

Revisiting Deodoro Roca Rockshelter (Ongamira, Córdoba, Argentina). Seventy years of archaeological ideas.

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LAMMAL

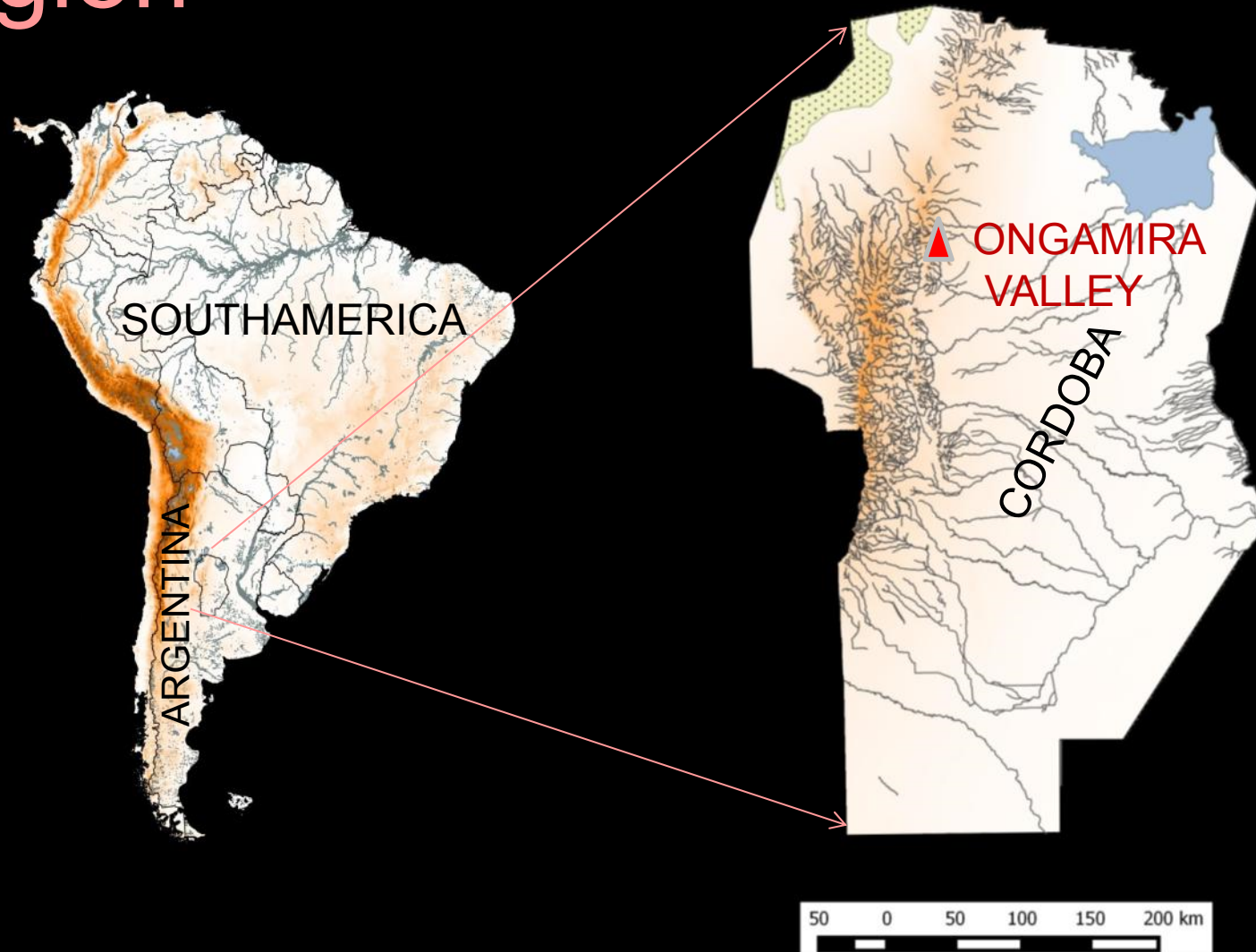
Laboratorio de Análisis Macro y Microscópico de Materiales Lítico

Foto lab



The Region

Ongamira (latitude: $30^{\circ}46'$ S, longitude: $64^{\circ}26'$ W) is located in the northern edge of “Sierras Chicas” mountain chains of Central Argentina





Florentino Ameghino
(1885, 1889)



Alberto Rex González
(1939, 1940, 1960)



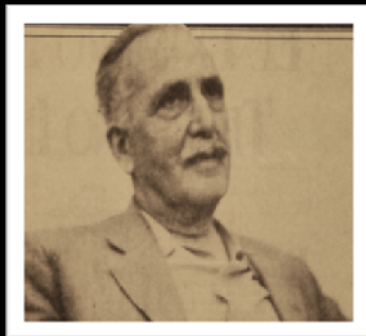
Gordon Wiley
(1946)



Alex Krieger
(1954)

1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010- Present

Aníbal Montes
(1939, 1941-1942)



Oswald Menghin and Alberto Rex González
(1950, 1954)



Andrés Laguens
(1999, 2009)



ONGAMIRA PROJECT
(2010-present)



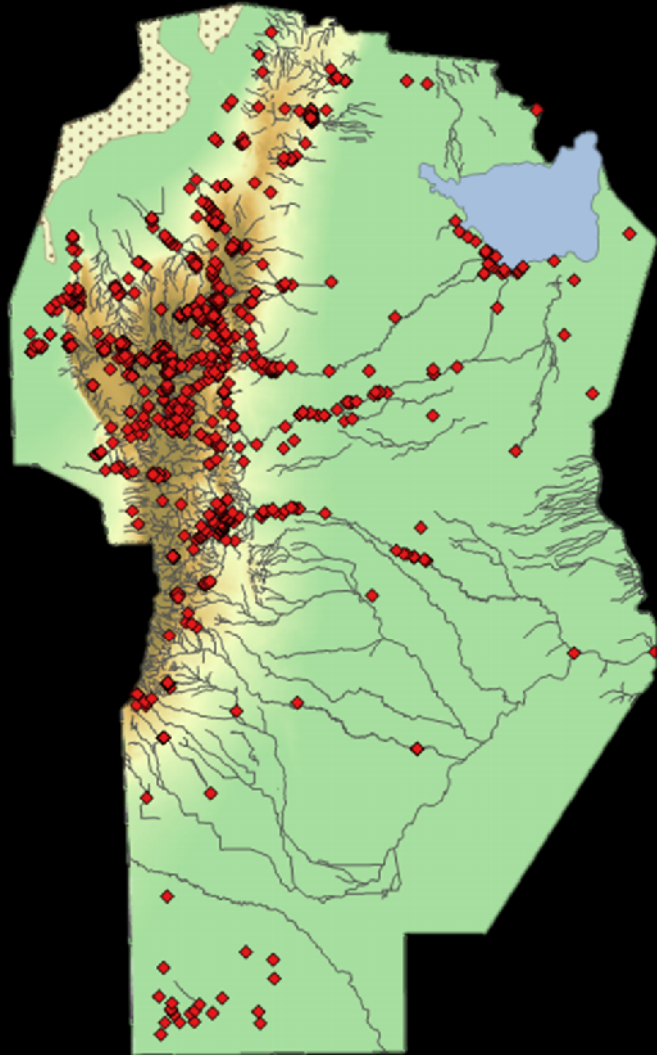
Climatología		Geología	Cronología años	Etapas Culturales		
Patagonia (Menghin-1952)	Córdoba Geología	N. América		Patagonia (Menghin-1957)	Córdoba (Montes-1958)	N. América
	tierra humifera arenosa grisásea-obejo rojiza- con un estrato mas arenosa		2.000	Tehuelchense 3º	Sanabiróna - Camiare (carr. enis-gen)	Pueblo Basket Maker
humedo-subatlántico Humus II	estrato negro Humus II			Tehuelchense 2º	Ongamira A	Pinto Basin
seco templado Subboreal	Pluvial tierra arenosa grisásea con un estrato más arenosa	Little Pluvial templado húmedo	4.000	Tehuelchense 1º	Ongamira B Ongamira C	(San Pedro Stage)
cálido húmedo Atlántico (Báltico) Humus I	estrato negro compacto Humus I	cálido húmedo Optimun climático Altithermal	6.000		Ongamira D	(Chiricahua Stage)
seco templado Boreal	Transición arenosa lehm rojizo en otros sectores más arenoso y grisáceo	Pluvial-arena roja	8.000	Casapedrense	Ayamplín Ongamira E	Cochise
fini glacial Subártico	Gran Pluvial	ultimo avance glacial Cochran	10.000		Ongamira F	(Sulfur Spring Stage)
Clima Ártico	lozas pulver. Córdobaense ceniza volcánica ácida alféfalo de Oláhen	Período de erosión		Toldense	Candonga Ongamira G	Yuma Folsom
glacial Gotiglacial del Báltico	limas loésicos amarillentos con tesquillas (hacia abajo arenosas)	Mankato final frío húmedo	12.000		sigue el relleno abajo, con arena roja, no excavado aún.	
		Mankato máximo frío seco	14.000			Llano Complex
clima ártico con oscilaciones templadas		Valders gran avance glacial	16.000			Clovis Sandia 20.000 años

