

APPENDIX B

LITHICS DATA AND STATISTICS

Table 36. N416 E568, counts of lithic artifacts recovered by level.

		<i>Total</i>			<i>Macro-</i>	<i>Whole</i>	<i>Biface</i>	<i>Cmplt</i>	<i>Flake</i>	<i>Brkn</i>	
<i>Level</i>	<i>Material</i>	<i>#</i>	<i>Blank</i>	<i>Core</i>	<i>flake</i>	<i>biface</i>	<i>frag</i>	<i>flake</i>	<i>frag</i>	<i>flake</i>	<i>Debris</i>
Sup	B	78					1	8	9	7	52
Sup	B	92		1				14	30	18	28
Sup	L	5						1	1		3
1	B	58		2	1		1	5	5	8	33
1	L	2					1		1		
1	L	1					1				
1	B	1					1				
2	B	20				1	2	4	4	3	6
2	L	2								1	
2	L	2									
3	B	15					1	1	1		12
4	B	13					2		1	2	7
4	L	3					1		1		1
4	L	2									
5	B	14						2	3	3	5
10	B	4		1					1		2
11	B	5		1			1				2
12	B	3							2	1	
13	B	2					1		1		
14	B	3					2		1		
15	L	1					1				
Totals:		326	0	5	1	1	16	35	61	43	151

Level: Sup = Superficie/Surface

Material: B = Basalt, L = Local stone, Ob = Obsidian, Op = Opalo

Table 37. N425 E526, counts of lithic artifacts recovered by level.

		<i>Total</i>			<i>Macro-</i>	<i>Whole</i>	<i>Biface</i>	<i>Cmplt</i>	<i>Flake</i>	<i>Brkn</i>	
<i>Level</i>	<i>Material</i>	<i>#</i>	<i>Blank</i>	<i>Core</i>	<i>flake</i>	<i>biface</i>	<i>frag</i>	<i>flake</i>	<i>frag</i>	<i>flake</i>	<i>Debris</i>
Sup	<i>B</i>	51		1			4	1	9	14	21
Sup	<i>L</i>	1									
1	<i>B</i>	27			1		4	3	6	4	9
1	<i>B</i>	1				1					
2	<i>B</i>	13		1			3	1	3	1	4
2	<i>L</i>	2					1				
3	<i>B</i>	16					1	1	4	2	8
3	<i>L</i>	1					1				
3	<i>Ob</i>	1									
4	<i>B</i>	29					7	3	2	2	15
4	<i>L</i>	3									
5	<i>B</i>	17		1			2	1	4	1	8
5	<i>B</i>	1									
8	<i>B</i>	1							1		
9	--	0									
10	<i>B</i>	6		1			2	1		1	1
11	<i>B</i>	18							3		15
11	<i>Ob</i>	1							1		
11	<i>B</i>	1									
12	--	0									
13	<i>B</i>	10					2	1	1	1	5
14	<i>B</i>	11					3		1		7
14	<i>L</i>	2					1				
15	<i>B</i>	2					1				1
Totals:		214	0	4	1	1	32	12	35	26	94

Level: Sup = Superficie/Surface

Material: B = Basalt, L = Local stone, Ob = Obsidian, Op = Opalo

Table 38. N463 E516, counts of lithic artifacts recovered by level.

		<i>Total</i>			<i>Macro-</i>	<i>Whole</i>	<i>Biface</i>	<i>Cmplt</i>	<i>Flake</i>	<i>Brkn</i>	
<i>Level</i>	<i>Material</i>	<i>#</i>	<i>Blank</i>	<i>Core</i>	<i>flake</i>	<i>biface</i>	<i>frag</i>	<i>flake</i>	<i>frag</i>	<i>flake</i>	<i>Debris</i>
Sup	B	67		3	1		2	10	7	17	22
1	B	195		5		2	11	7	36	28	100
1	L	4									
1	L	1		1							
1	L	1					1				
1	Ob	7		1				1	1		4
2	B	31		3			1	5	3	3	14
2	L	1									
2	Ob	3									3
3	B	28		3			4	1	2	3	15
4	B	22		1			4	3	2	3	8
4	L	1									
5	B	35									
5	L	9		1		1	3	2			1
5	Ob, Op	2		1							1
5	L	1				1					
6	B	38		1	1		2	3	7	7	16
6	L	3		2						1	
7	B	42		5	4		5	2	7	4	15
7	L	2		1							1
8	B	48		2		1	2	3	8	9	22
8	L	2		2							
9	B	17					1	5	4	2	3
10	B	37		1			1	2	7	3	22
10	L	2					2				
11	B	37					2	4	7	9	14
12	B	48		1			5	6	6	12	14
12	L	1									1
12	B	9								3	6
13	B	42		2			2	2	3	10	21
13	L	1									
14	B	47		2	1		3	3	10	7	20
14	L	1									1
15	B	43			1			3	10	4	24
15	B	1									
16	B	33					2	9	4	3	13
17	B	17		3			1	2	2	2	7
17	L	1									
18	B	1									1
19	B	2								1	1
Totals:		883	0	41	8	5	54	73	126	131	370

