

THE “HAUSH” PUZZLE: PIECING TOGETHER SUBSISTENCE AND SETTLEMENT AT THE FUEGUIAN SOUTHEAST

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RESUMO: A ponta sudeste da Ilha grande da Terra do Fogo – Argentina – era arqueologicamente quase desconhecida até meados da década de 80, quando começaram pesquisas sistemáticas. Esta área foi historicamente habitada pelos Haush, um grupo sem um *status* étnico claro. As diferentes posições sobre eles são resumidas. A informação etnográfica e os dados dos recursos faunísticos – Guanacos (*Lama guanicoe*), leões marinhos, pássaros e moluscos – são ajustados para postular um modelo de subsistência e assentamento para a área – conhecida como Península Mitre. Ele é aplicado para a localidade arqueológica Rancho Donata, e então é comparado com outros modelos de caçadores-coletores pedestres da Terra do Fogo. Estratégias logísticas para a caça de guanaco parecem ser mais eficientes ao longo do ano. Durante o semestre outono-inverno, a caça de leões marinhos tem lugar dentro dos limites do acampamento – ca. 5km da costa. O movimento dos acampamentos de base do semestre primavera-verão parece ser primeiro associado à obtenção de pássaros e peixes e posteriormente à caça de leões marinhos.

UNITERMOS: Adaptação a alta latitude – Terra do Fogo – Caçadores-coletores – Exploração de recursos faunísticos – Modelos de subsistência e de assentamento.

The problem

From the insertion of my archaeological and ethnohistorical study of fuegian southeast the lack of coherent previous information on indigenous occupations was clear. As a consequence a research design was elaborated, which considered three alternative propositions concerning indigenous utilization of the area, all of which were to be discussed against the archaeological record (Lanata *et al.* 1985). According with them the most recent archaeological remains in the area attested:

- (a) An independent population.
- (b) A segment of a larger population, centered in the central Beagle Channel.
- (c) A segment of a larger population centered in the steppe, North of the island.

We will synthesize the information that conducted us this proposal.

Denominations and self-denominations

The first mention of a gentilitial for the area is in Spegazzini (1882: 173), who refers to natives self-named *Mäc-ck*. Segers, who traveled the North coast of the area by 1886 mentioned the names *Lou-alks* – in relation with groups located between

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Policarpo and Buen Suceso – and *Kau-keshe* and *Kospijom* for those located north of Policarpo, up to Cape Peñas¹ (Segers 1891). For Dabbene, Peninsula Mitre² was inhabited by the *Manckenkn* (1911: 269). Lehman-Nitsche, following E.L. Bridges, named *Manekenkn* the inhabitants of the Peninsula (1913: 233), while Skottsberg mentioned W. Bridges referring that these people were called ‘*Hush*’ (*Hos*) (1911: 306-307; 1913: 615). Cojazzi, following Tonelli, speaks of the *Hauss* (1911: 100), Beauvoir mentioned the *Haus* (1915: 171), and Furlong informs that the *Selk’nam* – *Ona* – named *Haush* to those inhabiting between Policarpo and Sloggett (1915: 434; 1917: 181). By 1931, Gusinde sustained that people living at the Peninsula Mitre – the first to arrive in the island in his opinion – were self-named *Haus* and named *Winteka* by the *Selk’nam* – *Onas* – (1982: 114 and 117). E.L. Bridges considered the existence of four groups in the island, with the *Aush* in the S.E. tip (1951: 61). Finally, the use of the *Haush* gentilitial was generalized since Anne Chapman initiated her studies in the area (Chapman 1973a, 1973b, 1977, 1982).

Not all this information is originated in direct sources, and for that reason it should be used with caution.³ As an example of the frequent contradictions incurred by different authors, consider Lehman-Nitsche, who reports to have been informed by E.L. Bridges of the selfname *Manekenkn* (1913: 233), while Bridges himself had subsequently published *Aush* (1951: 61). On the other hand, Chapman and Hester (1973: 186) follow the specifications of Gusinde (1982: 117), according to whom the selfname is *Haush*, while *Manekenkn* should be translated as “tribe companions”. Anyway, Chapman herself (1982: 17) mentioned *Manekenkn* as the authentic denomination accepted by Gusinde, without any supporting quotation. Cooper also concluded that the original name was *Manekenkn* (1915: 445; 1917: 49).

(1) Lehman-Nitsche (1913: 233) considered that these denominations did not correspond to a gentilitial, but were simply toponym.

(2) Peninsula Mitre is the common name for the fuegian southeast.

(3) It must also be considered that according with some authors, like Holmberg (in Dabbene 1904: 269) and Lehman-Nitsche (1913: 233), even in the beginning of the XX Century, only a couple of descendants were surviving. On the other hand, personal contact with the inhabitants of Peninsula Mitre was not established by all travellers.

Even when the name they gave themselves, and the name by which they were known to their neighbours is well known, it should be clear to the reader that the problem is not settled. There is support for the existence of what appears to be a discrete human group in the Peninsula Mitre, but their ethnic status is not clear. We are still facing the alternatives delineated above. For that reason, I will use “*Haush*” just as a shorthand for the inhabitants of the S.E. of the Isla Grande for the period between 1,500/1,000 years BP and the beginning of the XX Century, but no ethnic consideration is implied.

Geographic limits

The spatial distribution of the “*Haush*” is also a source of discrepancy between different authors. Segers localize the “*aonas del sur*” – including the Loualks, the *Kau-keshe* and the *Kospijom* – in the area between Cape Peñas and the Strait of Le Maire, precisely at Buen Suceso (Segers 1891). On the other hand, Cojazzi considers the limits to be Thetis and Fotbey Bays (Cojazzi 1911: 100) (the latter toponym was not found in the available cartography). Gallardo, who talks of the “*Onas del este*”, localize them between Cape San Pablo and Cape San Diego – east of Bahía Thetis – (Gallardo 1910: 291). Furlong successively considers the limits to be between Policarpo River and Sloggett Bay (Furlong 1915: 434), and between Cape San Pablo and Buen Suceso (Furlong 1917: 182). Also Chapman takes San Pablo as the Northern limit, but prefers Sloggett as the southern boundary (Chapman 1982: 17). The more important geographic references are shown in Figure 1.

The question of the precise limits of the “*Haush*” territory is not an idle matter, since the general region is heterogeneous. Different limits impose habitats for the “*Haush*” that are ecologically more or less varied. These considerations are important for the assessment of our previously exposed hypothesis.

Sociocultural limits

Three positions can be discerned concerning the sociocultural status of the “*Haush*”.

- (a) They conformed an ethnically independent tribe (Furlong 1915: 434; 1917: 181; Holmberg 1906: 51; Lothrop 1928: 24).

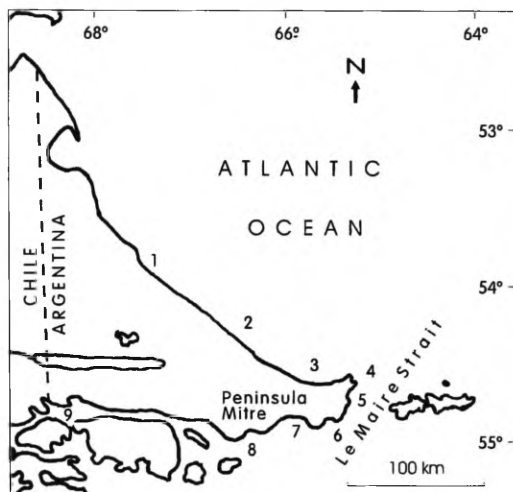


Fig. 1 – Geographic references mentioned in the text. 1: Cabo Peñas, 2: Cabo San Pablo, 3: Bahia Polcarpo, 4: Bahia Thetis, 5: Bahia Buen Suceso, 6: Bahia Valentin, 7: Bahia Aguirre, 8: Sloggett, 9: Beagle channel.

