



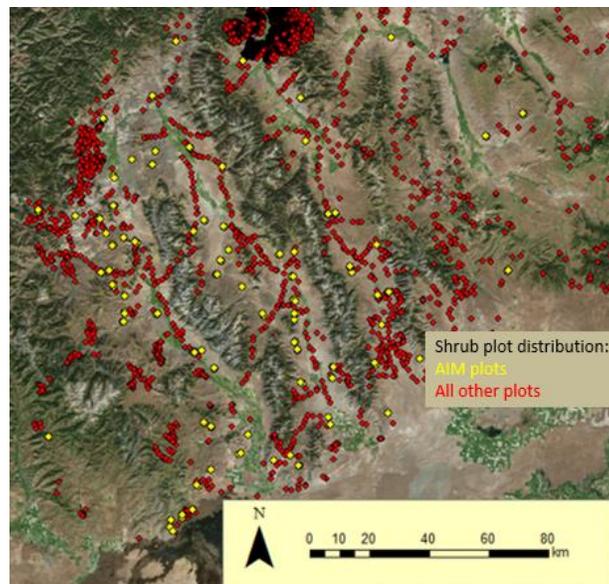
SUBJECT: Value of Georeferenced Vegetation Plots to LANDFIRE

January 2018

BACKGROUND: User submitted [plot data](#) is key to the success of LANDFIRE mapping. How does it make a difference? Here we illustrate an example from some of the first LANDFIRE remap products highlighting how the Bureau of Land Management (BLM) Assessment, Inventory and Monitoring (AIM) data are supporting the [Existing Vegetation Type \(EVT\)](#) mapping process.

TOPIC: Vegetation mapping is a modeling process which depends on real data to essentially train the model how to label the raw inputs. Ground plots are formatted and added to [the LANDFIRE Reference Database \(LFRDB\)](#) and are run through the LANDFIRE [Auto Key](#) program where they are assigned to NatureServe's Ecological Systems and National Vegetation Classification System (NVCS) Group legends. LANDFIRE has invested a great deal of effort in the expansion of the LFRDB, including agreements with agencies to include data sets that were not available when LANDFIRE began, such as BLM AIM plots and NRCS Natural Resource Inventory (NRI) plots.

For example, LANDFIRE originally had fewer plots in shrublands and grasslands than forests, which resulted in lower quality mapping in some areas. The AIM and NRI plots were added to the LFRDB to help rectify this situation, but what impact will these additional plots have on the quality of the final vegetation map? LANDFIRE did a [pilot effort](#) in 2010 to assess map quality with the additional NRI data. Now that remap is underway, below is another example of the effect of additional plot data (including AIM and NRI) on the Existing Vegetation Type (EVT) dataset visually, and then quantitatively.

