

Supplementary online material 1

Archaeological survey of the Modder River dongas, Free State, South Africa

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Table 1. Count of technological categories found at Palmietfontein 1 and 2 (D: debitage).

Technological category	Palmietfontein 1-A1	Palmietfontein 2-A1	Total
D-Flake fragment	3		3
D- <i>Levallois</i> Point	1		1
D-Non-diagnostic Flake	4	8	12
Total	8	8	16

Table 2. Count of technological categories found at Watervalsdrift (C: core; D: debitage).

Technological category	Watervalsdrift
C- <i>Levallois</i> Parallel	1
C-Multidirectional	1
D- Non-diagnostic Flake	2
Total	4

Table 3. Count of technological categories found at Waterval (B: block; C: core; D: debitage; R: retouched piece).

Technological category	Waterval-A1	Waterval-A2	Waterval-A3	Total
B-Cobble	2	1		3
C-Bipolar			1	1
C-Inclined	1			1
C- <i>Levallois</i> Parallel		1	2	3
C-Multidirectional			1	1
C-Platform		1	6	7
D-Blade		2		2
D-Bladelet fragment			2	2
D-Flake fragment		1		1
D- <i>Levallois</i> Flake		3		3
D- <i>Levallois</i> Point			1	1
D- Non-diagnostic Flake	7	2	4	13
R-Endscraper			2	2
R-Geometric			1	1
R-Lovedale Point		1		1
R-Unifacial Point	1	1		2
Total	11	13	20	44

Table 4. Count of technological categories found at Mitasrust (B: block; C: core; D: debitage; R: retouched piece).

Technological category	Mitasrust-A1	Mitasrust-A2	Total
B-Cobble		2	2
C- <i>Levallois</i> Parallel	2	1	3
C-Platform		1	1
D-Blade		4	4
D-Bladelet fragment		2	2
D-Flake fragment	4	3	7
D- Non-diagnostic Flake	4	11	15
R-Adze	1		1
R-Endscraper	2	1	3
R-Lovedale Point		2	2
R-Sidescraper		1	1
R-Unifacial Point	2	3	5
Bone	1		1
Tooth		1	1
Total	16	32	48

Table 5. Count of technological categories found at Uitvlug-Wes (D: debitage).

Technological category	Uitvlug-Wes-A1	Uitvlug-Wes-A2	Total
D- <i>Levallois</i> Point	2		2
D-Non-diagnostic Flake		1	1
Total	2	1	3

Table 6. Count of technological categories found at Georgina 1 (C: core; D: debitage).

Technological category	Georgina 1-A1	Georgina 1-A2	Total
C-Inclined	1		1
D-Blade fragment	1		1
D-Non-diagnostic Flake	7	1	8
Total	9	1	10

Table 7. Count of technological categories found at Lovedale 2 (B: cobble; C: core; D: debitage; R: retouched piece).

Technological category	Lovedale 2
B-Cobble	34
C-Platform	1
D-Flake fragment	1
D- Non-diagnostic Flake	16
R-Endscraper	3
R-Unifacial Point	2
Bone	8
Tooth	4
Total	69

Table 8. Count of technological categories found at Abrahamskraal 1, 2, and 3 (B: cobble; D: debitage; R: retouched piece).

Technological category	Abrahamskraal 1, 2, and 3
B-Cobble	10
D-Flake fragment	11
D-Non-diagnostic Flake	17
R-Lovedale Point	1
R-Sidescraper	1
R-Unifacial Point	1
Bone	4
Tooth	2
Total	47

Table 9. Count of technological categories found at Abrahamskraal 4 (C: core; D: debitage).

Technological category	Abrahamskraal 4-A1	Abrahamskraal 4-A2	Total
<i>C-Levallois</i> Parallel		2	2
<i>D-Levallois</i> Point	1		1
D-Non-diagnostic Flake	2	1	3
Total	3	3	6

Table 10. Count of technological categories found at Abrahamskraal 5 (B: block; C: core; D: debitage; R: retouched piece).

Technological category	Abrahamskraal 5-A1	Abrahamskraal 5-A2	Total
B-Cobble	2	3	5
<i>C-Levallois</i> Parallel		1	1
C-Platform		2	2
D-Blade	1	3	4
D-Flake fragment		16	16
<i>D-Levallois</i> Flake		3	3
<i>D-Levallois</i> Point		4	4
D-Non-diagnostic Flake		7	7
R-Sidescraper		1	1
R-Unifacial Point	1		1
Total	4	40	44

Table 11. Count of technological categories found at Nielsview 1, 2, 3, and 4 (B: block; C: core; D: debitage; R: retouched piece).

Technological category	Nielsview 1, 2, and 3	Nielsview 4	Total
B-Cobble	4	4	8
C-Platform		1	1
D-Flake fragment	2	3	5
D- <i>Levallois</i> Flake		1	1
D- <i>Levallois</i> Point		1	1
D-Non-diagnostic Flake	12	14	26
R-Endscraper	1	1	2
R-Sidescraper		1	1
R-Unifacial Point		1	1
Bone	1	4	5
Tooth		2	2
Total	20	33	53

Table 12. Count of technological categories found at Thorndale (B: block; D: debitage; R: retouched piece).

Technological category	Thorndale-A1	Thorndale-A2	Total
B-Cobble	2		2
D-Blade		3	3
D-Flake fragment		7	7
D- <i>Levallois</i> Point		1	1
D-Non-diagnostic Flake	1	13	14
R-Sidescraper	2		2
Total	5	24	29

Table 13. Count of technological categories found at Erfkroon 2 (B: block; C: core; D: debitage; R: retouched piece).

