IN REPLY REFER TO:

4432.17(330)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

NOV 24 1970

Memorandum

To: State Director, Arizona

From: Director

Subject: Organ Pipe Cactus National Monument, Condition and Trend Study

A copy of a memorandum of agreement between the Bureau of Land Management and the National Park Service for conducting a range condition and trend study is enclosed. You are assigned responsibility for completion of the field work and reports.

Provide this office with a condition study which includes field maps showing vegetative types, write-up sheets, and summaries showing forage condition and soil condition. Because there is currently no range condition procedure in the Bureau manual you may contact both Service Center Directors regarding technical procedures. The following individuals have been selected to conduct the study:

Party Chief,	Robert Schultz	Safford District Office
	Bill Carter	Arizona State Office
	Jerry Townsend	Socorro District Office
	Ed Webb	Idaho Falls District Office

Travel authorizations have been prepared and will be sent directly to these individuals. A copy of this memorandum is being sent to the Idaho and New Mexico State Directors so they will be aware of the involvement of their employees in this project.

Work should begin on December 1, 1970, and all technical reports sent to this office by February 20, 1971, for review and forwarding to the National Park Service by March 1, 1971. We recommend that Mr. Schultz establish liaison with the Superintendent of the Organ Pipe Cactus National Monument as soon as possible.

Expenditures should be charged to activity 1920, work code 2025, and project 0161. We are limited to a total of $7000 in the agreement, $5600 for direct costs by your office and $1400 for indirect costs of the Service Center and Washington office. Salary and travel costs of Jerry Townsend and Ed Webb will be reported against this project through their respective offices. You have the responsibility to see that all the direct costs of the Bureau do not exceed the amount set out above. Please inform this office if this will affect accomplishment of your FY 71 operating budget.

John O Crow

Acting

Enclosure -- 1
Encl. 1 -- Copy of Memorandum of Agreement

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
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November 13, 1970

Memorandum

To: Director, Bureau of Land Management

From: Director, National Park Service

Subject: Condition and Trend Study - Organ Pipe Cactus National Monument

The National Park Service requested the assistance of the Bureau of Land Management in making a condition and trend follow-up study on the Organ Pipe Cactus National Monument. The following sets forth the provisions for conducting the study by the Bureau within the Organ Pipe Cactus National Monument.

The purpose of the study is to serve as a basis for management decisions regarding the resources on the National Monument and the effect grazing has had on the resources since the Forage Resource Inventory in 1965 and 1966, and to determine where cattle use of the Monument is in conflict with the primary objectives of the Monument which was established to preserve outstanding forms of Sonoran Desert vegetation, native species of wildlife and to provide for the enjoyment of the public of these species in an unimpaired state, and to determine if livestock grazing is a non-conforming use that is disturbing and damaging the natural features and is not compatible with visitor use objectives. To accomplish the proposed study, the agencies will provide the following.

The National Park Service agrees to (1) reimburse the Bureau of Land Management for cost (not to exceed $7,000) for the work performed. This will include salaries, equipment operation, per diem, cartographic work and overhead.

(2) Provide available aerial photographs, geological survey maps and other base maps of the National Monument as necessary for the study.

(3) Provide assistance to the field party through the Superintendent with regard to road conditions, travel routes, areas of the Monument to be excluded from the inventory and grazing data.

The Bureau of Land Management agrees to

(1) Provide National Park Service with the condition ; study which includes field maps showing vegetative types, write-up sheets, summaries showing forage condition, soil conditions.

The study will be conducted in accordance with Bureau procedures as outlined in the Manual for such studies.

(2) Work will begin on or about December 1, 1970 and the above information will be furnished the National Park Service by March 1, 1971.

(3) Upon completion of the work, the Bureau of Land Management will submit an SF-1081 to the National Park Service for reimbursement of expenses incurred.

SIGNED:

Bureau of Land Management

Eugene T. Peterson

Acting DIRECTOR

National Park Service

Edward A. Hummel

Acting DIRECTOR

V. Present Range Conditions

A. Vegetation - The range around Bates Well is the largest single overused area within the Monument. This area extends eight miles east to the Armenta Property, eight miles southeast along the drainage channels, west to the Cabeza Prieta Game Range and to the northwest corner of the Monument. Big galleta grass has been severely used. At least 85-90% of this grass has been taken. Bush muhly is found growing only in brush where it has been protected. Range ratany has been severely hedged at distances up to three to four miles from water. Heavy livestock use on paloverde, resulting in broken branches, was observed at distances up to four miles from water. White bur-sage has been heavily used up to two miles from water. There is a noticeable lack of ground cover in the area between creosote plants in the vast majority of the creosote types to the east and west of Bates Well and along the western portion of the Monument.

From the extreme southwest corner of the Monument easterly through Aguajita Springs and east another 2½ miles, the saltbush has been severely grazed. Saltbush plants are deeply hedged and plant vigor has been reduced. Dead and dying plants were observed. It is apparent that cacti are invading this area due to this loss of ground cover.

This same very poor range condition exists in the saltbush types at the Dowling Well and east to the Blankenship Well, a distance of some 6½ miles. Unlike the invasion of cacti in the southwest area, these saltbush types have an apparent invasion of creosotebush. This most severe use exists around the Blankenship Well, where dead remnants of saltbush are found. For a distance of two miles to the north and east of Blankenship, heavy use was observed on mesquite, paloverde and ironwood. Although sparse, bush muhly and perennial three awns were severely grazed. Light use was made of white bur-sage. From two miles out, heavy use existed in the drainage channels of the Sonoyta Valley, particularly on the limited amount of grasses.

In the canyon of Ali-Wau Pass heavy use was made on coursetia and false mesquite. Although sparse, heavy use was made on bush muhly and perennial three awns. No extensive use was made out of the canyon.

From Cement Tank north to Sweetwater Pass the range was heavily grazed. Jojoba showed a definite hedged line.

From Walls Well west for 3½ miles, one-half mile to the north and two miles south to Pitahaya Canyon, the use was severe. Bush muhly and three awns were grazed around the base of cholla plants.

Severe use then decreases to heavy to Highway 85. West of Highway 85 the use decreases from moderate to light. Heavy use existed from Pitahaya Canyon south into Grass Canyon and one mile south. The Alamo Canyon area shows severe use from one mile north and two miles west, then heavy use out to Highway 85, decreasing to moderate to light use west of Highway 85. Severe use was noted on jojoba and grasses were non-existent except where protected.

In the mouths of Grass and Alamo Canyons cacti were apparently invading.

Severe use extended from Alamo Canyon south for three miles. Arch Canyon received heavy use west to the Tillotson Mountains and south to Diablo Mountain. Estes Canyon showed light use. From this area southwest and toward Cement Tank the use was moderate. Two miles south of the Alamo Canyon road jojoba was observed to be dead and dying on the drier sites.

Severe use extends from Bonito Well along the washes to Poso Nuevo and the Aguajita Springs. Such species as big galleta, desert honeysuckle, saltbush and range ratany showed extreme use. From Bonito Well north along the eastern edge of the Cipriano Hills grass, however sparse, was completely used. There was noticeably heavy use on brittlebrush in the Cipriano and Quitobaquito Hills. Presumably this use on brittlebrush is being made by burros.

West of Poso Nuevo there is severe use being made of big galleta and a noticeable lack of ground cover. This use extends to the Game Range.

Mesquite appears to be invading the range around Dowling Well to the north and east to Lukeville; also from Lukeville east and north one-half mile above the Mexican Border to Blankenship Well. The Gray brothers have also indicated they have noticed an increase in mesquite in the Monument. The increase of mesquite is attributed to the dissemination and planting of seed by livestock, wildlife and rodents and the reduction of ground cover by overgrazing and drought. However, mesquite invasion cannot be attributed to any single source.

In the northeast corner of the Monument (1½ miles east of Highway 85) in an area of light use, grass species such as tanglehead, cottontop, three awns, bush muhly and big galleta were found in greater density and in a more vigorous growth form. In the Diablo Canyon Picnic Area such species as rothrock grama, three awns, side-oats grama, bush muhly and curly mesquite grass were also found. This area also evidently has received light use.

Browse species such as jojoba and range ratany were in a more vigorous and productive state. The above species are either lacking or reduced in density and are in poor vigor in other comparable foothill areas of the Ajo Mountains where heavy and severe use has occurred.

The Dripping Springs area has also received light use. Such species as bush muhly, three awns, cottontop, Mormon tea are growing in unprotected areas. These plants are growing with good vigor and make up a higher percentage of the vegetal cover than on other foothill areas where grazing has been heavy.

An area which lies five miles north of Poso Nuevo and seven miles southwest of Bates Well apparently has received light use. This area, which does not appear to have a different type of soil from many areas of the western portion of the Monument, supports a much higher percent composition of big galleta and white bur-sage, a higher density of ground cover and less creosote than surrounding areas. Drainage channels in this area also give way to increased density of big galleta with more robust plants.

Two exclosures were established on the Monument in March of 1963. One exclosure near the Armenta Homestead is in a creosote type with no ground cover between creosote plants. There is no difference in plant composition or density when comparing the vegetation outside the exclosure. The second exclosure, located on the Mexican Border three-quarters of a mile west of Blankenship Well, is in a saltbush type. When comparing the saltbush with the plants outside, there is a marked increase in seed head production and plant vigor on saltbush within the exclosure.

The Cipriano Hills are composed of volcanic rock which prohibits movement of cattle. At a distance of ten feet inside the rocky area big galleta is in greater density and volume and is more robust. This also holds true for species of bush muhly and three awns.

Although no studies have been made in previous years to give an indication of trend, it is obviously downward. An excessive number of cattle have grazed distant forage only after severe overuse of the better watered range. Too heavy and too frequent forage removal has resulted in declining forage vigor and ground cover. Although range utilization studies were not made, it is estimated that at least 50% of the palatable perennial vegetation over the entire area of the Monument has been over-utilized.

B. Livestock - Cattle are in very poor condition. It was observed during the forage inventory that many cattle were in a weakened condition. Although no attempt was made to count dead animals,

carcasses and several dying cattle were found around Aguajita Springs, Hocker Well, Walls Well and west of Bates Well to the Game Range boundary.

