

The Power of Collaboration in Natural Resource Management

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In today's tech-heavy climate, the obstacles facing natural resource management are not a matter of finding and collecting data. Rather, figuring out to wade through the vast sea of available data and come out with a clear management plan on the other side is today's challenge. The public sector and the private sector each have their own set of strengths and weaknesses, but through collaboration these entities can develop implementable and assessable management programs from the overwhelming level of accessible data.

National forests are an important source of recreation for Americans. Within the state of Colorado, there are over 12,000 miles of trails in national forest boundaries, the third highest state in the continental U.S. With limited resources, it can be difficult for forest managers to determine which trails are popular among recreationists and in-need of allocated resources. This is where STRAVA Metro data comes into play. STRAVA is a fitness application popular among outdoor recreation enthusiasts for its ability to track users' speed and path. STRAVA offers planning entities the ability to purchase its user data so that they can make appropriate decisions on recreational management. Through this collaboration, STRAVA and USFS can determine which parts of Colorado are heavily used by STRAVA application users

However, STRAVA Metro data is an immense amount of data and with the already stretched resources at USFS, a third party was needed to effectively manage this project. The Colorado Mountain Biking Association (COMBA) stepped in to coordinate efforts to connect STRAVA with USFS, paving the way for this project.

There is one more important player in this collaboration effort: geospatial students. STRAVA only provides the data, not the analysis, and USFS and COMBA with their limited resources did not have the in-house personnel to sift through the massive amount of data. A partnership with the University of Colorado – Denver's Facility for Advanced Spatial Technology lab (<https://clas.ucdenver.edu/fast/>) connected students interested in refining their geospatial analysis skills with COMBA, USFS, and the vast STRAVA Metro data.

This map, a small portion of the final analysis, highlights two different yet informative aspects of trail usage: popularity and proximity to major roadways. In this map, the viewer can see that there is a disparity in trail usage, with most trails having 10 commutes or less while a handful of trails have over 500 commutes. These heavily used trails are near both major roadways and iconic peaks (Pikes Peak and Mt. Elbert). This insight can facilitate the decision-making process when allocating resources, and would not have been possible if it were not for collaboration.

The final product is the result of a collaboration from four different organizations: the USFS as the national forest manager, STRAVA with its abundance of trail use data, COMBA as the non-profit entity with a vested interest in sustainable trail management, and CU Denver with its geospatial students excited for the chance to hone their skills.

Map Credits: Elizabeth DeRycke, Graduate Student at the University of Colorado – Denver

