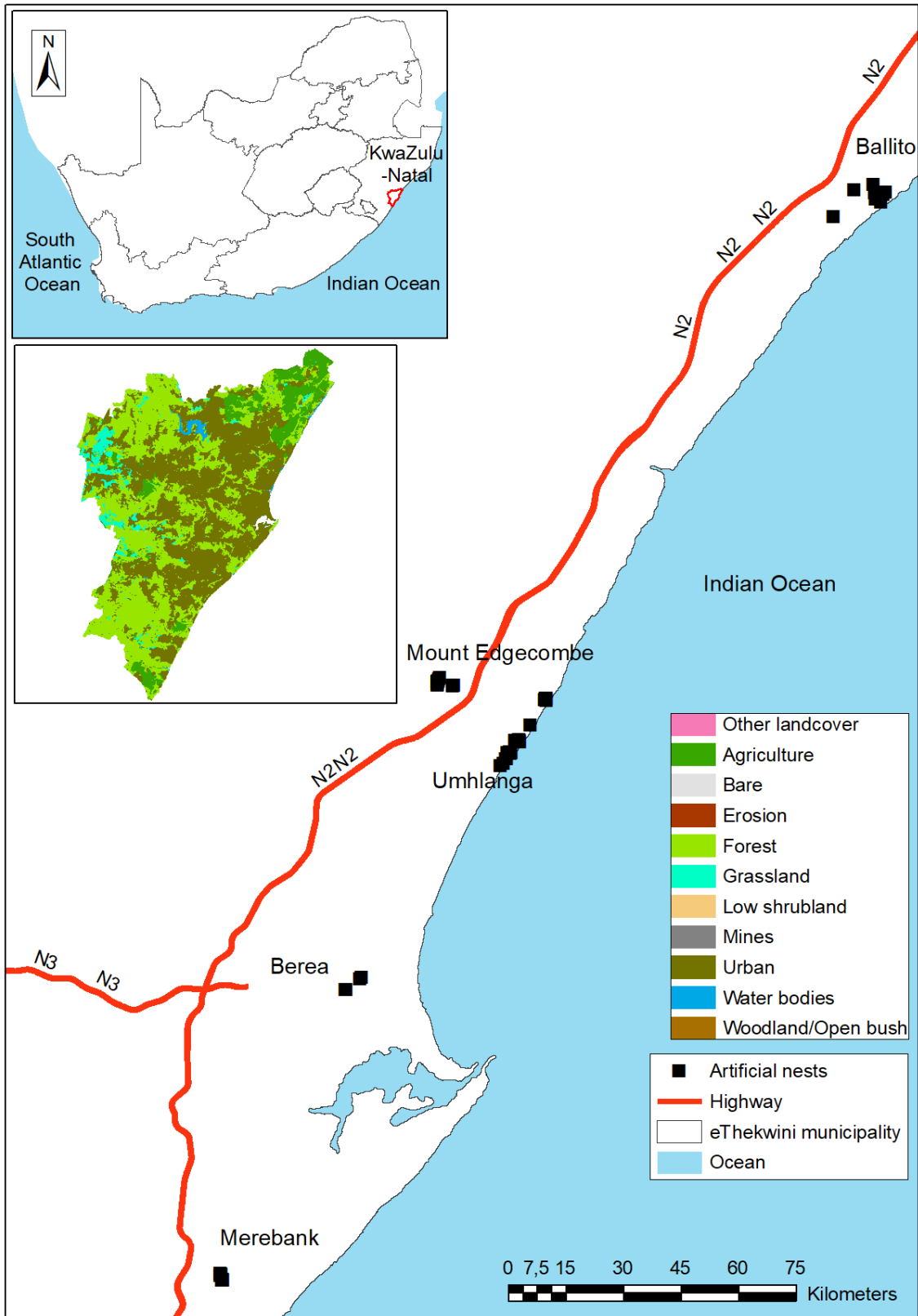


## **SUPPLEMENTARY MATERIALS**

### **Breeding status of invasive Rose-ringed Parakeets *Psittacula krameri* in Durban, South Africa**

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**Supplementary Figure S1:** A map showing sites where artificial nest boxes were placed in eThekweni Municipality, KwaZulu-Natal Province, South Africa



