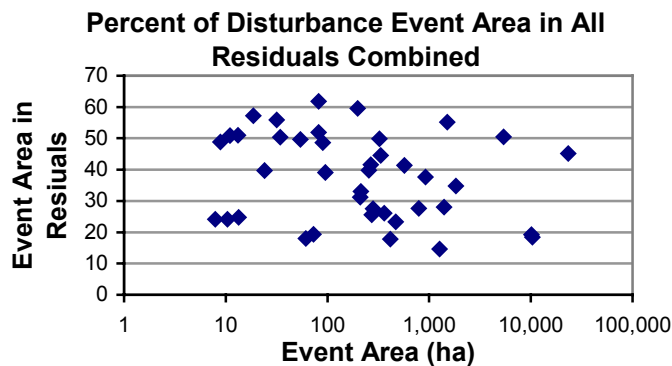


Wildfire Residuals Are A Package Deal

While it is informative to differentiate *island remnants* (Quicknote #18) from *matrix remnants* (Quicknote #22), the fact is that the physical difference between these two major forms of residuals is often small. The presence (or absence) of a single, narrow, partially disturbed strip of vegetation is enough to trigger a shift from one residual category to the other.



It is far more informative to combine the two major forms of residuals into a single overall measure. Total residuals account for an average of 39% of the area of historic wildfire events (see Quicknote #7) in west-central Alberta. As with both island remnant and matrix remnant patterns, no relationship is evident between total residual level and fire size, ecological sub-region, local fire weather danger, or the duration of the burn.

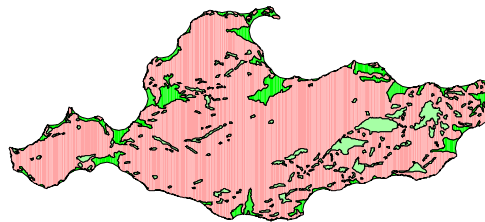
Perhaps even more revealing is fact that the variation in total residual level is almost perfectly flat. In other words, there is no central tendency, and there are no rare extreme events. There is virtually an equally probability of any total level of residual occurring between 15-62% in a wildfire of any size (see adjacent Figure for these two extremes).

These are provocative findings. From a fire behavior perspective, it suggests that, within a given range, the exact level of unburnt residuals within a wildfire is completely unpredictable based on the

location or size of a wildfire. Yet, the range of total residual level is remarkably predictable - the upper and lower bounds of historical, natural wildfire residual levels are clearly defined between 15-62%. The findings also strongly suggest that, despite the apparent high severity of foothills wildfires, internal mortality is far from complete. On average, well over 1/3, and no less than 15% of the vegetation survives within wildfire events on these landscapes.

From a practical perspective, the findings further emphasize the importance of finding a robust way of representing the full natural range of residual levels. The average total residual level (39% in this case) may be statistically accurate, but the average is clearly unsatisfactory as a measure of capturing natural levels of total residuals. Furthermore, the fact that the trends are similar to those found for both island remnant and matrix remnant levels suggests that the distinction between the two forms of residuals is blurred. In other words, total disturbance residual levels in disturbance events should be considered as a package first, and only then split into *island remnants* versus *matrix remnants*.

Wildfire With 15% Residual



Wildfire With 62% Residual