Taken from unpublished files from Anibal Montes Archive. Museo de Antropología, UNC

The cultural sequence by Montes during the 50's.

1936 ARCHAEOLOGICAL SITES IN THE REGION

INVESTIGATED SITES
ACCORDING BIBLIOGRAPHY
11,000-500 YBP (1460 sites)



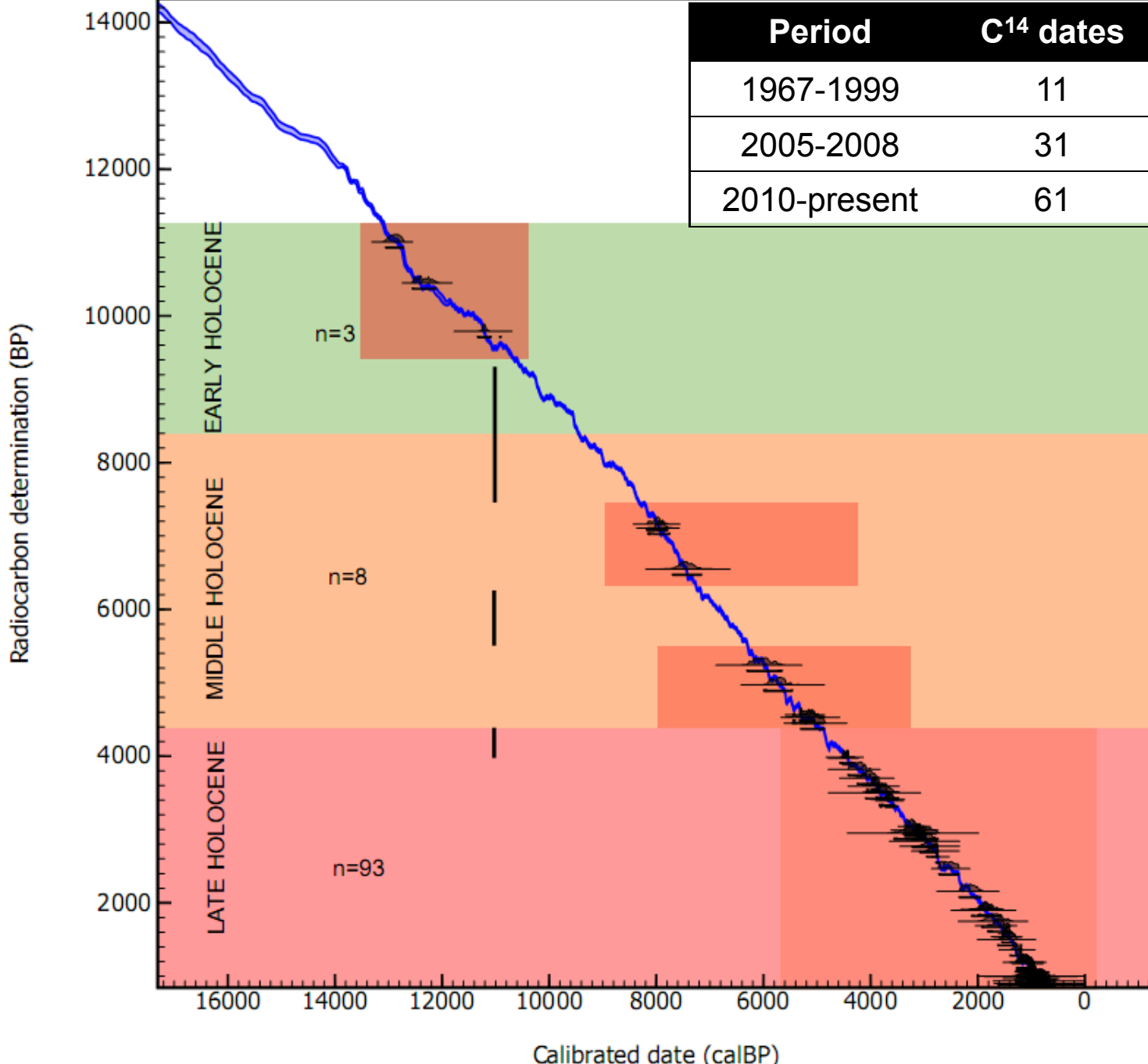
VILLAGES
REGISTERED
ACCORDING
ETHNOHISTORICAL INFORMATION
DURING THE
SPANISH
COLONIZATION
PERIOD (476
sites)

