

O'Connell, C. and Keppel, G. 2016. Deep tree hollows: important refuges from extreme temperatures. – Wildlife Biology doi: 10.2891/wlb.00210

Appendix 1

Table A1. Maximum and minimum temperatures for Renmark weather station (BOM 2014) and microsensors placed on five trees at Brookfield from 5 to 16 October 2013. The relationships is presented in tabular form and as graphs.

	Renmark	66	82A	82B	87
Maximum temperature					
5	32.4	31.1	32.1	31.1	31.6
6	25.0	25.1	22.6	23.1	24.6
7	24.8	25.6	24.6	24.6	26.1
8	26.9	30.6	32.1	28.6	28.6
9	36.2	35.6	35.1	35.1	35.6
10	22.9	21.6	19.1	19.6	20.1
11	23.6	25.6	24.1	24.6	24.1
12	30.6	30.6	30.6	30.1	30.1
13	20.7	20.6	18.1	18.1	19.1
14	20.0	21.1	18.6	19.1	20.1
15	25.9	28.1	27.1	27.1	26.6
16	32.7	31.1	32.6	31.6	32.6
17	21.0	22.6	19.6	20.1	19.6
18	27.3	30.6	29.6	33.1	28.6

19	32.6	33.6	32.6	36.6	32.6
20	39.7	39.1	39.6	40.1	40.1
21	31.5	28.6	33.6	31.1	30.1
22	26.5	23.6	28.6	24.6	25.1
23	21.8	21.6	21.1	20.1	21.1
24	20.3	24.6	22.3	20.1	25.6
25	22.3	27.6	25.1	24.6	26.1
26	24.5	29.1	27.6	27.6	26.1
27	25.8	23.1	28.1	26.6	25.1
28	25.3	23.6	23.6	23.6	24.6
29	23.6	25.6	22.6	21.6	21.6
30	24.7	29.6	26.1	25.1	25.1
31	26.1	31.1	31.6	31.6	27.1
Minimum temperature					
5	10.1	13.6	12.1	12.6	13.6
6	9.6	13.6	13.1	13.1	13.6
7	4.5	6.1	4.1	4.1	5.1
8	6.0	6.6	4.6	5.1	5.1
9	13.7	12.6	12.1	11.6	12.6
10	16.1	16.6	15.1	15.1	15.6
11	4.6	6.1	4.1	3.6	4.6
12	3.7	7.6	4.6	4.6	4.6
13	9.5	13.1	13.1	13.1	13.6
14	5.6	5.6	3.1	3.6	4.1
15	0.1	3.6	0.5	0.6	0.5

16	13.3	12.6	13.1	13.1	13.1
17	12.5	10.6	10.6	11.1	11.1
18	0.3	4.6	0.6	1.0	1.0
19	4.7	11.1	9.6	9.1	10.6
20	11	18.1	18.1	17.6	17.6
21	18.4	17.6	17.1	16.6	17.1
22	19.5	17.1	16.1	16.1	16.6
23	10.9	11.6	11.1	11.1	11.6
24	7.8	8.1	5.1	6.1	6.6
25	1.3	5.6	1.6	1.6	2.1
26	2.8	7.1	2.6	3.1	3.1
27	12.9	13.6	12.1	12.1	12.1
28	15	14.1	13.6	13.6	14.6
29	11.7	11.6	10.6	11.1	11.1
30	7.1	12.7	9.6	10.1	10.1
31	5.7	8.1	3.1	4.1	3.6

