HMP APPROVAL

MT. TRUMBULL HABITAT MANAGEMENT PLAN

A-1 WHA - T - 5

Arizona Strip BLM District

Flagstaff Game and Fish Region

Prepared by:

Melvin J. Wilhelm
Wildlife Biologist

Arizona Strip Dist., BLM

and

Thomas L. Britt
Regional Game Specialist
Region II, Arizona Game & Fish Department

APPROVED BY: ARIZONA GAME & FISH DEPARTMENT

Robert A. Jantzen (Director) — 1/25/77 (Date)

APPROVED BY: BUREAU OF LAND MANAGEMENT

Keith M. Colton (District Manager) — 2-3-77 (Date)

TABLE OF CONTENTS

Page

I. INTRODUCTION 1

II. OBJECTIVES

A. General Objectives 4

B. Specific Objectives 4

III. MANAGEMENT METHODS

A. Livestock Grazing 6

B. Wildlife Species Management 7

C. Endangered and Similarly Classified Species 8

D. Timber Management 8

E. Recreation Management 9

F. Cultural Resource Management.....10

G. Habitat Development and Improvement 10

IV. MANAGEMENT EVALUATION 12

V. IMPLEMENTATION SCHEDULE 14

VI. PROVISION FOR REVIEW AND MODIFICATION 15

Appendix 1.....16

Appendix 2.....17

MT. TRUMBULL HABITAT MANAGEMENT PLAN

I. Introduction

The Mt. Trumbull habitat area is located in the northwestern corner of Arizona within what is usually referred to as the "Arizona Strip". The "Strip" is physically separated from Arizona by the Grand Canyon, and administratively separated from Utah and Nevada by state lines. The result is the largest relatively undeveloped tract of land in Arizona.
(See Appendix for location map, page 17.



"To the trophy hunter, The Arizona Strip is important mule deer habitat."

The Strip is also sought after by a variety of other interests such as livestock grazing, mining and logging.

The Mt. Trumbull Habitat Area includes some 438,598 acres which are used by the Mt. Trumbull mule deer herd. This habitat area is within Game Management Unit 13, and is administered by Region II (Flagstaff) of the Arizona Game and Fish Department (AG&FD).

The Arizona Strip District of the Bureau of Land Management (BLM) has management responsibility for 72% of the unit or 316,660 acres. The remaining 28% or 121,938 acres is within the Grand Canyon National Park and is administered by the Park Service. The Park lands were included in the habitat analysis because they are used at various times of the year by the Mt. Trumbull deer herd and have an effect on the entire unit. However, the Management proposals of this plan pertain only to the National Resource Lands (NRL) administered by the BLM.

The Vermillion Management Framework Plan (MFP) identified the management consideration that should be given wildlife in this area. The needs of wildlife for better forage, more water and protection of existing habitat could best be planned for if an overall habitat management plan (HMP) were developed. (See Analysis for specific recommendations.) As a result, this Habitat Management Plan was developed under Supplement #1 (Sikes Act Supplement) to the Master Cooperative Agreement between the Arizona Game and Fish Department (AG&FD) and the Bureau of Land Management (BLM).

In order to determine what management practices were needed, pertinent data from AG&FD game surveys, published literature and BLM records were gathered. Also, an intensive on the ground inventory was made of the habitat area. A habitat analysis was then written based on all available data. This analysis was then reviewed by BLM District and State Office personnel and AG&FD Region and Phoenix personnel (Staff).

The habitat analysis brought to light several unresolved management conflicts which necessitated updating BLM's Vermillion MFP. An Environmental Analysis Record (EAR) was also prepared on the management recommendation. (See attachment) As a result of reviews of the habitat analysis, multiple use management directives of the revised MFP and environmental concerns brought out by the EAR, this habitat plan was formulated jointly by AG&FD and BLM.

Although the habitat boundary was determined by the mule deer herd, the needs of all wildlife species were considered. Management proposals to provide for turkey, small game, waterfowl, non-game birds and Kaibab squirrel were included. The Kaibab squirrel has been introduced on the habitat area to expand the range of the species.



"Kaibab squirrel on Mt. Logan"

II. Objectives

A. General

The overall goal of the Mt. Trumbull Habitat Management plan is to improve and protect wildlife habitat. Attainment of this goal will increase the diversity and abundance of wildlife species for consumptive and nonconsumptive recreational use.

B. Specific Objectives

1. To increase the carrying capacity of the habitat from the present 2,000 deer yearlong to 4,000 deer yearlong by improving the habitat. A corresponding increase in the deer herd is expected and this will increase consumptive recreation use from present 2,500 hunter days to 5,000 hunter days by 1996.

2. To maximize turkey populations through protection and improvement of existing turkey habitat.

3. To increase the production of quality forage for wildlife by establishing livestock grazing management systems by 1986.

   a) Above 6,000 feet, increase forb densities from a trace to five percent and grasses from five percent to 15 percent.

   b) Below 6,000 feet, increase the density of cliffrose, bitterbrush and ceanothus from ten percent to 20 percent.

