Supplement of Biogeosciences, 13, 6321–6337, 2016
http://www.biogeosciences.net/13/6321/2016/
doi:10.5194/bg-13-6321-2016-supplement

Biogeosciences Open Access EGU

Supplement of

High-resolution mapping of time since disturbance and forest carbon flux from remote sensing and inventory data to assess harvest, fire, and beetle disturbance legacies in the Pacific Northwest

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Supplementary Table

Table S1 List of forest type group, stand age class and site productivity class

Forest Type Group	**Stand Age Class (year)**	**Site Productivity Class (cubic feet/acre/year)**
White/Red/Jack Pine Group	0 – 20	0 – 19
Spruce/Fir Group	20 – 40	20 – 49
Longleaf/Slash Pine Group	40 – 60	50 – 84
Loblolly/Shortleaf Pine Group	60 – 80	85 – 119
Pinyon/Juniper Group	80 – 100	120 – 164
Douglas-fir Group	100 – 120	165 – 224
Ponderosa Pine Group	120 – 140	225 +
Western White Pine Group	140 – 160	
Fir/Spruce/Mountain Hemlock Group	160 – 180	
Lodgepole Pine Group	180 – 200	
Hemlock/Sitka Spruce Group	200 +	
Western Larch Group		
Redwood Group		
Other Western Softwood Group		
California Mixed Conifer Group		
Exotic Softwoods Group		
Oak/Pine Group		
Oak/Hickory Group		
Oak/Gum/Cypress Group		
Elm/Ash/Cottonwood Group		
Maple/Beech/Birch Group		
Aspen/Birch Group		
Alder/Maple Group		
Western Oak Group		
Tanoak/Laurel Group		
Other Western Hardwoods Group		
Tropical Hardwoods Group		
Exotic Hardwoods Group		

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Fig. S10 Post-fire characteristic trajectories of heterotrophic respiration (*Rh*) for high severity fire in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

Fig. S11 Characteristic heterotrophic respiration (*Rh*) trajectories for low (left), medium (middle) and high (right) bark beetle severity level in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

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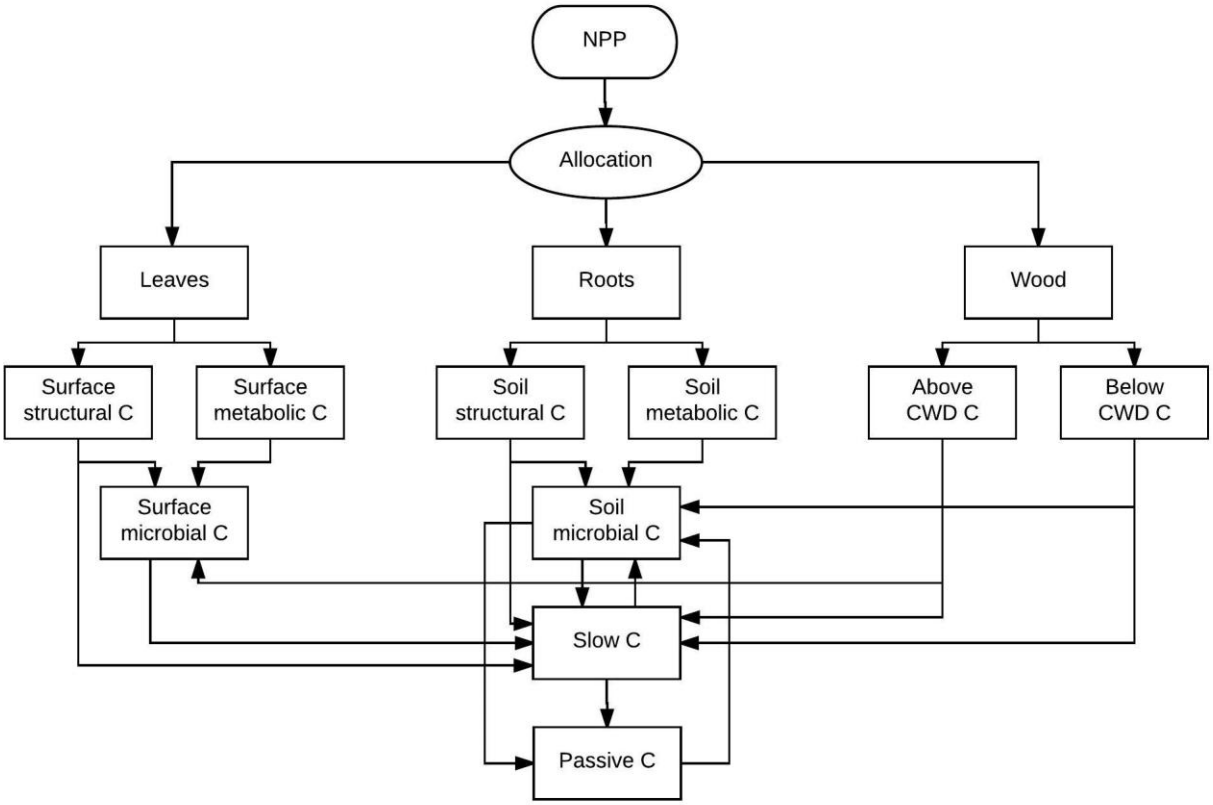
Fig. S1 Carbon allocation and transfer in three live pools* and ten dead pools** in Carnegie-Ames-Stanford Approach (CASA) model.



***** Three live carbon pools: leaves, roots, and wood;

** Ten dead pools: surface structural C, surface metabolic C, soil structural C, soil metabolic C, above coarse woody debris C, below coarse woody debris C, surface microbial C, soil microbial C, slow C and passive C;

*** Heterotrophic respiration from a specific dead carbon pool is: $Rh_{pool} = C_{pool} k_{pool} W_{resp} T_{resp} M$, where C_{pool} is the amount of carbon in a pool, k_{pool} is the pool-specific decay rate constant, W_{resp} and T_{resp} control how respiration depends on soil moisture and temperature states, and M is the carbon assimilation efficiency of the microbes (Williams et al., 2012).

