

## Supplementary Material

### **Digging for answers: defining the external architecture of the southern hairy-nosed wombats' (*Lasiorhinus latifrons*) subterranean excavations**

R. Norris<sup>A,\*</sup>, G. Koertner<sup>A</sup>, P. Meek<sup>B,C</sup> and S. C. Cairns<sup>A</sup>

<sup>A</sup>Zoology, School of Environmental and Rural Science, University of New England, Armidale, NSW, 2351, Australia

<sup>B</sup>Vertebrate Pest Research Unit, Department of Primary Industries, Coffs Harbour, NSW, 2450, Australia. Email: [paul.meek@dpi.nsw.gov.au](mailto:paul.meek@dpi.nsw.gov.au)

<sup>C</sup>School of Environmental and Rural Science, PEST, University of New England, Armidale, NSW 2351, Australia

\*Correspondence to: Email: [ruthnorris11@gmail.com](mailto:ruthnorris11@gmail.com)

**Supplementary Tables for Manuscript ID: AM24027**

**Manuscript Title: Digging for answers: Defining the external architecture of the southern hairy-nosed wombats' (*Lasiorhinus latifrons*) subterranean excavations.**

**Supplementary Table 1a.** Listed are explanations for the 12 numbered structures identified on Supplementary Fig. 1 (Property 1, Location 1: a small warren system at 33.7522° S, 139.0929° E). The following Supplementary Table 1b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	PB: tunnel branches. Left branch may connect to No. 2 PB making a GT	7	Bl: 0.60 m
2	PB: (A) may connect to left branch of No.1 PB making a GT	8	Bl: 0.48 m
3	GT: 1.0 m (A)	9	GT: 0.80 m (A) walkway steps up abruptly by 0.55 m to middle excavation
4	GT: 1.17 m (A)	10	Bl: 0.80 m
5	Bl: 1.3 m (A)	11	S: Shadow from saltbush
6	GT: 0.74 m (A)	12	Bl: 0.50 m

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 1b.** The number of entrances listed by structure occurring on Supplementary Fig. 1 (Property 1, Location 1: a small warren system at 33.7522° S, 139.0929° E). The total number of visible entrances is 15, with only 10 entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	2	2	Warren system gained more activity after conditions changed when large rains occurred November 2021.
Bl	5	5	
GT	4	8	
Total E visible		15	Total Active E 10 APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 2a.** Listed are explanations for the 21 numbered structures identified on Supplementary Fig. 2 (Property 1, Location 2: a medium warren system at 33.7505° S, 139.1115° E). The following Supplementary Table 2b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	C	13	PB: rapidly constricts in height once past the entrance
2	Bl: 1.0 m (A)	14	PB
3	PB	15	PB: very deep, possibly with internal collapse
4	PB	16	GT: 1.2 m
5	GT: 1.2 m (A) visible and audible activity in this vicinity	17	S
6	PB: (A) E lower than No. 7 PB	18	PB: may connect to a branch of No. 19 PB, making a GT
7	PB: E higher than No. 6 PB	19	PB: branches after entrance, right branch at higher level or may connect to No. 18 PB, making a GT
8	PB: E very low on warren system large amount of water damage	20	PB: returns underneath itself
9	PB: E higher than No. 8 PB	21	Bl: 1.5 m
10	PB: E higher than No. 9 PB		
11	PB: internal tunnel ground level descends prior to rising		
12	C		

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 2b.** The number of entrances listed by structure occurring on Supplementary Fig. 2 (Property1, Location 2: medium warren system at 33.7505° S, 139.1115° E). The total number of visible entrances is 20, with only four entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	14	14	Rain occurred between image capture and measurement. Rain can destroy signs of activity but also can increase wombat activity. Entire warren system presents with water damage.
Bl	2	2	
GT	2	4	
Total E visible		20	Total Active E 4 APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 3a.** Listed are explanations for the 38 numbered structures identified on Supplementary Fig. 3 (Property 1, Location 3: a large warren system at 33.7332° S, 139.1020° E). The following Supplementary Table 3b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	Bl: 1.2 m	19	Open pathway well used for entry into No. 20 GT
2	PB	20	GT: 1.2 m (A) and connects to open pathway No. 19
3	PB	21	GT: 1.0 m (A)
4	PB	22	GT: 1.0 m (A)
5	Bl: 1.6 m	23	GT: 1.5 m (A) connects to GT No. 24
6	GT: 0.40 m	24	GT: 1.5 m (A)
7	GT: 1.8 m	25	PB: (A)
8	GT: 1.5 m	26	Bl: 1.60 m (A)
9	GT: 1.0 m	27	GT: 0.50 m
10	S: created by cliffs wombat digging	28	Bl: 1.3 m
11	GT: 0.32 m may be the result of a collapse	29	Bl: 2.2 m
12	GT: 1.2 m	30	Bl: 0.60 m partially filled
13	PB	31	F
14	GT: 1.2 m	32	PB
15	PB	33	Bl: 1.2 m
16	Bl: 0.60 m	34	F
17	GT: 0.60 m	35	Bl: 1.0 m (see comment Table 3b)
18	Bl: 0.75 m too small for a wombat, may have partially filled - not included in count	36	GT: 0.50 m
		37	PB
		38	PB