Technological category	Erfkroon 2-A1	Erfkroon 2-A2.1	Erfkroon 2-A2.2	Erfkroon 2-A2.3	Total
B-Cobble	1	1	8		10
C- <i>Levallois</i> Parallel	1	2		1	4
D-Blade	2		11	2	15
D-Flake fragment		2	12		14
D- <i>Levallois</i> Flake		2			2
D- <i>Levallois</i> Point	1	1	1		3
D-Non-diagnostic Flake	5	4	41		50
R- <i>Pièce Esquillée</i>			1		1
R-Unifacial Point				1	1
Tooth				1	1
Total	10	12	74	5	101

Table 14. Count of technological categories found at Erfkroon 3 (B: block; C: core; D: debitage; R: retouched piece).

Technological category	Erfk 3-A2	Erfk 3-A3	Erfk 3-A4	Erfk 3-A5	Erfk 3-A6	Erfk 3-A7	Total
B-Cobble		2	5	1	14		22
C-Inclined		1					1
C-Platform	1				1		2
D-Blade	6			1			7
D-Blade fragment	2						2
D-Bladelet				2			2
D-Bladelet fragment				2			2
D-Flake fragment	7	4	7	1	5		24
D-Non-diagnostic Flake	27	5	12	6	27	3	80
R-Endscraper				2			2
R-Knife	1						1
R- <i>Pièce Esquillée</i>					1		1
R-Sidescraper				1			1
R-Unifacial Point	1	1		1			3
Total	45	13	24	17	48	3	150

Table 15. Count of technological categories found at Penhoek (B: block; C: core; D: debitage; R: retouched piece).

Technological category	Penhoek-A1	Penhoek-A2	Penhoek-A3	Total
B-Cobble	5			5
C-Platform	1			1
D-Blade	8	2	1	11
D-Blade fragment	3			3
D-Flake fragment	7			7
D- <i>Levallois</i> Point			1	1
D-Non-diagnostic Flake	19	2	1	22
R-Denticulate	2			2
R-Knife		1		1
R-Sidescraper		1		1
R-Unifacial Point		2		2
Total	45	8	3	56

Table 16. Count of technological categories found at Winterdraai/Fairview (B: block; C: core; D: debitage; R: retouched piece).

Technological category	Winterdraai/ Fairview-A1	Winterdraai/ Fairview-A2	Total
B-Cobble	10	4	14
C-Platform		2	2
D-Blade		1	1
D-Bladelet		1	1
D-Flake fragment	2	2	4
D-Non-diagnostic Flake	4	34	38
R-Endscraper	2		2
R-Sidescraper		1	1
R-Unifacial Point		1	1
Total	18	46	64

Table 17. Count of technological categories found at Slagkraal and Loogkop (C: core; D: debitage; R: retouched piece).

Technological category	Slagkraal	Loogkop	Total
C-Inclined	1		1
D-Non-diagnostic Flake	1	3	4
R-Endscraper	6		6
Total	8	3	11

Table 18. Raw materials at Waterval (CCS: cryptocrystalline silicate).

Raw material	Dolerite	Hornfels	Quartzite/Sandstone	CCS	Total
A1	2	9			11
A2	1	10	2		13
A3		9	2	9	20
Total	3	28	4	9	44

Table 19. Raw materials at Mitasrust.

Raw material	Dolerite	Hornfels	Quartzite/Sandstone	Total
A1		15		15
A2	2	27	2	31
Total	2	42	2	46

Table 20. Raw materials at Lovedale 2 (CCS: cryptocrystalline silicate).

Raw material	Dolerite	Hornfels	CCS	Total
Lovedale 2	34	33	2	69

Table 21. Raw materials at Abrahamskraal 5.

Raw material	Dolerite	Hornfels	Total
A1	2	2	4
A2	3	37	40
Total	5	39	44

Table 22. Raw materials at Nielsview 1, 2, 3, and 4.

Raw material	Dolerite	Hornfels	Quartzite/Sandstone	Total
1, 2, and 3	4	16		20
4	4	28	1	31
Total	8	44	1	53

Table 23. Raw materials at Thorndale.

Raw material	Dolerite	Hornfels	Total
A1	2	3	5
A2		24	24
Total	2	27	29

Table 24. Raw materials at Erfkroon 2.

Raw material	Dolerite	Hornfels	Total
A1	1	9	10
A2.1	1	11	12
A2.2	8	66	74
A2.3		4	4
Total	10	90	100

Table 25. Raw materials at Erfkroon 3 (CCS: cryptocrystalline silicate).

Raw material	Dolerite	Hornfels	Quartz	Quartzite/Sandstone	CCS	Total
A2		45				45
A3	2	11				13
A4	5	18		1		24
A5	1	14	1		1	17
A6	14	34				48
A7		3				3
Total	22	125	1	1	1	150

Table 26. Raw materials at Penhoek.

Raw material	Dolerite	Hornfels	Total
A1	5	40	45
A2		8	8
A3		3	3
Total	5	51	56

Table 27. Raw materials at Winterdraai/Fairview.

Raw material	Dolerite	Hornfels	Total
A1	10	8	18
A2	4	42	46
Total	14	50	64



Figure 1. Palmietfontein 1 A1. *Levallois* point fragment (proximal). Possible chronology: MSA. Possible attribution of the deposit: Lower Grey Bed.



