Katarina Šprem
Juraj Dobrila University of Pula
Faculty of Humanities

Ivor Karavanić
University of Zagreb
Faculty of Humanities and Social Sciences

HRZZ Croatian Science Foundation

MET ARH

December 6th 2018
Zagreb

RESULTS OF A SECOND LITHIC TRAMPLING EXPERIMENT

Some questions and a few answers

SVEUČILIŠTE JURJA DOBRILE U PULI
FFPU
cirla

INTRODUCTION

- apart from human-made retouch, stone artifacts can exhibit traces of damage due to post depositional processes
  - animal, human or natural in origin
  - can be interpreted as human-made retouch! ***pseudo-retouch***

- **McBrearty et al. 1998 - Pseudo-tools can be classified according to Bordes typology.**

Authors/ Methodology	Depth	Substrate	Material	Sample size	Duration	Results
Driscoll et al. 2015	0	soil (differing compaction)	quartz, chert	500	2 weeks	taphonomy ruled out as a contributor to pseudo-retouch on chert or quartz
Thiébaut 2010	0	soil	flint, chert, quartzite, quartz	236	1 month	identification criteria and discriminating characteristics
McBrearty et al 1998	0	sand, loam	chert, obsidian	1400	60min	pseudo-tools can be classified according to Bordes typology
Shea & Klenck 1993	2-5cm	sandy soil	flint	60	90min	trampling can mask use-wear traces
Nielsen 1991	0	dry surfaces with no vegetation	obsidian	219	1500/800x	scars randomly distributed, isolated, on both surfaces; pseudo-retouch present
Pryor 1988	0	sand, loam	obsidian	1800	120min	scars random, not elongated; on both surfaces
Boot 1987	0/2cm	wet, dry sand	quartz, tuff, silcrete, chalcedony	51	16min	different soil conditions result in different intensities of artefact edge damage
Gifford-Gonzalez et al 1985	0	sand, loam	obsidian	2000	120min	flake scars random; mostly perpendicular, substrate important for scar shape formation
Tringham et al 1974	0	/	flint	10	30min	damage random, but on one surface only; scars elongated, with no fixed orientantion or size

Authors/ Methodology	Depth	Substrate	Material	Sample size	Duration	Results
Driscoll et al. 2015	0	soil (differing compaction)	quartz, chert	500	2 weeks	taphonomy ruled out as a contributor to pseudo-retouch on chert or quartz
Thiébaut 2010	0	soil	flint, chert, quartzite, quartz	236	1 month	identification criteria and discriminating characteristics
McBrearty et al 1998	0	sand, loam	chert, obsidian	1400	60min	pseudo-tools can be classified according to Bordes typology
Shea & Klenck 1993	2-5cm	sandy soil	flint	60	90min	trampling can mask use-wear traces
Nielsen 1991	0	dry surfaces with no vegetation	obsidian	219	1500/800x	scars randomly distributed, isolated, on both surfaces; pseudo-retouch present
Pryor 1988	0	sand, loam	obsidian	1800	120min	scars random, not elongated; on both surfaces
Boot 1987	0/2cm	wet, dry sand	quartz, tuff, silcrete, chalcedony	51	16min	different soil conditions result in different intensities of artefact edge damage
Gifford-Gonzalez et al 1985	0	sand, loam	obsidian	2000	120min	flake scars random; mostly perpendicular, substrate important for scar shape formation
Tringham et al 1974	0	/	flint	10	30min	damage random, but on one surface only; scars elongated, with no fixed orientantion or size

2016 TRAMPLING EXPERIMENT

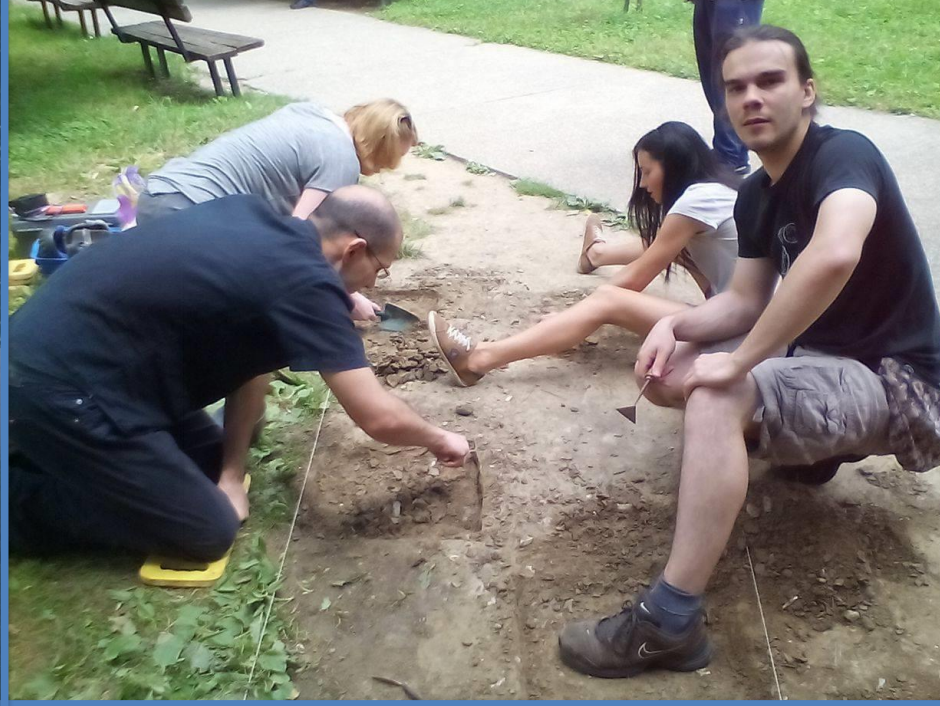
TRAMPLING EXPERIMENT 1 (E.T. 1) 2015/2016

Authors/ Methodology	Depth	Substrate	Material	Sample size	Duration	Results
Šprem, Karavanić, Šošić Klindžić	15 cm	dry soil debris	5 different types of silliceous rocks	40 (20 +20)	~ 7 months	?

18.11.2015.


18.11.2015.


10.02.2016.



14. & 15.06.2016.

2018 TRAMPLING EXPERIMENT

TRAMPLING EXPERIMENT 2 (E.T. 2) 2018

Authors/ Methodology	Depth	Substrate	Material	Sample size	Duration	Results
Šprem, Karavanić	-	debris	6 different types of silliceous rocks	80	30 minutes	?

