United States
Department of
Agriculture

Forest
Service

**Southwestern
Region**

Environmental Assessment

Vosberg 2013 Juniper Treatment

Pleasant Valley Ranger District, Tonto National Forest
Gila County, Arizona

April 2013

Contents

Project Scope and Background

Existing Conditions

The Vosberg Allotment is approximately 1,700 acres in size situated roughly 3 miles southeast of Young, Arizona, on the Pleasant Valley Ranger District of the Tonto National Forest (NF). Elevation ranges from 4,800 to 6,000 ft. The Vosberg Allotment is permitted for 25 cow/calf pairs year round and 21 yearlings from January 1 to April 30. Vosberg Allotment has two pastures, Home and South. Vegetation consists of piñion juniper with open stands of oaks on flatter areas and denser stands of oaks on north facing slopes and in drainages. The understory consists of perennial grasses. Perennial grasses include but are not limited to sideoats (*Bouteloua curtipendula*), hairy gramma (*Bouteloua hirsute*), blue grama (*Bouteloua gracilis*), curly mesquite (*Hilaria belangeri*), and three awn (*Aristada* spp). Juniper trees have encroached into the area to the point that canopy cover exceeds 50 percent. Understory plants may be negatively affected by juniper-induced reduction in light, soil moisture, and soil nutrients. Increases in juniper density and size has the effect of reducing understory plant cover and productivity, with desirable forage grasses often being most severely reduced (Eddleman 1983).

The Vosberg 2013 Juniper Treatment is the treatment of juniper trees, which have encroached on productive grasslands on the Vosberg Allotment. The Forest Service, in conjunction with the Vosberg permittee, proposes pushing junipers using a small bulldozer (dozer) to uproot juniper trees encroaching on grasslands on approximately 561 acres.

In 1994 the Pleasant Valley District Ranger in conjunction with the Vosberg Allotment Permittee wrote an Allotment Management Plan (AMP), which included the treatment of 500 acres of juniper trees encroaching on productive grasslands on the Vosberg Allotment. Three hundred of the 500 acres were to be treated by selling the wood through commercial fuel wood sales. The commercial fuel wood sales have not been completed due to access issues. In the mid-1990s the permittee treated roughly 80 acres using chainsaws. In the areas treated with chainsaws, the stumps are resprouting in addition to the new seedling juniper.

The analysis areas are within Management Area 5G identified in the Forest Plan (USDA, 1985, as amended). Management emphasis for this area is to manage for a variety of renewable natural resources with primary emphasis on wildlife habitat, livestock forage, and dispersed recreation. Watersheds are managed to meet satisfactory condition.

Chapter 1 – Purpose and Need for Action

Document Structure

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the *National Environmental Policy Act* (NEPA) and other relevant Federal and State laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into the following sections:

- *Purpose and Need:* The section includes information on the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Description and Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action, as well as any alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the effects of the no action alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project area resources, is on file in the project planning record located at the Pleasant Valley Ranger District Office, P.O. Box 450, Young, AZ, 85554.

Purpose and Need for Action

The purpose of this project is to remove encroaching junipers with a dozer to reduce canopy cover and increase herbaceous cover to improve watershed conditions and improve forage production for livestock. This action is needed because other treatment methods are less effective and allow for regeneration of juniper trees from the stump in addition to the regeneration from seeds.

This action responds to the goals and objectives outlined in the Tonto National Forest Plan (Forest Plan) and helps move the project area towards desired conditions described in that plan. The project is located in management area 5G emphasizing management for a variety of renewable natural resources with primary emphasis on wildlife habitat improvement, livestock forage production, and dispersed recreation. Watersheds will be managed to improve them to a satisfactory or better condition.

Existing Management Direction

The proposed action (alternative 1) is consistent with the Tonto National Forest Land and Resource Management Plan, (Forest Plan) 1985, as amended. The Forest identifies the following goals: manage for a variety of renewable natural resources with primary emphasis on wildlife habitat improvement, livestock forage production, and dispersed recreation. Watersheds will be managed to improve them to a satisfactory or better condition. The project area is located in Management Area 5G and is consistent with the stated management emphasis for that area.

How the proposal is consistent with applicable goals and objectives outlined in the forest plan is discussed by resource in chapter 3, environmental consequences. A Forest Plan amendment will not be needed.

Proposed Action

In compliance with Forest Service policy and Forest Plan objectives, the Pleasant Valley Ranger District proposes to use a small dozer to push approximately 561 acres of juniper trees on the Vosberg Allotment. The proposed "push" will be split between two separate project areas. The project areas will be named Home Pasture (165 acres; 1 treatment unit) and South Pasture (396 acres; 9 treatment units). The Vosberg Permittee will be responsible for completing the "push." Operations will be conducted only when the soil is dry. Slopes exceeding 20 percent will not be treated. There are no riparian areas within the project areas. The project areas will be accessed by existing roads. No road improvement will be necessary. The proposed action is described in more detail in chapter 2.

Decision Framework

The Pleasant Valley District Ranger will be the responsible official. The responsible official will decide whether to adopt and implement the proposed action or an alternative to the proposed action (including changes to the language and content of the Forest Plan) or if further analysis is needed through preparation of an environmental impact statement (EIS).

If the deciding official determines that there are no significant impacts, the decision will be documented in a finding of no significant impact and decision notice.

Public Involvement

The proposal was listed in the schedule of proposed actions (SOPA) on February 13, 2012. The proposed action was provided to the public and other agencies for comment during scoping March 7 through March 23, 2012. The scoping document was sent to the following: 60 individuals, 24 private organizations, 10 representatives from local tribes, 19 state/county/town officials, and 3 federal agencies. Seven responses were received from these scoping activities.

The Forest performed a content analysis on the comments received to determine if any significant issues were presented. An issue is defined as a point of disagreement, debate, or dispute with a proposed action based on some anticipated undesirable effect caused by the action. Some comments were about the process, some were requests for clarification or additional information, or otherwise did not disagree with the proposed action because of its anticipated effects.

Issues

The Forest Service separated the issues into two groups: significant and nonsignificant issues. Significant issues are defined as those directly or indirectly caused by implementing the proposed action. Nonsignificant issues are identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council for Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…."

One significant issue was identified as a result of public scoping and is discussed below.

The use of an agra-axe that shears trees off at the ground level followed by an herbicide treatment to kill the roots would cause less soil disturbance than the proposed action.

It has been demonstrated on the Ellinwood Allotment (Payson RD) and Potato Butte Allotment (Pleasant Valley RD) that pushing juniper out of the ground with a dozer is as cost effective as shearing and provides less opportunity for juniper to resprout. The maintenance cost of having to return to the site to deal with resprouting is significantly reduced or eliminated. The rootwad holes are depressions that slowly fill in leaving minor depressions that collect water and provide ideal sites for herbaceous plants to grow. (Luhrsen-observations)

Chapter 2 - Alternatives

This chapter describes and compares in detail the proposed action, alternatives, and no action alternative considered for the Vosberg 2013 Juniper Treatment project. This section presents the alternatives in comparative form, in order to define the differences between each alternative and to provide a clear basis for choice among options by the decision maker and the public. Mitigation and monitoring measures incorporated into the alternatives are also described.

Alternatives Eliminated From Detailed Study

The use of an agra-axe that shears trees off at the ground level, followed by an herbicide treatment to kill the roots would cause less soil disturbance than the proposed action.

The use of an agra-axe that shears trees off at ground level followed by an herbicide treatment to kill the roots would cause less soil disturbance than the proposed action. This type of treatment was not considered in this analysis because:

1. Herbicide treatment for juniper has not been approved on the Tonto NF to date.
2. Juniper trees are not part of the "noxious" weed list; as a result, juniper trees are not currently covered for herbicide treatment by the Tonto NF Noxious Weed EA. Additional analysis, tiered to the Tonto Noxious Weed EA will have to be completed before junipers can be treated with herbicides.
3. Studies have shown the use of the agra-axe without an herbicide treatment has similar results as cutting junipers with chainsaws.