Fig. S2 Characteristic *NEP* trajectories following a stand-replacing disturbance in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

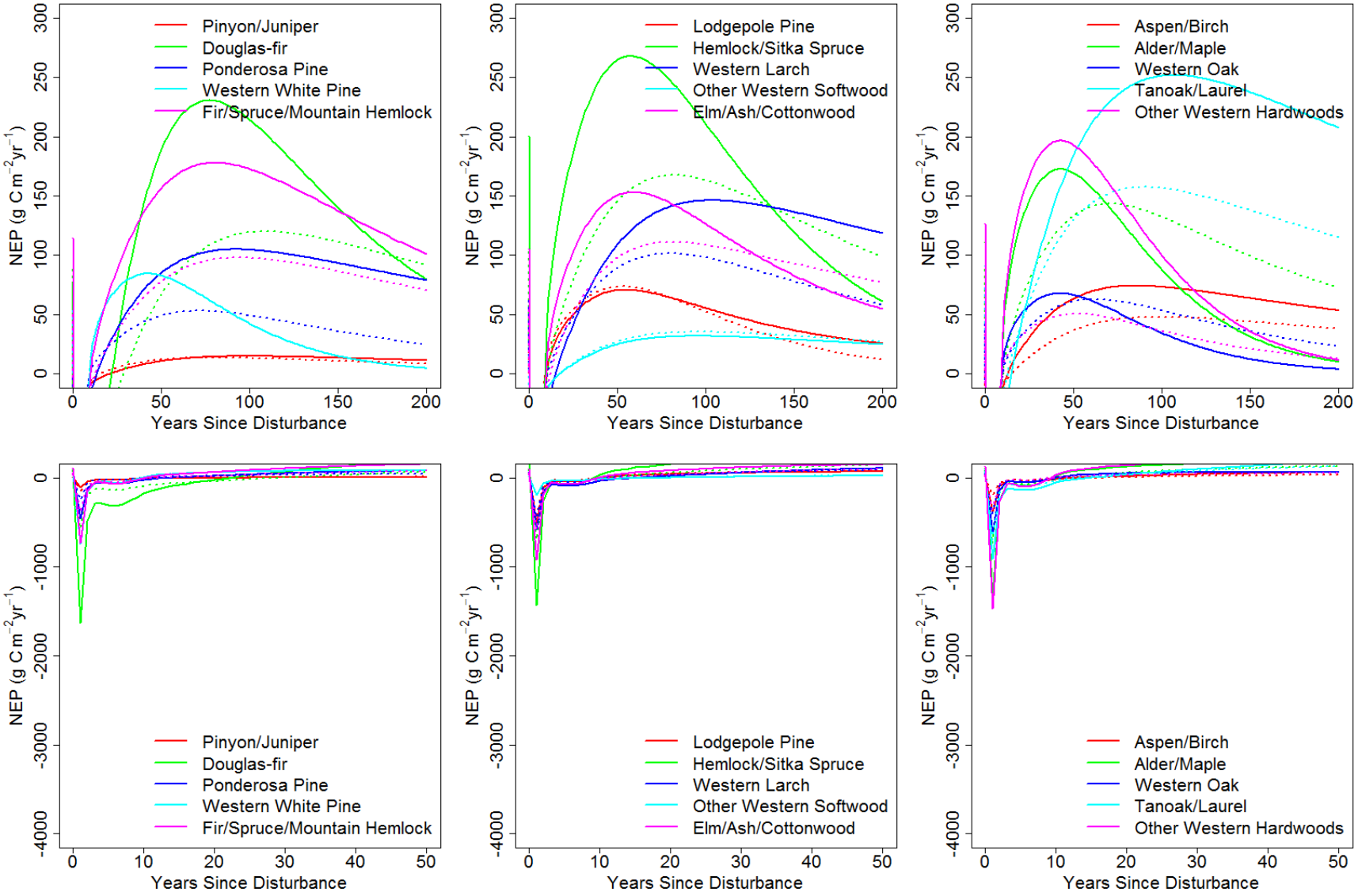


Fig. S3 Post-fire characteristic trajectories of *NEP* for low severity fire in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

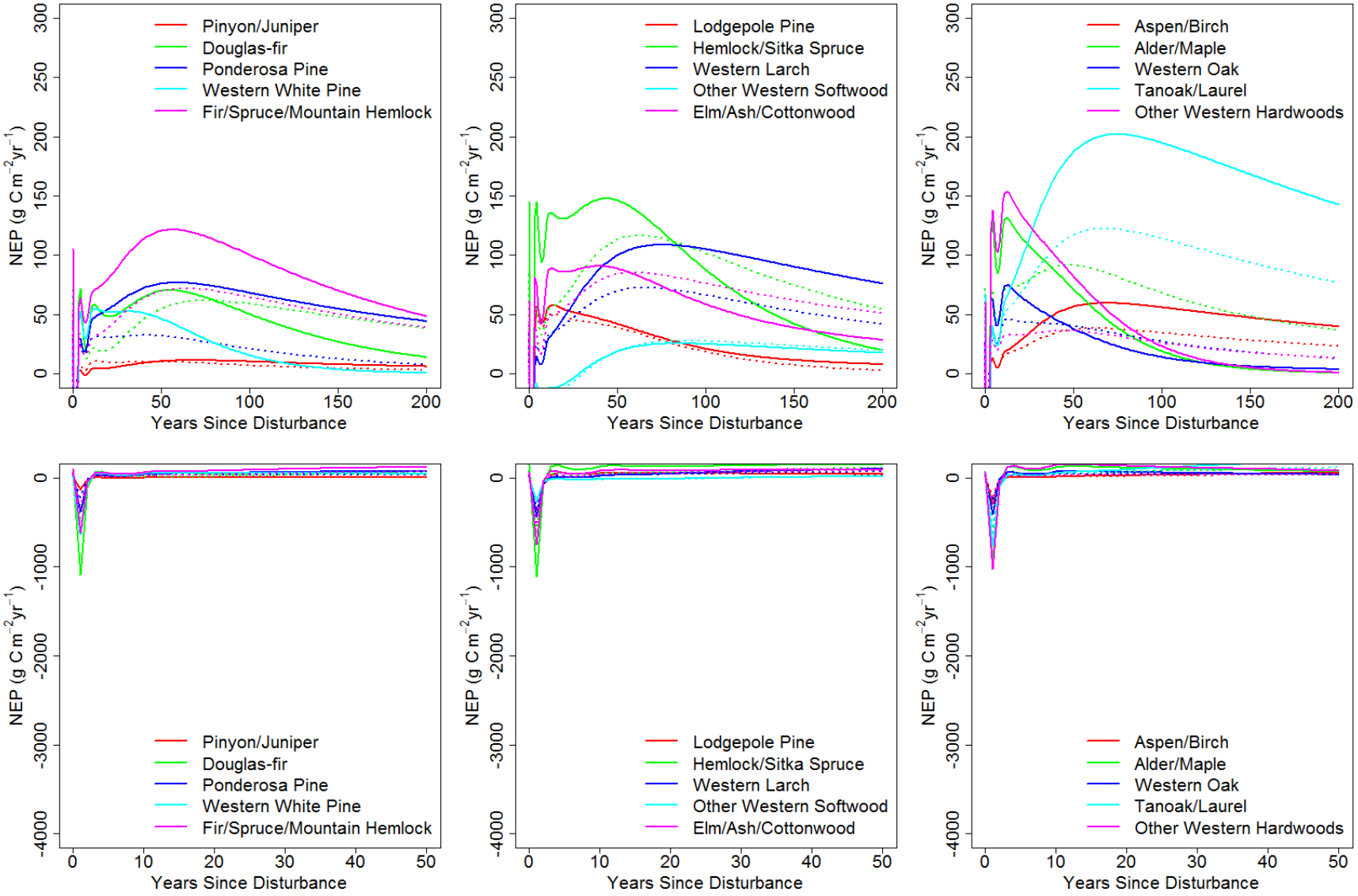


Fig. S4 Post-fire characteristic trajectories of *NEP* for medium severity fire in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

