Chama Peak Land Alliance Five Year Summary Report to Rio Grande Water Fund

Figure 1. Aerial photo of the Navajo River Headwaters

Watershed Work Accomplishments Utilizing Rio Grande Water Fund dollars

Chama Peak Land Alliance has a proven track record of watershed protection and restoration through forestry-based methods. Utilizing a proactive approach to watershed protection the investment goes much further than post fire rehabilitation while creating jobs and protecting the environment. Robust monitoring, administration, implementation methods and contract relationships allows Chama Peak land Alliance to be extremely effective at achieving high return on investment for forestry activities to protect water resources.

Over the FY18-FY22 funding cycle Chama Peak Land Alliance has treated 905.44 acres with 700 acres of burn plans for $1,038,238. This equates to $1,146 dollars per treated acre including all monitoring, administration, and plan writing. The market rate for high priority watershed restoration treatments in our region averages $1650 per acre. Chama Peak Land Alliance is 30% more effective per dollar at making a difference on the ground to protect our resources.

-**Targeting**- We utilize a complex targeting process to find, plan and implement treatments. This allows us to target the highest risk zones and strategically tie them together to get the best return on investment. This process includes utilizing fire modeling, GIS, drone photogrammetry, slope terrain analysis, landowner outreach and networking and on the ground reconnaissance. Through this process we are able to build large targeting packages of strategic treatments in operable areas so we have a constant supply of treatment parcels that are shovel ready. As markets, funding and operators arise we can issue rapid requests for proposal on this forest target atlas to achieve the desired outcomes at the best price. Additionally, by separating the targeting package out by operational type/method, we are well positioned to utilize our lop and pile, mastication, harvest or harvest/mastication methods to achieve the best return on investment with the best ecological outcome.

