

The potential impact of Helicopters on Blue Mountains Wildlife and other World Heritage Values



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1. Blue Mountains World Heritage listing criteria include the following:

- Criteria (ix): ...Representative examples of the dynamic processes in its eucalypt-dominated ecosystems cover the **full range of interactions between eucalypts, understorey, fauna, environment and fire...**
- Criteria (x): ... The diverse plant communities and habitats support more than 400 vertebrate taxa (of which 40 are threatened), comprising some 52 mammal, 63 reptile, over 30 frog and about **one third (265 species) of Australia's bird species ...**

Ecosystem interaction values are recognised in the above listing criteria. Any major disruption to any element, such as to birds and other animals, will impact on the whole and may ultimately be to the detriment of the sustainability of small to large parts of the World Heritage Property.

2. Researched impacts of helicopters and other aircraft on wildlife

One potential form of disturbance to birds and other animals would be the introduction and sustained use of aircraft in previously relatively unaffected bushland. Research world-wide has produced a common set of impacts by aircraft on wildlife:

- 2.1 **Physical contact with birds and bats in the air**, and animals on runways, usually results in immediate death or severe untreated injuries.
- 2.2 **Noise**: knows no boundaries; protected areas do not guarantee animals or recreationists refuge from its effects; chronic noise exposure may occur even in remote wilderness sites. Noise from aircraft overflights has the potential to affect a wide range of habitats.
- 2.3 **A combination of loud noise and sudden and rapid movement** of aircraft **causes the greatest negative effects on wildlife with helicopters having a greater impact** than fixed wing planes. While birds and other animals can habituate to regular human impact, sudden, noisy intermittent helicopter intrusions would constitute bursts of alarm-filled harassment.
- 2.4 **Helicopters** are particularly associated with **lethal rotor downwash and brownouts**: high velocity wind vortices are generated by helicopter blades when the machine is hovering above a runway or bushland. This generates smothering blankets of airborne dust particles, reduces habitat values and exposes vegetation and wildlife to lethal wind velocities.
- 2.5 **Impacts of noise, sudden rapid movement and rotor downwash include:**
 - **Direct physical damage** such as to hearing or being shredded by rotor downwash
 - **Triggering of the animals 'fight or flight' response** – this is **characterised by a number of physiological changes brought on by the release of stress hormones** into the blood stream. The animal's metabolism, heart rate and respiration rate all increase, blood flow is diverted away from the digestive system and skin to the muscles, brain and heart, while blood temperature and blood sugar levels also increase.
Repeated exposure to noise and the constant triggering of the 'fight or flight' response **can lead to chronic stress. The health of affected animals may be compromised** by suppressing immune function, making them more susceptible to infection and parasites, altering growth, and by slowing recovery from food shortages.

- **Individual mammal responses** range from the mild (including normal signs of noise detection such as ear twitching or increased vigilance), through to a range of increasingly intense reactions. Animals may alter their activity by walking slowly away, freezing, crouching, making an intention to run, engaging in mild aggression, or increasing flocking or herding behaviour. **The most intense responses are associated with more extreme behaviours**, such as panicking, urinating or defecating, and running blindly at high speed. **Birds show a similar range of responses to mammals** from being alert at the mildest level, to showing an intention to fly, pecking at each other, broken-wing displays (to act as a distraction to protect nestlings) and walking, swimming or flying short distances.
- **Changes in the acoustic environment** may impact severely on birds, frogs and other animals that **rely on their hearing** to receive information about their surroundings, or who **use vocalisations** to coordinate a range of activities including feeding, mating and courtship. **Bats** that use echolocation for navigation **are particularly vulnerable to acoustic environment changes**, as are social animals that rely on vocal communication for the cohesiveness of their group. Consider the impact of helicopter noise on **lyrebird calls and mating behaviour** in the Jamison Valley and Grose Valleys, and disruption to the sophisticated community calls of **Superb Fairy-wrens** warning of danger.

