## **Appendix 7: Crocodiles in the Lakefield-Rinyirru waterholes**

- 1. The Lakefield-Rinyirru National Park encompasses an important area of tidal- and nontidal wetlands in the central/eastern part of CYP. It is more comparable in physiography to parts of the Gulf Plains than it is to other parts of the eastern Cape.
- 2. No surveys of the numerous billabongs and lagoons in the Lakefield-Rinyirru National Park were completed during the 2016-19 surveys. Some were planned for the 2020 program which was suspended. However, Mark Read's survey teams completed a series of spotlight surveys between 1997 and 2003 that confirmed the waterholes had a considerable number of estuarine crocodiles, some at very densities, and that they continued to cohabit the area with a substantial population of freshwater crocodiles.
- 3. Considerable numbers of animals were identifed only as 'eyes-only' sightings. The EO were allocated to *C. porosus* and *C. johnstoni* in proportion to their respective ratios in those that were identified positively as one species or the other. While this allocation method is problematical, it is the only practical adjustment possible.
- 4. The estimated densities of non-hatchling estuarine crocodiles in the various waterholes varied from 0 to over 15/km and averaged 3.3/km over the 110km of waterholes surveyed (Table 1). The size class distribution for all sized *C. porosus* across all waterways and years of survey was as shown below:

	Size class (ft) and Count												
1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	15-16
67	43	36	23	17	8	16	11	7	7	5	1	3	1

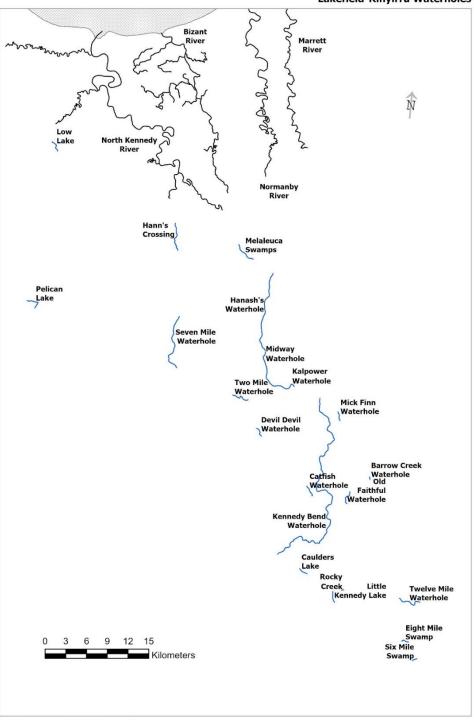
- 5. The National Park clearly supports a healthy population that is nesting successfully in these mostly upstream waterholes. The counts of NH over 2-3ft, categorised into Small, Medium, Large and Very Large crocodiles, amount to 84, 34, 16 and 1 giving proportions of 62% S, 25% M, 12% L and 0.7% VL. If we compare those proportions with those in Figure 1 for the Queensland population as a whole, they are comparable to the proportions seen elsewhere in the 1984-89 and 1999-2004 survey eras, suggesting this somewhat different habitat did not follow a markedly different trajectory from counterpart areas elsewhere.
- 6. It also indicates that the National Park is serving an important role as a source of recruitment on eastern coast of CYP, which is not well-blessed with high quality crocodile habitat.

Table 1. Counts and non-hatchling density of identified C.porosus and EO allocated to
C.porosus from surveys of waterholes in Lakefield National Park.

Waterway	Identified NH <i>C.porosus</i>	Identified NH + EO allocated to <i>C. porosus</i>	Total Transect km	NH density per km <i>C. porosus</i>
Barrow Creek Waterhole				
2003	0	0	0.34	0.00
Catfish Waterhole				
1997	4	8	1.71	4.56
1999	16	27	1.71	15.76
2003	12	22	1.69	13.28
Devil Devil Waterhole				
1997	4	6	1.50	3.73
Kalpower Waterhole				
1988	2	2	6.10	0.39
1997	8	14	6.00	2.25
1999	4	10	6.10	1.61
2003	8	13	6.10	2.11
Kennedy Bend Waterhole				
1999	7	14	3.20	4.25
2000	5	6	2.30	2.81
2003	3	7	1.50	4.57
Little Kennedy Lake				
1999	3	4	1.50	2.67
Melaleuca Swamps				
1997	3	10	2.00	4.93
1999	2	4	3.00	1.21
Mick Finn Waterhole				
1999	1	2	1.30	1.32
Midway Waterhole				
1997	4	7	2.81	2.33
1999	3	5	2.70	1.75
2003 (2 surveys combined)	5	8	3.40	2.34
Old Faithful Waterhole				
1997	4	6	1.60	3.97
1999 (2 surveys combined)	3	11	2.80	3.75
2000	0	0	1.70	0.00
Pelican Lake				
1999	4	5	1.90	2.81
Seven Mile Waterhole				
1997	16	42	8.60	4.85
1999	15	23	7.80	2.94
2000	10	25	8.90	2.85
2003	7	20	8.80	2.23
Six Mile Swamp		0	0.40	0.00
1999	0	0	0.40	0.00
Twelve Mile Waterhole		9	6.40	1.60
1997	2	6	1.60	3.54
1999	1	3	2.40	1.25
2000	0	0	2.40	0.00

Two Mile Waterhole		22	5.70	3.78
1999	9	12	2.90	3.99
2000	2	10	2.80	3.57
Total	167	329	109.56	3.25

Figure 1.



Lakefield-Rinyirru Waterholes

Spatial Reference: GDA 1994 Australia Albers