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 3b.** The number of entrances listed by structure occurring on Supplementary Fig. 3 (Property1, Location 3: large warren system at 33.7332° S, 139.1020° E). The total number of visible entrances is 49, with only 12 entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	9	9	Bl No. 35 consisted of an upper and lower tier with a common external entrance but counted as one entrance.
Bl	9	9	
GT	15	30	Nos. 30 & 31 shared a common external entrance but No. 31 was filled and counted as F whereas No. 30 was identified as a Bl
F	2	1	
S	-	-	
Total E visible		49	Total Active E 12      APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 4a.** Listed are explanations for the 48 numbered structures identified on Supplementary Fig. 4 (Property 1, Location 4: a large warren system at 33.7334° S, 139.1035° E). The following Supplementary Table 4b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	F	25	GT: 3.0 m
2	F	26	C: 2.0 m
3	PB	27	F
4	F	28	PB: one side collapsed
5	F	29	PB
6	S: Shadow from bush	30	F
7	GT: 0.80 m	31	F
8	PB	32	Bl: 1.3 m
9	GT: 0.37 m	33	F
10	Bl: 1.6 m (A) Small digging on wall of No. 10 Bl could be commencement of PB	34	F
11	GT: 1.2 m (A) may connect to E of No. 12 GT	35	F: upper and lower tiers, too small - not included in count
12	GT: 1.2 m	36	F: upper and lower tiers, too small - not included in count
13	F	37	C
14	PB	38	GT/F: 2.0 m small size but still included in the count
15	PB: (A)	39	GT/F: 2.9 m
16	C	40	PB: upper and lower tiers suggest 2 x PB but common E
17	PB	41	C
18	PB: may connect to No.19 GT making a GT	42	Bl: 0.70m
19	GT: 1.9 m	43	F: small depression
20	F	44	F: upper and lower tiers
21	F	45	F: prior to fill may have been PB
22	Depression in the substrate	46	F
23	F: may have connected to multi-entrance nr No. 24 PB	47	Bl: 0.50 m
24	PB: may connect to No. 23 F making a GT	48	C
		*	Depicts Bl 0.40 m occurring 3 m outside of picture

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 4b.** The number of entrances listed by structure occurring on Supplementary Fig. 4 (Property 1, Location 4: large warren system at 33.7334° S, 139.1035° E). The total number of visible entrances is 41, with only four entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	10	10	In this warren system GT's that were obvious but filled were counted as GT; all other F were counted as F and included if presenting as a visible entrance
Bl	4	4	
GT	7-8	10	
C	3	-	
F	17	17	
S	-	-	
Total E visible		41	Total Active E 4 APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 5a.** Listed are explanations for the 12 numbered structures identified on Supplementary Fig. 5 (Property 2, Location 1: a medium warren system at 33.9227° S, 139.1612° E). The following Supplementary Table 5b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	PB: recent activity at LHS spoil area	7	PB
2	C: 0.50 m inside	8	Path (A) well used to and from No. 9 GT
3	S	9	GT: 0.33 m (A) at one E only
4	PB: (A)	10	Bl: 0.90 m (A)
5	D: (A)	11	Bl: 1.7 m
6	Bl: 2.1 m substantial water damage	12	Bl: 2.2 m

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).



**Supplementary Table 5b.** The number of entrances listed by structure occurring on Supplementary Fig. 5 (Property 2, Location 1: medium warren system at 33.9227° S, 139.1612° E). The total number of visible entrances is nine, with only three entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	3	3	Both collapses were heavily vegetated as well as E to No.10. Bl. Dig appears as entrance because it shares an E with No.4. PB and appears active. It is not included in the counts of active E.
Bl	4	4	
GT	1	2	
C	1	-	
D	1	1	
S	-	-	
Total E visible		9	Total Active E 3 APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 6a.** Listed are explanations for the 10 numbered structures identified on Supplementary Fig. 6 (Property 2, Location 2: a medium warren system at 33.9234° S, 139.1606° E). The following Supplementary Table 6b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	C	7	GT: 1.2 m (A) active at one E only; substantial water damage to incline and into GT
2	GT: 1.2 m	8	C: 2.5 m x 1 m
3	PB	9	D
4	PB: (A)	10	Bl: 0.80 m
5	Bl: 0.70 m (A)		
6	Bl: 0.80 m		

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 6b.** The number of entrances listed by structure occurring on Supplementary Fig. 6 (Property 2, Location 2: medium warren system at 33.9234° S, 139.1606° E). The total number of visible entrances is 10, with only three entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	2	2	GT No. 7 showed activity at only one E.
Bl	3	3	Mud inside entrances and digs. Infiltration rate suggested substrate in catchment zones was saturated, conversely substrate in undisturbed areas was hard, dry and infiltration rate suggested no saturation.
GT	2	4	
C	1	1	
D	1	-	
Total E visible		10	Total Active E 3 APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 7a.** Listed are explanations for the 10 numbered structures identified on Supplementary Fig. 7 (Property 2, Location 3: a medium warren system at 33.9228° S, 139.1612° E). The following Supplementary Table 7b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	Bl: 0.70 m; tunnel floor and sides are wet and muddy from rains 2 days prior; water infiltration rate suggests substrate in catchment areas is saturated	3	D
2	Bl: 0.70 m; tunnel floor and sides are wet and muddy from rains 2 days prior	4	GT: 1.65 m (A)
		5	Bl: 0.27 m
		6	GT: 0.60 m
		7	Bl: 0.70 m
		8	C
		9	GT: 1 m (A)
		10	PB: (A) extremely recent activity on spoil heap just right of this E

