# PLANTS AND PATAGONIAN HUNTER-GATHERERS: ARCHAEOBOTANY OF CERRO CASA DE PIEDRA 7 (SANTA CRUZ, ARGENTINA)

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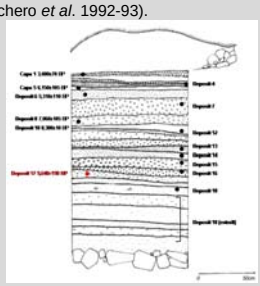
The site **Cerro Casa de Piedra 7 (CCP7) -** 47°57'S, 72°05'W- is located in the mountains of the Perito Moreno National Park, in the north-west of Santa Cruz Province (Argentina). The stratigraphic sequence at CCP7 consists of 19 layers dated by radiocarbon determinations to a period between 10,600 and 1900 cal BP (Aschero *et al,* 2005). The results of the archaeological work performed there indicate that the settlement was a residential site (Aschero *et al*. 1992-93).

## OBJECTIVE

The extreme dryness of the area allowed the recovery of abundant plant material, such as wood charcoal, wood, fruits, seeds, leaves, fragments of bark and wooden artifacts. This fact, together with the long occupation sequence of the site, both infrequent situations in Patagonian archaeology, has allowed us to study, as a general purpose, the role of plant resources in the subsistence strategies of the hunter-gatherers of the area. The specific objective of the present work is to analyzed the archaeobotanical sample of Deposit 17 (9,390 +/-40 14C years B.P.)

## MATERIALS AND METHODS

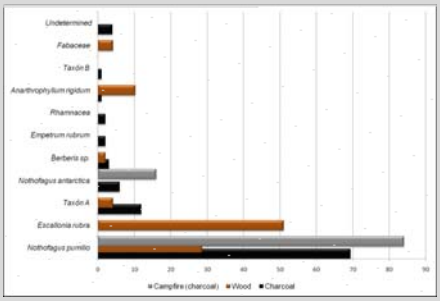


- Archaeological excavation of the site is being carried out from 1991 up to day. Inside the area 1 of the cave (see stratigraphy) 14 m² were excavated.
- Plant material was recovered through dry screening (2 mm mesh).
- Preservation state was either desiccated and charred for both carpological and woody remains recovered.
- Macroremains were visualized with a stereoscopic and a light microscope with optical reflection, and compared to present day reference samples. Wood identification was carried out by performing a clean cut on each charcoal, with the aim of obtaining the three diagnostic anatomical planes (Caruso Fermé 2012).

## RESULTS

### Woody remains

- The study showed the presence of ten taxa among the dispersed material and two among the charcoals of the campfire.
- Among the charred dispersed material, eight taxa were identified (Table)
- The presence of some taxa (*Nothofagus pumilio*, Nothofagus *antarctica, Escallonia rubra, Berberis* sp.), suggest the existence of a forest environment. However, the existence of *Anarthrophyllum rigidum, Empetrum rubrum* and *Berberis* sp. , also suggests the proximity of steppe environments.
- The strong representation of Nothofagus pumilio within this deposit, along with the presence of shrubs such as : *Empetrum rubrum, Escallonia rubra* and *Berberis* sp. could indicate an expansion of the forest for this period.
- The high percentage of *N. pumilio* shows that the forest was an environment recurrently used by hunter-gatherers who occupied the cave Cerro casa de Piedra 7.



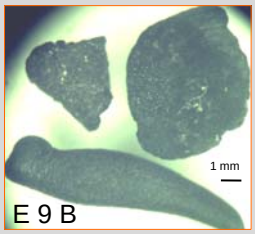

**DEPOSIT 17**

| Radiocarbon dated | 9,390±40 BP | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Materials | Scattered remains | | | | Campfire (charcoal) | | Total | |
| | Charcoal | | Wood | | | | | |
| TAXA | Nb | % | Nb | % | Nb | % | Nb | % |
| *Nothofagus pumilio* | 70 | 69,31 | 14 | 28,57 | 63 | 84 | 147 | 65,33 |
| *Escallonia rubra* | | | 25 | 51,02 | | | 25 | 11,11 |
| Taxón A | 12 | 11,88 | 2 | 4,08 | | | 14 | 6,22 |
| *Nothofagus antarctica* | 6 | 5,94 | | | 12 | 16 | 18 | 8 |
| *Berberis* sp. | 3 | 2,97 | 1 | 2,04 | | | 4 | 1,78 |
| *Empetrum rubrum* | 2 | 1,98 | | | | | 2 | 0,89 |
| Rhamnacea | 2 | 1,98 | | | | | 2 | 0,89 |
| *Anarthrophyllum rigidum* | 1 | 0,99 | 5 | 10,20 | | | 6 | 2,67 |
| Taxón B | 1 | 0,99 | | | | | 1 | 0,44 |
| Fabaceae | | | 2 | 4,08 | | | 2 | 0,89 |
| Number of identified charcoal/wood | 97 | | 49 | | 75 | | 221 | |
| Number of taxa | 8 | | 6 | | | | | |
| Number of undetermined fragments | 4 | 3,96 | | 0 | 2 | | 4 | 1,78 |

### Carpological remains



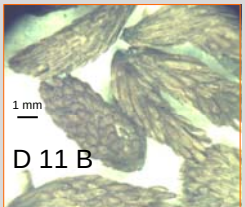
-1 charred pod cf. *Astragalus* (*Leguminosae*)
-3 dessiccated whole seeds? Galls?
-1 desiccated indeterminated filamentous structure, bud?


-1 charred fragment of stem with parenchimatous pit
-1 desiccated petiole?
-1 fémur of Coleóptero



-2 desiccated fruits cf. *Carex* spp. (*Cyperaceae*)
-1 desiccated achene (without papus) cf. *Asteraceae*
-1 charred stem fragment





-1 desiccated fruit *Empetrum rubrum*,
-1 charred fruit *Empetrum rubrum*
-1 desiccated structure of imbricated leaves (not *Nassauvia*, nor *Junnelia*, *Cyperaceae*, *Juncaginaceae*, *Tillandsia*, *Gymnospermae*)

-1 charred fruit *Empetrum rubrum* (*Empetraceae*),
-1 desiccated upper part of pixidio?
-2 desiccated fruit? Seed? Indeterminated,
-3 dessiccated whole seeds? Galls?
-1 desiccated structure of imbricated leaves,
(not *Nassauvia*, nor *Junnelia*, *Cyperaceae*, *Juncaginaceae*, *Tillandsia*, *Gymnospermae*)

## DISCUSIONS AND CONCLUSIONS

Plant taxa found within the woody remains of CCP7 showed that either forest and steppe might be present in the area during the period near the 9000 years BP. This results are consistent with those observed from pollen analysis of the cave (Mancini 2007), which showed an increasing evidence of discontinuous forests of *Nothofagus*, shrub taxa and cushion plants (*Empetrum, Azorella*) by that time, with steppe patches also present, that replaced the graminous humid vegetation of the previous era. Within the carpological remains, desiccated and carbonized fruits of *Empetrum rubrum* and *Carex* spp., among others, were some of the most relevant. It is thought that the first may have been used as food during the Early/Middle Holocene, due to the fact that *Empetrum rubrum* fruit parts were found in human coprolites (from microhistologycal analysis) recovered from excavated sediment of the same archaeological site dated 6150 years BP (Martinez y Yagueddú 2012).

It is interesting to remark that also gramineous and Coleoptera skeleton parts were found from these huiman coprolits, showing a strong coincidence with the macroremains presented above.

**Aknowledgements: to Carolina Belmar who made the first approximation of the carpological identifications.**

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