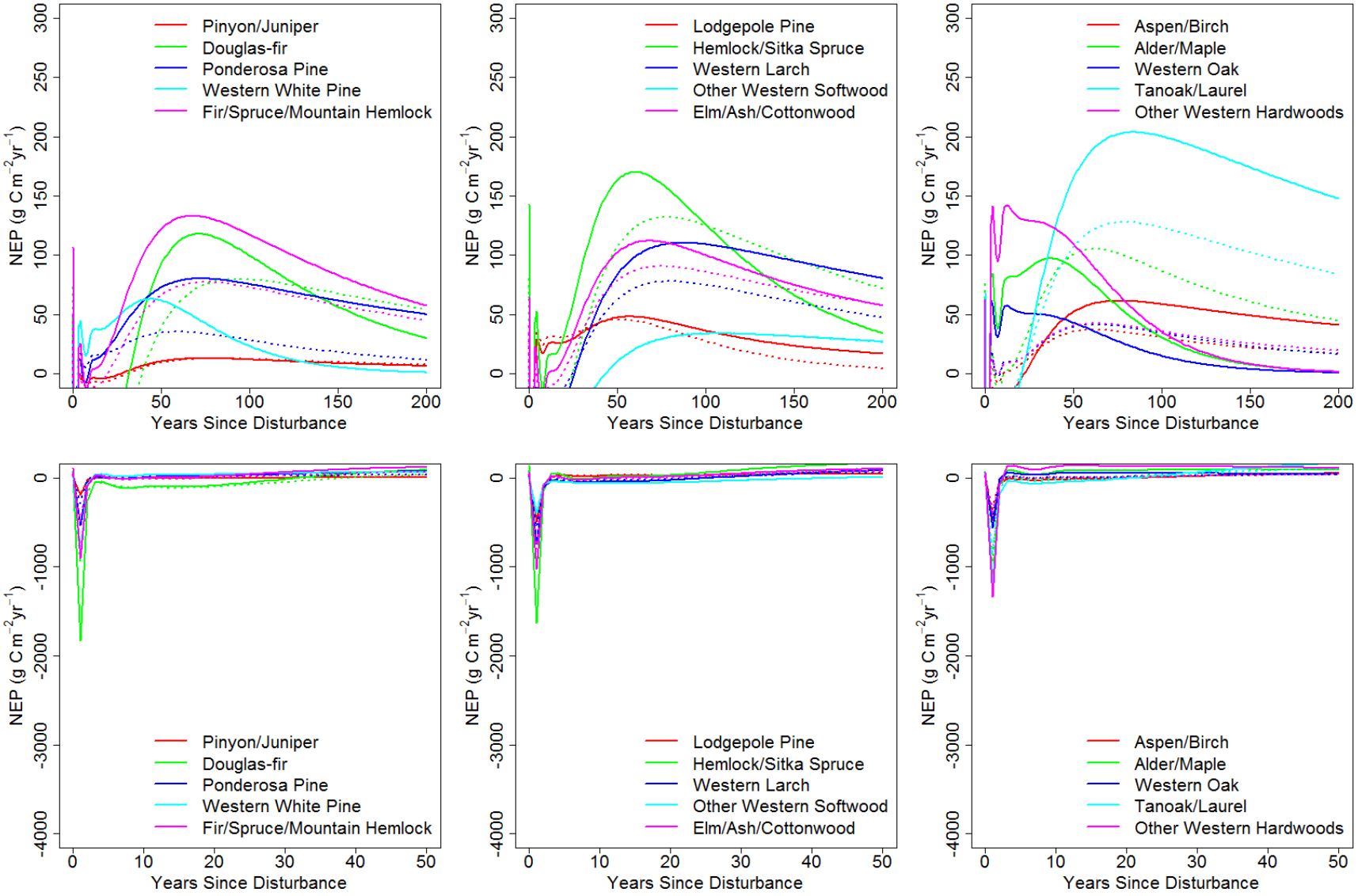


Fig. S5 Post-fire characteristic trajectories of *NEP* for high severity fire in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