C. Erosion - Sheet erosion is occurring throughout the creosote and saltbush range types. Active gully erosion is spotty and occurring in the west and northwest regions of the Monument, in the Dos Lomitas area and to the west and south of the Armenta property. Overuse by livestock results in trampling of the soil, then compaction takes place and the soil no longer takes up moisture readily.

D. Wildlife -

1. Population - Although no organized wildlife survey was conducted, a record of all game animals observed during the field work and helicopter flights was kept by the crew members. The totals for each method were:

Ground Count	Helicopter Count
35 mule deer	23 mule deer
30 javelina	25 javelina
10 burros	4 burros
20 Sonoran pronghorned antelope	1 bighorn sheep

In comparing individual crew members' field counts with the helicopter counts, it was found that only a few of the animals observed from the helicopter were repeats of the field counts.

It is believed that the above numbers represent only a small percent of the game animals on the Monument, for three reasons: (1) field work was not carried out during the periods of heaviest wildlife activity (early morning and late evening), (2) the observation of wildlife was not the primary objective of the survey, therefore, little time was spent glassing hillsides, walking hills, etc., and (3) because of limited time and the multipurpose design of the helicopter flights, wildlife habitat was not intensively surveyed.

Two helicopter surveys have been conducted by the National Park Service. Although the primary objective of these flights was to determine the number of livestock using the Monument, game animals observed were recorded.

March 10-17, 1962	June 15, 1965
36 mule deer	8 mule deer
63 javelina	2 javelina
2 bighorn sheep	8 burros
1 burro	

NOTES ON RANGE CONDITION

R. L. Schultz
Nov., 1970

Condition based upon:

Vegetative composition (quality and quantity)
Ground cover (density)
Soil characteristics:
In comparison with
Potentially possible (composition, cover, soil)
Under existing (use, management, climatic conditions)

Vegetation has different values for different resource uses and users; therefore, what might be good condition for one resource may not necessarily be good condition for another,

Mainly, the difference largely depends on the quality and quantity of the vegetation.

Grazing and Watershed Value of Native Arizona Plants - C.P./Pase

1. 4 CYL's/section over.
2. Sediment movement is high
3. Few common shrubs are rated as desirable
4. Lists main species

Effect of Domestic Livestock Exclusion on Vegetation in Sonora Desert

Page 525 - species composition.

BLM unpublished - Guides for Trend

1. age classes
2. reproduction - seedlings
3. Desirable - undesirable
4. Dead plants
5. Hedge effect on browse (page 2)
6. Gully forming - healing (page 3)

Range Utilization - BLM Manual 4412.22 B7c(5)

Key forage - plant method
Util. classes - descriptive terms
Form 4412-12

A Field Method of Judging Range Utilization - Mike Deming
1939 - BLM Util. Studies

Util. classes - descriptive terms

How Well do you Read Your Range - Talbot

Western Livestock Journal - Jan. 1, 1955

Utilization
Condition
Trend
Livestock statement

BLM Manual 4412 - Appendix 3 4412.22 B7(f)(2)(d)

Pictorial Essay on Condition and Utilization

1. Use around shrubs - close
2. Uniform heavy use - close
3. Grass stubble - closely grazed
4. Hoof prints - dung piles
5. Stick off - closely mowed

Forage Production and Stocking Rates - USFS Research Note RM-30

40% use - proper

Journal of RM - Vol. 22 - September, 1969 - #5

Why proper grazing use?

1. Food storage
2. Proper use

Indicators of Southwestern Conditions - FB #1782 - M.W. Talbot

Signs of deteriority of range

1. Weakened vitality of principal forage plants
    a. pale, unnatural color
    b. reduced height
    c. reduced volume

    (Examiner's judgement; comparison with other ranges)

2. Close grazing of inferior forage
3. Thinning ground oover
    a. dying out of tufts
    b. twigs eaten back farther than one year's growth. Thinned hedge plants
    c. Numerous dead branches and occasional dead bushes
    d. Absence of good browse reproduction
    e. Replacement of good forage plants with poor ones
    f. Erosion
        1. recent gullys
        2. failure to reclaim small gullies
    g. Livestock - very tricky

General Guide to Satisfactory Utilization of SW Range Grasses - Parker

1. Proper use
2. Water distance for proper use
3. stubble heights

Relative Grazing Preference of Cattle for Common Semi-desert Grasses in Southern Arizona

Proper use - 25% ungrazed

Forage Production on Arizona Ranges - U. of A. Exp. Sta. Bulletin 302

Indicators of Improving Range

Erosion - gullies healing
vigor - vigorous growth of better forage
Degree of use - moderate to light use. Uneven and ragged appearance
Seedling establishment

Indicators of a Deteriorating Range

Active - erosion
Plant vigor - small, weak plants
Degree of use - excessive use of ~~finer~~ better forage
Seedlings - few or no young plants

P. 53 -

Southern desert shrub does not lend itself well to range condition classification. Light grazing use most of it received combined with the non-palability of most of the shrubs leads to few changes in vegetation.

Managging Grass-shrub - Cattle Ranges
Ag. Handbook No. 162

p. 18 - Range condition - A range in extremely poor condition usually results in poor condition of the grazing animals.

An experienced observer can classify the condition of grass-shrub range visually. He can note such characteristics of plant species, accelerated soil erosion, ground cover (living and dead) and plant vigor.

Classes of Conditions

1. Excellent
2. Good
3. Fair
4. Poor
5. Very poor

RANGE RESEARCH - National Academy of Sciences
Page 77 - Plant Vigor

On many ranges plant vigor is closely associated with grazing intensity. Whenever ranges are overgrazed, deterioration is often first reflected in plant vigor, followed by changes in plant density, composition, and soil stability. Plant vigor, herbage yields, species density, composition, soil stability and litter have all been used to classify range conditions and serve as an outline for evaluation of range improvement or deterioration.

Plant vigor is indicated in several ways:

Physical

1. Size and appearance of plants - manifested as dead centers, decadent appearance, dead branches and broken sod fof poor vigor and the opposite of these characteristics for good vigor.

2. Height and number of stems

3. No. and size of fruiting bodies or seed heads

4. Size and color of foliage

5. Herbage production

Physiological and Roots

1. Manufacture and storage of plant food reserves

2. Root development and growth

3. Amount and characteristics of chlorophyll

4. Winter and drought hardiness

Guides for Estimating Trend

The following factors or indicators of trend may be used as a guide in estimating current range trend. This listing is not complete and its application must be accompanied by the examiner's best judgment of conditions existing at each particular site. No one set of factors will give a positive determination and observations should be made of as many of these criteria as possible.

1) Vegetal Condition

Evidence of Upward Trend	Evidence of Static Condition	Evidence of Downward Trend
Good perennial forage plants are represented in all age classes from seedlings through mature plants.	The age class distribution of existing species is adequate to maintain the stand. As a rule of thumb this should approximate: Seedlings and young plants 10 to 50%. Mature plants 40% or more. Old Plants 10% or more.	Evidence of decreasing perennial forage plants or unnatural age class distribution such as absence or scarcity of seedlings, or young plants.
Undesirable species decreasing or present only as relics	Closed stand of mature plants which maintain dominence.	Undesirable species increasing in stand with a heavy percentage of young plants.
A definite increase in density and vigor of good forage plants as based upon past observations or comparisons with comparable adjacent areas.	Density remaining unchanged and vigor judged to be at least good.	An abrupt decrease in density and vigor of good forage species. Often accompanied by invasion of worhtless species or annuals.
Very few dead plants and evidence of good seed production.	Only a moderate amount of dead plants evident. Fair seed production by perennials.	An excessive number of dead or dying plants. Little evidence of better plants producing viable seed.

Evidence of Upward Trend	Evidence of Static Condition	Evidence of Downward Trend
Desirable browse forage plants, if present, in healthy condition. At least two or three years regrowth above any hedging effect from previous use. Good vigor indicated by long leader growth. Only normal death loss.	Desirable browse plants showing one year or more of twig regrowth present. Few dead branches. Generally of healthy appearance and vigor. No serious evidence of replacement of palatable browse species by less desirable plants.	Desirable browse plants heavily hedged. Current growth heavily utilized (over 60% of annual growth). Larger plants high-lined. Many plants may be dead or partially dying out. Inferior species may be replacing palatable ones. Grass stands being invaded by inferior browse species.
2) EROSION		
Good accumulation of plant litter. Litter and duff relatively undisturbed and in well defined zones.	Fair accumulation of litter, and little evidence of movement taking place.	Litter if any, being depleted. Top layers may be mixed with or covered by soil particles.
Little or no evidence of wind erosion taking place. Any existing bare or dune areas being taken over by plants, most of which are desirable perennials. The above is especially indicative if establishment is by seed from palatable perennials.	Any bare or dune areas are not increasing in size. Little or no evidence of change in marginal areas of vegetation.	Bare areas or sand blowouts or dunes, if present appear to be deepening or increasing in size. No evidence of successful invasion of plant life.
No evidence of soil deposition or buildup around base of plants.	The deposition of soil is very slight and noncecurring. Not noticeable on young plants. Old alluvial deposits largely vegetated.	There is noticeable soil deposition around base of plants, including young age groups. Plants will often be pedestalled. If roots are exposed this is evidence of very recent soil removal.

Evidence of Upward Trend	Evidence of Static Condition	Evidence of Downward Trend
Any eroded gullies healed or healing. Sides as well as bottoms becoming covered with protective vegetation. Erosion pavement areas fully vegetated within limits of the site potential.	Gullies mostly healed. Not deepening, and no apparent increase in head cutting; gully walls will be at least partly vegetated and nearing angle of repose. Erosion pavement, if present, is not increasing.	Gullies present and unhealed, active head-cutting, gullies steep sloped and may be deepening. Rill channeling observable. Erosion pavement forming.

CURRENT EROSION CONDITION CLASSES

EROSION NONE: All soil layers intact and stabilized; plant and litter cover effective in protecting soil; runoff is clear; no piling up of litter behind plants; gullies, if present, completely stabilized and healed.

EROSION SLIGHT: May be evidence of past accelerated erosion but now fairly well stabilized; plant and litter appear effective in protecting soil; plant pedestals few or sloping sided and stabilized; rills, alluvial deposits and gullies, if present, are nearly healed; some litter may be deemed against vegetation forming miniature alluvial fans; trampling displacement slight, no noticeable compaction; rodent activity normal.