Figure 2. Palmietfontein 1 A1. Gravel deposit with numerous rounded clasts including hornfels artefacts, mostly flakes and flake fragments. There are some bone shafts as well, also rounded. Possibly a palaeochannel deposit.



Figure 3. Palmietfontein 2 A1. Shallow donga with a Red Palaeosol (0.5 to 0.7 m preserved) and some undiagnostic artefacts associated to the base of this eroded ridge.

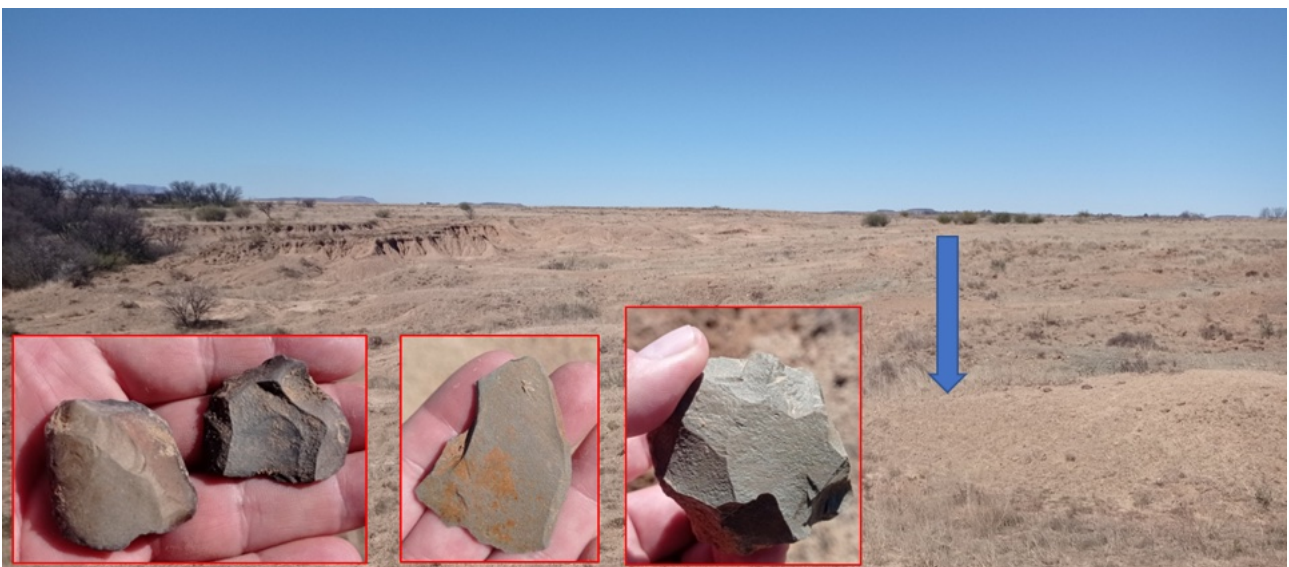


Figure 4. General view of Watervalsdrift with the location of the few artefacts that were found (a *Levallois* core, two regular flakes and a multidirectional core).



Figure 5. Waterval A1. Cluster with regular, undiagnostic flakes accumulated into a rill on the side of the crest.



Figure 6. Waterval A1. Grindstone (LSA?) and two weathered MSA artefacts.



Figure 7. Waterval A2. General view of the area (top) and faunal remains located on the surface of ridges in the western portion of the area.



Figure 8. Waterval A2. Location of MSA diagnostic artefacts in the easternmost portion of the area: a uniface point, an elongated flake, and a Lovedale point.



Figure 9. Waterval A2. Artefacts in hornfels and sandstone, including *Levallois* flakes, a *Levallois* core, elongated flakes, MSA points, and a notched piece.



Figure 10. Waterval A3. LSA artefacts in silicified wood, jasper, agate, and other cryptocrystalline silicate rocks. There are also artefacts in hornfels and sandstone, in some cases from reworked Pleistocene sediments. Platform narrow-sided cores are noteworthy. In addition, some geometrics (e.g. a trapeze) are located in this area.



Figure 11. High sections located at Mitasrust. Most of them contain modern silts and sands but the bases of sections 2 and 3 contain gravels with bones and rounded artefacts.



Figure 12. Mitasrust main drainage. A large platform core for the production of *Levallois* points and blades.



Figure 13. Mitasrust A1-C1. Sparse MSA artefacts and an LSA endscraper were found on the surface of convex, eroded slopes. There are also two artefacts stuck into sections of palaeochannels deposits.



Figure 14. Mitasrust A1-C2. MSA diagnostic artefacts (including a unifacial point) and bones. The bones are some fossil vertebrae exposed to the surface by the erosion of a Lower Grey Bed.



Figure 15. Mitasrust A2-C1. A cluster composed by a *Levallois* flake and undiagnostic, regular flakes on hornfels on the side of a slope.



Figure 16. Mitasrust A2-C2. MSA artefacts, including a *Levallois* core, a unifacial point, and several undiagnostic flakes.



Figure 17. Mitasrust A2-C2. Location of a fossilised ungulate tooth (probably an equid) and two flakes stuck into a small section.



Figure 18. Mitasrust A2-C3. Eroded ridges with accumulation of calcium carbonate nodules and numerous MSA artefacts, including a sidescraper, two Lovedale points, and a unifacial point.



Figure 19. Uitvlug-Wes A1. A possible Lower Grey Bed containing isolated MSA artefacts, sometimes heavily weathered.



Figure 20. Uitvlug-Wes A2. A red horizon between two grey beds. Only one artefact was found, a dolerite flake just beneath the base of the Red Palaeosol.