4. To construct 26 new wildlife waters based on HMP implementation schedule.

5. To manage areas above 6,000 feet elevation and wildlife waters as crucial wildlife habitat.

6. To increase the mule deer production and fawn survival rate from the present five year average of 30 fawns per hundred does to a five year average of 75 fawns per hundred does by 1996.

7. To establish a viable Kaibab squirrel population within all suitable habitat within the ponderosa pine vegetative type.

8. To establish a chukar population in Whitmore and Parashaunt canyons through a transplant program.

9. To protect and enhance existing habitat to ensure a continued diversity and abundance of nongame birds and mammals.

III. Management Methods

A. Livestock Grazing

1. Wildlife Habitat Improvement Through Livestock Management

Implementation of an intensive livestock grazing system will be managed to produce the plant species listed below. Summer ranges above 6,000 feet will be managed to produce succulent forbs and grasses. Fall and winter ranges below 6,000 feet will be managed to produce winter browse and cool season grasses. This entire habitat will be under a grazing management system by 1982 providing funds are available.

Top priority will be given to implementation of intensive livestock grazing systems on crucial summer ranges. The key vegetative species for both wildlife and livestock are as follows:

Spring-Summer Range
April through September

Grasses	Forbs	Browse
Introduced Wheatgrasses	Mt. Dandelion	Birch Leaf Mt. Mahogany
Muttongrass	Penstemon (Pe Li)	Gambel Oak
Squirreltail	Deer Vetch (Lotus spp.)	Ceanothus spp.
Western Wheatgrass	Mendora spp.	Bitterbrush
Mt. Brome	Yellow Sweet Clover	Silk Tassel

Fall-Winter Range
October through March

Grasses	Forbs	Browse
Squirreltail	Mallow	Cliffrose
Stipa spp.	Penstemon spp.	Bitterbrush
		Ceanothus spp.
		Eriogonum spp.

Intensive livestock management is needed to increase the production of forage and seed throughout the HMP area. Continual heavy livestock grazing will not be allowed.

The entire Mt. Trumbull Habitat Area is planned to be under a livestock grazing management system by 1982, providing funds are available.

In order to protect nesting turkey habitat, grazing will be deferred until June 9, in the ponderosa pine types within the old Forest boundary fence.

All livestock water on NRL will be made available for wildlife use.

The following two waters need particular attention:

Sawmill Tank - Sec. 1, T34 N, R9 W. This is an important water for wildlife including deer and turkey. The net wire fence with two barb strands on top is a hindrance to wildlife using this water source.

Big Spring Pipeline - Sec. 31, T34 N, R8 W. This line provides water for deer on summer range near Slide Mountain. Steps should be taken to ensure the line is not shut off during the critical months of May through September.

2. Habitat Improvement through Land Treatment

All land treatment projects will be closely coordinated with wildlife needs. At least 300 acres of sagebrush and barren "Parks" will be plowed and reseeded. Specific locations can be found on page 9A of the attached analysis. This project will be jointly funded by wildlife and range funds. Following treatment, livestock will be managed so as to maintain these parks in a productive condition.

B. Wildlife Species Management

The AG&FD will determine the hunting seasons, numbers of permits, etc., for this area annually. A coordination meeting will be held yearly in mid-February to discuss wildlife conditions and hunt recommendations.

The AG&FD and BLM will work cooperatively to introduce chukar in the Whitmore and Parashaunt canyon area. This effort will not be made until a successful chukar introduction is made in the Tweedie Point area proposed in the Black Rock HMP.

C. Endangered and Similarly Classified Species

1. Species that will benefit from HMP.

a.2/ Kaibab Squirrel Sciurus abertii kaibabensis. Protection of a viable disjunct population of Kaibab squirrel is insurance against the possible extinction of this mammal.

2. Species anticipated to benefit from HMP.

a.1/2/ Peregrine falcon (Falco peregrinus anatum). Intensive livestock grazing systems will increase prey populations.

b.2/ Black-crowned Night Heron (Nysticorax nycticorax hoactli). Improvement and management of waterfowl habitat will benefit migrating herons and egrets.

c.2/ Snowy Egret (Egretta thula brewsteri). See Heron above.

D. Timber Management

1. Turkey - The following are needed to protect existing turkey habitat.

a. Designate and protect at least 8 roost sites within the 2,400 acre proposed timber harvest area. (Roost sites should meet Jantzen's Criteria 4). (See Attached analysis.)

b. Prohibit logging activity during April, May and June to avoid disruption of nesting turkeys.

c. Allow no logging, thinning or slash disposal within 1/8 mile of the Mt. Logan Catchment or proposed sawmill and turkey track catchments.

d. Leave at least one loosely stacked slash pile 10' by 10' per three acres for turkey nesting cover.

1/ Listed on Endangered Species Act of 1973 as amended.

2/ Threatened Wildlife of Arizona, as listed by AG&FD, January, 1976.