EROSION MODERATE: Occasional bare spots giving patchy appearance; few plants definitely pedestaled; plant cover and litter effectiveness doubtful in protecting soil; litter scarce and considerable bare soil; erosion pavement forming with occasional exposed pebbles and stone; trampling displacement and compaction noticeable; occasional alluvial deposits; concentration of runoff into small channels forming rills; cat steps and terraces noticeable on slopes; gullies, if present, now raw; runoff murky; rodent activity may not be noticeable.

EROSION SEVERE: Numerous bare spots; sheet erosion, soil compaction and trampling displacement definitely apparent; erosion pavement evident on stony or gravelly soils; pronounced drift on sandy soils; channels or gullies if present, with raw sides; alluvial deposits common; majority of plants pedestaled with some roots exposed; runoff murky; rodent activity may be excessive.

EROSION CRITICAL: Plant cover inadequate, litter lacking; subsoils exposed in many places; pedestals of stronger perennials almost completely eroded away; erosion pavement complete on stony or gravelly soils; "blowouts" and excessive drifts on sandy soils; rills and alluvial deposits numberous; gullies, if present, with raw sides; runoff muddy often causing minature mud flows; rodent activity generally severe.

the condition class in each vegetation type on the suitable range. On the map indicate the lower condition class of either vegetation or soil stability below the vegetation type. For example, a grassland range with a vegetation condition rating of Fair and a soil stability rating of Good will be shown as 1-Fear-Mumo. If the vegetation rating
F
is Good and the soil stability rating is Fair in a ponderosa pine type, the range condition classification will be indicated as 6-PP-Mumo-Fear.
F

Range condition is the state of health of both soil and vegetation. Except for seeded ranges, range condition is based on ecological relationships. Condition for seeded ranges will be based upon the planted species and soil stability.

Factors considered in the determination of range condition are the kinds and amounts of plant cover, plant vigor of the desirable species, and soil characteristics, particularly soil stability. Condition is determined by use of scorecards for vegetation and soil. Each is rated separately but must be considered together in determining range condition. Five condition classes for soil and for vegetation will be used in Region 3. They are: E - Excellent; G - Good; F - Fair; P - Poor; and VP - Very Poor. An excellent condition designates little or no departure from the ecological potential. Very Poor designates extreme deterioration of soil or vegetation.

1. Vegetation Condition. Species composition, plant cover (forage density index), and vigor are important criteria used in classifying vegetation condition and trend in condition. Form and age classes must be considered where browse makes up part of the composition on the suitable range.

a. Composition. Species composition is the principal criteria on which range condition is based. Plant species are classified into groups according to the manner in which they respond to grazing as follows: Decreasers, Increasers, and Invaders. Invaders also include most of the poisonous or noxious plants. Definitions of these groups are included in the Appendix, page 123.

b. Vegetation Cover. As used in Region 3, vegetation cover is the plant occurrence or "hits all plants" as determined from hits along a transect line. It is determined by an actual hit within a 3/4" loop within the root crown area of grasses, grass-like plants, and most forbs; and within the periphery of the live perennial crown of shrubs and mat forming suffrutescent forbs, the current annual growth being ignored.

Plant occurrence considers all plants; decreasers, increasers, and invaders. Only decreaser and increaser plants are considered as forage cover or "hits forage plants" when evaluating the condition of the vegetation.

c. Vigor. Plant vigor is an indicator of plant health. A change in vigor is generally the first indication of change in range condition. Change in vigor is more readily detected than a change in composition. Care must be taken not to overrate vigor due to luxuriant growth during an abnormally good growing season, or to underrate vigor following an abnormally poor growing season; i.e., a grass plant in low vigor may send up one exceptionally tall seed stalk during an abnormally favorable growing season, yet the plant has insufficient vigor to produce foliage or a normal number of seed stalks on an average year. Conversely, a robust plant may produce very short seed stalks, sometimes hardly above the foliage, due to a poor growing season. The fluctuation in seed stalk heights is generally lessened as the vigor or health of the plant nears its optimum.

d. Browse Form and Age Classes. Browse forage contributes considerably to livestock grazing on many R-3 ranges. Big game also depend on browse whenever it is available. The vegetation condition must be determined where browse is present on the suitable range and is available to livestock use. Form and age classes will be determined for the decreaser and increaser species which are within reach of the grazing animals. See Appendix p. 137 for description of form and age classes. The density and impenetrability of the browse will also be considered.

2. Rating Vegetation Condition. For most vegetation types each component is given the following relative weights on a 100-point base in the Region 3 vegetation condition scorecards:

	Percent
Composition	54
Cover	36
Vigor	10

depth to restrictive layer, compaction, etc., and recorded on reverse of R3 2200-23 (Exhibit #3). This will require digging a hole or using an erosion or road cut at the cluster location and from one to several holes on the other areas depending on the uniformity or complexity of the area proposed for treatment. Explanation of entries to be made on the above form are found in the Appendix, page 124. Always fill up the test hole to prevent an accident.

Evaluation

1. Trend in Range Condition. Trend is the change in condition of vegetation or soil stability. In most instances, the changes occur over a period of time and are difficult to determine by general observation. Accurate measurement of permanently established transects repeated at periodic intervals will be the basis for obtaining data to be used in interpretation of the longtime trend. The basis for trend of vegetation and soil will be recorded for each on Block C, R3 2200-23 (Exhibit #3). If the trend for either soil or vegetation is down, then the range trend will be considered as down. Trend will be indicated by an arrow as follows:

↑ Upward Trend → No apparent Trend and ↓ Downward Trend.

2. Apparent Trend. Determination of apparent trend is essential as a guide to better management, especially if downward. Trend estimates cannot be based on one or two indicators unless they are especially strong. If a majority of indicators point to improvement, the trend should be judged upward; if a majority point to deterioration, the trend should be judged downward. In some cases there will be no apparent trend and a final decision will have to await further study, observation and/or measurement. In doing the analysis job, the examiner should judge the range trend to the best of his ability and indicate a trend if possible.

a. Apparent Trend Guidelines. General guides to estimating range trend are divided into 2 groups; one indicating upward trend and the other downward trend. Each group has been further divided into vegetation indicators and soil indicators. They are as follows:

Vegetation

Indicators of Upward Vegetation Trend

(1) Decreaser forage plants becoming more abundant and available to livestock. Decreaser forage plants growing in the openings between shrubs. Study of old photographs, review of range reconnaissance write-ups, and inspection reports may aid in making this determination.

(2) Filling in of bare spots by decreaser or increaser forage plants. This must be positive; that is, a variety of age classes must be represented in addition to seedling reproduction. Decreaser or increaser species may be becoming more abundant in stands of invaders. In some instances, decreasers or increasers becoming established in openings between shrubs is a good indicator of upward trend.

(3) Establishment of perennial plants on erosion pavements is a good indicator of upward trend. The basal parts of the plants will be flush with the ground surface if soil erosion has stopped.

(4) Several years' regrowth from hedged browse. At least two or more years' regrowth should be in evidence to establish the fact of upward trend. The age of regrowth may be established by counting terminal bud scars and in some instances by counting annual growth rings.

(5) Decreaser plants increasing and vigorous. Forage plants should be reproducing vigorously and a variety of age classes must be present. Grasses should be robust with numerous leaves, tall and numerous seed stalks, and leaves should have a healthy green color.

(6) A well-dispersed accumulation of litter from past years' growth. Generally a well-dispersed litter layer accompanies a well-dispersed vegetation cover. (May be absent or minimal on many grassland sites.)

Indicators of Downward Vegetation Trend

(1) Lack of reproduction and young plants of decreaser species. Absence of seedlings or young plants of decreaser plant species may indicate that microclimate is unfavorable for germination or seedling survival. If seedlings and young plants of unpalatable plants are present and those of palatable plants are absent, it may be assumed that grazing is too severe for palatable plants to become established. Downward trend is indicated.

(2) Death loss of decreaser and increaser plants. Decreaser and increaser plants are absent, dead, or dying.

(3) Invasion by invader species.

(4) Decreaser species decreasing in vigor as shown by photographs, vigor measurement, or plant analysis.

Soil Stability

Indicators of Upward Soil Trend

(1) Gullies healing. Gullies which originate on the area are becoming stabilized by growth of perennial vegetation both on sides and bottoms. The presence of vegetation in gully bottoms alone is not in itself a reliable indicator of improved range condition. It may be misleading if used without a careful appraisal of conditions on the area drained.

(2) Soil remnants with sloping sides. Soil remnants having sloping sides or sides covered with mosses, lichens, or higher plants. Plant roots are covered by soil. Space between soil remnants is occupied by perennial plants.

(3) Healed terraces. Stabilized terraces are characterized by sloping sides covered with vegetation and no exposed live roots. Tops of terraces should be occupied by perennial plants.

Indicators of Downward Soil Trend

(1) Rill marks. Rill marks are small active gullies, frequently of the shoestring type. They often appear during storms but they may not be observed because they are obliterated later, depending on the depth of the cutting. Rills are best observed immediately following a storm.

(2) Active gullies. Established gullies are raw and actively cutting. This type of gully may vary from a few inches to several feet in depth.

(3) Alluvial deposits. Soil material is transported and laid down by running water. Soil deposits may be found in depressions, behind piles of litter or debris, or at the termination of rills and gullies. Recent deposits may partially cover the basal portions of established plants. Recent deposits may usually be distinguished from old ones by absence of perennial vegetation on the deposit.

(4) Soil remnants. Soil remnants are portions of the original top soil held in place by vegetation or plant roots. They may form the base of pedestalled plants. Soil pedestals capped by rocks or pebbles may be found following storms. They usually are of recent origin. Steep-sided soil remnants characterized by almost vertical sides and often with exposed roots of the plants holding the remnants of the soil.

(5) Active terraces. Terraces are "stairstep-like" in appearance and are produced by an accumulation of soil above clumps of vegetation on a slope and removal below. Active terraces have more or less steep sides, show evidence of sliding soil, exposed live roots, and are not stabilized by vegetation.

(6) Exposed plant crowns or roots. Soil loss is taking place currently as shown by exposed crowns or roots appearing on young, deep-rooted perennial plants.

