say that it rarely occurs in great numbers. In Ben Bullen SF it is a highly cryptic species, populations are often limited to a single plant. It must therefore be regarded as vulnerable to any form of disturbance, because a single cliff fall as a result of blasting or highwall-mining could wipe out an entire local population. LEG requests a targeted survey to adequately address the PAC1 **Recommendations 49 and 55**.

2.9 Prostanthera cryptandroides var cryptandroides (Vulnerable)

Coalpac did not identify a single Prostanthera species as occurring in the Project Area in the Original EA and Flora Assessment for the Coalpac Consolidation Project. LEG raised this in our submission to the DoP on 28 May 2012. We pointed out that *Prostanthera howelliae*, *P. saxicola var 15acroca*, and *P. saxicola* var saxicola were recorded in the proposal area and were listed on the Wildlife Atlas.

LEG appointed out that Ben Bullen State Forest was a biodiversity hotspot for Prostanthera, that a great variation in plant leaf shape and size was evident, and misidentification was possible. The map below shows the distribution of some Prostanthera species recorded by LEG in the vicinity of the Coalpac, Pine Dale and Nuebecks Creek open-cut mine proposals.

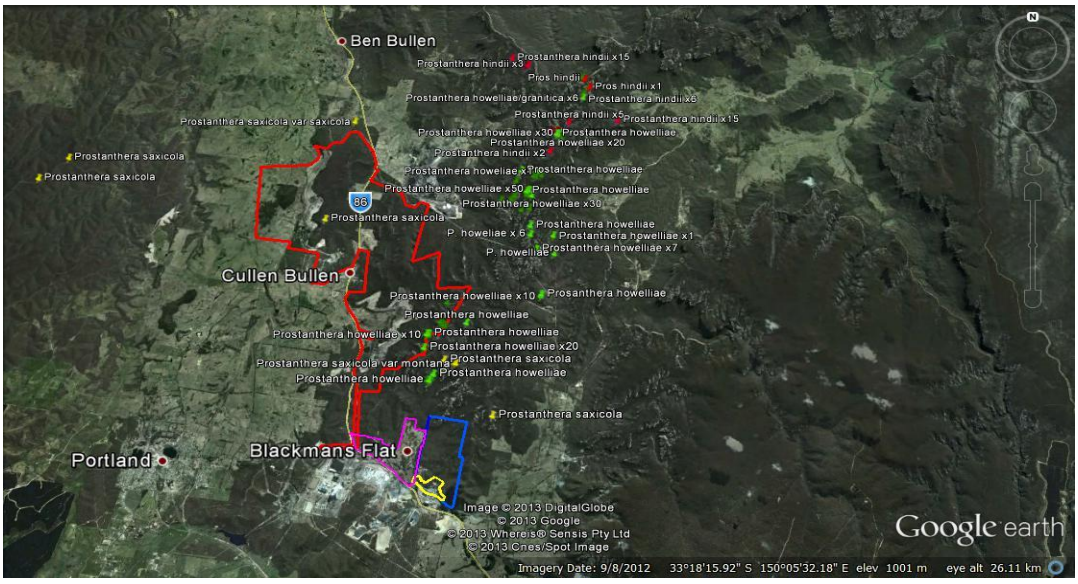


Fig B: Distribution of Prostanthera relative to the Coalpac, Pine Dale and Neubecks Proposals

The Lithgow Environment Group believe it is highly that *P. cryptandroides var cryptandroides (*Vulnerable*), P. hindii* (ROTAP: 2Rci), *P. stricta (*Vulnerable*)* may occur in the Project Area.

In our previous submissions LEG urged the DoP to require Coalpac to undertake a targeted search for these threatened species. To date Coalpac has failed to do so. We maintain that this fails to adequately address the PAC1 **Recommendations 49 and 55**.