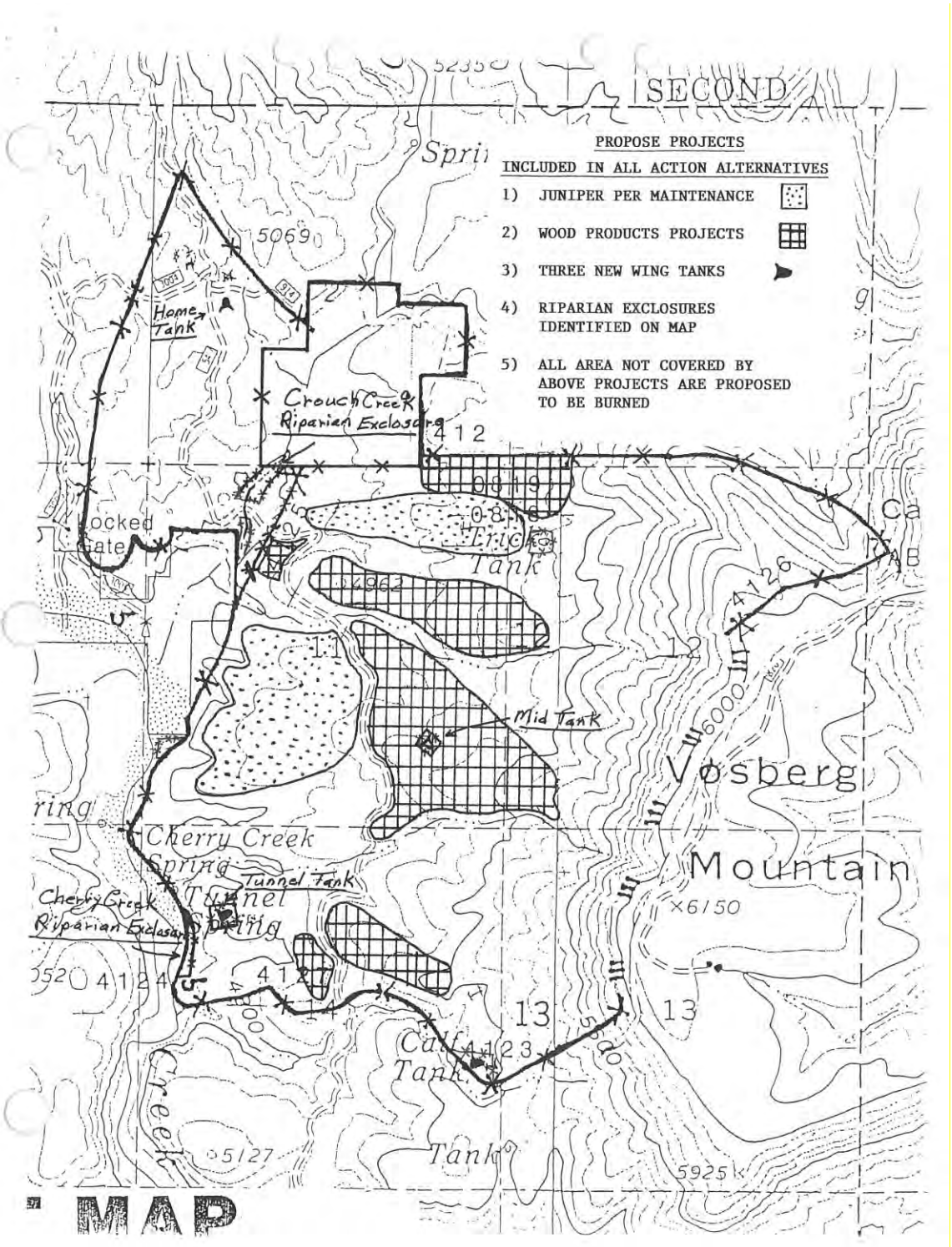
The Pleasant Valley Ranger District will be conducting range analysis NEPA, which will include the Vosberg Allotment starting approximately 2015. The use of herbicides to treat juniper encroachment will be discussed in further detail during that range analysis. The ranger district anticipates completing the range analysis about 2016.

Alternatives

Alternative 1 – No Action

No action is defined as no change from the existing level of development. This alternative serves as a baseline from which to evaluate impacts to the environment from implementing the proposed action. This alternative can be summarized as follows:

Under the no action alternative, juniper treatments identified in the AMP as "Wood Products Projects" will continue to go untreated due to access issues. Junipers will continue to encroach, canopy cover will continue to increase, and herbaceous cover will continue to decrease. Areas identified as "Juniper Maintenance" would be maintained with saws causing the juniper to resprout from the stump in addition to newly-recruited seedlings. Home Pasture and portions of South Pasture would not receive juniper treatments, allowing juniper trees to continue to encroach, increasing canopy cover and decreasing herbaceous cover.



Map of Proposed Juniper Treatments described in the Vosberg AMP signed in 1994

Alternative 2 – The Proposed Action

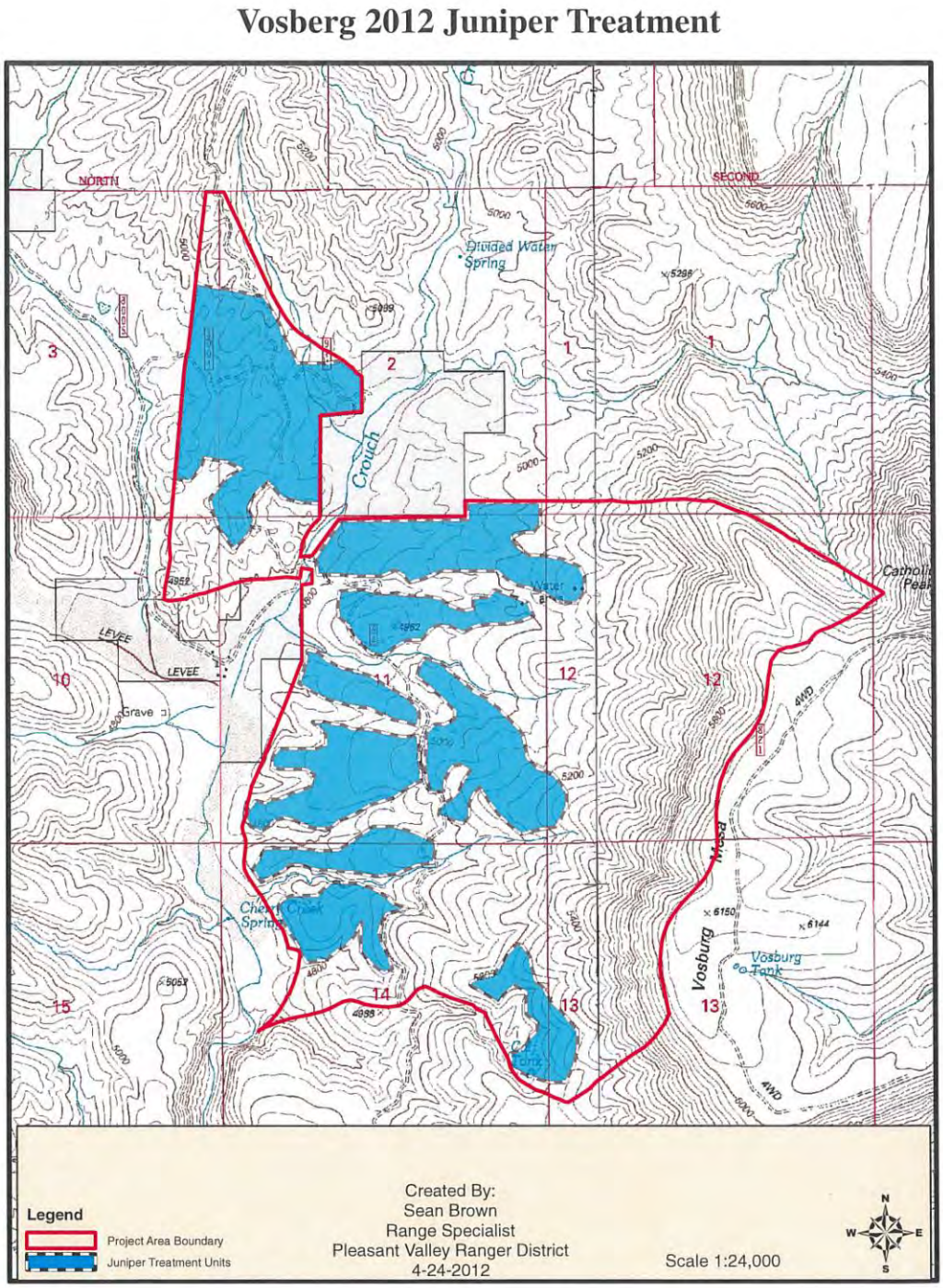
The Pleasant Valley Ranger District, Tonto National Forest, proposes to push juniper trees with a dozer on approximately 561 acres of the Vosberg Allotment. The project will be broken into two project areas; Home Pasture and South Pasture. Each project area will be broken into smaller treatment units. A minimum of 40 mature trees per 40 acres treated will be retained to comply with the Forest Plan. Junipers larger than 12" diameter breast height (dbh) will not be treated. Equipment shall not be driven over vegetation that is not being treated, such as oak or piñion pine. Juniper trees which have been "pushed" will be considered dead and down. The public may harvest the dead, downed juniper by obtaining the proper wood-cutting permit.

