To whom it may concern,

My name is Rhianna Blackthorn. I am a conservation biologist living in the Northern Rivers of NSW.

My primary areas of study are reptile and bat ecology, both of which I believe are undervalued and are often neglected in conservation biology and legislative protection.

Under climate change, both bats and reptiles are particularly vulnerable to localised extinction events. Biological and ecological limitations such as temperature tolerances in both classes and niche habitat requirements in bats make them particularly at risk. Reptiles in particular are already showing major declines globally with forecasts suggesting one in five species may become extinct by 2080 (Sinervo, 2010). Huey (2003) and Etterson (2001) suggest that lizards may be particularly susceptible to extinction as biological and thermal ecology limits their ability to track climate change. Temperature related mass disasters in bats are being experienced with increasing intensity as summer temperatures set new records annually.

Although this is not well documented in the literature, I have personally observed a marked decrease number of juvenile pythons in the Northern Rivers over the last decade.

Other local herpetologists and conservation biologists have also noted this observation.

I hypothesis that warmer winters are hindering reproduction rates as pythons need to "cool" for winter to produce viable sperm for reproduction. Warmer winters may be impacting on the reproductive biology of this species and potentially, in time to come, pythons may join the endangered species list. Under current EPBC and TSCA, any member of the public may kill a snake if they feel threatened by its presence. Statistically speaking, more people are bitten by snakes when attempting to kill them then any other source. I believe this outdated piece of legislation needs review and potentially removal.

Bats and reptiles may adapt to changed environments through behavioural plasticity, physiological plasticity or evolutionary adaptation or given dispersal opportunities, move to parallel areas of preferred habitats (Sinervo, 2010). Limiting factors to these strategies include the rate of climate change (Huey, 2003 #119;Niewiarowski, 2001), amount of suitable habitat (Sinervo, 2010), dispersal behaviours (Fahrig, 1994), geographical landscape and distance to other patches of suitable habitat (Cale, 1999).

Currently, 10% of Australia's landmass is locked in the national reserve system. Different layers of legislative protection means many of these habitats are both potentially and realistically subjected to logging and mining activities. Given the importance of maintaining dispersal corridors required for conserving bat and reptile biodiversity, it is my concern that such activities will them render potential areas of dispersal inadequate.

Given that 90% of the landmass is open for private and public ownership, I would urge the review committee to considering placing tighter controls on the 10% of land locked for national reserve. I understand the need and urgency to support sustainable development and humbly suggest that 90% of the landmass is sufficient for that end. In an era that is seeing increasing reduction in red and green tape and legislative trade offs, I urge the committee to consider adopting the

precautionary principle employed by science and ensure that potential biodiversity dispersal sites are maintained.

Should you wish to speak further about this submission, please do not hesitate to contact me.

Regards,
Rhianna Blackthorn

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