Table 39. N468 E480, counts of lithic artifacts recovered by level.

		<i>Total</i>			<i>Macro-</i>	<i>Whole</i>	<i>Biface</i>	<i>Cmplt</i>	<i>Flake</i>	<i>Brkn</i>	
<i>Level</i>	<i>Material</i>	<i>#</i>	<i>Blank</i>	<i>Core</i>	<i>flake</i>	<i>biface</i>	<i>frag</i>	<i>flake</i>	<i>frag</i>	<i>flake</i>	<i>Debris</i>
Sup	<i>B</i>	95		2	1		2	11	20	27	32
Sup	<i>L</i>	2							1	1	
Sup	<i>B</i>	156		3			3	18	58	22	52
Sup	<i>L</i>	1									1
Sup	<i>Ob</i>	2									2
1	<i>B</i>	146		3			6	7	4	16	35
1	<i>L</i>	3					1				2
1	<i>B</i>	75		5			5	7	20	10	28
1	<i>L</i>	1								1	
1	<i>Ob</i>	3								2	1
2	<i>B</i>	27		1	3		4	2	2	5	10
2	<i>L</i>	3							1		2
2	<i>Ob</i>	1									
3	<i>B</i>	15					2		3	3	7
3	<i>L</i>	1									
4	<i>B</i>	11		1	1		1	4		3	
4	<i>L</i>	3				1	2				
5	<i>B</i>	14					1	1	3	1	8
5	<i>L</i>	1					1				
5	<i>L</i>	3		1			1	1			
13	<i>B</i>	10					2	2			6
14	<i>B</i>	6					1	1			4
15	<i>B</i>	3									3
16	<i>B</i>	5					1				4
Totals:		534	0	13	1	0	17	43	103	79	153

Level: Sup = Superficie/Surface

Material: B = Basalt, L = Local stone, Ob = Obsidian, Op = Opalo

Table 40. N511 E509, counts of lithic artifacts recovered by level.

		<i>Total</i>			<i>Macro-</i>	<i>Whole</i>	<i>Biface</i>	<i>Cmplt</i>	<i>Flake</i>	<i>Brkn</i>	
<i>Level</i>	<i>Material</i>	<i>#</i>	<i>Blank</i>	<i>Core</i>	<i>flake</i>	<i>biface</i>	<i>frag</i>	<i>flake</i>	<i>frag</i>	<i>flake</i>	<i>Debris</i>
Sup	<i>B</i>	20					1	1	1	1	16
1	<i>B</i>	22					5	2	3	1	11
2	<i>B</i>	8							2	4	2
2	<i>Ob</i>	3									3
3	<i>B</i>	31		3	2		2	4	5	3	11
3	<i>L</i>	1							1		
3	<i>Op</i>	1									
4	<i>B</i>	22			2			3	7	4	5
5	<i>B</i>	17			1		2		7	2	5
8	<i>L</i>	2									
9	<i>L</i>	1									
9	<i>L</i>	1									
14	<i>B</i>	4							2		1
14	<i>L</i>	1		1							
15	<i>B</i>	10			1		1		1	2	5
15	<i>L</i>	5									
16	<i>B</i>	5							1	2	2
16	<i>L</i>	2									
16	<i>B</i>	1									1
17	<i>L</i>	2									
17	<i>Ob</i>	2						1			1
17	<i>L</i>	2									
17	<i>L</i>	1									
18	<i>L</i>	2							1		1
Totals:		166	0	4	6	0	11	11	31	19	64

Level: Sup = Superficie/Surface

Material: B = Basalt, L = Local stone, Ob = Obsidian, Op = Opalo

Table 41. N517 E450, counts of lithic artifacts recovered by level.

