

Additional statement by **Dan Lunney** for the **Inquiry into koala populations and habitat in New South Wales (for 4.2.2020 in Coffs Harbour)** (My initial statement to the inquiry was on 6.12.2019)

This statement has been prepared for the inquiry to be held in Coffs Harbour. All my research, conservation and planning studies from 30 years of study of the Coffs Harbour koala population has been, or is about to be, published.

These studies followed the conclusions from a state Koala Summit in 1988, which were (i) the recognition of the need to work at a local level since local habitat loss was the primary factor in Koala decline (Reed & Lunney 1990) and (ii) that Coffs Harbour was a key local area in which to undertake a local study involving survey and planning (Lunney & Reed 1990). The study in Coffs Harbour started in 1990 when we sought the support of Council to undertake a cooperative project to identify Koala habitat within the LGA and to produce a management document as a pilot study. Council was supportive, and among their objectives in this joint venture was to 'establish planning guidelines to ensure sympathetic urban development adjacent to habitat preservation areas'. To gain community support from the outset, we prepared a postal Koala survey of all Coffs Harbour residents and conducted follow-up field surveys in selected areas. The survey form carried the logos of both the NPWS and Council and was distributed in October 1990. (From Lunney *et al.* 2002)

In summary, I ('I' includes my co-workers) have:

- conducted two major studies of the distribution and status of koalas in Coffs Harbour;
- prepared a Comprehensive Koala Plan of Management (CKPoM) for Coffs Harbour's koalas and their habitat under SEPP 44;
- completed a study of an economic evaluation of a CKPoM for Coffs Harbour;
- undertook an analysis of community attitudes to koala conservation in Coffs Harbour;
- undertook a detailed history of the koala population from the initial settlement of the area by Europeans;
- wrote a reflective piece on the writing of the CKPoM, and
- recently published an update on the status of the CKPoM and the koalas.

What follows is a summary of the main points from my publications. The reference list is part of this statement, and I have also supplied many of the published studies on this matter. The main points and conclusions from these studies, extracted from our published studies, with the date of publication as the leading number, are:

**1999:** From the summary in the 1999 CKPoM: "This document is a Comprehensive Koala Plan of Management prepared under State Environmental Planning Policy 44 - Koala Habitat Protection covering the whole of Coffs Harbour City local government area (LGA). The Plan's principal aim is to provide a framework for the conservation and management of koala habitat, and the management of threats to koalas, to ensure a permanent free-living population over their present range in Coffs Harbour LGA, and reverse the current trend of koala population decline." (From Lunney *et al.* 1999)

**1999:** Jenny Bonfield, Mayor, Coffs Harbour City Council, in her foreword to the 1999 CKPoM. "This Koala Management Plan will provide a consistent approach to koala management and planning throughout the City of Coffs Harbour. It will remove the necessity of conducting rigorous assessments for koala habitat of all development proposals and



activities. Koala habitat has been defined and mapped in this plan and specific management and planning guidelines established.” (From Lunney *et al.* 1999)

**2000:** Identifying and conserving faunal habitat on private lands has been conducted largely on a site-by-site basis as development proposals arise. We sought to map koala habitat at a scale suitable for use by a local planning authority so that habitat remnants could be protected and managed while remaining in private ownership. At this scale, the level of detail and accuracy needed by local planners required a new approach to mapping koala habitat. Two independent techniques, community and field surveys, were employed. We mailed a survey to every household in Coffs Harbour shire. Respondents told of 3309 koala sightings. We conducted a field survey, a plot-based scat (faecal pellet) search, to determine which vegetation types and tree species were preferred by koalas. We surveyed 119 sites, which contained 42 different vegetation types. Of these, 37 (31%) had been used by koalas. The outcomes of the community and field surveys were combined to produce a distribution map of koala habitat. The most striking outcome has been the use of our results by the local government authority, Coffs Harbour City Council, whose planners incorporated the koala habitat map into their Local Environmental Plan. Our procedure offers a rigorous, repeatable, and publicly accessible method for identifying and mapping important habitat for the purposes of land-use planning, an essential procedure for conserving habitat outside the reserve system. (From Lunney *et al.* 2000).

**2000:** A comparison of the costs and benefits of a shire-wide plan shows that the benefits were more than double those of the costs of piecemeal decision-making, i.e. a decision after a development application has been lodged. Thus, a strategic approach is cost-efficient. The success of this work should provide an impetus for other councils currently considering whether to adopt a shire-wide program for conserving remnant koala habitat on private lands within their jurisdiction. (From Hamilton *et al.* 2000)

**2002:** In 1999, the Plan was publicly exhibited, along with a draft new Local Environmental Plan (LEP) for Coffs Harbour, and was subsequently revised following public comments (of which there were only three submissions which related directly to the Plan compared with over 600 on the draft LEP) and returned to Council. Despite hostility from some councillors and the then Mayor, the draft Plan survived to the local government elections in July 1999, in which a substantially new Council was elected. In November 1999, the Plan was presented to the new Council, which adopted it unopposed. (From Lunney *et al.* 2002)

