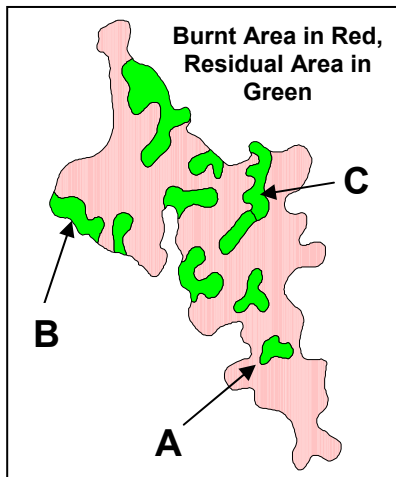


Boundary Zones, or Islands with a Twist?

Island remnants have been previously defined as *areas within disturbance patches where mortality is incomplete* (Quicknote #18). However, island remnants are not necessarily always true islands. Many are still attached to the edge of the undisturbed forest. In fact, these ‘edge’ islands account for more than half of the total island remnant area in historical fires of west-central Alberta. Given the nature of fire behaviour, this is not particularly surprising. One would expect to find lower fire intensity levels, and thus lower levels of severity near the edges of burnt patches.



One could argue that these so-called edge islands are not islands at all, but rather just partially burnt boundary zones, or even feathered edges. The problem is that the distinction is seldom obvious. For instance, in the adjacent example, residual patch A is completely detached from the fire edge, and thus clearly a true island remnant. Residual patch B shares much of its boundary with that of the fire, and thus could be regarded as a boundary zone. However, the vast majority of the within-patch residuals that share some part of their perimeter with that of the fire, extend far into the disturbed area. For example, it would be difficult to argue that residual patch C (adjacent) is a true boundary zone.

Regardless of the terms used, the distinction – based on objective criteria – is worth exploring. For example, by isolating those islands that are fully detached (such as island A, adjacent), a slight trend of increasing island area with increasing fire size is evident (see Figure below). However, note the percentages in this Figure (y-axis) are about half of those for all island remnants combined in Quicknote #18.

The distinction between detached and edge islands provides some valuable new insight into the nature of residual patterns. For example, we now know that at least half of all within-patch residual material is located adjacent to the edge of the disturbance. This suggests that boundary zones of intermediate levels of mortality do in fact exist within forest fires in this part of Alberta. However, these areas are spatially disconnected, and have convoluted shapes that do not always follow the fire boundaries (and thus are more accurately denoted here as ‘edge islands’).

Perhaps the most valuable lesson is the importance of clarity and consistency of terms. Unburnt residuals exist in several different physical forms. There are ‘edge’ islands, ‘detached’ islands, and even different types of ‘matrix remnants’ between disturbance patches (from Quicknote #22). By overlooking these distinctions or using terms interchangeably, it is not difficult to imagine that communication becomes difficult, which in turn inhibits education and integration. Not only do the areal contributions of each type of residual vary, but the likely mechanisms for integrating each type of residual into operational reality will differ as well.