2. Nongame Birds

This large group includes western bluebirds, mountain chickadee and acorn woodpecker, etc. The needs of birds should be carefully considered in any timber harvest operation. The following trees should be left uncut:

a. Twenty-seven (27) snags (10" DBH and above) should be left per 10-acre tract.

b. Twenty-seven (27) live trees which are expected to die and become snags in the next 20 years or which presently provide nesting cavities should be left per 10-acre tract. Live trees left to become snags could be those having low value for commercial purposes.

c. Steps should be taken to protect snags from cutting for firewood. Signs should be erected to educate and warn the public about cutting of snags. Wood permits should contain stipulations prohibiting the falling of snags for firewood in ponderosa pine areas.

3. Kaibab Squirrel

Plans to implement a commercial harvest of timber will be deferred until 1981. At that time a harvest may be planned provided proper controls are implemented to protect squirrel habitat.

E. Recreation Management

1. Off-Road Vehicle Management

Crucial wildlife habitat areas identified in Section II, B-5, of this plan are proposed to have off-road vehicle (ORV) use restricted to existing roads and trails. However, until such time as the BLM's ORV regulations are published and the subsequent ORV designation of BLM lands in the HMP area, no action will be taken to designate or enforce ORV restrictions, except as described in 2b of this section below.

2. Visitor Management

a. A 20-unit campground is planned for the Nixon Spring Flat area. This campground will be used to regulate dispersed camping presently occuring in the Mt. Trumbull and Logan areas. Indiscriminate camping outside the campground will not be allowed April through August to protect wildlife from disturbance during their reproductive season. This restriction will apply to the ponderosa pine type in the Mt. Logan area.

b. Following the planned maintenance of the main roads in the area, all secondary roads and trails will be closed as described in the Vermillion MFP update. This will involve designating them as closed and plowing and reseeding the first 100 yards of each one.

F. Cultural Resource Management

All water developments, fences, and areas proposed for vegetative manipulation will include on-the-ground cultural resource clearance surveys at the earliest possible stage of project planning. Projects will be moved or redesigned as needed to protect archaeological and historic remains. Clearances will be conducted by a professionally qualified archaeologist.

G. Habitat Development and Improvement

Improvement projects are of two types: water developments and vegetative manipulation.

1. Water Development

Catchments listed in Sec. 5 will consist of apron and storage facilities of 5,000 gallon capacity, fenced in with a four-strand barb wire fence built to wildlife specifications. The fence will be approximately 500' X 500' and enclose 5.7 acres. The large area will allow the water to be located far enough from the fence to decrease livestock efforts to gain access to the water. All water developments will be located so as to minimize any adverse impacts on scenic values.*

2. Vegetative Manipulation

At least 300 acres of park areas will be plowed and seeded in the Mt. Logan - Nixon Flat areas. These areas will be confined to existing openings. A good mixture of forbs, shrubs and grasses will be seeded. These areas are delineated on page 9A of the attached analysis. (See JDR for specifications to be seeded.)

3. Waterfowl Habitat Development

The Crosby Tank Area (Sec. 10 and 11, T35N, R9W) has potential for developing waterfowl habitat. At present the Crosby Detention Dam causes water to spread over several hundred acres. It is proposed that a specific habitat development plan be formulated. This plan would

* See Appendix I for special criteria pertaining to the Mt. Trumbull Catchment.

include fencing to control livestock, reseeding flooded areas and developing dikes and potholes as needed to provide adequate water.

IV. Management Evaluation

The following studies will be coordinated and conducted jointly by AG&FD and BLM. Resulting data will be used jointly in evaluating this Habitat Management Plan.

A. Permanent pellet plots will be established on crucial summer range in key areas. They will be read each year to obtain deer-days-use per acre.

The procedures will follow the procedures established by Bennett, English and McCain (1940). This information will also indicate trends in deer use of crucial areas. This study will require man days for both the BLM and AG&FD.

B. Deer/turkey classification surveys will determine offspring survival. This data will be used in evaluating productivity.

C. Data will be gathered from field contacts with hunters during the firearms season. Information on hunter origin, days hunted, condition and age of animals harvested will be recorded.

D. The Kaibab squirrel introduction will be closely monitored as they disperse into adjacent habitat. Twig clipping plots as described by Rasmussen, Brown and Jones (1975) will be established to monitor population levels."

E. Vegetative studies will be conducted to monitor changes in the habitat. This information will be gathered from several sources.

1. Trend plots established for evaluation of livestock grazing systems.

2. Habitat inspection (record by memo. to file).

3. Evaluation of existing habitat vegetative improvement study plots and plant species trials.

F. Wildlife observations will be recorded on BLM Form 6800-1 or AG&FD Wildlife Observation Form.

G. Nongame breeding bird densities will continue to be monitored on plots currently being inventoried under BLM contract. Frequency of this monitoring will be determined at a later date.

The following study sites will be studied:

1. Ponderosa Site - Sec. 5, Township 34N, Range 8W
2. Pinyon-Juniper Site - Sec.12, " " " "
3. East Chained Site - Sec. 1, " " " "
4. West Chained Site - Sec.27, " 35N, " 9W
5. Sagebrush Site - Sec.28, " 36N, " 6W
6. Grassland Site - Sec. 6, " 36N, " 6W

H. Predator and furbearer harvest data will be solicited from known trappers and hunters to determine approximate number and value of furs harvested each year. Beginning July 1, 1976, AG&FG will issue trapping permits. Data gathered from these permits will be analyzed.

