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SPRING FIRE REHABILITATION
ACCOMPLISHMENT REPORT

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THE REHABILITATION

of the

SPRING FIRE

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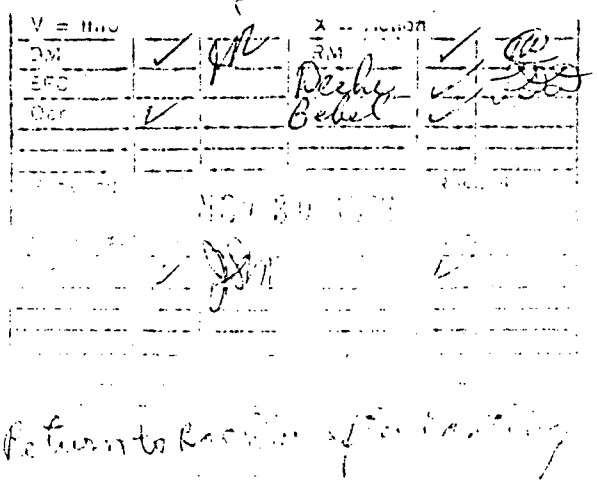

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of the

SPRING FIRE

INTRODUCTION

The disastrous Spring Fire of April 1974, burned 15,350 acres in the headwaters of the Aqua Chiquita drainage. Prior to the burn, the watershed exhibited a vegetative mosiac including ponderosa pine, pinyon pine, Douglas fir, white fir, juniper and oaks. Portions of the included 3,780 acres of private lands were under cultivation for various forage crops. Interspersed among the natural plant communities were several small previously burned areas, which were being invaded by shrub species including wavyleaf and gambel oak, skunkbush, oceanspray, elderberry, and mountain mahogany.

THE FIRE

On the morning of April 6, 1974, a boy staying at a church camp built a warming fire and it escaped. The young man thought his fire was extinguished, but high winds caused it to come to life. At approximately 11:00 A.M. the campfire spread to pine needles and vegetation on a hillside behind the camp. A work party at the camp attempted to stop the spread. At 11:30 they reported the fire to the Forest Service and the Sacramento Fire Department. Both the Forest Service and the local fire department responded immediately. By 12:10 there were 30 Forest Service employees, two units of the fire department, and numerous local people fighting the fire estimated to be 5-6 acres. Lookouts a few miles to the west were reporting winds in excess of 60 miles per hour.

About 12:30 the fire spotted across Telephone Canyon. In spite of the efforts of 14 men and a tractor this small spot could not be controlled and the fire began its major run. Perimeter increase during the afternoon was estimated to be 120 chains per hour. The head of the fire moved more than ten miles during the afternoon.

Although the high winds continued most of the night, suppression forces were effectively deployed and the major spread was contained by the morning of the 7th. Control was declared on April 9.

It has long been recognized three factors greatly influence fire behavior; fuel, weather, and topography. These elements determine both severity of a burn and the resistance to control of a wildfire. All three factors were adverse during the Spring Fire. Fuels were a mixture of species with light fuels such as pine needles and grass contributing to the rate of spread and heavy fuels including mature trees and slash contributing to fire intensity. The weather was hot and dry with an extreme shortage of moisture during the preceding winter. Winds were extreme. Topography was steep and broken.

Interaction of these factors resulted in severe depletion of the watershed's cover over the western two-thirds of the burn, with less severe damage to the east.

REHABILITATION PLANNING

Before the fire was controlled, it was recognized that an extensive watershed stabilization program was urgently needed. Lincoln National Forest personnel felt that much soil could be held on the slopes if vegetative cover were established prior to the summer rains. The historical rainy season was less than 90 days off, leaving little time to plan a rehabilitation program, obtain needed funding, and take positive on-the-ground action.

The Soil Conservation Service and the Otero County Extension Service were involved in planning and execution of flood control measures from the beginning because of the involved private lands. The Otero Natural Resource Conservation District, the South Central Mountain Resource Conservation District, and the Otero County Commissioners cosponsored the federal agencies' funding request. The Governor of New Mexico also expressed his support of the project.

An interdisciplinary planning team was appointed by the Forest Service, the Soil Conservation Service and the County Agent to survey the damage, plan needed rehabilitation measures, and prepare a funding request. Foresters, range conservationists, hydrologists, soil scientists, wildlife biologists, engineers, revegetation specialists, and an extension agent were included in the planning effort which began within 24 hours of the fire's origin. The rehabilitation team spent 5 days together in the field and many members revisited the site independently. Team members are listed in Appendix I. The planned treatments were discussed with all landowners prior to finalization of the plan.

In May 1974, within one month after the fire, a document entitled USDA Interagency Spring Fire Rehabilitation Plan was assembled. This plan was used both as a funding request and a guide to rehabilitation efforts. The Otero Natural Resource Conservation District submitted it to the Soil Conservation Service and requested funding under Section 216 of the Flood Control Act of 1950 (PL 81-516 USC 701b-1).

On May 24, 1974, this application was sent to Clem Weindorf, Area Conservationist, by Frank Fahrlender, District Conservationist. On May 28, 1974, Mr. Weindorf sent it to Marion Strong, State Conservationist. On May 31, 1974, Mr. Strong forwarded the application to Washington for funding. On August 2, 1974, initial funding of $200,000 was received and work began.

Three areas of priority for watershed treatment were established, with first priority assigned to slopes with high downstream values. Areas above the towns of Sacramento and Weed were treated first due to a high risk of loss of life and property. All planned work in the priority one areas was completed by mid-summer 1975. Some treatments have since been completed on priority two areas.

Each agency assumed responsibility for certain portions of the overall job in an attempt to achieve an efficient balance of tasks. The Forest Service accomplished the aerial seeding, protection fencing, tree planting, hillside terracing, contour tree felling, and small erosion control structures. The Soil Conservation Service constructed planned debris basins, and tillage and seeding of private lands.

