

 UI Extension Forestry Information Series

Silvicultural Decisions IV - Trees on the Edge of Clearcuts and other Openings

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Whenever foresters and wildlife biologists get together the talk often turns to *edges* - the transition zone from one vegetation type to another. Conventional wisdom has long held that the more edges, the better the habitat for wildlife. More current information suggests that edges have been oversold, similar to the overselling of wildfire prevention, with some negative ecological consequences. Simply stated, edges are great for some wildlife species, but tend to congregate and deplete others through increased predation and competition during lean years. Nonetheless, edges will continue to be purposely created as part of timber or wildlife management, or by natural causes including wildfire, landslides, and avalanches.

Wildlife biologists tend to favor *feathered edges* (gradual edge transitions) which provide a wider edge effect with greater plant and animal diversity. They also prefer *peninsulas* of forest that project into clearings, and *islands* of dense forest left within clearings.

Foresters may try to meet these preferences for wildlife, and may also try to accommodate feathering, peninsulas, and islands to meet aesthetic and stream protection goals. However, underlying these objectives is a realistic concern about the stability and health of edge trees. At several recent programs where information on developing edges for wildlife was presented, there were mixed opinions and confusion about the effects of abrupt vs. feathered edges, islands, and peninsulas on residual edge trees.

When an edge is abrupt, as where a clearcut stops at or within a dense forest, the trees along the edge may initially seem more stable than trees scattered in a feathered edge. However, dense trees along an abrupt edge, especially one that is open to the south or west,

have increased moisture stress and wind along their open side, and still have the root-zone and light competition of the residual forest on their closed side. Because bark beetles and other pathogens often build up in slash piles in the clearcut (or in broken and uprooted trees in naturally-caused openings) many of these stressed edge trees are frequently killed or damaged within a year or two. Another factor creating instability in abrupt edge trees is that the roots and crowns on the open side, where less tree competition exists, gradually increase their growth rate and size. This results in lopsided crowns that tend to bow and break during heavy snow or ice storms, or topple during windstorms.

If trees are left dense in peninsulas or islands, they will suffer the same fate as trees along abrupt edges, with perhaps even greater mortality and weather damage because they are exposed on several or all sides. But if islands and peninsulas are thinned as we do when we create feathered edges, then these risk factors can be greatly reduced.

Stability and health in feathered edges, islands, and peninsulas can only be increased when the trees left are capable of increased vigor and growth, have been growing above the general canopy level or are taprooted species (e.g., ponderosa pine, western larch), are generally free of physical defects including forked tops and lopsided crowns, and are free of cankers, stem decay, root-rot, or other pathological symptoms.

This information first appeared in Woodland NOTES, Vol. 8, No. 1.

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