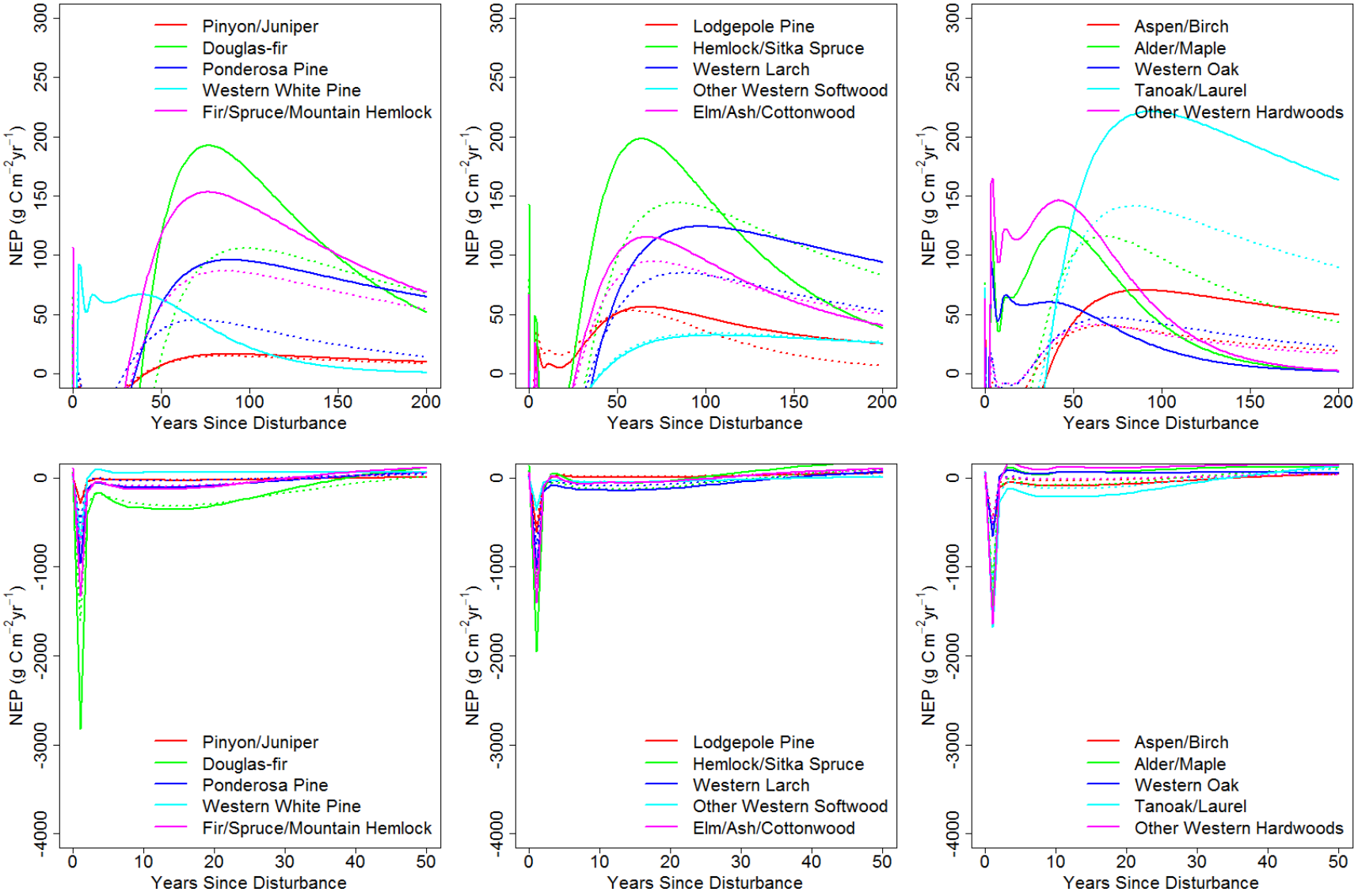


Fig. S6 Characteristic *NEP* trajectories for low (left), medium (middle) and high (right) bark beetle severity level in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

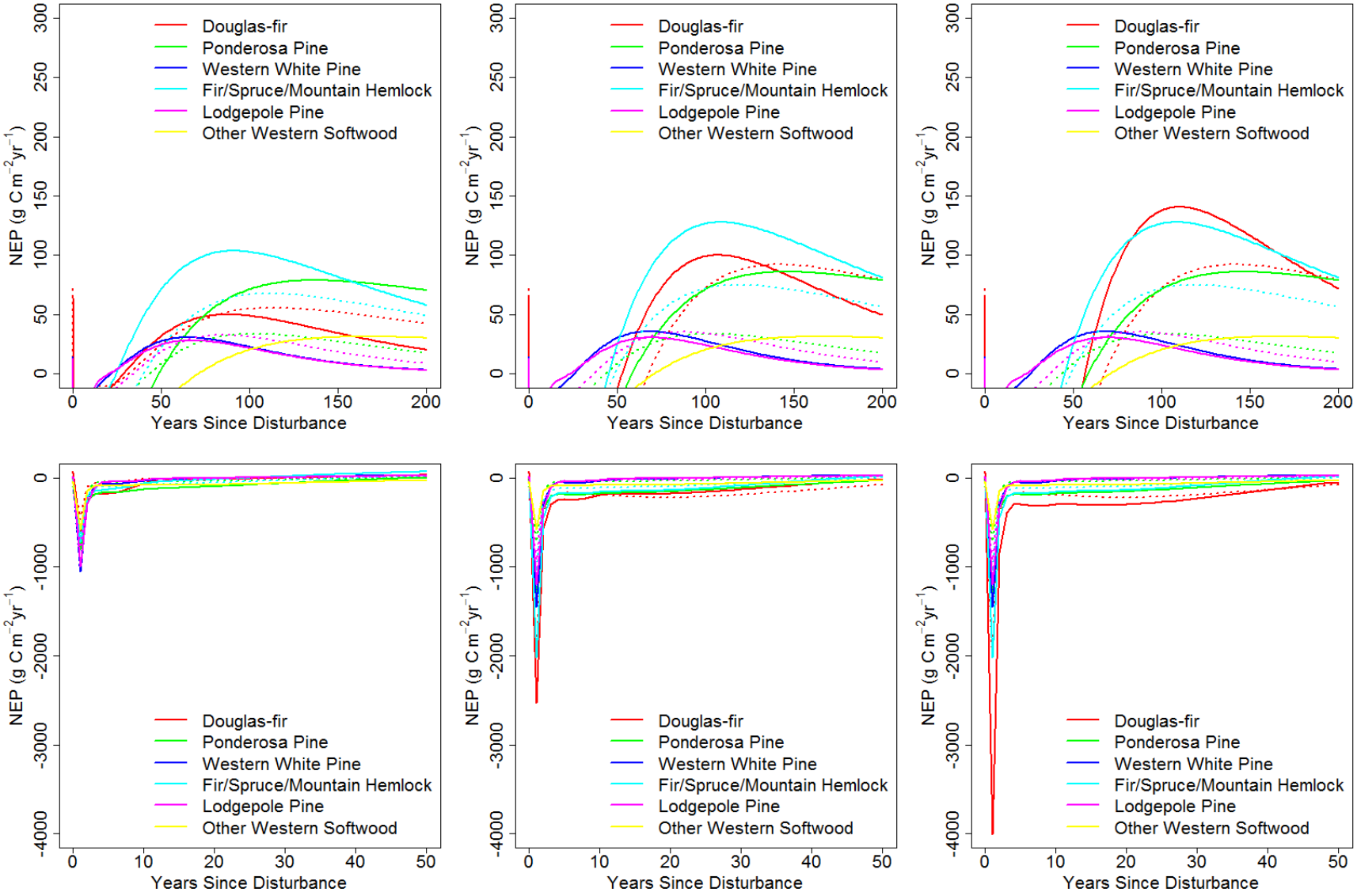


Fig. S7 Characteristic heterotrophic respiration (*Rh*) trajectories following a stand-replacing disturbance in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