- (b) They conformed a *Selk'nam* partiality (Lista 1887: 126; Segers 1891: 77 and 81; Dabbene 1911: 249; Cojazzi 1911: 104; Lehman-Nitsche 1913: 233; Cooper 1917: 52; Gusinde 1982: 118 and 120; Chapman 1982: 17).
- (c) They were in a situation intermediate between the *Selk'nam* and the *Yahgan* – *Yamana* – (Cook 1900: 725; Skottsberg 1911: 308, and 1913: 615).

In fact none of the mentioned authors offered unambiguous evidence to sustain they positions. More than that, one observation on which some of these authors agree – a higher dependence on maritime than on terrestrial resources – is given different meaning by Furlong, Segers and Skottsberg.

In general, the characteristics attached to the "Haush" are centered in aspects like their war likeness and hostility against neighbours groups – preferentially *Selk'nam* (Dabbene 1911: 249; Segers 1891: 81; L.E. Bridges 1951: 194; Gusinde 1982: 118; Chapman 1982: 59), ritual peculiarities (Cojazzi 1911: 100), and the already mentioned dietary specialization. From an archaeological point of view, only the latter can be used to construct

testable hypothesis, and we will concentrate on them. Anyway, we must not neglect other indicators that may assist in ethnic differentiation, like settlement, subsistence, lithic technology and human osteometric data (Lanata *et al.* 1985 and 1988).

Environmental and Ethnohistorical data for a "haush" predictive model

On the basis of ecological as well as ethnohistorical data, a model will be elaborated, to predict seasonal variation in exploitative activities, and a settlement system. Ethnohistorical information will be used to characterize the "Haush" settlement, which appear better defined than that of subsistence. To reconstruct the subsistence system, ecological information will be introduced.

Some considerations on the settlement

The first mention of the inhabitants of Peninsula Mitre appeared in the *Relacion* of the Nodal brothers (Nodal 1621). The contact occurred on January 23, 1619, when the Nodals go ashore in Bahia Buen Suceso for the provisioning of water and fuel, and no information concerning dwellings was recorded. On that point, Charles de Broses (1756, I: 424) inform us that they were fabricated and covered with branches, but no mention is made of the emplacement.⁴

Information given by Father Nyel is also recorded by de Broses (1756, II: 438). Father Nyel observed, when he was crossing the Strait of Le Maire in the beginnings of the 1704 fall, that the dwellings were constructed with lodges and had an opening on top for the smoke of the hearth. He gave no specification on the emplacement of the dwellings.

The most substantial sources are the *Diario de Navegacion* and the *Noticia Abreviada de los Indios* which are concerned with the shipwrecked Purisima Concepcion (January to April 1765) (Purisima Concepcion n.d.). I share Oscar Zanola's opinion that the shipwreckers stayed in the Caleta

(4) It must be noted that de Broses never visited the area. This compiler of travellers' accounts to the Southern Seas, up to middle XVIII Century, had access to almost all relevant sources. When I was able to compare his transcriptions with the original sources, I noted the excellence of his work.

Falsa or Bahia Thetis (O. Zanola, pers. comm.). The written sources inform us that while the shipwreckers were looking for appropriate shelter they observed smoke in the forest (Purísima Concepción n.d.: f. 8), and described huts similar to a half-moon consisting in fixed twigs and intertwined grasses (Purísima Concepción n.d.:f.19).

Banks and Solander, members of the Captain Cook’s expedition, recorded two abandoned huts, one in the forest the other in a meadow, in the Cape San Vicente area at Bahia Thetis. While the expedition was crossing Bahia San Mauricio – south of Bahia Thetis –, two aborigines were observed on the beach, whom introduced in the forest when they noted the presence of the ship (Hawkesworth, in Gusinde 1982: 31). When the expedition landed at Bahia Buen Suceso on January 20, 1769, Banks visited the natives in what he refers as their “town”, located on “a dry knoll among the trees, which had not been at all cleared, it consisted of no more than twelve or fourteen huts or wigwams” (Banks and Solander, in Gusinde 1982: 33). These huts were conical, and constructed with lodges covered with branches, and have their entrance in the lee side. The entrance was about 1/8 of the perimeter of the base. Parkinson, a member of the expedition, referred that the huts were covered with guanaco and sea lion skins (Parkinson 1784: 8).

Parker King (1839: 448) described one large wigwam and eight men in the NE. corner of Bahia Valentin during May of 1830. Darwin, in 1832, saw huts constructed with interlocked lodges and covered with branches at Bahia Buen Suceso (Darwin 1958: 183). According with Lista, the natives at Bahia Thetis lived under the humid forest (Lista 1887: 126), while Segers, a member in Lista’s expedition, affirmed that they changed huts according with the seasons (Segers 1891: 64). Thus, they might have used the large wigwam constructed with lodges in winter, while in summer they changed to semicircular windbreaks made of branches and guanaco skins and located on the lee side.

T. Bridges commented that the eastern and southern ‘Onas’ that he observed at Bahia Sloggett by the end of the XIX Century, had a guanaco skin shelter, and that their camps were located in the forest (in Gusinde 1982: 45). On the same vein, E.L. Bridges insistently reiterated that the Aush lived in the forest (Bridges 1951: 195-196).

Three characteristics are important within the available ethnohistorical data to define “*Haush*” settlement.

- 1) Lack of information concerning the use of the hinterland.
- 2) Consequently the available information is centered on the coast and its adjacencies. But within that zone some loci are more represented than other; those bays good for landing and for the provisioning of water and fuel, which were so important for sea travelers (i.e., Darwin, Nodal, Banks and Solander, Parkinson, Parker King). In coincidence those loci offered the best settlement choices for the natives, since they concentrate important resources, including a variety of faunal species within their catchments. Precisely in those zones the highest points over sea level for the Peninsula Mitre are reached, and abundant forests of *Nothofagus sp.* are present. The picture is exactly the opposite in the Northern coast of the Peninsula, with the lowest heights and covered with bogs and prairies. Large abrasion platforms, together with the lack of shelter at their beaches, constitute obstacles for landing.
- 3) Most of the data refers to summer, with the mentioned exception of Father Nyel and Parker King narratives, which correspond to the beginnings of fall.

In sum, a greater part of the reviewed authors coincides in marking the prevalence of huts constructed with branches and/or lodges and covered with grasses and/or guanaco and sea lion skins for the summer. These huts are located on the forest (Purísima Concepción, Banks and Solander, Parkinson). Some authors are not coincident with the location, but they do in recording summer huts or wigwams (Le hern Brignon, in Brosses 1756, Wilkes 1845, Darwin 1839, 1958) or even in the beginning of Fall (Father Nyel, Parker King). On the other side, diverse authors only briefly mention the selection of a forest habitat for the dwellings (Lista, Th. Bridges, E.L. Bridges).

Segers introduce an observation that can not be ignored. According with him, the dwellings of the ‘aonas del sur’ change seasonally. In summer a skins windbreak is the prevalent type of dwelling, while in winter a larger

wigwam made of lodges and branches replaced the windbreak. The mention of a skins windbreak – recorded in “Haush” zone by Th. Bridges introduce a dimorphism already known for the *Selk’nam*. Effectively, Cojazzi (1911: 38-41) described for the latter a skins’ tent and a pyramidal hut made of branches and earth lumps. The latter is more durable, while the former is well adapted for high mobility. Gusinde also mentions both types of dwellings for the *Selk’nam* (1982: 177-180).

Two alternative hypotheses are suggested:

- 1) The “Haush” dwellings changed seasonally, with a more permanent and elaborated type – the wigwam – in winter, and a more simple and transitory type – the windbreak – in summer.
- 2) The type of dwelling for the “Haush” was more dependent on function than on seasonality. The windbreak was built as a temporary shelter while moving, or perhaps at specific activities’ locations; while the wigwam was constructed for multiple activities camps.

Availability of lodges is, of course, an important variable. They are more abundant in the forested zones of the Southern part of the area, thus wigwams are expected to be more important there than in the Northern part of the Peninsula.

