
**57 Victoria Street
Mount Victoria
N.S.W. 2786
Australia**

Phone: (02) 4787 1420

Email: ianbrown@lisp.com.au

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Comments on:

Assessment of Habitat for the Broad-headed Snake, Coalpac Consolidation Project – Contracted Project

by Biosphere Environmental Consultants Pty Ltd, 25 February 2013

I am not a herpetologist or an expert on the Broad-headed Snake. However I am a naturalist, bushwalker, photographer and environmental consultant and I have been bushwalking in the Blue Mountains for more than 40 years. My tertiary training was in ecology and geomorphology and I have good general environmental knowledge, especially of the Blue Mountains. I have lived here for 30 years, working in the environmental field, firstly for the National Parks and Wildlife Service and now as an independent consultant (partner in Epacris Environmental Consultants Pty Ltd).

Note that this submission and all other activities associated with Ben Bullen State Forest and the Coalpac Consolidation Project have been undertaken on a voluntary basis. I am a member of the Colong Foundation for Wilderness, Blue Mountains Conservation Society and NSW National Park Association.

I am also the person who reported the Broad-headed Snake record from Ben Bullen State Forest to the OEH NSW Wildlife Atlas, which is the record referred to in the above Biosphere assessment. Hence I have a number of concerns with the report from Biosphere.

Summary of key comments

1. The location of the online Wildlife Atlas record of Broad-headed Snake in Ben Bullen State Forest has been rounded because this species is classified as sensitive. The *actual* location is immediately adjacent to the Project Area.
2. The Biosphere survey did not map the *actual* location as being suitable habitat for the species. This raises some doubt about the methodology used.
3. The Biosphere assessment downplays, without adequate justification, the likelihood and significance of a Broad-headed Snake population in and near the Project Area.
4. The proposed mitigation measures are ineffective, and a very poor substitute for retaining the habitat to be eliminated/disturbed.

Facts of the Broad-headed Snake record in Ben Bullen State Forest

The Biosphere report does not quote the location of the record, nor show it on the map. Biosphere says the record was from 2012, and “from an area immediately east of the Project Boundary”. I can correct the date of the report and clarify the location.

Date of Broad-headed Snake record

12.43 pm on 21 December 2010 (as shown in photo metadata). The (presumed) same snake was observed a second time, in the same place (it had moved about 20 cm) on a subsequent visit on 27 December 2010. These dates are correct on the Wildlife Atlas record, as quoted below (accessed 8 April 2013). So there is no doubt that this record, which is the only record for Ben Bullen State Forest, is the one lodged by myself. I cannot explain why Biosphere said the record was from 2012.

Search criteria : Public Report of all Valid Records of Broad-headed Snake (Species: Hoplocephalus bungaroides) in BEN BULLEN State Forest returned a total of 1 records of 1 species. Report generated on 8/04/2013 8:51 AM

DatasetName	SightingKey	SpeciesCode	KingdomName	ClassName
FamilyName	SortOrder	ScientificName	Exotic	CommonName
NSWStatus	CommStatus	SensitivityClass	ProfileID	DateFirst
DateLast	NumberIndividuals	EstimateTypeCode	SourceCode	
ObservationType	Latitude_GDA94	Longitude_GDA94	Zone	
Easting	Northing	Accuracy		
OEH Default Sightings	SJJS11033000	2676	Fauna Reptilia	Elapidae
1372	Hoplocephalus bungaroides		Broad-headed Snake	E1,P,2 V
2^	10413	21/12/2010	27/12/2010	4 O -
33.300000000	150.100000000	56	229968	6311700
100.0000				

Location of Broad-Headed Snake record

The Biosphere report acknowledges that the location stated in the Wildlife Atlas record (above) may be incorrect. OEH rounds the location for records of sensitive species which appear online. As indicated in the record quoted above, Broad-headed Snake is classified as sensitive (category 2). The rounded location is about 3 km away from the *actual* location. I know this location very well, having been there at least six times.

