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Wildlife Research

Supplementary Material

Factors influencing the adaptability and habitat use of rescued Malayan sun bears (*Helarctos malayanus*) released in Peninsular Malaysia

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List of Supplementary materials:

Table S1. Details of the 13 sun bears that were released into five different areas and their monitoring status.

Bears with star (*) were fitted with satellite collar. Day monitored refers to total monitoring days that ended at the last retrieved point. (TFR= Tembat Forest Reserve, TNP= Terengganu National Park, UJFR= Ulu Jelai Forest Reserve).

Bear ID	Release date	Release area	Day monitored	Collar - end status	Total sighted	Nuisance report	Adaptability
Kerian	21-Dec-15	Sg. Deka	92	Dropped with strap breaks	3	NA	Adaptable
Gubir	21-Dec-15	Sg. Deka	44	Dropped with strap breaks	1	NA	Adaptable
Kuantan	18-Mei-2016	Sg. Deka	34	Dropped with strap breaks	0	NA	Adaptable
BM	6-Sep-16	TFR	21	Drop (still intact)	1	NA	Mild adaptable
Gambang	6-Sep-16	TFR	14	Intact at bear carcass	0	NA	Poor adaptable
Avi*	6-Sep-16	TNP	–	Not working after few days of release	0	NA	Omitted
Bani*	6-Sep-16	TNP	33	Not working after a month of release	1	NA	Adaptable
Tunas*	22-Okt-16	TFR	51	Dropped with strap breaks	3	Once	Adaptable
Belia*	6-Dec-16	Sg. Dusun	56	Dropped with strap breaks	1	Once	Adaptable
Messi	21-Feb-17	Sg. Deka	16	Drop (still intact)	0	NA	Mild adaptable
Damak*	9-Mei-17	UJFR	–	Not working after few days of release	0	NA	Omitted
Tebang	9-Mei-17	UJFR	26	Drop (still intact)	0	NA	Mild adaptable
Syawal	3-	UJFR	–	–	1	NA	Omitted

Table S2. List of parameters with all sub-parameters (counted as units) and data types (categorical or continuous). Parameters that have been further evaluated in PCA were bolded.

Parameters	Unit	Data type
Rescue modes 1= Wild-caught 2= Hand-over	2 Class	Categorical
Sex 1= Male 2= Female	2 Class	Categorical
Age group at R1 1= Adult 2= Sub-adult 3= Juvenile	3 Class	Categorical
Avoidance at R1 1= High 2= Moderate 3= Low	3 Class	Categorical
Age group prior release 1= Adult 2= Sub-adult 3= Juvenile	3 Class	Categorical
Avoidance prior release 1= High 2= Moderate 3= Low	3 Class	Categorical
Physical state 1= Fit 2= Good 3= Moderate	3 Class	Categorical
Health background 1= Normal 2= with-ill health history	2 Class	Categorical
Release area potential 1= Highly 2= Good 3= Moderate 4= Least 5= Poor	5 Class	Categorical

Elevation (average)

meter (m)

Continuous

Movement range

Kilometre (km²)

Continuous

Table S3. Pre-post release records of 13 bears. Eight individual characteristics and suitability levels of release area were gathered prior to the release, while movement range (km²) and topographic feature (elevation in meters) were assessed during the monitoring phase.

NA= Not Available.

Bear	Rescue modes	Sex	Age group at R1	Avoidance at R1	Age group prior release	Avoidance prior release	Physical state	Health background	Release area suitability	Movement range (km ²)	Average elevation (m)
Kerian	Hand-over	Female	Juvenile	3	Sub-adult	2	2	Normal	3	123.62	181
Gubir	Hand-over	Male	Juvenile	3	Sub-adult	2	2	Normal	3	34.23	213
Kuantan	Hand-over	Female	Juvenile	2	Sub-adult	2	2	Normal	3	31.8	223
BM	Hand-over	Male	Juvenile	3	Sub-adult	2	2	Normal	2	18.76	623
Gambng	Hand-over	Female	Sub-adult	2	Sub-adult	2	3	Malnutrition	2	2.07	794
Avi	Hand-over	Female	Juvenile	3	Sub-adult	3	2	Normal	1	NA	NA
Bani	Hand-over	Male	Juvenile	2	Sub-adult	2	2	Normal	1	3.17	193
Tunas	Wild-caught	Male	Adult	1	Adult	1	1	Normal	2	9.95	366
Belia	Wild-caught	Female	Adult	1	Adult	1	1	Normal	5	93.35	21

Messi	Wild-caught	Male	Sub-adult	1	Adult	1	1	Normal	3	31.26	247
Damak	Hand-over	Male	Juvenile	2	Sub-adult	2	2	Normal	4	NA	NA
Tebang	Hand-over	Female	Juvenile	3	Sub-adult	3	2	Normal	4	313	44.22
Syawal	Wild-caught	Male	Adult	1	Adult	1	1	Normal	4	NA	NA

Table S4. Percentage of variance explained, eigen values and rotated factor loadings on three crucial principal components, with load value > 0.8 were bolded.

	Component		
	PC1	PC2	PC3
% Variance	37.05	21.30	14.32
% Cumulative variance	37.05	58.35	72.67
Eigen value	7.04	4.05	2.72
<i>Sub-parameter:</i>			
With ill health history	0.944	-0.035	-0.111
Physically good	0.944	-0.035	-0.111
Release area= good potential	0.913	-0.069	-0.106
Elevation	0.901	-0.16	0.066
Moderate avoidance prior release	0.75	-0.515	-0.338
Sub-adult at release	0.717	-0.606	0.282
Sex = Female	0.656	-0.186	0.373
Release area= least potential	-0.051	-0.142	0.975
Avoidance prior release= low	-0.051	-0.142	0.975
Sex = Male	-0.094	0.321	-0.184
Avoidance prior release= high	-0.162	0.965	-0.067
Physical state = fit	-0.162	0.965	-0.067
Age group prior release= Adult	-0.162	0.965	-0.067
Release area= highly potential	-0.212	-0.188	-0.191
Physical state = Good	-0.232	-0.721	0.489
Release area= poor potential	-0.234	0.369	-0.049
Release area= moderate potential	-0.295	0.253	-0.272
Health background= normal	-0.468	0.168	0.536
Movement range	-0.481	-0.077	-0.003