In some way, the general information examined above cast doubt on the first hypothesis on dwellings, since a majority of the written sources mention – from Bahia Thetis to the South – the presence of elaborated huts made of lodges, sometimes complemented with skins in summer. In this situation it is necessary to proceed with an analysis of the subsistence patterns in order to develop models of subsistence systems. An approximation to “Haush” subsistence. In this section both the availability of natural resources and the techniques used in order to obtain them will be specified. Ethnohistorical as well as environmental data will be used.

1. Plants

Information on the use of vegetal foods by fuegian groups is almost nonexistent, the exception being the studies of Martinez Crovetto (1968, 1978). The consumption of plants is mentioned by Nodal (1621: 69), Banks and Solander (in Gusinde 1982:

3), and even in the Diario of the Purisima Concepcion the ingestion of “apios”, “berros”, “achicorias” and “uvas de corinto” (*Berberis buxifolia?*) is mentioned.

Clearly only subjective appreciation concerning the real role of plants in the diet can be presented. Thus, while Gallardo marked the importance that they have for the *Selk’nam* (Gallardo 1910: 178-179), Gusinde gave them a lesser importance (Gusinde 1982: 168-270). On the basis of the species quoted by those two sources, plus the information collected by Martinez Crovetto (1968, 1978) and Moore (1983) Table 1 shows the edible plants, its location in the “Haush” area, and the season when their availability.

The fruits of *Berberis buxifolia*, *Empetrum rubrum*, *Pernettya mucronata*, *Rubus geoides*, *Ribes magellanicum*, etc., were ingested without any type of processing (Gusinde 1982: 270, Gallardo 1910: 178). The fungi (*Cyttaria darwinii*, *C. hookeri*) were usually consumed in summer and without preparation; but occasionally women and children collect and put them on a stick where they were allowed to dry by the fire (Gusinde 1982: 270). Gusinde mentioned, for the *Selk’nam*, the preparation of a powder out of *Descurainia canescens* seeds, which were later mixed with Sea lion fat (Gusinde 1982: 271, see also Beauvoir 1915: 64, Cojazzi 1911: 61, and Gallardo 1910: 171). Gallardo mentions that in times of hunger the *Selk’nam* scraped and ate bark soaped in sap from *Nothofagus sp.* trees (Gallardo 1910: 78).

2. Birds

Several ethnographers and travelers mentioned the consumption of birds, as well as the hunting techniques use to obtain them (Lista 1887: 117 and 127, Purisima Concepcion n.d.: folio 21, Segers 1891: 67, Cojazzi 1910: 59 and 100, Gusinde 1982: 262, Gallardo 1910: 169 and 190-193, Beauvoir 1915: 204-205, E.L. Bridges 1951: 332-334).

Some of the consumed species was *Chloephaga picta*, *C. hybrida*, *C. poliocephala* (“gooses”), *Anas flavirostris* (“Speckled teal”), *Anas georgica* (“Brown pintail”), *Haematopus leucopodus* (“Magellanic oystecatcher”), *Gallinago gallinago* (“Common snipe”), *Phalacrocorax albiventer* (“King cormorant”), *Puffinus griseus* (“Shearwater” [Muttonbird]), *Spheniscus magellanicus* (“Magellanic penguin”), etc.

TABLE 1

Edible Plants Available in the "Haush" area.			
species	Edible part	Location	Availability
<i>Apium australe</i>	whole plant	Southern coast up to Bahia Aguirre, Bahia Buen suceso, Bahia Thetis, Caleta Falsa San Pablo Cape	Summer
<i>Arjona patagonica</i>	tuber	Moat, Bahia Slogget, Bahia Aguirre,	Summer
<i>Azorella lycopodioides</i>	rhizome	Maria Luisa	Summer
<i>Azorella selago</i>	rhizome	Southern coast up to Bahia Valentin	Summer
<i>Azorella trifurcata</i>	rhizome	Southern coast up to Bahia Valentin	Summer
<i>Berberis buxifolia</i>	fruit	Bahia Aguirre, Bahia Valentin, Bahia Buen Suceso, San Pablo Cape	Jan-Feb
		Bahia Slogget	
<i>Berberis empetrifolia</i>	fruit	Bahia Valentin, Bahia Thetis	Jan-Feb
<i>Bolax gummifera</i>	rhizome	Bahia Slogget	Summer
<i>Hypochoeris incana</i>	root	Caleta Falsa	Yearlong?
<i>Hypochoeris radicata</i>	leaves	Bahia Slogget, Maria Luisa	Summer
<i>Oreomyrrhys hockery</i>	root	Southern coast up to Bahia Thetis, San Pablo	Yearlong?
<i>Pernettya mucronata</i>	fruit	Cape	Summer
		Southern coast up to Bahia San Mauricio	
<i>Pernettya pumila</i>	fruit	Bahia Slogget, Bahia Aguirre, Bahia Thetis,	Summer
<i>Ribes magellanicum</i>	fruit	San Pablo Cape	Summer
		Southern coast up to Bahia Thetis	
<i>Rubus geoides</i>	fruit	Bahia Thetis, Moat	Summer
<i>Taraxacum gilliesii</i>	whole plant	Bahia Thetis, Moat	Nov-Dec
<i>Taraxacum officinale</i>	whole plant		Nov-Dec

The procurement techniques can be classified in four principal types:

- a) Hunting in cliffs (for shags): According with Gusinde (1982: 262-266), Beauvoir (1915: 204) and Gallardo (1910: 190) this technique was used at night in the cliffs, where shags nest. Rainy days were preferred since the shags hide the head under the wing. A dead bird was lived in place, and the hunter goes after a new prey. A high number of participants was involved even when the needed tools only are torches and, perhaps, some guanaco or sea lion skin bags for transport. Given that this hunt is at night, a camp near the cliffs is expected, where also some processing of the birds should have taken place.
- b) Hunting with sticks: Gallardo (1910: 192) also mention the procurement of birds at lagoons, implying the coordinate labor of some 25-30 individuals of both sexes. They

frighten the birds with torches, and kill them with sticks.

- c) Use of snares: Apparently this technique was used preferentially by small lagoons with tall grasses. Single or multiple-noose snares were used (Cojazzi 1910: 56, Gallardo 1910: 192, Gusinde 1982: 262-263, Dabbene 1911: 251).
- d) Hunting with bow and arrow: This technique was apparently used only by isolated individuals in the forest.

During the summer isolated penguins can be found at the beaches. This is the moulting season, and thus the penguins are defenseless, and it is easy to catch them with bare hands. It must be pointed out that, at least today, there are no penguin colonies in the Isla Grande of Tierra del Fuego.

This review suggests different site types to be expected:

- I. Sites located in the proximity of lagoons and/or nesting cliffs. In those sites the processing

of the birds is expected – evisceration, separation of the head, parts of low economic value, and feathers – and the length of occupation should be small. They were probably used by a few individuals. Low archaeological visibility should characterize these sites. When techniques a) and b) are concerned, it is expected that the sites were formed in the spring-summer, that is, when availability of prey is higher.

- II. Probably no special type of site is formed when technique c) was used, due to a lower number of individuals involved. Quick processing near the snares is expected.
- III. A processing site is expected when, technique d) was used, only when an important number of birds was obtained.

Consumption of eggs was probably important. E.L. Bridges mentioned (1951: 52) one event where between 800 and 1600 bird eggs were obtained in the Beagle Channel area. We lack any comparable information for our area, but from the abundant presence of birds (Clark 1986a and b) the collecting of eggs is guessed. Collected by men while hunting, or by specially dedicated women and children, they could have been important in the beginning of spring. As for consumption, there are references both for their eating after cooking (Gallardo 1910: 170), or in the absence of cooking (Cojazzi 1910: 59).

3. Fish

Some of the available species in the area are *Sprattus fueguensis* (“Sprat”), *Salilota australis* (“Brotola”), *Merluccius merluccius* (“Southern hake”), *Genypterus blacodes* (“Southern cod”), Congridae (“Conger”) (Bellisio *et al.* 1979).

Several authors gave fishing an important role within the economic activities of the inhabitants of the southeastern portion of the island (Segers 1891: 66, Purisima Concepcion n.d.: folio 21, Lista 1888: 126, Wilkes 1845: 115, Nodal 1621: 69, Dab-bene 1911: 250, Bridges 1951: 250). Two procurement techniques deserve mention.