**2016:** To get a sense of how well the CKPoM was working, we examined a long-term, repeat dataset for the koala population within Coffs Harbour Local Government Area. Analyses of these data have led to the conclusion that, following a perceived population decline in the 1980s, the koala population of Coffs Harbour has endured between 1990 and 2011 and showed no evidence of a precipitous decline during this period. Rather, the population change is best characterised as stable to slowly declining. This conclusion appears to contradict a common view of recent koala population declines on the north coast of New South Wales. There are four possible explanations for the population’s apparent stability: that conservation efforts and planning regulations have been effective; that surviving adults are persisting in existing home ranges in remnant habitat; that the broader Coffs Harbour population is operating as a ‘source and sink’ metapopulation; and/or that the standard survey methods employed are not sufficiently sensitive to detect small population changes. These findings do not mean there is no need for future conservation efforts aimed at koalas in Coffs Harbour;



however, such efforts will need to better understand and account for a koala population that can be considered to be stable to slowly declining. (From Lunney *et al.* 2016)

**2016:** The evidence in our ecological history study allows us to conclude that the Koala population of Coffs Harbour was widespread but never abundant, and that habitat loss has been relentless since European settlement. The transformation of a rural forest to a largely urban landscape, particularly in the south-east of the Local Government Area, over the past four decades is the most recent stage in the incremental loss of habitat since European settlement. Consequently, the Koala population had been reduced from its pre-European size by 2000. Concurrent research on the Coffs Harbour Koala population showed that it declined during the 1980s, but was relatively stable and endured over the period 1990-2011. These findings point to the necessity of employing historical analysis to interpret change in Koala populations in Coffs Harbour to complement current assessments of population status. (From Lunney *et al.* 2016).

**2019:** Among our reflections on our work is that the languages of planning, conservation and ecology need to be calibrated. For example, confusion has occurred because SEPP 44 refers to potential and core koala habitat when a Development Application (DA) is being assessed, but in the CKPoM in 1999 we used the terms primary, secondary and tertiary koala habitat. Adoption by local government of a CKPoM replaces the requirement to assess each individual DA for core habitat, because the CKPoM has mapped and ranked this habitat. In fact, the ease of seeing koala habitat on a map, ranked so that you know what development is possible, or not, within the particular ranking, expedites the DA process for all parties. This was a major selling point for Coffs Harbour council, along with our economic study which demonstrated that the value of having a koala population in the LGA exceeded the cost of implementing such a plan. While habitat ranking is appropriate for a CKPoM – a land-use planning and management instrument – one interpretation, a misguided one in our view, has been that primary habitat equals core habitat, and deems primary habitat in a CKPoM to be the only level of habitat to conserve. Such a view not only disregards the value of rankings for the purpose of planning, but also ignores the multiple ways that koalas need to use the landscape. We note that more recent plans have divided secondary habitat into secondary A and secondary B, but that does not change the principle of ranking. We also note that a recent choice is to use ‘core’ habitat in a CKPoM, although with a different approach to defining ‘core’, but this has yet to be consolidated in the proposed revised SEPP 44. On reflection, ‘core’ has become a problematic word because it implies that anything other than core can be ignored. (From Lunney *et al.* 2019a)

**2019:** Lessons learned and future directions. In 2019, our reflections on our 10-year study (1990-2000) allow us to conclude that identifying koala habitat on private land is possible, that plans to conserve it are acceptable, that the economic aspect is an important factor in the negotiations, and that local government has a role to play in this process. Since 2002 we have expanded our research horizon, crossing other disciplinary boundaries to encompass ecological history, using more sophisticated approaches to citizen science, stretching our geographical horizon to the north-west of NSW, incorporating the pervasive impact of climate change, and teasing out the contribution of koala care and rehabilitation and the value of detailed population studies such as by radio-tracking. We also conclude that local studies, especially repeated studies, e.g. at the LGA or Local Land Services (LLS) scale, are crucial, along with broad scale, periodic, state-wide surveys to keep track of the considerable individual differences across the geographic range of the koala. (From Lunney *et al.* 2019a)



**References** (to the publications above, plus related papers not cited above). References supplied are shown with an asterisk.

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#### **Books**

1. Lunney, D., Urquhart, C-A, and Reed, P. (eds) 1990. *Koala Summit. Managing Koalas in New South Wales*. National Parks and Wildlife Service, Hurstville, NSW.
2. \*Lunney, D., Moon, C., Matthews, A. and Turbill, J. 1999. *Coffs Harbour City Koala Plan of Management*. Parts A & B. NSW National Parks and Wildlife Service, Hurstville.

#### **Book chapters;**

1. Lunney, D. and Reed, P. 1990. Epilogue: reflections on the Summit. Pp 243-46 in *Koala Summit. Managing Koalas in New South Wales*, edited by D. Lunney, C.A. Urquhart and P. Reed. (NSW) National Parks and Wildlife Service, Hurstville, NSW.

2. **Reed, P. and Lunney D. 1990.** Habitat loss: the key problem for the long-term survival of koalas in NSW. Pp 9-31 in *Koala Summit. Managing koalas in NSW*, edited by D. Lunney, C.A. Urquhart and P. Reed, National Parks and Wildlife Service (NSW), Hurstville, NSW.
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#### Other publications

1. **\*Daniel Lunney, Alison Matthews, Chris Moon and John Turbill. 2019a.** Koala conservation and the role of private land – UPDATE of EMR feature.  
<https://site.emrprojectsummaries.org/2019/10/24/koala-conservation-and-the-role-of-private-land-update-of-emr-feature/> (Ecological Restoration and Management)
2. **Daniel Lunney, Lisa O'Neill, Alison Matthews, Dionne Coburn and Chris Moon. 2019b.** Beyond the 1990s, beyond Iluka – koalas and citizen science – UPDATE of EMR summary.  
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