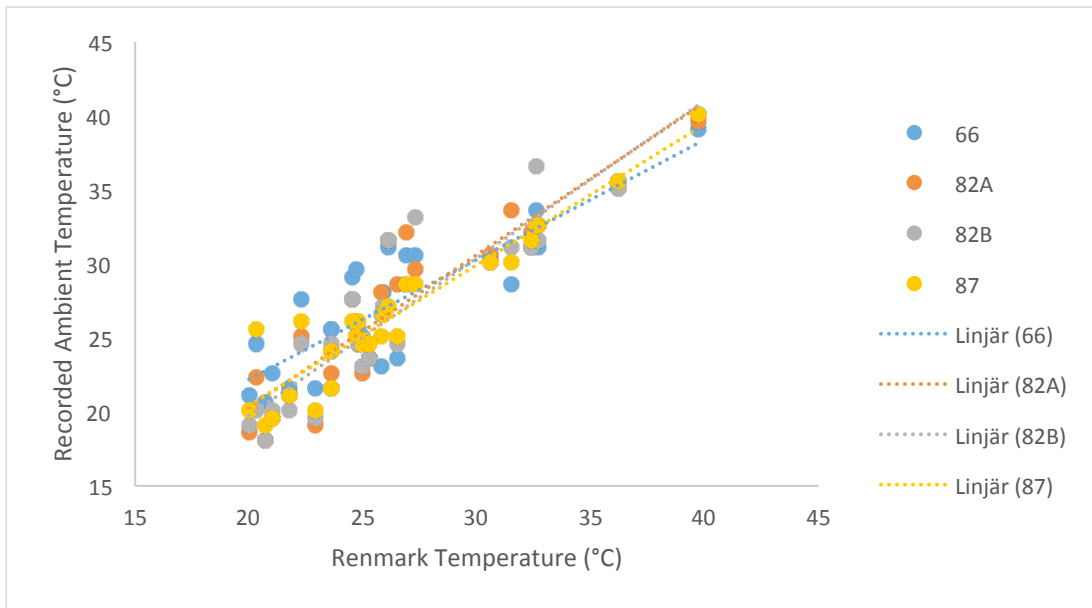


Figure A1. Maximum temperature recorded externally (ambient temperature) for the four hollows studied and at the Renmark climate station (Pearson's correlations coefficients: tree 66: $r^2 = 0.86$, $p = 6.4 \times 10^{-9}$; tree 82A: $r^2 = 0.92$, $p = 1.9 \times 10^{-11}$; tree 82B: $r^2 = 0.92$, $p = 1.7 \times 10^{-11}$; tree 87: $r^2 = 0.94$, $p = 2.4 \times 10^{-13}$).