Crna Draga – lighter

Istria

Melos

Crna Draga – darker

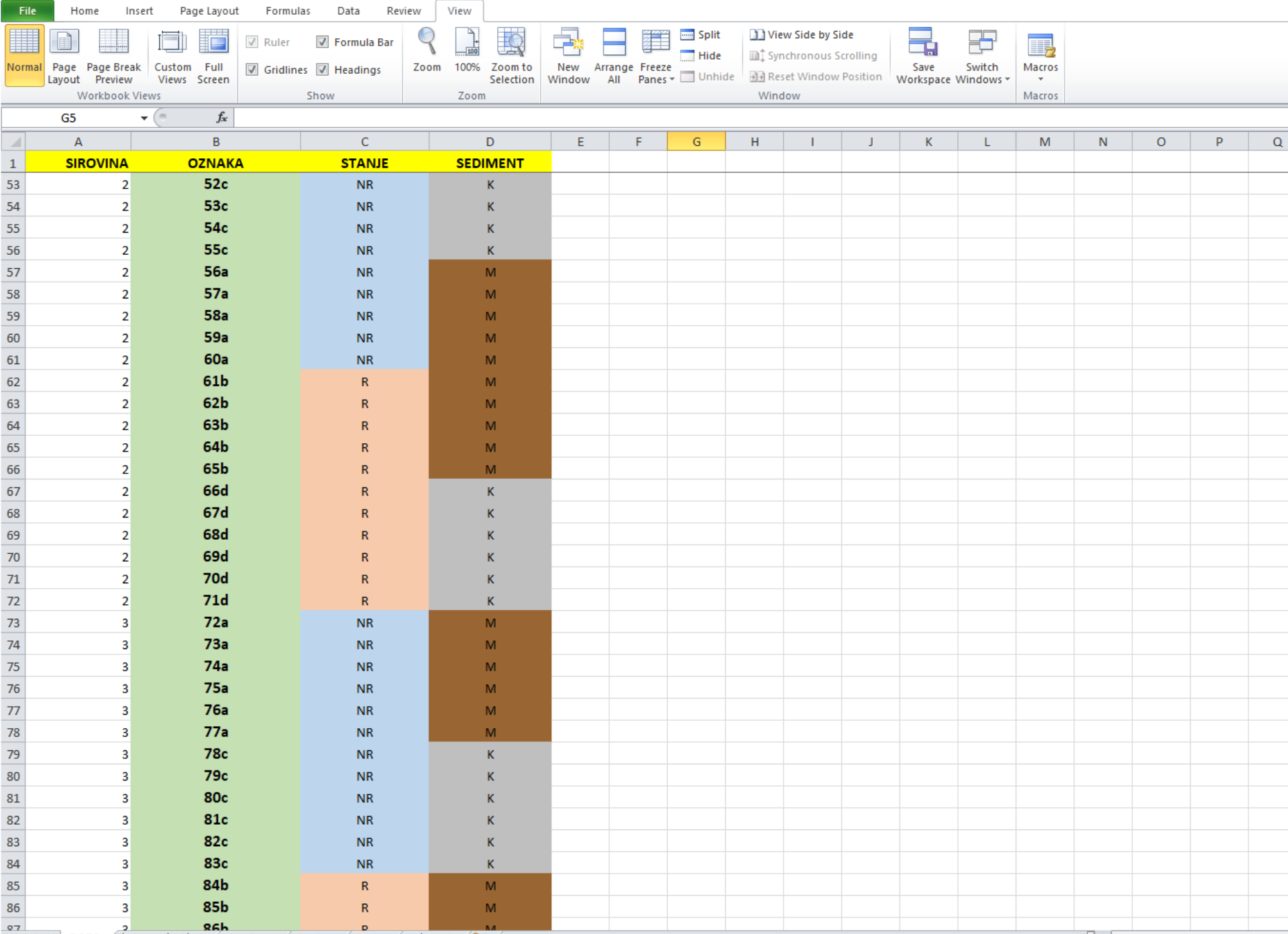
Trogir

Slavonija

May 2017

May 2017

May 2017



File Home Insert Page Layout Formulas Data Review View

Normal Page Layout Page Break Preview Custom Views Full Screen — Workbook Views

Ruler Formula Bar Gridlines Headings — Show

Zoom 100% Zoom to Selection — Zoom

New Window Arrange All Freeze Panes Split Hide Unhide — Window

View Side by Side Synchronous Scrolling Reset Window Position

Save Workspace Switch Windows

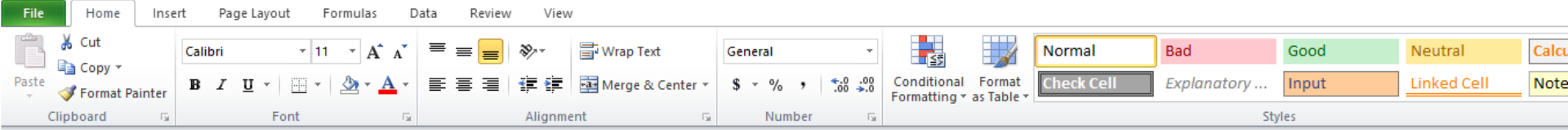
Macros — Macros

G5

	A	B	C	D
1	SIROVINA	OZNAKA	STANJE	SEDIMENT
53	2	52c	NR	K
54	2	53c	NR	K
55	2	54c	NR	K
56	2	55c	NR	K
57	2	56a	NR	M
58	2	57a	NR	M
59	2	58a	NR	M
60	2	59a	NR	M
61	2	60a	NR	M
62	2	61b	R	M
63	2	62b	R	M
64	2	63b	R	M
65	2	64b	R	M
66	2	65b	R	M
67	2	66d	R	K
68	2	67d	R	K
69	2	68d	R	K
70	2	69d	R	K
71	2	70d	R	K
72	2	71d	R	K
73	3	72a	NR	M
74	3	73a	NR	M
75	3	74a	NR	M
76	3	75a	NR	M
77	3	76a	NR	M
78	3	77a	NR	M
79	3	78c	NR	K
80	3	79c	NR	K
81	3	80c	NR	K
82	3	81c	NR	K
83	3	82c	NR	K
84	3	83c	NR	K
85	3	84b	R	M
86	3	85b	R	M