OPEN AIR SITES

944

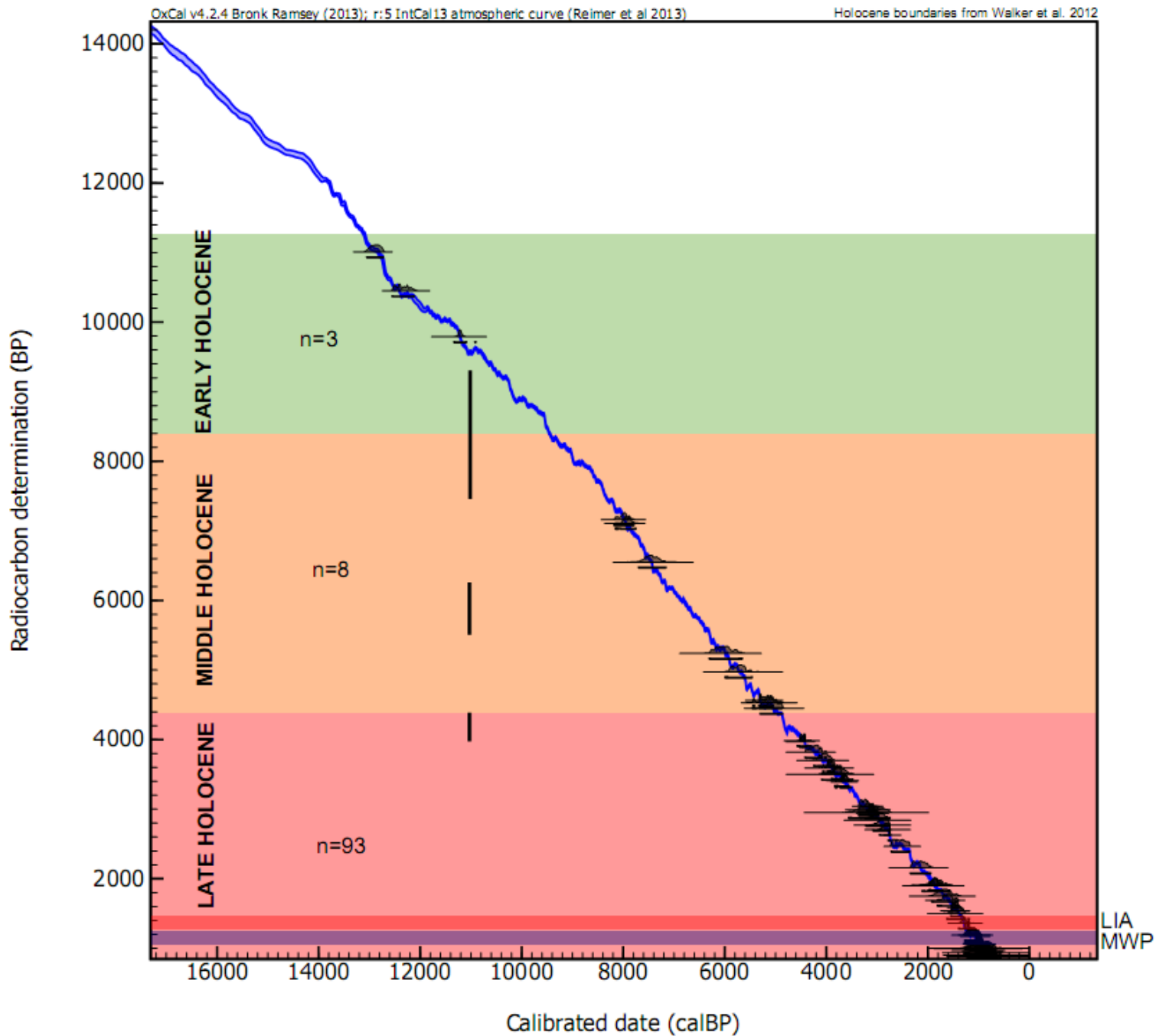
CAVES/ROCKSHELTERS

497



Period	C ¹⁴ dates
1967-1999	11
2005-2008	31
2010-present	61

**104 C¹⁴ dates
for 72 sites**



GAPS:

9790-7160 YBP
2630 YEARS

6500-5240 YBP
1310 YEARS

4450-3980 YBP
470 YEARS

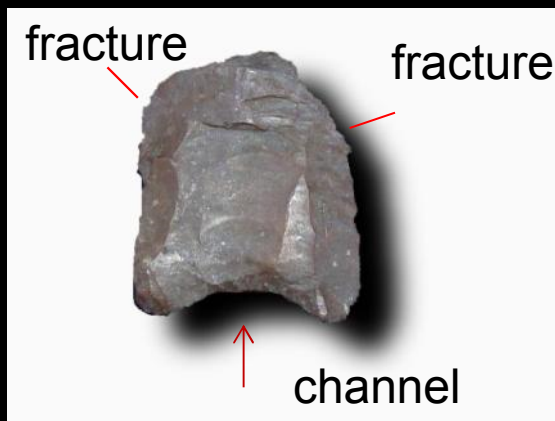
EARLY HOLOCENE SITES

11010-9790 YEARS BP

3 RADIOCARBON DATES

1. El Alto 3 rockshelter (2 DATES)
2. Candonga rockshelter (Human remains) (1 DATE)
3. Characato fragment of FPP (on surface)

THERE ARE NOT OTHER TYPE OF STEMMED POINTS IN THE REGION



- ▲ 2 Rockshelters
- 1 Open air site

MIDDLE HOLOCENE SITES

8,200-4,200 YBP

8 radiocarbon dates



ROCKSHELTERS

Arroyo el Gaucho 1

El Alto 3

ADR

OPEN AIR SITES

Cementerio Viejo

La Cocha

Alpa Corral



3 Rockshelters



3 Open air sites

LATE HOLOCENE SITES

93 radiocarbon dates

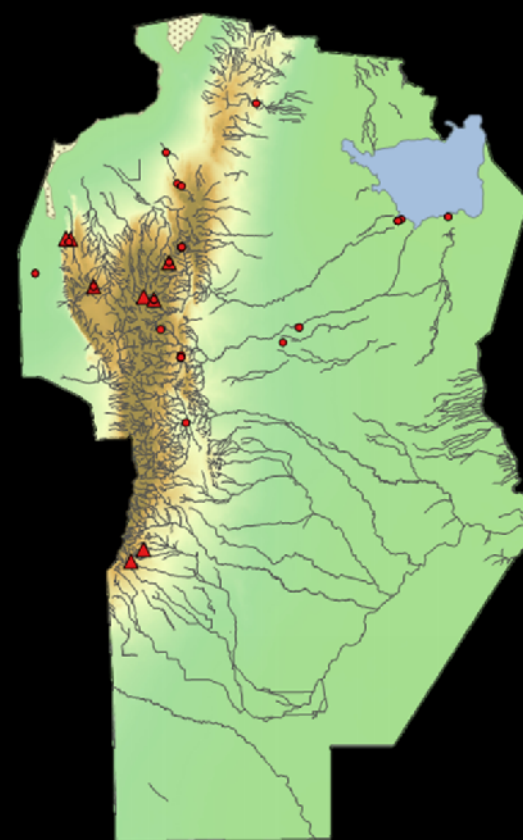
4.2 -1.9 YBP
15 SITES



1900-800 YBP
24 SITES



800 YBP- Spanish Conq.
30 SITES



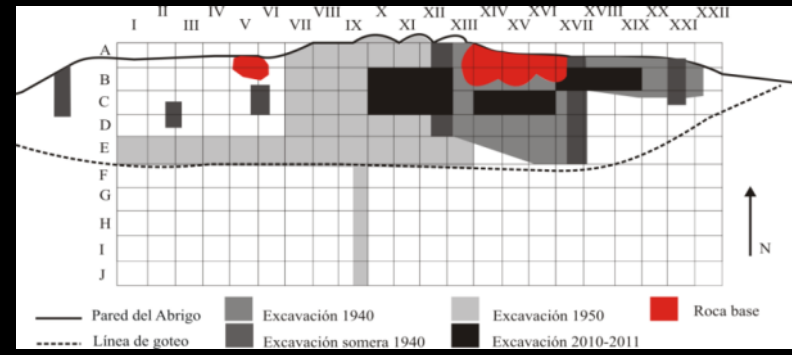
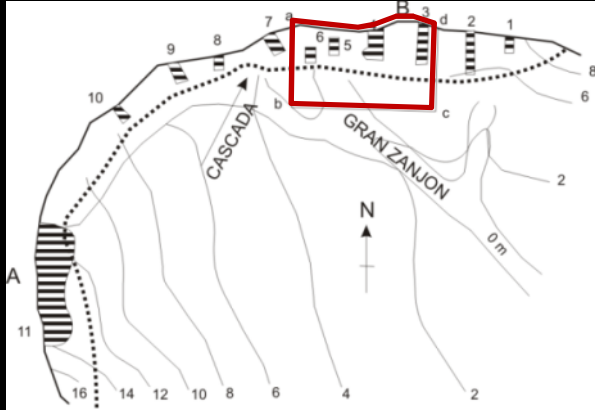
▲ 8 Rockshelters
● 7 Open air sites