(7) Wind-scoured depressions between plants. Depressions caused by wind removal of soil particles are present in the surface of the soil. In extreme cases the soil surface is merely a series of such shallow depressions separated by low ridges of vegetation. If the surface of the depression is scoured or etched, rapid downward trend is indicated.

(8) Wind deposits. Wind deposits are formed by fine soil particles that have drifted into the lee side of the vegetation or into the vegetation itself. Recent wind deposits show little, if any, discoloration of the surface material by organic matter and no decomposition of buried plant parts.

3. Measured Trend. The establishment of permanent clusters to measure changes in vegetation and soil stability is an integral part of range analysis. Trend will be determined by making periodic remeasurement of clusters and comparing and evaluating the results of these measurements at these specific bench marks.

a. Photo Points and Line Intercept Transects. These and other studies and plots have been established and have been used to provide trend data. These established plots and procedures will be maintained, and the records used to supplement knowledge on range trend.

b. The Parker Three-Step Clusters. To determine trend, these clusters will be established as follows:

(1) Within selected or key areas of the suitable range which will respond to management.

(2) Within and, at a comparable site, in close proximity to the outside of all range study, erosions, stream bottom, and wildlife plots, and other exclosures within the suitable range area to determine the differences in vegetation condition and soil stability by comparison between grazed and ungrazed areas.

Plant species are classified into groups according to the manner in which they respond to grazing.

a. "Decreasers" are species of undisturbed or climax plant communities. They are usually good forage species and are the first to show effects of heavy grazing use. With few exceptions they have deep, fibrous roots which facilitate infiltration of precipitation and resist soil movement. Proportions of grasses, forbs, and shrub species classified as "decreasers" will vary with the plant community.

b. "Increasers" are also species of climax plant communities. They may be the first to replace "decreaser" species under range deterioration. Changes during this period are largely between climax species with "increasers" replacing "decreasers." "Increaser" species may then decline as grazing disturbance continues. On severely overgrazed range they may be eliminated.

c. "Invader" species are nonclimax species characteristic of disturbed areas. "Invader" species may be found in climax plant communities but only in very small amounts on disturbed areas such as mounds of burrowing animals. Range deterioration permits them to occupy extensive areas. Such species are low in the scale of plant succession.

VIGOR OF IMPORTANT FORAGE SPECIES (Rate each species from 0 to 5 and average to give total rating from 0 to 5).

Tall Grasses (Sideoats, tall Andropogons, tall three-awns, mountain muhly, needle-and-thread, dropseeds).

Plants tall (34 inches or over), leafy with long (8 inches or longer) leaves, and numerous seed stalks per plant; (50 or more for sideoats)	9-10
Plants less leafy and with fewer seed stalks (10 to 50 for sideoats), 24 to 33 inches tall, leaves 6 inches or longer	5-8
Height 15 to 23 inches, leaves 4 to 6 inches, few seed stalks (3 to 10 for sideoats)	2-4
Plants weak, partly dead or pull up easily; less than 15 inches tall, leaves short (4 inches or less), seed stalks absent or 1 per plant	0-1

Mid Grasses (Blue grama, mountain muhly, mutton bluegrass, prairie Junegrass, western wheatgrass, galleta, little bluestem, other gramas except sideoats, spike muhly, wolftail, and squirreltail).

Plants tall (30 inches or over), leafy with long (7 inches or longer) leaves, produce abundant seed; blue grama will have many seed stalks with three or more spikes	9-10
Plants less leafy, 18 to 30 inches tall, leaves 5 inches or longer; the majority of blue grama seed stalks will have 2 spikes	5-8
Plants usually shorter (9 to 18 inches) with fewer leaves; blue grama seed stalks usually will have one and not more than 2 spikes	2-4
Plants weak, pull up easily, less than 9 inches tall, leaves short (3 inches or less), seed stalks few or none; blue grama seed stalks will have only a single spike and that 1 inch or less in length	0-1

Browse (Preferred forage species, i.e., antelope bitterbrush, true cercocarpus, cliffrose, etc.)

Annual twig growth within reach of livestock 6 inches or longer or, if shorter, twigs densely crowded on branches, crowns loose and open; flowers or fruits profuse	9-10

Annual twig growth 3 to 6 inches; flowers or fruits plentiful; crown compact. Mixture of age classes present 5-8

Plants densely compact with up to 50 percent of the branches dead. Annual twig growth less than 3 inches, flowers or fruit scarce. Reproduction lacking 2-4

Plants stubby with more than 50 percent of the branches dead, and some to many plants completely dead. Practically no annual growth or flower or fruit production 0-1

INTERPRETATION OF VEGETATION SCORE

(Total rating for Forage Cover Index, Composition, and Vigor)

Excellent	81-100	Fair	41-60	Very Poor	0-20
Good	61-80	Poor	21-40		

Part II. Soil

EROSION HAZARD (0 - 50)
(Percent surface exposed to erosion)

0 - 7 percent bare soil	41-50
8 - 15 percent bare soil	31-40
16 - 30 percent bare soil	21-30
31 - 60 percent bare soil	11-20
61 - 100 percent bare soil	0-10

(Bare soil hits per transect or average per cluster)

CURRENT EROSION (0-50)
(Erosion group)

Guidelines for Rating Current Soil Erosion

1. Plant cover and litter - well distributed; effective in protecting the soil. 41-50

Bare spaces - small and well dispersed; not contiguous or coalescing.

Erosion pavement - not present

Soil movement - practically none; no active rills or gullies; areas eroded in the past, if evident, completely stabilized and healed.

Soil deposition - if present, not of local origin.

Pedestalling - not present.

Trampling - no current trampling displacement evident; old terraces due to trampling, if present are completely stabilized.

2. Plant cover and litter - well distributed; appears effective in protecting the soil, litter dams uncommon. 31-40

Bare spaces - small, well dispersed, occasionally coalescing.

Erosion pavement - little or none.

Soil movement - slight and patchy, no gullies; rills, if present, few and isolated. Areas eroded in the past, if evident, mostly stabilized and healed.

Soil deposition - slight, mostly not of local origin.

Pedestalling - little, close to bare spaces.

Trampling - little current trampling displacement; stabilized.

3. Plant cover and litter - thin or discontinuous and not well distributed; litter dams evident. 21-30

Bare spaces - often coalescing, but with no continuous runoff pattern; large spaces less common than small ones.

Soil movement - discernible on less than half of the area; may be accelerated in spots and stable elsewhere; active gullies few; rills occasional; may be evidence of wind scouring.

Soil deposition - occasional small alluvial deposits present; wind deposits may be evident as small dunes.

Pedestalling - common.

Trampling - current trampling displacement may be common either in form of trailing or general displacement.

4. Plant cover and litter - sparse, patchy, and definitely not effective in preventing soil movement; litter dams may or may not be present. 11-20

Bare spaces - frequent, commonly coalesced with a definite runoff pattern; large bare spaces common; subsoils may be evident in small areas.

Erosion pavement - well developed in most bare spaces.

Soil movement - prominent; active rills and gullies common; small blowouts common in windy areas.

Soil deposition - conspicuous alluvial deposits common; wind deposits may be prominent in small dunes; plant root crowns and stems partly buried.

Pedestalling - majority of plants pedestalled.

Trampling - current trampling displacement widespread and generally distributed.

5. Plant cover and litter - plants and litter isolated with very limited effect on control of soil movement. 0-10

Bare spaces - generally large with prominent runoff pattern; subsoils exposed generally over the area.

Erosion pavement - continuous on stony or gravelly soils.

Soil movement - severe with extensive rilling and gullying; in windy areas, blowouts are large and common.

Soil deposition - large dunes common on light soils; plant root crowns and stems deeply buried; drainage channels choked with alluvial deposits.

Pedestalling - nearly all plants pedestalled.

Trampling - current trampling displacement widespread and excessive.

Notes on Range Condition

R. L. SCHULTZ
NOV. 1970

CONDITION based upon:

veg. composition (quality & quantity)
ground cover (density)
Soil characteristics

IN comparison with

Potentially possible
- composition
- cover
- Soil

under existing → use
mgmt.
Climatic. Conditions

Vegetation has different values for different resource uses and users; therefore what might be good condition for one resource mgmt necessarily be good condition for another. Mainly the difference largely depends on the quality & quantity

of the vegetation.

Grazing & Watershed value of Native Ariz. Plants. - C.P. Pase

1. 4 cyls / section over.
2. Sediment movement is high
3. few common shrubs are noted as desirable
4. lists main species

Effect of Domestic Livestock Exclusion on Veg. in Sonora Desert.

page 525 —
species composition.

BLM unpublished - Guide for Trend

1. age classes
2. reprod. - seedlings
3. Desirable - undesirable
4. Dead plants.
5. Hedge effect or Browse (page 2)
6. Cyclic thinning - healing (page 3)

Range Util. BLM manual 4412.2287c(5)

Key Forage Plant method

Util classes - descriptive terms

form 4412-12

A Field Method of Judging

Range Utilization - Milo Deming

1939 - BLM Util. Studies

Util. classes

descriptive terms

How Well do you read your

Range - Talbot - ~~Jour.~~

Western Live Stock Journal

Jan 1953

Utilization

Condition

Trend.

~~DAT~~ livestock statement

BLM Manual 4412 Appendix 3
4412.22 B 7(f)(2)(d)

Pictorial Essay on Condition and Utilization

1. Use around structures - close
2. Utilization Key use - close
3. Grass stubble closely grazed
4. Hoof prints, dung piles
5. Stick up closely mowed

Forage Production & Stocking Rates - USFS Research note RM-30

40 % use - proper

Journal of RM Vol 22 Sept '69 #5

Why Proper Grazing Use?

1. Good Storage
2. Proper Use

Indicators of Southwestern Range Conditions — FB #1782 - M.W. Talbot.

Signs of Deteriority Range

1. Weakened Vitality of Principal Forage Plants.
   a. pale unnatural color
   b. reduced height
   c. reduced volume

   examiners judgement
   comparison with other others.

