Uncertainties in Anticipated Future Baselines

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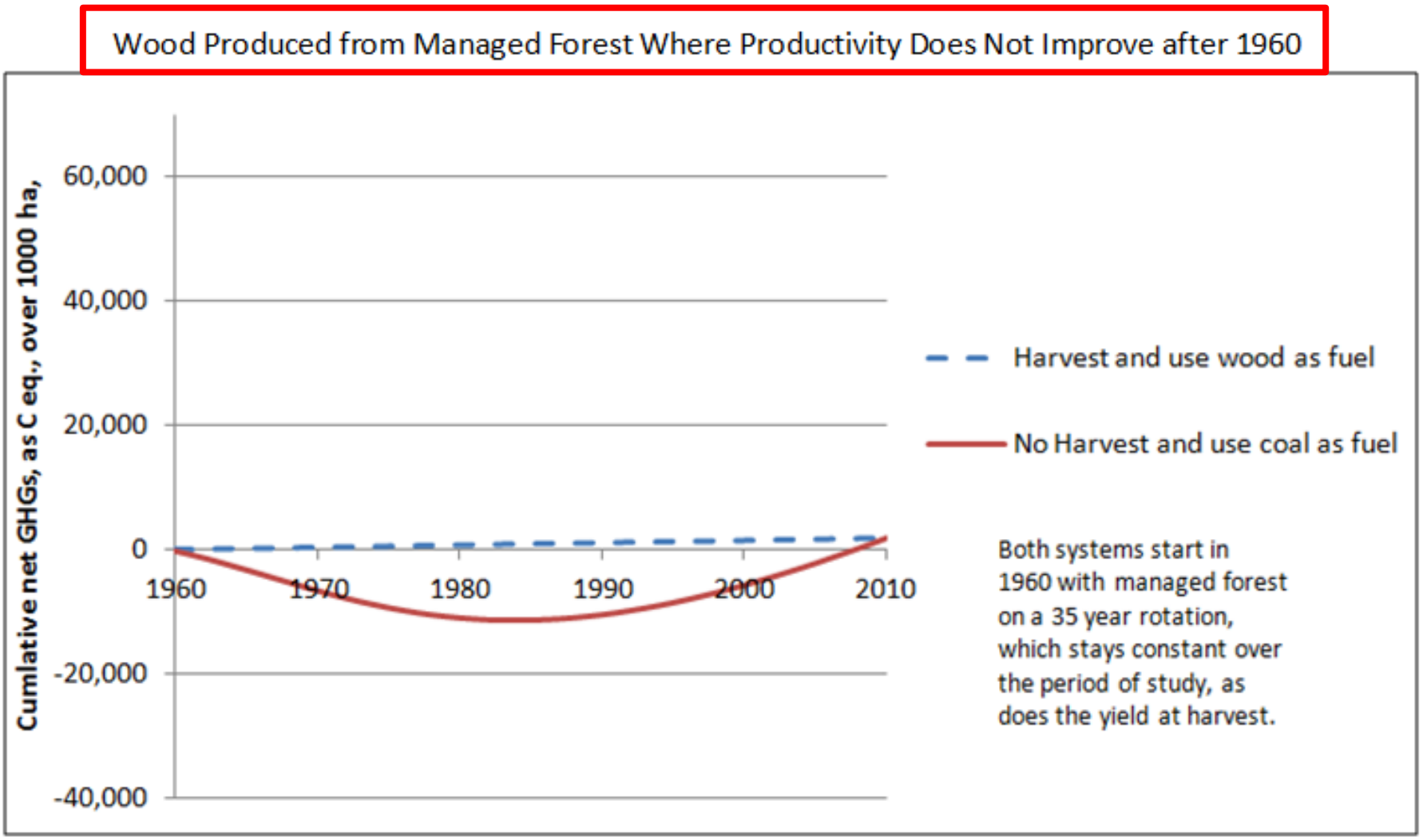
The concept

- Fox et. al. published data showing dramatic improvements in southern pine productivity since 1960.
- Doubtful that these would have been predicted in 1960.
- What if an analyst in 1960 had attempted to estimate the benefits of using forest biomass for energy without knowing that productivity would improve?
- Details of simulation available on request.

2 Scenarios

- In both, the anticipated future baseline assumes that if the demand for wood did not occur, the wood would remain in the forest.
- In one case, the 1960 analyst does not predict increases in productivity after 1960.
- In the other case, the 1960 analyst has the ability to perfectly predict future increases in productivity.

