East Hills Snag Summaries

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**Overview**

On 5/4/2018 in response to request for data relating to snag information by forest type and alternative. FVS data for representative stands were run. Fire and Fuels extension was run for soft and hard snag per acre values. Data was output from FVS, and stand values by year were averaged via pivot tables in excel by representative forest type stands initially reported in the DEIS. Snag data were run to from 2018-2115 (100 years from data collection). All 2015 data were modeled from 2018, by “growing forward to 2018”. All snag classes are summarized together. Additional information on classification of snag types, sizes, and model assumptions can be found in the Fire and Fuels Extension (FFE) of the Forest Vegetation Simulator (FVS). Model, documentation, and user guides are located at: <https://www.fs.fed.us/fvs/index.shtml>

**Representative Stands Used**

Sixteen representative stands across three general forest types are shown to provide a representative sample of snag densities through time by forest type and alternative.

|  |  |
| --- | --- |
| **Representative Stand Type** | **FSVeg Stand ID(s)** |
| Mixed Conifer (MC) | 06021211500001040,  06021211500001079,  06021211500001083,  06021211640000486,  06021211640000509,  06021211750000324 |
| Ponderosa Pine (PP) | 06021211460000177,  06021211500000346,  06021211500000393,  06021211640000060,  06021211640000136,  06021211750000213 |
| Lodgepole Pine (LP) | 06021211500000388,  06021211640000117,  06021211750000448,  06021211750000523 |

**Description of Alternatives**

**Alternative 1 (A1)**

There are no treatments, including no prescribed fire. The USFS did not model wildfire mortality from unplanned ignitions or insect and disease mortality above standard FVS mortality rates within this snag modeling exercise. This assumption may substantially alter an accurate estimates or averages of snags following a large scale wildfire or insect mortality event following a no action alternative.

**Alternative 2 (A2)**

Representative stands of this type were thinned throughout diameter ranges (emulating a forest health objective using an uneven-aged prescription) and removed trees excluding ponderosa pine over 21 inch DBH but included white fir and lodgepole over 21 inches. This scenario is modeled with no diameter cap on white fir, although in practice visually diagnosed White fir and ponderosa pine will be retained, regardless of size. There was not adequate age data collected in 2015 to represent this in the FVS models, and is a relatively small number of trees based on stand reconnaissance. The FS assumes residual BA will be higher than modeled due to this lack of age and modeled diameter cap. There was a fall prescribed fire modeled in 2023 with a 60% consumption rate in the fall with an air temperature of 70 degrees Fahrenheit and wind speed of 8 MPH. All scenarios in Alternative 2 and 3 have the same prescribed fire event in 2023. This may not be what the burn plan prescribes for all areas, and was meant as a representative modeling event, and may not be the exact burn prescription to be implemented. Residual Basal Area (BA, square feet) metrics were varied by forest type with mixed conifer stands thinned to 60 BA, ponderosa pine stands to 40 BA, and lodgepole pine to 20 BA. No ponderosa pine over 21 inches were removed. Individual prescriptions across project will be tailored to forest health, fuel reduction, wildlife habitat, and other values of interest and may not be thinned to each of these representative levels exactly as modeled, but these are general levels targeted due to SDI, insect mortality risk, and severe wildfire event prevention. Because FVS is not a spatially explicit model we cannot show the spatial heterogeneity we are going to favor across this area in all prescriptions and stand types, but will be implemented on the ground as described in the DEIS.

**Alternative 3 (A3)**

All metrics and notes of Alternative 2, including the burn parameters, residual basal area targets, spatial complexity, and retention of trees with visually “old” characteristics are included. The difference between Alternative 2 and Alternative 3 are that no trees over 21 inches, including white fir or lodgepole in addition to ponderosa pine are removed.

**Long-term Snag Summaries by Forest Type and East Hills Alternative**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Forest Type | | | | | | |
|  | **Mixed Conifer** | | | | | | |
|  | Ave. Hard Snags/Ac | | |  | Ave. Soft Snags/Ac | | |
| Year | Alt 1 | Alt 2 | Alt 3 |  | Alt 1 | Alt 2 | Alt 3 |
| 2018 | 68 | 60 | 68 |  | 0 | 0 | 0 |
| 2023 | 122 | 174 | 116 |  | 0 | 0 | 0 |
| 2025 | 146 | 132 | 89 |  | 0 | 0 | 0 |
| 2035 | 176 | 56 | 36 |  | 0 | 0 | 0 |
| 2045 | 152 | 35 | 22 |  | 0 | 0 | 0 |
| 2055 | 129 | 27 | 16 |  | 0 | 0 | 0 |
| 2065 | 106 | 21 | 12 |  | 0 | 0 | 0 |
| 2075 | 92 | 18 | 10 |  | 0 | 0 | 0 |
| 2085 | 81 | 15 | 8 |  | 0 | 0 | 0 |
| 2095 | 70 | 13 | 7 |  | 0 | 0 | 0 |
| 2105 | 59 | 11 | 6 |  | 0 | 0 | 0 |
|  |  | | | | | | |
|  | **Ponderosa Pine** | | | | | | |
|  | Ave. Hard Snags/Ac | | |  | Ave. Soft Snags/Ac | | |
| Year | Alt 1 | Alt 2 | Alt 3 |  | Alt 1 | Alt 2 | Alt 3 |
| 2018 | 23 | 23 | 23 |  | 0 | 0 | 0 |
| 2023 | 27 | 41 | 29 |  | 0 | 0 | 0 |
| 2025 | 28 | 31 | 22 |  | 0 | 0 | 0 |
| 2035 | 43 | 10 | 8 |  | 0 | 0 | 0 |
| 2045 | 46 | 6 | 4 |  | 0 | 0 | 0 |
| 2055 | 46 | 5 | 3 |  | 0 | 0 | 0 |
| 2065 | 43 | 5 | 3 |  | 0 | 0 | 0 |
| 2075 | 39 | 5 | 3 |  | 0 | 0 | 0 |
| 2085 | 34 | 5 | 3 |  | 0 | 0 | 0 |
| 2095 | 30 | 5 | 3 |  | 0 | 0 | 0 |
| 2105 | 26 | 4 | 3 |  | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |
|  | **Lodgepole Pine** | | | | | | |
|  | Ave. Hard Snags/Ac | | |  | Ave. Soft Snags/Ac | | |
| Year | Alt 1 | Alt 2 | Alt 3 |  | Alt 1 | Alt 2 | Alt 3 |
| 2018 | 108 | 108 | 108 |  | 0 | 0 | 0 |
| 2023 | 264 | 422 | 422 |  | 0 | 0 | 0 |
| 2025 | 331 | 135 | 340 |  | 0 | 0 | 0 |
| 2035 | 351 | 51 | 121 |  | 0 | 0 | 0 |
| 2045 | 367 | 22 | 47 |  | 0 | 0 | 0 |
| 2055 | 360 | 28 | 21 |  | 0 | 0 | 0 |
| 2065 | 323 | 29 | 21 |  | 2 | 1 | 1 |
| 2075 | 331 | 33 | 23 |  | 2 | 1 | 2 |
| 2085 | 230 | 41 | 21 |  | 2 | 0 | 1 |
| 2095 | 224 | 37 | 19 |  | 2 | 0 | 0 |
| 2105 | 185 | 37 | 21 |  | 1 | 0 | 0 |

All values rounded to the nearest single digit