GEOMORPHOLOGY OF UPLAND BASINS IN WEST-CENTRAL ILLINOIS

An Abstract of a Thesis

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by

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ABSTRACT

For many years, geographers have questioned the origin of numerous small depressions referred to locally as buffalo wallows. Although the existence of these upland basins has been popularly attributed to the action of bison, they appear to be the long term result of a combination of geomorphic processes.

Evidence indicates that upland basins initially originated as ice block depressions on the Illinoian till plain surface. This is shown by: (1) the catenary association present in the Farmdale Silt layer, which grades from a well drained deposit on upland interfluve surfaces, to a poorly drained deposit at the center of the basins; (2) a distinctive grouping of the basins on the interfluves which would seem to be diagnostic of kettle formation; and (3) coring reveals that the till plain surface is depressed beneath the loess mantle in the depressions.

The result of a mechanical separate analysis of the Peoria Loess layer in west-central Illinois reveals that it is quite susceptible to wind erosion, and therefore deflation may have been a factor in the formation of upland basins.

Finally, the evidence that some of these buffalo wallows demonstrate a deep churning of the soil horizons provides some justification for their name. In addition, artifacts are associated with these upland basins, indicating they may have been utilized as early hunting sites.