WHITE MOUNTAIN APACHE TRIBE

A Sovereign Nation Exercising Self-Governance
Over the Fort Apache Indian Reservation

Resolution No. 07-2012-111

(Approving Salvage Residual and Regeneration Project Proposal by Chris Beatty)

WHEREAS, the Tribal Council of the White Mountain Apache Tribe ("Tribe") is entrusted by the Tribe's Constitution to act in all matters that concern the welfare of the Tribe, to manage all economic affairs and enterprises of the Tribe, and to regulate subordinate organizations for economic and other purposes; and

WHEREAS, Chris Beatty, a tribal member and student at the University of Washington, presented the Tribal Council with a proposal for the use and collection of tribal data and to be permitted to conduct research on the Fort Apache Indian Reservation; and

WHEREAS, the study will look at the residuals of salvage logging units in the Rodeo-Chediski fire, including the observations of mortality, structure dynamics and regeneration of the ponderosa pine forest in the affected area; and

WHEREAS, due to the fire suppression era, climate change and drought years, wildfires have become an increasingly devastating phenomenon and the study may assist in future management decisions by reducing the loss of future landscapes; and

WHEREAS, the Tribal Council supports the effort of Chris Beatty and concurs with his proposal to conduct research on the Fort Apache Indian Reservation.

BE IT RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby approves the Salvage Residual and Regeneration Project, as presented and proposed (see attachment) by Chris Beatty.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby authorizes Mr. Beatty to conduct research on the Fort Apache Indian Reservation.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby directs that in the event that this Resolution conflicts with a prior Resolution or Policy, this Resolution shall supersede and govern over the conflicting subject matter.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby directs that in the event this Resolution directly conflicts with the Tribal Constitution, Tribal Ordinances or Federal Laws, this Resolution shall be declared null and void and have no legal effect. This Resolution shall not be subject to Judicial Interpretation, only the Tribal Attorney, with the assistance of the Tribal Council Secretary, may opine on Tribal Council intent and the meaning of the language as used herein.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that the Chairman, or in his absence, the Acting Chairman, is hereby authorized to execute any and all documents necessary to effectuate the intent of this Resolution. In the event that the Chairman fails to delegate signatory authority to an Acting Chairman, the Vice-Chairman may sign provided that the Tribal Secretary and a Tribal Attorney attest to the veracity of the subject matter of this Resolution.

The foregoing resolution was on **July 11, 2012** duly adopted by a vote of **SIX** for and **ZERO** against by the Tribal Council of the White Mountain Apache Tribe, pursuant to the authority vested in it by Article IV, Section 1 (a), (b), (i), (k), (s), (t) and (u) of the Tribal Constitution, ratified by the Tribe September 30, 1993, and approved by the Secretary of the Interior on November 12, 1993, pursuant to Section 16 of the Act of June 18, 1934 (48 Stat. 984).

Ronnie Lupe, Chairman — 8-2-12 Date

Mariddie J. Craig, Secretary — ACTING — 8-1-2012 Date

Richard J. Palmer, Jr., Attorney — 8/2/12 Date

WHITE MOUNTAIN APACHE TRIBE

PROPOSAL FOR THE USE AND COLLECTION OF TRIBAL DATA, AND TO BE PERMITTED TO CONDUCT RESEARCH ON THE WHITE MOUNTAIN APACHE'S FT. APACHE AGENCY/RESERVATION

A request to provide support and data for a

Tribal member and his research

Submitted by

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Chris Beatty
Researcher/Graduate student
Ernesto Alvarado
University of Washington Professor/Chief
Jonathan Brooks
Tribal Forester, White Mountain Apache Tribe

How does forest stand structure and dynamics affect regeneration 10 and 1 year/s after post fire salvage logging on the White Mountain Apache Tribe's Rodeo-Chediski Fire of 2002 and Wallow fire of 2011.

