SUPPLEMENTARY MATERIAL

ARCHAEOLOGICAL SITES: BRIEF DESCRIPTION

PR-WB-16: Tunas (Arapoti, PR): This site, located in a sandstone rockshelter (length: 48 m; maximum width: 14 m; height: 6.9 m), was excavated between 2001 and 2006 and all information can be found in Chmyz et al. (2008). The deeper levels, dated from the Holocene, presented several lithic artifacts (including projectile points) and faunal remains. Four contiguous excavation units were open, in a total of 10 m², reaching between 125 and 155 cm depth. Charcoal samples for radiocarbon dating were collected (135-145 cm and 65-75 cm). The projectile points were found in all stratigraphic levels, including the surface, where a few fragments of pottery were also found. The authors consider all projectile points as part of the pre-ceramic/hunter-gatherer occupation, irrespective of their stratigraphic position. More detailed studies including lithic technology and geometric morphometrics are being developed by us in order to better understand the variability of the projectile points across time.

RS-TQ-58: Garivaldino (Montenegro, RS): Located in a sandstone rockshelter (length: 21.4 m; maximum width: 8.5 m; height: 8.6 m). The main intervention on this site, in 1989, resulted in an excavation of approximately 12 m², reaching a depth of 2.1 m (Mentz Ribeiro et al. 1989, Mentz Ribeiro and Ribeiro 1999). The projectile points from this site have been studied using geometric morphometrics in order to understand the potential changes in morphology through time. There is a remarkable stability in the morphology of such points through time, which suggests the absence of change in shape might be related to small group size and low level of cultural innovation (Okumura and Araujo 2014). Such stability though time was also observed in the analysis of faunal remains (Rosa 2009).

RS-C-61: Adelar Pilger (Harmonia, RS): Located in a sandstone rockshelter (length: 20 m; maximum width: 8.9 m; height: 4.6 m), this site was excavated in 1971 by Mentz Ribeiro, who opened a 1.5 x 1.5 m unit reaching 2.2 m deep. Between 2006 and 2008, further excavations were performed, opening an area of 6 m² and 2.3 m deep. According to Dias and Neubauer (2010), the rockshelter was continuously occupied during at least 3,000 years (see radiocarbon dates, Dias and Neubauer 2010, Dias 2012). Such occupation was related to the presence of hearths observed in a central area of 4 m² and 60 cm thickness. The authors consider this site as part of a greater settlement system related to hunter-gatherer groups (Dias and Neubauer 2010), presenting similarities (in terms of space use, settlement pattern, lithic technology, and faunal remains) to other sites from southern Brazil (including Dalpiaz, Bom Jardim Velho, Adelar Pilger, and Garivaldino; Dias 2012).

RS-217: Pedro Fridolino Schmitz (Bom Principio, RS): Located in a sandstone rockshelter (length: 10 m; maximum width: 4 m; height: 4 m), the site was excavated in 1970 and 14 m² were open (Schmitz 2010). According to the author, three different occupation moments are present at the site. An early Holocene occupation, comprising levels 6 and 7 (the final levels of the excavation), dated from 7800 ± 50 AP, a late Holocene occupation, represented by levels 4 and 5, dated from 1400 ± 40 AP and a more recent, undated occupation (levels 2 and 3), possibly related to the levels 4 and 5. Although the author found that the older and the more recent occupations were the ones presenting most of the archaeological material (the intermediate levels, 4 and 5, presenting less material), the majority of the projectile points were found in the Early Holocene levels. The author does not interpret the greater amount of material as an intensification of use of the rockshelter, but as the result of possible climatic changes acting on the sediment deposition. A more detailed analysis
taking into account the exact stratigraphic location of each specimen is under preparation.

Alice Boer (Rio Claro, SP): This open-air site is located in a river terrace. Most of the analyzed points come from a private collection, but our recent excavations showed that the site comprises a well-defined layer, approximately 30 cm thick, supporting the hypothesis of a single occupation of the site. The site was excavated in 1965, 1968, 1980, and 1986 by Beltrão (1974, Beltrão et al. 1982), which found very ancient dates for the site. New radiocarbon datings have failed to confirm these very old dates, indicating a possible mid-Holocene occupation (A. Araujo, unpublished data). The projectile points were studied using both traditional and geometric morphometric analysis, which indicated important differences in shape between Alice Boer points and points from more southern sites (Okumura and Araujo 2013).

RS-LN-01: Dalpiaz (Osório, RS): Located in a sandstone rockshelter (length: 49 m; maximum width: 15 m; height: 7 m), a total area of over 100 m² was excavated in 1961, reaching the rock bottom at 2.5 m. Over 160,000 lithic artifacts were recovered, including 1614 points (Miller 1969). However, the author included in this category points that might not have been used as projectiles. These are lithic artifacts that might have been used to pierce or perforate, lacking many characteristics that are commonly observed on projectile points: symmetry, shoulders, neck, and hafting. The author divided the site in four layers. The bottom layer (Layer 1), presented no points. Most of the bifacial points were observed in Layer 2, dated from the Mid-Holocene, although a few of them were found in Layer 3, also related to a hunter-gatherer occupation. The upper layer (Layer 4) presented two fragments of pottery and no bifacial points. The radiocarbon datings were published in Miller (1969), indicating a mid-Holocene dating for Layer 2 (top and bottom). According to Dias (2007), the lithic assemblage of Dalpiaz is remarkably similar, in technological terms, to other contemporary sites from nearby regions, showing a high regularity in both synchronic and diachronic terms.

RS-C-14: Bom Jardim Velho (São Sebastião do Caí, RS): Located in a sandstone rockshelter (length: 35 m; maximum width: 6.5 m; height: 8.5 m), this site was excavated by Mentz Ribeiro (area of excavation of 66 m², according to Dias and Neubauer 2010). The author divided the stratigraphy in two main parts: an upper layer approximately 10 cm thick presenting pottery fragments and a bottom layer of 35 cm associated to a pre-ceramic hunter-gatherer occupation. The materials found in these two layers are very different, and the projectile points, most of them made by sandstone, were present only in the hunter-gatherer levels (Mentz Ribeiro 1972). Information on radiocarbon dating can be found in Chmyz (1981).

RS-S-308: Morro da Flecha 1 (São Francisco de Paula, RS): This open-air site is located in a small plateau and was excavated in 1966 by Eurico Th. Miller. No publications are available. The original documentation found at the institution where the material is located indicates that charcoal samples were collected from the level 15-20 cm. A 3x3 m unit was open, most archaeological material was concentrated in the first 10 cm. Very few materials were found in the level 10-20 cm and a single flake was found at 22 cm (where the excavation apparently was interrupted). The radiocarbon dates were published in Brochado and Schmitz (1972-1973).

REFERENCES

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