		<i>Total</i>			<i>Macro-</i>	<i>Whole</i>	<i>Biface</i>	<i>Cmplt</i>	<i>Flake</i>	<i>Brkn</i>	
<i>Level</i>	<i>Material</i>	<i>#</i>	<i>Blank</i>	<i>Core</i>	<i>flake</i>	<i>biface</i>	<i>frag</i>	<i>flake</i>	<i>frag</i>	<i>flake</i>	<i>Debris</i>
Sup	<i>B</i>	170					1	23	61	40	45
Sup	<i>L</i>	3									3
Sup	<i>Ob</i>	1								1	
1	<i>B</i>	57		1			1	13	8	5	26
1	<i>L</i>	2									
2	<i>L</i>	1									
2	<i>B</i>	3						1		1	1
2	<i>B</i>	33					4	8	3	1	17
2	<i>L</i>	1									
3	<i>B</i>	39	1	1	2			9	3	2	20
3	<i>L</i>	1									
3	<i>L</i>	1									
4	<i>B</i>	48		1	5		1	4	13	9	15
4	<i>L</i>	9					1		2	1	
5	<i>B</i>	48	1	3	1		1	9	4	8	22
10	<i>B</i>	27					3	3		2	16
10	<i>L</i>	1									
10	<i>L</i>	1									
10	<i>Ob</i>	1									1
11	<i>B</i>	6					2	2			2
12	<i>B</i>	3							1	1	1
13	<i>B</i>	1				1					
14	<i>B</i>	5		1			2		1	1	
14	<i>L</i>	2									
Totals:		464	2	7	8	1	16	72	96	72	169

Level: Sup = Superficie/Surface

Material: B = Basalt, L = Local stone, Ob = Obsidian, Op = Opalo

Table 42. N559 E589, counts of lithic artifacts recovered by level.

		<i>Total</i>			<i>Macro-</i>	<i>Whole</i>	<i>Biface</i>	<i>Cmplt</i>	<i>Flake</i>	<i>Brkn</i>	
<i>Level</i>	<i>Material</i>	<i>#</i>	<i>Blank</i>	<i>Core</i>	<i>flake</i>	<i>biface</i>	<i>frag</i>	<i>flake</i>	<i>frag</i>	<i>flake</i>	<i>Debris</i>
Sup	<i>B</i>	17		1			1	1	2		12
1	<i>B</i>	182					3	13	23	27	111
1	<i>Ob</i>	2		2							
2	<i>B</i>	34		1			2	3	5	4	19
2	<i>L</i>	4					4				
3	<i>B</i>	19				1	3	1	3	3	8
3	<i>L</i>	1									
3	<i>L</i>	2					2				
4	<i>B</i>	14						1		1	12
5	<i>B</i>	1									1
5	<i>L</i>	2					1				1
6	<i>L</i>	1									
7	<i>B</i>	3							2		1
8	<i>L</i>	1									
9	<i>B</i>	2								1	1
9	<i>L</i>	1						1			
10	<i>L</i>	1									
<i>Totals:</i>		287	0	4	0	1	16	20	35	36	166

Level: Sup = Superficie/Surface

Material: B = Basalt, L = Local stone, Ob = Obsidian, Op = Opalo

Table 43. Counts of lithic artifact categories from the four central zone units for the Niñalupita, Isahuara, and Jachakala period.

	N468 E480			N511 E509		
Artifact:	Niña	Isah	Jach	Niña	Isah	Jach
Broken flake	0	5	87	4	6	9
Flake fragment	0	3	118	5	13	12
Macroflake	0	1	4	1	3	2
Tool blank	0	0	0	0	0	0
Complete flake	3	6	48	1	3	9
Debris	17	8	172	11	10	41
Biface fragment	4	6	23	1	2	8
Core	0	2	15	0	0	3
Totals:	24	31	467	23	37	84
	N517 E450			N559 E589		
Artifact:	Niña	Isah	Jach	Niña	Isah	Jach
Broken flake	1	18	50	0	2	34
Flake fragment	1	18	75	0	2	33
Macroflake	0	6	2	0	0	0
Tool blank	0	1	2	0	0	0
Complete flake	0	18	55	0	2	18
Debris	0	58	112	0	16	147
Biface fragment	2	8	6	0	1	15
Core	1	4	2	0	0	4
Totals:	5	131	304	0	23	251

Table 44. Counts and proportions of lithic artifacts recovered from the central zone for the Niñalupita, Isahuara, and Jachakala period.