I. A Habitat Management Evaluation Summary will be written as a memorandum to the file in February of each year. This evaluation will cover the results of all studies, harvest data, and precipitation for the previous year.

V. Implementation Schedule

The implementation of the following is contingent upon the availability of funds and is in no way a binding commitment.

The following projects or action will be accomplished in the year indicated.

Year	Project Name and Type	Construction & Maintenance by:	Material Furnished by:
FY-77	Mt. Emma Catchment	AG&FD	BLM
	Mt. Emma #2	"	"
	Slide Mountain Catchment	"	"
	Whitmore Catchment #1	"	"
	Whitmore Catchment #2	"	"
	Rim Catchment #1	BLM	"
	Rim Catchment #2	"	"
	Hell's Hole Catchment	"	"
	Saw Mill Catchment	"	"
FY-78	Turkey Track Catchment	BLM	BLM
	Mt. Trumbull Catchment	"	"
	Broad Canyon Catchment	AG&FD	"
	Witch Catchment	"	"
	Hancock Knoll Catchment	"	"
	Ivan Patch Catchment #1	"	"
	IVan Patch Catchment #2	"	"
	Whitmore Catchment #3	BLM	"
	Hacks Rim Catchment	"	"
	Water Canyon Catchment	"	"
FY-79	Kanab Creek Catchment	BLM	BLM
	Robinson Wash Catchment	"	"
	Mt. Logan Plowing & Seeding	"	"
	S. B. Catchment	"	"
	Pinyon Catchment	AG&FD	"
	Pronghorn Catchment	"	"
	Langs Run Catchment	"	"
	Finale Catchment	"	"
	Chukar Transplant into Whitmore Canyon	"	AG&FD

(See Page 18 for specific locations for projects).

VI. Provision for Review and Modification

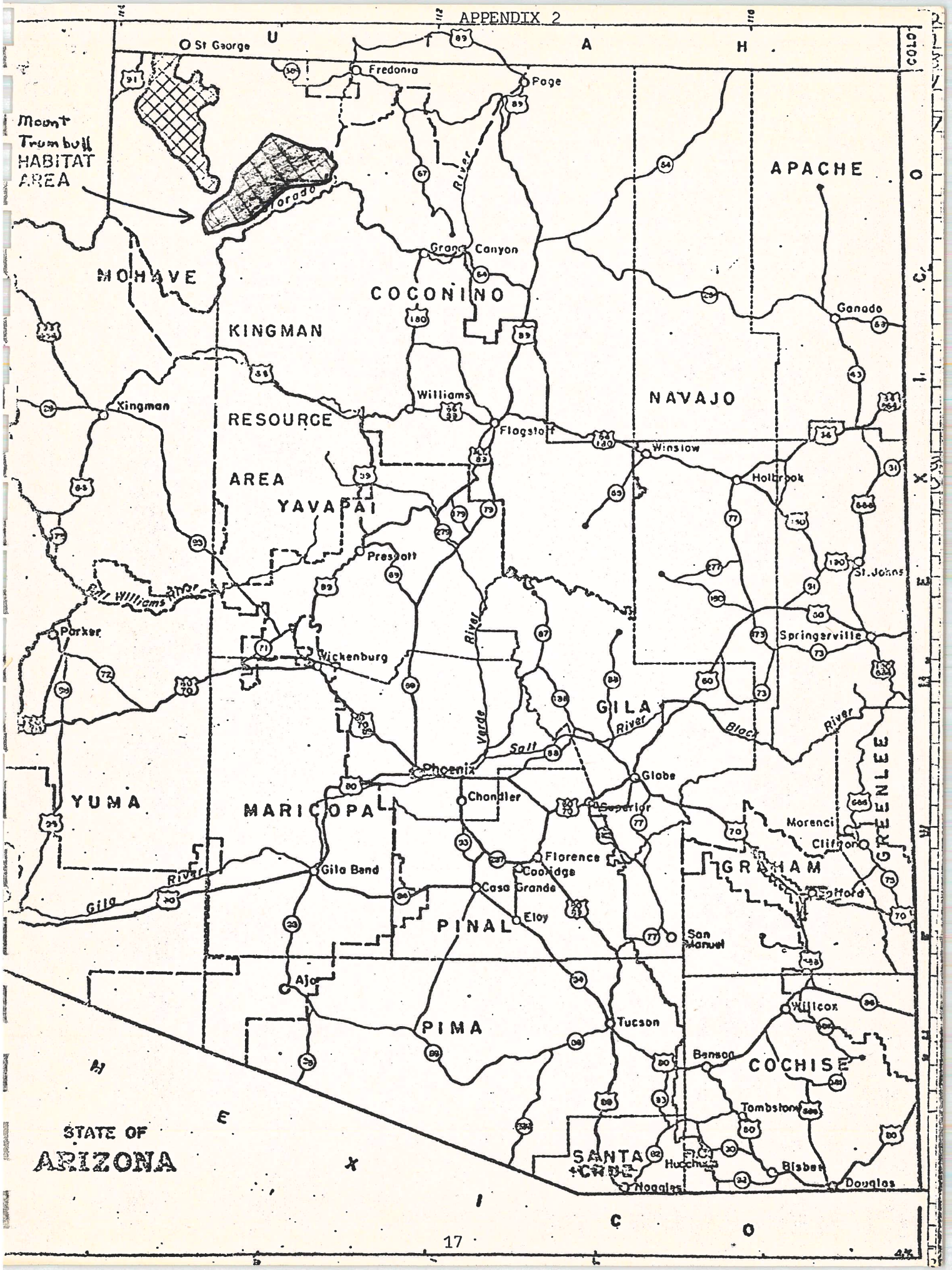
All elements of this plan are subject to annual review by the Bureau of Land Management and the Arizona Game and Fish Department. If deemed necessary, objectives, management methods, and evaluation studies will be revised. All plan revisions shall be documented and dated.