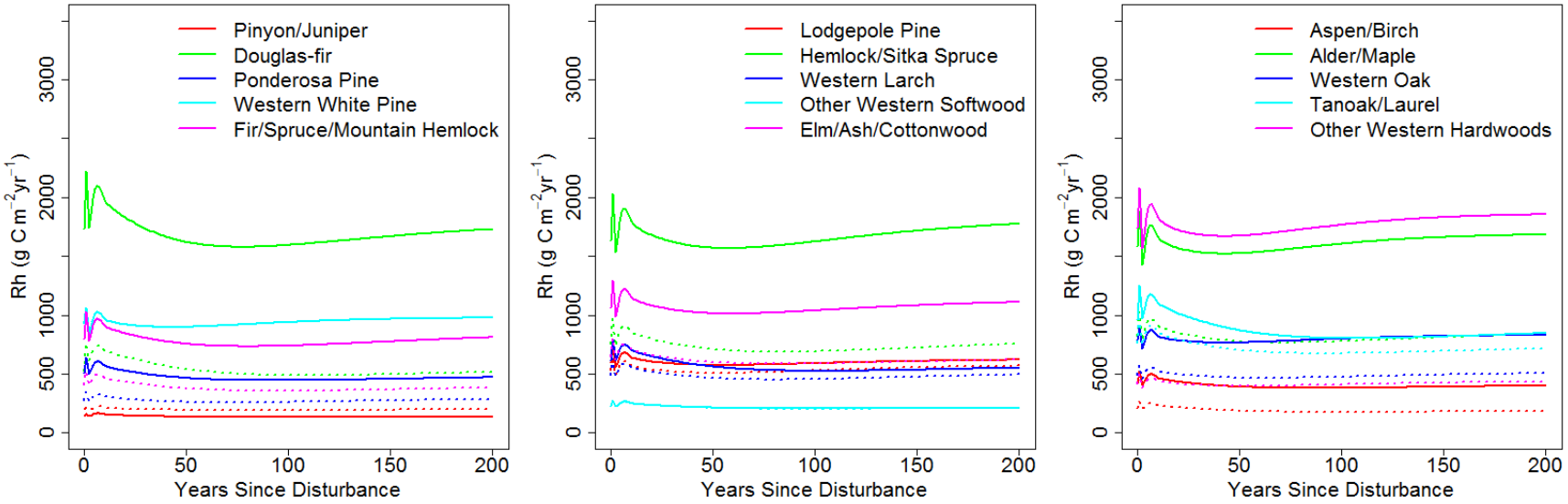


Fig. S8 Post-fire characteristic trajectories of heterotrophic respiration (*Rh*) for low severity fire in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

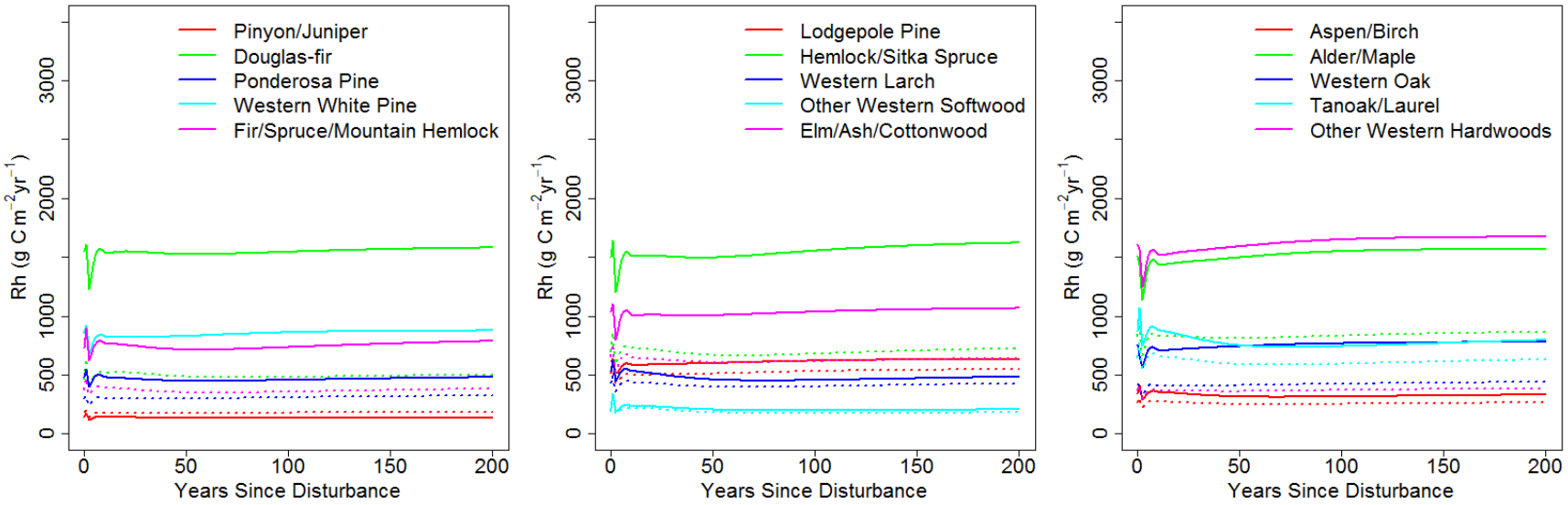


Fig. S9 Post-fire characteristic trajectories of heterotrophic respiration (*Rh*) for medium severity fire in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

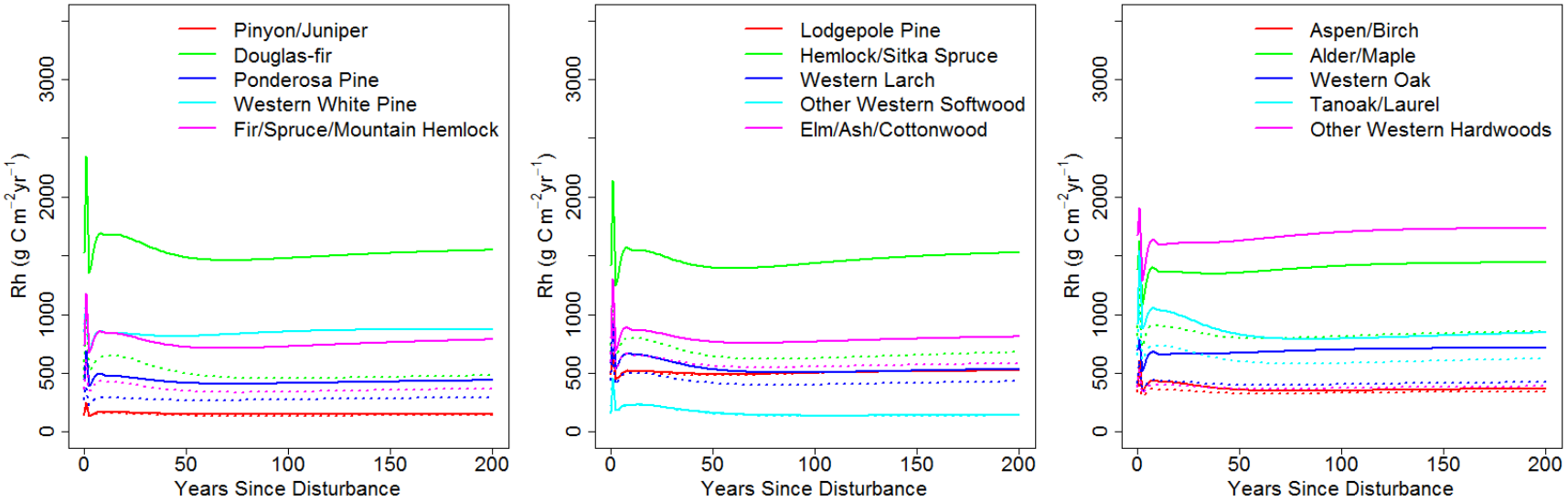


Fig. S10 Post-fire characteristic trajectories of heterotrophic respiration (*Rh*) for high severity fire in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