▲ 6 Rockshelters
● 18 Open air sites

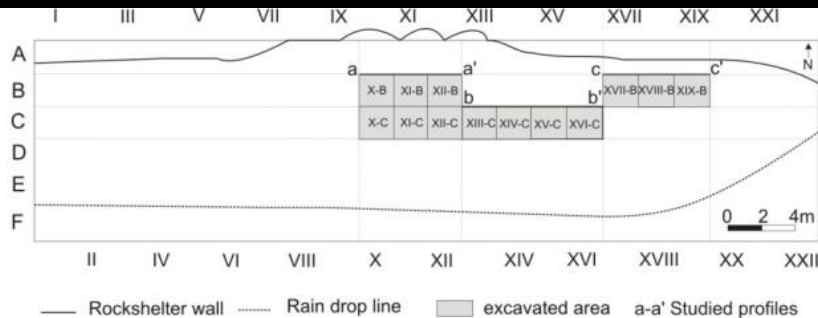
▲ 8 Rockshelters
● 22 Open air sites

THE CASE OF STUDY

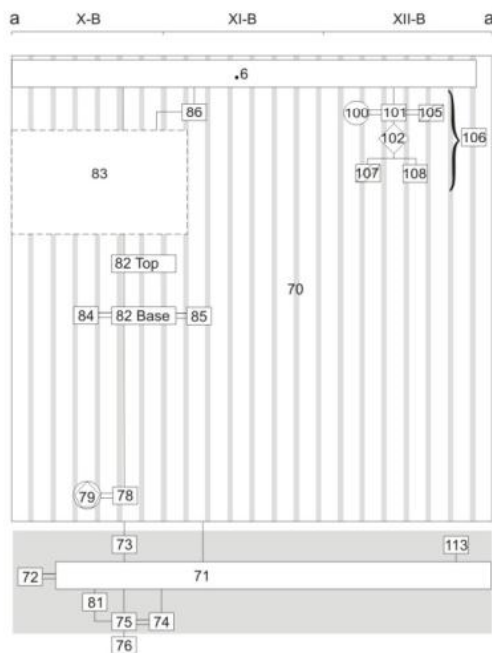
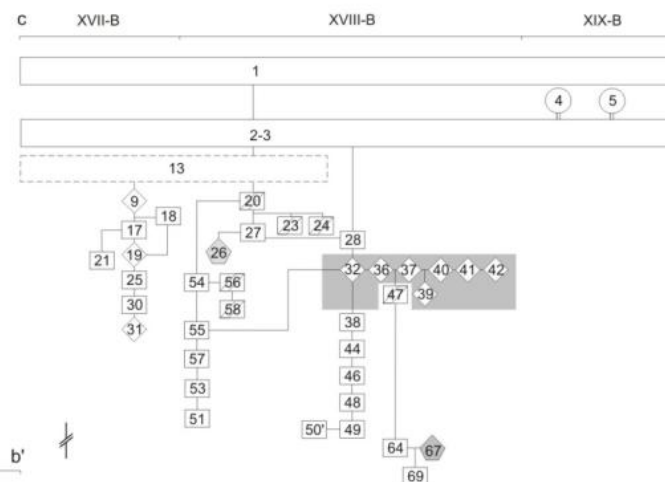
ADR: Excavations 1940-1950 / 2010-PRESENT



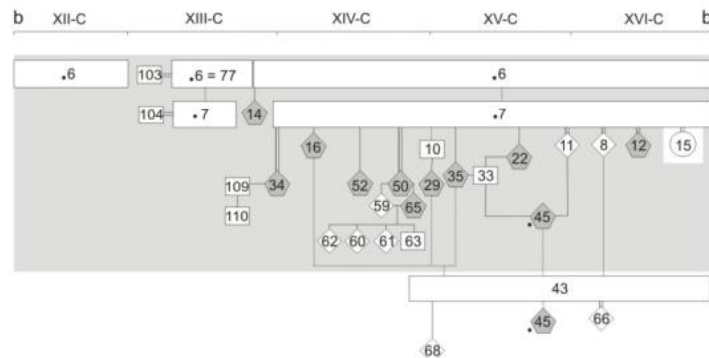
Map of the new excavations with Harris Matrix interpretations of the stratigraphic units 1 to 113



(A)

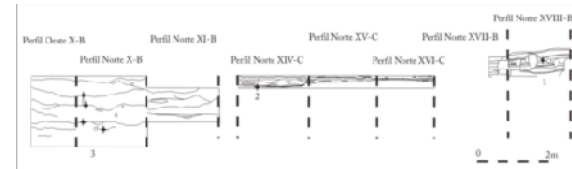


(B)



(C)

STRATIGRAPHICAL UNIT DATED	LAB CODE	DATE	TYPE OF MATERIAL
15	YU2289	183+/-20	Charcoal
32	MTC14158	1915+/-45	Bone
50	YU2293	2942+/-25	Charcoal
7	YU2291	2944+/-44	Charcoal
34	YU2290	2952+/-21	Charcoal
65	MTC14144	3043+/-41	Charcoal
82 Top	AA93736	3390+/-37	Charcoal
82 Base	AA93737	3515+/-37	Charcoal
43	YU2292	3620+/-27	Charcoal
113	YU2288	3969+/-23	Charcoal
80	AA93733	3984+/-38	Charcoal
74	AA93739	4562+/-39	Charcoal

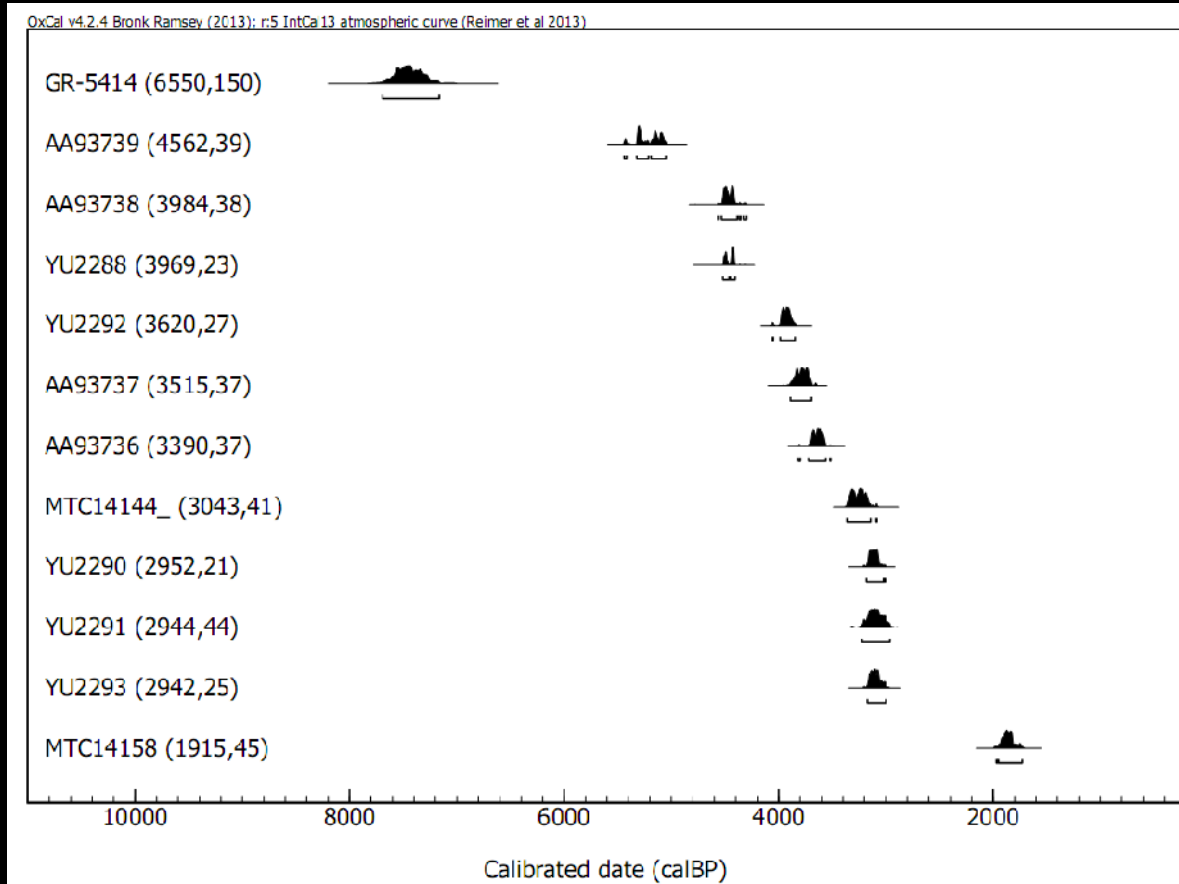


REFERENCES:

- CONTEMPORARY
- ▨ WEATHERED ROCK
- ▭ CONTEINED IN
- ▭ CAVE
- ▭ HEARTH
- ▭ FILL FROM 1950
- ◆ COMBUSTION AREA
- ◊ ERODED CHARCOAL LENS
- ▭ ESTRATIGRAPHICAL LEVEL
- REPEAT
- RECENT PIT
- ⚡ DISCONTINUITY IN DEEP
- ⊥ TRANSITIONAL BOUNDARY
- ⎓ STRAT. UNIT GROUP FOR COLLAPSE

(D)

Calibrated radiocarbon dates from ADR



Present climate

Temperate continental climate, with warm and wet summers and dry and cold winters.