Home Pasture juniper treatment will be roughly 163 acres in size. Junipers have been treated in the past, likely by chaining. A small dozer will be used to push and uproot encroaching juniper trees. Home Pasture is maintenance of past juniper treatments.

South Pasture juniper treatment is a combination of treated and untreated juniper. Units described in the 1994 allotment management plan (AMP) that have been treated (approximately 80 acres) were treated with the use of a chainsaw. Stumps, in addition to seedling juniper trees, are growing back. Areas described in the 1994 AMP, which have not been treated, have a canopy cover ranging from 30 percent to 50 percent. A small dozer will be used to uproot encroaching juniper trees on approximately 396 acres.

Trees which have been pushed may need to be piled depending on the density of the trees. Trees will be left laying where they are pushed in areas with lower density of trees, thus creating a microclimate for perennial grasses to re-establish. The trees lying on the ground will also reduce runoff and erosion.

Pile burning could occur two years after the push is completed, as time and conditions allow in areas where piles are created. If time and conditions allow, the use of a broadcast prescribed fire could be used in the project areas that are not piled to consume slash and dead and downed trees not harvested by wood cutters and kill seedling juniper trees. Broadcast burning would likely occur within three to five years after the push was completed.



Map of Proposed Treatment Area for 2013

Management Practices Common to All Alternatives

Management practices include measures to reduce or avoid resource impacts that are incorporated into the project design. These measures have been used on previous projects and are demonstrated to be effective at reducing environmental impacts. They are consistent with applicable Forest Plan standards and guidelines. Implementation of these practices is intended to avoid the occurrence of adverse environmental impacts.

Soil, Water, and Vegetation

To minimize impacts during treatment, machinery will only be operated when soils are dry to prevent excess compaction and rutting. Machinery will not be operated on slopes that exceed 20 percent. Trees will be left lying on the ground to create microhabitat for seedling grasses and to reduce runoff by water. Existing roads or paths shall be used to access the project. No new roads or "two track" roads will be constructed to access the project areas. Equipment shall not be driven over the wings to the dirt tank within the project area or over vegetation that is not being treated. Equipment shall not be operated within drainages; however, equipment is allowed to cross drainages to access the project area. An untreated buffer zone, approximately 50 feet, shall be retained around the perimeter of dirt stock tanks in order to provide cover for wildlife. A 20-foot untreated buffer area shall be left on either side of drainages and private land. Best management practices (BMPs) will be used.

Fish and Wildlife

Practices described for soil, water, and vegetation will also reduce impacts to fish and wildlife species and their habitats. Additional measures consistent with the Forest Plan include no removal of piñyon pine and retention of a minimum of 40 mature trees per 40 acres treated. The spatial distribution pattern of these retained trees will be in clumps or groups scattered across the landscape. Snags and downed woody material provide many wildlife species with habitats for nesting, foraging, and/or cover. A minimum of 100 snags per 100 acres treated will be maintained. As much as possible snags will meet the Forest Plan definition of a preferred snag, which is a dead tree that is at least 12 inches dbh and a minimum of 20 feet tall. A portion of the existing and newly-created downed woody materials in the treatment areas will be retained based on the recommendation of the ranger district wildlife biologist.

Range

Because the project falls within an active grazing allotment, grazing activities will be coordinated during the annual operating instruction (AOI) meetings. Utilization of key upland herbaceous forage plant species by livestock will be managed to achieve goal of light to moderate grazing intensity. The objective is to protect plant vigor, provide herbaceous residue (litter) for soil protection, and to increase herbage producing ability of forage plants. A utilization guideline of 30 to 40 percent use of key species in key areas will be used to achieve these objectives. It has been proven that using this standard should allow recovery and increase in perennial groundcover, such as perennial grasses. This is not a range analysis. A range analysis for the Vosberg Allotment should be completed in 2016.

Fire

Mitigation measures for fire are as follows:

1. The use of vehicles, such as dozers and skidders, off road during mechanical treatments can cause soil compaction and displacement. Off-road vehicle impacts can be reduced or eliminated by following best management practices. By limiting the period of use to dry soil conditions, soil compaction and rutting can be reduced.
2. Burning piles can sterilize soil, remove organic matter, and destroy soil structure. Damage from burning can be reduced by spreading slash (where appropriate); so slash can be broadcast burned or chipped, or by creating only small burn piles, which do not generate as much heat and produce less soil damage. Generally piles should be smaller than 15 feet wide.
3. Limit prescribed burning to appropriate ecosystems and conditions. Certain ecological types may not respond well to fire or may not respond well under certain environmental conditions. Prescribed fire should be limited to appropriate ecosystems and conditions.

Heritage Resources

Mitigation of impacts to heritage resources for all alternatives is best accomplished by avoidance of these properties by activities associated with the project implementation. It can also be achieved by limiting debris pile construction near sites, dropping pushed trees in such a manner to reduce erosion or avoid channeling runoff into an archaeological site. Since the proposed treatments have the potential to adversely affect heritage resources, a 100 percent archaeological survey will be conducted for areas, which have no previous survey coverage or have outdated surveys, which do not conform to current standards. Other, more specific mitigation requirements may be identified when a heritage inventory specific to the project itself has been completed and/or specific to individual sites depending on circumstances unique to an individual site. Such protective measures are developed in accordance with the goals of the project taking into account site vulnerability as well as the methods of project implementation.

All inventoried heritage sites are treated as eligible for the National Register of Historic Places with the exception only of those that have been formally determined to not be eligible in consultation with SHPO. This approach, based on long-term consultation with SHPO and on Region 3 policy as embodied in the First Amended Programmatic Agreement Regarding Historic Property Protection and Responsibilities between the U.S. Forest Service Region 3, the State Historic Preservation Officers of Arizona, New Mexico, Texas, and Oklahoma, and the Advisory Council on Historic Preservation, signed December 24, 2003, and specifically, Appendix H, the Standard Consultation Protocol for Rangeland Management (Protocol H) and Appendix J, Standard Consultation Protocol for Large-Scale Fuels Reduction, Vegetation Treatment and Habitat Improvement Projects, developed pursuant to Stipulation IV.A of the PA is considered to be the "standard operating procedure" for treating potential range and vegetation manipulation impacts to heritage resources on the Tonto NF.

Protection measures identified under the Protocol H include:

1. Archaeological survey will be conducted for areas proposed for surface disturbance, which have no previous survey coverage or have outdated surveys which do not conform to current standards.

2. Periodic monitoring to assess site condition and to ensure that protection measures are effective

3. Other mitigation measures involving data recovery, for example, may be developed and implemented in consultation with the SHPO, as the need arises. The appropriate tribes will be consulted, if the mitigation is invasive or if it affects a traditional cultural place (TCP) or other property of concern for them.

Similarly, protection measures identified under Protocol J include:

1. All sites not currently evaluated for National Historic Register eligibility will be treated as eligible for the Register for all levels of project(s) implementation.

2. No use of mechanized equipment (trucks, skidders, chippers, crushers, e.g.) will occur within established site boundaries.