	Counts			Proportions		
Artifact:	Niñalupita	Isahuara	Jachakala	Niñalupita	Isahuara	Jachakala
Broken flake	5	31	180	0.1	0.14	0.16
Flake fragment	6	36	238	0.12	0.16	0.22
Macroflake	1	10	8	0.02	0.05	0.01
Tool blank	0	1	2	0	0	0
Complete flake	4	29	130	0.08	0.13	0.12
Debris	28	92	472	0.54	0.41	0.43
Biface fragment	7	17	52	0.13	0.08	0.05
Core	1	6	24	0.02	0.03	0.02
Totals:	52	222	1106	1.01	1	1.01

Table 45. Counts of lithic artifact categories from the three southern zone units for the Niñalupita, Isahuara, and Jachakala period.

<i>Artifact:</i>	<i>N416 E568</i>			<i>N425 E526</i>			<i>N463 E516</i>		
	<i>Niña</i>	<i>Isah</i>	<i>Jach</i>	<i>Niña</i>	<i>Isah</i>	<i>Jach</i>	<i>Niña</i>	<i>Isah</i>	<i>Jach</i>
Broken flake	0	6	37	1	4	21	27	52	51
Flake fragment	2	8	51	2	11	22	29	48	50
Macroflake	0	0	1	0	0	1	2	5	1
Tool blank	0	0	0	0	0	0	0	0	0
Complete flake	0	2	33	1	5	7	19	30	25
Debris	0	17	132	13	39	42	88	123	158
Biface fragment	4	5	8	7	11	14	8	27	19
Core	0	2	3	0	4	2	7	18	16
Totals:	6	40	265	24	74	109	180	303	320

Table 46. Counts and proportions of lithic artifacts recovered from the southern zone for the Niñalupita, Isahuara, and Jachakala period.

<i>Artifact:</i>	<i>Counts</i>			<i>Proportions</i>		
	<i>Niña</i>	<i>Isah</i>	<i>Jach</i>	<i>Niña</i>	<i>Isah</i>	<i>Jach</i>
Broken flake	28	62	109	0.13	0.15	0.16
Flake fragment	33	67	123	0.16	0.16	0.18
Macroflake	2	5	3	0.01	0.01	0
Tool blank	0	0	0	0	0	0
Complete flake	20	37	65	0.1	0.09	0.09
Debris	101	179	332	0.48	0.43	0.48
Biface fragment	19	43	41	0.09	0.1	0.06
Core	7	24	21	0.03	0.06	0.03
Totals:	210	417	694	1	1	1

Table 47. Chi squares, Niñalupita period lithics.

a.) including both production and consumption debris.

Observed:

	Broken	Frag	Macro	Blank	Cmplt	Debris	Bifrag	Core	Totals
Center	5	6	1	0	4	28	7	1	52
South	28	33	2	0	20	101	19	7	210
Totals	33	39	3	0	24	129	26	8	262

Expected:

	Broken	Frag	Macro	Blank	Cmplt	Debris	Bifrag	Core	Totals
Center	6.55	7.74	0.60	0	4.76	25.60	5.16	1.59	52
South	26.45	31.26	2.40	0	19.24	103.40	20.84	6.41	210
Totals	33	39	3	0	24	129	26	8	262

b.) production debris only.

Observed:

	Broken	Frag	Macro	Blank	Totals
Center	5	6	1	0	12
South	28	33	2	0	63
Totals	33	39	3	0	75

Expected:

	Broken	Frag	Macro	Blank	Totals
Center	5.28	6.24	0.48	0	12
South	27.72	32.76	2.52	0	63
Totals	33	39	3	0	75

Table 47. (cont'd)

c.) consumption debris only.

Observed:

	Cmplt	Debris	Bifrag	Core	Totals
Center	4	28	7	1	40
South	20	101	19	7	147
Totals	24	129	26	8	187

Expected:

	Cmplt	Debris	Bifrag	Core	Totals
Center	5.13	27.59	5.56	1.71	40
South	18.87	101.41	20.44	6.29	147
Totals	24	129	26	8	187

(Key: Broken = broken flakes; Frag = flake fragments; Macro = macroflake; Blank = tool blank; Cmplt = complete flakes; Debris = debris or shatter; Bifrag = biface fragment; Core = core)

Table 48. Chi squares, Isahuara period lithics.

a.) including both production and consumption debris.