**Supplementary Figure S2:** An example of a) nest boxes type been painted in the University of KwaZulu-Natal, Pietermaritzburg campus, and b) one of the nest boxes placed in White *Syringa Syringa vulgaris* that Rose-ringed Parakeets bred in Durban North, KwaZulu-Natal province. ©Photographs: TC Shivambu

**Supplementary Material Table S1:** Summary of climatic data in eThekweni Municipality during Rose-ringed Parakeets 1st (August 2018 to November 2018) and 2nd breeding seasons (August 2019 to November 2019). Climatic data obtained from <https://www.worldweatheronline.com/durban-weather-averages/kwazulu-natal/za.aspx#August>

Variables	August		September		October		November	
	2018	2019	2018	2019	2018	2019	2018	2019
<b>Temperature</b> (°C)	18	19	20	20	21	22	21	22
<b>Humidity</b> (%)	65	69	71	70	69	79	76	82
<b>Precipitation</b> (mm)	54.5	50.3	82.2	65	123.6	63.7	90.2	268

**Supplementary Material Table S2:** Information on areas where artificial nest boxes were placed in eThekweni Municipality for Rose-ringed Parakeets and native bird species during breeding seasons. Other animals are those organisms that were using artificial nest boxes, and a number 0 indicate unoccupied nest boxes. The common and scientific names of “other animals” are East African Lowland Honey Bees *Apis mellifera scutellata* and Common Myna *Acridotheres tristis*

Locations	Coordinates		Amenities	No. of parakeets nesting				Other animals
	Latitude	Longitude		Spring	Summer	Autumn	Winter	
Leo Boyd Highway, Ballito	-29.545289	31.196889	Forest patch	0	0	0	0	Bees
Compensation Beach Road, Ballito	-29.549850	31.206769	Forest patch	0	0	0	0	Bees
Driftwood Drive, Ballito	-29.548919	31.204761	Forest patch	0	0	0	0	Bees
Ballito 1	-29.546481	31.204619	Forest patch	0	0	0	0	Bees
Ballito 2	-29.543550	31.204069	Forest patch	0	0	0	0	Bees
Compensation Beach Road, Ballito	-29.547069	31.207611	Residence	0	0	0	0	Bees
Ashley Road 54/53, Ballito	-29.546181	31.208581	Forest patch	0	0	0	0	Bees
Yellowwood Drive, Ballito	-29.555425	31.189167	Residence	0	0	0	0	Bees
Homeford Drive 13/18, Durban	-29.749261	31.073431	Residence	0	0	0	0	Bees
Ganges Secondary School	-29.948020	30.963540	School	0	0	0	0	0
Ganges Secondary School	-29.948150	30.964030	School	0	0	0	0	Bees
Ganges Secondary School	-29.947980	30.963940	School	0	0	0	0	Bees
Ganges Secondary School	-29.947830	30.964020	School	0	0	0	0	Bees
Allipore Primary	-29.946183	30.963251	School	0	0	0	0	0
Allipore Primary	-29.946235	30.963195	School	0	0	0	0	0
Allipore Primary	-29.945881	30.963371	School	0	0	0	0	Bees
Allipore Primary	-29.945490	30.963134	School	0	0	0	0	0
Sneezewood Lane	-29.751100	31.031800	Shopping centre	0	0	0	0	Bees
Forest Drive 26/55, Durban	-29.753200	31.068980	Residence	0	0	0	0	Bees
Lady Ellen Crescent 36/21, Durban	-29.753283	31.070392	Park	0	0	0	0	0
Lady Ellen Crescent 34/19, Durban	-29.753460	31.070030	Park	0	0	0	0	0
Lady Ellen Crescent 36/21, Durban	-29.753310	31.070440	Park	0	0	0	0	0
Lady Ellen Crescent 16/9, Durban	-29.755440	31.068660	Residence	0	0	0	0	Common Myna