2.6 **Behavioural and physiological responses** as outlined above **may result in a decline in individual numbers** through **collisions with aircraft** and the **rapid flushing of alarmed birds from nests (impacting on reproduction rates), feeding areas or cliff edges**. Short-term avoidance of sections of habitat may become long-term **habitat displacements which results in competition for resources including food, roosting branches and nesting hollows elsewhere, and an eventual loss of individuals and even species**.

3. **Observed impact of helicopters on Honeyeater Migration in Autumn 2018**

The GBMWHA was declared an IBA (Important Bird and Biodiversity Area) by BirdLife International in 2017. A triggering criterion for this listing was the autumn migration of the Yellow-faced Honeyeater and their congregation during this event in the higher altitudes (Proberts 2006). Together with other species these birds whose annual numbers may exceed 200,000 sweep up onto the plateau from the southern valleys, feed on heath and woodland plants especially *Banksias* and associated insects, then some continue their flight north across the Grose and beyond while others disperse throughout the Mountains for winter stop-overs.

Participant observation during the 2018 honeyeater count indicated that helicopters involved in the site preparation for the Mt Solitary hazard reduction fire had an immediate negative impact on some migrating flocks. Birds 'disappeared from the sky' and numbers counted dropped.

The physiological and behavioural impacts of such helicopter activity have not been studied specifically in the Blue Mountains but an increase in daily aircraft movements that exposes these birds to sudden and repeated physical intrusions as outlined above will surely be detrimental.

Consequences could include the death of struck birds, dislocation of flight paths, and disruption of feeding patterns and decreased strength of the birds engaged in a lengthy migration. Negative impacts may then be felt throughout the associated ecosystems within the World Heritage Area.

This annual bird migration is a world recognised phenomenon of great significance; it must be considered in the assessment of any commercial air-based proposals in the region.

4. Migrating Birds in the vicinity of the Katoomba Airfield

Katoomba Airfield is surrounded by highly diverse World Heritage bushland. There are stands of *Eucalyptus sieberi* – *E. piperita* Open-forest and *E. oreades* Tall Open-forest, Blue Mountains Swamp (Threatened Ecological Community), Blue Mountains Heath and Scrub and *E. sclerophylla* Bench Woodland. The vegetation community variety promotes habitat diversity and the ability to sustain substantial numbers of birds especially where autumn flowering banksias grow. These plant communities thus provide abundant autumn/winter feeding opportunities for migrating birds as well as for other resident species that also feed on nectar and associated insects.

So are autumn migrating birds found in the vicinity of the airfield? Surveys conducted in April and early May 2019 from within 5 to 100 metres from the boundary fence indicate that **at the current very infrequent usage** of the airfield autumn migrating birds and a considerable diversity of resident birds fly across the airfield or feed in surrounding bushland habitats (BMRM 2019):

- 4.1 **Five of the most abundant avian migrants were present at the airfield** – either flying across it heading north or undertaking stopovers to feed in banksias and eucalypts. **In order of abundance** at the time of the surveys the species seen were: **Yellow-faced Honeyeaters, White-naped Honeyeaters, Red Wattlebirds, Silvereyes and Spotted Pardalotes.**
- 4.2 Further research would be required to determine precise travel routes for the honeyeaters and their travelling companions who fly up the southern escarpments but it is clear that **the airfield is on the flight path for at least some of the birds undertaking this amazing seasonal migration.** Other studies indicate that an increase in aircraft flights from the airfield during autumn, and in the spring when the birds return, **will negatively impact** on this event.
- 4.3 The 2019 surveys and records obtained from the Atlas of Living Australia indicate that at least another 30 bird species are found close to the airfield, many are resident and others over-winter here. Further studies are needed and should at least double this number.
- 4.4 Several of the birds recorded in the 2019 surveys and in the ALA are listed as **Threatened under the NSW Biodiversity Conservation Act (2015) and/or the Commonwealth's Environmental Protection and Biodiversity Conservation Act 1999.** These include the:
 - **Gang-gang Cockatoo** (Vulnerable status in NSW), and
 - **Scarlet Robin** (Vulnerable status in NSW; observed on the main gate of the airfield)

References

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