

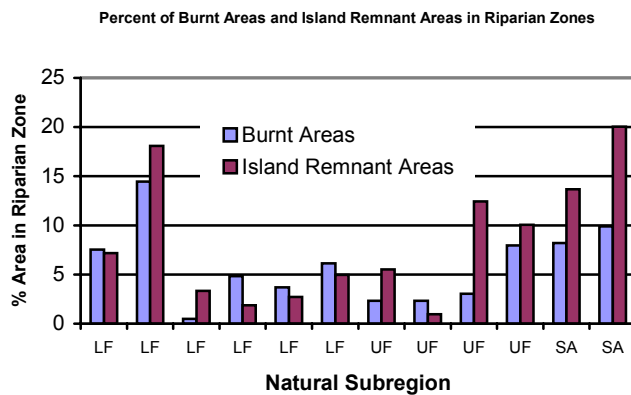
FMF Natural Disturbance Program Research

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Do Riparian Zones Influence Local Burning Patterns?

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To a limited degree, but in very specific ways. In general, the tendency of residual island remnants to form at or near riparian zones is slightly higher compared to the upland parts of fires. Field sampling demonstrated that 15% of riparian zones had higher than expected levels of surviving “veterans” from the last forest fire. Similarly, our island remnants study found that the average percent of island remnant area in riparian zones was 8.5%, compared to an average of 5.9% of the total burnt area in riparian zones.



However, it is the details that are truly informative. For example, we found that the tendency to form islands in riparian zones is very weak in topographically simple landscapes such as the Lower Foothills (LF in the adjacent Figure), relative to more complex landscapes such as the Upper Foothills (UF) and Subalpine (SA). We also found that island remnants are more

likely to form in riparian zones within fires associated with less non-forested land. Finally, the riparian sites that are most likely to form islands are wetter, on wider streams and rivers, and associated with wider riparian zones.

None of these details are particularly surprising. However, what may be surprising is that each of these relationships is a relatively weak one. For example, the amount of variation in the island remnant data can be seen clearly in the Figure above. Nor did we find any relationship between islands forming in riparian zones, and slope, vegetation type or density, or the Rosgen stream classification. In other words, this means that local fire weather conditions are in all likelihood the main variables determining the fate of riparian zones when a fire burns through.

There are several significant conclusions here. First, the impact of the presence or absence of a riparian zone on the behaviour of fire is a fine-scale relationship, and represent local-level (management) opportunities. Recall that in Quicknote #11 we found very little evidence to suggest that coarse-scale variables were relevant. Second, any given riparian site on the FMF burns *almost* as often as their upland counterparts. No evidence was found to suggest that riparian zones serve as fire “refugia” from repeated burning, only that there are sites somewhat more or less likely to burn than others. Finally, the ubiquitous nature of fire in riparian zones suggests that disturbance is a necessary element of the terrestrial part of riparian ecosystems. Thus, removing disturbance from these systems may have significant ecological implications.