Extinct Fauna, Palimpsest and Scavenging in the Semiarid North Coast of Chile

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As part of a Pleistocene peopling interdisciplinary research program (FONDECYT 1090044) we have been studying surface and stratigraphic sites with possible associations between extinct fauna and cultural evidence in the Semiarid North of Chile (Jackson et al. 2003; Méndez and Jackson 2006; Méndez et al. 2004). One of these sites, El Avistadero (LV.100; ~32° S) is located on a coastal marine terrace (40 m.a.s.l.) with overlying dune fields (Figure 1). Southwest wind deflation has exposed a red clay deposit corresponding to the upper part of the terrace (Varela 1981) along with extinct faunal remains and lithic tools.

To assess cultural associations at the site, we conducted surface samplings (40 m^2) and stratigraphic excavations (16 m^2) immediately to the north and south of the dune system circumscribing the main deflation area. The stratigraphy of the excavation showed an 80-cm clean sand paleodune deposit with sandy clay sediments towards the base. In the basal deposit we recovered volcanic tuff cores and lithic debitage (obtained from an adjacent rock out-

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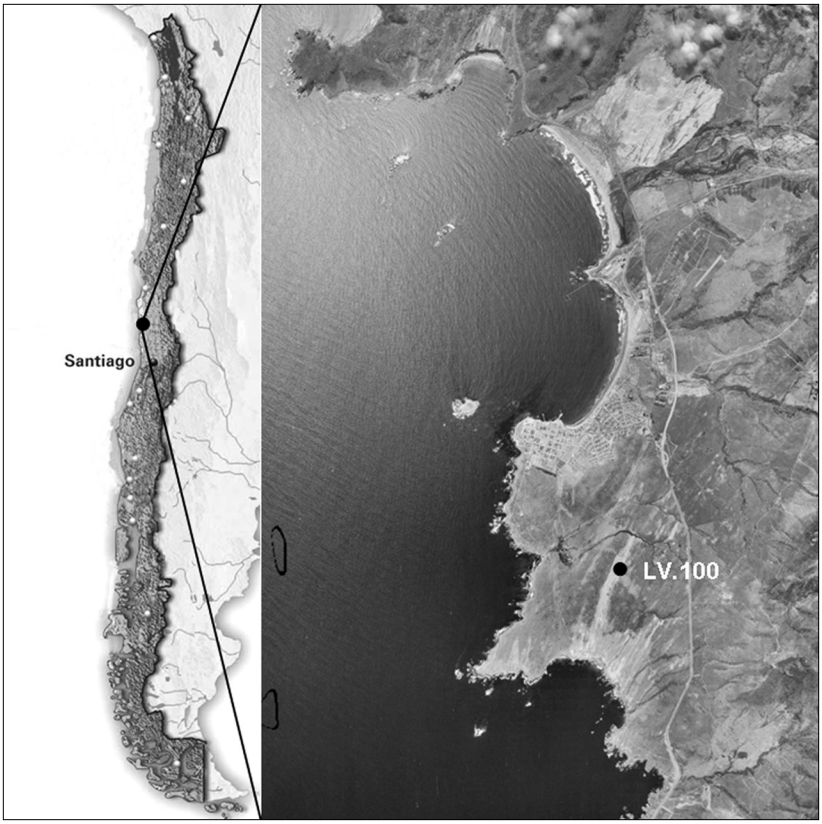

Figure 1. Location of the study area and El Avistadero site.

crop) associated with isolated charcoal pieces. One of these charcoal samples yielded an age of 240 ± 50 RCYBP (Beta-188336) suggesting undetected historic stratigraphic perturbations. A thermoluminescence date on a rock exposed to fire yielded a result of 7500 ± 500 CALYBP (UCTL-1576), an age consistent with lithic evidence expected at a middle-Holocene hunter-gatherer procurement and biface-thinning location.

In the surface sample from south of the deflated area we collected cores, bifacial thinning flakes, and one triangular projectile point manufactured on tuff from the nearby outcrop, along with small unidentified bone fragments with fire marks and extinct faunal remains, some embedded in the clayish matrix. In the north surface sample we only recorded dispersed extinct faunal remains within the sandy clay deposit. The extinct fauna includes *Equus* (*Amerhippus*) sp., represented by remains of the appendicular skeleton (humerus, femora, carpals, and teeth), *Palaeolama* sp., represented by several reassembled fragments of a basioccipital, and Mylodontidae, one claw and 81 osteoderms, the latter concentrated in just 1 m^2. Modern faunal remains include fox (*Pseudalopex griseus*) and rodents (*Octodon* sp.). The *Equus*

(*Amerhippus* sp.) femur exhibits dental carnivore marks consistent with gnawing by a small canid (López 2007). Some of the Mylodontidae osteoderms show digestive acid alterations, and their spatial concentration suggests a carnivore's fecal deposition (López and Jackson 2004), like the well-preserved *Panthera onca mesembrina*'s feces containing *Mylodon darwinii*'s hair and osteoderms recorded in Patagonia (Borrero 2001).

An *Equus* (*Amerhippus* sp.) sample yielded no collagen, thus precluding precise ^{14}C age determination. Nevertheless, the sample's position between the clay stratum and the sandy clay interphase is identical to a Mylodontidae vertebra dated to 13,500 ± 65 RCYBP in the nearby site of El Membrillo (Jackson 2003), thus suggesting a similar age for El Avistadero. This age also indicates the beginning of this and other analogous dune systems along the coast of the study area (Ortega 2006). Based on our contextual assessment, the association between extinct faunal and lithic remains at El Avistadero may be interpreted as juxtaposition resulting from the current intense eolian deflation. The middle-Holocene lithic evidence resulted from a hunter-gatherer occupation superposed on extinct faunal remains deposited several millennia earlier, near the end of the Pleistocene.

The evidence of extinct fauna deposited over the upper part of the marine terrace and during the beginning of the dune deposition is interpreted as a product of several carnivore scavenging events on the basis of the dispersion of remains, the few anatomical elements represented for each taxa, and the evidence of punctures and digestive acids. Carnivores carried and accumulated prey parts gathered at nearby sites, like Quereo's ravine, where a diverse but incomplete megafaunal assemblage has been observed (Núñez et al. 1994). The thorough study of contexts such as the one in El Avistadero has a twofold aim; it opens a window into the complex site-formation processes in sites of terminal-Pleistocene age, and it informs us about extinct carnivore/prey dynamics. In this sense, it helps to reconstruct the complex palaeoecological scenario that the first human immigrants faced in the region.

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