2.10 Acacia asparagoides (ROTAP 2R)

Cumberland Ecology say that *Acacia asparagoides* is listed ROTAP 2R due to restricted geographical range which is less than 100km. They cite Briggs and Lee (1995)[9] who say it is rare but *"not currently under an identifiable threat"*. However since 1995 a clear and identifiable threat has emerged – open-cut coal mining. In cumulative terms many plants have been lost at Lamberts Gully, Cullen Valley Mine and Invincible Colliery. Pine Dale Mine Stage 2 proposes to take out many more.
LEG requests a targeted survey to adequately address the PAC1 **Recommendations 49 and 55**.

2.11 Darwinia peduncularis (Vulnerable)

Cumberland Ecology point out that local populations of this species are small with a total population likely to be less than 2500 and possibly less than 1500.They also say that the closest record of this species to the Project is approximately 22 km to the north-east near Glen Davis.

What they do not say is that the related *D. taxifolia ssp taxifolia* occurs only 6km to the north east[5], and that it and *D. peduncularis* are yet another pagoda/rocky outcrop dependent species, that they are a highly cryptic species with very small populations, and must be regarded as vulnerable to disturbance. A single cliff collapse as a result of blasting or highwall-mining, for instance, could potentially wipe out an entire local population.

LEG requests a targeted survey to adequately address the PAC1 **Recommendations 49 and 55**.

*2.12 Homoranthus cernuus (*ROTAP: 2Rca)

Homoranthus cernuus has been recorded 10 km south of Lithgow[5] on a cliff edge above Lee Creek near Benjang Gap, and 50 km north of the Project Area near Rylstone[5]. A line drawn on a map between these 2 locations runs directly over Ben Bullen State Forest and the Proposal Area.

Eleven Homoranthus species are listed as occurring in NSW. Nine of these are listed as either Endangered, Vulnerable or are ROTAP listed. Many of these species are under threat from resource projects, for example in the Pilliga and the Mudgee area. For example the Cobborra Coal Project proposes to destroy 53% of the known local population of *Homoranthus darwinoides* (227 individuals) in Goonoo State Forest [Letter from OEH to the DoP's Howard Reed on 13 March 2013].

Homoranthus spp are a highly cryptic species confined to rocky sandstone escarpments and cliffs and associated habitats that occur in the Proposal Area. Populations are very small, often only a few plants, and must therefore be regarded as highly vulnerable to disturbance. A single cliff collapse as a result of blasting or highwall-mining, for instance, could wipe out an entire local population.

LEG requests a targeted survey to adequately address the PAC1 **Recommendations 49 and 55**.

2.13 Adequacy of Biodiversity Offset Package for Threatened Flora species/communities

The PAC 1 **Recommendation 49** states that – *The Commission recommends that concerns about the adequacy of the flora assessment and identification of the vegetation associations present in the project area be resolved to the satisfaction of OEH prior to approval of any extension to open-cut mining in the project area and prior to any assessment of adequacy or otherwise of the biodiversity offset package.*

The 1097 Ha Hillcroft Offset was the only offset actually containing at least some of the threatened species and EEC's to be destroyed. It contained the Grassy Box Woodland EEC, *Eucalyptus cannonii* (V) and *Persoonia marginata (Vulnerable)*. Hillcroft has now been removed from the proposal. Table 8 Main Report shows that none of the Proposed Offset Properties contain any actual *E. cannonii*. Properties 3, 6, 7, 8 only list *Eucalyptus cannonii* as being recorded within 5 km of the property. No Offsets contain *Derwentia blakelyi* and other likely to occur threatened species.

2.14 Overall Species Richness and habitat quality

The PAC1 **Recommendation 50** states that – *The Commission recommends that, given the acknowledged high quality and species richness of the native vegetation present in the project area, the assessment focus should be on the overall quality of the habitat under threat and its biodiversity value rather than just on the threatened species component which is the focus of the EA.*

LEG maintains that the Proponent has once again failed to address this recommendation. In our submissions to the DoP on 28 May 2012 and PAC1 on 9 September 2012 we identified in excess of 100 plant species occurring on site that were missed in Coalpac's original Flora Assessment[15].