3. No staging of equipment or supplies will occur within established site boundaries.

4. No piles of slash will established within site boundaries.

5. During any subsequent burning activities, no ignition points will occur within established site boundaries.

6. Fire-sensitive sites (sites containing fire-sensitive components, including but not limited to, organic elements, rock art, e.g.) will be protected during any subsequent burning activities, including maintenance burns, by the use of hand lines, wet lines, or staging of an engine adjacent to the site as determined appropriate to the resource through consultation with fire management and heritage resource personnel.

7. Standing trees within established site boundaries will be felled using hand falling techniques only.

8. Standing trees within and adjacent to established site boundaries will be directionally felled peripherally, away from site feature(s).

9. Slash resulting from harvest activities will be scattered to limit fuel concentration within established site boundaries and to provide erosion protection, or removed entirely from within the site boundaries as determined in consultation with heritage resources specialists.

These protection measures apply equally to all alternatives.

In accordance with Protocol H of the PA, monitoring will be conducted as part of the day-to-day activities of the professional cultural resource specialists and certified para-archaeologists working in the area or who may be overseeing the project implementation. In accordance with Protocol J of the PA, post-treatment monitoring of sites determined to be fire-sensitive will occur to determine the effectiveness of the protection measures in order to gather data that will be used to improve planning for protection of heritage resources in future projects. This may also include monitoring of nonfire-sensitive sites in order to expand available information on the effects of prescribed fire on archaeological sites. Determinations of the number of both nonfire and fire-sensitive sites (e.g., a percentage) which will be monitored subsequent to an individual treatment, as well as the appropriate post-project monitoring requirements to be utilized, will be determined by the forest archaeologist.

Timber

A minimum of 40 trees per 40 acres will be left to comply with Forest Plan. Junipers larger than 12 inch diameter breast height (dbh) will not be treated. Equipment shall not be driven over vegetation that is not being treated, such as oak or piñion pine. Juniper trees, which have been "pushed," will be considered dead and down. The public may harvest the dead, downed juniper by obtaining the proper wood cutting permit.

Management Objectives

Management objectives are measurable parameters that can be used to describe attainment of desired conditions. The achievement of these objectives is dependent upon the successful treatment of juniper trees in a manner that inhibits the trees' ability to resprout from the stump and encourages regeneration of perennial grasses. Regeneration of perennial grasses is primarily dependent on precipitation following the juniper treatment. The anticipated timeframe to achieve the objectives is one to five years. If trends show conditions are moving towards the stated objective when monitored, then management may be considered effective.

Management objectives for this action are to:

- Decrease canopy cover caused by the encroachment of juniper trees
- Maintain or improve conditions to at least 30 percent effective ground cover for watershed protection
- Increase herbaceous cover of perennial grass and browse plants

Monitoring

The objective of monitoring is to determine if management is being properly implemented and if the actions are effective at achieving or moving toward desired conditions. Monitoring as described below would take place under all alternatives except the no action alternative.

Effectiveness monitoring includes measurements to track condition and trend of upland and riparian vegetation, soil, and watershed. Monitoring will be done following procedures described in interagency technical references and the Region 3 Rangeland Analysis and Training Guide.

Implementation monitoring may occur at any time during the year and will include such items as inspection reports, forage utilization measurements, and photos. Utilization measurements are made following the procedures found in Interagency Technical Reference (BLM et al. 1996) and with consideration of "*Principles of Obtaining and Interpreting Utilization Data on Southwest Rangelands.*"

The use of long-term trend monitoring, such as reading existing Parker 3 Steps and establishing monitoring sites, which record point frequency, fetch, and dry weight rank, will help detect change in ground cover and herbaceous cover of perennial plants.

Comparison of Alternatives

A summary of the effects of implementing each alternative are described by each resource in the text of chapter 3. This section provides a summary of the effects of implementing each

alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 1. Comparison of Alternatives

Attribute	Alternative 1	Alternative 2
National Forest Policy and Forest Plan (Forest Plan) Consistency	Not consistent with Forest Plan. Not consistent with policy (FSM 2202.1, 2203.1).	Consistent with Forest Plan and policy.
Meets Purpose and Need	Does not achieve Forest Plan resource objectives to meet satisfactory watershed conditions.	Achieves Forest Plan objectives. Improves watershed health.
Effects on Wildlife and Plants	Will produce less forage for wildlife over time and reduce herbaceious species density within the area.	Will produce more forage for wildlife over time and increase herbaceious species density within the area.
Effects on soil condition upland vegetation and watershed condition	Juniper canopy cover will continue to increase and herbacous ground cover will continue to decline. As a result soil erosion will likely increase.	The soils in satisfactory condition are likely to remain so. Most soils in less than satisfactory condition are likely to improve because of grazing management practices.
Fire		
Riparian Areas and Stream Channels	There would be no direct or indirect effects to riparian areas or stream channels.	There may be short-term sedimentation into stream channels. An increase in herbaceous vegetation in the uplands may contibute to moving riparian areas and stream channels toward meeting desired conditions at a faster rate than the alternative 1.
Heritage Resources	No effect on heritage resources	Because a 100 percent survey will be completed prior to implementation, heritage resources should not be effected.
Socio-economics	A negative effect to socio-economics may occur.	The proposed action should have a positive affect on socio-economics by potentially providing short-term employment for members of a small community, as well as providing necessary fuel wood for members of the community to heat their homes.
Recreation and Special Management Areas	Junipers will continue to increase in number, limiting the opportunity for dispersed camping, recreating, and hunting.	Should improve recreational opportunities.

Chapter 3 – Environmental Consequences

This report summarizes the physical, biological, social, and economic environments of the affected project area and the potential direct, indirect, and cumulative changes to those environments due to implementation of the alternatives.

Cumulative Effects

The Council on Environmental Quality has defined cumulative impact as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such actions" (*40 CFR 1508.7*). These activities and occurrences have contributed incrementally to changes in ecological conditions in the project area and may continue to influence conditions in the project area over the term of the project. Foreseeable future actions are those for which a proposed action has been approved or those proposed for NEPA analysis in the future. Other possible future actions are considered too speculative to include in this analysis.

The following projects or activities could contribute toward cumulative impacts within the analysis area table 2.

Table 2. Past, Present, and Reasonably Foreseeable Actions Contributing to Cumulative Effects

Project or Activity Name	Timeframe under which activities have or will occur	Resources Potentially Affected by the Activity[1]
Vosberg 2013 Juniper Push	2013to 2017	WL, S, Veg, W, Sc, R
Personnel Fuel Wood Harvesting	Through the duration of the push and approximately 5 years after the push is complete.	WL, S, VEG, W,R, Sc
Livestock Grazing	Until permit is canceled	WL, S, Veg, W, Sc,
Fire	Pile burning or first entry of prescribed fire three to five years after the project is complete.	WL, S, Veg, W, Sc, A

[1] **WL – wildlife, S – soils, Veg – vegetation, W – water, Rec – recreation, Sc – scenic quality, A – air**

Introduction

The Vosberg 2013 Juniper Treatment is a grassland restoration project. The suppression of natural occurring wildfire has contributed to encroachment of juniper trees into areas, which were historically dominated by an open stand of oaks with denser stands of oaks on north facing slopes and in drainages. Perennial grasses composed the understory and provided fuel for surface fires. Data obtained from Landfire Data Center was used to compare existing vegetation communities to vegetation communities prior to European settlement.

Analysis Methods

Home Pasture

Based on the Biophysical Setting (BpS) model provided by the Landfire Data Center, the Home Pasture juniper treatment area is classified primarily as Mogollon chaparral mixed with

intermountain basins juniper savanna. The BpS represents what is believed to be the pre-European settlement conditions. Current vegetation type provided by the Landfire Data Center classifies the current vegetation type to be Mogollon chaparral mixed with intermountain basins juniper savanna, which would suggest little departure from pre-European settlement conditions. Chaining has occurred historically in this area and seedling juniper trees are beginning to increase in number as well as cat claw (*Acacia greggii*). Home Pasture would be considered the lowest priority for treatment.

South Pasture

In the South Pasture project area, Forest Road (FR) 54 bisects the project area, splitting it into east and west. The description of the South Pasture Area will be broken into east and west.