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 7b.** The number of entrances listed by structure occurring on Supplementary Fig. 7 (Property 2, Location 3: medium warren system at 33.9228° S, 139.1612° E). The total number of visible entrances is 12, with only five entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	1	1	Mud inside entrances and digs. Infiltration rate suggested substrate in catchment zones was saturated, conversely substrate in undisturbed areas was hard, dry and infiltration rate suggested no saturation.
Bl	4	4	
GT	3	6	
C	1	1	
D	-	-	
Total E visible		12	Total Active E 5 APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 8a.** Listed are explanations for the 13 numbered structures identified on Supplementary Fig. 8 (Property 2, Location 4: a medium warren system at 33.9220° S, 139.1622° E). The following Supplementary Table 8b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	C: prior to collapse may have connected with No. 2 C making a GT	5	Bl: 0.90 m (A)
2	C: prior to collapse may have connected with No. 1 C making a GT	6	GT: 2.8 m
3	PB: too small for a wombat - not included in count	7	GT: 1.3 m (A)
4	C	8	Cliff
		9	PB: (A)
		10	Bl: 2.2 m (A)
		11	Bl: 0.50 m
		12	PB
		13	Bl: 0.80 m

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 8b.** The number of entrances listed by structure occurring on Supplementary Fig. 8 (Property 2, Location 4: medium warren system at 33.9220° S, 139.1622° E). The total number of visible entrances is 10, with only five entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	2	2	The C has 3 E, but not counted in ‘Total E visible’ because these can be determined as collapsed relatively easily. Very active warren system in relation to the other warren systems under drought conditions.
Bl	4	4	
GT	2	4	
Cliff	1	-	
C	3	0	
Total E visible		10	Total Active E 5 APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 9a.** Listed are explanations for the 43 numbered structures identified on Supplementary Fig. 9 (Property 3, Location 1: large warren system at 33.8314° S, 139.2889° E). The following Supplementary Table 9b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	D: 2.6 m x 1 m	23	GT: 0.50 m visible as GT without internal investigation due to short tunnel length
2	C: prior to collapse may connect to No. 5 GT making a GT	24	Bl: 1.2 m
3	GT: 1.2 m	25	GT: 0.60 m visible as GT without internal investigation due to short tunnel length
4	GT: 1.2 m	26	D
5	GT: 0.90 m	27	GT: 0.20 m visible as GT without internal investigation due to short tunnel length
6	GT: 0.50 m	28	GT: 0.60 m
7	GT: 0.80 m	29	PB
8	Deceased wombat	30	Bl: 0.50 m (A) low height but still included in the count
9	PB	31	GT: 0.40 m
10	GT: 1.2 m	32	GT: 1.1 m (A)
11	PB	33	PB
12	GT: 0.50 m	34	GT: 0.80 m
13	PB	35	GT: 0.80 m
14	D: 1 m x 2 m	36	PB: (A)
15	GT: 0.80 m result of possible collapse where No.16 PB is the point of collapse	37	D
16	PB	38	GT: 0.60 m
17	GT: 1.3 m result of possible collapse where No.16 PB is the point of collapse	39	GT: 0.70 m
18	D: 1 m x 2 m	40	C
19	Bl: 0.50 m	41	PB
20	GT: 0.50 m	42	D: 1 m x 2.2 m
21	GT: 0.70 m	43	Bl: 0.60 m
22	GT: 0.80 m		

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 9b.** The number of entrances listed by structure occurring on Supplementary Fig. 9 (Property 3, Location 1: large warren system at 33.8314° S, 139.2889° E). The total number of visible entrances is 47, with only four entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	8	8	GT's Nos. 23, 25, 27 able to identified as GTs without viewing internally. E to PB No.16 was possibly product of a collapse, but still a PB. Therefore, GT Nos. 15, 17 were also possible product of collapse. GT No. 12 may be an alternative entrance for PB No. 11
Bl	4	4	
GT	22	35	
C	2	-	
D	5	-	
Total E visible		47	Total Active E 4 APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 10a.** Listed are explanations for the 19 numbered structures identified on Supplementary Fig. 10 (Property 3, Location 2: a medium warren system at 33.8555° S, 139.2164° E). The following Supplementary Table 10b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	PB: deep ~ 2 m lower than ground level	11	PB: (A) higher tier of No. 13 Bl
2	GT: 0.90 m	12	C: Series of collapses; high, medium and low
3	GT: 0.70 m	13	Bl: 1.3 m (A) lower tier of No.11 PB
4	PB	14	PB
5	PB	15	PB
6	PB	16	Bl: 1.9 m (A)
7	GT: 0.80 m	17	D
8	GT: 0.90 m	18	PB: (A)
9	GT: 1.8 m (A)	19	GT: 0.40 m
10	D		

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 10b.** The number of entrances listed by structure occurring on Supplementary Fig. 10 (Property 3, Location 2: a medium warren system at 33.8555° S, 139.2164° E). The total number of visible entrances is 22, with only six entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

Type	Total	Total E	Comments
PB	8	8	At least one Dig appears as an E in the drone image
Bl	2	2	
GT	6	12	
C	1	-	
D	2	-	
Total E visible		22	Total Active E 6 APB 2

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).

**Supplementary Table 11a.** Listed are explanations for the 39 numbered structures identified on Supplementary Fig. 11 (Property 3, Location 4: a large warren system at 33.8794° S, 139.2198° E). The following Supplementary Table 11b provides the numbers of entrances pertaining to each structure. For further explanation of abbreviations, see Table 2 (in article).

No.	Explanation	No.	Explanation
1	GT: 2.3 m	21	Bl: 0.80 m
2	PB	22	PB
3	GT: 3.0 m	23	GT: 1.0 m
4	PB: too small for a wombat – not included in count	24	Bl: 0.50 m
5	D	25	GT: 1.8 m
6	S	26	GT: 1.0 m
7	GT: 2.0 m	27	Bl: 1.0 m
8	PB: may connect to No. 10 PB making a GT	28	PB
9	D	29	PB: may connect to No. 30 PB making a GT
10	PB: may connect to No. 8 PB making a GT	*30	PB: may connect to No. 29 PB making a GT
11	PB	*31	PB
12	PB	*32	D
13	PB	*33	PB: may connect to No. 34 PB making a GT
14	PB	*34	PB: may connect to No. 33 PB making a GT
15	PB	*35	D
16	Bl: 0.80 m	*36	Bl: 0.80 m (A)
17	GT: 0.80 m	*37	PB: (A)
18	Bl: 0.80 m	*38	GT: 3.0 m (A)
19	GT: 1.0 m	*39	PB: too small for a wombat – not included in count
20	PB: entrance covered in spider webs		

\*30 -\*39 refer to a new section that has been constructed since the drought and which is active. All other sections of the warren system appear not in use.