Figure 21. Lovedale 2. Two clusters with LSA artefacts and fauna.



Figure 22. Abrahamskraal 5 A1. Two artefacts stuck into the section of the Lower Grey Bed: a unifacial point (with broken tip) and a flake or blade.



Figure 23. Abrahamskraal 5 A2-C1. Location of a *Levallois* recurrent centripetal core on flake.

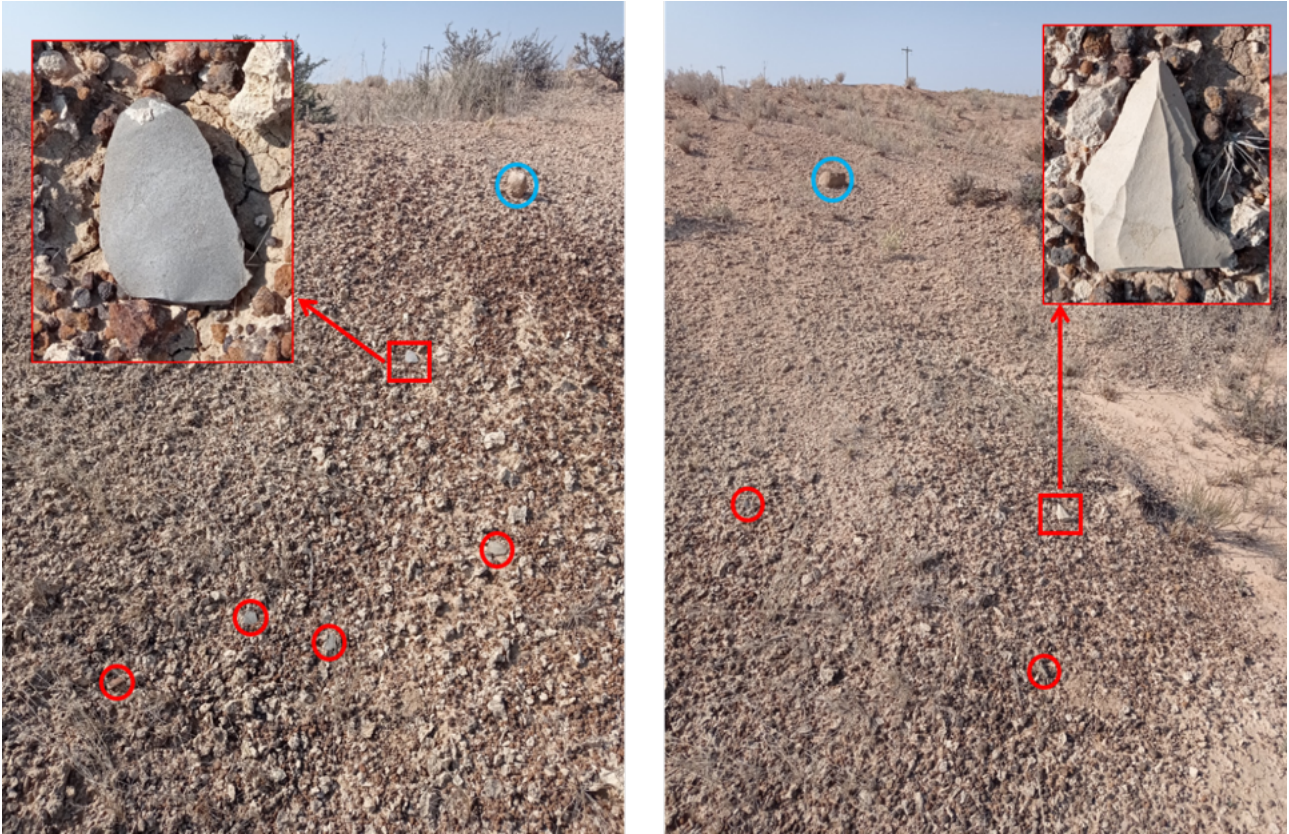


Figure 24. Abrahamskraal 5 A2-C1. Location of *Levallois* artefacts (insets), other artefacts (red circles), and dolerite large cobbles (blue circles).



Figure 25. Abrahamskraal 5 A2-C1. Locations of a *dèjeté* sidescraper (top) and a *Levallois* point (bottom) on the surface of an eroded ridge.



Figure 26. Abrahamskraal 5 A2-C2. A *Levallois* unipolar convergent core and its location.

