

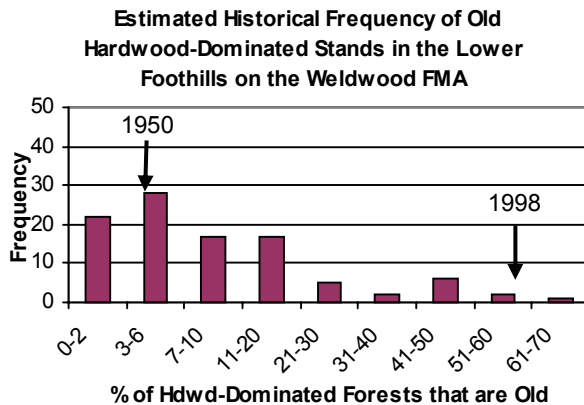
FMF Natural Disturbance Program Research

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How Much Old Growth is “Natural”?

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We know that boreal landscapes are highly dynamic. This means that the amount of old forest on a given landscape is constantly changing – sometimes dramatically so. For instance, a landscape simulation exercise determined that between zero and 70% of hardwood-dominated forests in the (240,000 ha) Lower Foothills landscape of the Weldwood FMA were older than 120 years of age historically. This wide range is not surprising given local fire activity. The average fire cycle of the Lower Foothills is 65-75 years (Quicknote #1), and large fires can consume virtually all forest across tens of thousands of hectares (Quicknote #7). (*For the sake of argument, I assume here that “old growth” hardwood is anything >120 years*).



The problem is how to interpret this knowledge. In 1950, 4% of hardwood forests were older than 120 years of age, and in 1998 the area of old hardwood was 58%. Which number is more “natural”? On one hand, at any one point in time, both are within the natural range and thus both are *possibilities*. Using this logic one could argue for any number between zero and 70%. On the other hand, there is a much greater chance (historically) of 4% occurring than 58%, so 4% may be a more natural number.

One could also argue that *any* single percentage of old growth is irrelevant. Spatially, amounts of old growth vary from

one landscape to the next. In fact, over very large areas we should expect the distribution of the percent of old hardwood on similar-sized Lower Foothills landscapes to resemble that in the figure. In the same way, on any single landscape, amounts of old growth will vary from one year or decade to the next – again in a distribution similar to that shown in the figure above.

Which interpretation is the right one? All of them. The amount of old hardwood on a Lower Foothills landscape, *at any given point in time* is “natural” if it is somewhere between 0 and 70% (in this case). Furthermore, temporally, the amount of old hardwood varies according to the distribution noted above. This means that over time, the 4% noted in 1950 will occur often, while the 58% noted in 1998 will be relatively rare. There will even be times when virtually no old growth exists. The same logic is applied to spatial distributions of old growth, which will also generally follow the distribution noted above. In other words, at any one point in time, each Lower Foothills landscape is likely to have a different percent of old hardwood.

Thus, the use of a single number to represent an old growth – or any seral-stage - target is not the *wrong* answer, just an incomplete one. As demonstrated here, interpreting this and other NRV attributes is not a simple matter. Furthermore, if “natural” old growth dynamics are an important landscape objective, the concern should not be the lack of an incomplete answer today, but rather not looking towards a more complete one for tomorrow. Given the complexities of understanding and integrating NRV knowledge into planning and management, a phased approach to adopting natural patterns makes sense. However, in the end we must be mindful of our terminology. Setting static old growth targets is clearly not natural pattern “emulation”, but *can be* a part of an ongoing natural pattern emulation strategy.