***Supplemental Text 1. Bayesian Chronology of James Creek Shelter***

Methods: All James Creek and Pie Creek dates were calibrated according to the IntCal20 calibration curve (Reimer et al. 2020) in OxCal 4.4 (Bronk Ramsey 2021). Bayesian chronological sequences were constructed for both sites (Supplementals 2 and 3) with model results yielding good agreement indices (James Creek: Amodel=97.5, Aoverall=95.6; Pie Creek: Amodel=86.9, Aoverall=86.7), well over the recommended acceptance threshold of A≥60. This indicates the new and legacy radiocarbon data fit well with their presumed ordering and grouping based on stratigraphic understanding of the site chronologies.

Results: James Creek Shelter is a long, narrow overhang at the base of Eagle Rock, with a dripline varying 4 m to 7 m from the rear wall (Elston and Budy, 1990: 6, 258, fig. 2) and these authors commented on the broad similarities between the detailed records of alluvial processes evident at Gatecliff and James Creek shelters. Modeled phases (designated by the *Phase* function in OxCal) for James Creek Shelter were delineated on the basis of cultural horizons (Horizons I–VI).

Elston and Budy (1990) reported six Horizons spanning the late Holocene. A date from within sterile alluvium prior to Horizon VI (Beta-11389) offers a *terminus post quem* for the subsequent habitation sequence, which is now represented by 25 dates. Three 14C outliers from James Creek Shelter (PSUAMS-4517, Beta-11388 and Beta-12211) were omitted during modeling because they failed to agree with stratigraphic super-positioning or model assumptions (A<60%).

The distribution of the four dates within Horizon VI (South Fork Phase) suggests sporadic occupation from 3445-3200 cal BP (an early sub-phase) followed by increased occupation to 2845 cal BP (a late sub-phase). Horizon V (early James Creek phase, ~ca. 2935-2705 cal BP) is when “use of James Creek Shelter is well established” (Elston and Budy 1990:50). However, it is represented by no hearths or other features, and the only charcoal date from the top of the Horizon (Beta-11388) is an outlier, probably associated with rockfall and likely constituting redeposited natural debris. The duration of this Horizon is therefore inferred by boundaries delineating the end of Horizon VI and beginning of Horizon IV.

Horizon IV (James Creek phase) spans the LHDP so its chronology is centrally important here. Elston and Budy (1990:48) reported three 14C dates (one of which, Beta-12211, is a natural debris outlier) and inferred an occupation span “between about 450 B.C. and A.D. 700” (in radiocarbon years; Elston and Budy 1990:51), or ~2580-1230 cal BP. According to the investigators, Horizon IV contains two distinct sub-phases representing “a shift in use from diurnal hearths to short-term camping,” with an early sub-phase containing thin planar grass-lined occupation surfaces older than ~1860 cal BP, followed by a late sub-phase in which the shelter “served as a longer term base camp” (Elston and Budy 1990:51) with thick ashy well-trampled living surfaces (e.g., the Feature 40 occupation complex).

We augment the Horizon IV 14C record with eight new dates for a total of ten (excluding the outlier Beta-12211). Early Horizon IV now contains four dates between ~2725-2400 cal BP, followed by a gap in dated occupation lasting ~250 years. The later sub-phase now has six dates, commencing ~2105-1890 cal BP (Feature 40), with additional dated occupation episodes at ~1570 and ~1355 cal BP, indicating that shelter habitation in Late Horizon IV was episodic. The final modeled age is ~1235 cal BP, essentially identical to that given by Elston and Budy (1990). The dates comprising the latter part of the James Creek Shelter sequence are also mostly unchanged and benefit from reanalysis with Bayesian sequencing and an up-to-date calibration curve. Horizons III (early Maggie Creek phase, eight dates) and II (late Maggie Creek phase, two dates) has a modeled duration of ~1235-630 cal BP, with the earlier part of this phase corroborated by one new AMS date (PSUAMS-4813). Horizon I (Eagle Rock phase) is represented by three dates, with a modeled duration ~450-285 cal BP, respectively. Due to a sizable gap (~200 years) in the temporal distribution of dates the Horizon II/I transition is rendered as discontinuous, though with the small sample size at this point in the sequence the continuity of the transition is debatable.

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