Small-Area Estimation for FIA's National Woodland Owner Survey

Investigators

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Progress Period

31 January 2024 to 31 July 2024

Progress

Over the past six months, the project team has finished initial processing of all 48 CONUS states and developed a procedure for stitching them together into a single nationwide raster layer (Beta version). In addition, a new classification system was developed in which land cover and land ownership were encoded in fine resolution. This classification, with 254 individual classes, includes a number of fine distinctions useful for development and validation purposes. It can be collapsed into a smaller set of 189 classes, which includes all permutations of the full set of NLCD cover classes and a slightly-reduced version of the standard FIA ownership code typology (e.g. family-owned deciduous forest, corporate-owned grassland, state-owned scrub, etc.). This collapsed layer – once finalized – will be one of the primary public products of this project. For the purposes of mapping and visualization, this layer can be further collapsed into a number of more specialized classifications. For example, Figure 1 shows the distribution of forest and non-forest land among a reduced set of private and public ownership types (13 classes).

The team has also begun the process of error classification and quantification. As a starting point, the full classification can be collapsed into a 4-class "qualitative" error layer (for Figure 2). This is possible because the full classification encodes for each pixel whether land cover or ownership data are missing or unknown, as well as the actual classes where they are not missing. More than 72% of pixels have both ownership and land cover data associated with them. Most of the remaining pixels (> 26%) are missing ownership data, but have known land cover. Only a small number of pixels have either ownership data only (0.06%) or are missing data altogether (0.17%). Pixels with missing data (especially missing ownership data) are disproportionately distributed among the western states, and are believed with some confidence to largely represent public ownership classes.

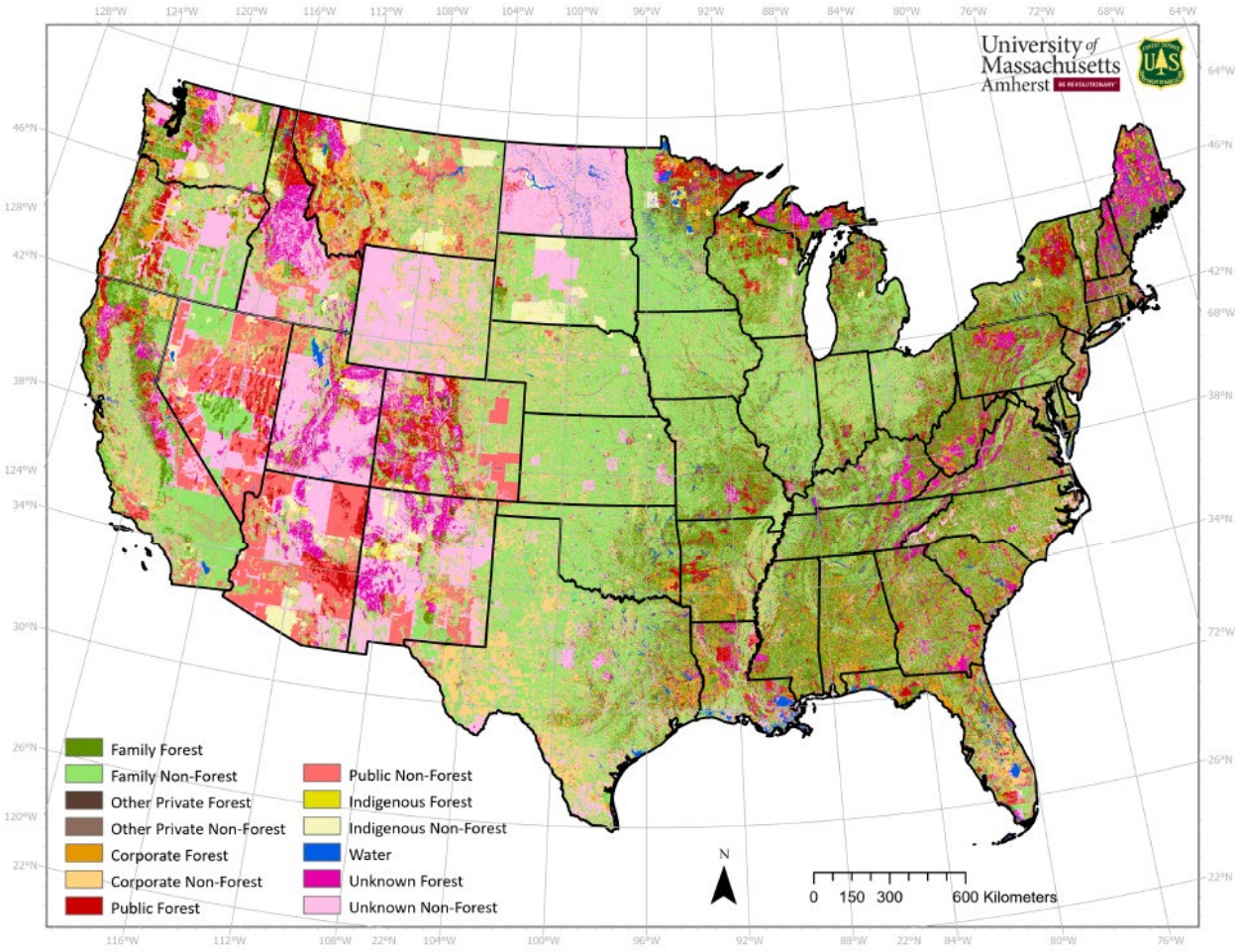

Figure 1: Completed land use and land ownership layer (BETA). CONUS.

