

# **Powerful Owl Submission to the Sydney North Planning Panel**

**Panel Reference 2018SNH014**

**DA/201/2018, 187-203 Peats Ferry Road and 2-6 Dural Street, Hornsby**

**10<sup>th</sup> June 2020**

Thank you for the opportunity to speak. I am Robin Buchanan, representing the Powerful Owl Coalition; a coalition of six conservation groups in northern Sydney and Birdlife Australia.

Our submission opposes this development application.

We consider the towers will have greater deleterious impact on nocturnal and diurnal aerial fauna of the east coast than most towers in Sydney.

This is caused by four factors:

1. Its close proximity to natural areas; in this case Hornsby Park, the Quarry and Berowra Valley National Park.
  - This will inevitably lead to large numbers of fauna interactions with the building
2. The high RL due to the local relief
  - The supplementary Development Assessment Report of May 2020 gives a RL of 243.8 for Block B. This is still a remarkably high RL due to the local relief. Our calculations indicate that only buildings in the city, Chatswood and Parramatta are currently higher.
3. Building height
  - These buildings still tower over the surroundings and will harm fauna for their full 62 m.
4. The use of glass
  - We have some concerns with reflection and line of sight for birds and other fauna.
  - In the audio recording of the 30<sup>th</sup> October Planning Panel 2019 (2:27:50, 2:27:53) there was a promise on behalf of the applicant that they will “accept the condition that there is no reflective glass actually used in those towers”. We would like to remind the applicant of this promise.

The aerial environment, and its integration with terrestrial environments, needs to be addressed for buildings of this height, especially those so close to natural ecosystems.

## **The effect of artificial light at night (ALAN) on fauna**

We maintain that these towers will add substantially to light pollution adjacent to Berowra Valley National Park, to Hornsby and to Sydney due to the high RL of the towers.

Biological systems are arguably organized foremost by light with the daily cycle of light and dark rhythm to govern life-sustaining behaviours such as reproduction, nourishment, sleep and protection from predators.

Light pollution is now among the most chronic environmental problems on Earth. To reduce the effect of light there needs to be careful planning of urban areas in relation to natural areas.

The National Light Pollution Guidelines for Wildlife state that:

“Natural darkness has a conservation value in the same way that clean water, air and soil has intrinsic value. Artificial light at night is increasing globally .... Animals perceive light differently from humans and artificial light can disrupt critical behaviour and cause physiological changes in wildlife.”

This report goes on to say:

“Consequently, artificial light has the potential to stall the recovery of a threatened species. For migratory species, the impact of artificial light may compromise an animal’s ability to undertake long-distance migrations integral to its life cycle.”

“The aim of the Light Pollution Guidelines is that artificial light will be managed so wildlife is:

1. Not disrupted within, nor displaced from important habitat
2. Able to undertake critical behaviours such as foraging, reproduction and dispersal.”

### **Nocturnal vertebrates**

Four owl species, (Barking, Powerful, Masked and Sooty) and ten bat species that will be impacted by night lighting from these towers have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the Hornsby Quarry site; approximately 320 m from this development, GHD (2019).

The Powerful Owl nesting tree in the Quarry site is only approximately 900 m from the development site. Car and glass strikes are the leading causes of mortality for these birds, with estimates in Sydney of 12% of the population dying each year this way. Tower design and detail needs to consider the owl’s perception of the environment.

Other nocturnal birds potentially affected include Frogmouths and Southern Boobook. Seemingly diurnal birds such as Masked Lapwings and Wood Duck are often heard overheard at night as they move from between catchments.

Insectivorous bats reaction to light is complex. Some opportunistic bats fed on insects attracted to light while other bats avoid light.

## **Insects**

Insects are present in huge quantities in the air column and stretch from ground level up to 4 km. Movement of insects in Australia is so complex that Dr Alistair Drake from Canberra has spent 25 years researching aeroecology of insects and invertebrates but consideration of their ecosystem importance is rarely given in biodiversity assessments. This is the case here.