Locations	Coordinates		Amenities	No. of parakeets nesting				Other animals
	Latitude	Longitude		Spring	Summer	Autumn	Winter	
Lady Ellen Crescent 16/9, Durban	-29.755500	31.068550	Residence	0	0	0	0	Bees
Lady Ellen Crescent 16/9, Durban	-29.755390	31.068410	Residence	0	0	0	0	Bees
Umhlanga Rocks, 4320	-29.753187	31.069196	Park	0	0	0	0	Bees
Umhlanga Rocks, 4320	-29.752826	31.069687	Park	0	0	0	0	0
Umhlanga Rocks, 4320	29.752529	31.069800	Park	0	0	0	0	Bees
Forest Drive 27, Durban	-29.757340	31.067500	Residence	0	0	0	0	Bees
Forest Drive 17, Durban	-29.758170	31.066480	Residence	0	0	0	0	Bees
Homeford Drive 13/18, Durban	-29.749230	31.073410	Forest patch	0	0	0	0	0
Homeford Drive 13/18, Durban	-29.749300	31.073470	Residence	0	0	0	0	Common Myna
Seafern Road, Durban	-29.749080	31.073350	Forest patch	0	0	0	0	Bees
Seafern Road, Durban	-29.748650	31.073400	Guest house	0	0	0	0	Bees
Forest Drive 54/87, Durban	-29.749320	31.072290	Residence	0	0	0	0	Bees
Eastmoor Crescent 16/9, Durban	-29.742970	31.077510	Park	0	0	0	0	Common Myna
Durban view park	-29.734050	31.083310	Park	0	0	0	0	Bees
Durban view park	-29.733710	31.082970	Park	0	0	0	0	0
Marine Drive 41, Durban	-29.733680	31.082750	Park	0	0	0	0	Bees
Marine Drive 37/36, Durban	-29.733400	31.083150	Park	0	0	0	0	Bees
Marine Drive 35, Durban	-29.733040	31.083140	Residence	0	0	0	0	Bees
Marine Drive 37/36, Durban	-29.733400	31.083150	Park	0	0	0	0	Common Myna
Umhlanga Rocks, Umhlanga, 4320	-29.733190	31.083330	Park	0	0	0	0	Bees
Hawthorne Drive 13/24, Durban	-29.726630	31.043510	Residence	0	0	0	0	0
Hawthorne Drive 13/24, Durban	-29.726840	31.043290	Residence	0	0	0	0	Bees
Hawthorne Drive 9/20, Durban	-29.726020	31.043830	Residence	0	0	0	0	Common Myna
Hawthorne Drive 15/26, Durban	-29.727290	31.043280	Residence	0	0	0	0	Bees
Hawthorne Drive 17/28, Durban	-29.727630	31.043180	Residence	0	0	0	0	0
Hawthorne Drive 19/30, Durban	-29.727940	31.043230	Residence	0	0	0	0	0
Carolina Vista 35/46, Durban	-29.728360	31.049050	Residence	0	0	0	0	Bees
Carolina Vista 35/46, Durban	-29.728390	31.048970	Residence	0	0	0	0	0
Carolina Vista 35/46, Durban	-29.728330	31.049070	Residence	0	0	0	0	Bees
Umhlanga Rocks, 4250	-29.748504	31.073115	Residence	0	0	0	0	Bees
Umhlanga Rocks, 4320	-29.748999	31.072187	Residence	0	0	0	0	Bees
Umhlanga Rocks 4320	-29.748813	31.071908	Residence	0	0	0	0	Bees

