

# Floodplain paleosols of Moskva river basin: Chronology and paleoenvironment

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## Abstract

© 2018 by the Arizona Board of Regents on behalf of the University of Arizona. Seven main periods of soil formation can be distinguished in the floodplain of the Moskva (Moscow) River, with the oldest paleosols dated to the Allerod age. We analyzed paleosols buried under alluvial deposits, colluvial sediments, and archaeological deposits within the catchment area of the Moskva River. Paleopedological reconstructions were correlated with the results of the pedoanthracological and palynological analyses. Series of radiocarbon ( $^{14}\text{C}$ ) dates were obtained on humic acids and dispersed macro-charcoal from paleosols and archaeological features. Wide time frames of the floodplain paleosol formation were determined at a 95% probability as 14,600-12,600 cal BP for Soil 7; 9500-7000 cal BP for Soils 6 and 5; 6700-5500 cal BP for Soil 4; 5000-4400 cal BP for Soil 3b; 4100-2700 cal BP for Soil 3a; and 2000-700 cal BP for Soil 2. The dates were compared with the age of archaeological sites from the same areas. The comparison revealed a close correspondence between the ages of the soil charcoal and the timing of archaeological occupations. That allowed us to conclude that the fire occurrence on a regional level was associated mainly with the human occupation. The fire record is especially pronounced in floodplain paleosols, due to both the role of rivers as human migration corridors, and the integral accumulation of combustion products from the entire catchment area in these paleosols.

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## Keywords

chronology, climate change, floodplains, geoarchaeology, Holocene, paleoecology, paleosols, pedoanthracology

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