REHABILITATION PRACTICES

Aerial Seeding - First priority of the rehabilitation plan was to seed the entire burn to perennial grasses in an attempt to get a quick ground cover on the watershed. The seeding job started May 24, 1974, and was completed June 27. High winds forcing the operation to shut down most afternoons and other numerous fires, which needed attention, caused some delay. The job was completed before the onset of the summer rains. A total of 3,780 acres of private land and 11,570 acres of Federal land were seeded.

Two seed mixtures were used. An elevational break of 6,500 feet was used to differentiate two vegetative zones, the ponderosa pine zone and the pinyon-juniper zone. A seeding rate of 60 seeds per square foot was established and the rate of application for each mixture reflects this seeding rate. The two seed mixtures were:

Mixture #1: Ponderosa pine zone @ 8.5 lbs/acre	
Orchard grass	24%
Timothy	6%
Perennial rye	29%
Intermediate wheatgrass	41%
	100%

Mixture #2: Pinyon-juniper zone @ 9.5 lbs/acre	
Russian wild rye	26%
Weeping lovegrass	10%
Pubescent wheatgrass	32%
Perennial rye	16%
Sand dropseed	5%
Yellow blossom sweet clover	11%
	100%

Seed was applied using an Alouette III helicopter carrying a Sling King seeder. Total flight time was 42 hours.

Alouette III helicopter carrying a "Sling King" seeder. (June, 1974)

The results of the reseeding have been phenomenal. Gentle summer rains continued throughout July allowing the new grass seedlings to become established. The torrential thunderstorms that came in August and September removed approximately 2 inches of topsoil from some slopes, but enough grass had become established to hold a great deal of soil in place. The fall and winter months of 1974 had above average precipitation allowing an early spring growth of the grass. By the summer of 1975, there was 60% ground cover on most of the burned area.

Emergency Tillage - This practice was to be applied immediately to the pasture and cropland in the Aqua Chiquita valley bottom. The treatment consisted of deep plowing at a depth of 12" to 14" on approximate contours across the valley bottom. The surface was left in a rough condition to help trap wind borne ash, silt and sediment from the adjacent burned mountain sides.

Ground cover after one growing season. (October 1974)

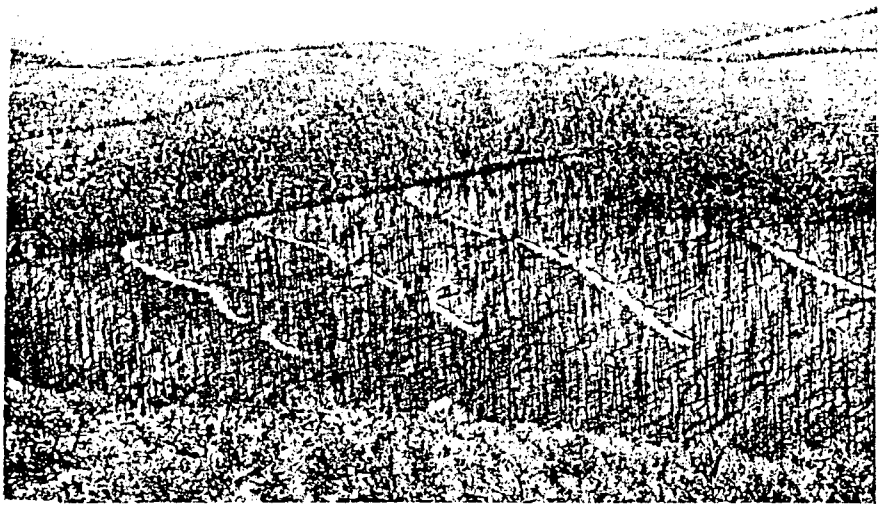
Only 200 acres of bottom lands were tilled in the manner described. This was done by one landowner and the Forest Service. This practice would have been very effective in many areas, but it was found to be impracticable by the time the funds were available. The practice should be done immediately and is a stop gap measure until vegetation can become reestablished.

Contour Terracing - Contour terraces were designed to retain a 5 year, 30 minute precipitation of 1.5 inches. A design standard based on this return period was chosen as the most acceptable and realistic one that could be

justified without unacceptable costs and environmental impacts. The first contracts were awarded in August 1974, and the project was completed by the end of December. A total of 825 acres were terraced, all within the priority one area. A total of 247,500 linear feet (47 miles) of terracing was completed within the project area. The terraces were insloped with interior baffles installed to prevent lateral movement of water within each terrace. All terraces were discontinuous and staggered on adjacent contours to prevent overloading of the lower terraces in the event of spillage.

This treatment has been rated second to the aerial seeding in success. The results have been outstanding in controlling overland flow above the local communities. Only twice in the past year have the terraces spilled. During these two events, water was routed downslope as predicted. Little on-site erosion occurred and water reaching the channels was practically free of turbidity. Revegetation of the terrace work has been satisfactory.

Terrace with baffle just after construction.
Storage capacity is limited due to depth to bedrock (September 1974)



Series of terraces on hillside after one growing season. (October 1975)

Channel Stabilization - The stream channels located above the community of Weed became an immediate problem when the summer thunderstorms began. After the soil profile had been recharged with water from the first few rains, flooding and sediment deposition occurred almost daily. One small drainage immediately above the community was particularly troublesome, contributing massive amounts of sediment laden water and inundating several buildings. The channel degraded several feet in one month.

This channel was treated extensively using gabion baskets to build check dams. The check dams were spaced to provide for maximum sediment storage capacity and channel gradient reduction. A total of 42 gabion dams and 7 post and wire check dams were constructed in this channel.

Three other channels in the vicinity of Weed and Sacramento were treated using a combination of small post and wire check dams and gabion structures. The larger gabion dams were used only at critical points within

the channels, such as headcuts and extreme grade breaks. One hundred and six post and wire structures and six gabion dams were placed in these channels.

