

# **Claunch-Pinto SWCD for Defensible Space and Hazardous Fuel Reduction Project:**

## **Prescriptions Guidelines:**

These are meant to be general guidelines and not cookie cutter prescription, base actual prescriptions on observations of the land, soils and historical references.

### **Piñon-Juniper:**

1. Thin to at least an average of 40-60 square feet of Basal area.
2. Thin leaving a variety of size classes by each species.
3. Favor to leave Alligator Juniper. Alligator Juniper sprouts too much when cut. Cut it only when necessary to meet Firewise standards around homes.
4. Create random openings, do not space trees evenly; we are looking for an average of 40-60 over the whole stand.
5. Remove insect and diseased trees first then thin to 1,2,3 and 4 above.
6. No wood or chips to be stacked under the drip line of any trees.
7. Minimize pruning of the Piñon and Ponderosa Pines.
8. Chipping or mastication is preferred; chip depths are not to exceed an average of 2” deep and no greater than 6” in any one spot. Chips should not be accumulated under the drip lines of leave trees or within 10 feet of structures or woodpiles.
9. Where mastication operations are used 60 percent of the mulched material shall be less than 3 inches in diameter and no longer than 3 ft in length and mulch depth shall be less than 3 inches on average. No mulch depth shall be allowed over 6 inches in any circumstance. Mulch should not be accumulated under the drip lines of leave trees or within 10 feet of structures or woodpiles.

### **Piñon-Juniper Transition to Ponderosa Pine:**

1. Thin to at least an average of 40-60 square feet of Basal area.
2. Thin leaving a variety of size classes by each species.
3. Favor to leave Ponderosa Pine in groups of 2 to 7 trees, thinning out all Piñon-Juniper under the drip line of the Ponderosa Pines.
4. Favor to leave Alligator Juniper. Alligator Juniper sprouts too much when cut. Cut it only when necessary to meet Firewise standards around homes or to meet 3 above.
5. Create random openings, do not space trees evenly; we are looking for an average of 40-60 over the whole stand.
6. Remove insect and diseased trees first then thin to 1,2,3,4 and 5 above.
7. No wood or chips to be stacked under the drip line of any trees.
8. Minimize pruning of the Piñon and Ponderosa Pines.
9. Chipping or mastication is preferred; chip depths are not to exceed an average of 2” deep and no greater than 6” in any one spot. Chips should not be accumulated under the drip lines of leave trees or within 10 feet of structures or woodpiles.
10. Where mastication operations are used 60 percent of the mulched material shall be less than 3 inches in diameter and no longer than 3 ft in length and mulch depth shall be less than 3 inches on average. No mulch depth shall be allowed over 6 inches in any circumstance. Mulch should not be accumulated under the drip lines of leave trees or within 10 feet of structures or woodpiles.

### **Ponderosa Pine:**

1. Thin to an average of 60 square feet of Basal area.
2. Thin leaving a variety of size classes by each species.
3. Favor to leave Ponderosa Pine in groups of 2 to 7 trees, thinning out all trees under the drip line of the larger Ponderosa Pines.
4. Favor to leave Douglas fir. Cut it only when necessary to meet Firewise standards around homes or to meet 3 above.
5. Create random openings, do not space trees evenly; we are looking for an average of 60 over the whole stand.
6. Remove insect and diseased trees first then thin to 1,2,3,4 and 5 above.
7. In Ponderosa Pine dominate stands do not remove more than 100 square feet of Basal area in one treatment. Allow at least one year of rest before the next treatment.
8. Minimize pruning of the Piñon and Ponderosa Pines.
9. No wood or chips to be stacked under the drip line of any trees.
10. Lop and scatter to 18 inches or less will be allowed but chipping or masticating is preferred.
11. Pile and burn can be allowed if projects are completed between November and March.
12. Chipping or mastication is preferred; chip depths are not to exceed an average of 2" deep and no greater than 6" in any one spot. Chips should not be accumulated under the drip lines of leave trees or within 10 feet of structures or woodpiles.
13. Where mastication operations are used 60 percent of the mulched material shall be less than 3 inches in diameter and no longer than 3 ft in length and mulch depth shall be less than 3 inches on average. No mulch depth shall be allowed over 6 inches in any circumstance. Mulch should not be accumulated under the drip lines of leave trees or within 10 feet of structures or woodpiles.