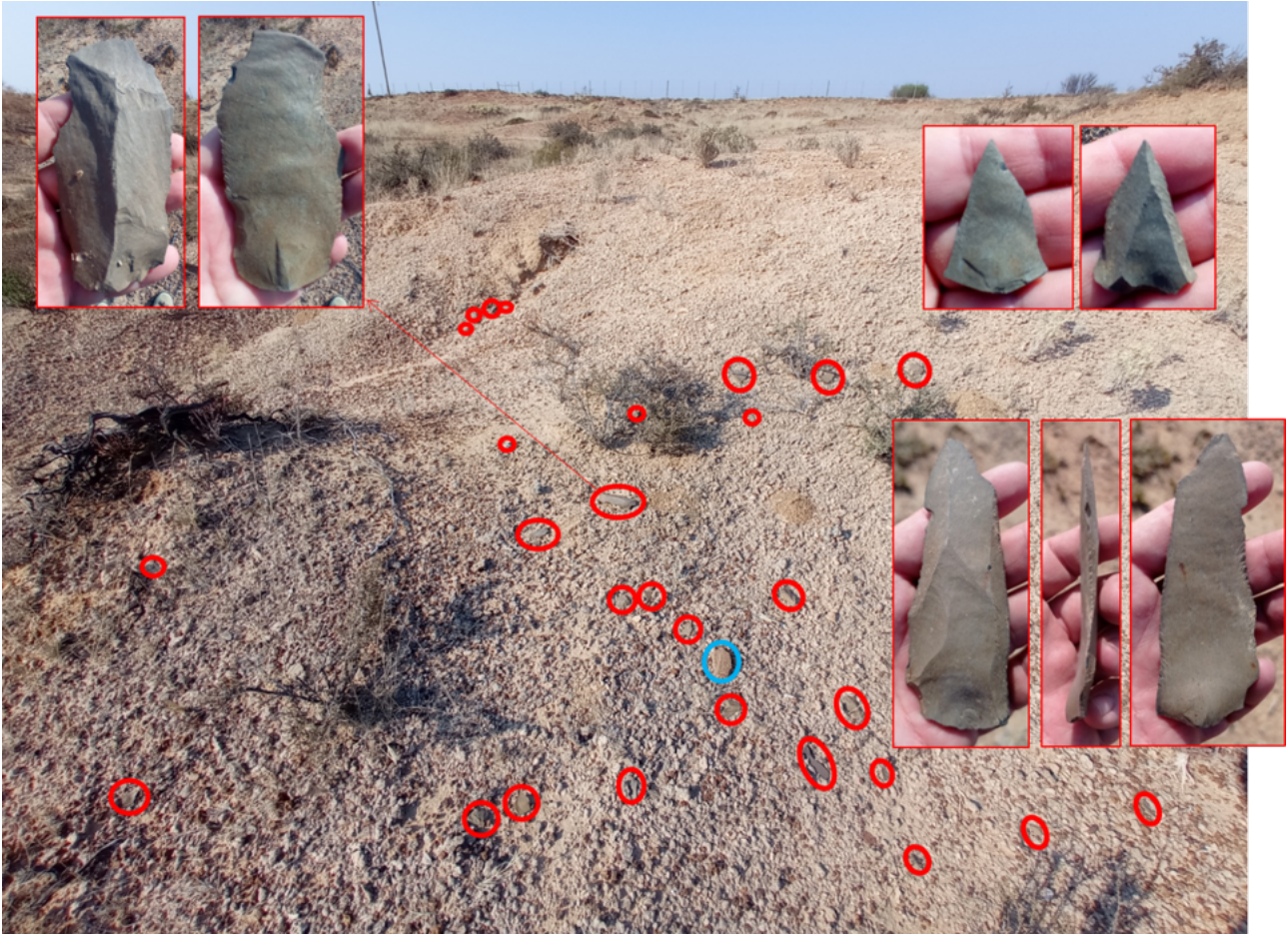


Figure 27. Abrahamskraal 5 A2-C2. Location of artefacts in dolerite (blue circles) and hornfels (red circles) including large *Levallois* blades and flakes and a small *Levallois* point.



Figure 28. Abrahamskraal 5 A2-C2. Accumulation of some undiagnostic fresh flakes of hornfels into a concavity of a Lower Grey-like eroded horizon.



Figure 29. Nielsview 4. General view of the stratigraphy, showing the Lower Grey Bed emerging under the Red Palaeosol. The *Levallois* point shown in Figure 9 of the article was found at the surface of the Lower Grey Bed.



Figure 30. Nielsview 4. Other side of the crest shown in Figure 29, featuring the complete sequence including a thin Upper Grey Bed and Brown Palaeosol.