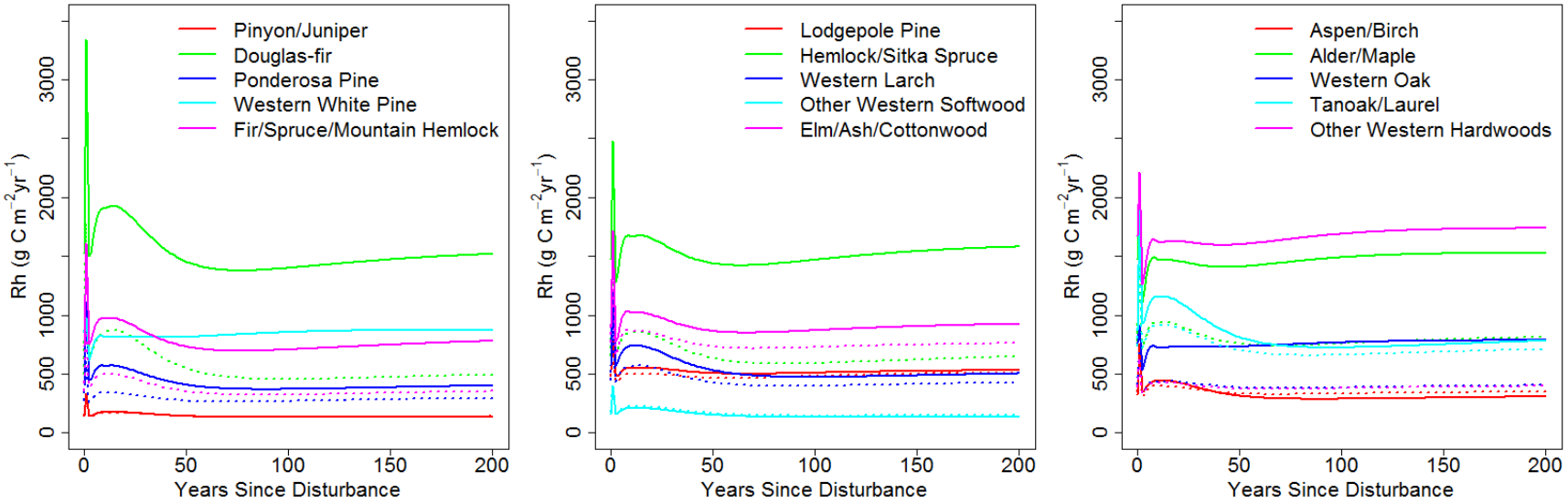


Fig. S11 Characteristic heterotrophic respiration (*Rh*) trajectories for low (left), medium (middle) and high (right) bark beetle severity level in the PNW region. Solid lines are plotted for high site productivity, and dashed lines for low productivity.

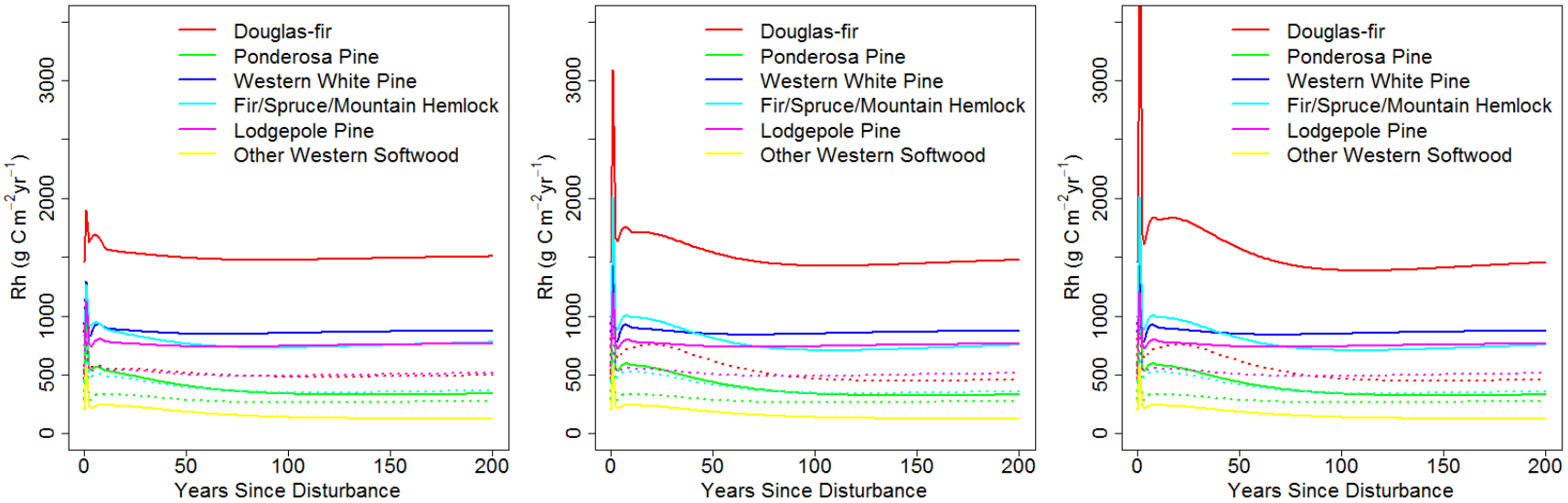


Fig. S12 Characteristic trajectories of carbon stocks in soil organic carbon pool (all but the slow part) following a stand-replacing disturbance in the PNW region.