Based on the BpS model provided by the Landfire Data Center South Pasture juniper treatment area, the pre-European settlement conditions were likely predominately a Madrean Encinal mixed with Mogollon chaparral. Juniper encroachment in the South Pasture analysis area is greatest east of Forest Road (FR) 54.

East of FR54 over 50 percent of the analysis area has moved to a Madrean Pinyon Juniper Woodland from what would have been Madrean Encinal. Juniper canopy cover averages between 20 percent and 30 percent and reaches up to 50 percent is some areas.

West of FR54 the BpS model provided by the Landfire Data Center suggests the pre-European settlement conditions were likely a Mogollon Chaparral mixed with Madrean Encinal. Current vegetation type provided by the Landfire Data Center shows Mogollon chaparral and Madrean piñion juniper woodland. Areas showing little or no departure from what is thought to be pre-European settlement conditions are areas where juniper has been treated historically. West of FR54 approximately 80 acres of juniper were treated with chainsaws in the mid-1990s. Resprouting of juniper trees are occurring from the stumps of the junipers that were treated with chainsaws in addition to the seedling juniper trees. Maps illustrating canopy cover, pre-European vegetation, and post-European vegetation are located in appendix B.

Madrean Encinal woodlands were historically dominated by an open stand of oaks with denser stands of oaks on north facing slopes and in drainages. Perennial grasses composed the understory and provided fuel for surface fires. Over the last 150 years, Madrean Encinal has trended away from these open woodlands and towards woodlands with higher canopy cover and higher abundances of mesquite and juniper trees (Turner and others 2003). Regeneration of the dominant oak species is primarily due to resprouting following a disturbance with little regeneration from acorns due to dry conditions (Germaine and McPherson 1999.

Areas with the higher canopy cover, primarily west of FR54 in the South Pasture, would be treated first. No wildfires or prescribed burns have occurred in the analysis areas in the past seven years. As juniper increases across the project areas, species diversity and production of native grasses decreases, while percent bare soil increases.

Soils and Vegetation Affected Environment

Summary of Effects by Alternative

Alternative 1. (No Action)

Direct and Indirect Effects

Effects of no mechanical juniper treatments: There would be no juniper treatments under this alternative. Most juniper treatments produce positive results that lead to a net increase in herbaceous cover. Under this alternative, areas with overly-thick juniper cover would likely not improve.

Cumulative Effects

The lack of juniper treatments would not allow an increase in herbaceous cover. The lack of herbaceous cover will allow increased soil erosion.

Alternative 2. (Proposed Action)

Direct and Indirect Effects

The environmental effects of juniper treatments will depend on the type of treatment and the condition of the areas treated. Juniper treatments generally produce positive results. However, the overall effects of juniper control treatments can be either positive or negative depending on the type of treatment, initial conditions, and follow up treatment. Generally, following treatment, the least amount of runoff and sediment occurs after slash has been scattered. Removing slash following treatment will produce more runoff and sediment, while burning slash leads to the most (Thurow, et al., 1997). When properly conducted, juniper treatments will reduce runoff and erosion, and increase herbaceous cover.

Cumulative Effects

Pushing junipers with dozer will initially reduce juniper densities, but will normally require periodic maintenance to control seedlings and resprouting of junipers (mostly alligator junipers). Soil disturbance is extensive locally. Compaction can occur and pits are created where the root mass is removed (Thurow, et al., 1997). Follow-up treatment every five-to-ten years will likely be needed. Prescribed fire used to treat resprouting junipers for maintenance of juniper treatment areas, will reduce the amount of protective slash that is created from mechanical juniper treatments. The proposal to delay the burns for three-to-five years will allow herbaceous cover to begin to become established underneath the slash, before burning takes place. This partially reduces the negative effects of burning.

Riparian Areas

Introduction

The Vosberg Allotment is within the Cherry Creek 5th code watershed. Cherry Creek originates below the Mogollon Rim and flows south approximately 52 miles to its confluence with the Salt River. Cherry Creek follows the western boundary of the South Pasture for approximately one mile on the adjacent Cherry-Frio Allotment. In 2006, the creek in this reach supported red willow, ash, narrow-leaf cottonwood, alder, and sycamore in all age classes. Several species of rushes and sedges were also present, along with infrequent deergrass.

Crouch Creek lies in an exclosure between Home Pasture and South Pasture. In 2006, it supported mainly deergrass with few sycamore and ash of larger sizes. There are no riparian areas or named streams within the proposed project area.

Summary of Effects by Alternative

Alternative 1: No Action

Direct and Indirect Effects

There would be no direct or indirect effects to riparian areas from juniper pushing or prescribed burning.

Cumulative Effects

Juniper trees would continue to encroach reducing herbaceous understory. As a result, overland water flow and erosion is expected to increase.

Alternative 2: Proposed Action

Direct and Indirect Effects

Pushing juniper trees with a dozer where slash is left on the ground and ground cover is improved would decrease erosion and sedimentation by causing a decrease in peak flows. If all ground cover is removed, there would be an increase in erosion and sedimentation, and increased peak flows. Impacts should be short lived due to recruitment of herbaceous vegetation.

Cumulative Effects

Juniper pushing should produce minimal cumulative effects and allow for an increase in herbaceous vegetation in the uplands, allowing riparian areas and stream channels to move toward meeting desired conditions at a faster rate than the no action alternative. For prescribed fire, planned ignitions will not occur in riparian areas. If low-intensity fire enters a riparian area, it should have little effect other than to thin grasses and seedlings. Successful implementation of prescribed burns should have little impact on water quality.

Wildlife

Introduction

Summary of Effects by Alternative

Alternative 1: No Action

Direct and Indirect Effects

There would be no juniper treatments under this alternative,.

Cumulative Effects

Juniper trees would continue to encroach reducing herbaceous understory. The lack of juniper treatments would not allow an increase in herbaceous cover.

Alternative 2: Proposed Action

Direct and Indirect Effects

The proposed action includes treatment of 561 acres of juniper woodlands. Juniper removal treatments are proposed in alternative 2, pushing with a dozer and/or prescribed fire. Removal that involves heavy equipment (pushing with a dozer) could result in greater soil disturbance than the other methods. Increased soil disturbance in these areas could result in a short-term decrease (1 to 3 years) of hiding cover and/or forage for ground nesting and foraging birds and small mammals and a related short-term decrease in prey species for raptors and mammalian carnivores. This does not include any TES species since none are known to occur in juniper woodlands. A short-term reduction in forage and browse for deer and elk could also occur. Similar short-term effects are expected with the use of prescribed fire to remove junipers. These effects are expected to be short-term as the decrease in juniper density will result in an increase in herbaceous cover and diversity and forage production. All treatment will result in an increase in noise effects (those related to use of equipment and human presence) during implementation of the project. These effects would be limited to the time that it takes for the treatment to occur (several days to several weeks).

Overall primary diversity and productivity would increase. Habitat selection by native wildlife would improve with normal precipitation patterns. Fawning, hiding, and thermal cover would improve with improved survival rates for big game, upland game, MIS, and TES species.

Under this alternative, with proper monitoring, site herbaceous productivity and soil conditions may improve. If primary productivity improves, those wildlife species associated with this habitat guild may respond positively.

The intent of the project is to reduce juniper density in the juniper savannah and juniper woodland vegetation types to increase wildlife forage and improve effective ground cover, while maintaining existing or newly created openings to retain optimum forage production. In the pinyon-juniper type, manage toward a goal of 25 to 50 percent cover of browse shrubs in key deer areas. Achieve a savannah condition in the pinyon-juniper type by leaving a minimum of 40 mature trees per 40 acre cut block.

Important Bird Areas (IBA)

There are no designated IBAs within or affected by the project. The nearest IBA is the Salt-Verde Ecosystem (Saguaro Lake north through the Mazatzal Wilderness), located more than 25 miles to the west of the project area. There is no association or important link between the bird communities on the Vosberg Allotment and the Salt-Verde Ecosystem IBA. Therefore, no IBAs are affected by the project.

Overwintering Areas

The project area may provide wintering habitat for a variety of raptors and upland song birds; however, this area is not recognized as an important over-wintering area, because significant concentrations of birds do not occur nor is there a unique assemblage or a high diversity of birds that winter here.

