A Potential Classification System for Coastal Dunes Along Lake Michigan

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Dune fields in Michigan
(from Dorr & Eschman, pg. 202)
Beach Ridge Sequences in Wilderness State Park, Northwest Lower Michigan (from Lichter, 1995; pg. 182).
Southeastern Coast of Australia
Lake Michigan
1) westerly winds
2) long fetch across Lake Michigan
3) Michigan's a big sand box
Previous Studies (e.g., Scott, 1942; Olson, 1958a, b, c; Dorr & Eschman, 1970; Buckler, 1979)
Assumption: Dunes formed largely at relatively low lake levels during the Nipissing high stand (~ 6 – 5 ka).

Figure ix–19. “Blowouts” due to wind action on shoreward side of old “high dunes” related to higher water level of Glacial Lake Nipissing at Warren Dunes State Park (also see Fig. ix–24). Arrow on lower aerial photograph indicates location and direction of upper photograph. The older, high dunes for the most part are stabilized by vegetation, but blowouts form locally where vegetative cover is destroyed by fire, disease, or drought, or where wave or stream erosion at base of dune causes sliding. (Aerial photo from U.S. Department of Agriculture.)
Buried soil
* all ages are calibrated to the tree-ring curve
Problems of Classification
Perched Dunes

Sand dunes

Glacial sediments
The Perched Dune Model

(from Anderton and Loope, 1995)
Secondary Dunes
(Scott, 1942)
Assumption: Dunes formed largely at relatively low lake levels during the Nipissing high stand (~ 6 – 5 ka).

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Cliffed Dunes
(Olson, 1958)
Barrier Dunes
(Buckler, 1979)
Van Buren State Park

* all ages are calibrated to the tree-ring curve
Transgressive Dunes: *Dunes that advance across an older surface.*

Africa
The Netherlands
New Zealand
Australia
Foredunes
Low Perched Dunes

Dune Sand

Lake Sediments
High Perched Dunes

Sand dunes

Glacial sediments
Thanks For Your Attention!