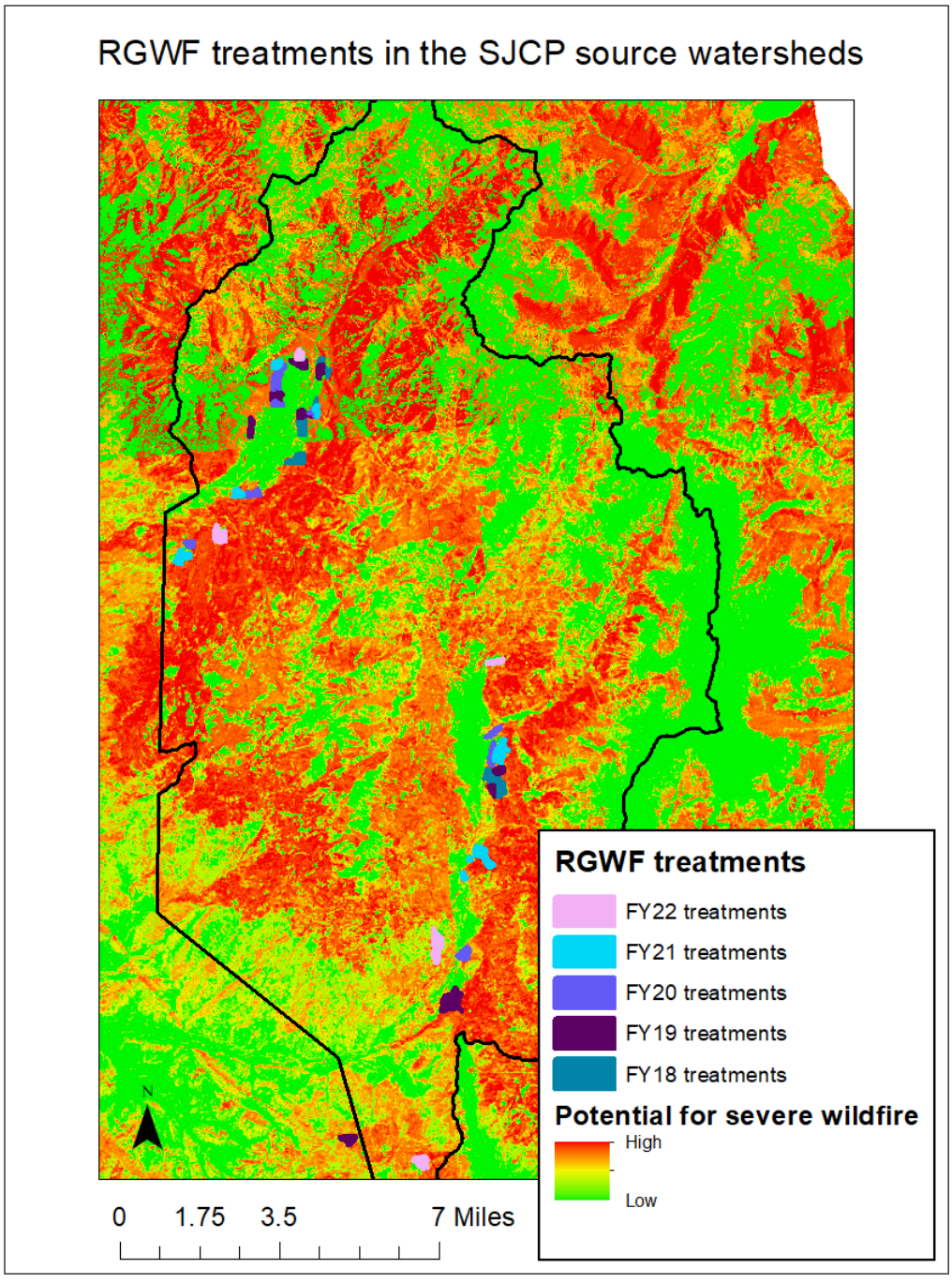


Figure 2. Map of FY18-FY22 treatmenet locations overlaid on potential severe wildfire map

Implementation - There are three main types of treatments we utilize in our "ecological forestry toolkit" to achieve the best outcome for the dollar spent. Type of treatment used depends on the forest type that we are working in.

-Mastication - Used in many areas with small diameter and/or non merchantable wood to remove fuel loading, dead and dying trees and reduction of stocking levels to achieve fire adapted forest densities and volumes. We additionally employ this method to reduce ground fuels, post-harvest slash and burn piles.

-Harvest/Mastication - Where there is heavy stocking and merchantable wood we strive to harvest the understory and inferior overstory trees. This allows us to create jobs and markets, subsidize treatment costs and remove the high densities of wood from the site. Additionally, we are able to store carbon in dimensional products when the wood is sent to mills in the surrounding area. Typically, we follow up timber harvests with mastication. This provides for a clean and 'well-sculpted' post-treatment landscape with no troublesome slash burn piles that are a fuels/fire risk. If there is enough value in the timber, we can achieve very low cost per acre for this treatment type.

-Lop and Pile - In remote, hard to access and inoperable mechanized areas we employ hand crews to fell trees by hand and lop and scatter or lop and pile the wood. While this method isn't ideal, it is the most cost-effective option for remote fuel breaks and preventative fire lines. By employing this method, we are able to remove the understory ladder fuels which helps to reduce the likelihood of crown fire propagation.

Figure 3. Forest operators are key to restoring forests. Unfortunately, more than 5 area operators have gone out of business in the last 2 years due to a scarcity of funding investments in the region.

Monitoring- Accountability and visibility are very important to CPLA to ensure we are achieving high quality outcomes on each project and monitor project for adaptive management. Monitoring and reviewing treatments allows us to be more strategic, precise and accurate in future treatments. We employ on the ground photo, sub-sampling biometrics and drone monitoring pre and post treatment on each project.