Maximum altitude of 1979m a.s.l. in “Uritorco” peak.

Climatic data indicate that monthly average air temperature ranges from 9°C in June-July to 25°C in January-December .

Average annual air temperature is 17-18°C.



Between June-July, snow occasionally falls at elevations above 1100m asl



Ongamira Valley



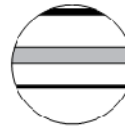
C4 plants



ADR and surroundings, 1000masl



Colchiqui 1575masl



Holocene (~4.5–1.7 cal. kyr BP) paleoenvironmental conditions in central Argentina inferred from entire-shell and intra-shell stable isotope composition of terrestrial gastropods

Yurena Yanes,¹ Andrés D Izeta,² Roxana Cattáneo,² Thiago Costa²
and Sandra Gordillo³

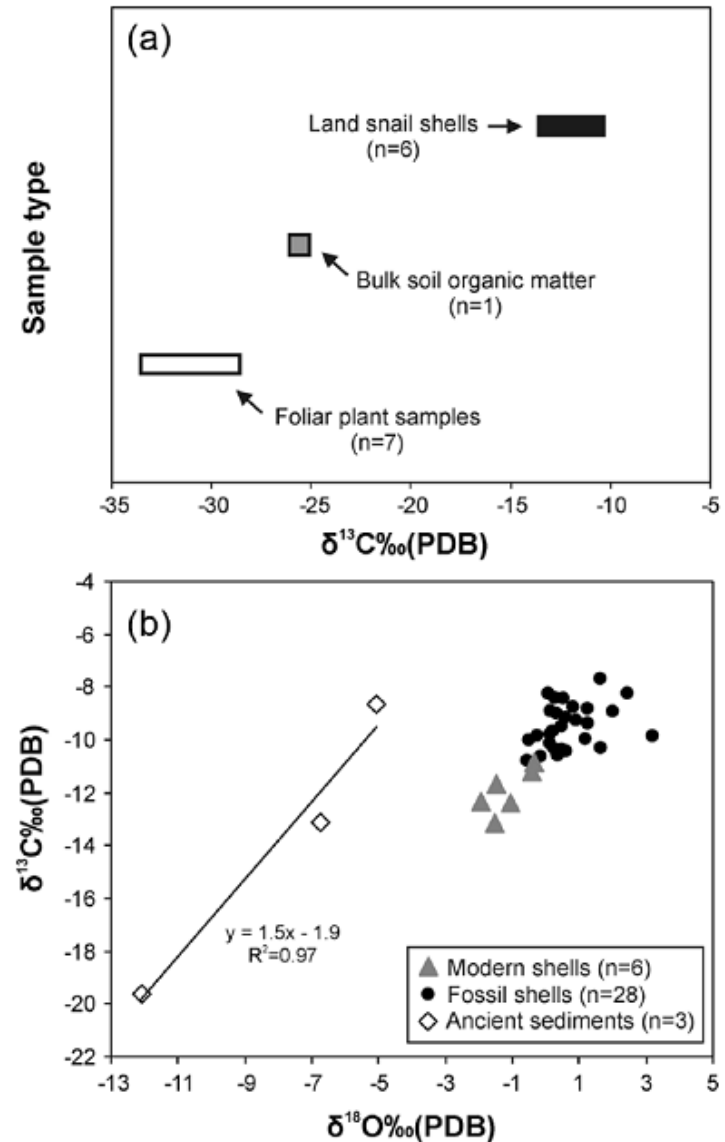
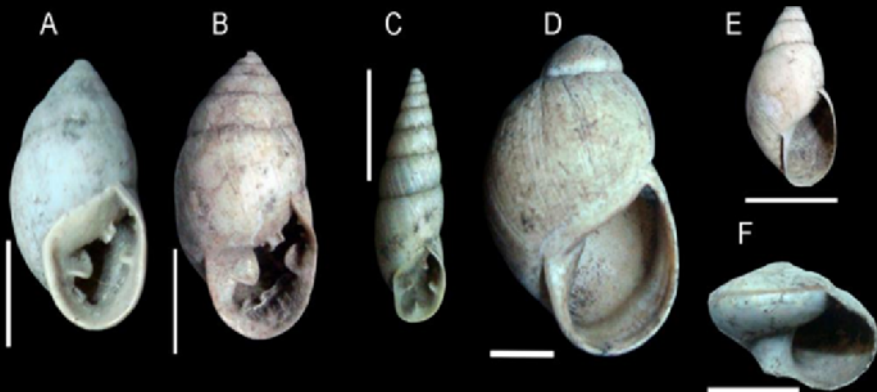


Figure 4. Stable isotope results. (a) Carbon stable isotope results of modern foliar plants (white symbol), bulk soil organic matter (gray symbol), and modern terrestrial gastropod shells (black symbol). (b) Comparison of the carbon and oxygen stable isotope values of ancient bulk carbonate sediments (open symbols) and terrestrial gastropod shells (filled symbols). PDB: Pee Dee Belemnite.