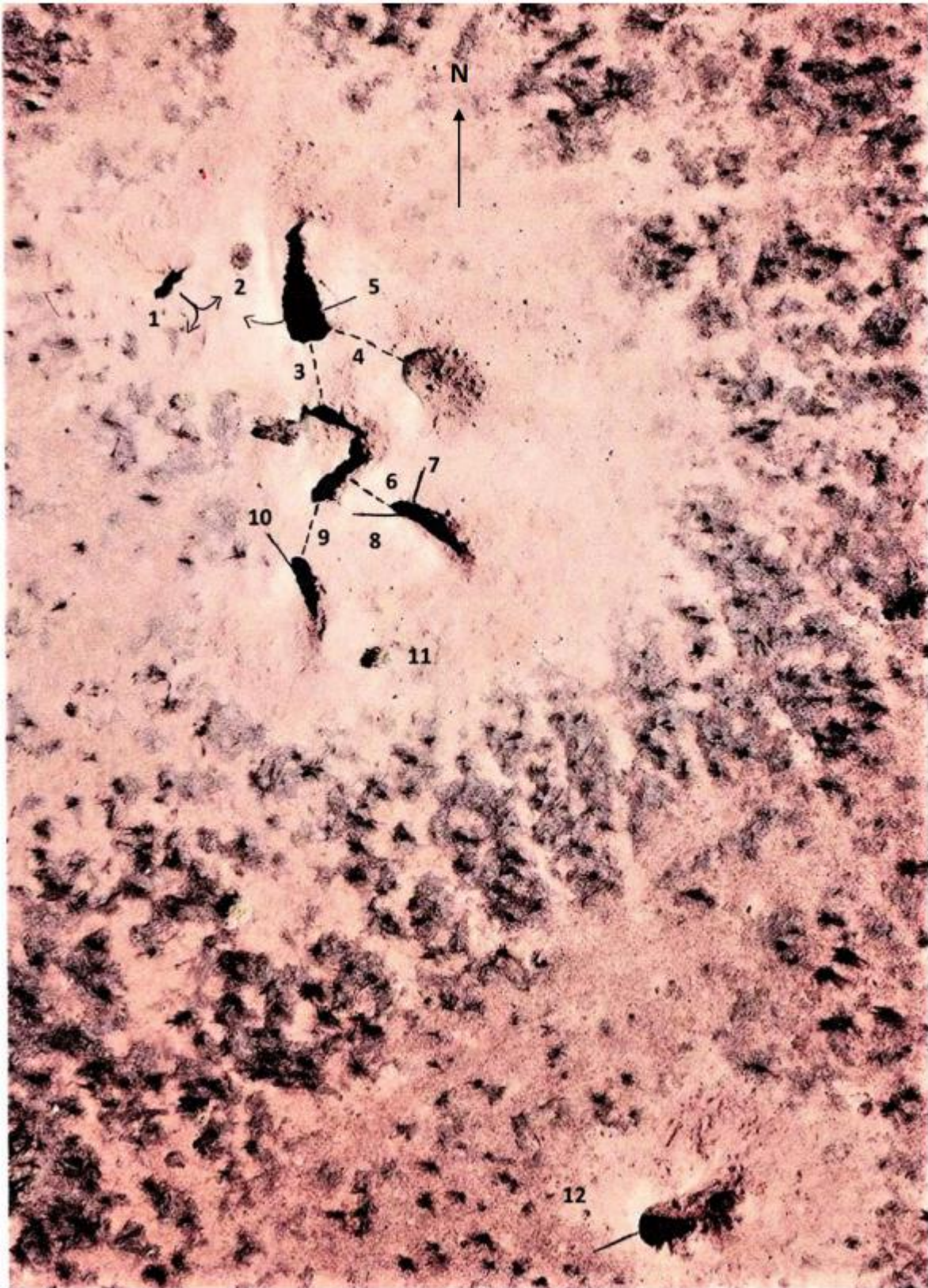
Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).



**Supplementary Table 11b.** The number of entrances listed by structure occurring on Supplementary Fig. 11 (Property 3 Location 4: large warren system at 33.8794° S, 139.2198° E). The total number of visible entrances is 41, with only four entrances active. For further explanation of abbreviations, see Table 2, and Table 4 for a breakdown of the ratio according to structure (both in article).