The results of gully stabilization are very favorable. Since the completion of the gabion project above Weed, no sediment has reached the community. Several structures are full of sediment and the rest are filling. Channel degradation has stopped.

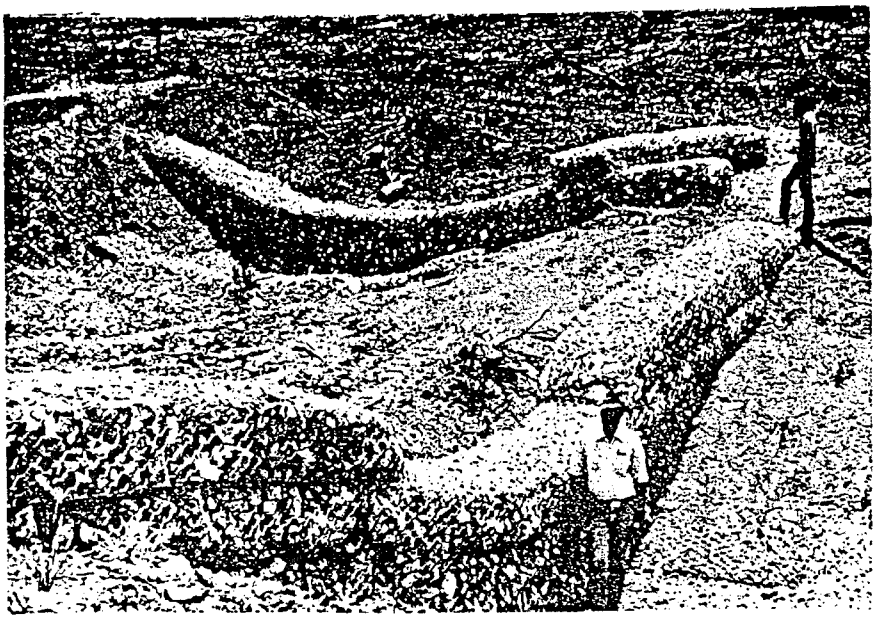
A comparison of gabion structures with comparable size post and wire structures reveals pros and cons for each method. The installation of gabion check dams has proven to be very expensive. A definite advantage of using gabions is that larger and more stable structures can be built within a minimum time frame. Very few problems have been encountered with these structures. The ease with which the structures can be built reduces training time for the crew and minimizes supervision above the foreman level.

A comparable size double fence check dam would probably be as costly as a gabion structure due to the excessive labor involved in constructing the basket. It is felt that, dollar for dollar, gabions produce a superior product to a dam of equal size built of fence wire.

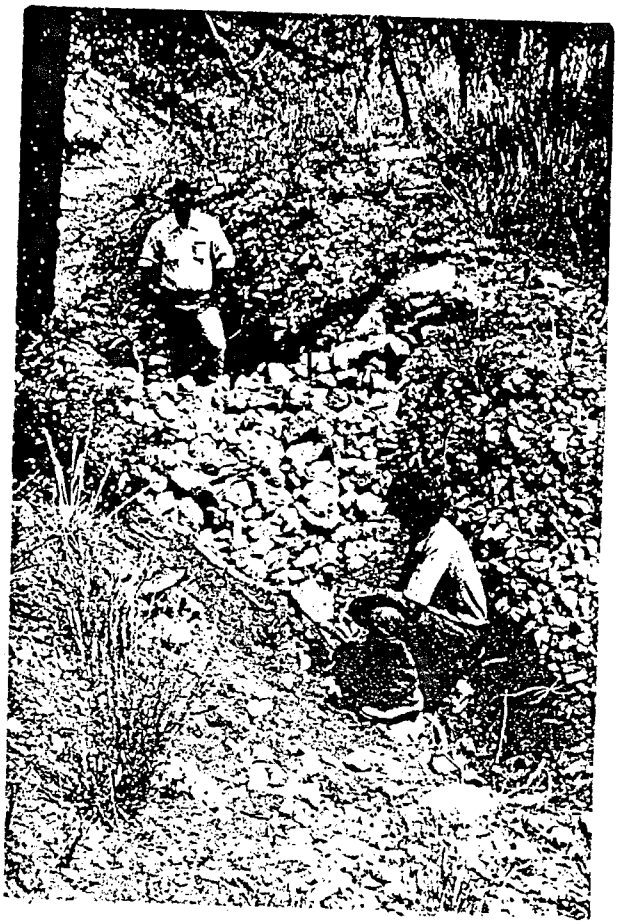
The smaller single fence, post and wire, check dams were inexpensive and very easy to construct. Several could be constructed each day. These small structures were used to stabilize degrading channels in the less critical drainages. Success of these small structures has been good to poor. Most problems encountered were when the structures were inundated by larger than expected flows. Many of these structures end-cut and had to be repaired.

An overall comparison of the two methods used is difficult since both methods had successes and failures. The objectives must be determined before one method is chosen over the other (grade stabilization or sediment storage). A combination of the two methods has proved very satisfactory. Channels were studied as to flow characteristics and critical points in the gully system were identified. Gabion check dams were used

to stabilize critical points and in areas where substantial flow would be encountered. Small single fence check dams were used between gabion structures and in side drainages where only low flows were expected. This technique has been very successful.



