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# ACCG SLAWG GIS Tool Development: Project Inventory & Landscape Prioritization Tool

## Information Sheet

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### Background

The goal of the development of a set of GIS tools, including fuels reduction project inventory database, and a landscape prioritization development process, was to assist the ACCG build capacity to plan and identify potential future projects within the landscape, with an initial focus on fuels reduction related projects. To accomplish this, Megan Layhee, a GIS Consultant, worked closely with ACCG's Strategic Landscape Assessment Work Group (SLAWG), a sub-work group to the Planning WG, to develop a fuels reduction project inventory database and "Mapper", and a landscape prioritization tool to identify potential priority areas for future fuels reduction related work. This informational sheet is intended to provide a broad overview of this process.

## Overview

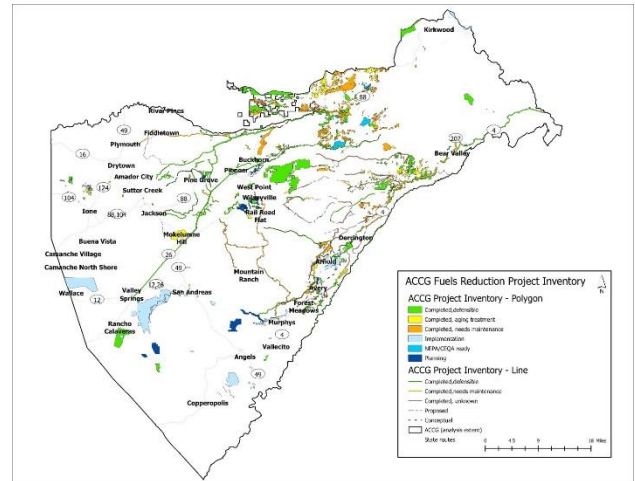
### Project Inventory Database (“Mapper”)

The Project Inventory Database, or “Mapper”, provides spatial depiction of fuels reduction related projects that are in various phases, including conceptual, planning, implementation, complete and needing maintenance.

For the purposes of this effort, the ACCG landscape includes Calaveras Co., Amador Co., and portions of Alpine Co., the Amador and Calaveras Ranger Districts, and of the Upper Mokelumne, Consumnes, Calaveras, American and Stanislaus River Watersheds.

The Project Mapper is intended to be interactive and publicly available, and can be found on the SLAWG’s webpage on the ACCG website. Visible data attributes can be viewed for individual projects in the Mapper.

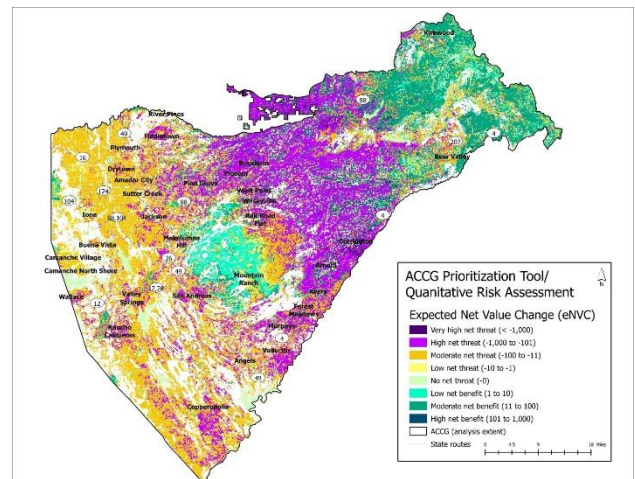
Sources of project data up until this point, includes USFS (FACTS database), BLM, CalAM Team, CAL FIRE (CAL FIRE Hub ArcGIS) and other individual ACCG stakeholders. As new projects or updated project information becomes available, the project inventory database will be updated.



### Landscape Prioritization Tool - Priority Areas

A landscape prioritization process was used to characterize predicted wildfire risk to high-valued resources and assets (HVRAs), which modeled high risk areas to future wildfire and identified these areas as priority areas to treat into the future. A quantitative wildfire risk assessment framework, outlined in GTR-315 (Scott et al., 2013), was used for this prioritization process.