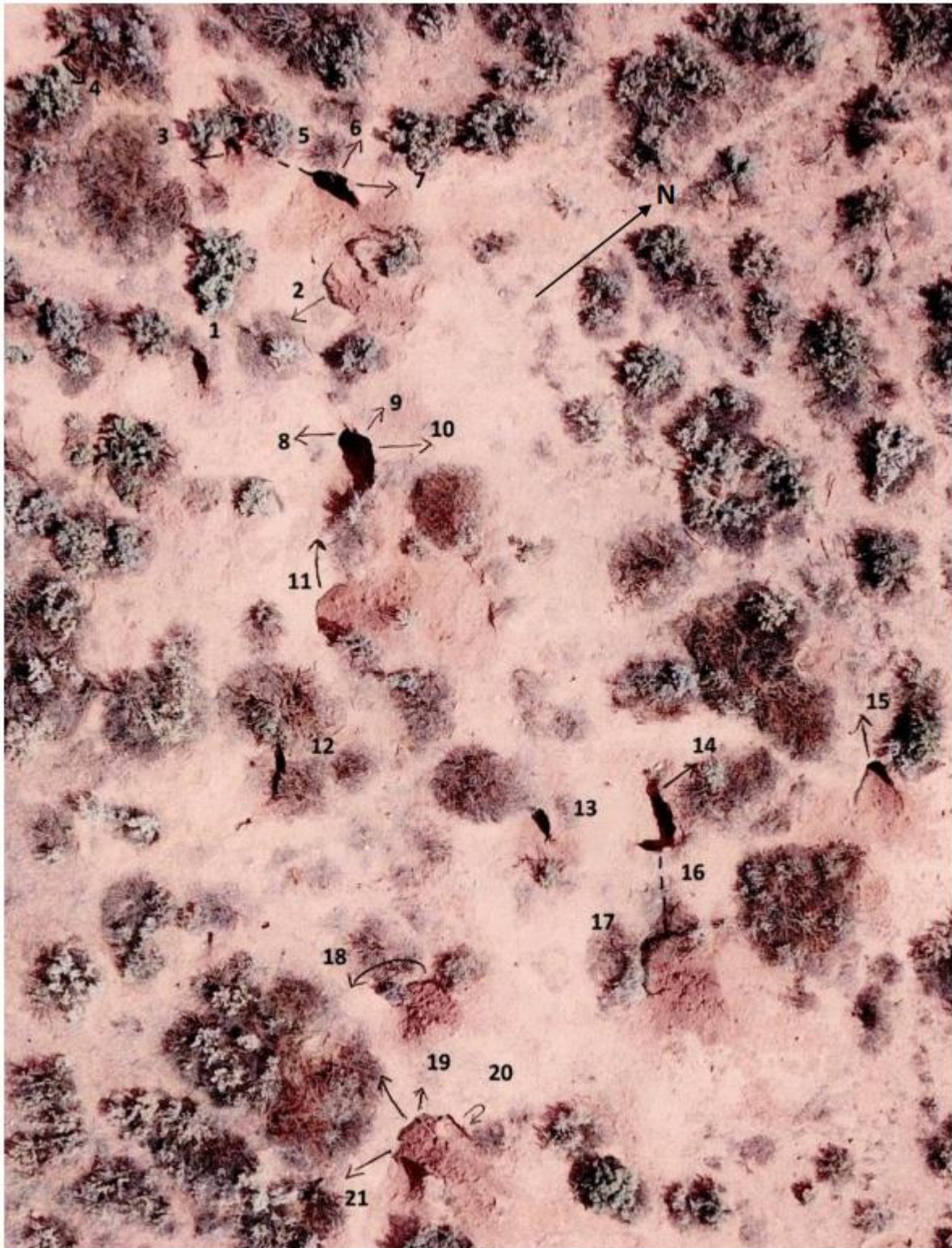
Type	Total	Total E	Comments
PB	11–17	11–17	New section Nos. 30–39 appeared after the drought and was the only section showing recent wombat activity.
Bl	6	6	
GT	9–12	18–24	
Total E visible		41	Total Active E 4      APB 1

Abbreviations: possible burrow (PB), blind (Bl), and go-through (GT), active (A), entrance (E). Additional features to assist interpretation include: Cliff, collapse (C), dig (D), and shadow (S).



**Supplementary Figure 1:** Drone photograph of small warren system; Property 1 Location 1, GPS: 33.7522° S, 139.0929° E; GPS Altitude was not recorded, Active warren system measures 4.55 m x 3.00 m; Size category: Small, (F-stop f/2.2; Exp 1/800 sec; ISO 100; Photo: S. Nicholls, Feb 2019)).





**Supplementary Figure 2:** Drone photograph of medium warren system; Property 1 Location 2, GPS: 33.7505° S, 139.1115° E; GPS Altitude: 260.459 m, Active warren system measures 14.30 m x 8.45 m; Size category: Medium, (F-stop f/2.2; Exp 1/1600 sec; ISO 100; Photo: R Norris, March 2022).





**Supplementary Figure 3:** Drone photograph of large warren system; Property 1 Location 3, GPS: 33.7332° S, 139.1020° E; GPS Altitude: 194.07 m, Active warren system measures 26.00 m x 22.75 m; Size category: Large, (F-stop f/2.2; Exp 1/1600 sec; ISO 100; Photo: R Norris, March 2020).





**Supplementary Figure 4:** Drone photograph of large warren system; Property 1 Location 4, GPS: 33.7334° S, 139.1035° E; GPS Altitude: 206.27 m, Active warren system measure 26.00 m x 19.50 m; Size category: Large, (F-stop f/2.2; Exp 1/800 sec; ISO 100; Photo: R. Norris, March 2020).





