**Supplement 2: Patterns of Deposition and Overall Taphonomy**

There is little doubt as to the anthropogenic nature of the accumulation of the faunal material. Most specimens are spatially associated with lithic artifacts and hearths (Lanoë and Holmes 2016: Figures 5, 6); indeed, recorded fauna and lithic artifacts spatially co-vary both at a resolution of .25 $m^2$ (Spearman's $\rho = .62$; $p < .01$) and 1 $m^2$ ($\rho = .72$; $p < .01$). While the exterior surface of most faunal specimens is very poorly preserved (e.g. Lanoë and Holmes 2016: Figures 2, 3, 4) and obscures any traces of butchery marks or carnivore ravaging, there is ample evidence of osseous toolmaking and one probable human impact of percussion recorded on a mammoth rib (Supplement 3).

The origin of accumulation is less straightforward for rodents (ground squirrels, voles and jumping mice). Cricetid and Dipodid remains weakly co-vary (i.e., are independent) with other recorded archaeological remains both at a resolution of .25 $m^2$ (Spearman's $\rho = .19$; $p < .01$) and 1 $m^2$ ($\rho = .33$; $p < .01$). The taphonomic processes recorded on the Cricetid-Dipodid sample are different than for the rest of the assemblage (Figure S2): no remains were found isolated, 83% were recorded unbroken, and with weak modifications due to weathering and dissolution. In addition, radiocarbon dating of a Dipodid bone and a charcoal associated with a Dipodid skeleton yielded dates of 5550-5420 and 5480-5400 cal B.P., respectively (Supplemental Figure1). Altogether, it is most likely that Cricetid-Dipodid specimens were deposited as intact bodies under the surface (i.e. in burrows or nests) or in a context of rapid deposition, in a manner unrelated to predation.

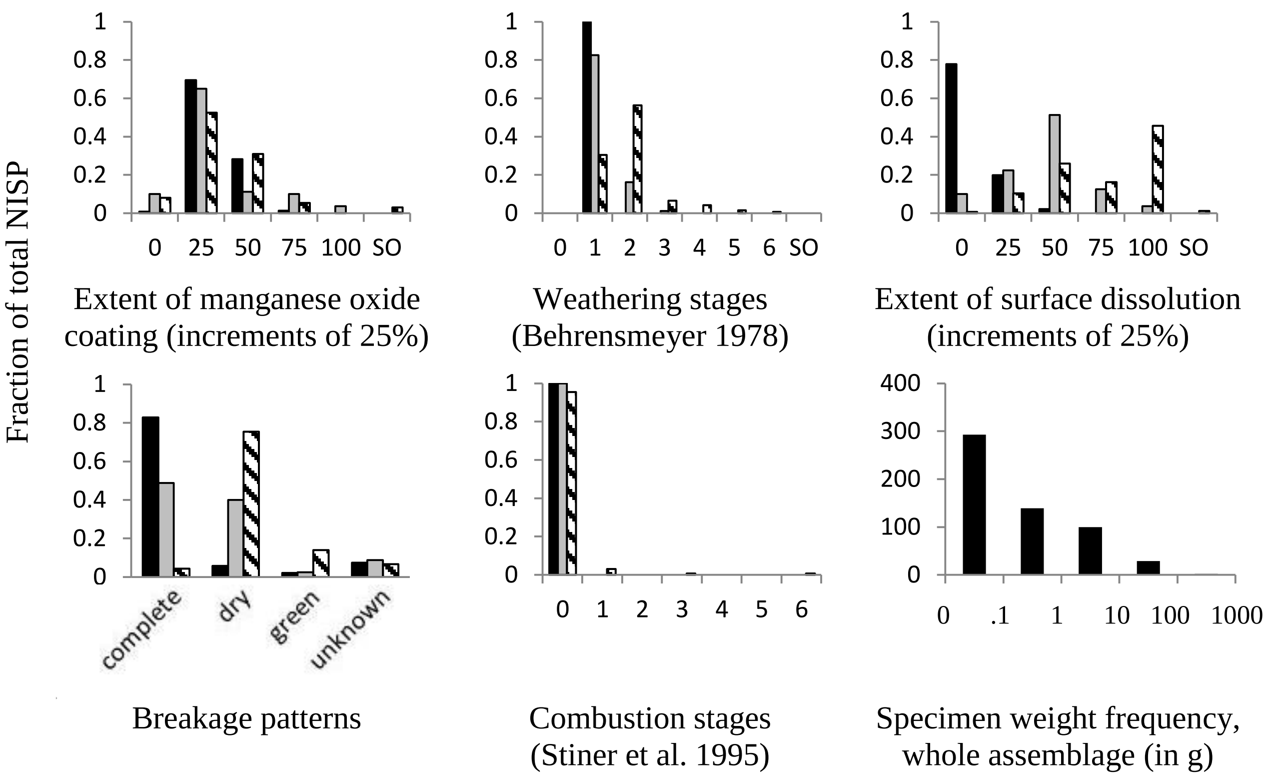
Ground squirrel remains weakly co-vary with other recorded archaeological remains both at a resolution of .25 $m^2$ (Spearman's $\rho = .08$; $p = .15$) and 1 $m^2$ ($\rho = .18$; $p = .08$). Recorded taphonomic processes are generally intermediate between those observed for Cricetid-Dipodid remains and for the rest of the assemblage (Supplemental Figure 2). Some of the remains cluster in areas of the site where otherwise few archaeological remains were recovered, while others are associated with dense artifact concentrations and human features (Lanoë and Holmes 2016: Figure 6). A charcoal sample associated with a ground squirrel-sized burrow was dated to 9550-9390 cal B.P. (Supplemental Figure 1). Overall it is likely that some or all of the squirrel remains were deposited after human abandonment of the site, within krotovinas/burrows where the animals died during hibernation from thermal or nutritional stress (Morrison and Galster 1975). The location of burrow excavating may have been favorably influenced by the accumulation of artifacts and/or sediment disturbance by humans; alternatively, a few individuals may have been preyed upon such as at the nearby site of Upward Sun River (Potter et al. 2011, 2014).