Cumulative Effects

There are currently no additional proposed or ongoing projects in this area. Juniper removal/thinning projects from the past have recovered and will not be cumulative. The proposed project will allow an increase in herbaceous vegetation in the uplands, allowing riparian areas and stream channels to move toward meeting desired conditions.

Recreation

Alternative 1: No Action

Direct and Indirect Effects

Junipers will continue to increase in number, limiting the opportunity for dispersed camping, recreating, and hunting.

Alternative 2: Proposed Action

Direct and Indirect Effects

Juniper treatments would have a short-term impact on the visual quality of the recreational experience in some instances; however, the various juniper treatments would provide readily available fire wood to campers and the general public. The long-term effects would be beneficial as the landscape would return to a more natural state; flats would open and increase the opportunity for the public to enjoy the experience of seeing wildlife; and camping opportunities would increase.

Lands

There are no known Lands issues associated with the project.

Special Uses

There are no known special uses issues associated with the project.

Wild and Scenic River

There are no known wild and scenic or proposed wild and scenic rivers within the project area.

Heritage Resources

Alternative 1: No Action

Direct and Indirect Effects

Under the "No Action" the juniper push would not be conducted. Therefore, there would be no direct, indirect, or cumulative effects to heritage resources.

Alternative 2: Proposed Action

Direct and Indirect Effects

The Vosberg Allotment currently is known to contain only one documented prehistoric site; but given the location of the allotment on the eastern terraces of Cherry Creek, which supports a perennial water source, there is a high potential for numerous undocumented archaeological sites. These sites are likely to be represented by the occupation and agricultural modification and use of this area by people related to the Hohokam, Salado, and Anchan archaeological traditions over a period of 8,000 to 10,000 years. Neighboring allotments are also known to contain historic Apache sites. The allotment is adjacent to two patented inholdings and may contain historic sites reflecting use and occupation by Anglo and Hispanic ranchers, and stockmen, as well as the U.S. Forest Service.

Surveyed coverage within the allotment has been negligible, resulting in a single survey for the installation of two stock tanks. As such, most of the analysis area remains unsurveyed. The known heritage property is represented by a prehistoric temporary habitation with associated artifacts, indicative of short-term seasonal usage. It is anticipated that a variety of features, ranging from historic use associated with the adjoining patented properties to simple prehistoric and possibly protohistoric artifact scatters to large prehistoric habitation sites are present in the analysis area. The great majority of these features, are likely to be prehistoric consisting of collapsed stone masonry structures representing both permanent habitation, as well as seasonal use, agricultural features (such as checkdams), and possibly roasting pits for the processing of agave. Features associated with a long history of cattle ranching may also be present. Many prehistoric and historic archaeological sites represented by nothing more than a scatter of artifacts on the ground surface, which may have subsurface remains.

No traditional cultural properties, native plant gathering areas, or tribal sacred sites are currently known to be located within the allotment; however, no specific efforts to identify and inventory such areas have been made.

Impacts to heritage resources, especially archaeological sites, can be generally defined as anything that results in the removal of, displacement of, or damage to artifacts, features, and/or stratigraphic deposits of cultural material. In the case of heritage resources that are considered eligible for inclusion in the National Register of Historic Places, this can also include alterations of a property's setting or context. In the case of traditional cultural properties and sacred places, additional considerations may include alterations in the presence or availability of particular plant species. Heritage resources, depending on their nature and composition, are subject to several different types of impact from activities associated with vegetation manipulation. Direct impacts would involve using mechanized equipment within a site, as well as uprooting trees within sites.

Indirect impacts can include erosion and changes in vegetative composition and density that alter the setting and geographic context of sites.

Impacts to heritage resources similarly have occurred historically with regard to fire. Given the length of time any sites within the analysis area have been abandoned (minimally 100 to 700 years) and the presettlement fire regime, it is assumed that prehistoric sites have experienced numerous episodes of being burned over. Some classes of prehistoric sites, particularly rock art and sites located in protected geographic locations, such as rock shelters or caves, may not have experienced burning since abandonment due to the nature of the geography in which they are situated. In these instances, fire-sensitive components such as roofs in cliff dwellings, basketry and wooden tools may still be intact and would be vulnerable to any episodic wildfire or prescribed fire events. Any historic sites in the analysis area are likely to be dominated by ranching or homesteading activities dating to periods when suppression activities were standard practice. The lack of organic remains, such as structures and tools on open (as opposed to rock shelters/caves) prehistoric properties is expected; the preservation of fire-sensitive materials, which are expected to still be intact on sites less than 100 years old, as well as those prehistoric site classes noted above need to be ensured.

Since site condition assessments for heritage resources are not available for any time prior to the introduction of European settlement and livestock species to the Southwest, some level of effect is assumed to have contributed to the current condition of all sites on the allotment. Given the nonrenewable nature of heritage resources – particularly archaeological and historic sites – any portion of them that has been damaged or removed diminishes their cultural and scientific value permanently. The missing parts cannot be replaced and they cannot be bred in captivity and released into the wild to create more sites at locations of our convenience. Therefore, all effects to heritage resources are considered cumulative.

Cumulative Effects

Based on a history of observation and consultation with the State Historic Preservation Officer (SHPO), projects involving vegetation manipulation, such as thinning operations proposed here are not considered in and of itself to constitute an effect on heritage resources when adequate efforts to identify those resources and ensure avoidance of all mechanical impacts are addressed prior to implementation. Adverse effects can be foreseen, if mechanized equipment is used within a heritage resource and particularly if vegetation is removed by uprooting within a site; this action will clearly damage surficial site components as well as impact potential subsurface features.

Impacts from the proposed treatments are comparable to those of past activities, which have occurred historically within the analysis area. Juniper pushes were common throughout the Southwestern Region in the 1950s and 1960s and included at least a portion of the analysis area. As recognized in the Protocol J (see below), hand cutting and hand piling have a negligible potential for ground disturbance. Mechanical treatments involving fuel wood sales, timber sales and other thinning operations have a potential for disturbance to the top few centimeters of soil, primarily in the form of artifact and features component displacement and compaction for example, but rarely any for subsurface disturbance. Mechanized treatments involving physically uprooting trees as well as mechanized piling of resulting debris does have the potential for adverse effects at all levels, but subsurface as well as superficial, as noted previously.

As would be expected, burning intensity varies according to the density of material burned. Broadcast burning typically consists of low-intensity fires with flame lengths of two feet or less and isolated torching for both ponderosa pine and pinyon-juniper, although isolated pockets of fuels may burn at moderate intensity levels. Burns within chaparral can be of high intensity given the volatile nature of the fuels in treated areas, but in creating a mosaic pattern with specific ignition patterns, these tend to be isolated. Burning in grassland is of extremely short duration with very low intensity. It is anticipated that any sites in the analysis area will generally fall within the ranges identified for their respective vegetation types. Typically, since the higher loadings tend to obscure sites, especially when the bulk of that load is composed of dense brush, needle cast and litter, on-site fuel loads tend toward the lower end of the scale; otherwise many of them might not have been identified in the first place. It should be stressed that minimally, a naturally occurring wildfire will occur even if prescribed fires are not introduced to the analysis area.

Burning operations can pose a threat to sites with organic components (e.g., wooden artifacts and features) or to some fire sensitive prehistoric site types such as rock art, depending on the nature of the artwork and the rock on which it is located. Depending on the individual site conditions once these have been identified, the low to moderate intensity fires expected from prescribed burns through the fuels expected to be associated with the archaeological sites in the analysis area are not likely to create any substantial risk to these heritage resources. Mitigation measures appropriate to any archaeological site class which contains fire-sensitive materials will be established prior to any burning activities.

Contemporary American Indian Uses

Tribes culturally affiliated with the lands within the Tonto NF were consulted regarding the Proposed Action. They wish to be kept informed of new findings within the project area.

Fire

Alternative 1: No Action

Direct and Indirect Effects

The vegetation will continue to move toward a climax stage, with juniper and brush reproducing and multiplying. The only natural disturbance that sets this cycle back to the savannah would be fire, and this can only occur if grass fuels are sufficient. When the juniper savannah reaches climax and is a closed stand, it will eventually be reset back to savannah through a crown fire that removes all vegetation.