These missed species included threatened species (*Persoonia marginata – Vulnerable*) and four ROTAP listed species (*Acacia asparagoides – 2R; Leionema lamprophyllum subsp. orbiculare – 2R-P3; Leucochrysum graminifolium – 2R; Philotheca obovalis – 3Rca),* but also many non-listed species that were unusual rare, outside their normal range, or the only known population in the Lithgow region.

For example LEG's presentation to the PAC1 panel in September 2012 highlighted that the Project Area specifically and Ben Bullen State Forest in general was a biological hotspot for Orchid species.

At that time LEG had recorded over 20 Orchid species within the Project Area. Since then a further 12 orchid species have been recorded – *Calochilus paludosus*, *Calochilus robertsonii*, a yet to be identified *Corybas spp*, *Dendrobium pugioniforme*, *Diuris chryseopsis, Genoplesium apostasioides*, a yet to be identified *Genoplesium spp*., *Microtis oblonga*, *Pterostylis longifiloia, Pterostylis parca*, a yet to be identified *Pterostylis spp*., and a yet to be identified *Prasophyllum spp*.

The total number of Orchid species occurring within the Project Area now stands at 32 species. Based on NSW Wildlife Atlas records[5], this rates the Project Area as the richest Orchid area in the Lithgow LGA after Hassans Walls Reserve, where 60 Orchid species have been identified.

Very recently LEG recorded a small population of *Olearia asterotricha* in the Project Area. Whilst it may not be listed as threatened, there is only one other record in the Lithgow area, and the NSW Wildlife Atlas[5] only contains a total of 15 records for the whole of NSW. It is not a common plant.

In LEG's earlier submission to the DoP on 28 May 2012 we have highlighted some others –

- *Acrotriche rigida* – The only known populations in Ben Bullen SF will be lost.
- *Astroloma humifusum* - Best known populations in Ben Bullen SF lost.
- *Allocasuarina littorlalis, A. distyla* and *A. nana*. Huge net loss of food source for Vulnerable Gang Gang's and Glossy Black cockatoo's.
- *Bursaria spinosa ssp lasiophylla*- 4 populations will be lost, and potential loss of endangered Purple Copper Butterfly.
- *Calochilus paludosus* & *Calochilus robertsonii* – best known habitat in Ben Bullen SF lost.
- *Correa reflexa* – only known population of Red Flowering form in Lithgow LGA will be lost.
- *Daviesia genistifolia* – the only known populations in Ben Bullen SF will be lost.
- *Dendrobium pugioniforme* – the only known plant bin the LGA will be lost.
- *Dodonaea boroniifolia* – best known populations in the Lithgow LGA will be lost.
- *Dodonaea sinuolata* –the only known population in the Lithgow LGA will be lost.
- *Epacris crassifolia ssp macroflora*- the only population in LGA lost if cave overhang collapses
- *Genoplesium apostasioides* – the only known population in Ben Bullen SF will be lost
- *Macrozamia spiralis* – The only recorded plant we know of in the Lithgow LGA will be lost.
- *Melichrus erubescens* – rare in Ben Bullen SF and Lithgow LGA will be lost.
- *Ochrosperma oligomerum* – has a very restricted range and some will be lost.
- *Olearia asterotricha* – 1 of only 2 known populations in the Lithgow LGA will be lost.
- *Orchidaceae* – 31 Orchid species and the 2nd best orchid habitat in the LGA will be lost.
- *Phebalium squamulosum ssp. ozothamnoides* – restricted range will be lost.
- *Philotheca myoporoides ssp. myoporoides*- 1 of only 2 known populations may be lost.
- *Psilotum nudum* – only known plant in LGA will be lost if cliff collapses.
- *Rulingia dasyphylla* – only known plant in LGA will be lost if cliff collapses.
- *Styphelia triflora* – best known populations/habitat in Ben Bullen SF and LGA will all be lost.
- *Thysanotus tuberosus* – best populations/habitat in Ben Bullen SF and LGA will be lost.
- *Zieria aspalathoides* – best known populations/habitat in Ben Bullen SF and LGA will be lost
- *Zieria compacta* – 2 of only 4 known populations in Ben Bullen SF will be lost.

