OGWC – Forest C

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Fire Emissions

Annual Net Ecosystem Carbon Balance = NEP – fire emissions – harvest emissions

NEP = Aboveground NPP – dead wood decomposition – litterfall + Δ root +Δ soil C

2001-2010: FS estimate was “area at risk.” OSU estimate for 2001-2010 based on fire severity burn area (L, M, H) and region- and pool-specific combustion factors (OSU sum=11.4 TgC)

(Updated Hudiburg et al. 2011)
OSU estimate of fire emissions in Oregon (Annual for 2001-2014)

Fire emissions averaged 1.14 Tg C yr$^{-1}$, $\sim$9% of the equivalent FFE for Oregon

(updated years Hudiburg et al. 2011)
Wildfire in Oregon
1984-2014 (length of record)

Wildfire Trends 1984-2014

Percent of Burn Area by Severity

- No significant trend in area burned and total number of fires
- No significant trend toward high severity

2015 Wildfire Detections

- 87K acres burned on lands protected by ODF
- Human-caused ignitions ~75% of total

(Adapted from Law & Waring, 2015; Oregon data only; www.mtbs.gov)
Biomass Mortality From Wildfires in Oregon 1984-2012

No significant trend in biomass mortality

(data from Law & Waring, 2015, Berner et al. in review)
Oregon annual C emissions and forest C sink

All unresolved forests
Harvest emissions = residue + wood lost in mfr + wood decomposition over time from product use
Fire emissions = severity area burned x pools x region-specific combustion factors (live, dead, surface litter)

(Fudiburg et al. 2011, updated)
Future Scenario

- Thin only forests where MFRI<40 yrs
- 35% of biomass per unit area
- East-side: 14 Tg C net emissions over next 30 years
- CLM+LCA

(Hudiburg et al. EST 2013)