Two large gabion check dams will carry water through this natural meander. Aprons have end sills to create splash pools. Another large structure can be partially seen upstream at top left. (June 1975)

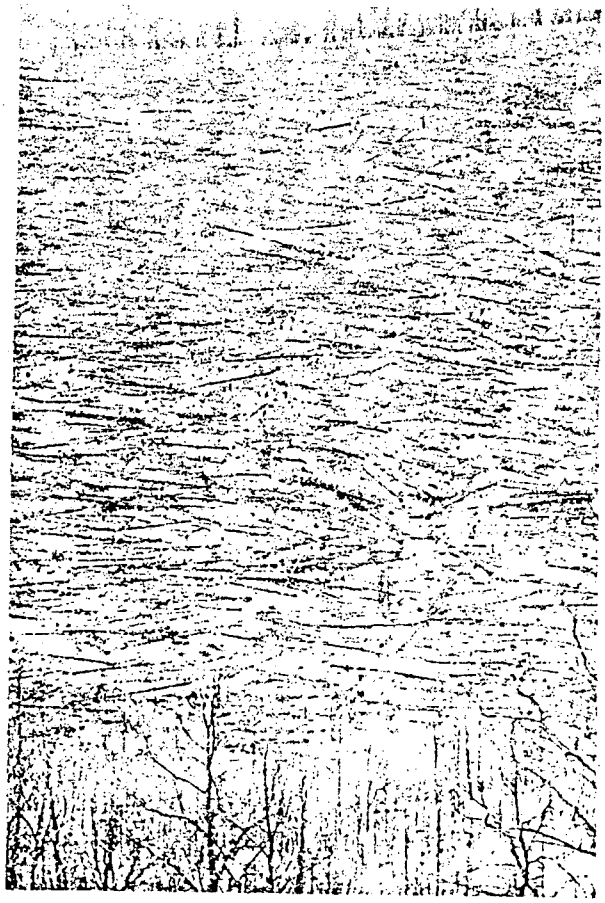


Upstream side of smaller single fence, post and wire, check dam. This size structure has been very successful in the smaller drainages. Aprons must be wrapped in wire. (June 1975)

Contour Tree Felling - Felling trees on the contour was accomplished on 260 acres in the fall of 1974. The Forest Service used several methods while searching for an acceptable procedure. It was finally determined that clear cutting was the most cost effective and efficient method to achieve the desired results. The intent of this project was to lay the trunks of the burned trees on the ground to act as sediment traps and retard overland flow. Difficulty was encountered in writing contract specifications to give the desired results. The area chosen for this practice was extremely steep with some slopes in excess of 60%. This

area was considered too steep and rocky for mechanical measures such as terracing. The contract was difficult to administer.

The results of this practice have been disappointing. The greatest difficulty encountered was getting enough of each trunk in contact with the ground. This could be accomplished, but not at a reasonable price. Due to the difficulties of administration, cost, and apparent lack of effectiveness as an emergency measure, tree felling was abandoned after one contract. The practice may have been more effective if it had been accomplished prior to the first rains.



Sideslope (60%) clearcut during tree falling project. Trunks were laid on the contour to act as sediment traps. (May 1975)

There may be some hidden or long term benefits of this project. The presence of the trees on the ground will have a beneficial effect on the micro-climate, enhancing chances of reforesting the area. Also, in the long run, as the trees decompose and settle to the ground they may act as efficient sediment traps. A long term evaluation of this project will be conducted.

Fencing - Most existing fences were destroyed in the fire. The rehabilitation plan anticipated a need to fence the entire 50 mile perimeter of the burn in order to protect newly established vegetation from stray livestock.

Analysis of needs revealed that livestock could be effectively excluded by fencing the private land boundaries along the Aqua Chiquita and constructing a few short fences to tie the private land fences to existing ones. Thirty-eight miles of fence were sufficient to accomplish this objective.

All fences necessary for the protection of rehabilitation work were completed by September 1975. Some additional livestock control will be needed for proper range management as grazing is restored to the area. These improvements will be constructed as funds become available through regular appropriation processes. Water developments damaged in the fire will also be repaired from regular range management funds.

Problems with trespass livestock on the burned area continue, but a great decrease in this use occurred upon completion of the fencing project.

Tree Planting - Reforestation of 448 acres of the most promising sites commenced on July 22, 1974, and was completed September 5. Seedlings were 2 and 3 year old Douglas fir and white fir which were on hand for another project area. The decision was made to divert these trees to the Spring Burn area and plant the most productive timber sites. It was realized at the time that the success ratio might be very limited due to the severe micro-climatic changes resulting from the fire. A survival check completed in October 1975 revealed a survival level of 17% to 69%,

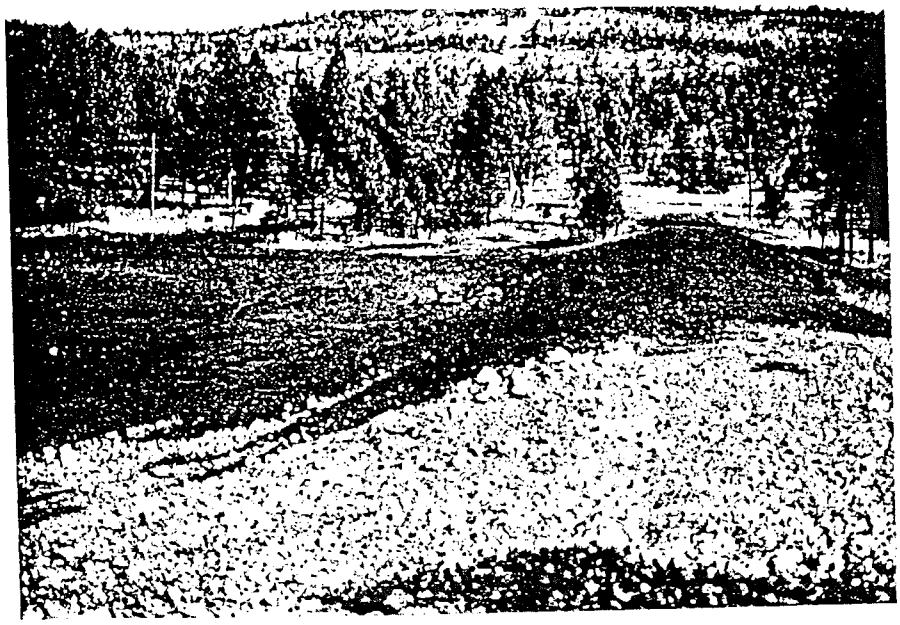
with most of the area being closer to the lower figure. The decision has been made to replant this area with 2 year old ponderosa pine seedlings in the early spring of 1976. Intense root competition for available moisture from the luxuriant stand of grass on the area could provide yet another obstacle to a satisfactory rate of seedling survival.

