

## Stand Structure in Old-Growth Redwood Alluvial Flat Forests of Northern California

Christa M. Dagley, Department of Forestry and Wildland Resources, Humboldt State University, 1 Harpst Street, Arcata, CA 95521-8299; (707) 826-4220; cd104@humboldt.edu

John-Pascal Berrill, Department of Forestry and Wildland Resources, Humboldt State University.

Structural attributes in three alluvial flat old-growth redwood forests were quantified to support the design of restoration prescriptions. All stems  $\geq 15$  cm dbh were mapped and measured on three 1-ha plots. Dbh, total height, base of the live crown, crown radius, species, canopy class, crown shape, and crown fullness was recorded for each tree. To investigate individual tree complexity each redwood tree was assessed for the presence or absence of burls, reiterations, goose pens, and epicormic sprouting. All snags  $\geq 15$  cm dbh were mapped and measured for dbh. Down logs  $\geq 30$  cm in diameter and 2 m in length were mapped and measured at two study sites to determine the volume, mass, and percent cover of large down wood found in these forests. Three 100-m x 4-m North-South transects were established in each plot with the objective of quantifying regeneration and understory vegetation and groundcover.

Results indicated some structural features were common among all three sites and can serve as key targets for restoration. Redwood density ranged from 118-148 trees ha<sup>-1</sup> and an upper canopy density of 45-74 trees ha<sup>-1</sup>. The diameter distributions were right-skewed and broad. Crown ratio was similar across the three study sites with the overall mean of 64.3%. The percentage of canopy gap area ranged from 17-25%. These and other results are discussed in the context of reference conditions for restoration efforts.