# Center for Biological Diversity Post-Logging Rapid Survey

Unit 10, Little Timber Sale, Apache-Sitgreaves National Forests
Prepared by Joe Trudeau for 4FRI-SHG Little Timber Sale tour, 9/25/2018. Revised 10/15/2018.
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## Introduction

Between June 30 and July 2, 2018, a Facebook user posted a series of images of large diameter stumps, decks of large and old logs, and other photos and comments that called into question thinning activities underway at the Little Timber Sale on the Apache-Sitgreaves National Forest near Luna Lake, Arizona. In these posts, the author suggested that the public had been 'duped' by the Forest Service's claims that thinning under the Four Forest Restoration Initiative (4FRI) would be focused on small diameter trees. The revelation of these disturbing images of felled old growth and large diameter trees led to a series of visits to the site by a number of 4FRI stakeholders. This includes Center for Biological Diversity staff participating in a field trip to the timber sale with the Forest Service on August 28, 2018. Between August 27 and 31, 2018, Center for Biological Diversity conducted a rapid quantitative survey of a randomly selected unit where thinning had been completed (Unit 10). The purpose was to conclude if old growth was removed, and if so to estimate the amount cut. The methods and results of that survey are presented on the next two pages of this report, and discussed below.

## Discussion

An additional field trip to the Little Timber Sale was requested by 4FRI Stakeholders and occurred on September 26, 2018. Approximately 45 Stakeholders and Forest Service employees attended. By request, the fifth stop of the itinerary was at Unit 10, where Center for Biological Diversity presented the results of this survey as well as an interpretation on how these observations fit into a broader - and concerning - narrative within 4FRI; that there appears to be a discernable shift away from core forest restoration principles and methodologies in southwestern ponderosa pine forest restoration, including pushing the boundaries of what has come to be known as the "social consensus" around cutting of large and old trees. The following results of our survey support this concern:

•The stand was thinned below the low end of the desired range. The desired basal are for this unit was 40-60 $ft^2$/acre, but our results found the units thinned to approximately 36 $ft^2$/acre. This supports our observation that the Forest Service tends to thin to the low end or below desired density ranges.

• Stump tallies and ring counts showed that more old growth trees (>150 years old) were cut than were retained. Removal of groups of old trees accounted for most of the reduction in this age class, with two 1-acre plots each having twenty probable old growth stumps. Despite Forest Service claims that these were predominantly large young trees, we found concrete evidence that trees well above 200 years old were cut, and that old trees may often be < 18" DBH (see photos on next page). Our sampling indicates that more than 1,300 old growth trees were cut in just this 200-acre unit. Even if our tree aging was 50% wrong, there would still be a very alarming result.

•Large trees were disproportionately targeted for removal, with nearly half of basal area reduction made in trees larger than 18" DBH, and the overall mean diameter of ponderosa pine at the stand level dropped by 2.3". Proportion of small to large trees, as measured by sampling frequency, was maintained pre- to post-logging. These results confirm that thinning was not focused on removal of small diameter trees.

•Stand exam data that we obtained showed that less than 6% of sampled ponderosa pine trees had mistletoe infections that would warrant removal under the stand thinning prescription. That prescription also stated plainly that "the stands have a low infection of dwarf mistletoe in the ponderosa pine." While is it difficult to determine the level of mistletoe infection of removed trees, our observations suggested that old tree removal was more focused on basal area reduction than severe disease infection. Based on our field survey results, target basal area of 40-60 $ft^2$/acre could have been met even without cutting any old trees at all.

## Conclusion

Though the West Escudilla project was authorized under a separate NEPA analysis, it is part of 4FRI, being counted toward restoration targets within the 4FRI umbrella. The Center considers the observations reported here to be a troubling departure from Stakeholder-developed guidance for protection of large and old trees.