Alternative 2: Proposed Action

Direct and Indirect Effects

Light fuels will be affected through the use of equipment in the fuel bed, somewhat hindering fire spread in the short term. The nature of the junipers as a fuel will be changed from living tree to dead and down fuels on the ground. Dead and down fuels are seasonally more available than live fuels to fire spread.

Cumulative Effects

The treatment is in essence an attempt to mimic the effect that fire has on the savannah - thinning out encroaching juniper. In the absence of fuels that will carry fire, the only way for the savannah to reset to the beginning stage would be to allow it to reach climax, then have a crown fire that does not rely on light fuels remove all vegetation. This treatment would mimic somewhat the disturbance needed for grassland reproduction. Fire presence in the ecosystem would need to occur as a part of the treatment to most accurately complete the treatment. The distribution of dead and down fuels produced by the treatment would not naturally occur in this ecosystem. They would burn hotter than grass fuels and could possibly affect the soils and grass reproduction in a different manner.

Range

Alternative 1: No Action

Direct and Indirect Effects

Under the no action alternative, the juniper push would not be implemented. As a result juniper trees would continue to increase in number and canopy cover would increase resulting in the reduction of herbaceous ground cover (reduction in perennial grasses). As a result, livestock distribution and operations would be inhibited.

Alternative 2: Proposed Action

Direct and Indirect Effects

Under the proposed action roughly 561 acres of juniper trees would be removed. As a result, herbaceous ground cover and production is expected to increase depending on rainfall following the removal of junipers. This will allow for better livestock distribution on the Vosberg Allotment and increase the available forage.

Cumulative Effects

Herbaceous cover would increase and soil erosion would decrease, thus improving conditions for livestock grazing.

Socio-economic Resources

Alternative 1: No Action

Direct and Indirect Effects

Under the no action alternative the juniper push would not be implemented. Some chainsaw work could occur creating limited opportunity for personal fuel wood collection by the local community. The “Wood Products Projects” will continue to go untreated due to access issues. The lack of treatment would have a negative effect on the permittee and inhibit their ability to effectively distribute livestock and potentially reduce the number of authorized livestock. As a result, amount of money spent in the local economy may decrease.

Alternative 2: Proposed Action

Direct and Indirect Effects

Under the proposed action roughly 561 acres of juniper trees would be removed. The treatment of 561 acres of juniper could potentially create, for a short time, employment for members of the local community. The juniper treatment would create a personal fuel wood area for local residence that depend on the use of wood burning stoves and fireplaces to heat their homes during the colder portions of the year. The permittee would benefit through improved ability to effectively distribute livestock and potentially maintain or increase the number of authorized livestock depending on climatic conditions; thus maintaining or increasing how much money is spent in the local economy.

Cumulative Effects

Under alternative 2, the effect on the local economy would potentially be positive as herbaceous forage production increases enable permitted livestock to be more efficient.

Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Toward attaining environmental justice for all communities and persons in the United States, *Executive Order 12898* (February 11, 1994) directed all Federal agencies to evaluate their proposed actions to determine the potential for disproportionate adverse impacts to minority and low-income populations.

In the memorandum to heads of departments and agencies that accompanied *Executive Order 12898*, the President specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns. The memorandum states that "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by [NEPA]."

Implementation of any of the alternatives evaluated in this EA would not result in adverse impacts to environmental resources and socioeconomic conditions. Therefore, disproportionate direct, indirect, or cumulative adverse impacts on low income or minority populations would not occur.

Chapter 4: Coordination and Consultation

The Forest Service consulted the following individuals, Federal, state, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

Local Government

Gila County Board of Supervisors
Gila County Sheriff
Coconino Board of Supervisors

State and Other Federal Agencies

Arizona Public Service
Arizona Game & Fish Department
U.S.D.I. – Bureau of Reclamation
U.S. Fish & Wildlife Service
Arizona Department of Environmental Quality
Environmental Review Office (EPA)

Tribes

White Mountain Apache Tribe
Salt River Pima-Maricopa Indian Community
Fort McDowell Yavapai Nation
Tonto Apache Tribe
Yavapai-Prescott Tribe
Yavapai-Apache Nation
San Carlos Apache Tribe
Gila River Indian Community
Hopi Tribe
Zuni Pueblo

Others

Center for Biological Diversity
Sierra Club - Grand Canyon Chapter
Gila County Cattle Growers
U.S. Army Corps of Engineers
Gila Cooperative Extension Service
Private Citizens and neighboring permittees

Chapter 5 – References

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Chapter 6 – List of Preparers