These invertebrates are vital for ecosystem functions. The headline of the Sydney Morning Herald in August last year said it all: “Turn off a light, guide a moth and save an endangered [mountain-pygmy] possum”. Bogong moths, night pollinators, parasitic wasps and spiders all migrate in the air column at night.

### **Light Pollution Guidelines**

We consider that this DA should conform to the “Light Pollution Guidelines” (2020) as it is so close to natural areas and is extremely tall.

These guidelines state that all infrastructure that has outdoor artificial lighting or internal lighting that is externally visible should incorporate best practice lighting design.

1. Start with natural darkness and only add light for specific purposes.
2. Use adaptive light controls to manage light timing, intensity and colour.
3. Light only the object or area intended – keep lights close to the ground, directed and shielded to avoid light spill.
4. Use the lowest intensity lighting appropriate for the task.
5. Use non-reflective, dark-coloured surfaces.
6. Use lights with reduced or filtered blue, violet and ultra-violet wavelengths

### **The effect of the DA on diurnal fauna**

We are concerned about areas of exposed glass because of the proximity of natural areas in Hornsby Park, the Quarry and Berowra Valley National Park and because the skies of the Hornsby area are criss-crossed by birds.

Movement is north/south, for example the mass migration of small honeyeaters, Silvereyes, Pardalotes in Autumn, and west/east with altitudinal migrants such as Pied Currawongs. Yellow-tailed Black-Cockatoos and the threatened Glossy Black Cockatoo are often seen flying over urban areas at heights of 50-200m as they travel between catchments.

Swallows move up and down the air column as they follow insects. They can forage hundreds of metres from the ground.

Many birds and migrating butterflies are at risk of colliding with windows in these towers and killing themselves.

Most of us are only aware of occasional bird strikes but the total kill can be enormous. Up to one billion birds are killed by collisions with glass in the United States every year.

Most methods to reduce bird strikes involve some type of sticker which need maintenance and replacement. Therefore, the only certain way to make sure birds do not collide with glass is to use anti reflective glass and bird friendly glass such as Guardian Glass and Ornilux.

### **Landscaping**

While we support the presence of plant material within the development, we are also concerned about the increased possibility of collision with windows as both nocturnal and diurnal animals are attracted to plants. Birds taking off or going to feeding sites often collide with windows.

### **Recommendations**

We recommend refusal on the grounds that these towers could impact deleteriously on the fauna and ecosystems of Berowra Valley National Park, NSW and the east coast of Australia.

If refusal is not granted, then we recommend the following conditions to reduce the environmental impact of these towers:

- A greatly reduced building height
- Implementation of recommendations from an ecologist with expertise in reducing the impact of light pollution on fauna.
- Implementation of recommendations from an ecologist with expertise in reducing bird strike. One of the local experts is Ambrose Ecological Services.

We have included a bibliography, a list of the effects of light pollution and a diagram in our written submission to demonstrate the level of concern in the research community about the interaction of fauna with artificial light at night and collisions with glass.

Thank you for the opportunity to speak.



Diagram of ecological and astronomical light pollution.

<https://esajournals.onlinelibrary.wiley.com/doi/full/10.1890/1540-9295%282004%29002%5B0191%3AELP%5D2.0.CO%3B2>

### Some of the effects of light pollution on fauna

- Attracted or repulsed by the glare
- Collisions with the light or window
- Altered biological rhythms, daily and seasonally
- Inability to navigate
- Inability to migrate
- Delayed or early reproduction
- Delayed fledging
- Reduced number of offspring
- Reduced survivorship of offspring
- Mismatch between peak offspring demands for food and food availability
- Increased mortality
- Inability to forage
- Reduced pollination
- Inability to communicate
- Changed availability of habitat and food resources
- Increased risk of predators
- Increased nocturnal vigilance
- Attraction of invasive pests
- Increase stress hormones
- Early moulting
- Phenotype selection
- Altered species interactions
- Endangers whole ecosystems

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