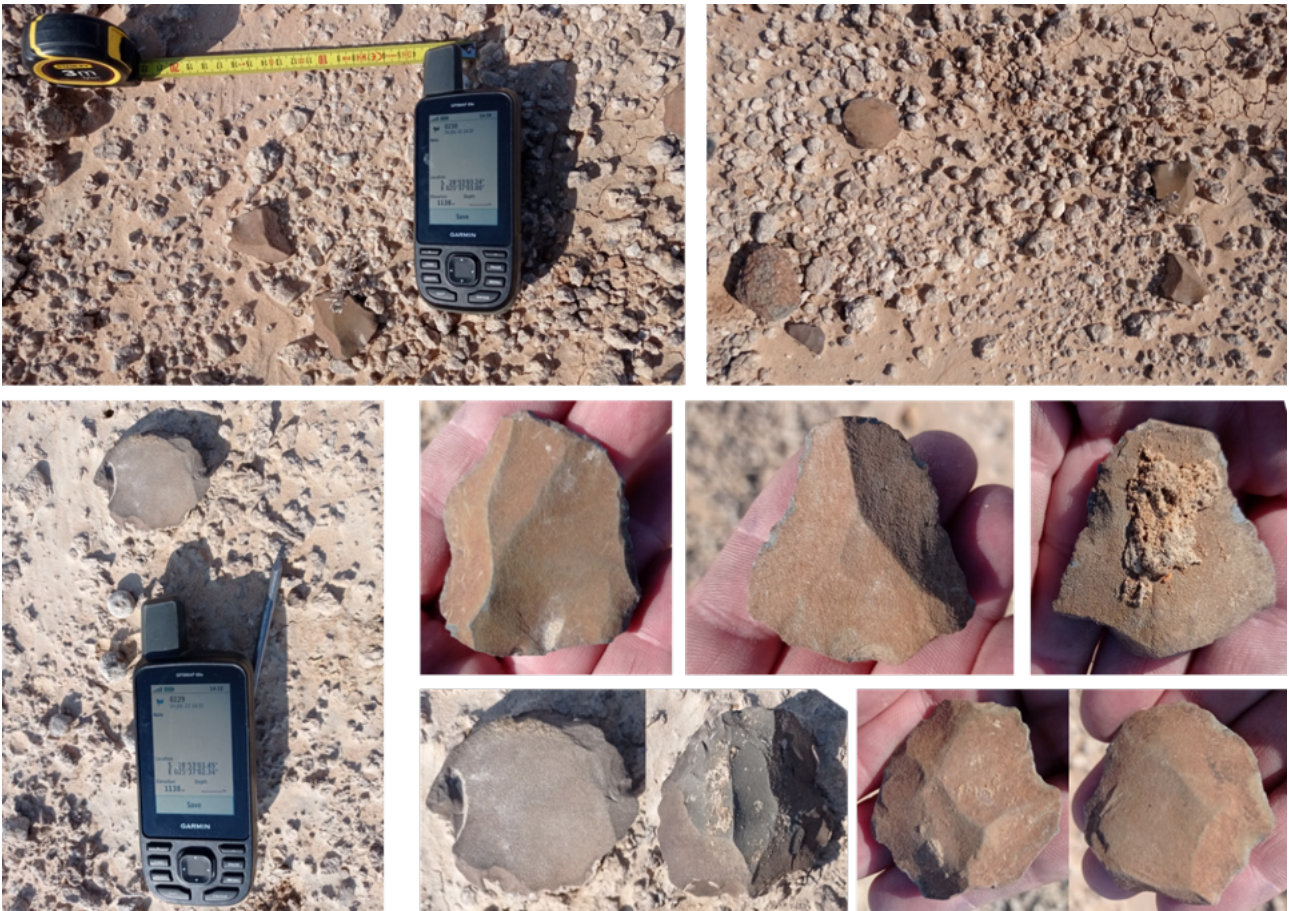


Figure 31. Erfkroon 2 A2.1. Rounded MSA artefacts including *Levallois* cores, flakes, and points showing poor preservation, associated with a gravel deposit.



Figure 32. Erfkroon 2 A2.2. Counting of C1 and C2, which comprise many mid- to small-size artefacts in hornfels, including *Levallois*-like cores, unifaceally produced flakes and triangular *Levallois*-like flakes with flat platform.



Figure 33. Erfkroon 2 A2.3. The artefacts in this area include a multidirectional-inclined core (top), two thin blades with curved profile and small platforms, and a unifacial point.



Figure 34. Erfkroon 3 A2-C1. Accumulation of flakes and fragments at the base of a shouldered step laterally eroded by a channel from the nearby spring.