In cumulative terms –

- The adjacent Pine Dale Mine intends to remove more *Eucalyptus cannonii* (Vulnerable), *Derwentia blakelyi* (Vulnerable), and *Thesium austral* e (Vulnerable), as well as the only known population of *Euphrasia collina ssp. speciosa* and one of only 2 known populations of *Pterostylis parca* in Ben Bullen State Forest.

- The adjacent Neubecks Coal Project[13] intends to remove more *Eucalyptus cannonii* (Vulnerable), *Eucalyptus 18acrocarp* (Vulnerable), *Thesium austral* e (Vulnerable), and the EEC of Tablelands Frost Hollow Grassy Woodlands.

- Both Pine Dale Mine and the Nuebecks Creek propose to take out a remnant of the EEC Montane Peatlands and Swamps containing one of the few recorded locations of *Hakea 18acrocarpa* and the orchid *Spiranthes australis* in the Lithgow LGA.

- Both Pine Dale Mine and the Neubecks Creek will remove more of the vegetation communities which the PAC 1 and OEH identified as being poorly reserved – *Ribbon Gum Grassy Forest on alluvial flats, Mountain Gum – Apple Box – Blakely's Red Gum Grassy Forest*, and *Broad-leaved Peppermint – Brittle Gum – Red Stringybark Grassy Open Forest*. The PAC1 therefore recommended that impacts to these communities be avoided.

Few if any of the plant species and vegetation communities discussed above are likely to occur in any of the Biodiversity Offsets.

Many of the proposed Offsets are located outside the Lithgow LGA, and therefore the Lithgow area will suffer a net biodiversity loss.

Ben Bullen State Forest represents the most appropriate locality for these rare and unusual plants and vegetation types to be reserved under the *National Parks and Wildlife Act, 1974*.

The PAC1 **Recommendation 52** states that: *The Commission recommends that the cumulative impacts on the biodiversity values of Ben Bullen State Forest and the region of this project, together with the proposed Pine Dale Stage 2 Extension, be considered before any assessment of this project is finalised.*

This latest Coalpac assessment again fails to adequately address the PAC1 **Recommendation 52**.

3. THREATENED FAUNA SPECIES

3.1 Broad-headed Snake – Endangered TSC Act, Vulnerable EPBC Act

In 2011 Mr Ian Brown sighted the Broad-headed in pagoda country east of Invincible Colliery, and reported this sighting to the NPWS. That sighting is now recorded on the NPWS Wildlife Atlas[5].

Dr Arthur White of Biosphere Environmental Consultants has questioned the validity of that sighting, stating that no suitable habitat exists in the area and/or that the GPS coordinates may have been wrong. I have known Mr Ian Brown on a professional and personal level for many years. I hold him in the highest regard, know him to be a person of the highest integrity, and I am confident that his sighting of the Broad-headed Snake would have been valid. It is acknowledged by the OEH and a widely accepted by Herpetologists that pagoda landforms provide ideal Broad-headed Snake habitat.

LEG questions the ludicrous assertion that illegal collecting of broad-headed snakes poses a greater threat than clearing 762 Ha of habitat within 50 metres of pagodas, or causing numerous cliff falls. And regardless of *potential* threats from illegal collectors, Coalpac's open-cut and high-wall mining pose an *actual* threat by totally destroying the snake's habitat. Coalpac are simply denying the presence of Broad-headed snake to avoid a 300m ecological buffer so they can risk cliff falls.

LEG believes that Dr White's assessment of this Broad-headed Snake sighting is incorrect.

3.2 Squirrel Glider (Vulnerable TSC Act)

Mr Brian Emmett has reported finding a Squirrel Glider at his home in Cullen Bullen. An Officer from the NPWS apparently visited his home and positively identified it as a Squirrel Glider. The Squirrel Glider is listed as Vulnerable under the TSC Act. It is not apparent to LEG whether Coalpac has adequately assessed the threat posed to Squirrel Glider in its voluminous documentation.

Clearly the removal of 762 Hectares of pristine high conservation-value Squirrel Glider habitat will have an adverse impact on the long-term survival of this species in the local area. None of the Proposed Offset Properties are likely to contain Squirrel Glider. This needs to be addressed.