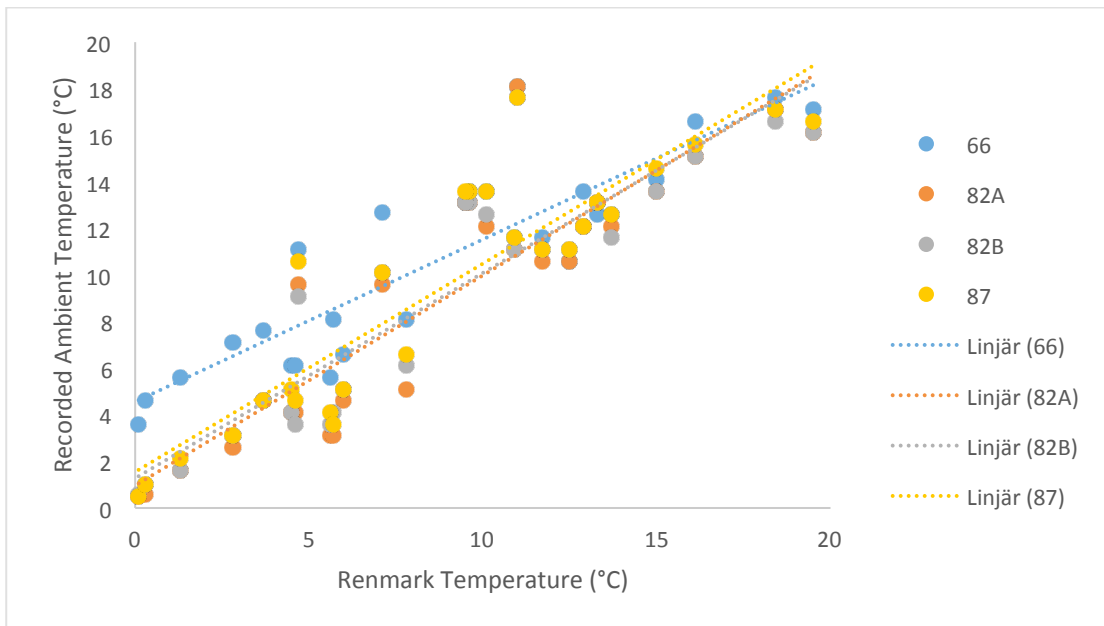


Figure A2. Minimum temperature recorded externally (ambient temperature) for the four hollows studied and at the Renmark climate station (Pearson's correlations coefficients: tree 66: $r^2 = 0.88$, $p = 1.8 \times 10^{-9}$; tree 82A: $r^2 = 0.89$, $p = 3.0 \times 10^{-10}$; tree 82B: $r^2 = 0.90$, $p = 1.1 \times 10^{-10}$; tree 87: $r^2 = 0.90$, $p = 1.8 \times 10^{-10}$).

Appendix 2

Table A2. Mean temperature external to and within four tree hollows at different depths (10 cm, 20 cm, 30 cm and 40 cm) during the day (sunrise to sunset) and night (sunrise to sunset).

Tree	External	Temperature (°C)			
		10 cm	20 cm	30 cm	40 cm
Day					
66	20.8 (±6.4)	19.4 (±1.9)	19.6 (±1.7)	18.2 (±2.7)	18.2 (±2.9)
82A	20.9 (±6.8)	17.7 (±2.7)	17.5 (±2.7)	17.3 (±3.0)	17.0 (±3.2)
82B	21.0 (±6.7)	18.1 (±2.6)	17.7 (±3.0)	17.5 (±3.4)	17.2 (±3.8)
87	22.1 (±6.4)	20.1 (±1.7)	20.0 (±2.1)	19.4 (±2.4)	19.7 (±2.5)
Night					
66	14.6 (±4.6)	15.3 (±1.5)	15.0 (±1.6)	15.9 (±1.7)	16.5 (±1.9)
82A	13.1 (±5.6)	16.2 (±1.4)	15.9 (±1.7)	16.0 (±1.8)	16.0 (±2.0)
82B	13.2 (±5.6)	16.0 (±1.6)	15.9 (±1.6)	16.0 (±2.0)	15.9 (±2.2)
87	13.7 (±5.2)	14.7 (±0.5)	15.6 (±0.7)	15.5 (±0.8)	15.5 (±0.8)

Appendix 3

Mean buffering within four tree hollows at different depths (10 cm, 20 cm, 30 cm and 40 cm) during the day (sunrise to sunset) and night (sunrise to sunset).

Tree	Buffering (°C)			
	10 cm	20 cm	30 cm	40 cm
<u>Day</u>				
66	1.7 (±1.9)	1.4 (±1.7)	2.9 (±2.7)	3.0 (±2.9)
82A	3.7 (±2.7)	3.9 (±2.7)	4.1 (±3.0)	4.4 (±3.2)
82B	3.4 (±2.6)	3.7 (±3.0)	4.0 (±3.4)	4.3 (±3.8)
87	2.4 (±1.7)	2.7 (±2.1)	3.3 (±2.4)	3.1 (±2.5)
<u>Night</u>				
66	-0.8 (±1.5)	-0.4 (±1.6)	-1.4 (±1.7)	-2.0 (±1.9)
82A	-3.3 (±1.4)	-2.9 (±1.7)	-3.1 (±1.8)	-3.1 (±2.0)
82B	-3.0 (±1.6)	-2.9 (±1.6)	-2.9 (±2.0)	-2.8 (±2.2)
87	-1.0 (±0.5)	-2.0 (±0.7)	-1.9 (±0.8)	-1.9 (±0.8)