# Center for Biological Diversity Post-Logging Rapid Survey (page 2)

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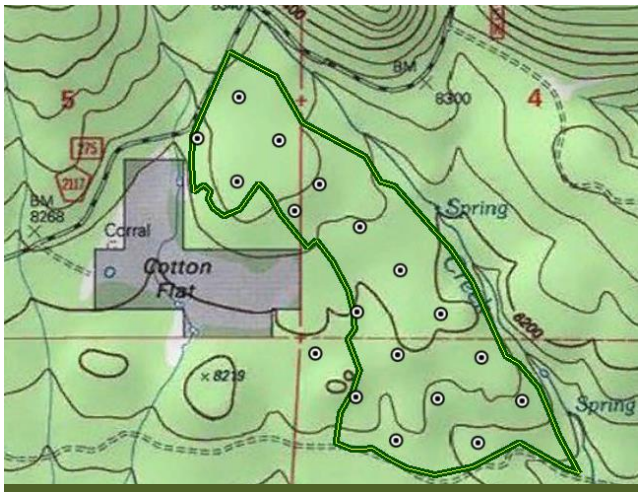
## Inventory Specifications

18 plot centers located on August 27 and 31, 2018.
At each point, data from 3 plots were recorded:

*Plot a) 10-factor prism*
- in/out tally to determine basal area

*Plot b) 1/10th acre fixed radius (37.2' radius)*
- tree status (live, snag, stump), species, and DBH
- random sample first tree from North: determine age and record diameter at stump height

*Plot c) 1 acre fixed radius (117.8' radius)*
- tallied live trees of all species over 4.5' tall
- tallied live old growth (>150 years) and recent cut old growth stumps




**Plots located on 10-chain grid (660'). One plot was moved due to fenceline and edge of unit.**

## Live Tree Results

*Plot a) 10-factor prism (generous with "in" trees, no limiting distances checked)*
- basal area: **37.8 ft²/acre** (includes all species, any tree over 4.5' tall)

*Plot b) 1/10th acre fixed radius (37.2' radius)*
- 139 sample trees measured: PIPO (n=71), QUGA (n=67); JUDE (n=1)
- PIPO basal area: **30.5 ft²/acre**
- All species basal area: **33.7 ft²/acre** (~10% of BA in QUGA)

**mean BA=35.75 ft²/acre**

- 16 of 18 plots had live PIPO trees (~10% in "regen openings")
- PIPO basal area excluding 2 plots with no live trees (exclude "regen openings"): **34.3 ft²/acre**
- Trees/acre: **39.4 TPA** (PIPO), 77 TPA (all species >4.5' tall)
- Average diameter of live trees (all species): 7.1"
- Average diameter of live trees (PIPO only): 10.3"
- Average age of sample tree: 117 years
- Tree taper ratio: 0.8227 (DBH/DSH on first sample tree)

*Plot c) 1 acre fixed radius (117.8' radius)*
- Average TPA Tally: 50.4 trees per acre (includes all species, any tree over 4.5' tall)
- 103 likely live old growth trees tallied (3 top plots account for over 50% of total)
- 118 likely old growth stumps tallied (3 top plots account for nearly 50% of total)

## Cut Tree Results (recent stumps on 1/10 acre plot, DBH estimated by applying site-specific taper ratio)

- 72 sample stumps measured (does not include stumps predating the Little sale)
- Average diameter at stump height (DSH) of recent cut trees 14.6"
- Estimated average DBH of recent cut trees 12.2"
- Estimated 37 ft²/acre removed by recent thinning
- 18% of total trees and 45% of basal area removed was in VSS5 and VSS6 trees
- 1 snag recorded across all 18 plots (Forest Plan DC's aims for 2 snags/acre)