3.3 Spotted-tailed Quoll (Endangered TSC Act and Endangered EPBC Act)

The Spotted-tailed Quoll has been recorded[30] east of Pine Dale mine in Ben Bullen State Forest in an area that is close to and contiguous with the Proposal Area. It is not apparent to LEG whether Coalpac has adequately assessed the threat posed to Spotted-tailed Quoll in its documentation.

Clearly the removal of 762Ha of pristine high conservation-value Spotted-tailed Quoll habitat will adversely impact on the survival of this species in the local area. None of the Proposed Offset Properties are likely to contain Spotted-tailed Quoll. This needs to be addressed.

3.4 Purple Copper Butterfly

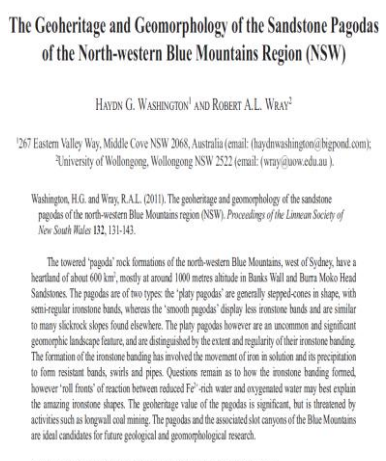
LEG has previously reported that *Bursaria spinosa ssp lasiophylla* occurs at 4 sites within the Proposal Area, but was not identified in Coalpac's Flora Assessment[15]. It is the host plant for the Endangered Bathurst Copper Butterfly. Coalpac have once again failed to address this.

4. THREAT TO SANDSTONE PAGODA LANDFORMS

Coalpac and their consultants have concocted a range of unscientific and erroneous arguments and definitions in a self-serving attempt to minimise the areas that are universally recognised as the highest geodiversity and biodiversity conservation value pagoda landforms in Australia.

This is a deliberate attempt by Coalpac to minimise the area of pagoda landform to be protected, and is an explicit signal from Coalpac that they do intend to damage to pagoda landforms in certain areas.

The undisputed scientific authorities on pagoda geodiversity in Australia are Dr Haydn Washington, Dr Robert Wray, Dr Ann Young and Robert Young. Dr Marshall Wilkinson also has local expertise.



The Geoheritage and Geomorphology of the Sandstone Pagodas of the North-western Blue Mountains Region (NSW)

HAYDN G. WASHINGTON[1] AND ROBERT A.L. WRAY[2]

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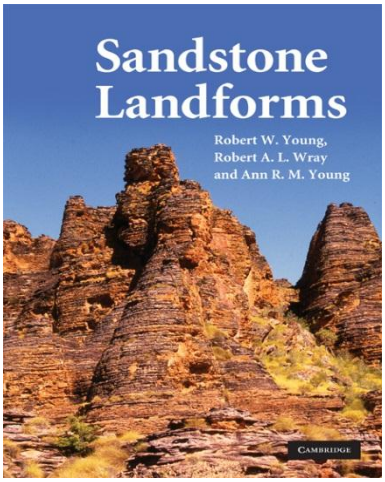
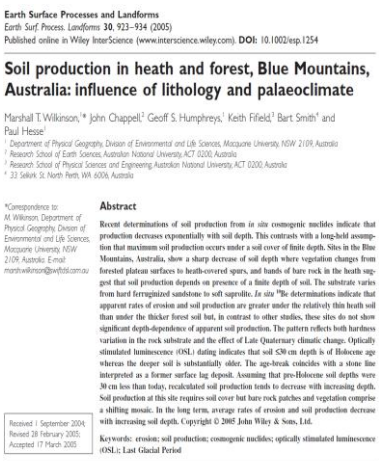
Washington, H.G. and Wray, R.A.L. (2011). The geoheritage and geomorphology of the sandstone pagodas of the north-western Blue Mountains region (NSW). *Proceedings of the Linnean Society of New South Wales* 132, 131-143.

