## **Supplementary Material**

## The threatened Gouldian finch preferentially forages in prescribed burnt savannas

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**SM Figure S1.** Location of the study site and positions of the receiver towers (black triangles) across the (a) time-since-last-fires (months), (b) overall fire frequency (years), (c) frequency of early dry season fires, and (d) frequency of late dry season fires in Wyndham, Western Australia.



**SM Figure S2.** Predicted distance (m) for the given signal strength of a detection across twelve automated receiver towers.



**SM Figure S3.** Mean (and SE) predicted error (m) of position estimates from known drone locations. These positions were estimated by comparing the known position of a drone with the predicted location from the NLS trilateration model. The error from the known distance to the predicted location was optimised by modifying (a) the number of model iterations, (b) minimum number of sequential tower detections; and (c) various time steps to estimate position over.



SM Figure S4. Non-metric Multi-Dimensional Scaling (MDS) graphs for the a) overall fire frequency; b) prescribed burning fire frequency; c) wildfire frequency; and d) timesince-last-fire, comparing the selection of habitat by birds (red), with what is available in the habitat (blue).

Тад	Month	Number of detections	Number of towers with detections	Number of detection days	50% KUD area (m²)
123	May	33290	6	20	246379
	June	32016	5	22	400714
142	July	15311	6	30	141702
143	May	38986	5	15	505191
	June	102377	6	30	344075
	July	99389	6	30	401470
146	May	42928	5	21	393214
	June	82279	6	30	461518
	July	64692	6	31	311844
	August	51736	5	30	493211
147	May	43266	4	21	169216
	June	90176	6	30	418754
	July	98976	6	31	350600
	August	93270	6	31	298483
	September	58841	6	14	318403
148	June	17500	6	30	142092
	July	27452	6	31	521065
	August	53229	5	31	395872
151	May	36904	5	23	150663
	June	14890	5	8	60077
156	September	33112	5	30	397140
160	July	56394	6	20	533687
	August	30282	6	16	170695
161	July	9544	6	7	471687
167	July	25182	6	13	348455
	August	29355	5	25	172984
	October	9643	5	10	38104
168	July	18696	6	14	660688
169	July	60876	6	13	336533
	August	102152	6	31	152031
	September	52715	5	30	139678
172	July	50110	6	20	317465
	August	88252	6	28	303372
	September	64338	6	25	308137
186	September	16890	5	15	197669
194	July	29671	6	13	383992
	August	22325	6	27	368630
195	July	18179	6	13	371651
	August	41114	5	30	147452
	September	41218	6	29	144466

## SM Table S1. Detection information for 32 radio tagged Gouldian Finches (Chloebia gouldiae).

Tag	Month	Number of detections	Number of towers with detections	Number of detection days	50% KUD area (m <sup>2</sup> )
	October	9213	6	10	243442
200	July	30129	6	13	600932
	October	62991	5	31	190109
	November	23745	4	22	69662
203	July	17535	6	13	340610
	August	40814	5	31	273663
	September	21575	6	17	267455
	October	45119	5	31	208157
204	July	33698	6	13	296290
	August	67138	6	31	195777
	September	37315	6	30	360531
206	July	16301	6	12	856268
207	July	44079	6	13	435376
208	July	19276	6	13	403323
	August	58608	5	31	168385
216	July	35218	6	13	527842
	August	20335	6	11	302874
227	December	3938	4	11	245643
228	October	10437	5	17	244187
242	October	23366	5	20	62800
261	October	39274	6	20	278925
	November	44146	5	30	152653
	December	5369	5	29	101416
262	October	22015	5	20	241355
	November	34842	6	30	247361
	December	2147	4	22	48976
267	October	37583	6	17	245752
	November	48746	6	20	403412
268	October	29105	6	20	130466
	November	33865	6	27	285205
275	October	4552	5	14	57789

Note: KUD: kernel method to estimate utilisation densities.



SM Figure S5. Predicted core areas for birds across months.

SM Table S2. Linear mixed model results showing the differences in the size of core areas between months.

	Estimate	Standard Error	t-value
(Intercept)	261066.6	52477.98	4.974783
June	10260.46	67979.73	0.150934
July	127059.8	57980.24	2.191434
August	-18221.2	61051.86	-0.29846
September	-13291.8	66354.55	-0.20032
October	-99194.2	63292.88	-1.56722
November	-58613.2	74265.12	-0.78924



SM Fig. S6. Heatmap of Gouldian Finch core use areas for each month with darker colours indicating more individuals using that area.