The first one is by collecting fishes trapped in intertidal pools, or in the sand with low tide (Purisima Concepcion n.d.: folio 20). This strategy was principally pursued by women and children (ib. f. 21). In the case of intertidal pools a kind of harpoon or hook – or, as indicated by the chronicle of the Purisima Concepcion – a single tendon tied with

fodder (ib.). The use of whale barbs is mentioned within the fishing gear (Wilkes 1845: 115). Evidently this technique is dependent on the availability of the resources in specific locations. Our experience suggests that the number of available fish thus obtained was probably low – at least in comparison with the second technique –, but cost of procurement must also have been low.

The second is by fishing with nets made of guanaco tendons (Gusinde 1982: 266, Gallardo 1910: 202). The work was done by men, on the sea or in rivers. The use of nets is indicative of a collective strategy, one presumably producing high quantities of fish. Use of this strategy was probably correlated with the time when shoals are more numerous, a fact surely variable in different species. From an archaeological perspective it is a technique with low visibility, due to the perishable nature of the utilized gear. Anyway, proper analysis of fish assemblages from archaeological sites should alert us about its importance.

4. Cetaceans

They constitute, due to the circumstances of their appropriation – scavenging of stranded whales and dolphins – a random but surely used resource (Gallardo 1910: 205). There is no data supporting any seasonality in the stranding process. What certainly is true, is that in rocky coasts the probabilities for stranding diminish (Borrero 1985: 148), and that between 1975 and 1978 it was high the number of stranded cetaceans on the Atlantic coast of Tierra del Fuego (1975 = 53, 1976 = 80, 1977 = 94, 1978 = 18), being the most represented species *Phocoena dioptrica* and *Cephalorhynchus commersoni* (Goodall 1978).

As already mentioned, stranded whales were more expected in sandy beaches and, as mentioned by Gusinde (1982: 279) and Bridges (1951: 313) they promoted important human aggregations as well as a relaxation of territorial boundaries. Anyway, variable responses were elicited by a stranded whale (see Purisima Concepcion, n.d. and Bridges 1951: 313).

5. Mollusks

Mollusks are interpreted in different ways concerning their importance in the diet of fisher-hunter-

gatherers (i.e. Yesner 1980, Osborn 1977). Consumption of mollusks by the inhabitants of the S.E. of Isla Grande was mentioned by all the travelers that visited the area. We lack information on the techniques used to open the bivalves; only in the Diario of the Purisima Concepcion (nd: f. 20) it is mentioned that they were eaten raw, while human groups were moving. It was an activity normally performed by women and children (Gallardo 1910: 203, Gusinde 1982: 268, Purisima Concepcion nd: f. 20) and a flat-ended stick was used for their extraction from the rocks on the abrasion platform.

The different species present in the area are *Mytilus sp.*, *Aulacomya magellanica*, *Patinigera magellanica*, *Trophon sp.*, *Nucella sp.*. We do not know, on the basis of the written sources, if the natives have any specific preference. From a logistical point of view, mollusks present two important properties: a) high predictability, and b) they are resources available all year long. Availability of mollusks varied with different types of beach. It is expected that mollusks will be more abundant on those beaches with larger abrasion platforms – i.e., hard beaches like Cape San Pablo, Ea. Maria Luisa, Caleta Falsa, Bahia Thetis - while on sandy beaches they can only be found near the capes delimiting them – i.e., soft beaches like Donata, Duquesa, Luz, Bahia Buen Suceso, Bahia Valentin. The presence of mollusks year long permits its use in times of local low carrying capacity, in spite of its low economic value as measured by its relatively high obtention costs.

It must be noted that the better opportunities for their exploitation are with low tide, when more mollusks area available on the surface, and only transport from the appropriation point to the consumption locus was needed. We ignore if some mollusks may have been transported occasionally without their shells – i.e. when moving camps.

6. Sea lions

In collaboration with Alejandro Winograd (Lanata and Winograd 1988) we have elaborated a series of hypotheses concerning the exploitation of sea lions in Tierra del Fuego. They were deduced from an exhaustive analysis of the ethnohistorical record and from the known sea lions behavior, and I will be resumed here. It is expected:

- an increase in the exploitation of sea lions in summer and early fall,
- a natural tendency to obtain different age and sex classes at different moments of the year,
- that if the hunt was performed on land, there is no need of any specialized tool kit,
- a minimal initial dismembering of the prey at the kill site was probably necessary, and
- minimal transport of the prey, with the location of the processing and/or consumption loci within 5km from the kill site.

We believe that these hypotheses apply to the case in the SE part of Isla Grande, given that it is a region where a high number of sea lion annual colonies existed before the colonial period (Carrara 1952, Winograd 1986). The first hypothesis is seasonally specific, but the others can be applied to the complete annual cycle.

As for the hunting techniques, I will only consider those operative on land.⁵ The use of clubs is mentioned by Gusinde (1982) and Lista (1887), specially when the prey was intercepted on its way to the water. The use of bow and arrow is mentioned by Cojazzi (1911), Beauvoir (1915) and Gusinde (1982); the latter also describe the throwing of stones. Harpoons are referred by Segers (1891), Gallardo (1910) and others. Gusinde tell us that the “Haush” harpoon – which he calls the “great harpoon” – is similar to those of the *Yaghan*. According with Lothrop (1928) nets were also used. Verschoot (in Broses 1756, I: 444) makes reference, in a general description of the natives of Tierra del Fuego, and after visiting Bahia Valentin, of the presence of stone harpoons. An different technique, referred by Segers (1891) is the use of a

(5) We are limiting the discussion to land techniques, because there are only three mentions of canoes for the area. Frezier (1916: 31) mentions two canoes at Bahia Buen Suceso, a fact that he presents as corroborated by the testimony of Monsieur Villemorin, in charge of the Saint Jean Baptiste. A second sighting was by Lefrant (in Segura 1973: 7), and occurred at Bahia Buen Suceso, too. The third is a general observation made by Furlong (1917: 181), who says that the Haush used canoes “in the quieter season of the year”. That is all the available evidence, and up to this moment there is no archaeological evidence of canoes. On the other hand, it can not be discarded that Yaghan expeditions occasionally reached the Le Maire area, departing from any place of the Beagle Channel.

floating decoy – a skin full of grasses –, in which the hunter attract the sea lion with howls and then proceeds to dispatch it with a lodge thrown from a cliff. It may be appreciated that there is no specific tool kit for sea lion hunting, and that some of the mentioned techniques can be the result of random encounters with solitary individuals on the beach.

The different stages in which the sea lion procurement system can be divided is similar to that appropriate for any large sized prey, – kill, butchering, transport and consumption – with a calibration. The morphology of the sea lions, almost without meaty extremities that may justify differential butchering, makes the second stage almost unnecessary, except for those very large individuals – males. Being that the case, we may suppose that newborns and females were directly transported to the consumption place, while males were expediently processed near the kill site before transportation.

7. Guanacos

The exploitation of the guanaco in Tierra del Fuego was studied by Borrero (1985: 264), specially for the steppe in the North of the island. His proposal of interception hunting is followed here, since we lack any specific information for the area of our concern.⁶ Different situations considered by Borrero are hunting:

- a) in paths normally used by the guanacos,
- b) in points of broken terrain, using stampedes, and
- c) in clearings in the forest. Such interception hunting should have been prevalent in fall, when an intensification of hunting can be defended (Stuart 1977, Borrero 1985).

A generalized opinion concerning the behavior of the guanaco, maintains that it has a marked seasonality in its use of the space, using the coast in winter and the mountains of the interior in summer (Orquera *et al.* 1977, Stuart 1977). In the particular case of the Peninsula Mitre this model can not be sustained, since significant numbers of guanacos were seen on the coast during summer fieldworks from 1984 to 1990.