The towered 'pagoda' rock formations of the north-western Blue Mountains, west of Sydney, have a heartland of about 600 km², mostly at around 1000 metres altitude in Banks Wall and Burra Moko Head Sandstones. The pagodas are of two types: the 'platy pagodas' are generally stepped-cones in shape, with semi-regular ironstone bands, whereas the 'smooth pagodas' display less ironstone bands and are similar to many slickrock slopes found elsewhere. The platy pagodas however are an uncommon and significant geomorphic landscape feature, and are distinguished by the extent and regularity of their ironstone banding. The formation of the ironstone banding has involved the movement of iron in solution and its precipitation to form resistant bands, swirls and pipes. Questions remain as to how the ironstone banding formed, however 'roll fronts' of reaction between reduced Fe^{2}-rich water and oxygenated water may best explain the amazing ironstone shapes. The geoheritage value of the pagodas is significant, but is threatened by activities such as longwall coal mining. The pagodas and the associated slot canyons of the Blue Mountains are ideal candidates for future geological and geomorphological research.

Manuscript received 1 November 2010, accepted for publication 16 March 2011.





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Soil production in heath and forest, Blue Mountains, Australia: influence of lithology and palaeoclimate

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Abstract

Recent determinations of soil production from *in situ* cosmogenic nuclides indicate that production decreases exponentially with soil depth. This contrasts with a long-held assumption that maximum soil production occurs under a soil cover of finite depth. Sites in the Blue Mountains, Australia, show a sharp decrease of soil depth where vegetation changes from forested plateau surfaces to heath-covered spurs, and bands of bare rock in the heath suggest that soil production depends on presence of a finite depth of soil. The substrate varies from hard ferruginized sandstone to soft saprolite. *In situ* ^{10}Be determinations indicate that apparent rates of erosion and soil production are greater under the relatively thin heath soil than under the thicker forest soil but, in contrast to other studies, these sites do not show significant depth-dependence of apparent soil production. The pattern reflects both hardness variation in the rock substrate and the effect of Late Quaternary climatic change. Optically stimulated luminescence (OSL) dating indicates that soil ≤30 cm depth is of Holocene age whereas the deeper soil is substantially older. The age-break coincides with a stone line interpreted as a former surface lag deposit. Assuming that pre-Holocene soil depths were 30 cm less than today, recalculated soil production tends to decrease with increasing depth. Soil production at this site requires soil cover but bare rock patches and vegetation comprise a shifting mosaic. In the long term, average rates of erosion and soil production decrease with increasing soil depth. Copyright © 2005 John Wiley & Sons, Ltd.

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Washington & Wray (2011)[62] is the only scientific paper that LEG is aware on pagoda geoheritage and geomorphology of the Western Blue Mountains. The paper does not include a term 'Significant Pagoda Lansdscapes (SPL)', nor define a pagoda as having to be taller than 10m and covering 10 Ha or more, as asserted by Coalpac. The paper clearly defines 'platy and 'smoothy' pagodas, despite Coalpac's claim that 'smoothy's are not pagodas because they do not contain ironstone-banding.

The hardcover book *Sandstone Landforms* (2009)[65] was first published in 1992. Figure 4.5 on Page 9 depicts a typical pagoda, which is less than 10m high, and less than 10 Ha. Coalpac are *incorrect*.

Wilkinson et al (2003)[64] use the photo below of 'typical Pagodas' less than 10Ha. They say '*Gross slope morphology is also influenced by sandstone towers 2-15 m high, known locally as 'pagodas'.*

Photo 2: Typical Pagoda country as defined by Wilkinson et al (2003)

Coalpac erroneously claim that no Pagodas exist north of Cullen Bullen. The residents of Cullen Bullen would certainly disagree – the popular local landmark "The King's Chair" pictured below occurs north of Cullen Bullen, and contains the typical ironstone banding of a platy pagoda.

Photo 3: The King's Chair: a well-known local attraction north of Cullen Bullen. Locals know it as a platy pagoda It is clearly unstable and, like other local landmarks, is unlikely to survive mine subsidence or blasting vibration.