2. Close grazing of inferior Forage
3. Thinning ground cover
   a. dying out of tufts
   b. Twigs eaten back farther than one year growth. Trimmed Hedge plants
   c. Numerous dead branches & occasional dead bushes
   d. Absence of good browse reprod.
   e. Replacement of good forage plants with poor ones

f Erosion

1. Rill + gullies
2. Failure to reclaim small gullies.
9. Livestock – very tricky

General Guide to Satisfactory of SW Range Grasses – Parker

1. Proper Use
2. Water Distance for Proper Use
3. Stubble Height

Relative Grazing Performance of Cattle for Common Semi-desert Grasses in So. AR. 2.

Proper Use, 25% Utilization

Forage Production on Arizona Ranges - U of A Exp. Sta Bull 302

Indicators of Improving Range

Erosion - gullies healing
Vigor - vigorous growth of better forage
Degree of use - mod. to light use. Uneven and ragged appearance
Seedling Establishment.

Indicators of a Deteriorating Range

Action - erosion
Plant Vigor - small weak plants
Degree of use - excessive use of better forage
Seedlings - few or no young plants.

page 53

Southern desert Shrub does not lend itself well to range condition classification. Light grazing use most of it receives combined with the non palatability of most of the shrubs leads to few changes in vegetation.

Managing Grass-Shrub
Cattle Ag Handbook No. 162

p. 15 Range Condition - Arrange in extreme by poor condition usually results in poor condition of the grazing animals.

An experienced observer can classify the condition of grass-shrub range visually. He can note such characteristics of plant species, accelerated soil erosion, ground cover (living and dead) and plant vigor.

Classes of Conditions

1. Excellent
2. Good
3. Fair
4. Poor
5. Very Poor

Range Research - National Academy of Sciences

page 77 - Plant Vigor

On many ranges plant vigor is closely associated with grazing intensity. Where ranges are overgrazed, deterioration is often first reflected in plant vigor, followed by changes in plant density, composition, and soil stability. Plant vigor, herbage yields, species count, composition, soil stability and litter have all been used to classify range condition and serve as criteria for evaluating range improvement or deterioration

Plant Vigor is indicated in several ways:

Physical

1. Size and appearance of plants — manifested as dead centers, decadent appearance, dead branches and broken sod for poor vigor and the opposite of these characteristics for good vigor
2. Height & number of stems
3. No. & Size of fruiting bodies or seed heads
4. Size and color of foliage
5. Herbage production

Physiological and Roots

1. Manufacture & storage of plant food reserves
2. Root Development & growth
3. Amount and characteristics of chlorophyll

OPTIONAL FORM NO. 10
5010-104

UNITED STATES GOVERNMENT

Memorandum

TO : Riley

DATE: September 25, 1970

FROM : Moe

SUBJECT:

Matt Ryan of the Organ Pipe Cactus National Monument called today - Friday, September 25 - he has $7,000 with which to do range survey on the Monument. He asked that we work up a Memorandum of Agreement for their Regional Director's signature since had had no format or experience. He had no specific recommendation as to schedule.

He will be gone (out of the office) the first two weeks in October but said you could call and talk with anyone acting at that time if you need to.

Price

1340 (RPM)
Your Ref: (D-733b-3)

State Office
3022 Federal Building
Phoenix, Arizona 85025

February 2, 1971

Memorandum

To: Director, Denver Service Center

From: State Director, Arizona

Subject: Corrections to payroll costs

With reference to your memorandum of January 27, 1971; Subject: Corrections to Payroll Costs, may we again call your attention to Mr. John Crow's memorandum of November 24, 1970 in which he specified that all charges to the Organ Pipe Cactus National Monument reimbursable work should be charged to Activity 1920, Work Code 2025 and Project 0161.

Your office persists in making erroneous corrections; this is the third time we have informed your office of this change.

Joe T. Fallini

cc: Eng. (B.White)
Safford Dist. (R.Shultz)
Las Cruces Dist. (J.Townsend)
Idaho Falls Dist. (E.Webb)

MHAllen:fac

DSC-1340-341
9/68

1 L+M
2 RPM
3 ENGR

IN REPLY REFER TO:
(D-733b-3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DENVER SERVICE CENTER
BUILDING 50
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

ARIZONA STATE OFFICE
BU. LAND MANAGEMENT
JAN 29 1971
ST. DIR.
ASST. DIR.
R.E.M.
L&M
ADM.
ENG.
ECON.
TRANS.
SAFETY

January 27, 1971

Memorandum

To: State Director, Arizona

From: Asst. Chief, Personal Services Accounting Unit, FM

Subject: Corrections to Payroll Costs

The machine edit of payroll costs for Pay Period 020 rejected various activity and/or work codes as incorrect. Changes have been made in accordance with the BLM Manual 1634. If these changes are incorrect, please inform this office of the correct data and the necessary changes will be made.

Employee	Hours	Cost Structure From	To
William K. Carter	46	1920/2025/0161	1920/3005/0101
Medway D. Jones	3	1920/2025/0161	1920/1012/0161
Edward L. Webb	8	1920/2025/0161	1920/1012/0161
Theresa A. Carmack	11	1270/3429	1270/1012
Beatrice K. Fried	2	1920/3116/0107	1920/3316/0107

Helen Neilsinger

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 11/23/70

TO: *(Procuring Office)*

Div. of Admnis

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
~~02~~	~~910~~		~~XX~~ 1920	~~2025~~	~~0161~~ ~~XXXX~~				

Required delivery date: 11/27/70

Method of delivery:

Source of supply, if known

U.S.G.S., Map Distribution Section
Building 41, Denver Federal Center
Denver, Colorado 80225 (Mr. Powell)

Contract No.

Deliver to *(Street address)*

3022 Federal Building
Phoenix, Arizona 85025

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	QUAD SHEETS 15'				
	AGUA DULCE MOUNTAINS	5	ea		
	DIAZ PEAK	5	ea		
	KINO PEAK	5	ea		
	LUKEVILLE	5	ea		
	MOUNT AJO	5	ea		
	QUITOBAQUITO SPRINGS	5	ea		

THIS ORDER WAS TELEPHONED TO DENVER USGS TODAY, 11/23, MONDAY IN ORDER TO RECEIVE THE QUADS BY FRIDAY.
PLEASE SEND OUT PURCHASE ORDER WITH

CONFORMATION ONLY

on it

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Wm L. Carter

Title Soil Scientist

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 11/23/70

TO: *(Procuring Office)*

Division of Adminis.

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1920	2025	0161				

Required delivery date

11/27/70

Method of delivery

Source of supply, if known

U.S.G.S.
Topo Division
345 Middlefield Road
Menlo Park, California 94025

Contract No.

Deliver to *(Street address)*

3022 Federal Building
Phoenix, Arizona 85025

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	QUAD SHEETS 7½'				
THIS ORDER WAS TELEPHONED TO MENLO PARK TODAY 11/23 (Monday) They are mailing quad sheets today so that we can get them by Fri. Please make out Purchase Order and MARK ON THE ORDER CONFIRMATION ONLY	GRANITE MOUNTAIN 4 NE	5	ea		
	GRANITE MT. 4 SE SE	5	ea		
	GROWLER PASS NW	5	ea		
	GROWLER PASS NE	5	ea		
	GROWLER PASS SW	5	ea		
	GROWLER PASS SE	5	ea		
	NARIZ MTS. 2 NW	5	ea		
	NARIZ MTS. 2 NE	5	ea		
	NARIZ MTS. 1 SW	5	ea		
	NARIZ MTS. 1 SE	5	ea		
	NARIZ MTS. 1 NW	5	ea		
	NARIZ MTS. 1 NE	5	ea		
	QUITOBAQUITO 1 NE	5	ea		
	TONOCA NW	5	ea		
	TONOCA SW	5	ea		

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* John L. Carter

Title Soil Scientist

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 11/16/70

TO: *(Procuring Office)*

Div. of Adminis.

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
SPECIAL CODING TO BE AUTHORIZED LATER									

Required delivery date

Soon as possible

Method of delivery

Source of supply, if known

8988

USGS
DENVER

Deliver to *(Street address)*

Contract No.

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	QUAD SHEETS FOR: 15' minute each				
	(2) Diaz Peak	5	ea		
	(5) Mount Ajo	5	ea		
	(3) Kino Peak	5	ea		
	(4) Lukeville	5	ea		
	Quito Baquito Springs	5	ea		
	(1) Agua Dulce Mountains	5	ea		

Norma Benway

7.5 1:24 50d
15 1:68500 50d } Standard
30 1:125,000 50d

(We've already checked with Ariz. Blueprint and they can't fill the entire order.)

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* K Carter Jr

Title Soil Scientist

Approved by *(Signature)*

Title

GPO 846 - 517

5 each

7.5' quads

NARIZ MTS. 1 SW (5)
" " 1 SE
" " 1 NW
" " 1 NE

TONOCA NW (7)
" SW

GROWLER PASS NW (3)
" " NE
" " SW.
" " SE.

NARIZ MTS 2 NW (4)
2 NE

GRANITE MT 4 NE (1)
4 SE (2)

QUITO BAQUITO 1 NE (6)

topo 9
345 — 62
94025

7½

15
1
65
39

By fax 11/27

Telephoned
11/23/70

33 38 1 36 44 1
89 88

415 — 325-2427

Bill —

Here's a list of supplies that I would like for you to obtain once we get the go ahead.

I suggest that some of the supplies you can get right away from Alyeska ~~state~~ let them re-order and charge to us. Others, like snake bit kit & first aid from the State fire cache and let them reorder and charge to us.

Can you think of anything else?

RS

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date

TO: *(Procuring Office)*

FROM: *(Requesting Office)*

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT

Required delivery date

Method of delivery

Source of supply, if known

Powell

Deliver to *(Street address)*

Contract No.

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	0.41				

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)*

Title

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 11/24/70

TO: *(Procuring Office)*

Div. of Adminis

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1700	0600					

Required delivery date

Method of delivery

Source of supply, if known

Deliver to *(Street address)*

Contract No.