APPENDIX I

All water developments will be located so as to minimize their adverse impact on scenic values.

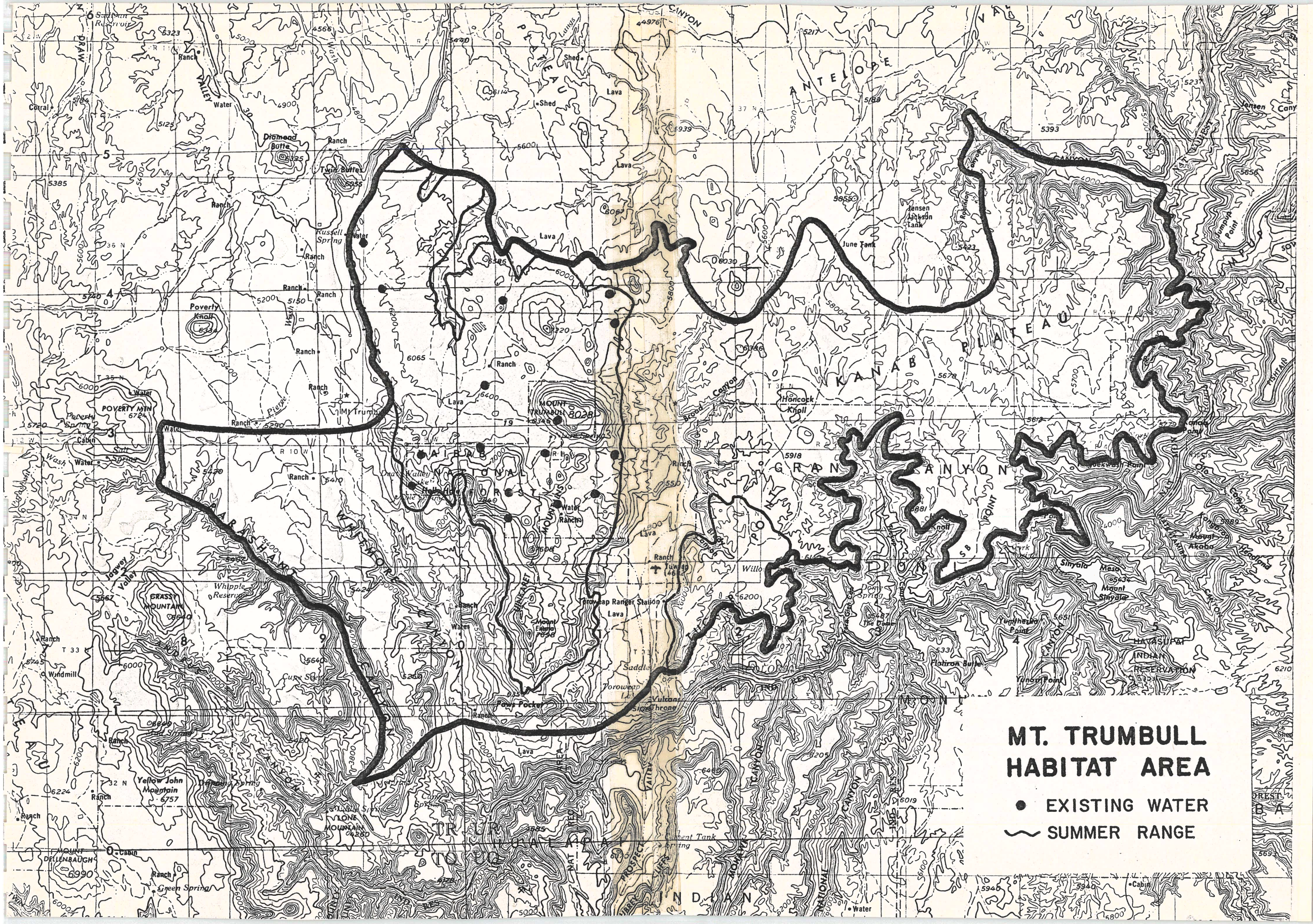
The Mt. Trumbull Catchment will require special consideration. The following criteria will apply.

