Anthropogenic genesis and age of the Lower Bavarian sand dune landscape around Abensberg and Siegenburg

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The Lower Bavarian sand dune landscape in the Abensberg/Siegenburg area (Lower Bavaria) originated in an area where the Late Tertiary deltaic sediments of the Ur-Naab are overlain by a complex system of Pleistocene Danube gravels as well as those of the Abens river. The sand dunes and aeolian sands occurring there have been known for a long time, and their mostly glacial age origin can be stratigraphically inferred. During the Holocene there were repeated phases of aeolian remobilisation, each of them related to an overexploitation of the carrying capacity of the landscape. It can be excluded that remobilisation was caused by changing climate. Today the dune fields, up to 10 m high, have partly been set aside as nature reserves, or are used for agriculture and forestry. Based on geophysical prospection, at four selected dune chains and their surroundings a distinction has been made of the underlying aeolian sand sheet, the dune cores, and younger aeolian accumulation bodies and sedimentogically characterised. The dune sands have been dated by OSL, macro-remains and the humose material of fossilised soil horizons by radiocarbon. Forest clearing of much of the landscape began during the Neolithic period, related to the operation of a flintstone mine at Arnhofen. Two significant phases of sand dune growth have been dated to the Bronze Age and the High Middle Ages, largely determining the aspect of the present dune landscape. There is evidence of younger remobilisation phases up to the 1950s. With reduced settlement pressure, each time the dunes landscape returned to a phase of morphodynamic stabilisation, without any evidence of directed reforestation or dune stabilisation measures of the sands. Today, under the name of Dürnbuch Forest, the former hunting preserve of the Wittelsbach noble family, this dune landscape is one of the largest contiguous forest areas of Bavaria. (DFG funded VO 585/13), Völkel et al. (2012): Annals of Geomorphology 55,4, 515-536.

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Peri-urban growth in Mexico-City. A local evaluation of the landscape damage due to a massive house production

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The increasing phenomenon of massive house production since 2000 in the peri-urban area of Mexico City has led to a quickly urbanization of the former lacustrine zone and the piedmont transition zone. The old towns and now municipalities, at the east and northeast of Mexico City are the new centers of gravity to which the city is growing around. An example of that is the Municipality of Tecámac, located in the northeast of Mexico City, where more than 71,000 houses of social interest has been constructed and 4,000 more are planning to build. New parameters based on satellite image treatments and Digital Elevation Models were developed in order to study the fragmentation intensity of the build areas as well as the attraction level between these urban areas. Taking into account the real weight of these parameters, such a model brings to an objective estimation of the urban invasion ratio through the piedmont and lacustrine remaining regions. We assume that such an approach may allow measuring the impact of the eventual damage caused to the environment and defining weather an urban policy exists or not in relation with the capital of investment.