Though salvage logging may provide much economic needs, the regeneration of desired tree species during these practices causes concern due to the decaying residuals and subsequent fires. This study will quantitatively investigate snag and log dynamics, and mortality as a count of fuel build-up, including regeneration loss within the Rodeo-Chediski fire of 2002 that occurred on the Ft. Apache reservation and the Apache-Sitgreaves National Forest, then in 2011's Wallow fire. Changes in vegetative response and diversity composition will be observationally identified. We will follow structural data from marked plots, established in 2004/2005 to resample and assess plant community change in the first decade post fire.

Managing a forest and its counterparts are a bit of concern for residents that have already been devastated by this phenomenon 10 years prior. Many impediments occur throughout the management of natural resources and restoration efforts in an area extremely sensitive to ecological damage. The multitude of damage has been increasing, correlating with the rise in temperature. The increasing temperatures caused by climate change, has had a great impact on moisture levels, increasing the desiccation of fuel causing more wildfires. Climate change is becoming to be a disturbance that is uncontrollable. Moreover, as time has progressed, warmer, dryer temperatures have increased in area burned (Schoennagel, 2004). Though environmental impacts are a major concern for local ecosystems, the significance of salvage logging does reduce the CWD debris/fuel load reducing the consequences of another devastating wildfire. The White Mountain Apache Tribe conducted reforestation efforts of post wildfire residual timber salvage logging. So the concern is: A forest burn that has not been salvaged will produce more fuel as year's progress. Dry warm weather significantly desiccates the fuel and not only do the snags fall, but infestation of beetles become a problem, killing the remnant weakened trees increasing the count of mortality, hence therefore, increasing the fuel load. Standing snags decaying and decomposing will weaken and break in fragments or fall to the forest floor, becoming what is called large and course woody debris creating fuel classes of 1-10-100- and 1000-hr time lags. Additionally, depending on severity the succession of fine fuels and shrubs establish, increasing total biomass in a single decadal spectrum. The new vegetation will determine flame lengths and spread rates while the snags and down course woody debris will

ignite to combustion, slowly increasing to lethal soil temperatures resulting in possible root damage to adjacent much desirable coniferous vegetative regeneration. Salvage logging significantly reduces LWD/CWD fuels but has limited impacts on other fuel bed components. But the results of this study may suggest post-fire management decisions consider the regeneration vegetation dynamics as well as dead wood dynamics if reducing fire hazard is a primary objective (Bailey, 2010). This quantitative study is all in its own to be analyzed and compared to other studies to see if the residuals have the same effect on the desired regeneration, which reduces the loss of early forest development.

To establish a research area we would like to have exact maps/locations/units of the salvage logging efforts including the salvaged logging intensities. We would like to look at Continuous Forest Inventory (CFI) plot data to use it to track the status and trends of the forest to find ideal positions for potential plot grounds. Here plots will be identified at the range across three severity (low, mixed, and hi) classes that have had rehabilitated work of logging salvaged trees immediately pre-fire to compensate its ending economic value, then using a stratified randomized sampling design we will establish a random center point, then run a transect line 50m in three opposite azimuth directions (120° apart) to measure log biomass and cover (See figure 1). Log cover will be measured by Model II of Bate et al 2004. 1 and 10 hour fuels will be recorded\tallied from the 66 ft. to the 56 ft. mark (10 ft. total) of each line transect. The 100 hr. fuel from 36' to 66' (30' total) and the 1000 hr. fuel will be recorded the entire 66 ft. on all transects (from 0 to 66 ft.). The 1000 hr. fuel will be measured with calipers and recorded (See figure 2). Ponderosa will be the only species looked at.