Earthen Debris Basins - The SCS contracted two earthen debris basins and one diversion structure. These are large earth fill dams with drain pipes. They are designed to retain a 10 year sediment yield from their respective drainages. Runoff water will only be temporarily detained.

Because of delays in obtaining the needed engineering assistance and contracting problems similar to those encountered by the Forest Service, construction was delayed until the rainy season of 1975. This resulted in higher than normal operating costs and time delays.

These structures are complete and functioning as intended. Much silt and debris will be trapped behind the structures and prevented from inundating valuable croplands and improvements.

Large earthen debris basin with diversion.



Inlet of drain pipe with trash catcher in earthen debris basin.

MAINTENANCE NEEDS

Maintenance will be needed on many of the treatment measures for the next 4 to 5 years. Past experience on other fires on the Lincoln National Forest shows it takes approximately 6 years for reasonable stabilization to occur. A detailed maintenance plan and funding request is being prepared.

Some maintenance of contour terraces is necessary as failures occur. Rebuilding of some washouts, by hand, is all that is expected. New vegetation will stabilize these terraces in the near future.

Check dams will probably need the most maintenance. Repair of structures damaged by floating debris, washouts, under and side cuts can be expected to occur. Some dams may need to be replaced and others constructed until

channel stability is obtained. The check dams are being carefully monitored and maintained as soon as possible after a defect is detected.

A large headcut has been discovered above improvements in Redhouse Canyon. Additional rehabilitation funds were appropriated for this project and work will start on April 5, 1976.

Severe winds, over 75 MPH, during late 1975 blew down many trees on the newly constructed fence. A project to repair this damage is underway using regular Forest funds.

CONCLUSIONS

The overall success of the burn rehabilitation can be attributed to the dedication of the many employees involved in the project. As many as 5 or 6 projects were in progress at one time. To keep abreast of this many projects and associated contracts takes a considerable planning effort.

The importance of planning cannot be overemphasized. The initial planning effort was organized before the fire was declared controlled, areas of responsibility delegated, and a timetable established. Forest and SCS priorities were shifted to the rehabilitation effort and the established timetable was followed. Rapid planning and execution is indispensible to any watershed restoration program following fire. A team approach to planning proved to be feasible to accomplish a high quality planning job in a short time.

Delays in on-the-ground action result from several factors, the greatest of which is uncertainty of funding. Several man months of time can be expended on a plan and funding requests with no assurance of financing.

A delay is sure to occur following submission of such a plan while the proposal is reviewed at several levels and national priorities are established. This delay was compounded on the Spring Burn, because of the involvement of two USDA agencies in the funding process. It was necessary to coordinate the plan between the Forest Service and the Soil Conserva-

2. All trees with a potential for windfall must be removed from canyon bottoms prior to or at the time of construction of check dams. Potential windfall trees must also be removed from fence lines.

3. Broadcast seeding of herbaceous species should be completed immediately following the burn on all fires in mountainous terrain. It is essential that this be accomplished before precipitation causes the ashes to crust over and before wind erosion removes the top soil.

4. Rotary winged aircraft are recommended over fixed winged because of the greater degree of control and economy. For maximum effeciency, two power driven seeders, such as the Sling King, are recommended per helicopter. One can be loaded while the other is in use.

5. Considerable difficulty was encountered in procuring the Sling King seeders, and in fact, the forest was only able to get one. It is recommended that Region 3 purchase several of this type of seeder to have on hand for aerial seeding or fertilization projects.

6. Fencing for livestock control should be programed into any revegetation project.

7. Much of the justification for funding on this project was based on high downstream values, and potential loss of life and property. Most of the practices used could also be justified for resource protection and maintaining site productivity. All large burns in the Sacramentos should be rehabilitated to minimize any further loss of production.

8. A procedure should be developed to get preliminary assurance of anticipated funding to the planning team before large amounts of time are invested in planning. The current system of SCS allocating funds to the Forest Service under the Flood Control Act helps, but needs to be expanded.

APPENDICES

APPENDIX I

REHABILITATION PLANNING TEAM

Rehabilitation Planning Team

The Soil Conservation Service, The U.S. Forest Service, and the County Agent met on April 10, 1974, and formed the following team to study resource damage and inventory rehabilitation needs:

Larry Allen - USFS - Range Conservationist - Alamogordo, NM
Eugene Ashford - USFS - Soil Scientist - Alamogordo, NM
Owen Carleton - USFS - Soil Scientist - Albuquerque, NM
Jack Carroll - USFS - Wildlife Biologist - Alamogordo, NM
Chuck Caruso - SCS - Engineer - Roswell, NM
Henry Cordell - USFS - Forester - Alamogordo, NM
Bill Currier - USFS - Revegetation Specialist - Albuquerque, NM
Phil Derr - SCS - Soil Scientist - Alamogordo, NM
Frank Fahrlender - SCS - District Conservationist - Alamogordo, NM
Dan Leisner - CEC - County Agent - Alamogordo, NM
Noel Marsh - SCS - Range Conservationist - Roswell, NM
Gordon Odell - SCS - State Conservation Engineer - Albuq., NM
Rodney Perkins - SCS - Soil Scientist - Alamogordo, NM
Jerry Ragus - SCS - Soil Scientist - Alamogordo, NM
Eric Siverts - USFS - Hydrologist - Albuquerque, NM
Jerry Spark - SCS - Biologist - Roswell, NM
Charles Stury - USFS - Hydrologist - Alamogordo, NM

APPENDIX II

PROPOSED RANGE MANAGEMENT PLAN

PROPOSED RANGE MANAGEMENT PLAN

I. Introduction

During April, 1974, the Spring Fire burned over 15,000 acres of timber and range lands. The fire not only destroyed forage resources but also many range improvements. Ten grazing allotments were affected by the fire.