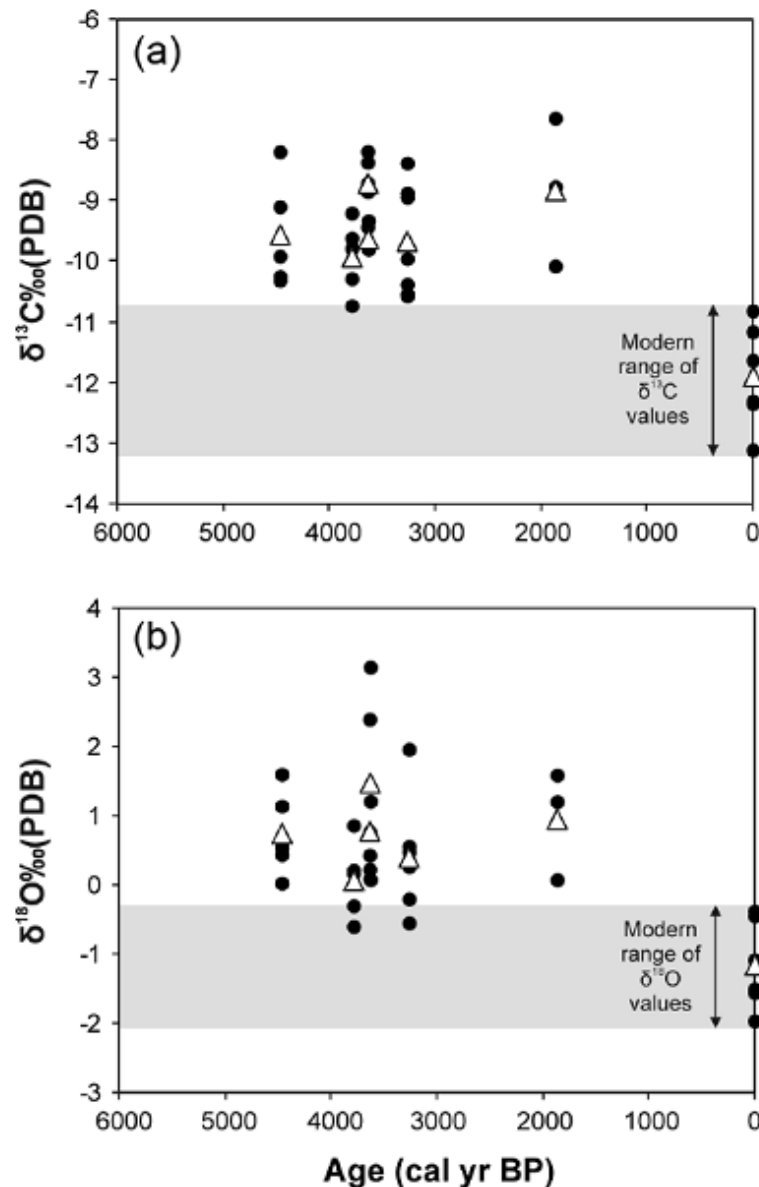


Figure 5. Stable isotope results of modern (gray band) and fossil *Plagiodontes* shells from the Alero Deodoro Roca archaeological site, Ongamira valley (Córdoba, central Argentina). (a) Carbon stable isotope values through time. (b) Oxygen stable isotope values through time.
PDB: Pee Dee Belemnite.

General Holocene climate were getting drier (lower relative humidity and/or higher rain δ¹⁸O).

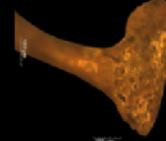
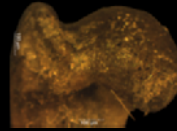
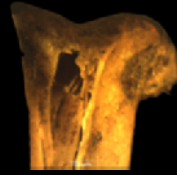
C4 plants were more abundant than at present.

Pre 4.2 kybp stratigraphic units do not show the presence of land snail shells.

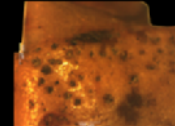
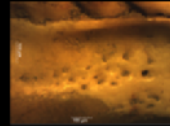
Post 3.9 does in a massive way



Owl pellets
(summer
concentration)



Actualistic sample



Archaeological
sample



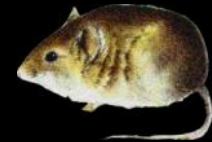
Phyllotis xanthopygus



Reithrodon auritus



Akodon boliviense



Calomys musculinus



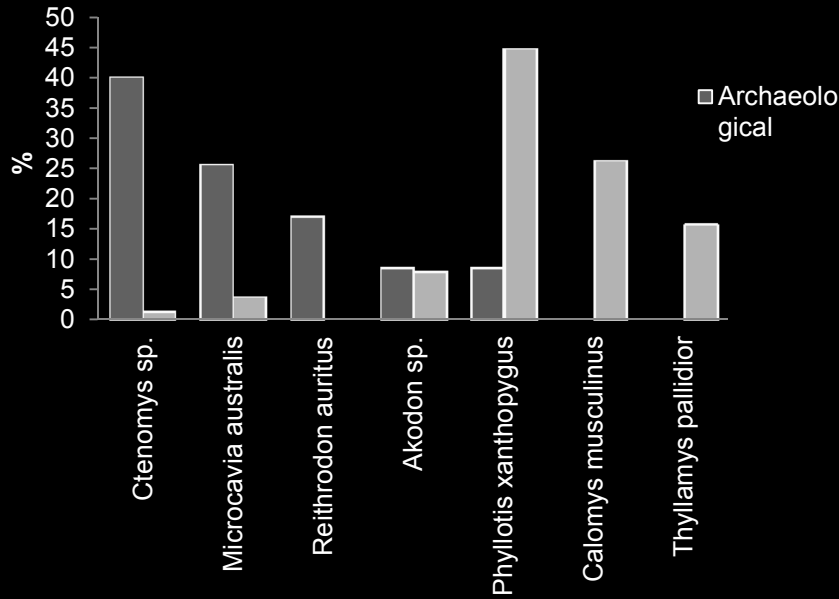
Ctenomys
sp.



Microcavia australis



Thyllamys pallidior



3000 BP

MODERN

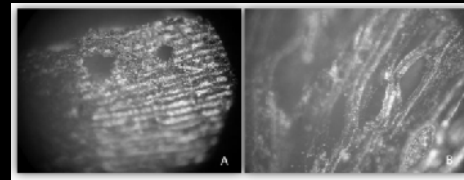
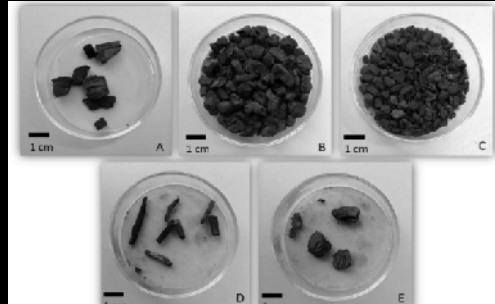