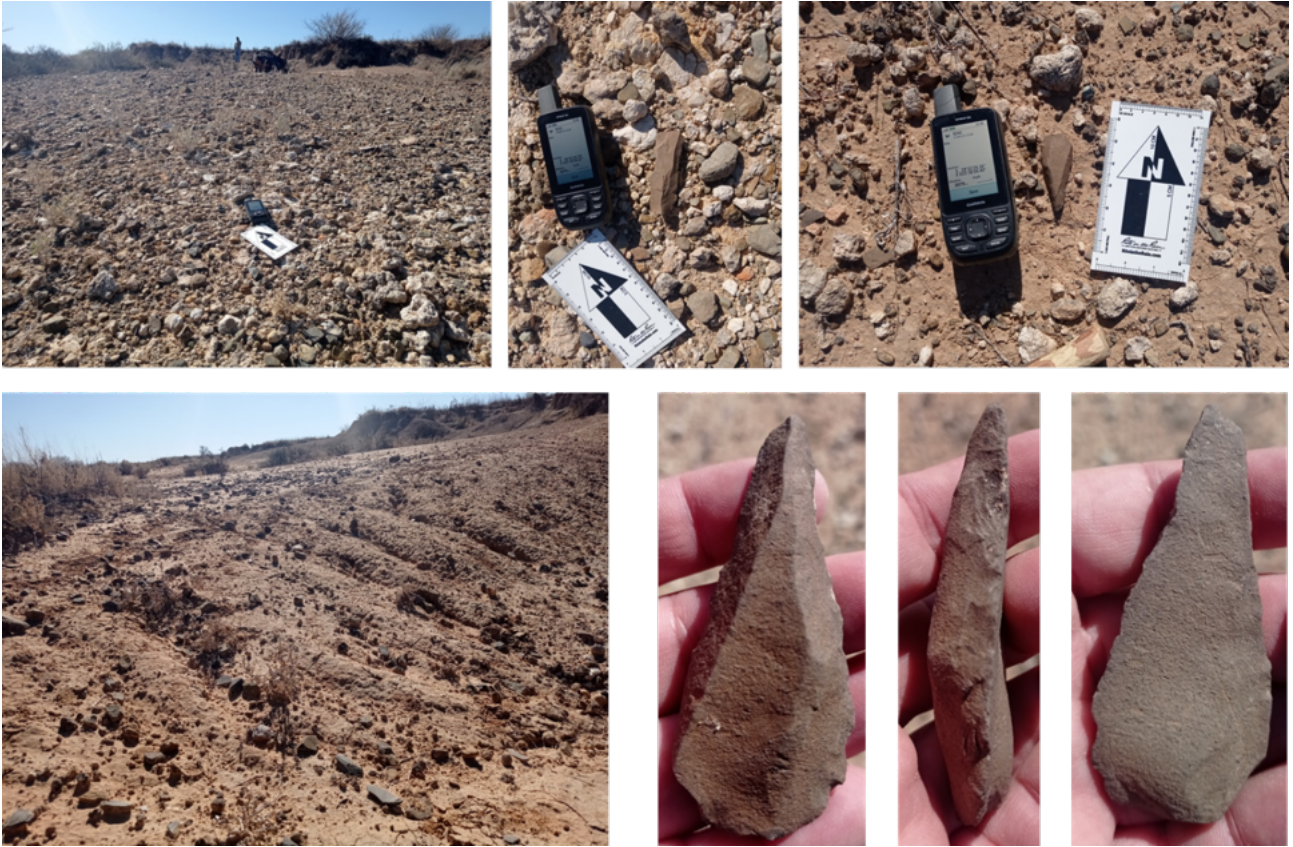


Figure 35. Erfkroon 3 A2-C2 and C3. Large assemblages of eroded/rounded clasts of hornfels associated to some unrolled artefacts attributable to the MSA.



Figure 36. Erfkroon 3 A2-C3. MSA artefacts including blades, blade fragments, unifacial points, and a bipolar flat core of medium size probably related to earlier periods.



Figure 37. Erfkroon 3 A3. A cluster of hornfels artefacts including a unifacial point with regular retouch.



Figure 38. Erfkroon 3 A4. Concentration of flakes produced by unipolar exploitation, a core and some dolerite cobbles at the base of convex ridges underlying the Red Palaeosol.



Figure 39. Erfkroon 3 A5. Bladelets, bladelet fragments, and two endscrapers in hornfels. The parallel ridges and edges as well as the flat platform of the bladelets suggest a production by indirect percussion.

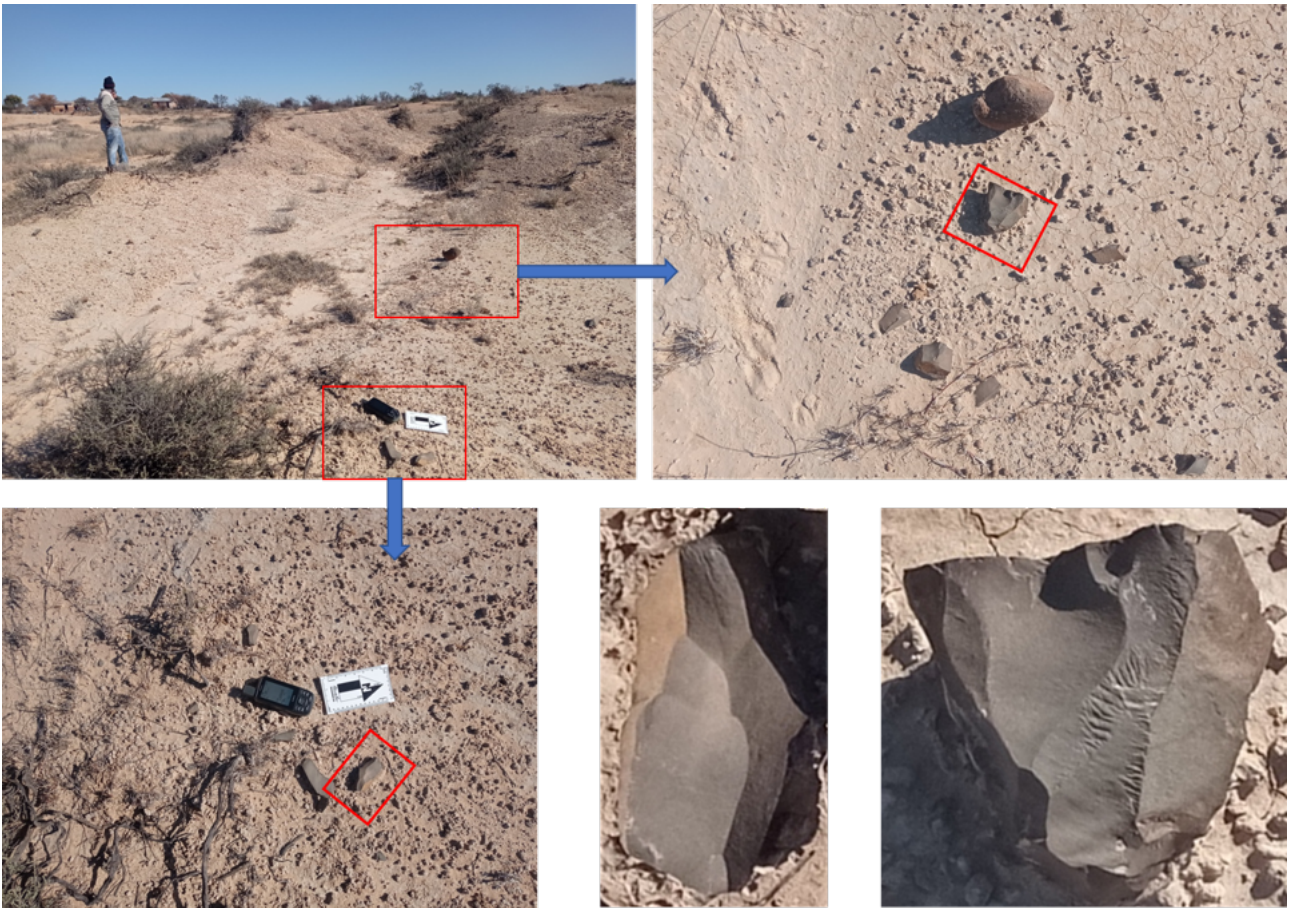


Figure 40. Erfkroon 3 A6-C1. Hornfels flakes produced with unifacial convergent exploitation associated with a dolerite hammerstone and a high-backed platform core. Many of the artefacts seem to refit, indicating a possible good preservation.