Rehabilitation measures include seeding, contour terracing, planting Douglas fir trees, gabion check dam construction, small check dams and contour tree felling. Fences were also constructed to protect the rehabilitation work from damage by livestock from private lands. A detailed report on the burn rehabilitation is on file. With the newly constructed fences and the old fences that are still serviceable, the burn is divided into seven units.

The burn has been rested for two growing seasons following the grass seeding. Favorable climatic conditions have allowed the grass seedlings to set roots and become established. All seven units had additional rehabilitation work done in them during the summer of 1975 and most have had these areas reseeded. One unit, the Potter Hill Unit, can withstand grazing at this time. Other units will become ready to graze within the next three years. This management plan will set forth the manner in which grazing will be allowed back on the Spring Fire area. Overlay #1 shows the allotments prior to the Spring Fire.* Overlay #2 shows the seven units created by the new fences and overlay #3 shows the various treatments done in each unit.

II. Purpose

The purpose of this plan is to allow some grazing on the area affected by the fire at the earliest possible time, consistent with protection of the rehabilitation work and stabilization of the Spring Fire.

*Overlays and maps not included in this report.

III. Description of Units

A. Potter Hill Unit

The Potter Hill Unit lies south of Weed and west of Highway 24. This unit consists of the old Potter Hill and Windham Allotments. Terraces and gabions were constructed in "Gabion" Canyon, south of Weed. The unit is mainly in a pinyon-juniper series. Provided the treatment in Gabion Canyon is protected and water is hauled to the unit, it is ready to graze at this time. It may be necessary to fence out the canyon if this allotment is used.

B. Prather Unit

This unit lies south of Denny Hill and east of Highway 24. It consists of the Akers and the Prather Allotments. Timber was salvaged from most of this unit during the spring and summer of 1975. Skid trails and haul roads were seeded to grass in July of 1975. The unit is predominantly pinyon-juniper series, suitable for yearlong grazing. The newly seeded grass has only been rested for one growing season. This unit will be ready to graze during the winter of 1976. The Akers trick tank will need repair and water will have to be hauled in order to graze this unit.

C. Ehart Unit

This unit lies south and east of Sacramento. It consists of part of the Ehart and Windham Allotments, and the Lewis and Van Winkle Special Use Pastures. Rehabilitation work in this unit consists of extensive contour terraces done in the spring of 1975 and numerous post and wire check dams in the canyon draining into Weed. The terraces have only received one growing season. The south facing slopes are pinyon-juniper and the north slopes were Douglas fir-ponderosa pine series. Lack of water will limit grazing of this unit. This unit can be grazed during, either summer or winter. It will be ready to graze in the fall of 1976, after the newly seeded grasses have had time to set roots and become established.

D. McEwan Unit

This unit lies north of Sacramento and west of Highway 24. It is comprised of the McEwan Allotment and the southern most portion of the Bear Creek Allotment. This unit was extensively terraced and the head of Arco and Red House Canyons had trees felled on the contour to prevent loss of soil. The unit is primarily a ponderosa pine series, suitable for spring-summer grazing. The pipeline, storage tank and drinkers on the McEwan water system were destroyed in the fire and should be repaired as soon as possible, to help distribute cattle within the unit. Portions of this unit are valuable timber sites. As funds, time and manpower permits, this unit will again be planted with seedlings. This will require more protection from grazing as the areas are planted and until the seedlings can get out of reach of damage by grazing cattle. Another fence is planned for this unit to divide it into two equal pastures. Work on a large headcut in Red House Canyon will also be done in the summer of 1976. If cattle are salted away from this area, this unit will be ready to graze in the summer of 1976.

E. Cridebring Unit

This unit lies northwest of Sacramento. It consists of portions of the Cridebring and Bear Creek Allotments. This unit has been planted with Douglas fir seedlings and has been terraced. Some additional tree planting is planned for this unit. This work will require protection from cattle grazing until 1978. This unit is primarily a ponderosa pine series, suitable for summer grazing.

F. Pendleton Unit

This unit consists of the Pendleton Allotment. Only the northern 1/3 of the allotment was burned during the fire. Salvage logging occurred on this unit during the summer of 1975. The skid trails and haul roads have not yet been seeded to grass. This area is also planned for tree planting during

July, 1976. This unit is predominantly a Douglas fir-ponderosa pine series, suitable for spring-summer grazing. This unit will not be ready for grazing for at least two more years, after the timber sale rehabilitation work is completed. Before the unit can be grazed, 1/2 mile of boundary fence will be needed east of the Artesia Camp.

G. E K Unit

This unit lies at the start of the fire. It consists of the east central portion of the E K Allotment. This area was planted with Douglas fir seedlings. This unit is predominantly a ponderosa pine series, suitable for spring-summer grazing. It is a prime timber site and trees shall be established by planting again. This will require a change in season of use on the allotment. This allotment is used in conjunction with the North Bluewater Allotment to round out a yearlong operation. This unit could be used July 1 through October 30 without grazing damage to the seedlings.

This unit is again scheduled for tree planting in the summer of 1976. It should be ready to graze in the summer of 1978.

IV. Capacity

Although no production-utilization studies are available at this time, a tentative capacity for the winter of 1975 has been set at 50 head of cattle. This capacity was arrived at after a range inspection of the Potter Hill Unit. This capacity will be allotted to the permittees, in proportion to their term permits.