The accurate location according to both my records and memory is in pagoda terrain immediately beside the eastern boundary of the project area, which is also the original highwall boundary. In relation to the Contracted Project Area, it is about 300m east of the highwall boundary and about 350m south-east of the open cut. The approximate location is shown on the Coalpac project map below.

The biosphere report says that they went to the site of the record but there was no rock habitat in the vicinity. It is unknown what location they visited, but it cannot have been the *actual* location because it is very rocky.

The three photographs below were taken by me on 21 December 2010, and show the actual snake as well as its location beside a small cavity on a ‘smooth’ pagoda. I have a witness, the snake was alive and we did not put it there.



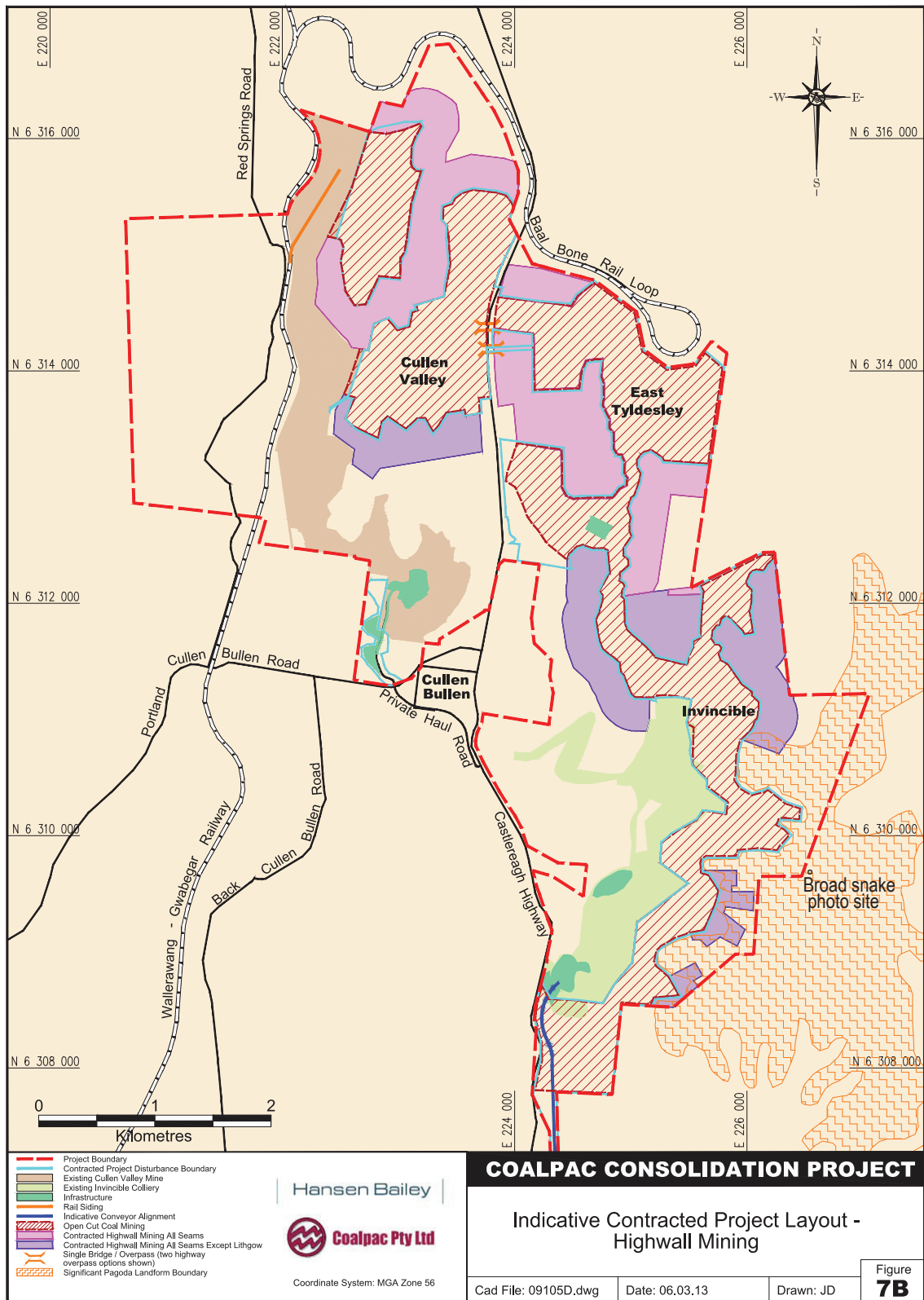
Broad-headed Snake, 21-12-10. Photo by Ian Brown.