Burrowing by ground squirrel and Cricetid-Dipodid may have caused some bioturbation within CZ4b and between CZ4b and the components above; this perturbation was on a limited scale though, as it did not affect the 845 recorded mammoth teeth fragments, which were all recovered in CZ4b (Supplemental Figure 3).

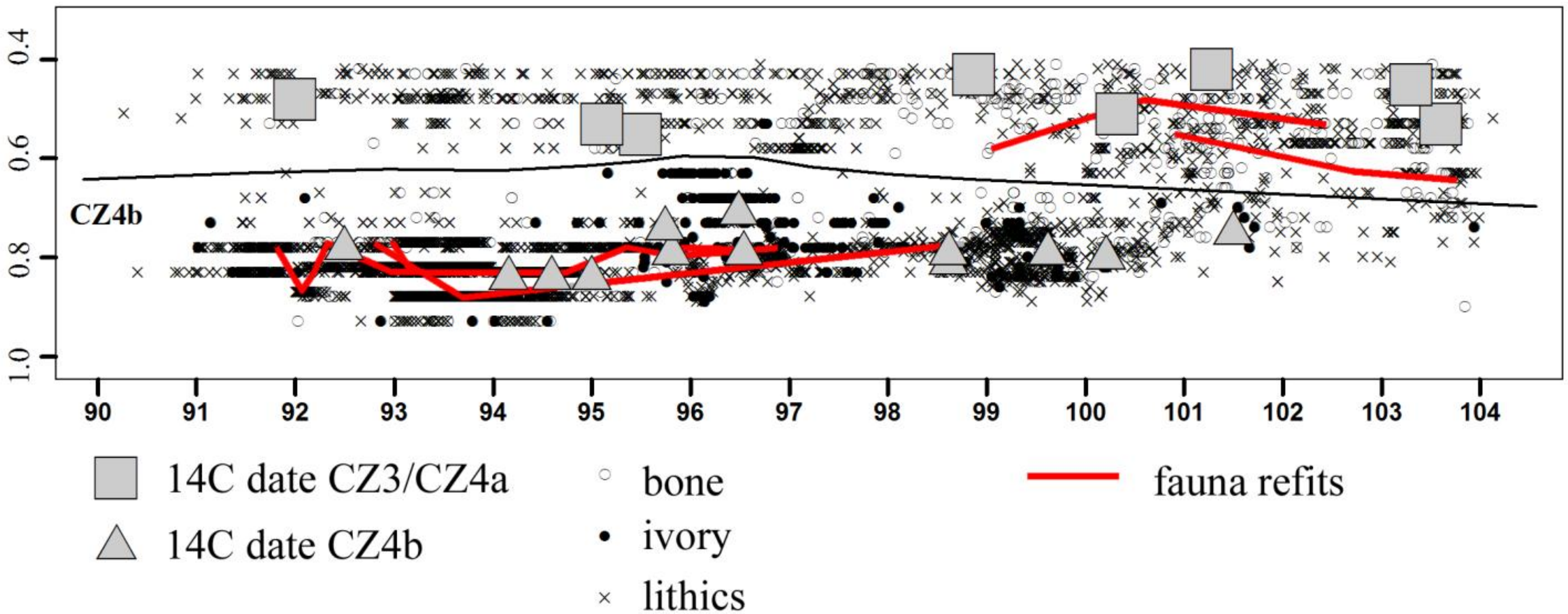
Weathering had an overall low impact on the assemblage (Supplemental Figure 2), as expected in the context of rapid sediment deposition that occurred between 14000 and 8000 cal B.P. throughout the Shaw Creek basin (Dilley 1998; Reuther 2013). The extent of surface dissolution is high for the non-rodent specimens (Supplemental Figure 2); on most specimens little to no portion of the original bone surface was preserved. For both birds and mammals, dissolution of the outer surfaces must have erased any potential butchery marks.

Bone dissolution is caused by reaction of the structural hydroxylapatite with acids (Andrews 1990; Lyman 1994; Stiner et al. 2001). At CZ4b it potentially derived from three types of agents: carnivore digestion/salivary enzymes; plants obtaining nutrient through their root system; or acids in solution in the sediments. On many specimens, manganese oxide surface coating is interrupted by dissolution patterns; thus dissolution occurred after oxide coating, when the bones were already buried, ruling out carnivore damage. While some specimens still have roots of modern vegetation attached to them, overall specimens lack the characteristic dissolution pattern expected from root-etching, which is dendritic and preferentially located on one side of the bone. Rather, specimens show a general surface pitting more characteristic of dissolution from acids in solution in the sediment (Andrews 1990), a pattern that can be found at other sites in the region (e.g. Potter 2005).

Today the sediments in which CZ4b is located are slightly alkaline (pH 7.5-7.7, Dilley 1998); therefore bone dissolution is not due to acid leaching in the current inceptisol, but may rather be related to late Pleistocene or early Holocene periods of soil development. Regardless of this exact timing, bone dissolution at CZ4b is post-depositional, and the lack of biotic modification is consistent with rapid burial of archaeological materials after human abandonment of the site.




Supplemental Figure 2. Taphonomic processes affecting remains of Cricetid-Dipodid (in black), Sciurid (gray), and the rest of the faunal assemblage (stripes). SO: surface obstructed, no recording.




Supplemental Figure 3. North-south profile (facing west) of the lower layers of Swan Point. Scale is in meters, elevation is relative to the modern surface.

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