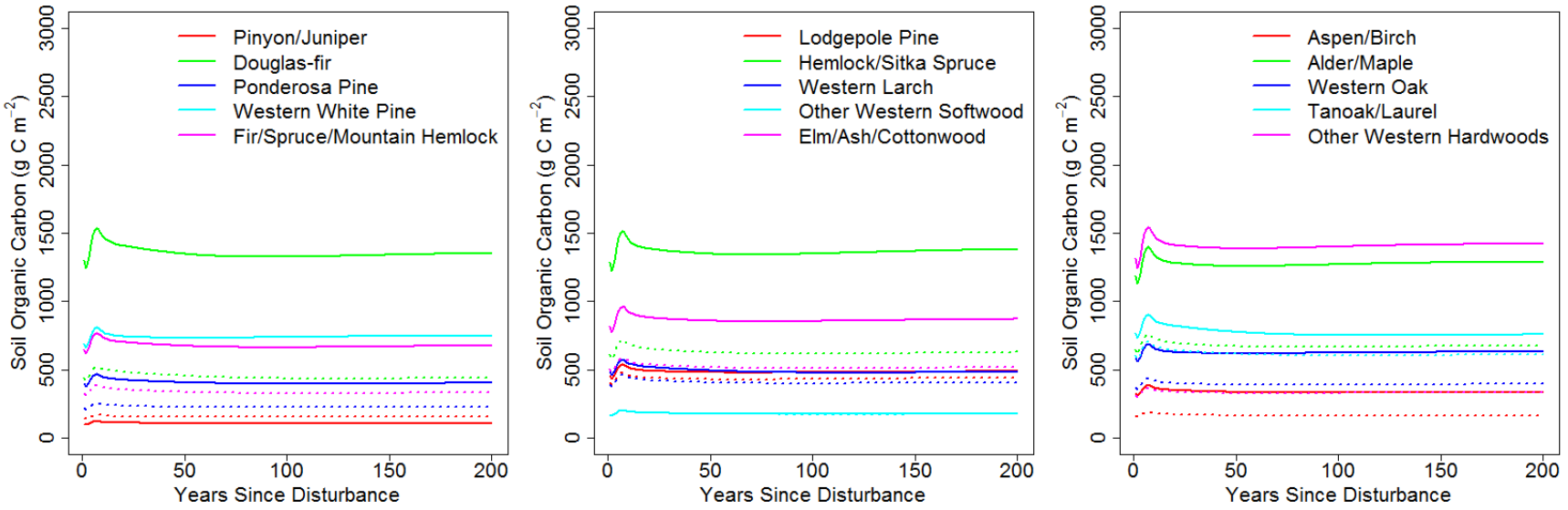


Fig. S13 Characteristic trajectories of carbon stocks in litter pool following a stand-replacing disturbance in the PNW region.

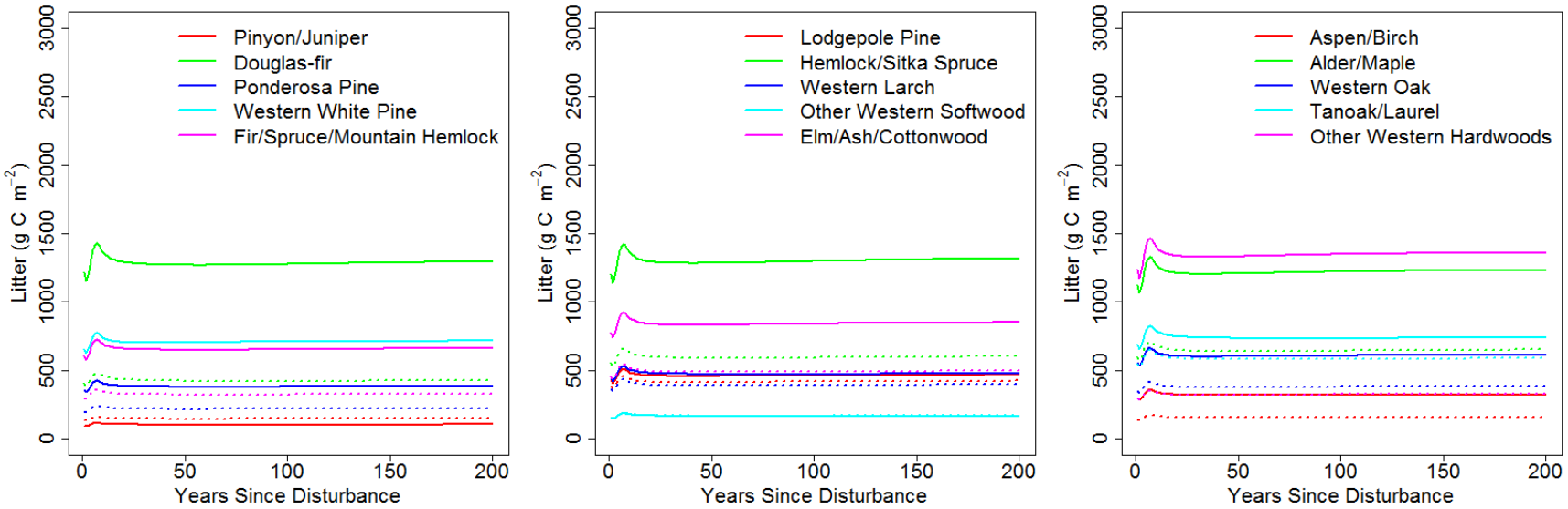


Fig. S14 Characteristic trajectories of carbon stocks in slow turnover soil carbon pool following a stand-replacing disturbance in the PNW region.

