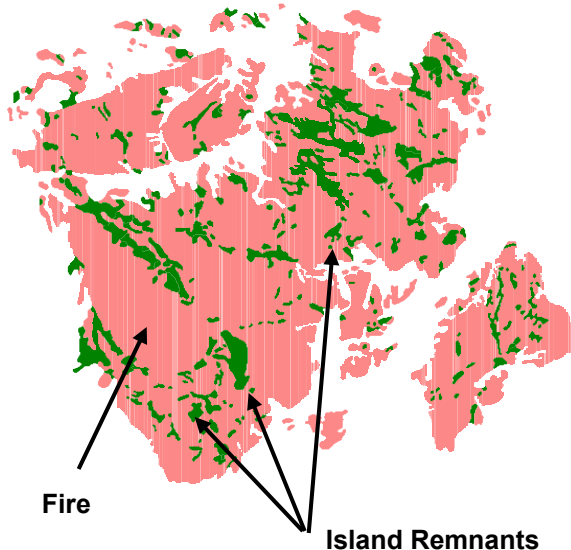


## Surviving as an Island Remnant

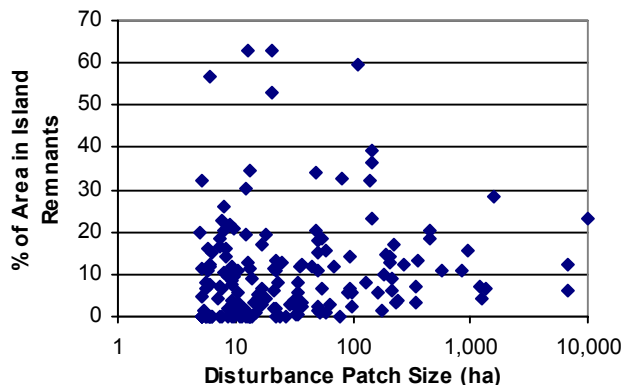
Within disturbed patches of so-called stand-replacing forest fires are areas where mortality is incomplete. The occurrence of such “island remnants” is common and accounts for a substantial portion of many natural fire events. In fact, on average, island remnants account for about 12% of every fire in west-central Alberta. Even more notable is the wide variation about this average. For example, of the 170 disturbance patches used in our analysis, 17% had no (i.e., 0%) island remnants, while 8% had greater than 30% of their gross area in island remnants. In fact, 3% of our sample patches had more than 50% of their area in island remnants. Another prominent pattern to note is that the area in island remnants is not associated with fire size in west-central Alberta. In other words, there is no evidence to suggest that larger fires have proportionally more area in island remnants.

Neither the presence, nor the variation of island remnants is particularly surprising, and we have seen evidence of survival from fires elsewhere (see Quicknote #6). Fires in these forest types burn incompletely due to changes over time in wind and weather conditions, and changes over space in local topography and fuel-type. It is not difficult to imagine that during very hot dry periods, or through dense conifer-dominated forests, fires will burn fairly thoroughly. In the same way, through discontinuous fuel-types, or across complex topography, fires can burn at lower levels of intensity for extended periods creating a mosaic of mortality. In fact, our data show that island remnant areas *within* fires are less variable than *between* fires, supporting the notion that local burning conditions are significant factors.

681 ha. Fire With 76 ha. (11%)  
in Island Remnants



Percent of Disturbance Patch Area in  
Island Remnants



What this means is that we must recognize both the presence, and the variation, of island remnants as relevant natural phenomena. For example, we know that island remnants function as habitat, cover, seed dispersal, and the opportunity for non-motile organisms to survive. It logically follows that the wide variability of island remnant area noted here is also ecologically relevant. In other words, the presence of those disturbances with little or even no residual material is just as critical (although perhaps in different ways) as those disturbance events with very high levels of residual islands. This is both a challenge and an opportunity for those wishing to include island remnant patterns into forest management planning systems.