Observed:

	Broken	Frag	Macro	Blank	Cmplt	Debris	Bifrag	Core	Totals
Center	31	36	10	1	29	92	17	6	222
South	62	67	5	0	37	179	43	24	417
Totals	93	103	15	1	66	271	60	30	639

Expected:

	Broken	Frag	Macro	Blank	Cmplt	Debris	Bifrag	Core	Totals
Center	32.31	35.78	5.21	0.35	22.93	94.15	20.85	10.42	222
South	60.69	67.22	9.79	0.65	43.07	176.85	39.15	19.58	417
Totals	93	103	15	1	66	271	60	30	639

b.) production debris only.

Observed:

	Broken	Frag	Macro	Blank	Totals
Center	31	36	10	1	78
South	62	67	5	0	134
Totals	93	103	15	1	212

Expected:

	Broken	Frag	Macro	Blank	Totals
Center	34.22	37.90	5.52	0.37	78
South	58.78	65.10	9.48	0.63	134
Totals	93	103	15	1	212

Table 48. (cont'd)

c.) consumption debris only.

Observed:

	Cmplt	Debris	Bifrag	Core	Totals
Center	29	92	17	6	144
South	37	179	43	24	283
Totals	66	271	60	30	427

Expected:

	Cmplt	Debris	Bifrag	Core	Totals
Center	22.26	91.39	20.23	10.12	144
South	43.74	179.61	39.77	19.88	283
Totals	66	271	60	30	427

d.) production indicators (macroflakes and tool blanks) and all other categories.

Observed:

	Macros and Blanks	Other	Totals
Center	11	211	222
South	5	412	417
Totals	16	623	639

Expected:

	Macros and Blanks	Other	Totals
Center	5.56	216.44	222
South	10.44	406.56	417
Totals	16	623	639

(Key: Broken = broken flakes; Frag = flake fragments; Macro = macroflake; Blank = tool blank; Cmplt = complete flakes; Debris = debris or shatter; Bifrag = biface fragment; Core = core)

Table 49. Chi squares, Jachakala period lithics.

a) including both production and consumption debris.

Observed:

	Broken	Frag	Macro	Blank	Cmplt	Debris	Bifrag	Core	Totals
Center	180	238	8	2	130	472	52	24	1106
South	109	123	3	0	65	332	41	21	694
Totals	289	361	11	2	195	804	93	45	1800

Expected:

	Broken	Frag	Macro	Blank	Cmplt	Debris	Bifrag	Core	Totals
Center	177.57	221.81	6.76	1.23	119.82	494.01	57.14	27.65	1106
South	111.43	139.19	4.24	0.77	75.18	309.99	35.86	17.35	694
Totals	289	361	11	2	195	804	93	45	1800

b.) production debris only.

Observed:

	Broken	Frag	Macro	Blank	Totals
Center	180	238	8	2	428
South	109	123	3	0	235
Totals	289	361	11	2	663

Expected:

	Broken	Frag	Macro	Blank	Totals
Center	186.56	233.04	7.10	1.29	428
South	102.44	127.96	3.90	0.71	235
Totals	289	361	11	2	663

Table 49. (cont'd)

c.) consumption debris only.

Observed:

	Cmplt	Debris	Bifrag	Core	Totals
Center	130	472	52	24	678
South	65	332	41	21	459
Totals	195	804	93	45	1137

Expected:

	Cmplt	Debris	Bifrag	Core	Totals
Center	116.28	479.43	55.46	26.83	678
South	78.72	324.57	37.54	18.17	459
Totals	195	804	93	45	1137

d.) production indicators (macroflakes and tool blanks) and all other categories.

Observed:

	Macros and Blanks	Other	Totals
Center	10	1096	1106
South	3	691	694
Totals	13	1787	1800

Expected:

	Macros and Blanks	Other	Totals
Center	7.99	1098.01	1106
South	5.01	688.99	694
Totals	13	1787	1800

(Key: Broken = broken flakes; Frag = flake fragments; Macro = macroflake; Blank = tool blank; Cmplt = complete flakes; Debris = debris or shatter; Bifrag = biface fragment; Core = core)