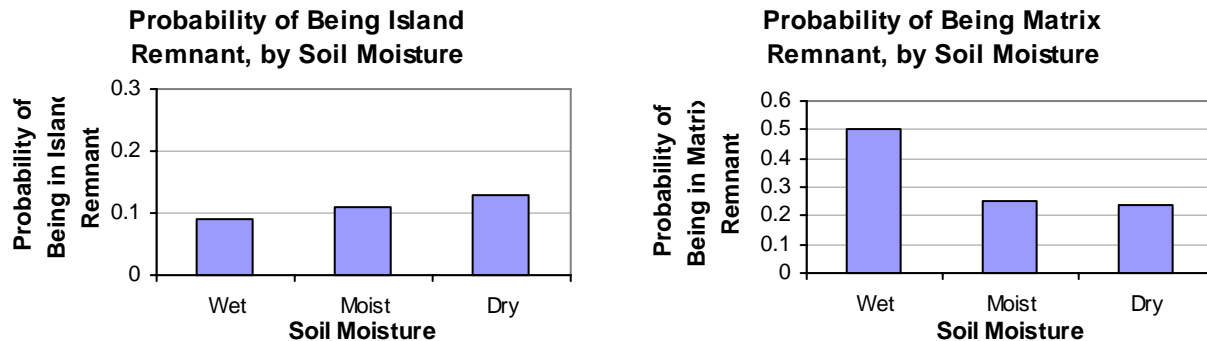


## When Wildfire Residuals Are *Not* A Package Deal

Recall from Quicknote #31 that the probability of an area being burnt within historical wildfires is related to soil moisture. As it turns out, this does not necessarily mean that all residuals are more likely to occur in wet areas. As the figures below illustrate, wet areas within a given disturbance event are twice as likely to become *matrix remnants*” (see Quicknote #22, Interp. Note #1) than are moist or dry areas. However, wet areas are no more likely to become *island remnants* (Quicknote #18, Interp. Note #1) than are moist or dry areas.



This same pattern is noted for other site, and stand composition, structure, and age variables. In fact, *the location of island remnants is entirely unrelated to any biotic or abiotic factors tested*. In contrast, the location of matrix remnants was moderately related to a number of site and stand factors.

There are several possible explanations for this seeming inconsistency. Islands may be the result of a different fire behaviour mechanism. Perhaps islands are entirely a function of highly localized fire weather conditions in both time and space. The fact that most island remnants are very small (Quicknote #19) supports this theory since it is consistent with a very small window of opportunity. Alternatively, island formation may be a reflection of the spatial arrangement of different fuel-types across the landscape. For instance, one would expect at least part of a small wet black spruce lowland area to burn if it is surrounded by a large dense conifer stand, perhaps even resulting in some “feathering”. The fact that the vast majority of island remnants are partially disturbed (Quicknote #19) supports this theory since it suggests low to intermediate levels of fire severity.

Whatever the reason, we now have three new pieces of information.

- 1) While the tendency of one part or another of the landscape to burn can be captured (Quicknote #31), the probability of residuals forming on one or another part of the landscape cannot be generalized.
- 2) The two main types of residuals (islands and matrix) potentially arise from a different set of processes.
- 3) The spatial definitions introduced by the FMF research have relevance to fire pattern, and potentially to fire behaviour.

So while it is valuable to consider residuals as a package deal with respect to total area (as suggested by Quicknote #37), clearly there is legitimate natural pattern information in the details of those residuals.