I am a local resident of Vacy as well as an employee of Port Stephens Koala Hospital with qualifications in animal care and health, though I act independent of PSKH in my objection. I have serious concern over and objection to the proposed Martins Creek Quarry expansion.

Earlier this year, on February 12th 2022, the Federal Government updated the conservation status of koalas in NSW, QLD and the ACT from vulnerable to endangered, under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999. Koalas have declined by 50% on the eastern part of Australia (Witt et al, 2020), the main cause of which is habitat clearing and fragmentation from human based activity. It is also well documented the effect habitat fragmentation and clearing has on other mortality and morbidity risks for koalas. Habitat fragmentation and clearing pushes them into greater proximity to human-developed areas, increasing their risk of car strikes and dog attacks, whilst also placing greater physiological stress on individual koalas (Narayan & Vanderneut, 2019). Greater physiological stress in koalas is associated with an increase likelihood of clinical chlamydia disease (Narayan & Vanderneut, 2019). Additionally, habitat fragmentation have been shown to limit koala movements amongst habitat and key social interactions necessary for breeding (CSIRO). The reduction in size and fragmentation in breeding populations increases the risk of small bottleneck populations of koalas that have low-genetic diversity and therefore, less adaptability to current and future challenges (Reckless et al, 2017).

Koalas in NSW are predicted by scientists to go extinct in 2050 (Witt et al, 2020), with habitat clearing and fragmentation the biggest threat to their survival and contributor to their decline. To save the koala from extinction, wildlife conservation professionals, such as myself, understand it is imperative to understand the number of koalas in NSW, and their population dynamics in different local. However, no scientific survey utilizing the most up-to-date, effective koala survey has been done in the Dungog LGA, despite their being a large number of sightings and rescues by wildlife care groups. Furthermore, the NSW Koala Strategy 2022 highlights the Barrington region, which includes the Dungog LGA and Martins Creek as a priority area to fill key knowledge gaps, such as population numbers and dynamics and support community-based actions to assist these populations. One of the major aims of NSW Koala Strategy 2022 is to secure, restore and create 100 000 ha of koala habitat in NSW by 2050 (DPE, 2022). The clearing of habitat in a know koala area seems to contradict and prevent this target.

The significance of the eucalyptus woodlands surrounding the quarry cannot be assessed fully without understanding and reference to the Dungog LGA population, of which we have no baseline understanding. Furthermore, there have a been at least four koalas found within or within a km of Martins Creek Quarry, predominantly within the last decade (BioNet, 2022). Moreover, the Martins Creek Quarry is ~7000m from the Columbey State Conservation Area as the crow flies, where at least five koalas have been sighted (BioNet, 2022). Furthermore, the Martins Creek Quarry site is connected to more eucalyptus bushland to the east, where nine koala sightings have occurred (BioNet, 2022). The BioNet data indicates that there is a koala presence within this area, and more work is needed to understand its significance in the Dungog LGA population. Further development, such as additional or expanded quarry pits and the proposed access road to Dungog Rd will further fragment these corridors (Daracon, 2021). I am concerned Daracon's proposed clearing and expansion will reduce the corridor currently available to koalas to past from west to east Martins Creek and vice versa.

Furthermore, with the development of a new road and increased traffic from the quarry site, I have significant concern that there will be increase in the number of native animal vehicle strikes presenting to veterinary clinics and rescue organisations (PSKH, Wildlife In Need of Care (WINC) and Hunter Wildlife Rescue (formerly NATF)). Veterinary clinics, wildlife hospitals and wildlife rescue

organisations are under-funded, facing staff shortages and it has been well documented the stress and anxiety workers in these fields are already under, with the industry have 4 times the national rate for suicide (Sundstrom, 2019).

The organization I currently work for, PSKH has been rescuing and rehabilitating koalas in the Dungog LGA for a large period to time. Since 1996, in the Dungog LGA there has been a total of 124 rescues and callouts, with 11 koala rescues taking place close to the Martins Creek Quarry. The reasons for these rescues were two cases of disease, one case of train strike, three cases of motor vehicle strike, two cases of dog attack and two cases of unsuitable environment (where a koala is found close to human settlement and is at serious risk of injury or harm). Additionally, of the 8 callouts and rescues in the Maitland LGA, 50% have been close to or along the roads the proposed route of the Martins Creek Quarry trucks.

I am also greatly concerned at the methods employed Biodiversity Assessment Report for the Martins Creek Quarry Expansion, particularly in light of recent research into koala surveying methods. Koalas are a cryptic species, often present in low density at any one time and human surveys of them are known to have a high false negative detection rate (Cristescu et al, 2020). Furthermore, the SAT (spot assessment technique) method utilised in the Martins Creek Quarry Biodiversity Assessment Report, which has been shown to be biased and frequently produce false negative detection results due to the survey method's design and koala activity level (Jiang, 2019). Ecologists have developed an alternative method, a Balanced Koala Scat Survey method, which removes selection bias and takes into account koala activity level when surveying. It has been shown to be more accurate than SAT (Jiang, 2019). Recent research by environmental scientists and ecologists has advocated the use of drones paired with infra-red cameras and detection dogs, trained to detect koala scats, fur and the presence of chlamydia in scats (Witt et al, 2020; Cristescu et al, 2020). Drones paired with the use of infra-red imaging have been demonstrated to have a higher accuracy and less false negative detection rates than SAT also (Witt et al, 2020). These survey techniques have also been utilised with effectiveness for other native animal species (). In light of the updates to conservation status of native animals, like the koala, and recent research, both of which the Martins Creek Quarry Biodiversity Assessment Report predates, I would recommend a second ecological survey and Biodiversity Assessment Report is conducted.

My last point I wish to make, is on the proposed Biodiversity Offset Strategy for the Martins Creek Quarry. I find it commendable that the sites have been chosen close by to the quarry, I am concerned that the areas are former quarry sites and stock grazing land *"which provide opportunities for rehabilitation works"* are not remote enough from human housing, and rehabilitation on the site will take much longer than the clearing on land on Martins Creek Quarry, leaving the native fauna at a loss of habitat and food for a substantial time(Conacher& Manners, 2016). Furthermore, given the findings of the recent audit into the NSW Biodiversity Offsets Scheme, which found the effectiveness of the scheme limited, is poorly designed and there is not enough credit supply to meet demand, meaning that biodiversity losses are not being offset (Goodwin, 2022).

In conclusion, I am opposed to the expansion of the Martins Creek Quarry due to risk of environmental damage to threatened and endangered species who have been documented to utilise the habitat in and close by to the quarry. Furthermore, there needs to be more

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