California's Giant Carbon Sponge

Molly Samuel, KQED (San Francisco television), 2-26-11

For decades the federal government has touted the nearly 200 million acres of national forests and grasslands under its control as a "land of many uses." But one "use" that's seldom discussed is as a huge repository for carbon.

But clearly it's on the minds of officials and scientists as the Forest Service seeks comments on its proposed new planning rule. National Forests and Grasslands are managed individually, but the planning rule guides how those management plans are developed. This new one is replacing a Planning Rule from 1982.

According to the Forest Service press release, some of the highlights in this new Planning Rule include

- Improved ability to respond to climate change and other stressors through provisions to restore and maintain healthy and resilient ecosystems
- Increased protections for water resources and watersheds
- More effective and proactive requirements to provide for diverse native plant and animal species

The Forest Service manages just under half of the forest land in California. Below is a handy map from their website (If you want to see all the federal land in California -- not just National Forest -- nationalatlas.gov offers this PDF map).

In celebration of the UN's "International Year of Forests," I recently went down the rabbit hole of trying to understand how much carbon California's forests hold. Figuring that out is, according to Forest Service research forester Jeremy Fried, "An accounting problem. And like any accounting problem, you need to have accurate data."

That's been a challenge. Fried works on the Forest Inventory and Analysis Program (FIA), which is the Forest Service's annual census of the nation's trees. Unlike the census of the nation's people, the goal isn't to count every individual, but to count and measure plots of trees all over the country. But the sizes and locations of those plots have changed over the years, and that makes for unreliable data.

In fact, last year was the first time that Fried and other researchers were able to go back and re-measure the same plots. What he found was that on the 15 million acres of forested lands that the Forest Service manage in California, trees sequester somewhere on the order of 1.8 teragrams of carbon a year (almost two million metric tons).

Going forward, Fried says, as long as the funding holds up, the FIA will continue measuring the same plots, and not just in National Forests, but plots in all kinds of public and private forests.

One last note. Fried explained that carbon generally makes up half of the biomass of a tree. To calculate the biomass of a tree, researchers measure its width and height. But a tree isn't a box, so you have to add in the branches, maybe you measure the stump separately, and what about the bark versus the stem? The list goes on. Just to give me a sense of how complicated this is, he gave me this number: 102,905. That's how many *ways* there are of calculating the carbon content of a Douglas Fir. *102,905.*