Broad headed Snake 21-12-10, showing position beside cavity on rock slab. Photo by Ian Brown.



Broad headed Snake 21-12-10, showing position on smooth pagoda. Photo by Ian Brown.



Biosphere assessment of impacts on Broad-headed Snake habitat

The Biosphere report makes the following points about knowledge of Broad-headed Snakes:

- they are “not well studied in this northern part of their range”;
- “preliminary field studies on this species in the nearby Wollemi and Yengo National Parks has already indicated some behavioural differences for snakes in these areas”;
- “most ecological information about this species is derived from detailed studies carried out in the southern parts of their range”.

However the report then goes on to apply habitat and behavioural understanding, and survey methodology, which has been derived from that limited knowledge. Two points on this:

1. The Biosphere survey did not map the actual location of the one proven record as suitable habitat.
2. The snake was observed in high summer in what is alleged to be winter habitat (rock outcrops).

In relation to habitat and distribution in the project area, the Biosphere report states (my emphasis):

- Newell and Goldingay (2005) also commented on the relative paucity of suitable habitat for the Broad-headed Snake in the northern parts of its range (although they had not surveyed the Newnes plateau or the plateaus to the west in the Cullen Bullen area). Ben Croak, a Ph.D student from the University of Sydney is undertaking studies of the Broad-headed Snake in the northern parts of their range and **struggled to locate suitable habitat in the areas of Wollemi and Yengo NP** where he searched (B. Croak pers. comm.; Croak et al. 2013). Both Yengo and Wollemi NP are renowned for the spectacular sandstone walls and canyons that make up these parks but **this does not appear to constitute habitat for the snakes**.
- Broad-headed snakes are patchily distributed within their distributional range (Newell and Goldingay 2005). In many locations (especially in the northern parts of its range), the species is only recorded once. **The lack of sightings may be a reflection of the nocturnal activity** patterns of this snake as well as a true reflection of its scarcity in certain areas.
- The area in question is frequented often by bushwalkers and trail bikers and **the snakes are not observed**.

I make the following points in response:

1. Broad-headed Snakes are well known to be cryptic and difficult to find.
2. When we saw the snake adjacent to the project area, we were not looking for them and have not looked for them since. We just happened to ‘stumble upon’ this snake.
3. I have been in the area many times and it is not well frequented by bushwalkers or trail bikers. Trail bikers stay on the trails and neither group are looking for Broad-headed snakes. No-one can say the snakes are “not observed” on the basis of official records, because very few people report sightings.
4. As evidence of the above, there have been many Broad-headed snake sightings amongst people of my acquaintance in the northern parts of its range, in Wollemi canyons and elsewhere, very few of which, if any, have been reported.
5. Where there is one Broad-headed snake, there is a population (unless it just happens to be the last).

Proposed mitigation measures

The Biosphere report notes that the Broad-headed Snake has suffered “extensive habitat degradation”. Whilst acknowledging that some of the proposed mitigation measures may be helpful, the most effective protection is not to degrade or destroy more habitat in the first place, and to leave the snakes undisturbed. This is the most useful “direct action” for a threatened species that has already lost much of its habitat.

The proposed mitigation measures include moving snakes from habitat which is to be eliminated, and destroying seasonal habitat while the snakes are (assumed to be) somewhere else. It is well known that such measures are ineffective because the individual snakes are likely to die, either from the disturbance itself or from competition from existing populations, and removing habitat removes the wildlife.

The installation of “artificial bushrock” where all habitat (rock and vegetation) has been removed over a wide area is also an inadequate alternative. Full ‘habitat’ (with artificial shelter) would not be restored for many years.