1. Location will be coordinated with Recreation Planner.
2. Apron will be designed so as to appear as natural as possible.
3. All work will be with hand tools.
4. No fencing will be required.


Mount Trumbull HABITAT AREA
St George
Fredonia
Page
Grand Canyon
MOHAVE
COCONINO
KINGMAN
APACHE
Ganado
Xingman
RESOURCE
AREA
Williams
Flagstaff
NAVAJO
Winslow
Holbrook
YAVAPAI
Prescott
St. Johns
Springerville
Bill Williams River
Parker
Wickenburg
Verde River
Salt River
GILA
Black River
GREENLEE
Phoenix
Globe
YUMA
MARICOPA
Chandler
Superior
Morenci
Clifton
Florence
Coolidge
GRAHAM
Gila Band
Gila River
Casa Grande
Eloy
PINAL
San Manuel
Ajo
Willcox
PIMA
Tucson
Benson
COCHISE
Tombstone
STATE OF ARIZONA
SANTA CRUZ
Nogales
Huachuca
Bisbee
Douglas

APPENDIX 3

Year	Project Name and Type	Location	Project No.
FY 77	Mt. Emma Catchment #1	T33N R9W SW NE SEC. 1	4480
	" " " #2	T33N R8W SW SW SEC. 18	4481
	Slide Mountain Catchment	T34N R8W SE SE SEC. 32	4482
	Whitmore Catchment #1	T34N R10W NE SE SEC. 22	4483
	" " #2	T34N R10W SE SE SEC. 25	4484
	Rim Catchment #1	T35N R9W SE SE SEC. 17	4485
	" "	T35N R9W SW SW SEC. 28	4486
	Hell's Hole Catchment	T34N R9W SW SE SEC. 10	4487
	Saw Mill Catchment	T34N R9W SE SE SEC. 1	4488
FY 78	Turkey Track Catchment	T34N R8W SE SEC. 8	4489
	Mt. Trumbull "	T35N R8W SW SEC. 26	4490
	Broad Canyon "	T35N R7W SEC. 15	4491
	Witch Catchment	T35N R8W SEC. 25	4492
	Hancock Knoll Catchment	T35N R6W SE SEC. 20	4493
	Ivan Patch Catchment #1	T34N R11W SE SEC. 3	4494
	" " " #2	T34N R10W N½ SEC. 17	4495
	Whitmore Catchment #3	T33N R9W SW NW SEC. 8	4496
	Hacks Rim Catchment	T37N R5W SE SEC. 35	4497
	Water Canyon Catchment	T36N R4W SW SEC. 9	4498
FY 79	Kanab Creek Catchment	T36N R4W SE SEC. 26	4499
	Robinson Wash Catchment	T35N R4W N½ SEC. 17	4500
	Mt. Logan Plowing and Seed	T34N R8W and T35N R8W	4507
	S. B. Catchment	T35N R5W SW SEC. 19	4501
	Pinyon Catchment	T36N R6W NE SEC. 29	4502
	Pronghorn Catchment	T36N R6W SW SEC. 35	4503
	Langs Run Catchment	T36N R9W NE SEC. 34	4504
	Finale Catchment	T36N R9W SW SEC. 10	4505
	Chukar Transplant into Whitmore Canyon		


MT. TRUMBULL
HABITAT AREA
EXISTING WATER
SUMMER RANGE

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION
1. State (2–3) . . . 02
2. District (4–5) . . . 01
3. Job No. (6–9) . . . 4482
4. Transaction Code (10) . . . 1

I – GENERAL DESCRIPTION Card 1

Job Name (11–30): SLIDE MT. CATCHMENT

LOCATION CODES
5. Special Project Code (31–34) . . .
6. Planning Unit (35–36) . . . 02
8. Sub-Basin (37–38) . . . 9. County (39–41) . . . 015
10. Watershed No. (42–44) . . .
11. Allotment No. (45–47) . . .
12. Wildlife Habitat Area (48–50) . . .

SITE AND VEGETATIVE DESCRIPTION
13. Present SSF (51–52) . . . 14. % Slope (53–54) . . .
15. Exposure (55) . . . 16. Soil Texture (56) . . .
17. Precipitation (inches) (57–58) . . .
18. Elevation (feet) (59–63) . . .
19. Vegetative Subtype (64–66) . . .

COMPOSITION (Percent)
20. Grasses (67–68) . . . 21. Forbs (69–70) . . .
22. Browse (71–72) . . .

