LANDIS II Workshop

Wet Forest Group Summary January 11, 2010

Ben Sulman, Mark White, David Mladenoff, Sara Gagne, Jordan Muss

Wet forest systems not currently modeled with Landis. These are globally significant ecosystems that have potential for state shifts with climate change. Hydrology is the key driving factor for wet forest systems.

Basic approach

Add wet forest species and key life history attributes such as tolerance to inundation/saturation and water dispersal.

Use hydroperiod to account for changes in hydrologic regime. Hydroperiod is defined as the duration of inundation or saturated soils. With drought periods, hydroperiod would decline and some wetland areas could transition to upland systems. Conversely, with flooding, or high precipitation periods, some upland areas could transition to wetland systems.

This approach would require that water balance be accounted for over time, as successive drought periods would lead to cumulative decreases in hydroperiod over time. This would include interannual changes and water balance over successive years.

Example table for land types.

Land type	**Hydroperiod (months)**
A-upland	0
B-upland	0
C-wet forest	6

Significant change in hydroperiod could lead to shift from upland to lowland land type? Beaver flooding could cause shift from upland to lowland and could be indicated by change in hydroperiod.

Need to understand relationship of climate patterns to hydroperiod. How do temperature and precipitation patterns effect hydroperiod over time for different soil-substrate conditions. An external model (e.g. SWAT) could be used to determine climate hydroperiod relationships or information could be entered based on other empirical data or classifications.

Other approach

Hydroperiod could function as a disturbance within Landis.