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	SUPPLIES:				
	Padlock for Tool Box on G41-37191	1	ea		
	Slide Bolt for Pickup	1	ea		
	6" pliers	2	ea		
	6" crescent wrench	2	ea		
	10" crescent wrench	2	ea		
	6" straight screwdriver	2	ea		
	6" Phillips screwdriver	2	ea		
	10" straight screwdriver	2	ea		
	10" Phillips screwdriver	2	ea		
	Set of box and open end wrenches	2	sets		
	Small Tool box for above tools	2	ea		
	Spark plug air pump	2	ea		
	Fence pliers	2	pair		

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Wm J Carter

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Supplies Needed — 1700 - 0600

1 padlock for tool box on G41-37191
1 slide bolt " " " "
2 6" pr. pliers
2 6" crescent wrench
2 10" " "
2 6" straight screw driver
2 6" philips " "
2 10" straight " "
2 10" philips " "
2 set of box and open end wrench.
2 small tool box for the above tools.
2 spark plug air pump
2 pr. fence pliers

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 1/5/71

TO: *(Procuring Office)*

Div. of Adminis

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT	Required delivery date
02	910		1920	2025	0161					Method of delivery

Source of supply, if known

Palsm Photo
1515 No. Central

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Prints - oversize	**2**	**ea**		**.58**

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Wm K Carter Jr

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/29/70

TO: *(Procuring Office)*

Div. of Adminis

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1700	2025	0161				

Required delivery date

Method of delivery

Source of supply, if known

Palms Photo
1515 No. Central
Phoenix

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Color Slides **B& W Prints**			**Total**	**50.20**

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* William F. Carter Jr.

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/31/70

TO: *(Procuring Office)*

Div. of Adm.

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1920	2025	0161				

Required delivery date

Method of delivery

Source of supply, if known

Palms Photo
1515 No. Central

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Prints **Size 3R**	**3**	**ea**	**.29**	

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)*

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/18/70

TO: *(Procuring Office)*

Div. ofAdminis

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1920	2025	0161				

Required delivery date

Method of delivery

Source of supply, if known
Palms Photo
1515 No. Central
Phoenix

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	ORGAN PIPE CACTUS NATIONAL MONUMENT **COLOR PRINTS**				39.73 55.68

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* W. L. Carter Jr.

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/17/70

TO: *(Procuring Office)*

Div. of Adminis.

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
~~02~~	~~910~~		~~1920~~	~~2025~~	~~0161~~				

Required delivery date

Method of delivery

Source of supply, if known

Butler Paper Co.
1802 No. 23rd Ave.
Phoenix, Arizona 85009

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	8½x11 Gray Bond paper	**1**	**Ream**		4.03 .06 4.09
	PAID				

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Wm K Carter Jr

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/17/70

TO: *(Procuring Office)*

Div. of Adminis

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1920	2025	0161				

Required delivery date

January 4, 1971

Method of delivery

Source of supply, if known

Deliver to *(Street address)*

Contract No.

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	WILSON JONES VINY NOTEBOOKS (3 ring) **RED** **11" x 8½" 2" capacity**	**2 (4 books)**	**boxes**	**5.20**	**10.40**

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Wm K Carter Jr

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/16/70

TO: *(Procuring Office)*

Div. of Adminis.

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1920	2025	0161				

Required delivery date

Method of delivery

Source of supply, if known

Palms Photo
1515 No. Central

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	COLOR PRINTS for Organ Pipe				8.42
	COLOR PRINTS for Organ Pipe				40.91

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Don K Carter

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/10/70

TO: *(Procuring Office)*

Div. of Adminis

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
~~02~~	~~910~~		~~1920~~	~~2025~~	~~0161~~				

Required delivery date

X (don't know but assume shortly thereafter 12/~~17~~ 15)

Method of delivery

Source of supply, if known

Deliver to *(Street address)*

Contract No.

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
7510-286-1407	**PROTECTOR, DOCUMENT**	10	boxes		
	(We will need 500 of them)				
	50 in ea. box. If you can get from GSA in time, FINE				

Bob Brungard 1 box from Safford 12/14

I have 1 box in RPM.

Schultz may have one

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Robert Schultz

Title **Chief, RPM, Safford District**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/10/70

TO: *(Procuring Office)*

Div. of Adminis

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1920	2025	0161				

Required delivery date

December 15, 1970

Method of delivery

Source of supply, if known

Palms Photo
1515 No. Central

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	PROCESS -				
	Develop and print (post card size) CX 135-36 Color	3	rolls		
	W 35 TO 67 Roll #6				
	W-68 to W-83 Roll #7				
	T-73 - 101 Roll #8				
	DEVELOP EACH ROLL AND KEEP PICTURES SEPARATED BY NUMBER, PLEASE.				
	MUST BE IN STATE OFFICE, RPM, BY TUESDAY A.M. DECEMBER 15.				

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* L. E. Powell Jr

Title Wildlife Mgmt. Biologist

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/9/70

TO: *(Procuring Office)*

Div. of Adminis.

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1920	2025	0161				

Required delivery date

December 15, 1970

Method of delivery

Source of supply, if known

Eastman Kodak (IF POSSIBLE)
Palms Photo
1515 No. Central

Contract No.

Deliver to *(Street address)*

Arizona State Office

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Process **Develop and print** **CX 135-36 Color**	**3**	**rolls**		
	HAVE TO HAVE IN STATE OFFICE BY TUESDAY DECEMBER 15.				

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)*

Title **Wildlife Management Biologist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1542–4
(August 1965)
(formerly 4–1123)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ROUTING AND TRANSMITTAL SLIP

TO CODE	NAME	ORGANIZATION	ACTION	ROOM NO.
	Larry Powell	RPM		
	5-1-36			
	Film # T 37-72			
	C-1-37			

Indicate Action by Number

1. Necessary action
2. Approval
3. Signature
4. Prepare reply
5. Your comment and return
6. Note and surname
7. Note and return
8. Your information
9. See me
10.

0161

From	Date	Room No.
OPC NM CREW		
Office		**Phone**

Remarks

~~Bob~~

~~Riley said your ASO Travel Auth. would be good enough.~~

~~Don Rathbun~~

Larry – Kept track of get developed and Don't goof. Hold

Need prints by Tues. morning 12/15 DC ASO

GPO 851-696

Larry

More rolls of
film (3) W 35-67 T-73-101
W 68-88

Have developed &
prints made by
Tues a.m.

Keep track of —
Don't fail us.

Schultz

10/10/70

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/16/70

TO: *(Procuring Office)*

Div. of Adminis.

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT
02	910		1920	2025	0161				

Required delivery date

Method of delivery

Source of supply, if known

Wikle's
130 No. Central Ave.
Phoenix 85004

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	8½x11-16 Green Bond Paper	**1**	**ream**		**3.05**
				Tax	**.05**
					3.10

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Robt Schultz Jr

Title **Chief, RPM (Leader, Organ Pipe Survey) Team**

Approved by *(Signature)* SAFFORD

Title

GPO 846 - 517

Form 1510–18
(October 1968)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

REQUISITION

Page of pages

Requisition number

Date 12/14/70

TO: *(Procuring Office)*

Div. of Adminis.

FROM: *(Requesting Office)*

Div. of RPM

ORGAN. STATE	ORGAN. OFC.	AV. YR.	ACTIVITY	WORK CODE	IDENT.	PLAN. UNIT	DOCU. NO.	GSA 1473	AMOUNT	Required delivery date
02	910		XX							
			1920	2025	0161					Method of delivery

Source of supply, if known

Palms Photo, 1515 No. Central, Phx.

Contract No.

Deliver to *(Street address)*

ITEM/STOCK NO.	DESCRIPTION OF ITEM OR SERVICE (Double space between items)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Develop and print 3 rolls color film XX	**3**	**rolls**		**41.21**
	Develop and print 2 rolls color film	**2**	**4olls**		**23.51**

Final approval by Procuring Office *(Signature)*

Title

Date

Action taken

Requisitioned by *(Signature)* Wm R Carter

Title **Soil Scientist**

Approved by *(Signature)*

Title

GPO 846 - 517

Form 1510–3
(January 1969)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Issuing office → Arizona State Office
3022 Federal Building
Phoenix, Arizona 85025

PURCHASE ORDER

Order Number: 02-930-PH1-0095

Date: November 23, 1970

Requisition Number: 02-930-R-0098 Carter

Project	Contract No. / Date	Delivery Time	Discount Terms
1411109 02-910-1920-2025-0161 2890 47-8	OMP	5 days ARO	Net
	F.O.B. Point: Destination	Method of Shipment: Mail	GBL No.: None

VENDOR

U.S. Geological Survey
Map Distribution Section
Building 41, Denver Federal Center
Denver, Colorado 80225

SHIP TO

Bureau of Land Management
Arizona State Office
3022 Federal Building
Phoenix, Arizona 85025

ITEM NO.	ARTICLES OR SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Quad Sheets 15' as follows			Estimated	
	Agua Dulce Mountains	5	ea	.50	2.50
	Diaz Peak	5	ea	.50	2.50
	Kino Peak	5	ea	.50	2.50
	Lukeville	5	ea	.50	2.50
	Mount Ajo	5	ea	.50	2.50
	Quitobaquito Springs	5	ea	.50	2.50
	This is a CONFIRMATION of the telephone order placed by Florence Chaffin this date. DO NOT DUPLICATE				

PLEASE SUPPLY PROMPTLY THE ABOVE ARTICLES OR SERVICES

TOTAL $ 15.00

above
xxxx

Signature

Name and Title: Charles M. Hanna
Administrative Officer

NOTE TO VENDOR: Direct correspondence regarding this order to the issuing office address shown in the letterhead, *not* to the invoicing office. Refer to this order number on all correspondence, papers, and packages related hereto.