# Center for Biological Diversity Post-Logging Rapid Survey (page 3)

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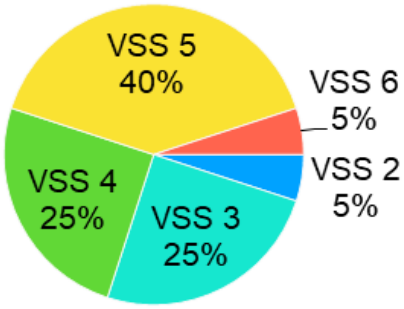
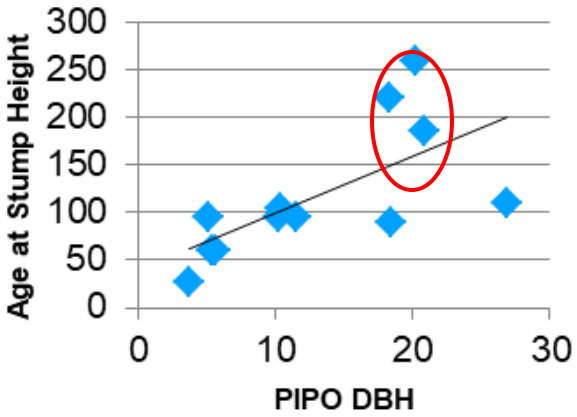
## Supplemental Information

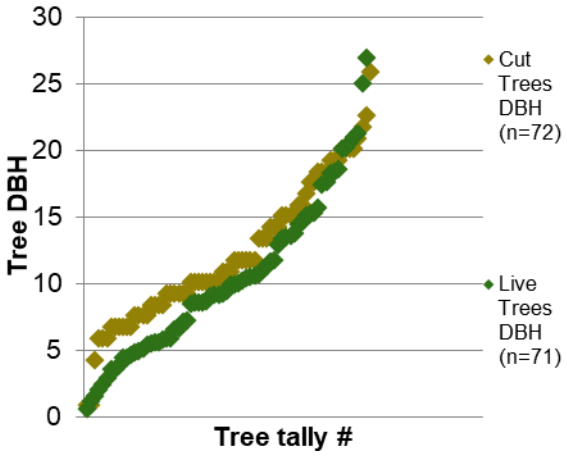
### Percent of basal area removed by VSS class



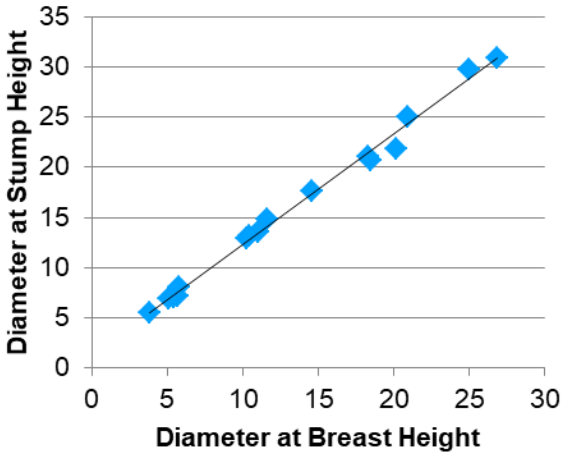

### Sampled Tree Ages




### DBH of PIPO Cut vs. PIPO left




### Taper Ratio: DBH/DSH




**16" DSH (13.2" DBH)**
**230 years old at stump via ring count**

**22" DSH (18" DBH)**
**170 years old at stump via increment borer**

**26" DSH (21.3" DBH)**
**6" DBH leave tree has DMR score of 5**

## Supplemental Photos

Four 170-year old stumps (one not visible) surround a suppressed 6" DBH tree that is more than 60 years old. It is extremely unlikely that the old growth trees were severely infected with mistletoe while the small tree was uninfected.

## Supplemental Photos

A 36"diameter ponderosa pine stump, approximately 160 years old. At the cusp of being a large young tree, this tree was presumably removed because of heart rot, likely visible in a broken top. Such trees are valued wildlife habitat.

## Supplemental Photos

A tree that, based on bark character, was undeniably an old growth tree. As open as this area is, it's hard to reconcile that the tree had to be removed to meet restoration objectives. Nearby old trees showed no signs of mistletoe infection.

## Supplemental Photos

A 32" diameter stump, aged at >160 years old, in the most aggressively thinned portion of Unit 10. The West Escudilla EA defined old trees as those >150 years, and claimed that removal would be rare except in cases of severe mistletoe. Inspection of slash piles failed to reveal troves of mistletoe infected branches.