### **General to do and Do not:**

1. We are thinning to an average of 40 to 60 square feet of Basal area per acre, not 60 at every plot.
2. When there are forked trees remove both forks or leave both forks. Pruning or removing of multiple branches in juniper does not meet this requirement.
3. Porcupine forks are not considered diseased trees and can be left for character.
4. Multiple sharp forks, forking 3 or four times, represent genetic forks in ponderosa pine. These trees need to be removed
5. In ponderosa pine, where there is heavy mistletoe throughout the trees, small clear cuts up to 3 acre in size are allowed to control the mistletoe.
6. It is best to leave juniper logs and slash on the ground for erosion control purposes. Avoid using Piñon and or Ponderosa Pine. Piñon and Ponderosa pine can attract bugs and rot too quickly.
7. Minimize pruning of the Piñon and Ponderosa Pines.
8. Material removed off site needs to address where, in what form (i.e., chips, slash or firewood) and why.
9. All thinning along roads should be done to create a good fire line. Thinning to 40 square feet of basal area for the first 50 feet then thin to 50 square feet of basal area for the second 50 feet then thin to the 60 square feet of basal area. If room is an issue try to thin to a lower Basal area next to roads or meadows.
10. One to five logs per acres at least 12 feet in length and at least 14 inches in diameter and in various forms of decay may be left for erosion control and retention of down woody material for wildlife habitat.
11. 1 to 5 dead trees per acre may be left for wildlife. Trees need to be free of any needles, Tree with more than one fork are most desirable for wildlife trees.

## Biomass Utilization Using Windrows for Arroyo (Gully) Remediation

Arroyo (Gullies) are a type of landform created by fast-moving water, most often during heavy rain events like monsoons. They can be anywhere from 1 foot in depth to many 10's of feet and have the potential to degrade landscapes by moving large quantities of sediment. Generally, gullies cannot be remediated without some effort.

First the landowner must be able to evaluate the watershed associated with gully formation. Physical attributes in the watershed such as soil type, slope, slope length, ground cover, and infiltration potential are some of the considerations when planning gully remediation. Arroyo (Gully) formation is a condition of runoff water being concentrated on bare soils to an extent that rainfall amounts exceed the ability of the soil profile to maintain integrity, particle detachment becomes excessive and virtually strips away the top soil which increases slope, and with an increase in slope, comes an increase in soil erosion. One result of increased slope in potentially critical areas during runoff events is head cut formation.



Headcut formation allows the runoff water to drop farther and faster increasing the rate of soil erosion and arroyo (gully) formation. Headcuts have two critical points of energy, one at the very edge of the cut where the slope increases most dramatically, and one at the bottom where falling water carves into the soil. Thus, when water pours over the lip of a headcut it eats its way upslope and downward simultaneously, deepening and lengthening the area of incision.

To successfully remediate arroyo (gullies), the landowner must address the headcut at the beginning of the arroyo (gully) incision. Unless the landowner is prepared to use

heavy equipment and engineering designs to reclaim the arroyo (gully), then the first consideration is identifying and treating the areas that concentrate runoff flow in the gully's watershed. Look for sheet erosion, visible in areas of pedestals where grass stands up from the level of the surrounding soil. Follow the pedestals downslope to areas where rills are forming more direct, shallow cuts in the soil. Second, divert as much rainfall runoff from reaching the headcut as possible. Cutting back the slope of the head cut to a stable "angle of repose, generally 4:1 and lining the head cut with small flat rocks, armoring the exposed soil, will increase the chance of the arroyo (gully) to remediate itself. To expedite the growth of plants whose roots will stabilize the slope, grass should be seeded in the small gaps between the flat rocks armoring the headcut. Another approach would be to broadcast grass seed at double the normal seeding rate directly into the 4:1 slope or to use erosion control fabric with grass seed for additional protection. Rock and brush alone will not heal a headcut. Also consider installing a one-rock dam along the stream bottom a few feet below the headcut to slow the water speed and allow more to sink into the soil profile.

When slash is available from nearby forest thinning projects, use material with a sufficient weight per volume so that floating does not occur during high rainfall events and slash materials inside the gully itself are not redistributed, but essentially stay in place. Normally, arroyos (gullies) that have average slopes in watersheds that are in fair condition can be treated with slash by simply applying the material in the arroyo (gully), to approximately one third the arroyo (gully) depth. Treating the arroyo (gully) with slash-fill alone should be confined to arroyo (gullies) that have slopes less than 9% and watersheds that are 40 acres or less.



Windrows made of local slash biomass may be used to slow rainfall runoff in watersheds. Due to fire hazard, windrows should be 18 inches or less in height. Windrow bases should be a minimum of 4 feet (wide). When spacing windrows consider the type of fuels in the watershed, slopes and slope lengths. Because windrows present a biomass problem in watersheds regarding wildfire ignitions use caution around structures and high fuel loading areas.

If using windrows to slow runoff or divert runoff water from concentrated areas or headcuts, it is crucial that windrow placements be along the contour of the slope. Windrows used in this way should not be designed to impound runoff water, but to safely divert runoff into safe areas that can accommodate excess water without damage.

Keep in mind that, in all cases, arroyo (gully) remediation should be designed to withstand extreme rainfall events, not normal rainfall intensities and totals. Each landowner or manager should consider the costs and benefits of each erosion control project. Arroyo (Gully) erosion sources are not always evident and a thorough examination of upper watershed stressors is necessary to complete a successful and efficient project.