7. MEMORANDUM COPY

Form 1510–3
(January 1969)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Arizona State Office
Issuing office → 3022 Federal Building
Phoenix, Arizona 85025

RPM

Order Number
02-950-PH1-0094

Date November 23, 1970

Requisition Number
02-950-R-0097 Carter

PURCHASE ORDER

Project	Contract No. / Date	Delivery Time	Discount Terms
1411109 02-910-1920-2025-0161 2690 47-8	ONP	5 days ARO	Net
	F.O.B. Point: Destination	Method of Shipment: Mail	GBL No.: None

VENDOR

U.S. Geological Survey
Topo Division
345 Middlefield Road
Menlo Park, California 94025

SHIP TO

Bureau of Land Management
Arizona State Office
3022 Federal Building
Phoenix, Arizona 85025

ITEM NO.	ARTICLES OR SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	QUAD SHEETS 7½' as follows:			Estimated	
	Grani te Mountain 4 NE	5	ea	.50	2.50
	Granite Mountain 4 SE SE	5	ea	.50	2.50
	Growler Pass NW	5	ea	.50	2.50
	Growler Pass NE	5	ea	.50	2.50
	Growler Pass SW	5	ea	.50	2.50
	Growler Pass SE	5	ea	.50	2.50
	Maria Mts. 2 NW	5	ea	.50	2.50
	Maria 2 NE	5	ea	.50	2.50
	Maria Mts. 1 SW	5	ea	.50	2.50
	Maria Mts. 1 SE	5	ea	.50	2.50
	Maria Mts. 1 NW	5 1	ea	. 50	2.50
	Maria Mts. 1 NE	5	ea	.50	2.50
	Whitebaquite 1 NE	5	ea	.50	2.50
	Tonoca NW	5	ea	.50	2.50
	Tonoca SW 1	5	ea	.50	2.50
	This is a CONFIRMATION of the telephone order placed by Florence Chaffin this date. DO NOT DUPLICATE				

PLEASE SUPPLY PROMPTLY THE ABOVE ARTICLES OR SERVICES

TOTAL $37.50

above
xxxx

Signature

Name and Title Charles N. Manna
Administrative Officer

NOTE TO VENDOR: Direct correspondence regarding this order to the issuing office address shown in the letterhead, *not* to the invoicing office. Refer to this order number on all correspondence, papers, and packages related hereto.

7. MEMORANDUM COPY

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

ARIZONA STATE OFFICE
BLM

MAY 13 1971

IN REPLY REFER TO:

D54-MO(E)

APR 27 1971

SD
ASSOC. SD
PCS
RESOURCES ✓ WE RGF
TECH SER
MGM'T SER
PUB. AFF
CF
ACTION
SEE ME
REPLY

Memorandum

To: Director, Bureau of Land Management

From: Assistant Director, National Park Service

Subject: Condition and Trend Study - Organ Pipe Cactus National Monument

This is to acknowledge receipt of the subject study report prepared in accordance with our joint agreement of November 13, 1970.

We appreciate your cooperation and assistance in this study.

(SGD) EDWARD A. HUMMEL

Copy to
Schultz - Safford
Townsend - Socorro
Webb - Idaho

IN REPLY REFER TO:

4432.17 (330)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

MAR 4 1971

Memorandum

To: Director, National Park Service

From: Associate Director, Bureau of Land Management

Subject: Condition and Trend Study -- Organ Pipe Cactus National Monument

In accordance with our joint agreement of Nov. 13, 1970, The Bureau of Land Management is providing a copy of a report on "Range Conditions on the Organ Pipe Cactus National Monument." The study was conducted by the same range management specialist team which prepared the original Forage Resources Inventory for you in 1966.

We are pleased to have been able to provide this study on the Monument.

John O. Crow

Enclosure - 1
Encl. 1 - Copy of Report

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

4432.17 (330)

RG
WC

ARIZONA STATE OFFICE
BU. LAND MANAGEMENT
MAR - 8 1971
ST. DIR. 1 7848
ASST. TO ST. DIR.
R.P.M. 2
L&M LO.
ADM.
ENG.
ECON.
TRAINING
SAFETY
ACTION
SEE ME
REPLY

MAR 4 1971

Memorandum

To: Director, National Park Service

From: Associate Director, Bureau of Land Management

Subject: Condition and Trend Study -- Organ Pipe Cactus National Monument

In accordance with our joint agreement of Nov. 13, 1970, The Bureau of Land Management is providing a copy of a report on "Range Conditions on the Organ Pipe Cactus National Monument." The study was conducted by the same range management specialist team which prepared the original Forage Resources Inventory for you in 1966.

We are pleased to have been able to provide this study on the Monument.

John O. Crow

Enclosure - 1
Encl. 1 - Copy of Report

cc:
SD, Arizona

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

OCT 0 1953

MAR 4 1971

ARIZONA STATE OFFICE
BUREAU OF LAND MANAGEMENT
MAR - 8 1971

RE

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

Y27-ORP

OCT 6 1965

Memorandum

To: Director, Bureau of Land Management

From: Director

Subject: Forage resource inventory, Organ Pipe Cactus

The National Park Service requests the assistance of the Bureau of Land Management in making a forage resource inventory of Organ Pipe Cactus National Monument. The following sets forth the provisions for conducting a forage resource inventory by the Bureau of Land Management of land within the Organ Pipe Cactus National Monument. The purpose of the inventory is to serve as a basis for management of cattle grazing in Organ Pipe Cactus National Monument without regard to reseeding the range, manipulation of vegetation or development of additional livestock-watering facilities. Organ Pipe Cactus National Monument was established to preserve outstanding forms of Sonoran Desert vegetation, native species of wildlife and to provide for their enjoyment by the public in an unimpaired state. Present domestic livestock grazing is a nonconforming use in that it is disturbing and damaging the natural features and is not compatible with visitor use objectives.

To accomplish the proposed forage inventory, the Agencies will provide the following:

The National Park Service agrees to:

1. Reimburse the Bureau of Land Management for cost (approximately $17,000) of the work performed. This will include salaries, equipment operations, per diem, cartographic work and overhead.

2. Provide rental apartment at the Monument headquarters for the five-man crew. The crew will pay rental on the apartment at the established rental rate.

...ed photos, geological survey maps,
... the National Monument and pertinent grazing

...ance to the field party through the
...ip Cecina on road conditions, travel
... areas of the Monument to be excluded

...management agreed to.

...l Park Service with forage resource
... map showing vegetative types,
... maps showing grazing capacity
... survey will be conducted in accordance
... Manual MS12.11A "Cooper Ecol...

...ll prepare a suggested ...

... November 1, 1965, ...
... the National Park ...

... Bureau of Land Management ...
... Park Service for reimbur...

OCT 8 ...

...

3. Provide the available aerial photos, geological survey maps, and other base maps of the National Monument and pertinent grazing data.

4. To provide assistance to the field party through the Superintendent, Organ Pipe Cactus on road conditions, travel routes, grazing data and areas of the Monument to be excluded from the inventory.

The Bureau of Land Management agrees to:

1. Provide the National Park Service with forage resource inventory which includes field maps showing vegetative types, field write-up sheets and summaries showing grazing capacities by vegetative type. This survey will be conducted in accordance with Bureau of Land Management Manual 4412.11A "Ocular Reconnaissance Method."

2. The Bureau of Land Management will prepare a suggested grazing management plan for the Monument.

3. This work will begin on or about November 1, 1965, and the above information will be furnished to the National Park Service by March 1, 1966.

4. Upon completion of the work the Bureau of Land Management will submit an SF-1081 to the National Park Service for reimbursement of expenses incurred.

This agreement entered into on OCT 8 1965.

Director, National Park Service

Accepted

Director, Bureau of Land Management

ilsc

4432.17 OPCNM (RPM
Your Ref: 330

State Office
3022 Federal Building
Phoenix, Arizona 85025

January 8, 1971

Memorandum

To: Director

From: State Director, Arizona

Subject: Organ Pipe Cactus National Monument - Condition and Trend Study

In accordance with your memorandum of November 24, 1970 we are submitting for review by your staff two copies of the narrative report and related material for the Organ Pipe Cactus National Monument Condition and Trend Study. A third copy of the report, as well as pictures and negatives, is being retained in the State Office.

After review of the report by your staff, the Superintendent of the Organ Pipe Cactus National Monument would like to have one of the copies of the report forwarded to him at the Monument Headquarters.

Joe T. Fallini

Study forwarded
under separate
cover - 2 copies

cc: Safford Dist.

WKCarter:fac

copy to Staff 11-30-70 Ky
to DSC 1-19-71

IN REPLY REFER TO:

4432.17(330)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

NOV 24 1970

Memorandum

To: State Director, Arizona

From: Director

Subject: Organ Pipe Cactus National Monument, Condition and Trend Study

A copy of a memorandum of agreement between the Bureau of Land Management and the National Park Service for conducting a range condition and trend study is enclosed. You are assigned responsibility for completion of the field work and reports.

Provide this office with a condition study which includes field maps showing vegetative types, write-up sheets, and summaries showing forage condition and soil condition. Because there is currently no range condition procedure in the Bureau manual you may contact both Service Center Directors regarding technical procedures. The following individuals have been selected to conduct the study:

Party Chief,	Robert Schultz	Safford District Office
	Bill Carter	Arizona State Office
	Jerry Townsend	Socorro District Office
	Ed Webb	Idaho Falls District Office

Travel authorizations have been prepared and will be sent directly to these individuals. A copy of this memorandum is being sent to the Idaho and New Mexico State Directors so they will be aware of the involvement of their employees in this project.

Work should begin on December 1, 1970, and all technical reports sent to this office by February 20, 1971, for review and forwarding to the National Park Service by March 1, 1971. We recommend that Mr. Schultz establish liaison with the Superintendent of the Organ Pipe Cactus National Monument as soon as possible.

Expenditures should be charged to activity 1920, work code 2025, and project 0161. We are limited to a total of $7000 in the agreement, $5600 for direct costs by your office and $1400 for indirect costs of the Service Center and Washington office. Salary and travel costs of Jerry Townsend and Ed Webb will be reported against this project through their respective offices. You have the responsibility to see that all the direct costs of the Bureau do not exceed the amount set out above. Please inform this office if this will affect accomplishment of your FY 71 operating budget.

John O Crow

Acting

Enclosure -- 1
Encl. 1 -- Copy of Memorandum of Agreement

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
L30

November 13, 1970

Memorandum

To: Director, Bureau of Land Management

From: Director, National Park Service

Subject: Condition and Trend Study - Organ Pipe Cactus National Monument

The National Park Service requested the assistance of the Bureau of Land Management in making a condition and trend follow-up study on the Organ Pipe Cactus National Monument. The following sets forth the provisions for conducting the study by the Bureau within the Organ Pipe Cactus National Monument.

The purpose of the study is to serve as a basis for management decisions regarding the resources on the National Monument and the effect grazing has had on the resources since the Forage Resource Inventory in 1965 and 1966, and to determine where cattle use of the Monument is in conflict with the primary objectives of the Monument which was established to preserve outstanding forms of Sonoran Desert vegetation, native species of wildlife and to provide for the enjoyment of the public of these species in an unimpaired state, and to determine if livestock grazing is a non-conforming use that is disturbing and damaging the natural features and is not compatible with visitor use objectives. To accomplish the proposed study, the agencies will provide the following.