Locations	Coordinates		Amenities	No. of parakeets nesting				Other animals
	Latitude	Longitude		Spring	Summer	Autumn	Winter	
Essenwood, Berea, 4001	-29.840801	31.009278	Shopping centre	0	0	0	0	0
Essenwood, Berea, 4001	-29.840593	31.009433	Shopping centre	0	0	0	0	0
Essenwood, Berea, 4001	-29.836788	31.014647	Shopping centre	0	0	0	0	0
Morningside, Durban, 4001	-29.836181	31.015107	Shopping centre	0	0	0	0	0
Mount Edgecombe Estate 2	-29.728415	31.049038	Restaurant	0	0	0	0	Bees
Mount Edgecombe Estate 2	-29.728498	31.048920	Restaurant	0	0	0	0	Bees
Mount Edgecombe Estate 2	-29.728229	31.043127	Golf course	0	0	0	0	Bees
Mount Edgecombe Estate 2	-29.727244	31.043233	Golf course	0	0	0	0	Bees
Mount Edgecombe Estate 2	-29.726994	31.043395	Golf course	0	0	0	0	Bees
Mount Edgecombe Estate 2	-29.726972	31.043250	Golf course	0	0	0	0	Bees
Mount Edgecombe Estate 2	-29.725582	31.043938	Golf course	0	0	0	0	Bees

**Supplementary Material Table S3:** Summary table showing Rose-ringed Parakeet breeding sites, tree species used for nesting, localities and types of amenities around the study areas

Sites	Tree species	Common name	Place name	Amenities	Latitude	Longitude
1	<i>Albizia adianthifolia</i>	Flat-crown	Mt Edgecombe	Residence	-29.728643	31.047961
2	<i>Albizia adianthifolia</i>	Flat-crown	Mt Edgecombe	Residence	-29.728205	31.049168
3	<i>Albizia adianthifolia</i>	Flat-crown	Mt Edgecombe	Residence	-29.727539	31.047417
4	<i>Eucalyptus camaldulensis</i>	River Red Gum	Sherwood	School	-29.826395	30.981317
5	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Park	-29.752480	31.070125
6	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Forest patch	-29.752529	31.069760
7	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Park	-29.753093	31.070313
8	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Forest patch	-29.752583	31.070750
9	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Hotel	-29.753433	31.070085
10	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Hotel	-29.753515	31.069962
11	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.755387	31.068382
12	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.753786	31.070178
13	<i>Eucalyptus camaldulensis</i>	River Red Gum	Windsor Golf Course	Golf course	-29.817151	31.031077
14	<i>Sideroxylon inerme</i>	White Milkwood	Sherwood	School	-29.824971	30.981173
15	<i>Ficus natalensis</i>	Natal Fig	Mt Edgecombe	Residence	-29.727566	31.047390
16	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.755472	31.068507
17	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.757165	31.067555
18	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.759305	31.066378
19	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.751427	31.071243
20	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.749289	31.072238
21	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.748679	31.072742
22	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Forest patch	-29.749114	31.072160
23	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.748697	31.073228
24	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.749363	31.073389



<b>Sites</b>	<b>Tree species</b>	<b>Common name</b>	<b>Place name</b>	<b>Amenities</b>	<b>Latitude</b>	<b>Longitude</b>
25	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.749177	31.073086
26	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.751417	31.071740
27	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Forest patch	-29.748012	31.074074
28	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Forest patch	-29.747928	31.074098
29	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Forest patch	-29.747814	31.074656
30	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.747632	31.074508
31	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.746944	31.074747
32	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Residence	-29.745454	31.076178
33	<i>Albizia adianthifolia</i>	Flat-crown	Umhlanga Rocks	Park	-29.742240	31.074799
34	<i>Albizia adianthifolia</i>	Flat-crown	Umhlanga Rocks	Park	-29.741625	31.075126
35	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Park	-29.733201	31.083331
36	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Park	-29.733201	31.083332
37	<i>Sideroxylon inerme</i>	White Milkwood	Umhlanga Rocks	Park	-29.734023	31.083430
38	<i>Eucalyptus camaldulensis</i>	River Red Gum	Merebank	Cemetery	-29.951958	30.963511
39	<i>Eucalyptus camaldulensis</i>	River Red Gum	Merebank	Cemetery	-29.951600	30.962529