BAZA baza - ukratko signature sirovine stanje sediment

Ready



1 MELOS			
	1 - 25	1c - 13c	neretuširani
		14a - 25a	
	26 - 50	26b - 38b	retuširani
		39d - 50d	
2 TROGIR			
	51 - 60	51c - 55c	neretuširani
		56a - 60a	
	61 - 71	61b - 65b	retuširani
		66d - 71d	
3 SLAVONIJA			
	72 - 83	72a - 77a	neretuširani
		78c - 83c	
	84 - 91	84b - 87b	retuširani
		88d - 91d	
4 ISTRA			
	92 - 106	92a - 99a	neretuširani
		100c - 106c	
	107 - 121	107b - 114b	retuširani
		115d - 121d	
5 CRNA DRAGA - SVIJETLIJA			
	122 - 136	122a - 128a	neretuširani
		129c - 136c	
	137-151	137b - 143b	retuširani
		144d - 151d	
6 CRNA DRAGA - TAMNIJA			
	152 - 166	152a - 158a	neretuširani
		159c - 166c	
	167 - 181	167b - 173b	retuširani
		174d - 181d	

September 2018


September 2018


September 2018

„To avoid flake initiation from the shoes themselves, the participants wore soft-soled shoes.“ **McPherron et al. 2014**

September 2018


W200
15'00"


September 2018

RESULTS

EDGE DAMAGE

- P. Villa i M. Soressi 2000:

  1. **MARGINAL** – <1.5 mm

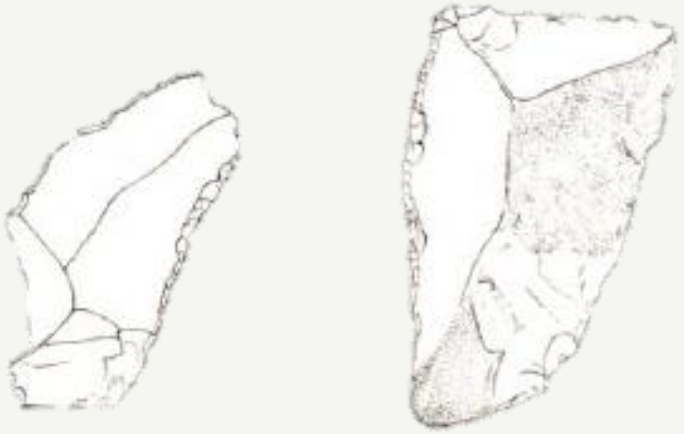
  2. **MEDIUM** – 1.5 – 4.5 mm

  3. **MICROFRACTURES** – (edge break without a bulbar scar)

ADDED VALUES

4. CHIPPED – severely affects artifact morphology

5. BREAKAGE – broke in half



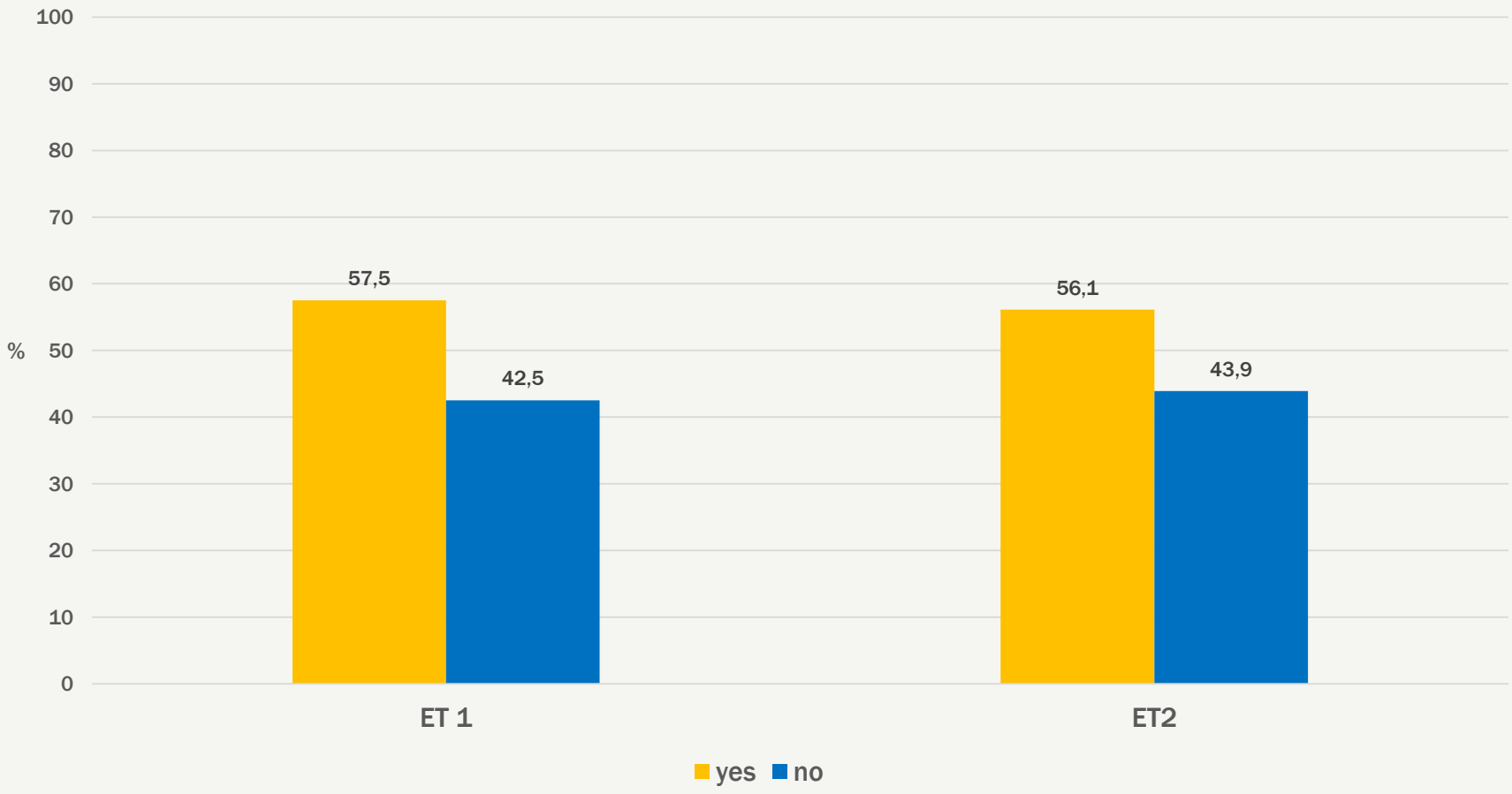
MCBREARTY ET AL. 1998

Pseudo-tools *show one or more large scars (>3mm); in most cases these scars are* ***contiguous****.*