The National Park Service agrees to (1) reimburse the Bureau of Land Management for cost (not to exceed $7,000) for the work performed. This will include salaries, equipment operation, per diem, cartographic work and overhead.

(2) Provide available aerial photographs, geological survey maps and other base maps of the National Monument as necessary for the study.

(3) Provide assistance to the field party through the Superintendent with regard to road conditions, travel routes, areas of the Monument to be excluded from the inventory and grazing data.

The Bureau of Land Management agrees to

(1) Provide National Park Service with the condition ; study which includes field maps showing vegetative types, write-up sheets, summaries showing forage condition, soil conditions.

The study will be conducted in accordance with Bureau procedures as outlined in the Manual for such studies.

(2) Work will begin on or about December 1, 1970 and the above information will be furnished the National Park Service by March 1, 1971.

(3) Upon completion of the work, the Bureau of Land Management will submit an SF-1081 to the National Park Service for reimbursement of expenses incurred.

SIGNED:

Bureau of Land Management

Acting DIRECTOR

National Park Service

Acting DIRECTOR

Form 1542–4
(August 1965)
(formerly 4–1123)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ROUTING AND TRANSMITTAL SLIP

R Ed: Mike

TO			ACTION	ROOM NO.
CODE	NAME	ORGANIZATION		
	Riley Forman			AF

Indicate Action by Number

1. Necessary action
2. Approval
3. Signature
4. Prepare reply
5. Your comment and return
6. Note and surname
7. Note and return
8. Your information
9. See me
10.

From	Date	Room No.
Dan Rathbun		
Office		**Phone**
Division of Range		202-343-4328

Remarks

Riley.

You will probably get this through normal channels in a day or so. If we can help, please call.

Dan R.

11/15

GPO 851-696

IN REPLY REFER TO:

4432.17 (330)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

NOV 19 1970

Memorandum

To: Director, National Park Service

From: Acting Director, Bureau of Land Management

Subject: Condition and Trend Study -- Organ Pipe Cactus National Monument

Enclosed is a copy of the signed agreement to accomplish the condition and trend study on the Organ Pipe Cactus National Monument. By a copy of this memorandum, we are instructing our Arizona State Director to assist in this matter. We are pleased to cooperate with you by providing technical range management expertise.

Eugene S. Zumwalt

Enclosure -- 1
Encl. #1 -- Signed Agreement

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
L30

November 13, 1970

Memorandum

To: Director, Bureau of Land Management

From: Director, National Park Service

Subject: Condition and Trend Study - Organ Pipe Cactus National Monument

The National Park Service requested the assistance of the Bureau of Land Management in making a condition and trend follow-up study on the Organ Pipe Cactus National Monument. The following sets forth the provisions for conducting the study by the Bureau within the Organ Pipe Cactus National Monument.

The purpose of the study is to serve as a basis for management decisions regarding the resources on the National Monument and the effect grazing has had on the resources since the Forage Resource Inventory in 1965 and 1966, and to determine where cattle use of the Monument is in conflict with the primary objectives of the Monument which was established to preserve outstanding forms of Sonoran Desert vegetation, native species of wildlife and to provide for the enjoyment of the public of these species in an unimpaired state, and to determine if livestock grazing is a non-conforming use that is disturbing and damaging the natural features and is not compatible with visitor use objectives. To accomplish the proposed study, the agencies will provide the following.

The National Park Service agrees to (1) reimburse the Bureau of Land Management for cost (not to exceed [illegible],000) for the work performed. This will include salaries, equipment operation, per diem, cartographic work and overhead.

(2) Provide available aerial photographs, geological survey maps and other base maps of the National Monument as necessary for the study.

(3) Provide assistance to the field party through the Superintendent with regard to road conditions, travel routes, areas of the Monument to be excluded from the inventory and grazing data.

The Bureau of Land Management agrees to

(1) Provide National Park Service with the condition study which includes field maps showing vegetative types, write-up sheets, summaries showing forage condition, soil conditions.

The study will be conducted in accordance with Bureau procedures as outlined in the Manual for such studies.

(2) Work will begin on or about December 1, 1970 and the above information will be furnished the National Park Service by March 1, 1971.

(3) Upon completion of the work, the Bureau of Land Management will submit an SF-1081 to the National Park Service for reimbursement of expenses incurred.

SIGNED:

Bureau of Land Management

DIRECTOR

National Park Service

Acting DIRECTOR

AA

IN REPLY REFER TO:

United States Department of the Interior

4432.17 (330)

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

NOV 19 1970

Memorandum

To: Director, National Park Service

From: Acting Director, Bureau of Land Management

Subject: Condition and Trend Study -- Organ Pipe Cactus National Monument

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Eugene W. Gunnerson
Acting

ARIZONA STATE OFFICE
BUR. LAND MANAGEMENT
NOV 23 1970
ST. DIR. 1
ASST. TO ST. DIR.
R.P.M. 2
L&M LO.
ADM.
ENG.
ECON.
TRAINING
SAFETY
ACTION
SEE ME
REPLY
11/23

Enclosure -- 1
Encl. #1 -- Signed Agreement

LD, Arizona

United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
L30

November 13, 1970

Memorandum

To: Director, Bureau of Land Management

From: Director, National Park Service

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The National Park Service agrees to (1) reimburse the Bureau of Land Management for cost (not to exceed $7,000) for the work performed. This will include salaries, equipment operation, per diem, cartographic work and overhead.

(2) Provide available aerial photographs, geological survey maps and other base maps of the National Monument as necessary for the study.

(3) Provide assistance to the field party through the Superintendent with regard to road conditions, travel routes, areas of the Monument to be excluded from the inventory and grazing data.

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SIGNED:

Bureau of Land Management

DIRECTOR

National Park Service

DIRECTOR

DSC-1314-336
(Sept. 1970)

Has been changed back 1/15/71 MH

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DENVER SERVICE CENTER
BUILDING 50
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

1375 (D-820)

ARIZONA STATE OFFICE
BU. LAND MANAGEMENT
JAN 12 1971
ST. DIR.
ASST. TO ST. DIR.
R.P.M.
ENG.
RECON.
TRAINING
SAFETY
ACTION
SEE ME
RETURN

Memorandum

To: State Director, Arizona

From: Chief, Data Control and ADP Coordination Section, DSC

Subject: Corrections to Cost Coding (Non Payroll)

The machine edit of costs for the month of December rejected various activity and/or work codes as incorrect. Changes have been made in accordance with BLM Manual 1634. If these changes are incorrect, please inform this office of the correct data and the necessary changes to be made.

Document Number	From Cost Structure	To Cost Structure	Amount
02-910-317	1920-2025	1920-2200	37.50
" -331	1920-2025	1920-2100	73.25
" 345	1920-2025	1920-2100	185.25
~~" 338~~	~~1700-100~~	~~1700-1000~~	~~115.50~~
02-910-316	1920-2025	1920-2100	15.00
02-910-321	1920-2025	1920-2100	86.99

Ronald J. Carlson

Form 1541–3
(July 1965)
(formerly 4–1599 a)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RLG AA

CONFIRMATION/REPORT OF TELEPHONE CONVERSATION

TO	Name: Lawrence E. Powell	FROM	Name: Dan Rathbun
	Office: ASO, RPM		Office: Div. of Range
	Location: Phoenix		Location: Washington, D. C.
	Telephone Number:		Telephone Number: 4329

Purpose of Call:

Inquiry concerning the National Park Service-BLM agreement to effect a range condition survey of the Organ Pipe Cactus National Monument. Discussed this subsequently with Riley Foreman and he agreed with the terms of the agreement.

Informed Rathbun that the agreement was satisfactory to us and could be signed.

Explanatory Remarks:

November 16, 1970
(Date)

(Signature)

CONFIRMATION COPY

GPO 851-219

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

RG AA

TO : Chief, Division of Resource Program Mgmt. **DATE:** November 19, 1970

FROM : Wildlife Management Biologist

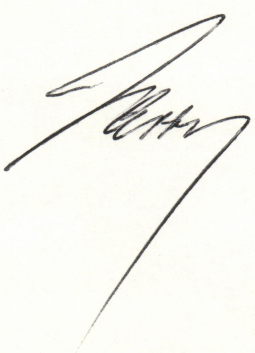
SUBJECT: Organ Pipe Cactus National Monument Evaluation Study

Team members for the Organ Pipe survey are anxious to know the status of the proposed evaluation. Ed Webb inquired as to the proper travel authorization and proper coding for per diem and salary. I inquired of Bob Schultz to see if he had specific information that would be helpful to Ed Webb. The information was not available.

I contacted Dan Rathbun in Washington and was told that the Park Service-BLM agreement had been signed yesterday. Copies will be forwarded in the immediate future. Rathbun stated they would prepare authorizations for each of the team members and identify proper coding and project numbers. Copies of the appropriate authorizations will be forwarded in the next few days. A letter setting forth the team leader and team members and other explanation as may be required is being prepared. I suggested that it may be desirable to identify in the correspondence that additional costs are authorized as may be deemed necessary by the team leader to facilitate completion of the study. Mr. Rathbun further indicated that each of the appropriate State Directors would be notified of the provisions for the study.

Although I had no reference other than discussion with Bob Schultz, I identified members of the team as follows: Bob Schultz, Leader, Bill Carter, Jerry Townsend and Ed Webb. I hope we missed no one.

(In a later call, Dan Rathbun identified the coding for the Organ Pipe Evaluation Study to be: 02-910-1920-2025 Project #0161.)





5010-108

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

Bureau of Land Management

I-LLM

NOVEMBER 6, 1970

FM R JOE T. FALLINI, STATE DIRECTOR

TO STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, SANTA FE, NEW MEXICO

REQUEST JERRY TOWNSEND OF LAS CRUCES DISTRICT AS TEAM MEMBER ORGAN PIPE CONDITION SURVEY, REIMBURSABLE, AS PREVIOUSLY DISCUSSED WITH YOUR OFFICE. TOWNSEND SHOULD BE IN LUKEVILLE ON DECEMBER 1. FUNDING INFORMATION, SALARY, PER DIEM, ETC., FOLLOWS.

REForeman:lc