A belt of well-developed pagodas are clearly visible extending north of Cullen on both sides of the Castlereagh Highway east of the Cemetery and along the northern side of Tyldsley Hill to the west. This pagoda belt extends along both sides of valleys that run between Invincible and Baal Bone.

The above photo shows that 'The King's Chair' is one of three tall columns precariously perched on a ridge top. It is clearly unstable and unlikely to survive high-wall mining subsidence or blast vibration. Another local landmark the "Whitewash Caves" is similarly vulnerable, as are the aboriginal cave overhangs in the north-eastern area. Highwall-mining should not be permitted underneath pagodas.

In LEG's submission on 28 May 2012 we pointed out the numerous cracks and cliff falls above the old Invincible Colliery underground mine workings in the Lithgow Coal Seam. We believe that because these cracks extend upwards through the other coals seams to the surface, that cliffs and pagodas are already unstable and cannot sustain highwall mining of multiple coal seams without collapsing.

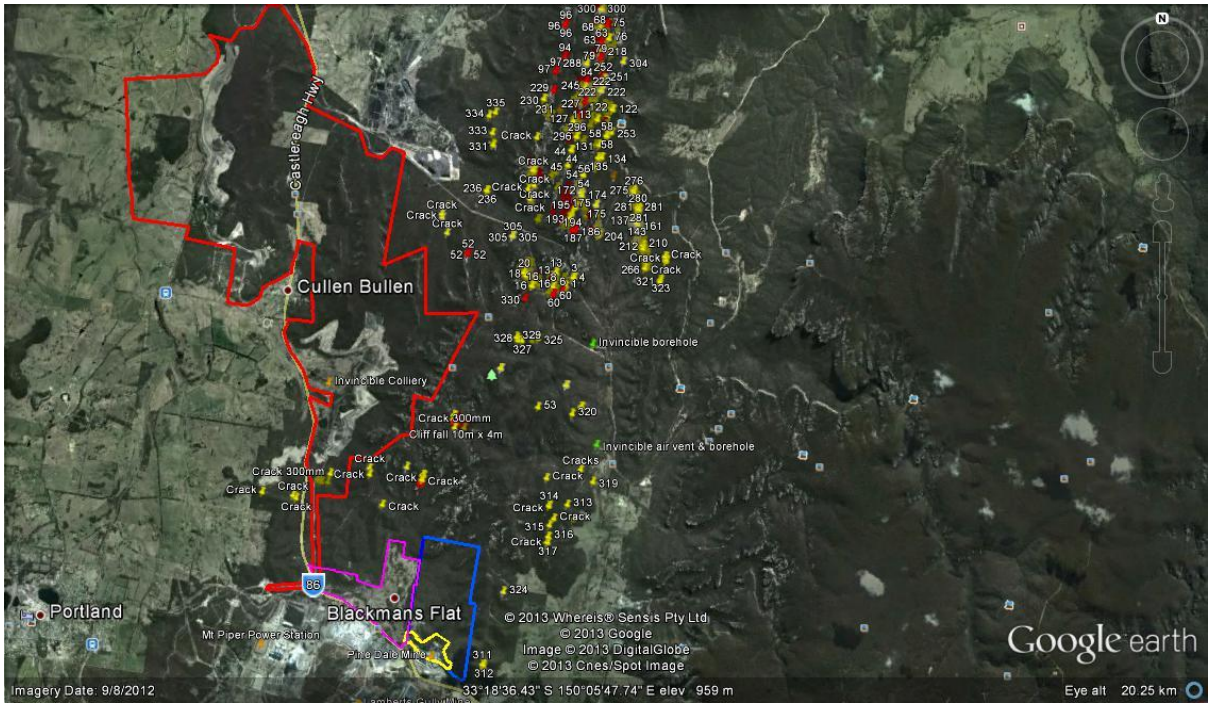

Fig C: Cracks (Yellow) and Cliff Falls (Red) above previous Invincible and Baal Bone underground mine workings.

Coalpac have once again ignored our concerns, and have not acknowledged any past subsidence damage above the Invincible Colliery or Cullen Valley Mine Leases, which are now owned by Coalpac.