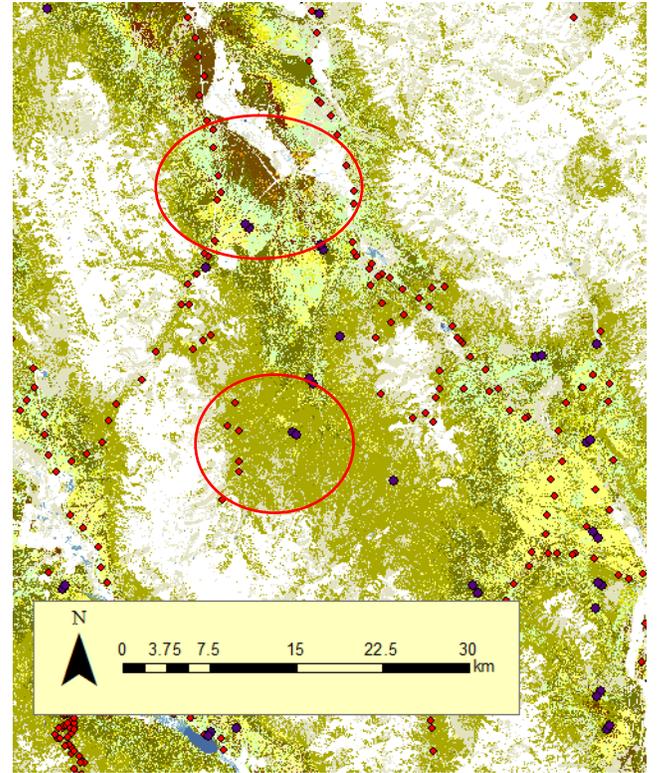
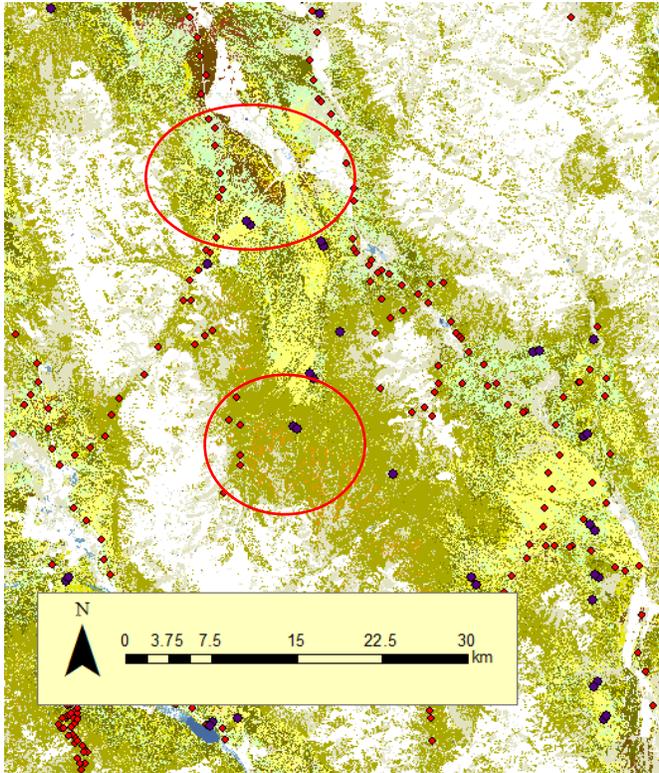


The remap EVT data shows improvement where AIM plots were included, capturing more detail rather than simplifying the landscape. The images below show spatially the impact of including AIM data versus not. The circle on the bottom shows a greater abundance of Northern Rocky Mountain Montane-Foothill Deciduous Shrubland relative to Inter-Mountain Basins Montane Sagebrush Steppe) when including the AIM data. The upper circle shows more of Inter-Mountain Basins Semi-Desert Shrub-Steppe relative to Inter-Mountain Basins Mixed Salt Desert Scrub when including the AIM data.



Shrub Type Mapping with AIM Data

Shrub Type Mapping without AIM Data



We can also see the improvement quantitatively using an accuracy assessment for the **Inter-Mountain Basins (IMB) Big Sagebrush Steppe** vegetation type:

| LANDFIRE version | Percentage correctly mapped | Top 3 EVT's misidentified as this IMB Big Sagebrush Steppe |
|------------------|-----------------------------|---|
| 2010 | 21% | <ol style="list-style-type: none"> 1. IMB Montane Sagebrush Steppe 2. IMB Big Sagebrush Shrubland 3. IMB Sparsely Vegetated Systems |
| Remap | 60% | <ol style="list-style-type: none"> 1. Northern Rocky Mountain Lower Montane-Foothill-Valley Grassland 2. IMB Big Sagebrush Shrubland 3. IMB Montane Sagebrush Steppe |

In the results above, the accuracy of the Inter-Mountain Basins Big Sagebrush Steppe increased dramatically in the remap product, and the confusion between Big Sagebrush Steppe and Big Sagebrush Shrubland was reduced. See [here](#) for more information on interpreting the accuracy assessment.

As shown above, map quality can be improved by having more plot data available. It is important that the LANDFIRE Program have as many plots as possible for mapping vegetation, which is a primary input to other LANDFIRE datasets such as fuels. Information for [submitting plot data](#), including [data requirements](#), are on [LANDFIRE.gov](#).