

PALEOECOLOGICAL AFFINITIES OF SELECTED MIOCENE MEGAFOSSIL TAXA FROM THE NORTHERN INTERMOUNTAIN REGION BASED ON PALYNOLOGICAL MODELING.

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Palynological analysis of stratigraphically-controlled samples from a number of localities in the Succor Creek area of the Oregon-Idaho boundary, the Stinking Water flora of eastern Oregon, and the Trapper Creek flora of southern Idaho has proved to be a valuable interpretive tool in the study of these mid-Miocene plant assemblages. Models derived from analysis of the Succor Creek data suggest: 1) paleotopographic trends, 2) patterns of distribution of major forest elements, 3) the role of disturbance and succession, and 4) limits for paleoclimatic reconstruction. These have proved consistent with patterns of megafossil representation at Succor Creek and both megafossil and palynological data at Stinking Water and Trapper Creek. Such models also appear useful in the refinement of ecological affinities of a number of megafossil taxa which occur in these and other Neogene assemblages throughout the northern Intermountain region.

Some taxa are quite specific in their affinities, both in terms of vegetational maturity and elevational zonation. Species of Abies, Picea, Pseudotsuga, Thuja and Tsuga appear characteristic of ecologically mature forests at somewhat higher elevations. Such forests are rare at Stinking Water, are best developed in the southern part of the Succor Creek region, and represent the "climax" forests at Trapper Creek. In contrast, broad-leaved taxa, including species of Castanea, Castanopsis, Nyssa, and most Quercus, are reliable indicators of ecologically mature, lower elevation forests.

The ecological significance of a number of mixed-mesophytic taxa, including species of Carya, Juglans, Liquidambar, Pterocarya, Sassafras, Tilia, Ulmus, and Zelkova, is ambiguous. Broad-leaved deciduous assemblages dominated by these plants occur as mid-seral recovery stages over a wide range of elevation from lowlands to higher slopes. Ecologically mature forests of these trees tend to be found only at intermediate elevations. At lower elevations they are largely, but not exclusively, replaced in later seral stages by the ecologically mature, low-elevation taxa noted previously; while at higher elevations they are replaced by conifers.

Some taxa, most notably Equisetum, Glyptostrobus, Osmunda, and Typha are restricted to very wet habitats, irrespective of elevation. The shade-intolerant Typha forms ephemeral marshes that are rapidly replaced by Glyptostrobus swamps. Lake margins (and riparian settings), over a wide elevational gradient, are characterized by thickets of Acer, Alnus, Arbutus, Populus, Quercus simulata, "Quercus" eoprinus, and Salix. Locally Sequoia occurs in upland settings (i.e. at Payette, Idaho), while Glyptostrobus is more common in lowlands (Stinking Water and northern Succor Creek localities), but can occur in lower frequencies at any paleoelevation. Some taxa, such as Acer medianum appear to be characteristic of mid-seral recovery stages in these wet habitats.