

# Taylor Park Adaptive Management Group Science Team Report 2019

December 29, 2019

## **Summary of 2019 Efforts**

The Taylor Park AMG Science Team focused on three primary objectives during 2019. These include 1) completing a baseline field inventory of conditions in lodgepole pine stands in the proposed Taylor Park project area, 2) conducting a public survey assessing perceptions of forest management in the area, and 3) working with the AMG and GMUG staff to provide information, communicate findings of interest, and facilitate the development of scientifically-informed adaptive management. The work completed to date, results, and recommendations related to each objective are described below.

1) Field inventory: during 2019 we sampled 348 sites in 312 lodgepole pine stands across the project area. At each, we assessed stand age, regeneration, and forest health, with a focus on dwarf mistletoe. Our main findings were that the decade of stand initiation ranged from 1680 to 2010, with two peaks: the period 1860-1999, and 1980-2000. Recent lodgepole pine regeneration was widespread and abundant throughout the area, with a sample median of 800 seedlings and saplings per acre. We found dwarf mistletoe in 38% of samples. These findings are generally consistent with the described project impetus for timber harvest and prescribed fire as stand-replacing disturbances likely to produce a landscape mosaic that includes new cohorts of lodgepole pine seedlings. Additional fieldwork by MEM students N. Hellmund (funded through USFS salary) and G. Zaldumbide (funded by MEM match) in 2019 include a preliminary survey of wildlife use in historically harvested and non-managed stands and an assessment of fuels in the Tincup area; these data are being compiled and analyzed.

2) Public survey: a survey was developed and disseminated via hardcopy and a web platform in order to assess public perceptions of forest health concerns and USFS forest management interventions. 144 responses were received; the majority were from homeowners in the Taylor Park area. Forests were highly valued by respondents, who viewed wildfire and forest health issues as important concerns. Overall, management interventions, particularly fuel reduction treatments, but also timber harvest, were broadly accepted by survey respondents, with most indicating they “somewhat trust” the forest service. These findings highlight opportunities both for active forest management and involved stakeholder participation.

3) Science 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 identify concerns over the original proposal. Ultimately this communication allowed science team members to facilitate, with GMUG staff, the development of a new alternative, with improved environmental, social, and economic goals. The science team also provided a key observation of mountain pine beetle activity to regional USFS forest health staff.

## **Work proposed for 2020**

We plan on continuing a range of monitoring activities in collaboration with the AMG and GMUG in 2020, as follows. First, we plan on further developing a network of sample sites in anticipation of proposed treatments. Once the vegetation management plan is finalized, we will be able to stratify samples into both “treatment” and “control” categories, necessary to assessing the effects of treatments using a before-after-control-impact design with high replication. We plan on developing a network of ca. 40 sample sites using an expanded methodology that includes complete measurements of forest structure and composition, including the dbh and height of all trees, forest health, tallies of seedlings and saplings, and canopy and surface fuel loads. We also plan to install temperature and RH dataloggers at each site following protocols developed by the SPEADMR science team. As treatments are implemented, follow up measurements at these sample sites will allow us to quantify shifts in forest characteristics, abiotic conditions, and fire hazard. We also anticipate that a range of additional measurements may be made using these sites, depending on stakeholder interest and in collaboration with other students and faculty at Western. For example, sites will lend themselves to calculations of carbon storage or measurements of decomposition.

We also plan on continuing to communicate findings and collaborate with AMG members and GMUG staff, including providing findings from 2019 field efforts and the survey of public perceptions.