It is our understanding that mining companies have for many years been required to monitor surface subsidence and report this to the NSW Trade & Investment – Division of Resources & Energy (DRE).

<u>LEG therefore strongly urges the PAC2 to request that the DRE provide full details and locations of previous subsidence damage that has been recorded above Invincible and Cullen Valley Mines.</u>

Lat: -33.321917° Long: 150.066111° Lat: -33.322706° Long:150.066176° Lat: -33.323028° Long: 150.068028°

Photo 4: Three of the many existing cliff falls above previous Invincible Colliery underground mine workings.

Lat: -33.331889° Long: 150.039194° Lat: -33.332028° Long: 150.040917°

Photo 5: Two of many subsidence cracks <u>within the Proposal Area</u> 380 m south of current Invincible open-cut.

Lat: -33.335806° Long: 150.051722° Lat: -33.289194° Long: 150.087778°

Photo 6: Cracked 'Platy' pagoda Invincible Colliery Photo7: Cracked 'Smoothy' Pagoda Baal Bone

Crack & Cliff Fall: Baal Bone LW 28, July 2009 – the SMP only monitors damage, it doesn't prevent it.

Coalpac have totally ignored the PAC1 **Recommendation 47** that a 300 metre buffer zone be maintained to protect threatened species and fauna that use the pagoda landforms, and appear to deride and vilify the PAC1 for daring to reach such a well-balanced compromise resolution.

Because Coalpac know full-well that Baal Bone Colliery was permitted to maximise the damage to cliffs and pagodas in out-of-sight areas of Ben Bullen State Forest, they fully expect to do the same.

In response to PAC1 **Recommendation 46** Coalpac claim that "*No highwall will be carried out under the significant rock features within the SPL*", but Figure 7B clearly shows that this is untrue.

Coalpac fall back on the age-old spin of Monitoring and Adaptive Management. But LEG, every other environment group in NSW, and the residents of Cullen Bullen are fully aware that the SMP process does not adapt to environmental impacts that arise during mining, it only monitors those impacts but does not prevent damage – and at Baal Bone Colliery it approved maximisation of the damage.

Once this mine is approved it will not be a PAC Panel that decides what is acceptable damage – it will the loveless heartless bloodless ruthless Mining Act and Division of Resources & Energy, whom regard any and all damage as acceptable, as history has proven in the Lithgow area.

Rules are meant to be broken, and past history has taught Coalpac that breaking conditions of approval has been more profitable to them than remaining within the law. In 2008, Coalpac was prosecuted[42] and fined $200,000 +$55,000 in prosecutor's costs for producing 80% more coal than their approval allowed, but it was a slap-with-a-feather because they made hundreds of thousands if not millions of dollars from their violation and still profited from their actions.

What more can LEG say – we know what will happen if this mine is approved. We urge the PAC2 in the strongest possible terms to retain the PAC1 **Recommendation 47** of a 300 metre buffer zone to protect the pagoda landscapes and the threatened flora and fauna species that use these landforms.

Photo 8: Historic photo of Patrons from the Carleon Coachouse on 'smoothy' pagodas above Whitewash Caves.
Pagodas are intrinsic to Cullen's culture. If Coalpac is approved, history may be all that Cullen Bullen will have.

Conclusion

The Lithgow Environment Group has concentrated on biodiversity and geodiversity. Lack of time prevents us from addressing other key issues, however this does not mean we consider that Coalpac have adequately addressed the equally serious issues of noise, dust, blasting, vibration, water pollution, and cumulative impacts on residents of Cullen Bullen – because we know they have not. We commend the submissions from the Blue Mountains Conservation Society and Colong Foundation, who have dealt with those issues in detail.

All we can hope is that the PAC2 will heed the excellent work already done by PAC1, and retain as many of the excellent Recommendations as possible. If refusal of the project is not an option, then we hope it is severely curtailed with the most stringent and enforceable consent conditions possible.

The membership of LEG urges the Commission to reject this project in its entirety.

We thank you for allowing our group this opportunity to respond.

Yours faithfully

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