

Taylor Park Adaptive Management Group

Science Team Report 2020

February 11, 2021

Summary of 2020 Efforts

The Taylor Park AMG Science Team focused on one objective during 2020. This was to develop a permanent monitoring plot network to allow contrasts of key indicators between pre- and post-treatment conditions, and between different treatments and controls. The work completed to date, results, and recommendations related to each objective are described below.

In 2020, we developed a network of 47 permanent monitoring plots within mature lodgepole pine stands in the Taylor Park project area. These represent 15 plots planned for clearcut timber harvest, 15 for stand-replacing prescribed fire, and 17 controls that fall outside of any planned treatments. Plot design was modified from the SPEADMR monitoring plot protocol, with the objective that similar data collection methodologies might lead to potential contrasts across the two projects, should there be future interest. Accordingly, within 12.6-m radius circular plots, we measured forest structure and composition, seedling densities, and fuels. We added two additional measurements specific to the Taylor Project, given the project goals of reducing mistletoe and fuels: Hawksworth Dwarf Mistletoe Rating (DMR) and measures of fine fuels (1-, 10-, and 100- hour fuels) and crown base height. Appendix one of this document details the modified plot sampling protocol. Additionally, at 40 plots we installed temperature and rH sensors and dataloggers to characterize understory microclimate in anticipation of changes associated with scheduled treatments. Collection of baseline data, and the inclusion of untreated control plots, will provide a robust and well-replicated Before-After-Control-Impact (BACI) experimental design to quantify treatment effects and effectiveness in future surveys.

During 2020, the Science Team maintained communication with the AMG and GMUG: science team members provided information via presentations and informal discussion during AMG meetings and field trips, and worked closely with AMG stakeholders to facilitate a shared understanding of ecological processes and patterns at play in the Taylor Park landscape as well as the role of data collection and analysis in adaptive land management.

Work proposed for 2021

We plan on continuing a range of monitoring activities in collaboration with the AMG and GMUG in 2021; however, these plans remain contingent on further discussions with AMG members and logistical considerations from potential collaborators.

- First, we plan on further developing our network of sample sites in anticipation of proposed treatments. This may include the addition of sites in additional forest types of planned treatments, depending on AMG and USFS interests. We are also considering whether, how, and when we might develop a suite of sites that would be brought into the Applied Silviculture for Climate Change (ASCC) network, following the collaborative development of new silvicultural strategies that could be implemented in a portion of the project area under the current EA. The timeline for this endeavor may or may not lend itself to pre-treatment monitoring data collection during 2021. We also anticipate additional measure at our current plot network, including measures of biota including understory vegetation and potentially soils and fungi as well, in partnership with other Western faculty, and downloading and maintenance of installed dataloggers.
- Second, given interests from AMG members, in 2021 we plan to initiate monitoring to quantify temporary road use within the project area, possibly including a combination of trail cameras and/or vehicle counters.
- Third, also following AMG member concerns, we are exploring the development of a long-term hydrological study that could incorporate measures of SWE, soil moisture, streamflow, and hydrological modeling. Again this initiative is in its infancy and contingent on interest and support from multiple partners and collaborators, thus may not lead directly to monitoring activities this year.

We also plan on continuing to communicate findings and collaborate with AMG members and GMUG staff, including providing findings from 2020 field efforts and additional work to best provide relevant information to USFS staff, AMG members, local stakeholders, and the public at large.