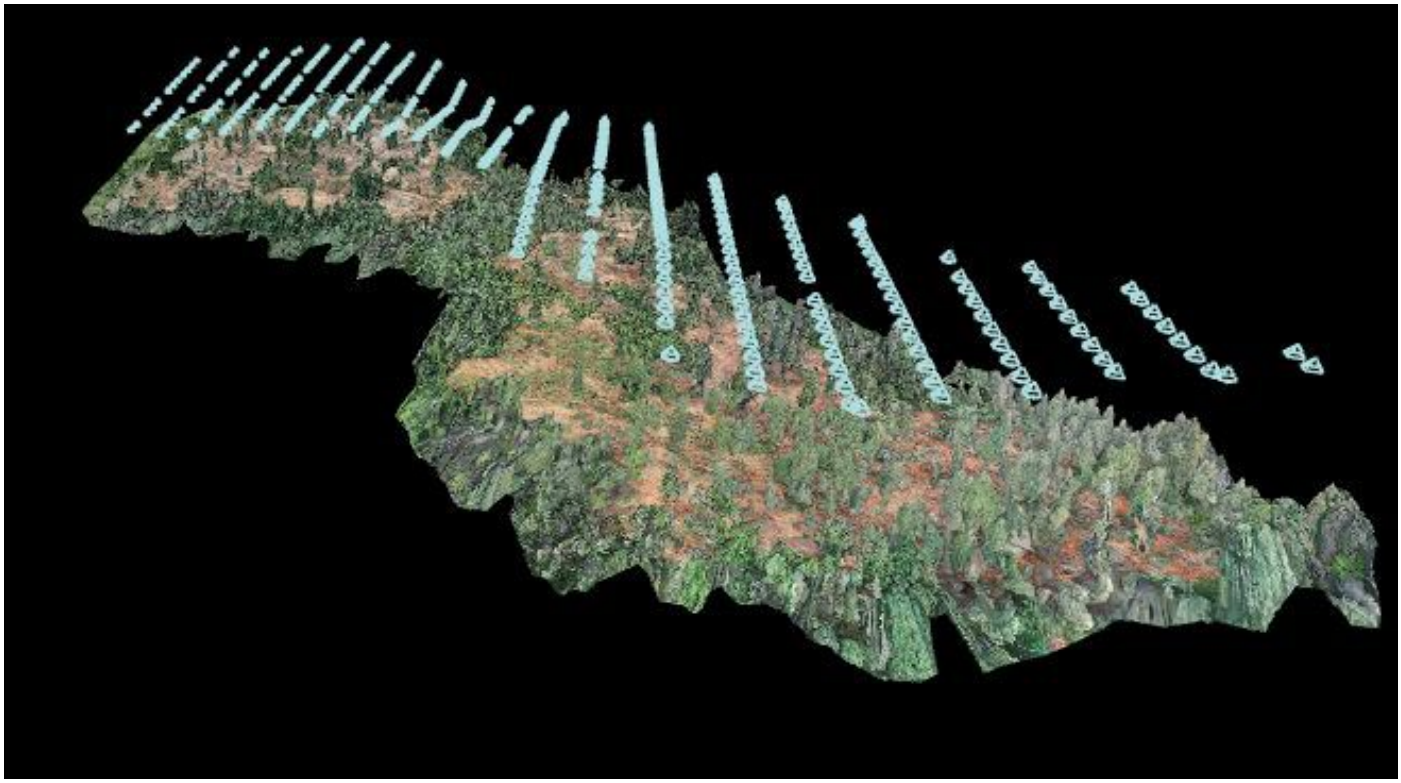


Figure 4. Diagram of a drone Automated Flight Mission

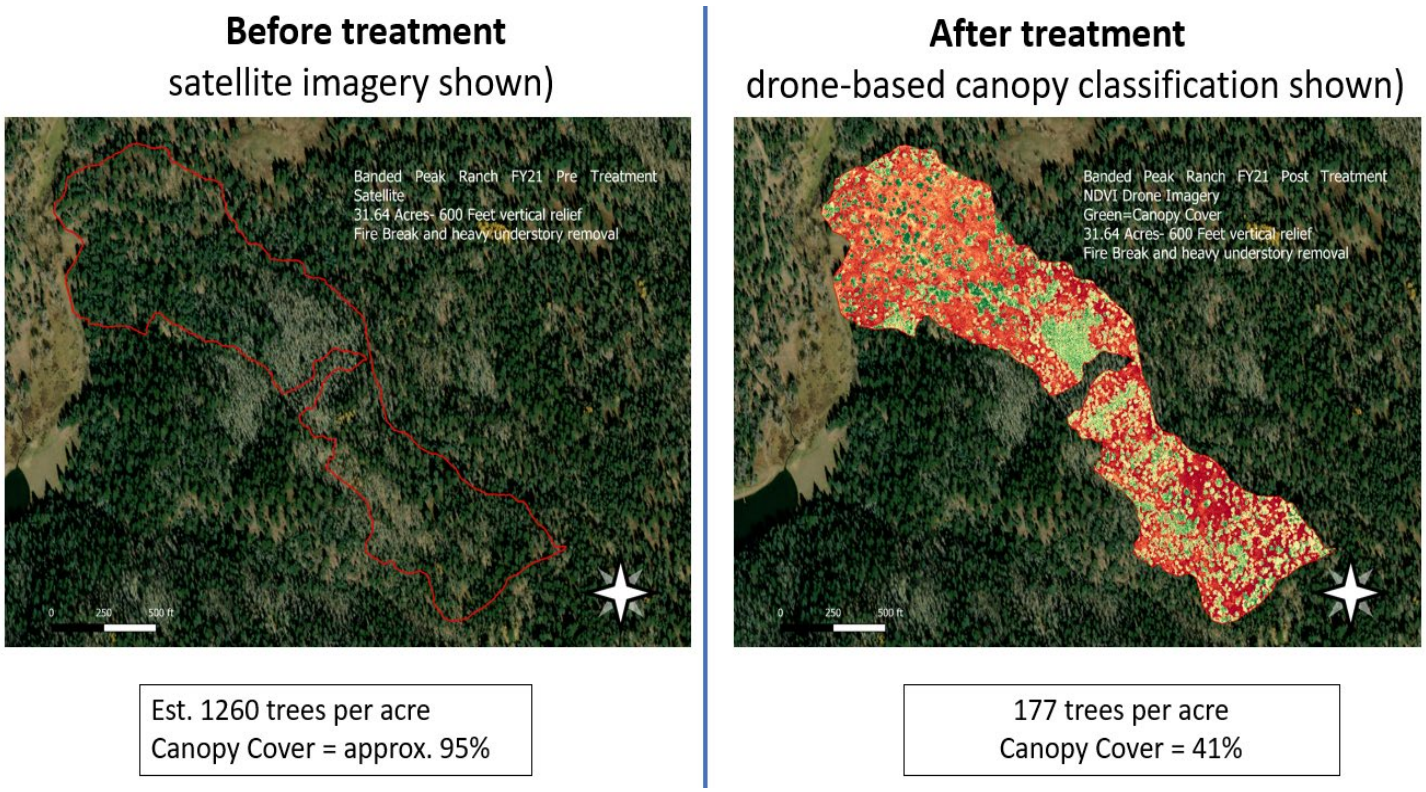
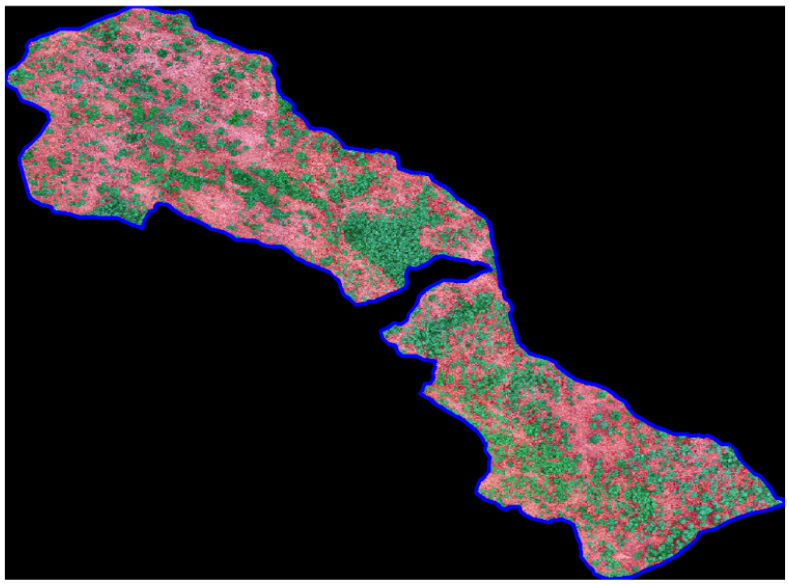


Figure 5. Drone Orthomosaic Pre and Post Treatment with Analysis on Canopy and Trees Per Acre

How did drone-based Trees Per Acre data compare to field data?

Drone-based TPA = 78
Field-based TPA = 177



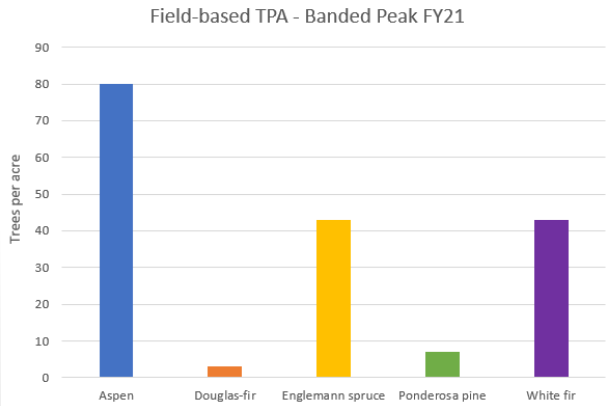


Figure 6. We gathered ground based sub-sampling plots for Pre and Post Treatment Biometric Analysis and we compared drone-based vs. field-based TPA values to estimate the efficacy of drone monitoring.

Pre-Thinning

Post-Thinning

Private lands make up more than half of the watershed area above Lake Heron and El Vado Reservoir. CPLA and the San Juan Chama Watershed Partnership have 256,267 acres of operable, dry and mesic forest treatments in these crucial watersheds.. To make a meaningful difference, research and modeling show that we need to treat 30% or 85,044 acres of this landscape. During the last five year cycle we treated roughly 1000 acres of high risk, high priority areas. We need to accelerate our operational footprint with increased funding to treat many thousands more acres before it is too late. It is much better to invest in forests before a severe wildfire rather than after a severe wildfire.