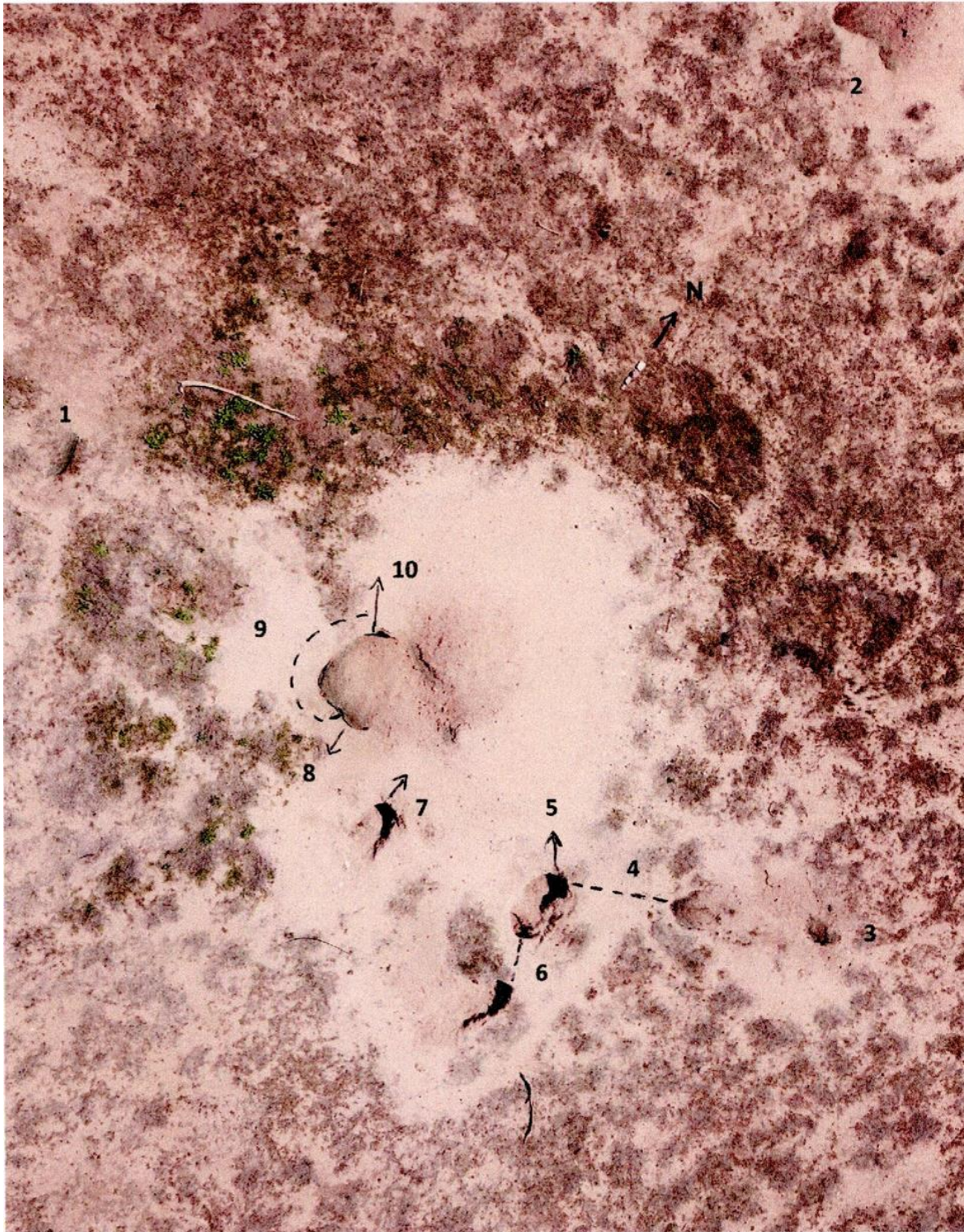
**Supplementary Figure 5:** Drone photograph of medium warren system; Property 2 Location 1, GPS: 33.9227° S, 139.1612° E; GPS Altitude: 196.458 m, Active warren system measures 8.45 m x 9.10 m; Size category: Medium, (F-stop f/2.2; Exp 1/800 sec; ISO 100; Photo: R. Norris June 2020).





**Supplementary Figure 6:** Drone photograph of medium warren system; Property 2 Location 2, GPS: 33.9234° S, 139.1606° E; GPS Altitude: 217.118 m, Active warren system measures 11.05m x 8.45m; Size category: Medium, (F-stop f/2.2; Exp 1/2000 sec; ISO 100; Photo: R. Norris Nov 2021).





