

FMF Natural Disturbance Program Research

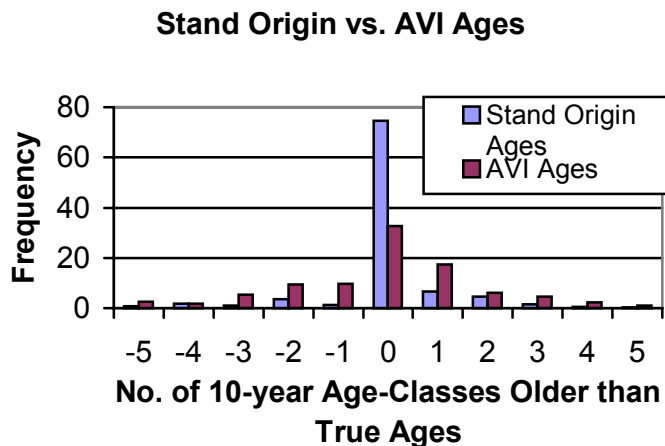
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Ages, Inventories, and Pattern

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The simplest indicators of landscape pattern can be thwarted by the simplest of problems: raw data. As it turns out, the raw data for most of Alberta is less than ideal for describing fire history.

If we compare several thousand plot ages across a million hectares of the Weldwood FMA with a) forest inventory ages, and then b) stand-origin ages, the results clearly demonstrate the superior spatial precision of the stand-origin map (75% in the right age-class) compared to the AVI data (32% in the right age-class).



The increase in precision translates directly to higher confidence in estimates of same-aged patch sizes, shapes, and adjacencies. The ability of inventory ages to accurately represent spatial relationships is thus limited to generalizations using class data (lumped into 30 or 40 year classes for instance).

On the other hand, inventory age data do not show any strong bias – the age error in

the AVI is split equally between being older and being younger than the actual age. This means that non-spatial summaries (of age-class distributions) calculated from inventory age data are probably legitimate.

The problem is only serious to those who desire a more detailed understanding of landscape fire history. Non-spatial age-class distributions, and cursory patch size and shape summaries are a strong start to any natural disturbance research effort. However, more precise spatial relationships such as actual fire sizes or shapes, or higher resolution pattern studies (of fire refugia for instance) are only possible with stand-origin data, which is both time-consuming and expensive to gather.

Unfortunately, the office and field sampling procedures for AVI and stand-origin mapping are different in many ways. Any decision to upgrade AVI ages to stand-origin quality must carefully consider the costs and benefits. In the meantime, any analysis and presentation of fire history patterns based on AVI data should be general, coarse-scale, and considered first approximations only.