MORE ARID
COLD
GRASSLAND
SHRUBLAND

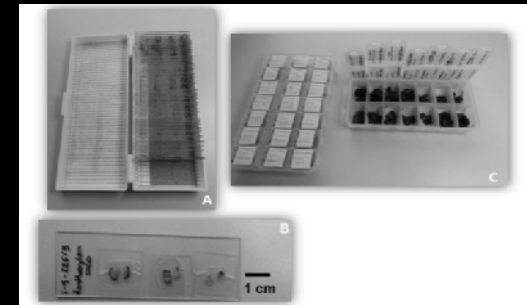
LESS ARID
WARM
SHRUBLAND

Anthracological studies

Type of samples by size

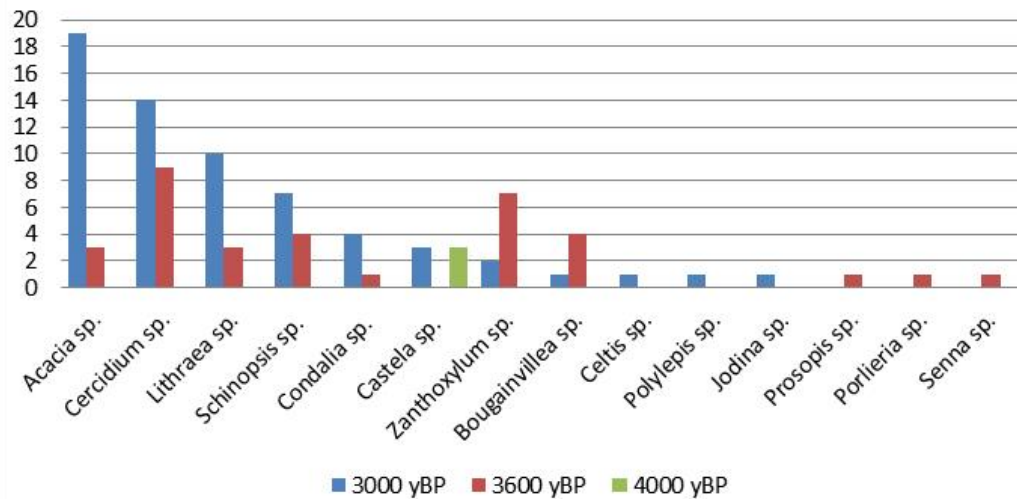


xilophagus heat fissures
Taphonomical examples

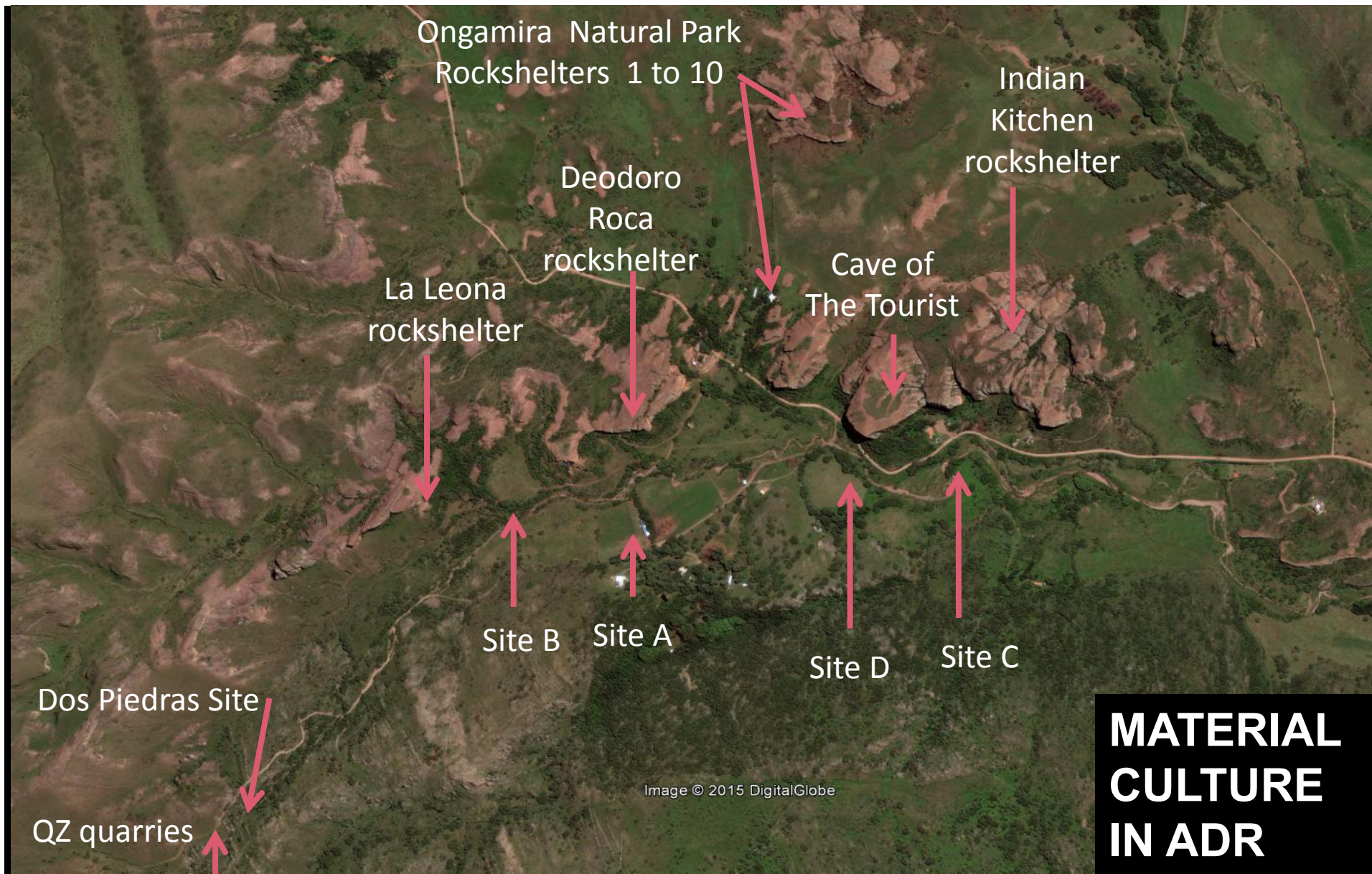


Comparative collection,
histological samples
and charred samples

Anthracological samples from ADR

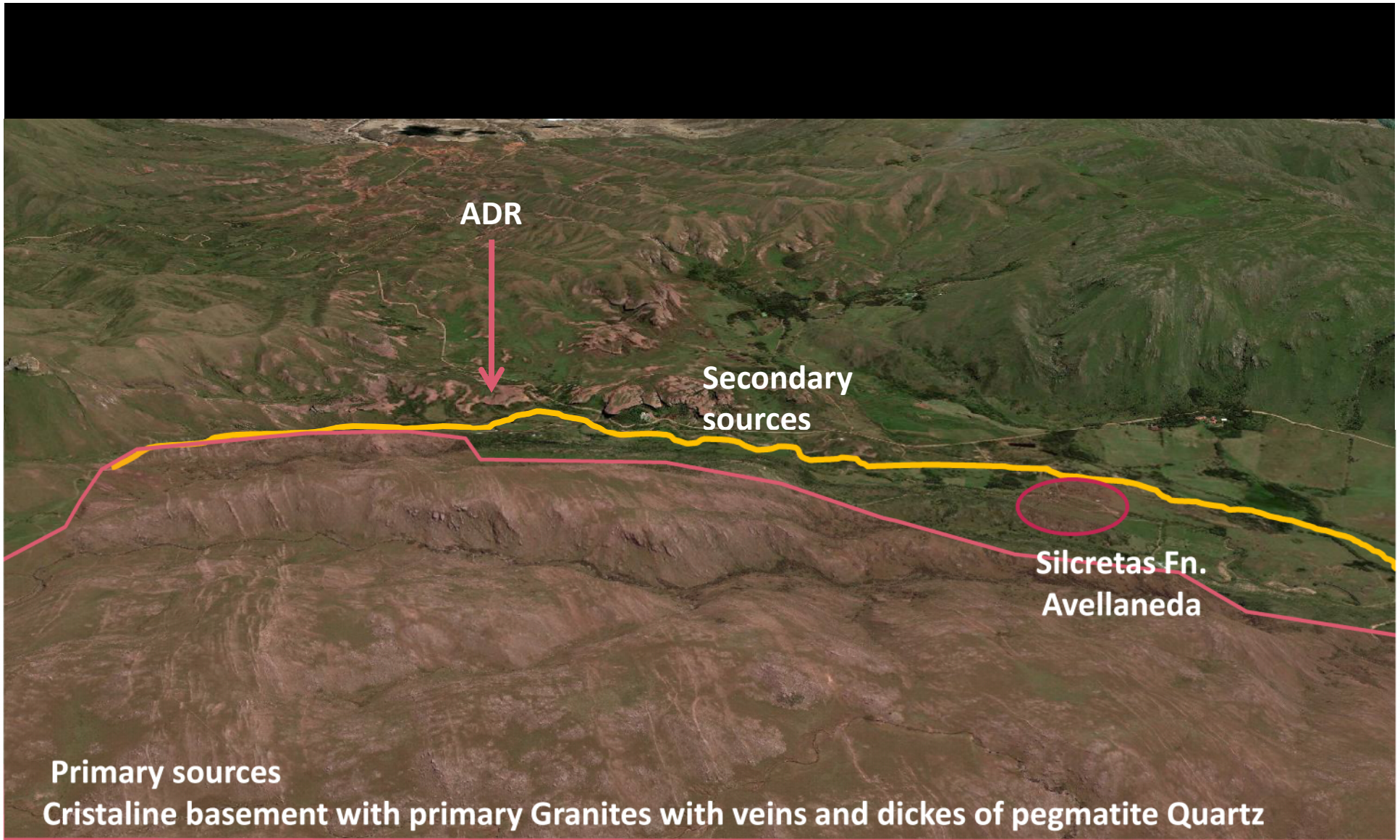


Castela sp.