Allotments and obligations are as follows:

Allotment	Permittee	Number	Season
E K	Melvin Pearson	98	6/15 - 10/15
Cridebring	Dorothy Cridebring	37	5/16 - 11/15
Pendleton	Noel Akers	10	1/1 - 12/31
Bear Creek	Mary White	30	6/1 - 10/31
McEwan	Clarence Parker	28	5/20 - 10/31

Ehart	Eldo Lewis	10	5/6 - 11/30
Windham	Cordelia Lewis	10	11/1 - 4/30
Potter Hill	Jim Reed	28	1/1 - 12/31
Akers	Noel Akers	26	1/1 - 2/31
Prather	Tom Lewis	32	1/1 - 12/31

Currently Melvin Pearson, Mary White and Eldo Lewis have a place for their cattle on other portions of the Forest. Dorothy Cridebring is in the process of waiving her permit and neither she nor the purchaser has cattle to stock the allotment at this time. Any available capacity should therefore be divided proportionately among the remaining permittees.

Capacities for the McEwan Unit will be established in the Spring of 1976 and for Ehart and Prather, in the Fall of 1976.

Capacities on the E K and Pendleton Allotments are estimated at this time to be the same as before the fire. The season of use on the E K and possibly the Pendleton Allotments, will be adjusted to provide protection for the planted trees.

V. Management System

A. Winter 1975 - 1976

During the winter of 1975-1976, cattle will be grazed in the Potter Hill Unit. At this time the only available water in the unit is at an earthen tank in the SW1/4 of Section 35. This tank will not provide sufficient water for 50 head. However, two other waters are available to the permittees. Water could be hauled by vehicle down Highway 24 and put in a drinker in the SE1/4 of Section 35. Another drinker could be provided at the water storage tank in SE1/4 of Section 34, which belongs to Charles Denton. Should he not agree to let the permittees use his water, they could easily haul water to the same area. All three waters will be necessary to distribute the cattle while this unit is used. Salt should be kept on the ridge top north of these waters and away from gabion

Canyon. This will keep cattle dispersed, yet hold them away from Gabion Canyon.

Should the permittees be unwilling to haul water or salt properly, grazing cannot be allowed in the area.

B. Summer 1976

During the summer of 1976, the McEwan Unit can be grazed. Since the unit does have some areas planted to trees, the season should be adjusted to keep green feed available to cattle so they won't be grazing the newly planted seedlings. Cattle could be grazed from July 1 - November 31 without damage to the seedlings. At present, the only water available in the unit is at the trick tank at McEwan Lake and at the spring in SE1/4 of Section 19, and the springs in Red House Canyon and Arco Canyon.

C. Winter 1976 - 1977

During the winter, December 1, 1976, through March 31, 1977, the Prather Unit can be grazed. This will allow the Potter Hill Unit winter rest. The only available water on the unit is at the lower-most tank in Prather Canyon. The Akers trick tank needs maintenance of the storage tank. The artificial watershed was repaired in the summer of 1975. Until the storage tank is functioning and additional drinking troughs can be placed on a pipeline from the trick tank, water will have to be hauled. It should be hauled to the NE1/4 of Section 16, the NE1/4 of Section 21 and the SW1/4 of Section 23. Without these waterings, the unit should not be grazed. Salt should be placed along the ridge west of Prather Canyon to help distribute the cattle evenly.

D. Summer 1977

During the summer of 1977, the Ehart Unit will be available for grazing. There is no water available in this unit. A possibility exists of purchasing water from Mr. Van Winkle at the east end of his property and hauling through his prop-

erty to its far west end. Water could also be hauled to the NE1/4 of Section 32. All three of these waters are necessary for proper use of the unit. Salt should be placed on both sides of Ehart Canyon to obtain even distribution. The capacity of this unit will be less than the others because of its size and steep topography.

E. Winter 1977 - 1978

The Potter Hill Unit will again be grazed during the winter of 1977 - 1978. The same areas will need water in addition to providing water near Gabion Canyon or south of the J. W. White place. Salt will be placed as before.

F. Summer 1978

During the summer of 1978, cattle will be allowed back onto the Pendleton Unit, provided the rehabilitation work on the timber sale was completed in 1976. Salt should be placed away from the newly planted trees.

The McEwan Unit will be grazed as before. The season of use should be changed to July 1 - November 31, to provide protection to the seedlings.

G. Future Management System

The entire burn area should be ready for grazing after the summer of 1978. A grazing management plan will be developed by May 1, 1978. A number of alternatives will be evaluated. One possibility that appears feasible is to utilize the Pendleton and E K Allotments as they were before the burn. Join the Ehart and Potter Hill Allotments into a three pasture yearlong unit. Form another three pasture yearlong unit from the Akers, Prather, Miller Flats and Smith Allotments. Utilize the Cridebring and McEwan Allotments as a three pasture spring/summer unit.

Several other alternatives are possible and each will be evaluated as to carrying capacity, level of investment, and

protection of resources. Ideas and comments will be solicited from the involved permittees and the grazing advisory board.

VI. Improvements

Dependable water is a limiting factor throughout the burn. The area east of Sacramento is more critical than the rest. Water is totally lacking in Ehart, Potter Hill and Prather units.

Water that is available in the western portion of the fire is not in the most desirable location to obtain good distribution. Pipelines from the two trick tanks will help alleviate the problem. Hauling of water will be necessary in several locations for proper distribution.

Existing water developments will be repaired before any new improvements will be constructed. They are listed here by order of priority.

	Improvement	Estimated Cost
1.	Akers Trick Tank	$ 500.00
2.	McEwan Pipeline	$1000.00
3.	McEwan Unit Division Fence	$3600.00
4.	Akers Trick Tank Pipeline	$1000.00
5.	McEwan Lake Trick Tank Pipeline	$1500.00
6.	Other pipelines and trick tanks as determined necessary and feasible from wells, etc., on private land.	

A number of other improvements will be required to operate any of the alternative management systems for the burn area. A high level of cooperation will be required between the permittees and the Forest Service to develop the best management system for the area.