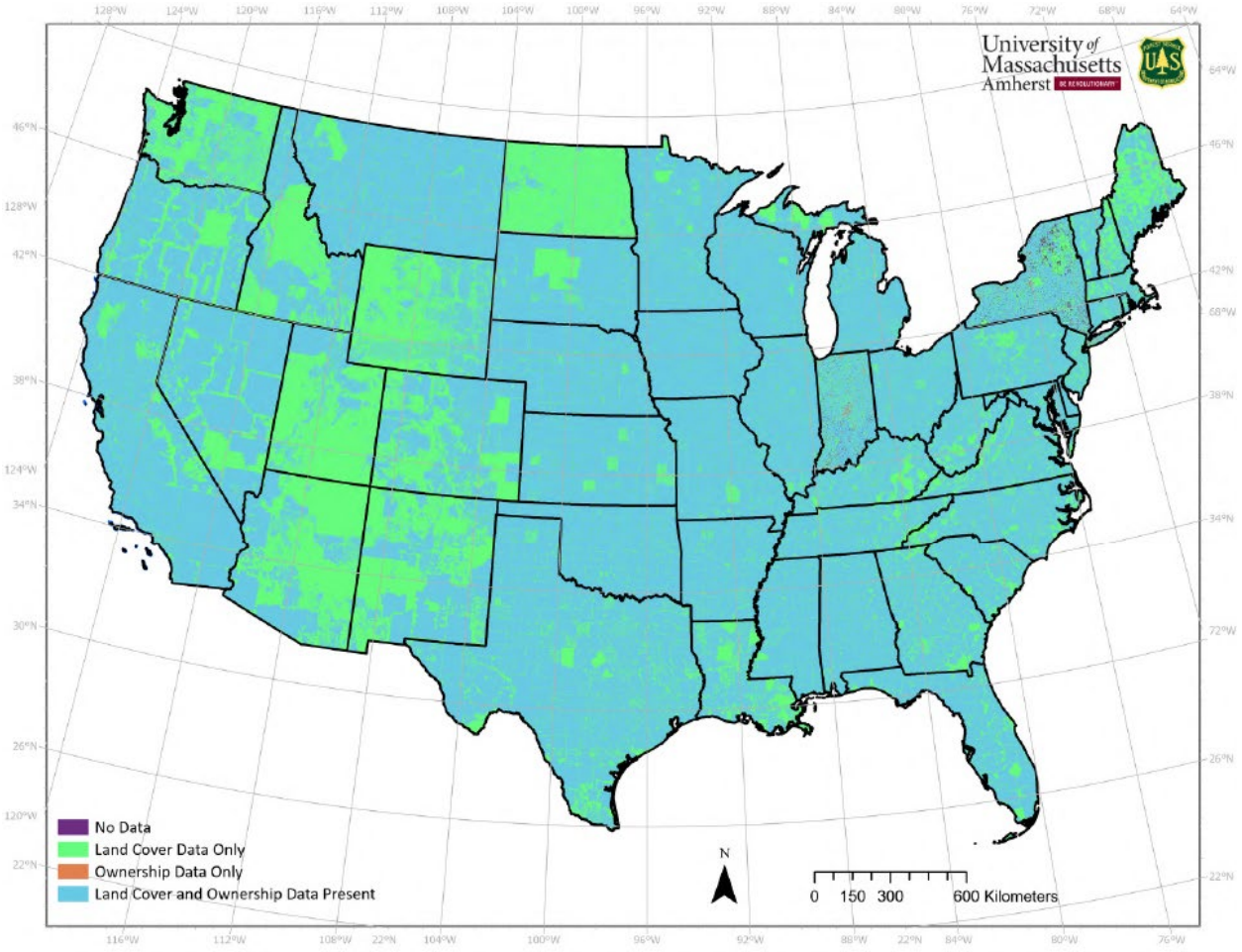

Figure 2: A qualitative error layer showing where land cover and land ownership data are present or missing (BETA). CONUS.

Next Period Plans

Over the next six months, the team will focus on refining the full data layer with the aim of locking down a final version. In addition to some minor formatting considerations, this will include incorporating an overlay with the Protected Areas Database (PAD) in order to identify public ownerships that are currently classified as "unknown ownership" (Figure 2). Simultaneously with the refinement of the full data layer, we will continue developing algorithms for translating the qualitative data layer into a quantitative data layer. To do this, we will rely on published error estimates for the raw NLCD, within-class ownership classification error rates derived from our validation efforts, and estimated error rates associated with PAD data and third-party vendor data (currently unknown). The formulae for integrating these data sources into a single quantification of total error for each pixel are still being derived.

Problems or Delays

None currently identified.