SNAPSHOT: DRIVERS AND STRESSORS
Fire, Invasives, Climate Change, and Insects

1 Status

- Historical Fire Occurrence: See separate map of fire history from 1980 to 2015.
- Noxious Weeds occur on about 58,000 acres. Available resources allow annual noxious weed treatment from 3,000 to 4,000 acres. Many remote areas such as Wilderness have not been treated consistently generally due to logistical considerations.
- Introduced invasive species that are not designated as noxious weeds (i.e. timothy grass, Kentucky bluegrass, smooth brome, etc.) can outcompete other plants, altering native plant communities and often form monocultures. Control of these species is most often prohibitive due to lack of reasonable control methods and high investment requirements.
- There are many vectors of weed spread but human activity, especially along travel routes, is a primary cause.
- In the Greater Yellowstone area, climatic variability is strongly influenced by interactions with topography, elevation, and aspect. Between 1895 and 2012, the annual mean monthly minimum temperature increased by about 2.9 °F, while the annual mean monthly maximum temperature increased by about 1.2 °F.
- In the Greater Yellowstone area, by 2100, temperature is projected to increase 5-10 °F for the annual mean monthly minimum, and 7-12 °F for the annual mean monthly maximum. Projected winter maximum temperature is projected to increase above freezing in the mid- 21st century. Annual mean monthly precipitation is projected to increase slightly by 2100, although projections for precipitation have high uncertainty compared to temperature.
- For the eastern part of the Forest, warming trends indicate that future climate will be similar to the area south of this region. Even with little or no change in precipitation, there is the potential for summer drying or drought due to the increased heat and increased evapotranspiration. Early snow melt from the west will imply changes in streamflow, with implications for stream flow and temperature, therefore reservoir management and stream ecology.
- From 1962 to 1999, about 1.8 million Forest acres were infested with beetle and/or spruce budworm.
- From 2000 to 2014, about 1.5 million Forest acres were infested with beetle, spruce budworm, other insects, fire, and other factors.

2 Trends

- Acreage infested by noxious weeds has doubled over the past 10 years.
- Longer duration, large acreage unplanned fire events may become more common with anticipated warmer, drier climate change conditions.
- More extreme disturbance events and higher inter annual climate variability can be predicted.

3 Need to Change Existing Forest Plans

- Forest Plan direction regarding wildland fire management for the 1987 Gallatin NF Forest Plan document was updated and amended in 2011. Forest plan direction for the Custer NF Forest Plan document has not been updated since 1986.
- Create one Forest Plan that provides direction concerning wildland fire across the entire Custer Gallatin NF.
- Reflect best science related to wildland fire and prescribed fire to better inform wildland fire management objectives and strategies.
- There is a need for plan direction controlling the introduction and spread of non-native invasive species.
- Consider how management guidance, emphases, and monitoring dovetail with various aspects of changing climate.