U.S. Forest Service, Tonto National Forest, Pleasant Valley Ranger

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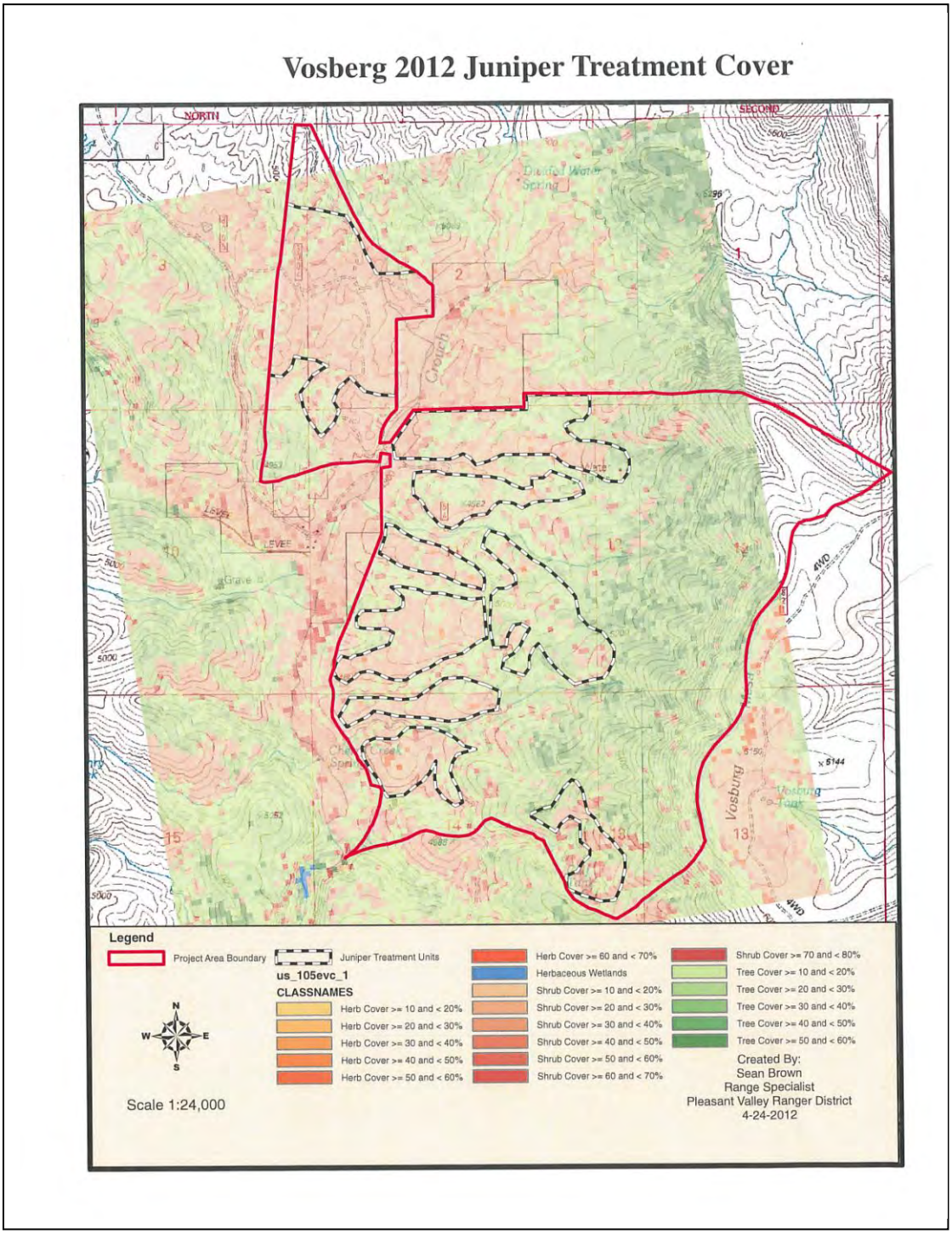
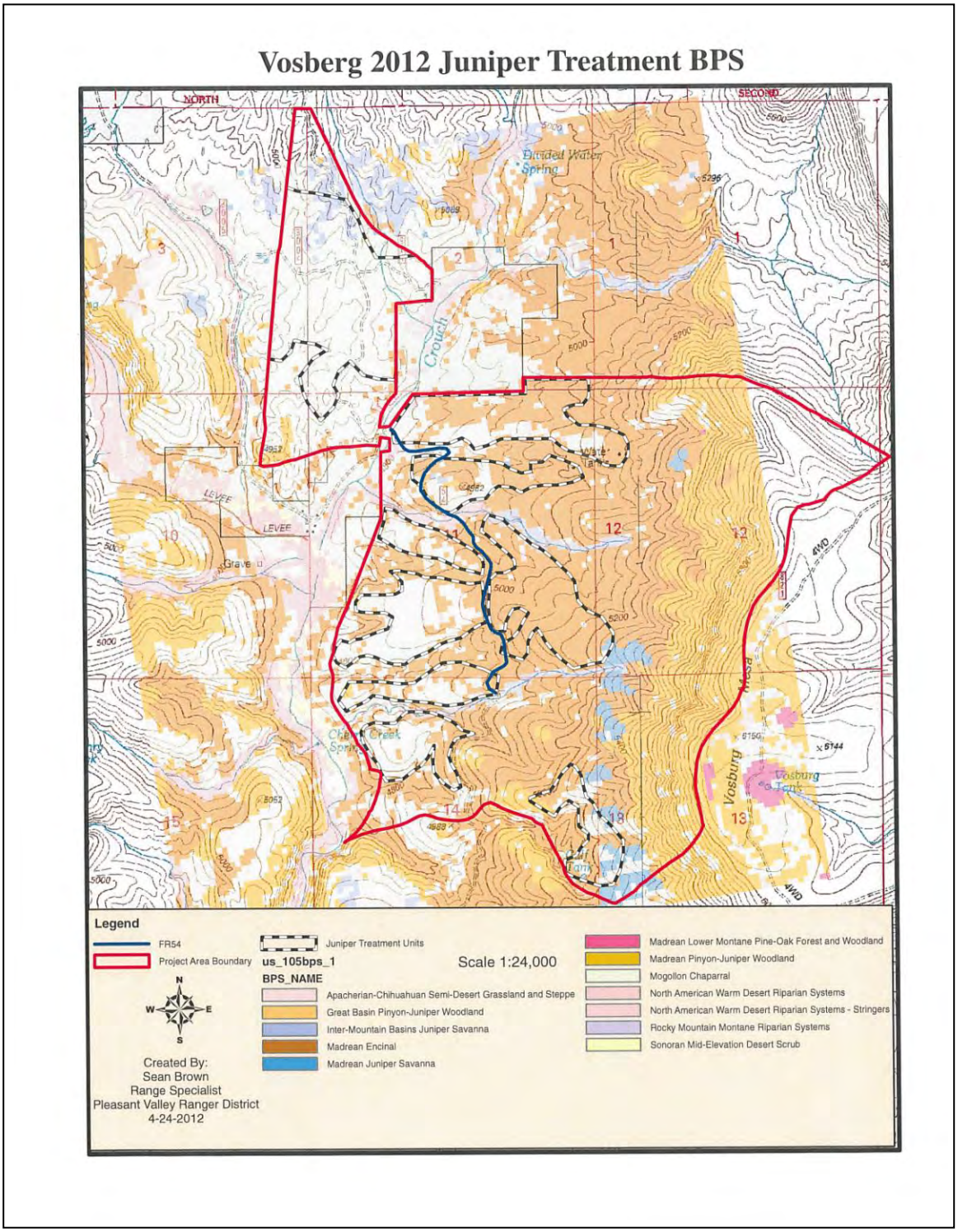
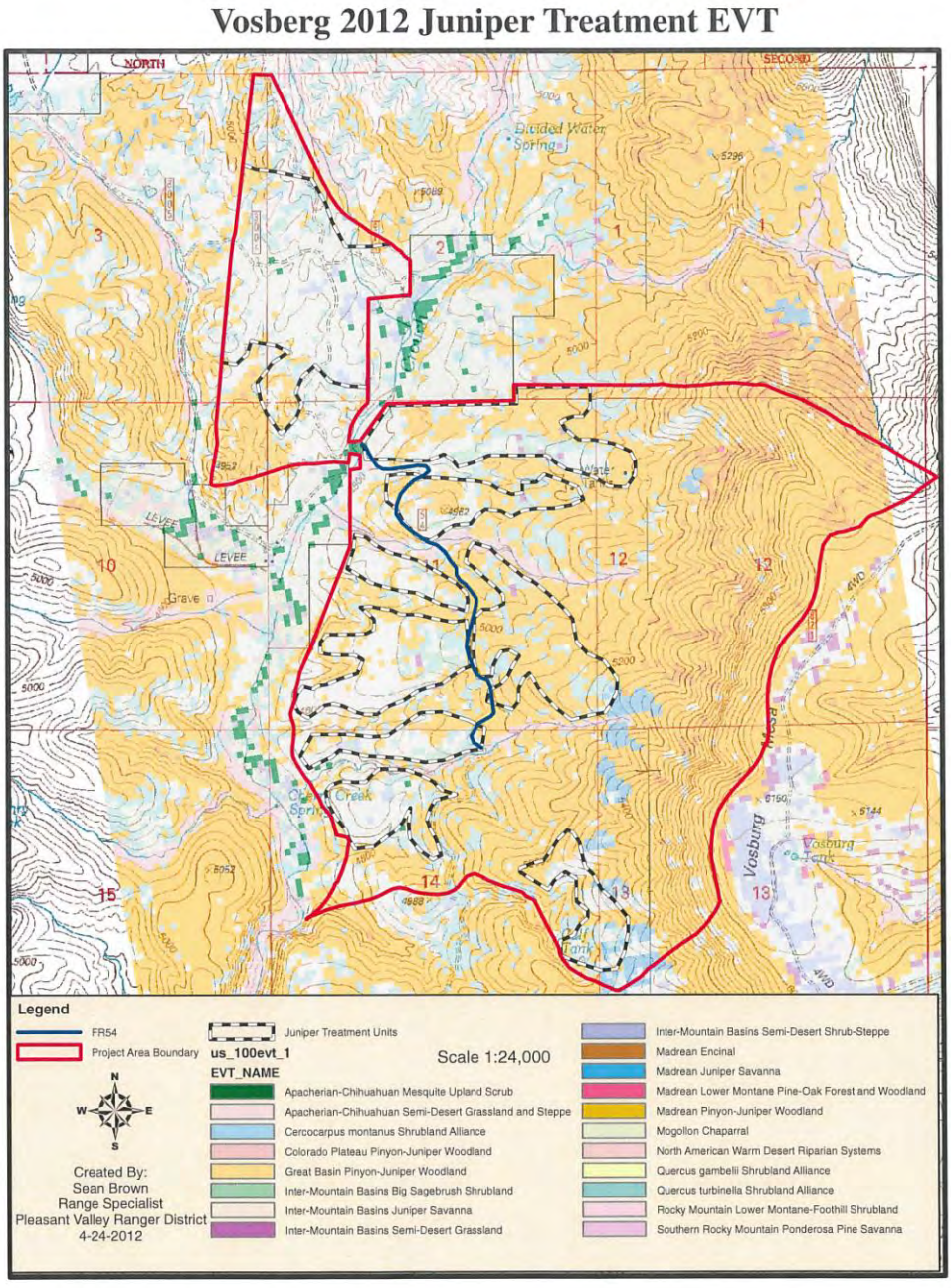
Appendix A – Maps



Map of canopy cover



Map of vegetation communities prior to European settlement



Map of Current Vegetation Communities