THE UPPERMOST MIDDLE PLEISTOCENE-HOLOCENE ALLUVIAL DEPOSITS OF THE UPPER TIBER BASIN (NORTHERN APENNINES, CENTRAL ITALY): CHRONOLOGICAL CONSTRAINTS FROM ARCHAEOLOGICAL DATA

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ABSTRACT: The paper reports the results of a geomorphologic and stratigraphic study of the NW portion of the Upper Tiber Basin (Central Italy), and focuses on the terraced alluvial deposits which are grouped into late Middle-Lower Pleistocene (MUP) and Holocene (HOL) units. The drainage development in the basin was deeply influenced by an active tectonic setting characterized by orthogonal fault systems, which forced river deviations and attracted alluvial deposition in the flooding portions of the basin. The occupation of this intermountain territory by ancient human communities is recorded by late Prehistoric-Protohistoric archaeological findings collected within or on the surfaces delimiting these units. This archaeological dataset allowed an indicative dating of the major stages of the fluvial evolution between the end of the middle Pleistocene and the late Holocene. The chronological constraint indicates that the morpho-stratigraphic events recorded in the MUP and HOL units, have reasonably occurred within the two last glacial-interglacial cycles. Rapid climate changes, affecting the surface hydrology and the sediment supply to the river systems, and the active tectonic setting, thus, may account for the gaps in the local archaeological record, including most of the late Paleolithic, the Mesolithic and the early Neolithic. Late Pleistocene and the early Holocene stages of relevant alluvial deposition in a subsiding basin may have caused the burial of the missing cultural stages or may have prevented the human occupation of hydraulically unsafe valley floors.

Keywords: Alluvial terraced deposits, Intermontane basin, Archaeology, Middle Pleistocene-Holocene, Central Italy.

1. INTRODUCTION

Despite several techniques are suitable for the geo-chronological calibration of the Quaternary successions (Walker, 2005), a major problem in the study of terraced alluvial deposits is frequently represented by their dating. Nevertheless, temporary or stable human settlements have occupied alluvial plains, especially during the Late Quaternary. This is testified by archaeological remains spanning the late prehistorical-historical cultural stages. The Geocaephylogeny of alluvial plains (Brown, 1997; Woodward & Huckleberry, 2011), thus, may provide suitable tools for analysing the dynamics of these environments induced by concurrent natural and anthropic processes. In the Northern Apennines (Central Italy) terraced fluvial deposits occurring in several intermountain basins (Fig. 1a), are ascribed to the late Quaternary on the basis of weak morpho-stratigraphic constraints, often lacking absolute dating. The occurrence of archaeological remains on the surfaces and within the alluvial deposits of this region, attests to a human occupation dating back to the Prehistory. The dating of different cultural stages that developed in Central Italy may be quite precise for the late Prehistory (late Pleistocene-early Holocene)-Protohistory (mid-late Holocene) interval, becoming extremely accurate in historic periods. This feature makes the archaeologic data a suitable tool for an indicative to accurate chronologic constraint of late Quaternary landforms and deposits occurring in this region.

In this paper we present the spatial and stratigraphic distribution of terraced alluvial deposits in the intermountain Upper Tiber Basin (NE Tuscany, Central Italy) referred to the latest Middle Pleistocene-Holocene on the base of the distribution and dating of archaeolog-ical materials collected in the last decades.

2. REGIONAL SETTING

The study area is located in the upper reach of the Tiber River, barred by the Montedoglio Dam and including the tributaries Singerna, Sovara, Tignana and Afra creeks. This is a portion of the Upper Tiber River basin (UTB, Figs. 1, 2), a NW-SE trending intermountain depression about 21 km long and 10 km wide, flanked by steep hills composed of Miocene turbiditic sandstones (Tuscan and Umbro-Manchear units respectively) to the NNE and SSW and Jurassic-Eocene ophiolites, limestone and marls (Ligurid units) to the NNW. The basin is bounded by the Alto Tiberina Fault along the SW shoulder (ATF, Figs. 1b, 2) and by the antithetic Sansepolcro Fault on the opposite side (SaF in Fig. 2; Barcik & Ciac-cio, 2004). The NW-SE elongated Anghiari-Citerna hills are delimited toward the Tiber plain by the ATF-synthetic Anghiari Fault and cross-cut by NE-SW trend-ing faults (Fig. 2). A portion of a basin fill about 1,000 meters thick (Sani et al., 2009), is exposed on the flanks of these hills (Benvenuti, 1989; Cattuto et al., 1995; Pialli & Plesi, 2009), consisting of 150 m thick Lower-Middle Pleistocene alluvial gravels, sands and subordinated