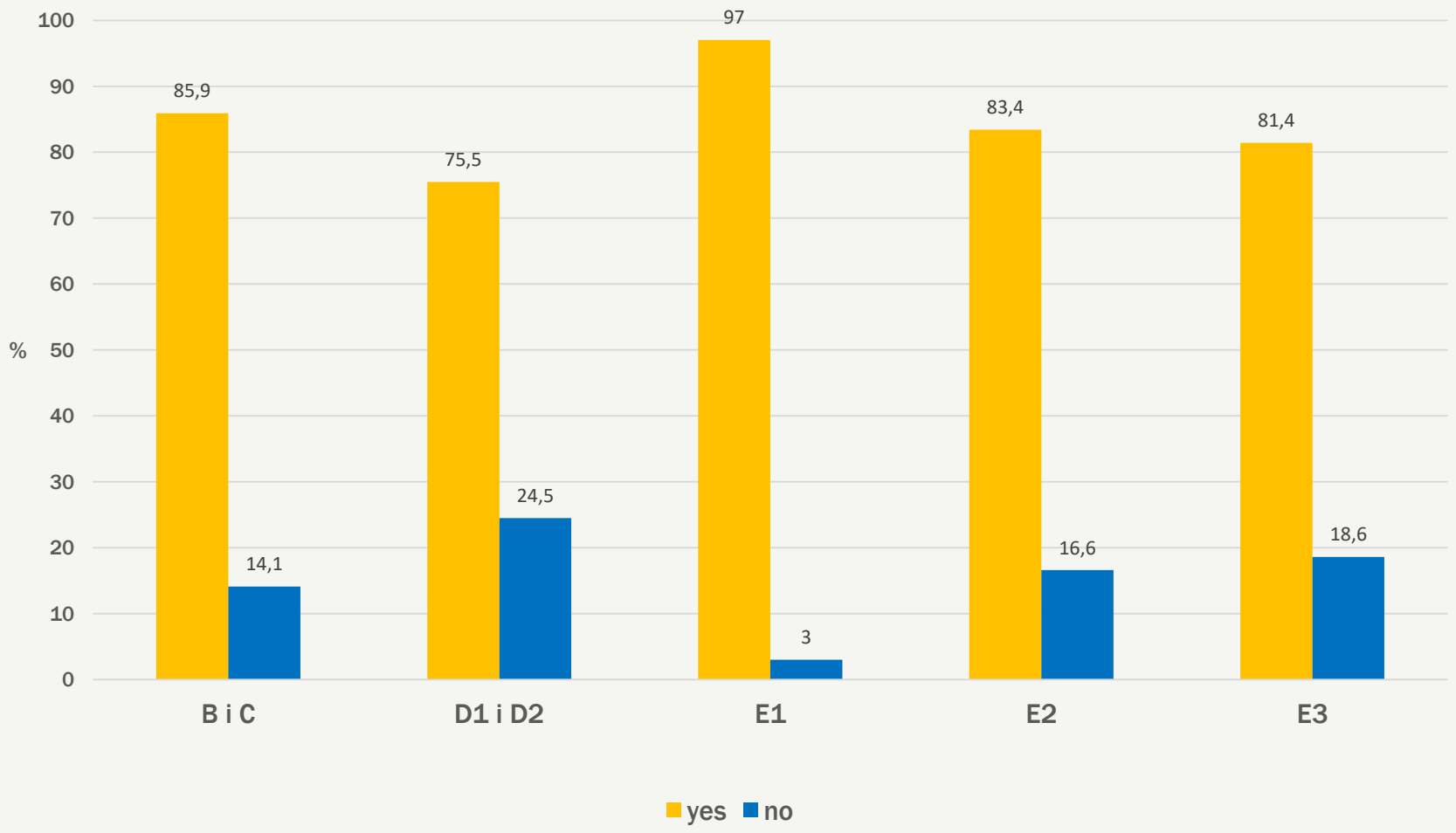
E.T. 2	No. (out of 82)	%
not retrieved	0	0
breakage	2	2,4
chipped	20	24,4
edge damage	46	56,1
pseudo-tool	13	15,9

E.T. 1	No. (out of 40)	%
not retrieved	1	2,5
breakage	1	2,5
edge damage	23	57,5
pseudo-tool	6	15