It appears as safe to base our speculations on the known structure of the guanaco groups. They include: a) familiar groups formed by an adult male, several females, juveniles and newborns, b) male troops, and c) female troops. What is of interest here is that the familiar groups are territorial at least for part of the year. This situation implies a higher predictability. The situation presents itself as interesting for archaeological analysis, but we lack of detailed information on the structure of age classes in local prehistoric sites necessary to infer if the distinct social groups were differentially exploited. The different social groups appear as more difficult to hunt by interception in paths or in forest clearings, than by stampedes. Anyway, the former strategy can not be excluded a priori. A seasonally patterned exploitation can be considered, alternating familiar groups with male and/or female troops. The problem with the latter is that as a target large troops are less predictable; but even considering that situation, it can be suggested that in parturition times – spring – the troops were more exploited than the familiar groups. During the rest of the year – probably with a peak on fall-winter – a greater utilization of familiar groups can be expected. In summer a displacement of interest toward troops, if available at walking distance, may be predicted.

In sum, I postulate an intensive exploitation of familiar groups on fall-winter (see Stuart 1977, Chapman 1977) on guanaco paths or in forest clearings, using an interception strategy, and a strategy centered in troops during spring-summer.

It is a difficult task to discuss these expectations with archaeological materials, since no clear cut age and/or sex groups can be easily tied to any given strategy. The presence of young of less than one year, occurring in fine grained assemblages, should be diagnostic of familiar groups. As for the activities associated with different potential site types, different opinions exist. Bridges (1951: 156-257) says that the *Selk'nam* use to dismember the prey in five units, while Gusinde (1982: 256) maintains that all the processing was done in situ at the kill. We lack any data concerning how the "Haush" butchered the guanaco, but it is probable that hunting camps do not exhaust site variability associated with guanaco hunting. Differential treatments of guanaco bone units conduct to expect different types of sites. Hunting camps should be those comprising a minimum of food remains,

(6) The hunting techniques – specially the ambush – described by Furlong (1912) for the *Selk'nam* appear to have low credibility.

located in places dominating guanaco territories, generally in low altitude zones (see Stuart 1977). The processing sites should be those represented by bones of lower economical value and with few associated instruments. Parts of higher economical value were probably transported to habitation sites. This site differentiation follows logically from the probable stages of guanaco exploitation process – kill, butchering, transport and consumption. But complicating factors – i.e. direct deboning of meat – may cause the discard of bones of high economical value at processing sites (L.A. Borrero, pers. comm. 1986). We must mention the presence of proximal epiphysis of radio-cubitus and tibia that exhibit cutting marks in sites considered as habitation camps – i.e. sites at Ea. Maria Luisa and Cabo San Pablo (Borrero and Lanata 1988). It is possible to think that, together with the absence of diaphysis, this presence may mean that while butchering those bones were cut down the proximal epiphysis, and transported as riders with choice parts – humerus, femurs – to habitation sites. Consumption of meat off habitation sites may also complicate interpretation of faunal assemblages.

An annual strategies model

Before presenting our predictive model of differential resources exploitation in an annual cycle for the "Haush", we will comment on certain general properties of the study area, that must have gravitated in the process of human adaptation. First, it is a region of small size – with an approximately triangular shape, and a surface of about 3,500km² –, and a few days are needed to travel it by foot. Second, the inhabitable part of that region is still smaller, given the number of mountains, dense forests and bogs. Thus, the coastal zone is possess a higher biomass than the interior, where the unique available resource appears to be the guanaco. Finally, even when the rigors of the fall-winter semester are more marked – low temperatures, snow falling –, the spring and summer are also harsh – strong winds from the south and west, low temperatures. There are marked differences in the length of diurnal light, with ca. 17 hours in summer and ca. 7 hours in winter, given the high latitude (54° S). These properties are sufficient support for Chapman and Hester's claim that marked seasonal di-

morphism in settlement patterns is not to be expected (Chapman and Hester 1973).

Fall-Winter semester

This semester is characterized by sea lion exploitation in fall, together with a better utilization of the guanaco family groups. Considering that there are no abundant exploitable vegetal resources – specifically fruits –, the availability of fish diminished, and some birds migrate, it should have been important to locate the base camp next to the sea lion rookeries and/or guanaco territories. Two factors converge on this: a) control of both critical resources in the most difficult part of the year, and b) maximize utilization of the available light hours.

It is possible to assume camps located in areas dominating both rookeries and guanaco territories. Such places can be found in parts where forests are not too dense. From those advantage points, both resources may be controlled with few movements, and return to camp with diurnal light, saving energy in a semester characterized by a low availability of resources. Given the information presented above, in fall it may have been useful to locate the camp first nearer to the rookeries, and then to transport it to the vicinity of guanaco family group territories, or eventually to places where male and female troops were located. Another alternative was that within the 5km proposed for the sea lions exploitation, potential guanaco hunting stands were available. The latter situation should not require subsequent transport of the camp. This second alternative allows members of the camp easy access to secondary resources: the fishing and/or gathering of fishes at intertidal pools, or the hunting of birds with bow and arrow at the forest. Other bird species, that in this season are concentrated in lagoons and other low zones, can be hunted with different techniques.

In sum, I postulate for the fall-winter semester a settlement where base camps are placed within areas located no more than 5km away from the rookeries – seasonal or annual – and which also had a reduced catchment, including spaces occupied by guanacos. Those camps do not have to be necessary located on the coast. Better conditions are offered by the limit of the forest, where there is better wind protection, and the fuel supply – important for warmth and light – is more or less constant. Functionally specific sites are a possibility in this semester, and it appears as plausible that such sites may be

identified by the general structure of the deposited faunal remains. We think that we must explore differential faunal structures as seasonal indicators, so as to base our seasonal hypothesis on wider evidence than that offered by annular rings on fish vertebrae.

Spring-Summer semester

During the spring the behavior of guanacos – familiar groups or male and female troops – is more hostile, since it is mating period, and accordingly a time when the males fight for the access to females. This puts the individuals in an unusual state of alert. Competence between males is frequently violent, and at this time of the year some kind of division of male troops operates, specially the young that leave the troop to look for females. These behaviors make it difficult the hunt of familiar groups, except perhaps when males are fighting, which may be the occasion to stalk defenseless females. Another potential prey are adults that do not compete for females, and which maintain themselves far away from the familiar groups. Also wounded animals resulting from male fighting may become useful targets on certain cases, those of severe injuries.

It is possible that sites formed in this time of the year had peculiar faunal assemblages, resulting from the differential availability of guanaco age groups. The strategy should have been one of intercepting isolated or defenseless animals. The postulated events are difficult to identify archaeologically. It is also expected that the potential hunting grounds were incremented due to the division of the guanaco troops, and also to thawing of the ground that makes available more space for the distribution of animals.

Parturitions occurred during summer, and thus the protection of guanaco territories is more marked. This should make it more difficult to hunt individuals, except for newborns that were left behind. For that reason we expect male and female troops to be a better target in this season, since once the fighting period was over and some social turnover had operated, troop members continue with their normal non-territorial pattern. The logistically organized hunt of those groups appears as a probable strategy.

A similar situation occurs with sea lions, since copulation and parturition occur in this semester.

The human exploitation area is maintained constant due to the precise situation of the annual or seasonal colonies. Anyway, the annual colonies appear as year round resource, and perhaps a specially used one from the end of summer until the end of winter (Lanata and Winograd 1988), which is not the case with the seasonal colonies, which exploitation is better at the end of the summer. As a result, I postulate that in spring females standing away from fighting males, and wounded males resting on the beaches, are selectively pursued. Newborns and females appear as the more plausible prey in summer. In sum, particular sea lion bone assemblages are expected for spring and summer.

Most of the edible plants are exploitable in this seasons. Their availability is different if they are roots, leafs or fruits are involved. The fruits are apt to be eaten in the beginning of summer, while leaves and roots can be already eaten in spring. I am cautious concerning the consumption of plants, given the lack any quantified data. I believe that it was a resource which occupied an important place in the diet, albeit a lesser one when compared with meat obtained by hunting. Its use must have been restricted to the moments of higher availability, or as a random resource during starvation periods or while traveling.