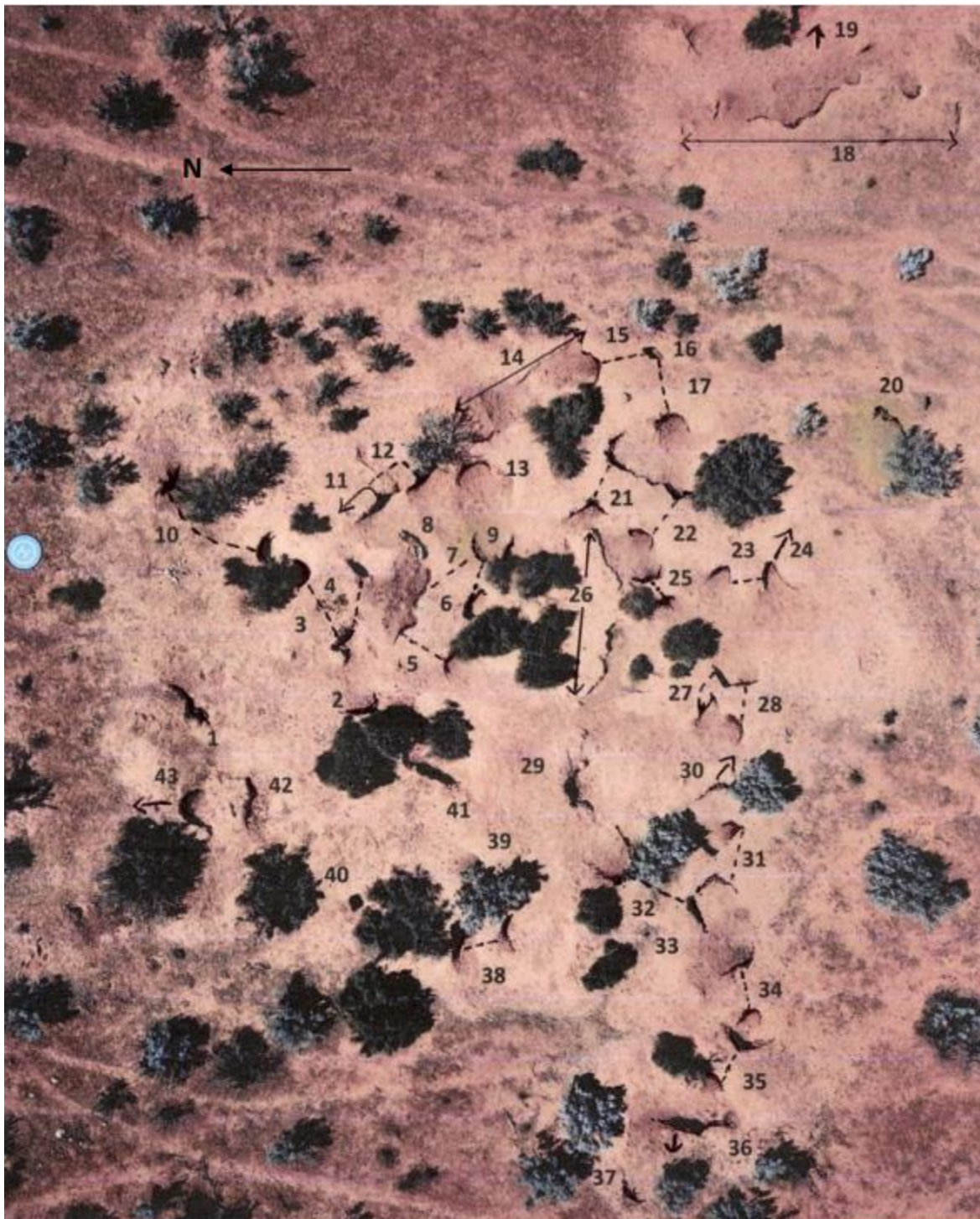
**Supplementary Figure 7:** Drone photograph of medium warren system; Property 2 Location 3, GPS: 33.9228° S, 139.1612° E; GPS Altitude: 213.218 m, Active warren system measures 9.10 m x 8.45 m; Size category: Medium, (F-stop f/2.2; Exp 1/1600 sec; ISO 100; Photo: R. Norris Nov 2021).





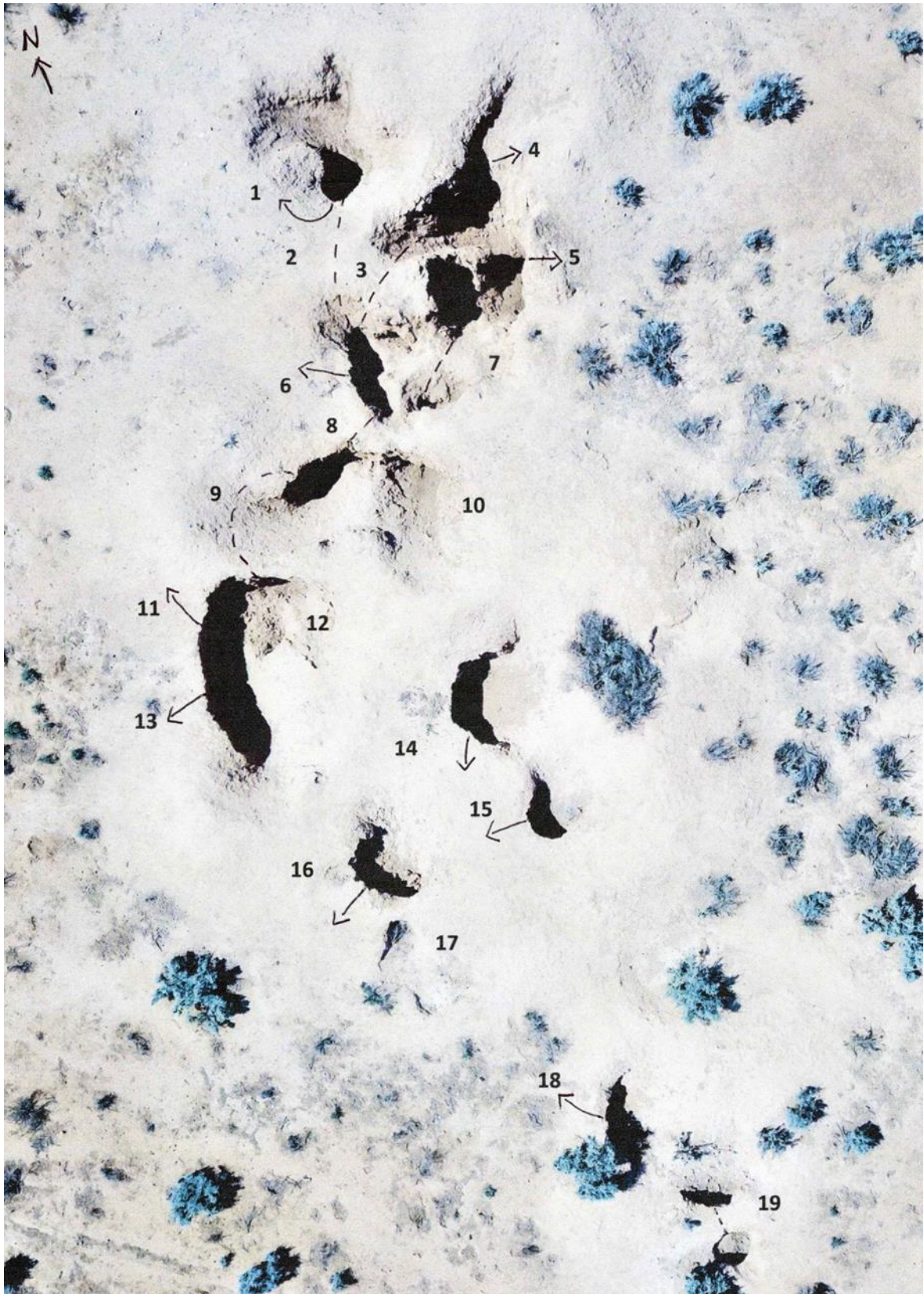
**Supplementary Figure 8:** Drone photograph of medium warren system; Property 2 Location 4, GPS: 33.9220° S, 139.1622° E; GPS Altitude: 217.718 m, Active warren system measures 12.35m x 9.75m; Size category: Medium, (F-stop f/2.2; Exp 1/1645 sec; ISO 100; Photo: R. Norris Nov 2021).





