Inquiry into Crocodile Control and Conservation Bill 2025

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Submission opposing the 'Crocodile Control and Conservation Bill 2025' introduced by Mr Shane Knuth MP

To whom it may concern,

I am an ecologist writing to express strong opposition to the Crocodile Control and Conservation Bill 2025 introduced by Mr Shane Knuth MP and currently under consideration by the Queensland Parliamentary Committee. The proposed measures, including increased removal, culling, or potential hunting of estuarine crocodiles *(Crocodylus porosus*), lack a solid scientific foundation and pose a significant risk to both the species and the broader ecological balance of our waterways.

Introducing culling or hunting of crocodiles would be a regressive step in conservation. Australia has been a global leader in protecting this iconic species since the banning of hunting in the 1970s, which allowed populations to recover from near extinction. Reversing this progress disregards decades of conservation success and ignores the economic and educational value of crocodiles in ecotourism. Crocodile tourism contributes significantly to the Queensland economy, drawing both domestic and international visitors to the region. Implementing culling or hunting could harm this industry, leading to lost revenue and damaging the reputation of Australia as a leader in wildlife conservation.

Recent genetic studies have shown that estuarine crocodiles in Queensland are not a single, homogenous population but instead consist of at least six genetically distinct populations (Lloyd-Jones et al. 2023). Current management strategies fail to account for this, and the indiscriminate removal of individuals could significantly reduce genetic diversity. This directly contradicts the conservation goals of the bill, as genetic diversity is essential for the species' long-term adaptability and resilience in the face of environmental change.

The imminent arrival of avian flu to Australia (Hoque et al. 2015; Wille et al. 2024), a virus with a high mortality rate to which crocodylians have been shown to be susceptible (Temple et al. 2015), further emphasizes the importance of maintaining a genetically robust population. Additionally, estuarine crocodiles are classified as a vulnerable species under the Nature Conservation Act 1992 (Qld), alongside other iconic species such as the dugong and the glossy black cockatoo. The idea of culling or trophy hunting these latter species would provoke public outcry, highlighting the inconsistency in targeting crocodiles for lethal control.

Rather than focusing on removal, efforts should be directed toward public education. A recent study found that reducing the estuarine crocodile population to critically endangered levels would only decrease attacks in Australia by one per year, whereas public education and engagement are both more effective and more cost-efficient strategies (Baker et al. 2024a). This reinforces the need for science-based management approaches that prioritize coexistence over eradication.

Next, there is an alarming lack of scientific research on the long-term impacts of crocodile removal from the environment. Crocodiles are apex predators, playing a crucial role in maintaining the health of aquatic ecosystems (Campbell et al. 2025; Griffith et al. 2023). They do this by connecting

nutrients from terrestrial to aquatic environments through feeding and excretion. Removal of crocodiles could lead to unforeseen consequences, including to increased populations of prey species, disruption of fish stocks, and alterations in wetland dynamics. A recent scientific publication shows that estuarine crocodiles exhibit significant effects on their ecosystem by increasing nutrients in nutrient poor waterways and exhibiting pressure upon invasive feral species such as pigs (Campbell et al. 2025). The detrimental impacts of feral hooved species on the Australian environment are well known (Hartley et al. 2022; Mihailou, Nimmo & Massaro 2024), highlighting the importance of crocodiles to help control populations of these animals and preserve our natural environment. The absence of robust, peer-reviewed studies to justify such drastic interventions as proposed in this bill, highlights the need for a precautionary approach, rather than one based on public fear or political expediency.

Additionally, our understanding of estuarine crocodile social structures remains incomplete. Research indicates that crocodiles engage in complex multi-modal communication, incorporating vocal and non-vocal acoustic signalling, as well as visual, tactile, and olfactory cues (Grigg & Kirshner 2015a). They also exhibit dynamic social structures and sophisticated behaviours, including maternal care similar to that seen in birds, distinct behavioural syndromes (where some individuals are more or less social and adjust their movement strategies accordingly), and have a greater tolerance of conspecifics than previously assumed (Baker et al. 2024b; Baker et al. 2022; Barham et al. 2023). Notably, dominant territorial males do not simply kill all intruders in their territory, as was once believed. The indiscriminate removal or killing of individuals could disrupt these established hierarchies, potentially increasing conflict between crocodiles and humans rather than reducing risk. Before implementing policies that could destabilize these populations, further scientific study is essential to ensure decisions are based on the best available scientific knowledge. The significant gaps in research on crocodile ecology and behaviour highlight the urgent need for further study, rather than rushed policy changes.

Lastly, crocodiles are a slow-maturing species, often taking over a decade to reach reproductive age. Trophy hunting or targeting large individuals could have a disproportionately harmful effect on the population, as these individuals are often the most successful breeders. Removing them would not only decrease reproductive output but could also disrupt the social structure of crocodile populations, leading to unintended ecological consequences. Sustainable coexistence strategies, such as improved public education, habitat management, and non-lethal deterrents, should be prioritized over lethal control measures.

In summary,

- **Lack of scientific justification:** Proposed culling, hunting, or removal of crocodiles lacks a solid scientific foundation, and risks disrupting ecological balance in Queensland waterways.
- **Conservation reversal:** Australia has been a global leader in crocodile conservation since banning hunting in the 1970s. This bill disregards decades of successful conservation and could harm ecotourism, a significant economic contributor.
- **Risk to genetic diversity:** Estuarine crocodiles in Queensland consist of at least six genetically distinct populations. Indiscriminate removal threatens genetic diversity, crucial for long-term adaptability.
- **Avian flu susceptibility:** Crocodiles are vulnerable to avian flu, a disease with high mortality rates. Maintaining a genetically robust population is essential for species resilience.

- **Inconsistency in wildlife protection**: Crocodiles are classified as vulnerable under the Nature Conservation Act 1992 (Qld) and protected under CITIES. Comparable species are not subjected to lethal control, highlighting policy inconsistencies.
- **Public education is more effective:** Reducing crocodile populations to near-extinction would only reduce attacks by one per year. Public education and engagement offer a more cost-effective and impactful solution.
- **Ecological consequences:** Crocodiles are apex predators that regulate ecosystems by controlling prey populations and nutrient cycles. Removal may cause unintended ecological effects to these systems.
- **Invasive species control:** Crocodiles help control invasive species like feral pigs, which are harmful to Australian ecosystems.
- **Disruption to social structure**: Crocodiles exhibit complex social behaviour, including maternal care, behavioural syndromes, and tolerance of conspecifics. Indiscriminate removal may destabilise territories and increase human-crocodile conflict.
- **Population impacts:** Crocodiles take over a decade to reach reproductive maturity. Removing large individuals disproportionately harms breeding success and disrupts population structure.

Instead of lethal control, efforts should focus on:

- Public education
- Non-lethal deterrents
- Further scientific research

We urge the Queensland Government to reject this bill in its current form and instead invest in scientific research and community-based management strategies (such as public education), that ensure both human safety and the conservation of this vital species.

Thank you for your time and consideration.

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