Migratory birds begin to arrive in the island in spring, and thus the number of available resources increases notably. Also the nesting period began, which gives place to the gathering of eggs. We have already mentioned that eggs have low appropriation costs, high predictability and high daily returns. The best exploitation places should be in the interior lagoons, in capes and, in general, by the sea coast – where most colonies are located. Thus, base camps used in these seasons should include a high variety of bird remains.

When the beginning of spring spawning time arrives, and numerous schools of fish are going near the coast. So, the river mouths, due to nutrients they carry, can be considered as areas where fish shoals concentrate. Any of the mentioned techniques could have contributed a high number of individuals, specially the net technique.

On spring the settlement could have been located according with the availability of birds and fish. These are coastal locations closer to river mouths. A base camp on that location should permit a tight control of nets for fish, as well as of stranded animals. Specific activity sites, like guanaco hunting

stands, should have been located far away from the base camps. Since this is a time when male and female troops are behaviorally available, and it is not easy to predict their location, a need arose to move to find the prey. Hunting stands could also be located in relation with the location of familiar groups, where male fighting facilitated the female or wounded animals' procurement. Guanaco's procurement could be as much resulting from a logistical strategy – male and female troops, and familiar groups –, as by encounter of isolated-solitary males – or defenseless individuals – females, wounded animals. Thus, a widening of the hunting grounds is expected, including piedmont zones where the snows are beginning to melt.

The spring is not appropriate for the exploitation of sea lions, but beach scavenging as well as isolated hunting episodes at the rookeries may have been implemented from the base camp.

Plant gathering should be focused on certain high availability places, principally in parklands (Bondel 1985) and marginal forests. These zones may have been visited in procurement of these resources. Random gathering should also be considered.

The Rancho Donata case

Information from Rancho Donata, an archaeological locality located on the north coast of the Peninsula Mitre at 65°54' S. and 54° 66' W. (Figure 2), will be introduced. The locality was first visited by Anne Chapman (Chapman and Hester 1973) and I preformed fieldworks in 1984, 1986 and 1988 (see Lanata 1995).

Rancho Donata is basically a beach of some 1,6km long, at whose eastern extreme the Policarpo river meets the ocean, forming a notable marsh. This river marks the southern limit of the zone with wide beaches with ample and gentle half-moon bays limited by a rocky cape in Peninsula Mitre. It has large bogs and low-altitude steppe prairies patched with *Nothofagus* forests in the hinterland. The Andes Mountains are located at the south, conforming a very different landscape.⁷ It must be

remembered that for some authors the Policarpo river is the limit for the distribution of the “*Haush*” (i.e. Furlong 1915: 434).

Resource availability at Rancho Donata

I will evaluate the different resource types available in the area. This data was obtained during summer fieldworks, and for this reason discussion has to be limited to this season.

Clark (1986a) completed a bird census – see Table 2. Unfortunately this census was done in February, and thus is almost null the information on eggs, which should be available in the area at least since November. As indicated in Table 2 most of the birds are located principally near the mouth of the Policarpo river, by the Donata lagoon, and at the north of Punta Loberia.

Merino studied the distribution and structure of guanaco groups. Several formations were recorded in 1986 and 1988 (Merino 1988): one familiar group (1 male, 2 females and 1 young) near the Donata lagoon, one male troop (14 individuals) in the area between Cerro Mesa and Playa del Duquesa, one male troop (15 individuals) in the forested area of the river, one solitary male on the beach near the concentration of archaeological sites, and three solitary males between the small streams and the mouth of the river.

Winograd studied the *Otaria flavescens* (Southern sea lion) colony located at Punta Loberia (Winograd 1986). A census made in february 1984 counted 287 individuals, including 246 females, 16 males and 25 pups. It must be mentioned that in 1986 the number of individuals diminished (A. Winograd, pers. comm.), while Carrara (1952) mentioned for that rookery a total of 4875 individuals. Carrara refer to another *Otaria flavescens* colony located to the east of the Policarpo river, including about 2600 individuals. It appears as pertinent to recall Carrara's data, which is indicating a notable diminution in the number of individuals since 1950 – probable causes are mentioned in Winograd 1986.

We lack any specific data on the availability of fish in the area, except for the presence of the already mentioned species.

The plant resources locally available are relatively few. *Berberis sp.* fruits are available on the east flanks of the Cerro Mesa and Monte Arriola, as well as isolated *Apium australis* near the mouth

(7) Starting in the Policarpo River to the South, the coast is of irregular shape, and present 15 to 20m height cliffs. The bays and coves in that zone display particular characteristics that render them different from those to the North.

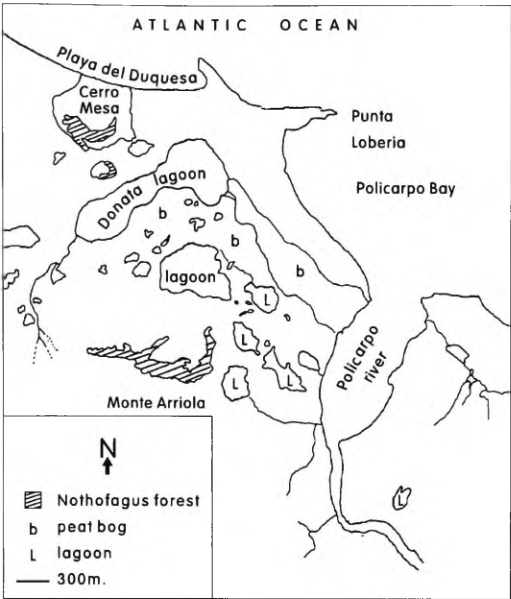


Fig. 2 – The Rancho Donata archaeological locality.

of the Policarpo river. Rushes useful for the construction of baskets are available in the mouth of the small stream draining into the Donata lagoon.

TABLE 2

Bird Census At the Rancho Donata Area from Clark (1986a).		
Species	Zone	Quantity
<i>Phalacrocorax albiventer</i>	Punta Loberia	± 160
<i>Puffinus griseus</i>	Punta Loberia	± 5,000
<i>Chloephaga hybrida</i>	Luz river	59
	Punta Loberia	57
	Policarpo river	30
<i>Chloephaga picta</i>	Policarpo river	94
	Donata lagoon	62
<i>Chloephaga poliocephala</i>	Donata lagoon	8
<i>Anas flavirostris</i>	Policarpo river	20
<i>Anas georgica</i>	Policarpo river	20
<i>Haematopus leucopodus</i>	Policarpo river	107
<i>Gallinago gallinago</i>	Policarpo river	30
<i>Leucophaeus scoresbii</i>	Punta Loberia	12
<i>Larus dominicanus</i>	Policarpo river	120
<i>Aptenodytes patagonica</i>	Policarpo river	1
<i>Pygoealis antarctica</i>	Policarpo river	1

The study of the intertidal area at the beach in Donata was performed by Sandra Gomez de Saravia (1986), and offered the following preliminary results. The mesolittoral section was divided in three sectors, the inferior dominated by *Aulacomya magellanica*, followed by *Patinigera magellanica* and *Trophon* sp. with low presence of *Mytilus chilensis*. The medium sectors present an increase in *Mytilus* and a diminution in *Aulacomya*, with low representation of *Nucella* sp. The superior sector is dominated by *Aulacomya*, associated with a marked increase of *Mytilus*, and low representation of *Patinigera*. The supralittoral section is characterized by a codominium of *Mytilus* and *Aulacomya*, with rare *Patinigera* and *Trophon*. All these species correspond to a rocky substratum, the only one presented at the cape in Punta Loberia. In comparison with other beaches in the Peninsula Mitre – i.e. Caleta Falsa, Bahia Thetis – the availability of mollusks at Donata is very low.

The soft sandy beaches are adequate for the stranding of whales. In this case the beach has a length of 1.2km, and the tidal wide discovers almost 400-500m of beaches, thus facilitating the process of stranding. In fact, the bones of different species of cetaceans are widespread on these beaches.