COVER (Percent)
23. Vegetative (73–74) . . . 24. Litter (75–76) . . .
25. Bare Ground (77–78) . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) . . . 1285
76. Work Job Code (15–18) . . . 6245

UNITS PLANNED
77. Primary (19–24) . . . 10
78. Secondary (25–29) . . . 5000

TIME OF AWARD
79. Fiscal Year (30–31) . . . 77 80. Third (32) . . . 1

TIME OF COMPLETION
81. Fiscal Year (33–34) . . . 77 82. Third (35) . . . 3

BLM COST 83. Method (36) . . .
84. Material (37–41) . . . 3500
85. Contract (42–47) . . . 300

CONTRIBUTED COST
86. Material (48–52) . . .
87. Labor/Equipment (53–57) . . . 1500

MAINTENANCE
88. Responsibility (58) . . . 5 89. Cycle (59–61) . . . 701

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) . . . 7

PLANT AND PEST CONTROL
39. Chemical (12) . . . 42. Method (13) . . .
45. Mechanical – Method (14) . . .

ARTIFICIAL REVEGETATION
47. Pounds Seed/Acre (15–17) . . .
48. Seedlings/Acre (18–21) . . . 49. Method (22) . . .
51. AUM's Livestock Forage Added (23–26) . . .
52. Future SSF (27–28) . . .

WATERSHED TILLAGE 54. Method (29) . . .

FACILITIES 55. Type (30) . . . 56. Other Misc. (31) . . .

WATER DEVELOPMENT/CONTROL
59. Structure Type (32) . . .
STORAGE (Ac. Ft.) 60. Flood (33–38) . . .
61. Silt (39–44) . . .

WILDLIFE HABITAT DEVELOPMENT/PROTECTION
62. Type (45–46) 24 63. Primary Species (47–49) 103
64. Animal Months (50–54) . . . 250
65. Number Increase (55–59) . . . 42
66. Pounds Fish Increase (60–64) . . .
67. Rare/Endangered (65) . . .

VISITOR DAYS ADDED 68. Fisherman (66–69) . . .
69. Hunter (70–73) . . . 100 70. Other (74–77) . . .

IV – PROGRESS REPORT Card 4

COMPLETION DATA
UNITS 90. Primary (11–16) . . .
91. Secondary (17–21) . . .
TIME 92. Fiscal Year (22–23) . . .
93. Third (24) . . .
94. Contract No. (25–29) . . . CT

CONTRIBUTION DETAIL
95. Agreement (30) . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS
98. Deposited (52–56) . . .
Undeposited
99. Materials (57–61) . . .
100. Labor/Equipment (62–66) . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

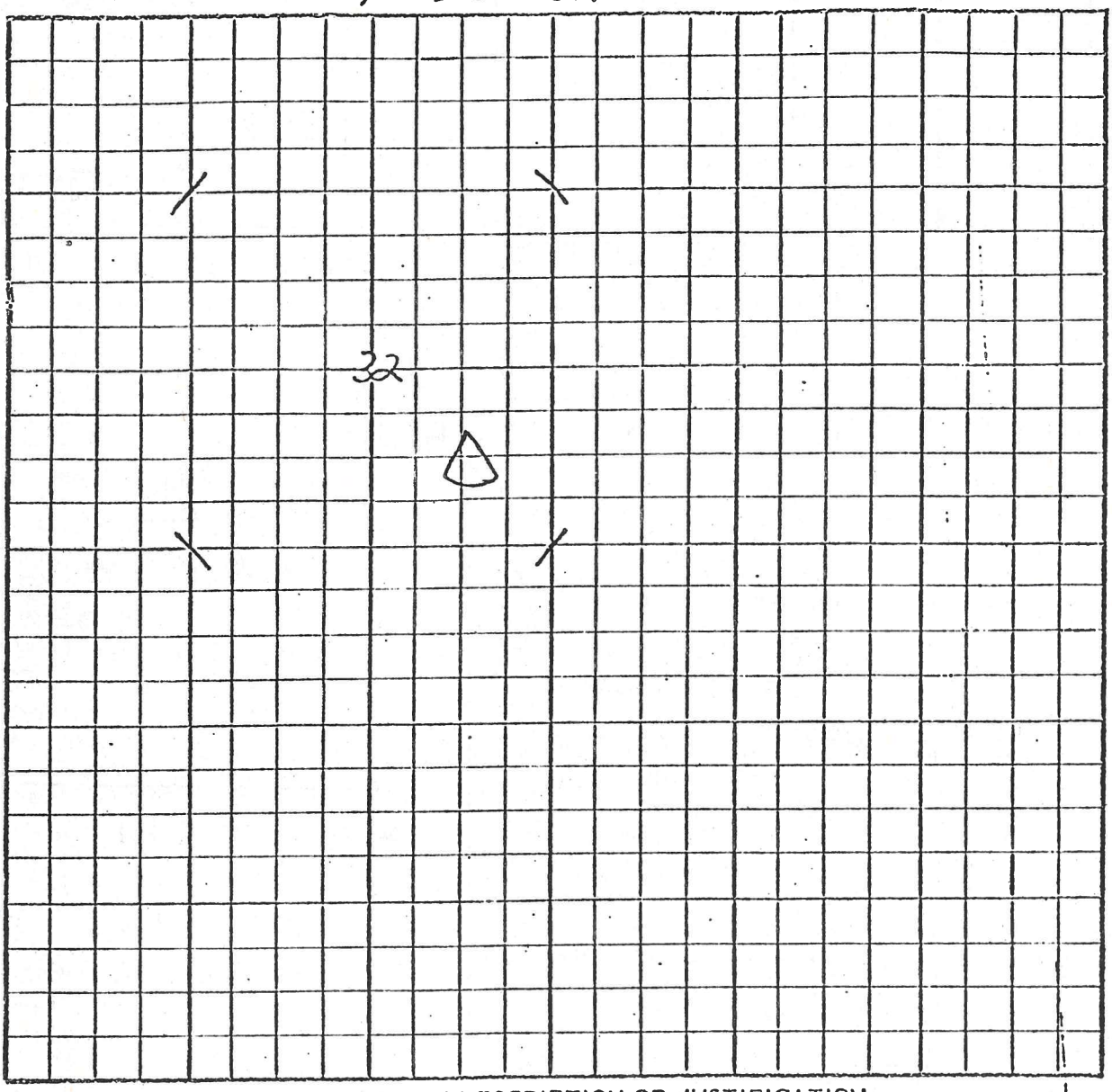
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
2½' deep ring & misc fittings, rain trough, vinyl liner, 20'x50' corrugated apron fencing materials			3500.00			
Construction (by Ariz. Game & Fish)						1500.00
Equipment Rental				300.00		
TOTALS Materials			3500.00			
Labor/Equipment				300.00		1500.00