APPENDIX III

COST DATA

SPRING FIRE REHABILITATION

Project Finances

January 1, 1976

FOREST SERVICE

I. Funds Allocated

A. Regular Forest Service Funds			
Emergency Firefighting (4/74)	$22,000		
Protection and Management (5/74)	65,000		
Reforestation (5/74)	30,000		
Land Line Location (6/74)	10,000		
Total Forest Service		$127,000	
B. Public Law 81-516 (Flood Control Act 1950)			
Section 216 (5/74)-from SCS Washington	$35,000		
Section 216 (8/74) " " "	100,000		
Section 216 (1/75) " " "	180,000		
Transferred from SCS (3/75)-at State level	42,200		
Transferred from SCS (3/75) " " "	30,675		
Section 216 (12/75)-from SCS Washington	58,500		
Total PL 81-516		$446,375	
TOTAL ALLOCATED TO FOREST SERVICE			$573,375

II. Expenditures

Planning, Administration, etc.	$37,875		
Drain & Seed Fireline	22,000		
Seed Burned Area	89,000		
Corner Search	10,000		
Contour Terracing	50,000		
Check Dams	71,000		
Contour Tree Felling	18,000		
Fencing	185,000		
Reforestation	30,000		
Total Spent to Date		$512,875	

III. In Progress

Red House Canyon Rehabilitation	$56,745		
Maintenance of Structures	2,000		
Administer Red House Project	1,755		
Total in Progress		$60,500	
TOTAL EXPENDED			$573,375

SOIL CONSERVATION SERVICE

I. Funds Allocated

Public Law 81-516 (Flood Control Act 1950)			
Sec. 216 (8/74)	$100,000		
Sec. 216 (12/74)	153,825		
		$253,825	
Add on's at Washington		237	
TOTAL ALLOCATION RECEIVED			$254,062

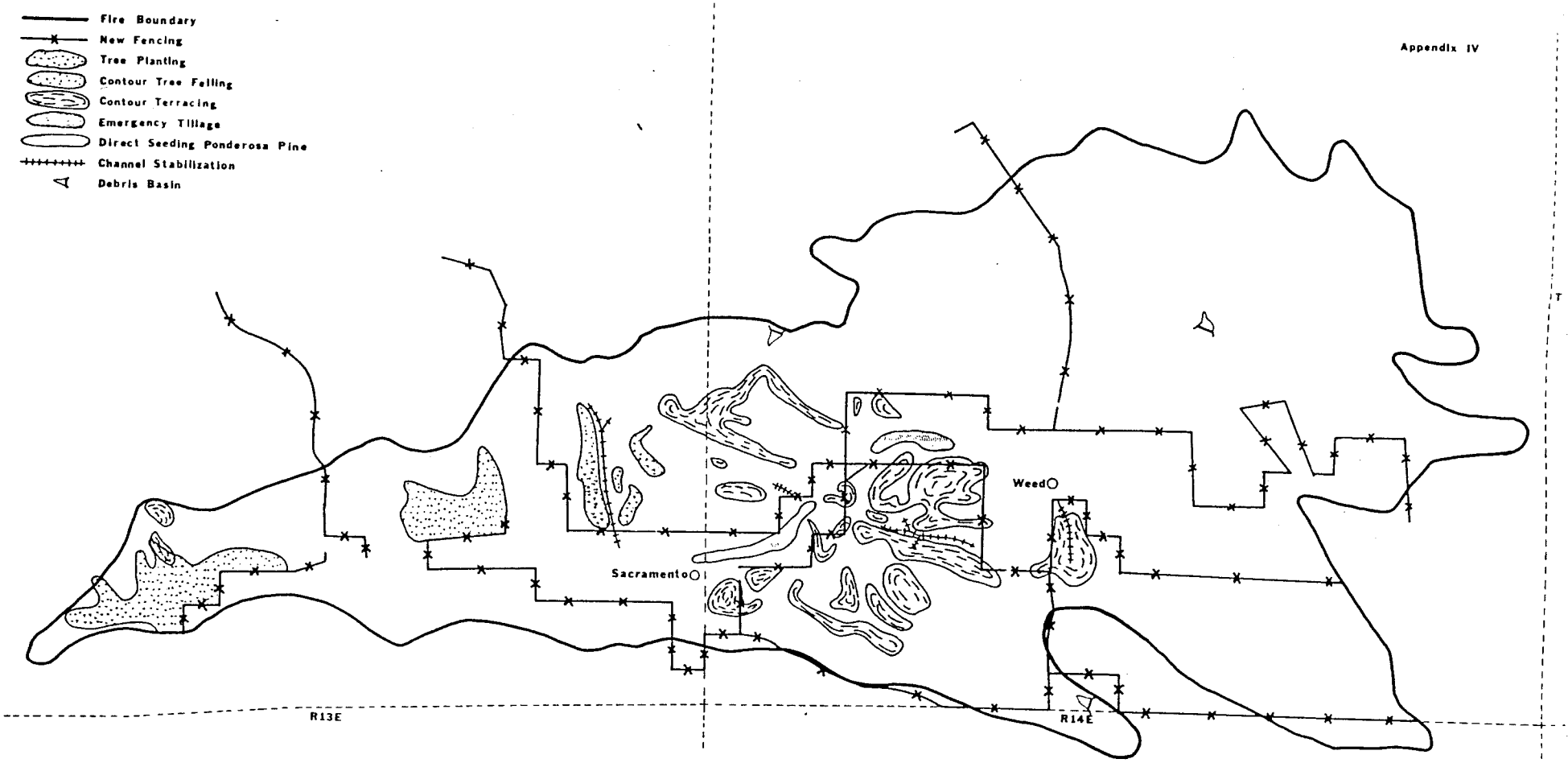
II. Expenditures

Transferred to Forest Service	$ 72,875		
Debris Basins	56,777		
Administration & Salaries	26,994		
Returned to Washington	80,950		
TOTAL EXPENDED TO DATE		$237,596	
BALANCE ON HAND		16,466	
			$254,062

APPENDIX IV

REHABILITATION MAP

Appendix IV



SPRING FIRE REHABILITATION MAP

1 1/2 0 1
scale miles