Wood-based system, dashed line
Anticipated future baseline, red line



Wood-based system, dashed line
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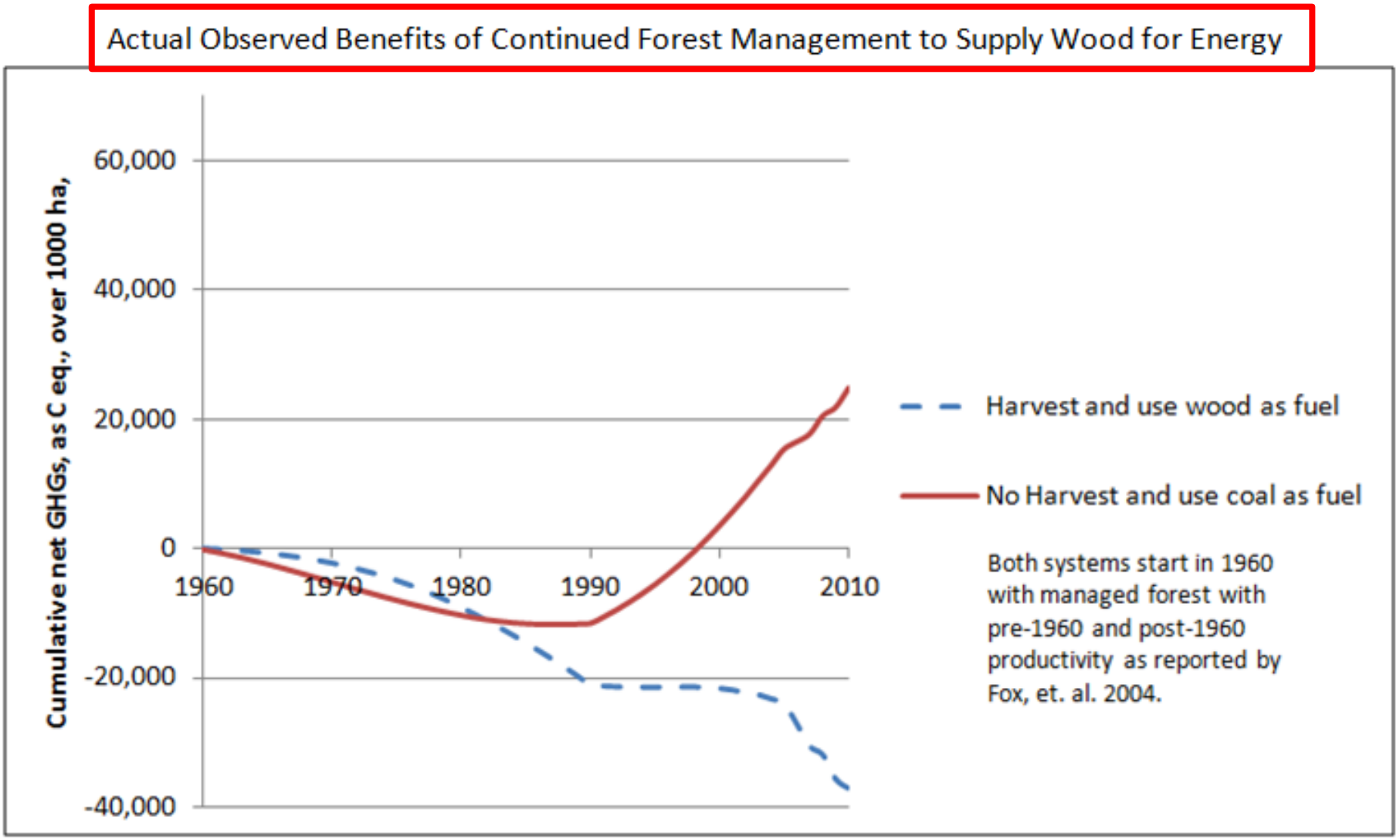

Observations

- The differences are enormous.
  - In one, biomass emissions are always positive and continue to grow
  - In the other, reflecting what actually occurred, biomass emissions are negative from the beginning and quickly become much more negative
  - The actual cumulative net benefits of the wood-based system in 2010 are many times those that would have been predicted without accounting for productivity increases from 1960.

Conclusions

- The assumptions required to use anticipated future baselines can be very uncertain and have very large impacts
- Only one parameter examined here
- There are many others
- Question: In spite of the theoretical appeal of anticipated future baselines, should their inherent uncertainties preclude their use where alternatives are available that depict, with far greater certainty, the actual net transfer of GHGs to the atmosphere associated with using biomass? (i.e. reference point baselines)