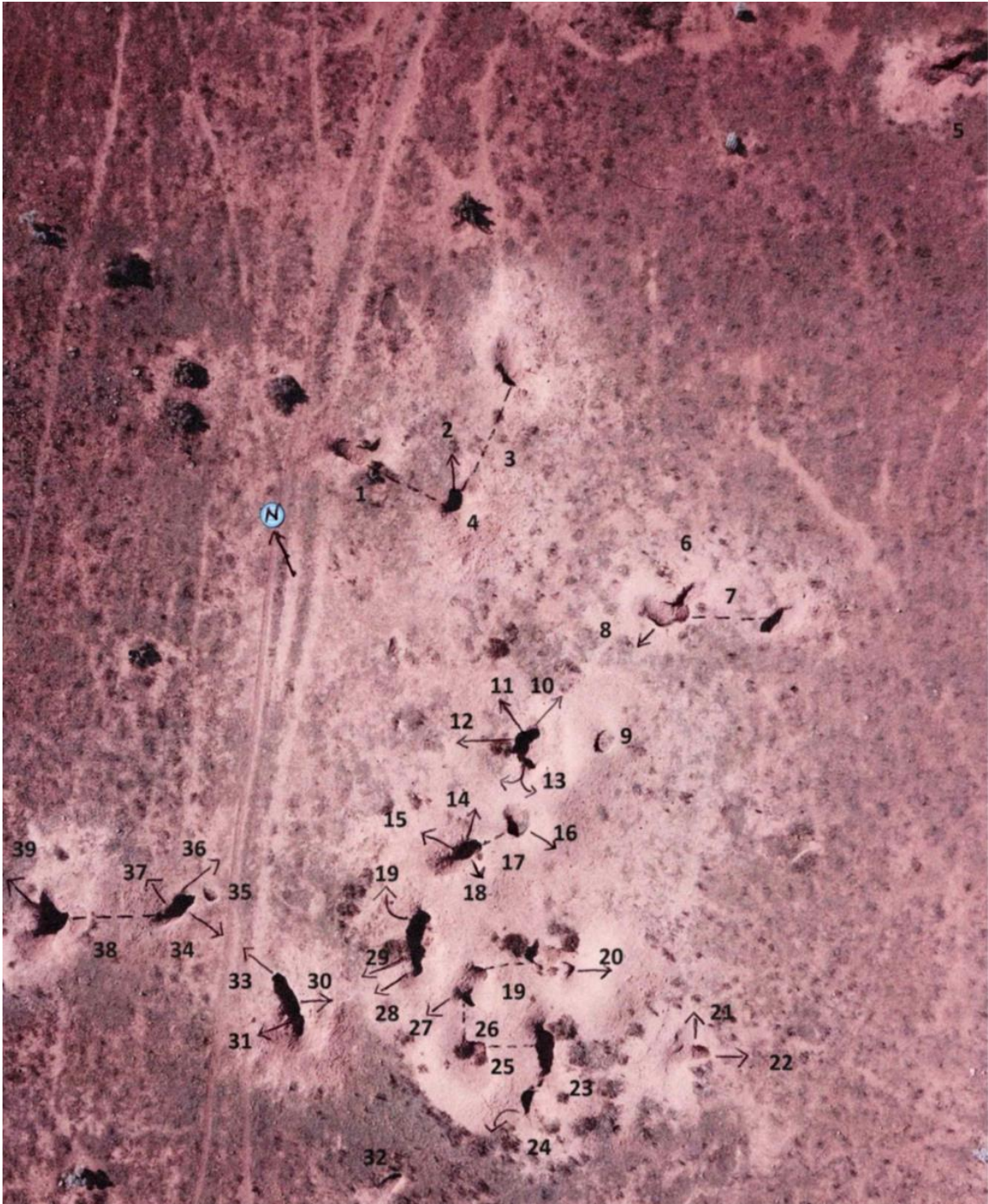
**Supplementary Figure 9:** Drone photograph of large warren system; Property 3 Location 1, GPS: 33.8314° S, 139.2889° E; GPS Altitude 64.829 m, Active warren system measures 14.95m x 20.80m; Size category: Large, (F-stop f/2.2; Exp 1/2500 sec; ISO 100; Photo: R. Norris, Sept 2019).





**Supplementary Figure 10:** Drone photograph of medium warren system; Property 3 Location 2, GPS: 33.8555° S, 139.2164° E; GPS Altitude: 140.603 m, Active warren system measures Deep 8.45 m x 9.1 m; Size category: Medium, (F-stop f/2.2; Exp 1/800 sec; ISO 100; Photo: R. Norris, March 2020).





**Supplementary Figure 11:** Drone photograph of large warren system; Property 3 Location 4, GPS: 33.8794° S, 139.2198° E; GPS Altitude: 238.752 m, Active Warren system measures 22.1 m X 12.35 m; Size Category: Large, (F-stop f/2.2; Exp 1/1600 sec; ISO 100; Photo: R. Norris, March 2022).