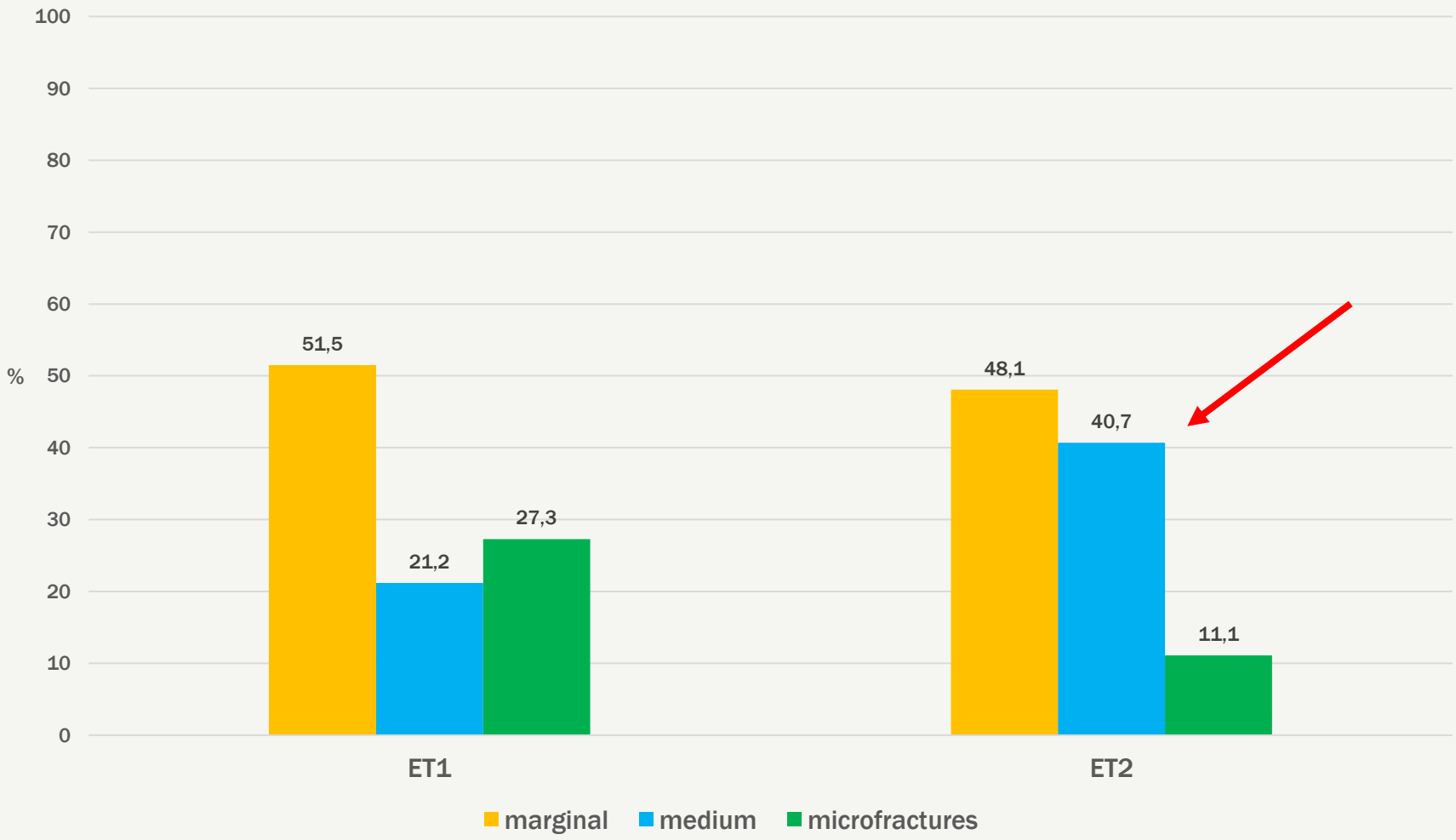
EXPERIMENTAL EDGE DAMAGE



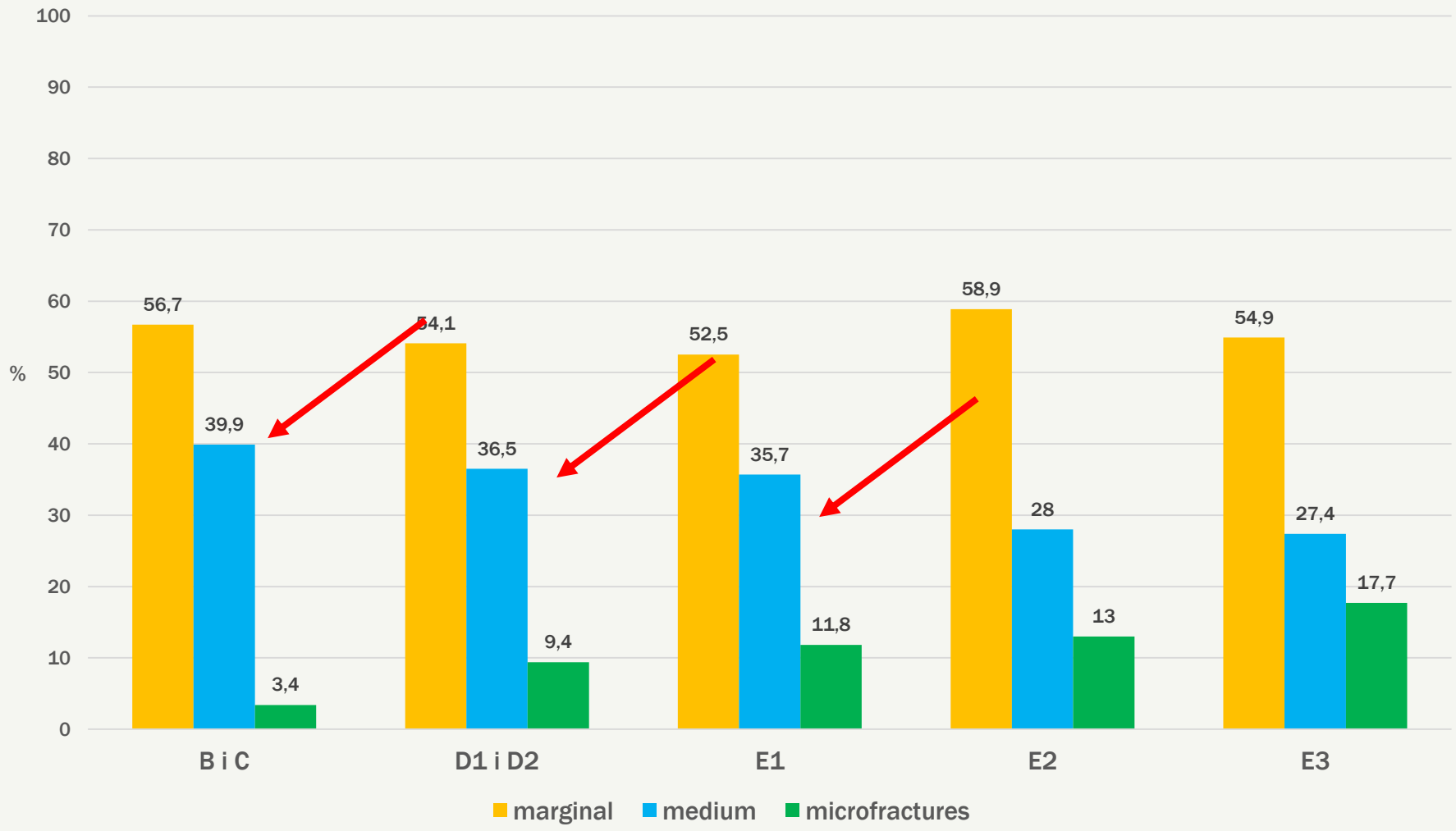
EDGE DAMAGE – MUJINA PEĆINA



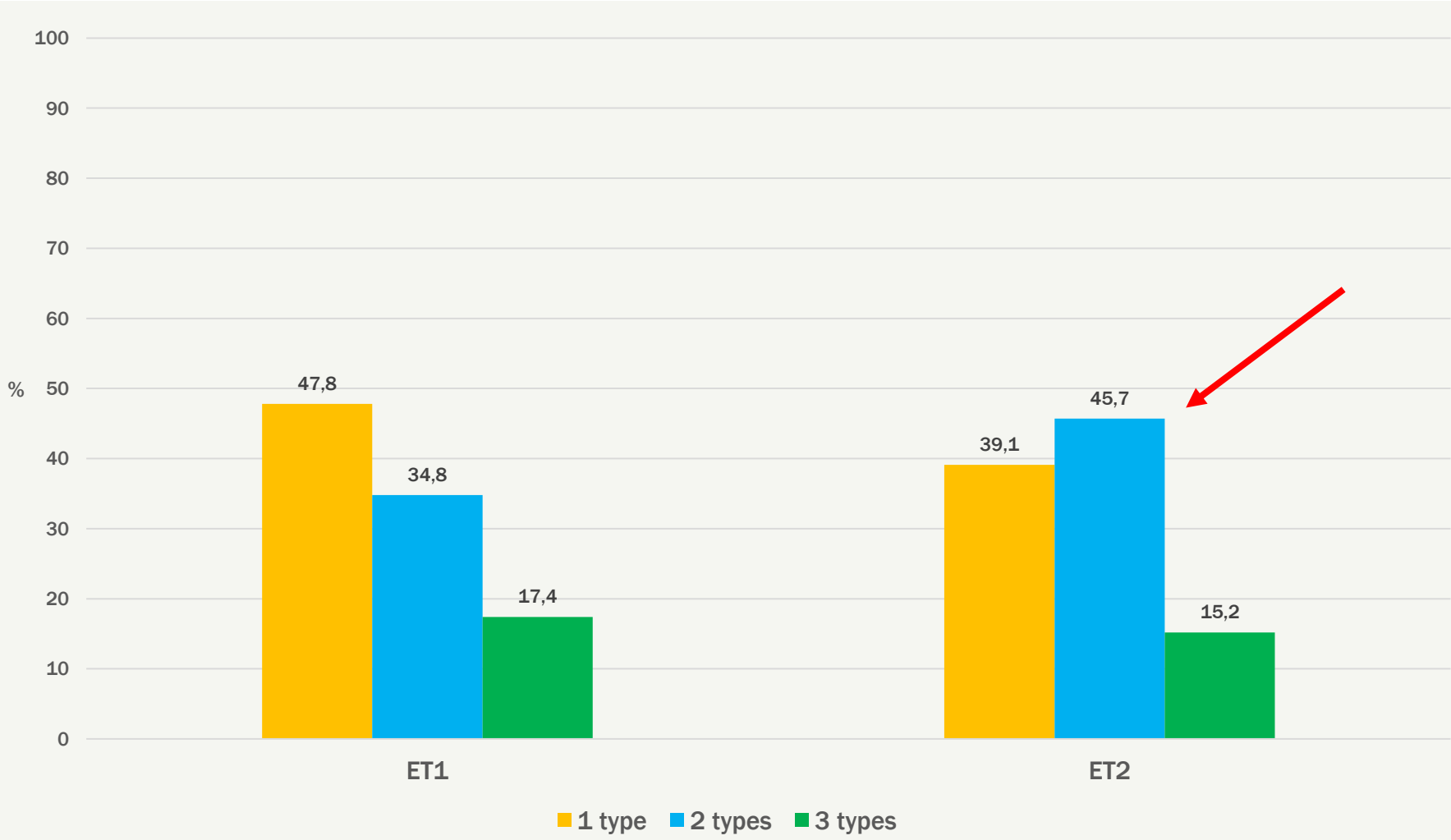
EXPERIMENTAL EDGE DAMAGE TYPES



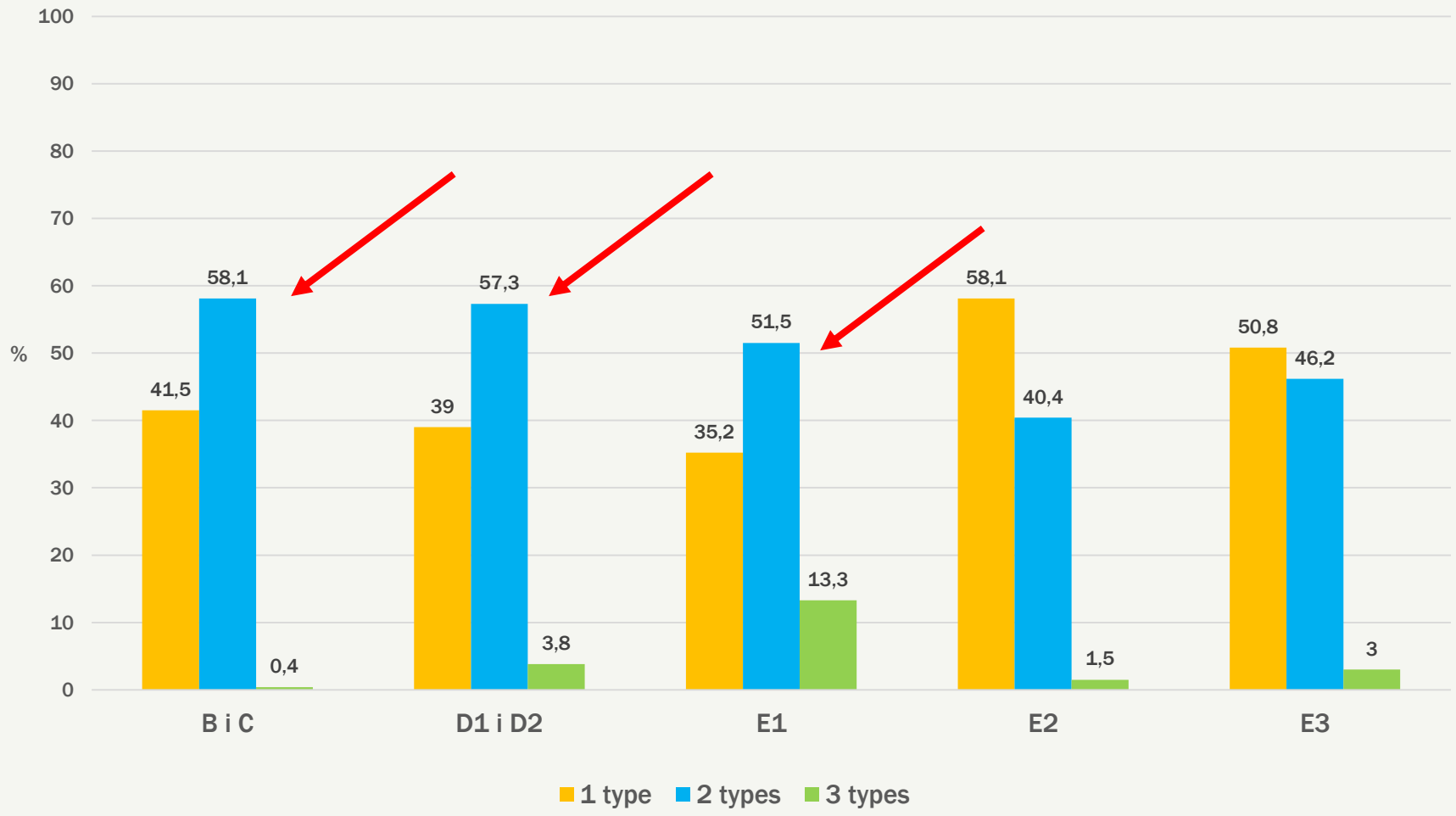
EDGE DAMAGE TYPES – MUJINA PEĆINA



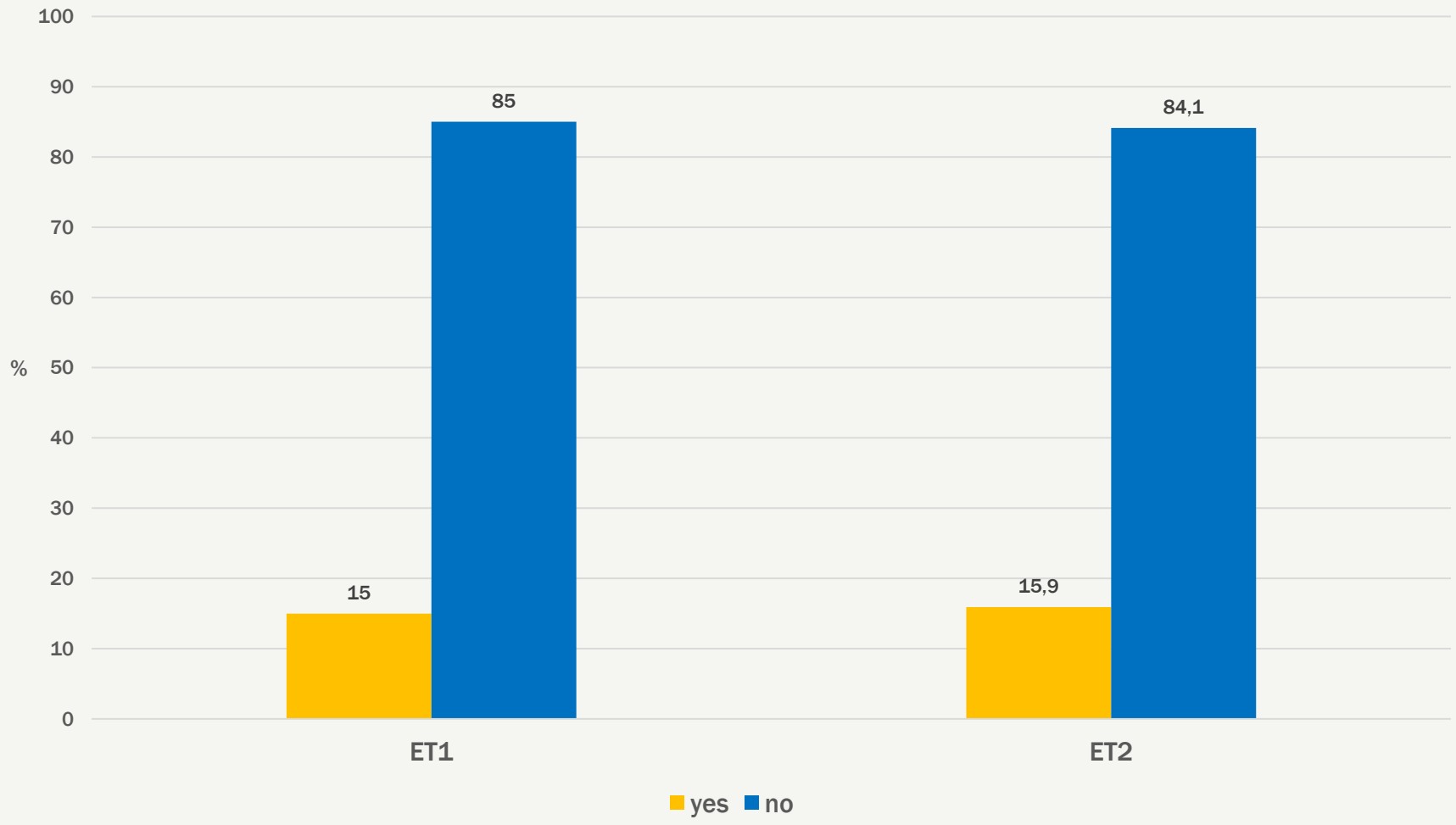
QUANTITY OF EXPERIMENTAL EDGE DAMAGE



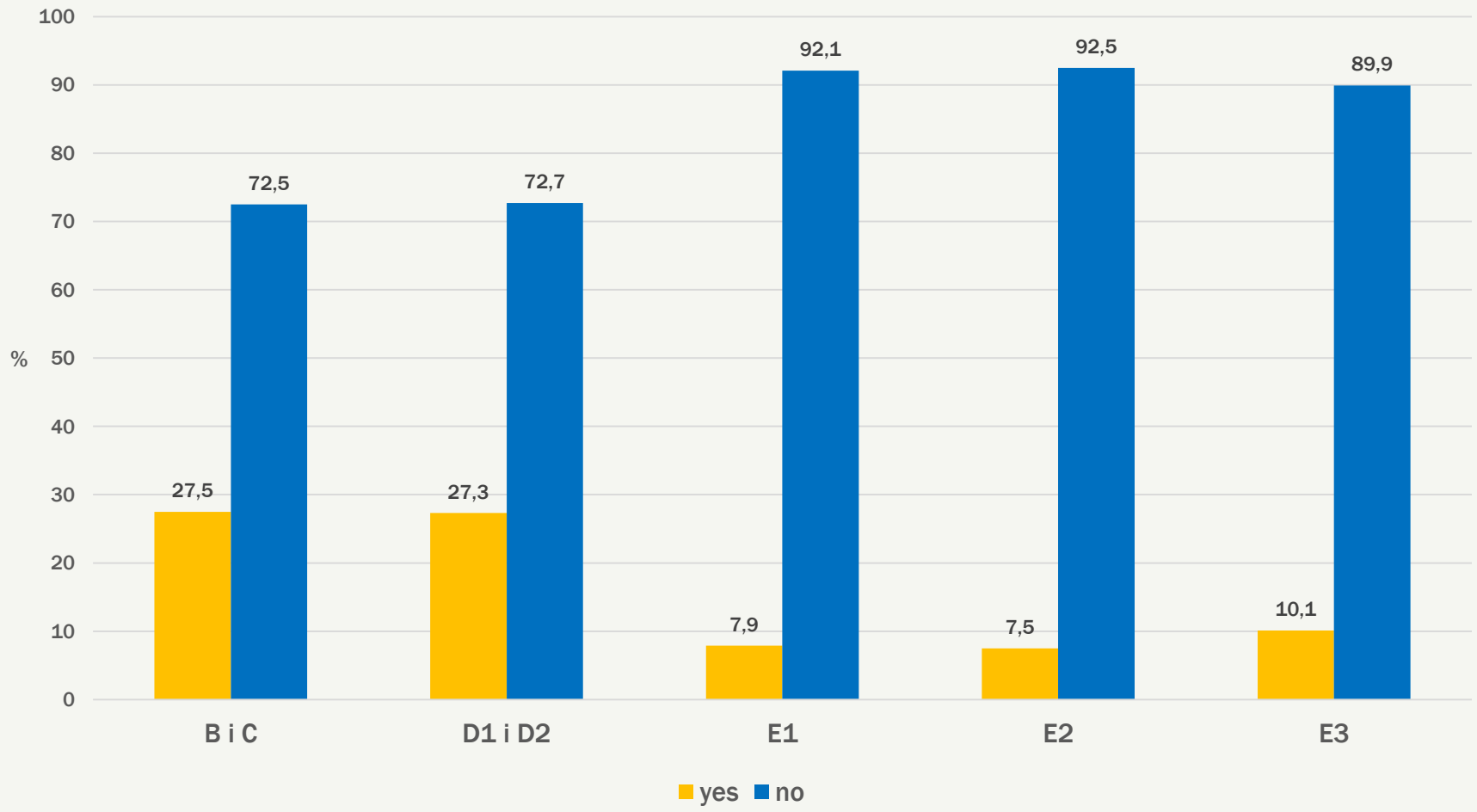
QUANTITY OF EDGE DAMAGE – MUJINA PEĆINA



EXPERIMENTAL PSEUDO-RETOUCH



PSEUDO-RETOUCH – MUJINA PEĆINA



CONCLUSION

- ET1 and ET2 have some similar results regardless of different methodologies
- 30min of trampling produced 13 pseudo-tools
- taphonomy as a need-to-know process
- direct trampling (ET2) produced more edge-damage -> similar to upper layers (B – D) and layer E1 of Mujina pećina
  - associated with the quantity of stone debris in the sediment?