**MATERIAL
CULTURE
IN ADR**

STUDIES OF PROCUREMENT AREAS and IDENTIFICATION OF OUTCROPS AND CHARACTERIZATION OF LITHIC VARIABILITY AND AVAILABILITY



ADR

Secondary sources

Silcretas Fn.
Avellaneda

Primary sources

Cristaline basement with primary Granites with veins and dickes of pegmatite Quartz

Canteras

Formación
PALEOZOICO INFERIOR
Granitos Pampeanos
Complejos ígneos
y rocas metabásicas

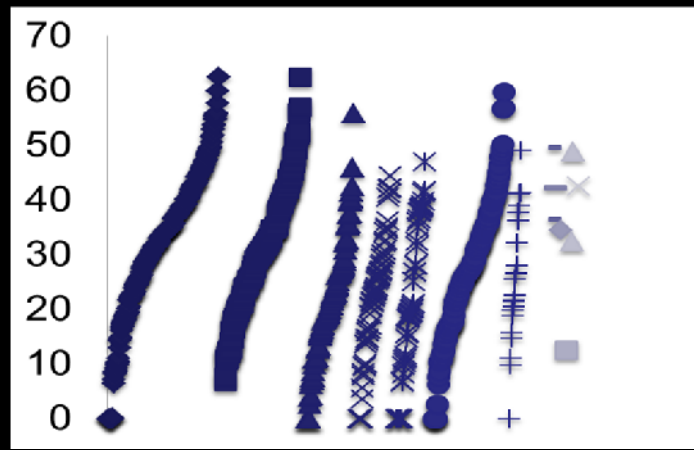




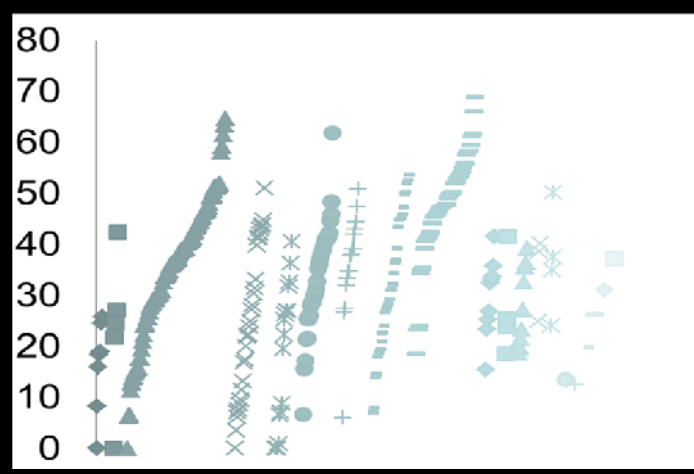


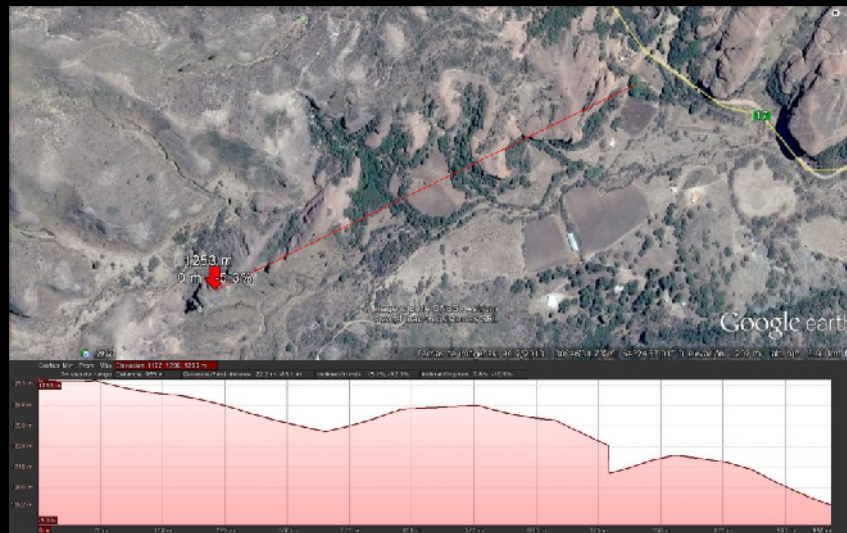
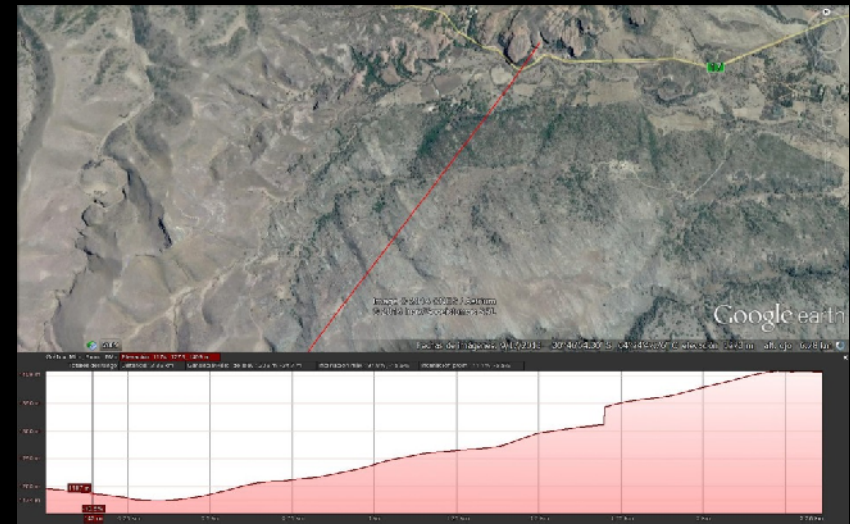
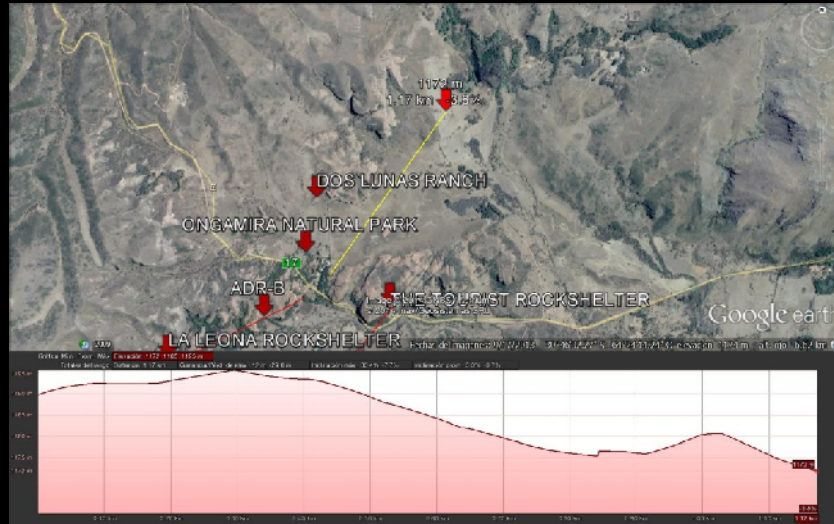
- 1 - MORPHO AND TECHNOLOGICAL STUDIES
- 2 - MINIMAL NODULE ANALYSIS
- 3 - NON TYPOLOGICAL APPROACH

ca. 3000YBP
Complete flakes (Quartz and chalcedony)



ca. 3600YBP
Complete flakes (Quartz and chalcedony)





Intervisibility

FINAL CONSIDERATIONS

1. Few sites to support/discard the occupational model
2. Few data for the Early Holocene
3. Need for more proxies for paleoenvironmental reconstruction
4. Material cultura (lithic, faunal, and others) allows to interpret mobility
5. The populations in Cordoba during the whole Holocene mantain a Hunther gatherer way of life

¡ GRACIAS! /Thank you!/ Merci!

Supported by Grants



PICT 2011-2015

Poblamiento humano inicial y patrones de variación biológica en el área central de Argentina.



PIP CONICET 2011-2014 AND 2015-2017

Arqueología de grupos cazadores-recolectores de las Sierras Pampeanas Australes (Córdoba y San Luis, Argentina).



SECYT-UNC 2010-2016

Arqueología de sociedades cazadoras-recolectoras de Córdoba, Argentina.



PID AGENCIA-MINCYT CORDOBA 0013/2009

Bases ambientales para el ordenamiento territorial del espacio rural de la Provincia de Córdoba.