Studies by Hugo Nami (1986,1992) at the lithic workshop located close to Punta Loberia (see Chapman and Hester 1973) indicated that the beach cobbles used as cores were obtained at the western end of the Playa del Duquesa, some 4.8km from the site (Nami pers. comm.). There are no cobbles at Playa Donata itself. A concentration of thermal treated cobbles observed at the site may have come from the same source.

Spring and summer catchment of Rancho Donata

The presented data may be used to sustain that the Policarpo Bay has a sufficient variety of summer resources for fisher-hunter-gatherers within a 5km radius from the central portion of the beach. It is possible to think on a staged use of these resources, according with the most adequate timing for their exploitation. Intense use of birds and fish may be postulated for spring. The mouth of the Policarpo river appears as appropriate, since nets may be used there taking advantage of tides. Being the spawning season, the number of stranded fish increased. So-

me places near Punta Loberia appear as appropriate for the procurement of birds on the cliffs, while near the river the use of snares should be more adequate.

In this semester it is necessary to search for the male and/or female troops, which are more obtainable than other guanaco social groups. Guanaco hunting grounds may be postulated at Cerro Mesa, Monte Arriola, or perhaps in mounts located in the interior. Processing sites may have been located on low flanks.

By the end of summer the exploitation of the sea lion colonies must have been emphasized, but isolated individuals should have been available since the beginning of the season. The rookery may be approached from the top of the cape or, waiting for low tide, from the beach. The latter is the indicated way out of the rookery when it is needed to transport the prey. On the lower parts of the cape some processing could take place. Stranded whales and mollusks are not considered here, since the former are fortuitous resources and the latter are not well represented today in order to discuss differential availability.

Two alternative spring-summer settlement systems are presented. In one the location of the base camp is changed as a function of staging in the appropriation of resources. In the other, only two camps are used along the semester. In both cases limited activities' camps are also necessary.

There are other factors – besides location and availability of food resources – that are important for the location of camps, such as fuel, water and shelter from the wind. Today fresh water sources are situated on the east of the bay, or in the interior lagoons. What seems to be an old drainage of the Donata lagoon was detected running parallel to the cape Punta Loberia. Fuel can be obtained from materials accumulated by the sea on the beaches, or from the forests on mounts Mesa and Arriola, which also are offering protection from the winds. Anyway, having in mind that the potentially exploited food resources are within a reduced catchment, we think that the location of a base camp will privilege access to them, even when that means the economically costly operations are needed for the provisioning of fuel and water and protection from the wind. Such a place should not disturb guanacos or birds. The sea lions offered no such problem, since their home range is aquatic.

The concentration of the archaeological sites is in the central zone of the beach, not far away from the high tide line. According with the factors just reviewed, this zone, together with the plains next to cape Punta Loberia, includes the more adequate places for a base camp. Limited activities camps may have been located in different areas. Bird hunting sites should have been placed at the mouth of the Policarpo river, and nearby the Donata lagoon and Punta Loberia. At Punta Loberia, where today a shag colony is located, we can postulate hunting on the cliffs. Sites near the cape should be expected, probably with evidences of bird processing. Such sites should be characterized by the disproportionate presence of low economical value bones – from the head, cervical vertebrae, tibiotarsals. At the mouth of the Policarpo river, as well as in the Donata lagoon, bird processing derived from snaring should have a lower archaeological visibility in comparison with the previous case, except in the case of redundant use of the same locus. In that case one may get the wrong impression that the use of a more intensive, collective technique, may explain the accumulation of bird bones.

The mouth of the Policarpo river and the sea coast are the appropriate places to look for fish. Unusual frequencies of caudal vertebrae and head bones may characterize fishing sites, specially considering the size of some of the available fish.

If the occupation was during spring-summer we can postulate that practically all bone units should be represented at those sites, with a high female/male ratio, and a high percentage of newborns. Having in mind the marked sexual dimorphism of the sea lions, perhaps some processing of adult males may have taken place near Punta Loberia.

High altitude loci with a dominance of the space between Cerro Mesa and Monte Arriola may be considered good guanaco hunting ground for female and/or male troops. Processing sites may be located in the lower flanks of those mounts, by the forest limit.

The proposed settlement differs, as emphasized previously, in the presence of a mobile base camp or its lack, as a function of differential preservation of resources. Anyway, since the appropriation area for most of the resources – birds, fish, sea lions, mollusks and eventually whales – is found circumscribed to a radius of 5km from

the central part of the beach, we propose a relatively stable base camp, with guanaco hunting stands located at more than a day's walk. According with what was previously said, a settlement system that locate its spring base camp near the mouth of the Policarpo river is postulated. Its location in summer is in the NW. extreme of the bay, to control the local rookery.

Some considerations

In the general predictive model of resource exploitation, as well as in the specific model for the occupation of Rancho Donata, different behavior patterns are expected to justify the use of functionally specific types of sites, besides base camps. Types of sites may be enumerated: 1) logistical, 2) home range, and 3) incidental.⁸

Logistical sites are those which are produced within a logistical radius, as a result of specific activities developed at overnight camps away from the base camp (Binford 1982: 7). Home range sites are those produced by the group within the action range of the base camp, and do not imply the installation of a camp. Incidental sites are those which are the product of specific activities that were not programmed, and accordingly may be located – indistinctly within the camp range or the annual range. The definition of incidental sites is undoubtedly ethnographically charged, and appear almost impossible to differentiate archaeologically from other types. Its characteristics are absolutely opposite those of a logistical type. I understand that logistically organized activities presuppose a plan – i.e. a guanaco hunting party. Incidental sites, on the other hand, result from the unexpected, like random encounters with animals – a stranded sea mammal on the beach, the processing of wounded guanacos, or the random gathering of eggs and plants.

Logistical sites should be more related with the hunting of guanacos, or birds in the cliffs. The latter case is interesting, since technically speaking those sites should be located within the

home range, but due to the use of nocturnal strategies, the formation of a logistical camp is expected within the home range in certain cases: as I said, most of the specific activities' sites proposed here are located within a range of 5km. Then, the pattern of spring-summer space use may be characterized as that of complete radius (Binford 1982: 9), with the peculiarity that half of the space is in the ocean, since the base camps are located near the beach. For the fall-winter semester, with a base camp near the forest, the space use pattern should be more adequately termed of complete radius. This characterization differs from Borrero's model of high residential mobility for the *Selk'nam* (Borrero 1985: 300). In the Rancho Donata case the high mobility is restricted to the home range. The strategy then, is one of patterned mobility within the home range, with limited logistical movements for the hunt of guanacos and shags.

It is clear that reality should have been more complicated than exposed by this model. I expect that the complete study of the materials obtained in Rancho Donata will suffice to refute it.

The archaeological evidence

I will not present a detailed list of the archaeological findings at Rancho Donata (see Lanata 1986, 1990, 1993, 1995), but will mention some property of the samples. Most of the concentrations of archaeological materials are in surface and located in the central portion of the beach, at a distance of 50-100 meters from the high tide line. Identified sites are varied: large shell middens – i.e. RD 3: 72m², RD7= 560m², RD10: 800m² –, concentrations of thermal treated cobbles with a few instruments and without any traces of food remains, concentrations of cetacean and sea lion bones with few instruments, sites formed with the remains of shipwrecks and associated with glass workshops. A large lithic workshop was found at the interior side of the Punta Loberia cape, at an advantage point for the observation of the hunting grounds. This location justifies transport of the cores, which were prepared with cobbles from the Playa del Duquesa – 5km to the West. Two stratified sites were found in the eastern sector of the Playa del Duquesa, near the workshop. Sites containing mollusks and

(8) Even when this site type may be named 'transient', we prefer to use the name 'incidental', referring to those events that were not planned (i.e., random hunting). On the other side, the term 'transient' implies a plan.

guanaco bones are found at the top of Cerro Mesa, and there are also evidences of human occupations at their lower and forested flanks.

