The Early Holocene in Central Brazil: New Dates from Open-Air Sites

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Early-Holocene occupations have been identified in different parts of central Brazil, mainly associated with rockshelters (Bueno 2007; Kipnis 2003; Prous and Fogaça 1999; Rodet 2006; Schmitz 1987; Vialou 2005). Recent research,

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however, conducted in the Lajeado region of north-central Brazil, has revealed the existence of open-air sites related to this same period of occupation (Bueno 2007; Bueno and de Blasis 2005; de Blasis and Robrhan-González 2003). Despite the proximity with the *Lajeado Sierra*, where many rockshelters with a great density of rock art are found (Berra 2003), until now these rockshelters offered few early archaeological samples and dates, with the exception of one site (Morales 2005).

The open-air sites from which we obtained new dates are located on the left side of the Tocantins River in a chain of sand dunes located 1 km from the river bank and about 400 m above sea level. These sites, the highest places in the area, have great views of the Tocantins River valley and its smaller tributaries. This chain of sand dunes, situated in front of the *Lajeado Sierra*, was formed by erosion and eolian deposition of the sandstone that makes up the mountains. The ^{14}C dates obtained from the sand-dune sites indicate a formation that is at least late-Pleistocene in age, but it could be even more ancient since geological test pits indicate the existence of an unconsolidated sand layer reaching 30 m in depth.

Until now five of ten known sites have been partially excavated: MT 1, MT 2, MR 2, LJ 18 and CA 5 (Table 1). With the exception of CA 5, 50 km distant from the others, these sites are close to one another, with distances varying from 400 m to 2 km. The size and composition of the sites are variable. MT 1 presents an area of approximately 150 by 100 m and has an archaeological layer reaching from 1.6 to 2.5 m in depth, while MR 2 has an area of 90 by 60 m and is 1.5 to 1.8 m deep.

Table 1. Radiocarbon dates for the open-air sand dune sites of the Lajeado region.

	Provenience	Age, RCYBP	Age, CALYBP	Sample no.
MT 1	N36E06 Level 18	9670 ± 60	11,190–10,750	Beta 190081
MT 1	T1B Level 17	9790 ± 70	11,270–11,120	Beta 148339
MT 1	N36E12 Level 24	9990 ± 60	11,670–11,230	Beta 168605
MT 1	N01E12 Level 17	10,530 ± 90	12,920–12,060	Beta 190080
MT 2	N60E63 Level 15	9890 ± 80	11,350–11,160	Beta 190082
MR 2	S4 Level 16	9940 ± 60	11,570–11,210	Beta 160599
LJ 18	S11 Level 7	10,300 ± 60	12,630–12,470	Beta 179198
CA5	S3 Level 13	8980 ± 70	10,240–9910	Beta 160594
CA5	S7 Level 15	9410 ± 60	10,750–10,500	Beta 179197
CA5	S7 Level 18	9850 ± 70	11,330–11,160	Beta 160595
CA5	S6 Level 15	10,050 ± 80	12,260–12,250	Beta 179196

All the dates obtained for those sites came from charcoal samples directly associated with the lithic remains and were collected in the unit during excavation. There is a clear correspondence between the amount of lithic and charcoal remains in the stratigraphy and the spatial distribution of those within the sites. In the levels where we found a concentration of lithic remains there were always plenty of charcoal deposits, and all the samples were dated by a standard radiometric process.

Table 1 shows these five sites within an occupation of 1,600 years, between 8900 and 10,500 RCYBP. These dates, if related to a wider context of Central

Brazil, indicate a characteristic pattern of this macro-region, marked by the existence of a discrete and well-defined occupation period. This period comprehends exactly the time between 10,500 and 9000 RCYBP. Dates before and after this period are extremely rare. There are just a few sites dated before 10,500 RCYBP, and from 9000 RCYBP most occupied regions present a regional process of abandonment characterized by the absence of remains, which can last for almost 3,000 or 4,000 years. In the Lajeado context, for example, after 8900 RCYBP we have a period of almost 3,000 years without any kind of archaeological record until its reappearance at 6000 RCYBP.

The lithic assemblage associated with these early occupations bears the same technological characteristics within the five sites dated, with variations in size, density and diversity. The predominant raw material is fine silicified sandstone, but there are also remains of chert and, in lesser amounts, quartz and quartzite. The fine silicified sandstone represents the most suitable lithic raw material in the region for flaking; although abundant, its source locations are somewhat restricted compared with those for quartz and quartzite, which are widely dispersed and available in the region. The main sources of this silicified sandstone are found between the sand dunes and the beaches along the Tocantins River. Blocks appear in a series of small quarries, close to which we have found cores and large cortical flakes. Artifacts made on the fine silicified sandstone are *façonnage*, retouching and resharpening flakes, mostly of unifacial artifacts, but also of bifacial ones (although none appear to represent projectile points). The most characteristic unifacial artifact is the *limace*. The lithic remains are a unique material record found at these sites. No faunal or botanical remains were preserved.

These characteristics contribute importantly to the discussion of lithic technological organization and mobility patterns; they also expand meager data on open-air sites during this period in central Brazil. These data amplify detailed discussions about similarities and differences among these distinct places and the diversified occupation processes for this macro-region during this period.

The scenario presented for this region is related to a wider discussion concerning the occupation process of South America, which involves issues such as the antiquity and regional diversification of this process. Continuing excavations of these sites and intensifying survey activities on the *Lajeado Sierra* will enable us to refine the data obtained, resulting in a more detailed characterization of the technological organization and mobility patterns related to this occupation period.

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