

**SPATIAL DISTRIBUTION OF RESOURCES FOR THE OCCURRENCE OF NUT CRACKING WITH TOOLS IN WILD BEARDED CAPUCHINS (*CEBUS LIBIDINOSUS*)**

N. Spagnoletti<sup>1</sup>, E. Visalberghi<sup>1</sup>, A. Presotto<sup>2</sup>, P. Izar<sup>3</sup>

<sup>1</sup>*Istituto di Scienze e Tecnologie della Cognizione, CNR, Rome, Italy,* <sup>2</sup>*Department of Geography, FFLCH, University of São Paulo, São Paulo, Brazil,* <sup>3</sup>*Department of Experimental Psychology, Institute of Psychology, University of São Paulo, São Paulo, Brazil*

*Presenter's Email: noemispagnoletti@yahoo.com*

Access to the endosperm of palm nuts requires the use of hammer stones and anvils (sandstone boulders or logs). A survey carried out in the home range of two wild groups of tool using capuchins (living in Fazenda Boa Vista, Piauí, Brazil) showed that nuts, surfaces and stones (suited as anvils and hammers) co-occur only in the talus (the transition zone between plain and cliff) and the cliff-plateau. Here, we report capuchins' anvil use over a 12-month period. The 945 episodes of tool use to crack nuts and other seeds recorded during 1117 hours occurred on sandstone anvils (80%), wooden-anvils (19%) and other substrates (1%). Twenty-one percent of the 721 episodes to crack open nuts were located in the sandy plain (N=151), 72 % in the talus (N=518) and 7% in the cliff-plateau (N=52). The GPS position taken for a subset of 592 tool episodes of nut cracking indicate the use of 122 different anvils and that 49.2% of these anvils were used more than once. One anvil accommodated 108 episodes of nut cracking. Within the same session, the same anvil was used for cracking an average of 3.2 nuts (min 2-max 12) and by 1.9 individuals (min 1-max 4); only when more than one anvil site had hammers the episodes were simultaneous. Overall, results suggest stone hammers are the limiting factor for the occurrence of tool use and social tolerance, re-use of the same anvil site and tool-fidelity makes nut cracking habitual in our population.

Keywords: tool use, *Cebus libidinosus*, hammer stones, anvils