

Susan, Addie,

I've read the Olga Krankina review of the SPI study. Below, I outline what I think I understand. What I don't understand I highlight in red. Maybe you can check whether I really do understand what I think I do, and then help me with the parts I don't understand. Then, with that input, I'll put together a first, reader-friendly draft that we can use for whatever venue(s) we think best.

Thanks.

Penny

The structure of the study

- The SPI study looks at four scenarios:
 - Custodial Mgmt: light to moderate selection harvesting
 - Option C Selective Mgmt: heavy thinning to the minimum stocking level
 - Intensive Mgmt: conversion of all trees to Ponderosa Pine plantations with 80-year rotations
 - Regulated Mgmt: hypothetical. Even distribution of plantations by eight, ten-year classes
- The first 3 can be compared, because there is on-the-ground reality for them; the fourth assumes a scenario that will only exist 80 years from now, so can't be compared.
- Two scenarios weren't considered:
 - Business-as-Usual: long-term effects of SPI's current management into the future *[I don't get this. It seems like projecting 80 to 100 years ahead is looking at long term effects; but maybe she means an even longer timeline?]*
 - No-Mgmt: looking at natural carbon exchange processes between existing forests and the atmosphere
- These latter two "would be critical for a meaningful assessment" of how management practices affect forests. So, a big hole in the study right there.

A number of assumptions and omissions bias the results in favor of the intensive management scenario:

- 1) The SPI study estimates live biomass carefully. But it assumes a static condition for dead biomass pools. What I think this means is that dead wood – snags, stumps, dead trees - hold carbon as long as they're undisturbed.

When forests are harvested, studies in the Pacific NW have shown that dead biomass releases significant amounts of carbon to the atmosphere. The study says almost all SPI's stands are second-growth. That means that there are probably substantial carbon stores from dead biomass in them, which harvesting will release. *["New harvest would offset some of the losses in these pools but it is unclear if any real net carbon gains would occur."]*

Why would new harvest offset the losses, if all harvest releases carbon rather than stores it?]

A second point here is that accumulation of dead biomass pools depends upon trees having a chance to die in the forest. Once forests are intensively managed, trees don't have the chance to die naturally, so the storage of carbon in dead biomass doesn't continue to occur.

So failure to account for (a) how dead biomass stores carbon, (b) how that carbon is released during harvesting, and (c) how intensive management prevents build-up of dead biomass stores, all bias the study toward intensive management.

- 2) The study assumes that wood products disposed in landfills retain their carbon indefinitely. This is "clearly untrue."
- 3) The study assumes that wood products are taken out of service at the rate of 1% per year. That is unrealistic; the rate is faster.
- 4) The study assumes that after thinning, as the remaining trees get older, their growth rate slows, so carbon uptake slows. The study does not consider that there is regrowth following thinning. In fact, new growth "can be expected," and will add to carbon uptake.
- 5) The SPI report predicts that Ponderosa plantations: (a) will grow at twice the rate of mixed conifer forests and (b) will maintain that rate through all 80 years of their cycle. These assumptions are backed by very little evidence; none from 80-year old plantations. These assumptions result in "unrealistically high carbon store and yield projections" for the intensive management scenario, and those projections are then multiplied by applying the scenario to ever more acres.
- 6) In the report, more than half of carbon gains are attributed to wood products and harvest residues [*I'm unclear about how these are gains*]. But the report compares the gains to a starting point of zero, when the starting point is obviously what already exists when the intensive management is begun. If that figure were assessed and subtracted, the gains would be less.
- 7) The report assumes that all lands to be converted were heavily harvested in the past. Lands that weren't would have greater losses of their existing carbon pools due to the harvesting, but such lands aren't considered.
- 8) There is no "no management scenario" given for comparison. At least one study suggests that allowing mixed conifer forests to

grow to age 160 would result in a carbon pool more than twice as high as in a regulated management scenario. *[But if it's not much more than twice as high, how is that different from two 80-year management cycles?]*

- 9) The study doesn't consider the risk of fire. This risk, factored in, would reduce projected carbon stores for all scenarios, but especially for Ponderosa pine plantations.

Here's the biggy: Even in this biased study, of the three non-hypothetical management scenarios, the custodial method – which is the least intrusive – results in greater forest carbon pools during the first 40 to 60 years of the watersheds considered. The intensive scenario yields greater carbon pools only at the end of a 100-year time period. Yet SPI's study concludes that this method is superior for carbon storage, and their press releases have presented that conclusion.

Given that carbon reduction must begin occurring now, not 50 or 60 years from now, this distortion of the results is especially harmful. And given that the custodial method does improve carbon storage in the near term, that information should be presented, not buried in the report.