WE WOULD LIKE TO THANK:

- Dinko Radić
- Rajna Šošić Klindžić
- Tea Bušac
- Ivana Ida Radanović
- Lia Vidas
- Ana Škreblin

While we all would like to be the one to find a prehistoric Pompeii, all of our reconstructions of human prehistory will be far more accurate if they are based on a thorough understanding of taphonomy and its effects on prehistoric assemblages.

Dibble et al. 1997, 647

REFERENCES

- BOŠNJAK, T. 2012. Pseudoobrada i oštećenja ruba na litičkom materijalu iz sloja E1 srednjopaleolitičkog nalazišta Mujina pećina. *Neobjavljeni diplomski rad.* Sveučilište u Zagrebu, Zagreb.
- BOOT, P. 1987. Trampling Damage on Stone Artefacts – Some Experimental Results. *Australian Archaeology* 24, 10 – 15.
- DIBBLE, H. L., CHASE, P. G., MCPHERRON, S. P., TUFFREAU, A. 1997. Testing the Reality of a "Living Floor" with Archaeological Data. *American Antiquity* 62, 629-651.
- GIFFORD – GONZALEZ, D. P., DAMROSCH, D. B., DAMROSCH, D. R., PRYOR, J., THUNEN, R. L. 1985. The Third Dimension in Site Structure: An Experiment in Trampling and Vertical Dispersal. *American Antiquity* 50, 803 – 818.
- MCBREARTY, S., BISHOP, L., PLUMMER, T., DEWAR, R., CONARD, N. 1998. Tools underfoot: Human Trampling as an Agent of Lithic Artifact Edge Modification. *American Antiquity* 63, 108-129.
- MCPHERRON, S., BRAUN, D. R., DOGANDŽIĆ, T., ARCHER, W., DESTA, D., LIN, S. C. 2014. An experimental assessment of the influences on edge damage to lithic artifacts: a consideration of edge angle, substrate grain size, raw material properties and exposed face. *Journal of Archaeological Science* 49, 70 – 82.
- NIELSEN, A. E. 1991. Trampling the Archaeological Record: An Experimental Study. *American Antiquity* 56, 483-503.
- PRYOR, J. H. 1988. The Effects Of Human Trample Damage On Lithics: A Consideration Of Crucial Variables. *Lithic Technology* 17, 45 – 50.
- SHEA, J. J., KLENCK, J. D. 1993. An Experimental Investigation of the Effects of Trampling on the Results of Lithic Microwear Analysis. *Journal of Archaeological Science* 20, 175 – 194.
- THIÉBAUT, C. 2010. Denticulate Mousterian: Myth or Reality? *ACTA UNIVERSITATIS WRATISLAVIENSIS* 3207,345 – 386.
- TRINGHAM, R., COOPER, G., ODELL, G., VOYTEK, B., WHITMAN, A. 1974. Experimentation in the Formation of Edge Damage: A New Approach to Lithic Analysis. *Journal of Field Archaeology* 1, 171 – 196.
- VILLA, P., SORESSI, M. 2000. Stone Tools in Carnivore Sites: The Case of Bois Roche. *Journal of Anthropological research* 56, 187-215.
- ŠPREM, K. 2016. Litički materijal iz Mujine pećine. *Neobjavljeni diplomski rad.* Sveučilište u Zagrebu, Zagreb.