Modeled wildfire hazard (FSim), in terms of the likelihood and predicted intensity of fire, from USFS Region 5 and Pyrologix for the Southern Sierra Nevada Region, was used for this process. FSim is a wildfire risk simulation software that

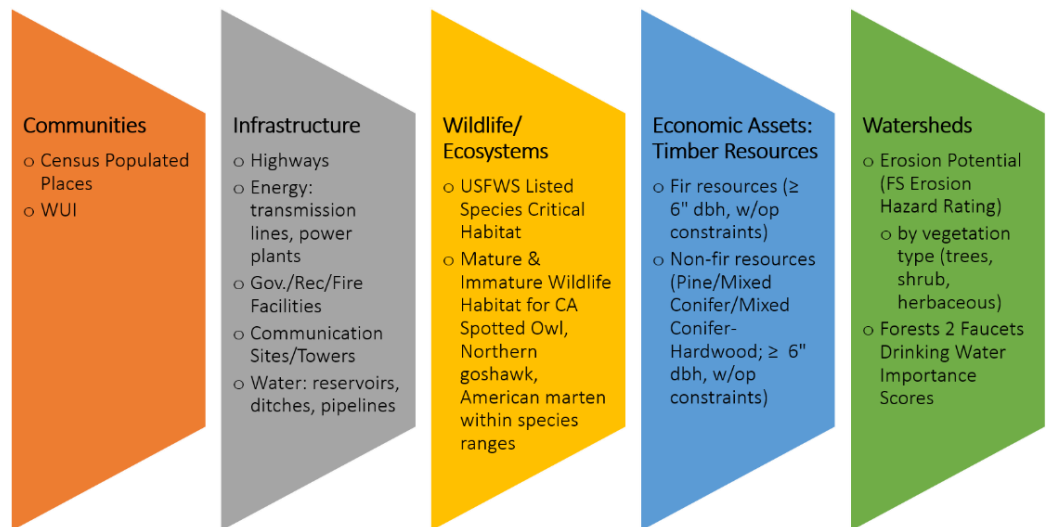


uses local fuel, weather, topography and historical fire occurrence data to model risk of wildfire across a landscape.

Five HVRAs for the ACCG’s prioritization tool were identified and each of the HVRAs were further broken down into sub-HVRAs (see image below). Each sub-HVRA was given a relative importance score, with the Communities sub-HVRAs given the highest scores for the process. Each sub-HVRA was also assigned response function scores across six flame intensity classes (< 2ft flame length, 2-4ft flame length, and so). Response functions are an indication of whether the sub-HVRA will have a negative, positive or no effect of predicted wildfire intensity at any given location based on the probability of the six flame length classes. For this process, sub-HVRAs and their response functions were defined based on other risk assessments in the region (including Scott et al. 2015 and Stanislaus NF HVRA development, unpublished data).

Through a series of calculations, incorporating the relative importance scores, response functions, and relative extent of each sub-HVRA, and the probability of each of the six flame intensity classes and burn probability, the expected net value change (eNVC) for each raster tile within the ACCG

landscape (that encompassed any HVRA) was calculated across all of the sub-HVRAs and HVRAs. The eNVC output values with the highest net threat of predicted wildfire (lowest 10<sup>th</sup> percentile) were identified as highest priority areas.



## Accomplishments

### I. Project Inventory Database (“Mapper”)

Project inventory database and “Mapper” are developed. Workflows to maintain and update the project database inventory are developed in ArcGIS Pro ModelBuilder (and python script). The Mapper is publicly available to view on the ACCG website.



## II. Prioritization Tool & Priority Areas

First iteration of the prioritization tool has been developed. Priority areas can be depicted spatially and overlaid with the project inventory database. Priority area refinement process has been developed to define the criteria for locating potential project areas, and an initial potential project list and shapefile has been generated.

## III. Trainings (E-Workshops)

A two-part e-workshop series was provided in November and December of 2020. The workshops provide participants with an in-depth understanding of the project inventory database and “Mapper”, and the prioritization tool, the processes required to maintain and update the tools, and also provided an opportunity for participants to provide feedback and suggestions on the products.

## References

Scott, J. H.; Thompson, M. P.; Calkin, D. E. 2013. A wildfire risk assessment framework for land and resource management. Gen. Tech. Rep. RMRS-GTR-315. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 83 p.

Scott, J., Gilbertson-Day, J., Bowden, R., Brough, A., Helmbrecht, D. 2015. Southern Sierra Nevada Wildfire Risk Assessment: Methods and Results. USDA Forest Service, R5.47 p.