Figure 1. Plot Setup

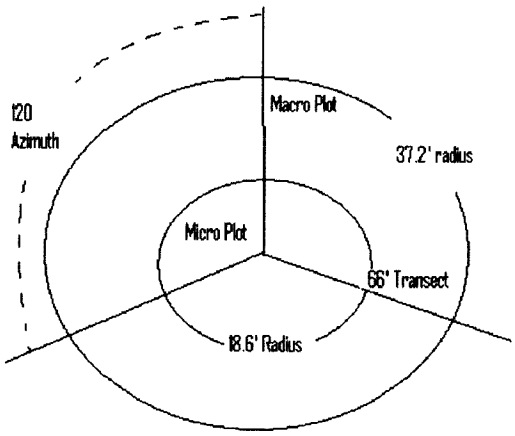
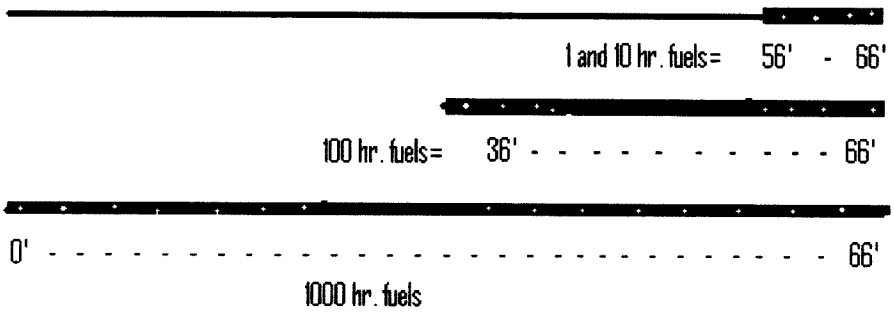


Figure 2. Fuel Load Measurements (Line Transect)



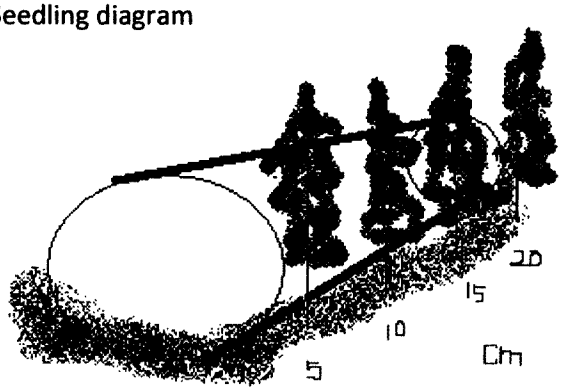
At each plot center, a 1/10th acre macro (37.2') fixed variable radius plots will be established to measure the live and dead trees, plus the composition and structure of the stand. A micro plot (18.2') will also be established to tally regeneration plots to measure (See figure 1). Snag characteristics to be measured will be species, diameter at breast height (DBH), its broken top diameter and the decay class. Characteristics measured for the 'live' trees were species, crown class, the crown ratio, height, DBH, and whether it is a residual of the fire or not. Line intercepted log cover will be measured at the lower threshold of the 1000-hr fuel timelag (7.62 cm), then we will be using Bate et al. 2004's model II formula = $\left(\frac{\pi}{2L}\right)[\sum d_i]$, to get percent cover.

With permission from the tribe I would also request the use of 250± artificially grown seedlings/saplings grown from the Native Plant Nursery (owned by the tribe) to create a real life like scenario/situation as a natural regeneration would occur in a decaying forest of a ten year old burn.

The artificially grown ponderosa pine (20 months old) will be transplanted (See figure 3) when plot measurements are taking place. They will be transplanted at 5.0, 10.0, 15.0 and 20.0 cm distances adjacent to semi-randomly picked logs (1000 hr fuel) from within the plots. Logs picked will be on the southern aspect (0-30% slope) only to best represent the most radiant aspect, hence a higher decomposition rate. Moisture content will be documented and pictures will be taken. The logs for this experiment will be burnt in August at a time that shows the most regulated, tolerable and desirable conditions combined. Immediately after the burn, the consumption will be observed in percentage and documented based on field observations

descriptions and before and after pictures. Pre-fire damage to roots will be recorded across all four distances of each log. With this an analysis of variance test will be conducted.

Figure 3. Seedling diagram



With this study, economic and desired ecosystem regeneration loss may be reduced if any. Regeneration will remain and begin its natural succession cycle once again to provide a forest, filtration for water quality and habitat for wildlife.

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