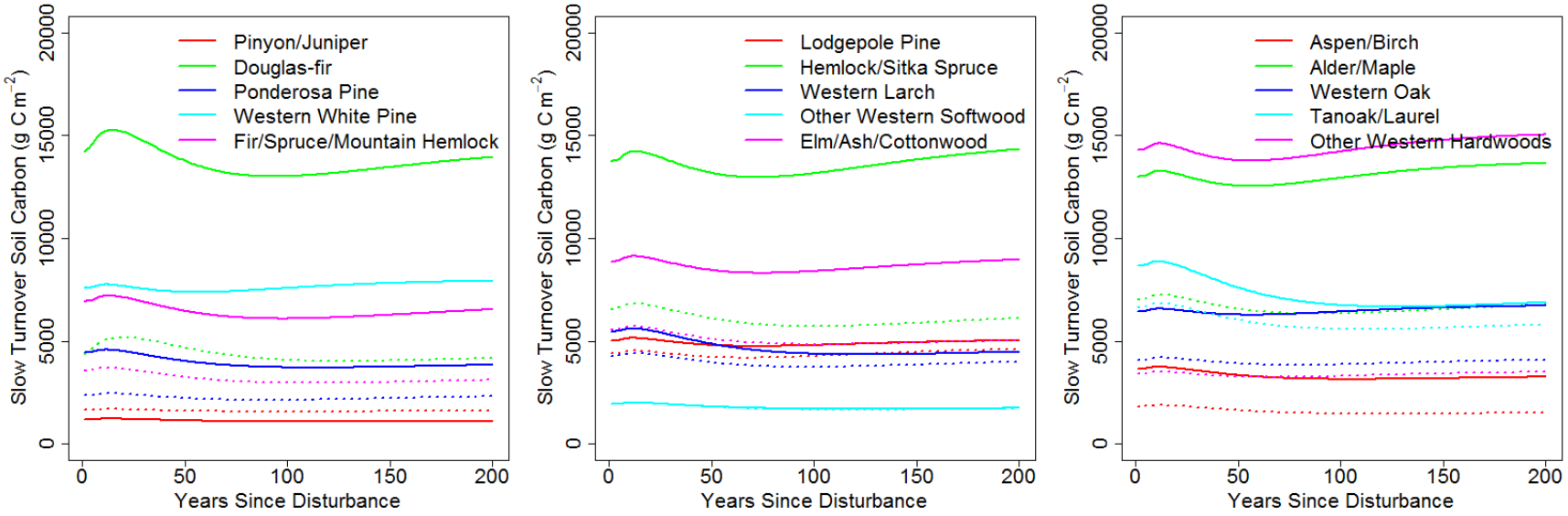


Fig. S15 Characteristic trajectories of carbon stocks in aboveground coarse woody debris following a stand-replacing disturbance in the PNW region.

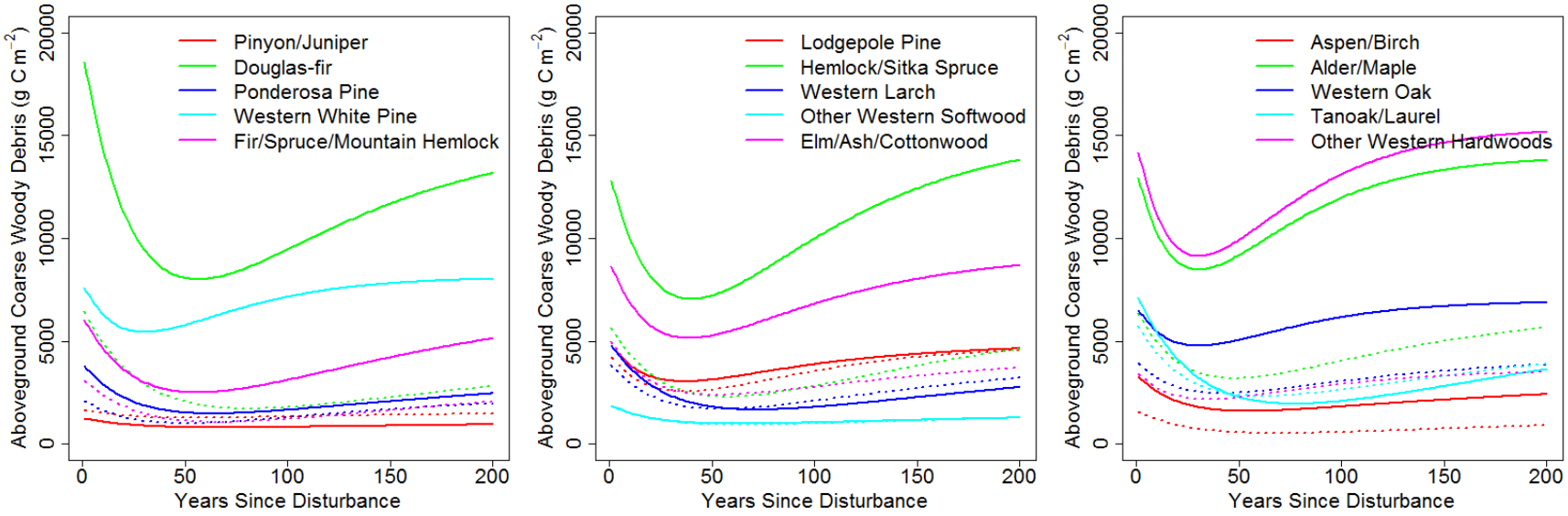


Fig. S16 Characteristic trajectories of carbon stocks in belowground coarse woody debris following a stand-replacing disturbance in the PNW region.

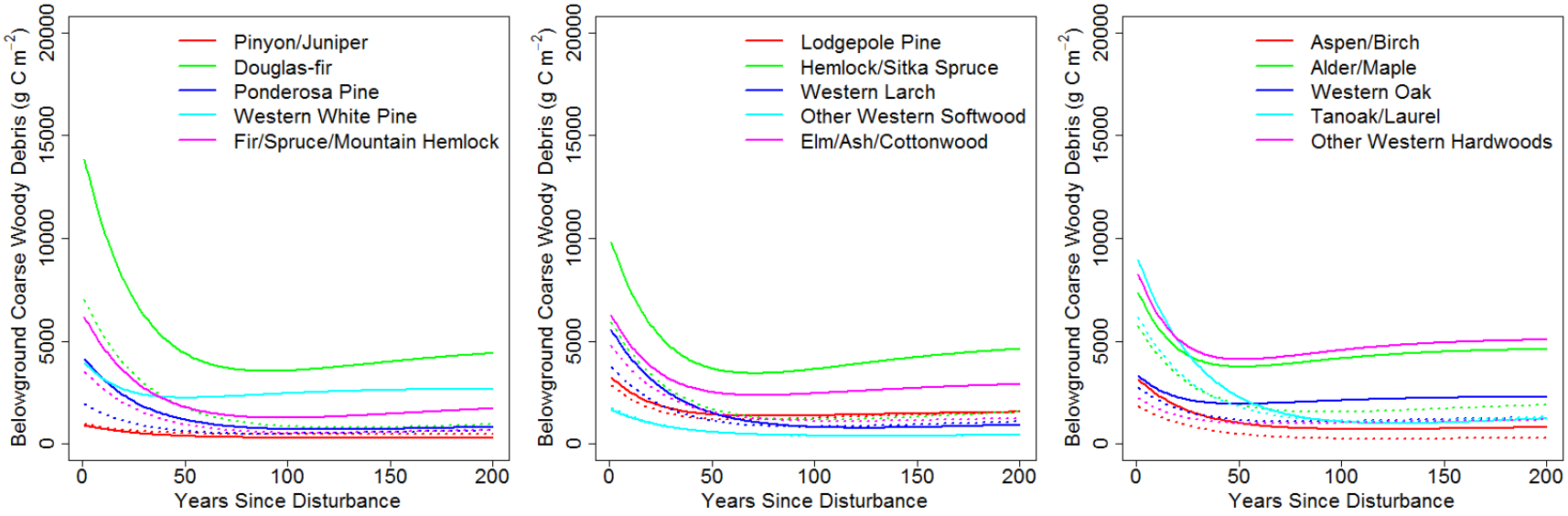


Fig. S17 Characteristic trajectories of carbon stocks in total live woody biomass following a stand-replacing disturbance in the PNW region.