1086-92-1444 **Jiang Jiang** (jjiang@nimbios.org), NIMBioS, 1122 Volunteer Blvd., Suite 106, University of Tennessee, Knoxville, TN 37996-3410, **Daozhou Gao**, 513 Parnassus Ave, Medical Science, San Francisco, CA 94143, and **Donald L. DeAngelis*** (ddeangelis@bio.miami.edu), 1301 Memorial Drive, P. O. Box 249118, Coral Gables, FL 33124. *Mathematical Analysis of Ecotone Resilience.*

The ecotone between two different vegetation types, salinity-tolerant and salinity-intolerant, is modeled along a gradual gradient of groundwater salinity from highly saline at the coast to lower salinity values inland. We studied a model for the two vegetation types and soil salinity using bifurcation analysis. As a result of the feedbacks, a range of groundwater salinities exist, bounded by two bifurcation points, over which two alternative equilibria exist, one with only salinity-tolerant vegetation and one with only salinity-intolerant vegetation. This range was shown to be sensitive to parameters of rate of upward infiltration of salinity from groundwater into the soil. Increasing diffusion rates of vegetation leads to shrinkage of the range between the bifurcation points. The spatial pattern of vegetation caused by these interactions is a sharp ecotone between salt-tolerant vegetation (mangroves) near the coastline and salt-intolerant vegetation inland, although the underlying elevation and groundwater salinity decreases only gradually inland along the ecotone. A disturbance such as an input of salinity to the soil from a storm surge could upset this stable boundary, leading to a regime shift of salinity-tolerant vegetation inland. (Received September 22, 2012)