Preliminary results at Rancho Donata locality show that the concentrations of archaeological materials appear at locations predicted for spring-summer base camps. The systematic sampling design used in that area permit us to observe the existence of endscrapers, arrow points, large projectile points – tips and tangles –, and side scrapers. Bone remains at the larger sites (RD 5, 7 and 10) indicate an important presence of birds and fish,⁹ as well as guanaco and sea lion newborns (Lanata 1993), implying its use in spring-summer, at least. The presence of large projectile points – 10 to 12cm long – with expanded tangles, was also detected. They may have been used as harpoons (see de Broses 1756, I: 444) (Ratto 1991). This may help to explain the low representation of bone harpoons. Abundance of whale bones in sites and near vicinity – vertebrae, skulls, ribs; some with cut marks – suggest cetaceans scavenging.

Data from Rancho Donata permit to confirm some of our predictions. Continuation of the excavations, as well as in deep studies on the recovered materials will permit re-examination of the model. In a more general perspective, recent anthropometric data shows some affinities *Selk'nam*–“*Haush*”, but it do not constitute an authentic proof of identity (Guichon 1993 and pers. comm.). Even when the studies of lithic materials from different Peninsula Mitre sites (Nami 1986, 1992 and pers. comm; Ratto 1991 and 1993) do show some peculiar characteristics, like beveled points and retouches, large points with expanded tangles – presumably used as harpoon heads –, thick endscrapers; there are also arrow points and harpoons (Casiraghi 1986) which are comparable to those of the *Selk'nam*.

Other Fuegian models

The subsistence and settlement models available for Tierra del Fuego are those of Stuart (1977), Moore (1980) and Borrero (1985) for the *Selk'nam* area, and of Jackson and Popper (1980) and Stuart (1983) for the *Yahgan* area. Stuart and Moore settlement models postulated an alternate use of the coast and the interior, spending summer and winter

in the coast, and fall and spring in the interior. On the other hand, Borrero proposed a more complex situation, with factors other than seasonality to account for the use of any given habitat (Borrero 1985: 276-277).

Jackson and Popper visualize the *Yahgan* settlement as concentrated near the coast in winter and spring, and on the coast in summer and fall. Stuart's model for the *Yahgan* is dependent on the use of canoes. These *Yahgan* models will not be explored here.

The model presented here differs from any of those mentioned, since we postulate that base camps were never located more than 5km from the coast. In that sense I may concur with Borrero (1985: 315) when he talks of lack of specific seasonal differentiation in the *Selk'nam* adaptation. As for site typologies previously presented, those of Stuart and Borrero for the *Selk'nam* are the more useful. The typology presented by Moore is too general, and for that reason is not adequate for my purposes. Site types presented by Stuart (1977: 276-281) are based on ethnographic information, while the elaboration presented by Borrero (1985: 230), is archaeologically defined. Anyway, I am not to consider it any more, since it is not appropriate for the “*Haush*” area.

Specialized site types proposed by Stuart are basically related with the hunting of the guanaco – Fall guanaco hunting lodge camp, Guanaco hunting base camp, and Guanaco hunting camp. They share some properties with mines – their location at high places or in the forest – and differ in that they are seasonally used and in the lack of redundancy in the occupation. At first sight Stuart's three categories appear as similar to the hunting stands that I proposed, but they are not. Stuart's first two categories coincide with my base camps. Stuart's Guanaco hunting camp is equivalent to my ‘guanaco hunting stand’, which is a place located to control spaces used by guanacos. Those stands could be located far away from the base camp, and can be defined as small sites (Borrero 1986). I think that Stuart's Fall guanaco hunting lodge camps may be more related with the hunting of familiar

(9)The excavation of RD A-310 presented ca. 400 fish vertebrae in one square (1m²), with a vertical dispersion of only 2cm. This remains are now under study to determine the season of death. In that square the dominant bones are those from birds and fish.

groups, due to seasonality and redundancy in the occupation (Stuart 1977: 277). On the other hand, their Guanaco hunting base camp, and Guanaco hunting camp may be related to the hunting of male and/or female troops, since they are camps not used every year.

Another specialized site type in Stuart's typology is his Spring Sealing Base Camp (Stuart 1977: 278-279), which differs from what we proposed, since we consider that sea lion exploitative activities took place from the summer on, and we contemplate the addition of other alternative coastal resources. My generalized base camp was proposed on these bases. In a way it may be compared with Stuart's Generalized Littoral Resource Camp (1977: 279), even when he considers that this type of site may have also been used in winter and we only attribute it to summer use. Other generalized camps proposed by Stuart (1977: 280) are located in the forest and are used in midwinter and midsummer; the former are equivalent to our winter base camp. Being almost nil the evidence for the use of Kloketen camps in the Peninsula Mitre, we do not count that type in our typology. On the other hand, a number of specific activity sites – exploitation of birds, fish, plants – are added in our model.

The major difference between our model and Stuart's is, perhaps, the difference in subsistence. While Stuart's model is heavily inclined to emphasize the exploitation of the guanaco over sea lions, both resources are critical in our model. For the time being we lack of any quantification of the importance of guanacos and sea lions within the Isla Grande different populations, but we feel that sea lions must have an important place within the human diet as sources of lipids. On the other hand, our model gives importance to birds, fish, and plants (Lanata 1986, 1990, 1993, Savanti 1994, Vidal 1985).

In sum, I think that Stuart's ethnographic model, even when sharing a number of properties with our model, could be more useful in marking changes within *Selk'nam* strategies once they were in fluid contact with white colonists. This change, occurring since the end of the last Century, was already considered by Borrero (1985 and 1991). In opposition, my general model is trying to include what I consider a logical chain in the exploitation of resources (see also Muñoz 1994). Of course, this model is to be refuted with our own work and with that of Vidal at the Southern littoral of the Peninsula Mitre (Vidal 1985, 1986, 1987, 1988).

Summary and conclusions

A predictive model was presented, as well as the archaeological case of Rancho Donata in what is considered the "Haush" area. My proposal is that Peninsula Mitre human populations possess two critical resources – guanacos and sea lions – and used an important biomass of birds and fish. The latter serve as an alternative resource, which helps not to overexploit large mammals stocks. The strategies appear to have been different in fall-winter and spring-summer. Logistical movements for guanaco hunting were favored in fall-winter, while hunting of sea lions occurred within the camp range. Base camps were located in the limit of the forest, within 5km from the coast or, strictly speaking, from a rookery. In opposition, the strategy during spring-summer is one of patterned movements locating base camps mainly on the coast in relation with different resources – initially birds, then fish, and finally sea lions. Guanaco male and/or female troops were searched with a logistical strategy.

This model is confirming some observations from ethnohistorical sources concerning increased utilization of littoral resources in the "Haush" area in relation with the *Selk'nam* area. Recent stable isotopes analysis from human bones of the whole Tierra del Fuego, shows that diet in Peninsula Mitre samples was important in maritime resources, more than the *Selk'nam* but less than the *Yahgan* (Yesner *et al.* 1991). Anyway, we are far from a position from which to choose on any of the three hypotheses on the attribution of the Peninsula Mitre's archaeological record. In a few years the results of different projects in progress will throw new light on this problem.

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ABSTRACT: The Isla Grande of Tierra del Fuego – Argentina – southeast tip was archaeologically almost unknown till the middle 1980's, when systematic research began. This area was historically inhabited by the *Haush*, a group without a clear ethnic status. The different positions about them are summarized. The ethnographic information available and the data from the faunal resources – guanacos (*Lama guanicoe*), sea lions, birds and mollusks – are adjusted to postulate a subsistence and settlement model for the area – known as Peninsula Mitre. It is applied for the Rancho Donata archaeological locality, and then it is compared with other Tierra del Fuego pedestrian hunter-gatherers models. Logistical strategies for guanaco hunting seem to be more efficient yearlong. During the fall-winter semester, sea lions hunting took place within the camp range – ca. 5km from the coast. The spring-summer semester base camps movement appears to be first associated with bird and fish procurement and then to sea lions hunting.

UNITERMS: High latitude adaptation – Tierra del Fuego – Hunter-gatherers – Faunal resource exploitation – Subsistence and settlement models.

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