Figure 41. Erfkroon 3 A6-C2. A cluster of hornfels artefacts including a scaled piece at the base of a slope at the contact between Upper Grey Bed and Red Palaeosol.



Figure 42. Erfkroon 3 A7. Two hornfels flakes and a fossilised vertebra of a large-sized animal.



Figure 43. Penhoek A1-C1. Hornfels artefacts (red circles) and dolerite cobbles (blue circles). Two crested blades, one unifacial and other bifacial with small flat platform and curved profile, and two denticulates on *Levallois* flakes.



Figure 44. Penhoek A1-C2. Assemblages of hornfels artefacts, including blades with unipolar production and a bladelet narrow-sided platform core.



Figure 45. Penhoek A2. Faunal remains and artefacts including blades, two unifacial points and a sidescraper on *Levallois* point.



Figure 46. Winterdraai/Fairview. Weathered MSA artefacts form the palaeochannels of the main donga cutting through the Lower Grey Bed.



Figure 47. Winterdraai/Fairview A1. Cluster of LSA artefacts at the base of a slope including two small endscrapers in hornfels.



Figure 48. Winterdraai/Fairview A2-C1 and C2. Location of several hornfels artefacts eroding out of a bluff of Red Palaeosol.

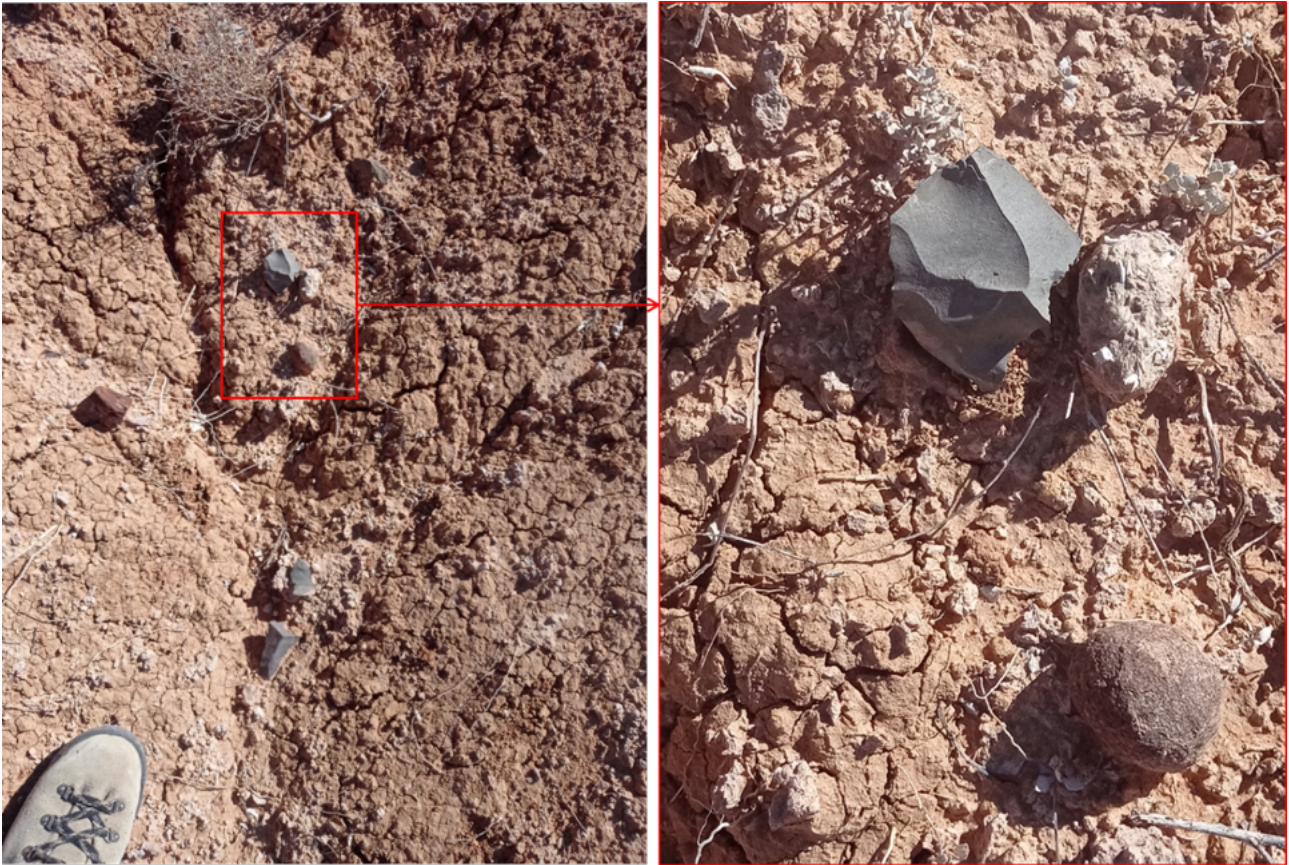


Figure 49. Winterdraai/Fairview A2-C1 and C2. Location of several hornfels artefacts, a dolerite cobble, and a unipolar platform core with a last scar of a *Levallois* point.



Figure 50. Winterdraai/Fairview A2-C3. Location of several hornfels artefacts including a large blade and a large *Levallois* point with regular retouch.