TIFICATION (ATE 0 2 DISTRICT 0 1 JOB NUMBER 4 4 8

VI – LOCATION PLAT

Scale 1 inch =

T. 34 N R. 08 W, SE½ Sec. 32 Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer t will be constructed so as to be of use to all species o me and non-game wildlife. Water will be provided at grou el to accomodate both large and small species. The nee r additional water in this area was identified in the Mt. rumbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This dev pment is given 3rd priority in the Mt. Trumbull Habitat Analy

repared by Mel Wallbeley	Title W.S	Date	
pproved by Kenneth M. Callaire	Title D.M.	Date 7-24-7	

GPO 85

Fish & Game Const. - 2 of 3

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

I – GENERAL DESCRIPTION Card 1

Job Name (11–30): WHITMORE CATCHMENT I

ATION CODES

Special Project Code (31–34):
Planning Unit (35–36): 02
Sub-Basin (37–38):
9. County (39–41): 015
Watershed No. (42–44):
Allotment No. (45–47):
Wildlife Habitat Area (48–50):

AND VEGETATIVE DESCRIPTION

Present SSF (51–52):
14. % Slope (53–54):
Exposure (55):
16. Soil Texture (56):
Precipitation (inches) (57–58):
Elevation (feet) (59–63):
Vegetative Subtype (64–66):

POSITION (Percent)

Grasses (67–68):
21. Forbs (69–70):
Browse (71–72):

R (Percent)

Vegetative (73–74):
24. Litter (75–76):
Bare Ground (77–78):

II – ANNUAL WORK PLAN INPUT DATA Card 2

Subactivity (11–14): 1285
Work Job Code (15–18): 6245

PLANNED

Primary (19–24): 10
Secondary (25–29): 500

OF AWARD

Fiscal Year (30–31): 77
80. Third (32): 1

OF COMPLETION

Fiscal Year (33–34): 77
82. Third (35): 3

COST
83. Method (36):
Material (37–41): 3500
Contract (42–47): 300

IBUTED COST

Material (48–52):
Labor/Equipment (53–57): 1500

ENANCE

Responsibility (58): 5
89. Cycle (59–61): 701

JOB IDENTIFICATION

1. State (2–3): 02
2. District (4–5): 01
3. Job No. (6–9): 4483
4. Transaction Code (10): 1

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11): 7

PLANT AND PEST CONTROL

39. Chemical (12):
42. Method (13):
45. Mechanical – Method (14):

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17):
48. Seedlings/Acre (18–21):
49. Method (22):
51. AUM's Livestock Forage Added (23–26):
52. Future SSF (27–28):

WATERSHED TILLAGE
54. Method (29):

FACILITIES 55. Type (30):
56. Other Misc. (31):

WATER DEVELOPMENT/CONTROL

59. Structure Type (32):
STORAGE (Ac. Ft.) 60. Flood (33–38):
61. Silt (39–44):

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46): 24
63. Primary Species (47–49): 103
64. Animal Months (50–54): 250
65. Number Increase (55–59): 42
66. Pounds Fish Increase (60–64):
67. Rare/Endangered (65):

VISITOR DAYS ADDED
68. Fisherman (66–69):
69. Hunter (70–73): 100
70. Other (74–77):

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16):
91. Secondary (17–21):
TIME 92. Fiscal Year (22–23):
93. Third (24):
94. Contract No. (25–29): CT

CONTRIBUTION DETAIL

95. Agreement (30):
96. Participant (31):
97. Contributor's Name (32–51):

CONTRIBUTIONS

98. Deposited (52–56):
Undeposited
99. Materials (57–61):
100. Labor/Equipment (62–66):

V – DETAIL ESTIMATE OF UNITS AND COSTS

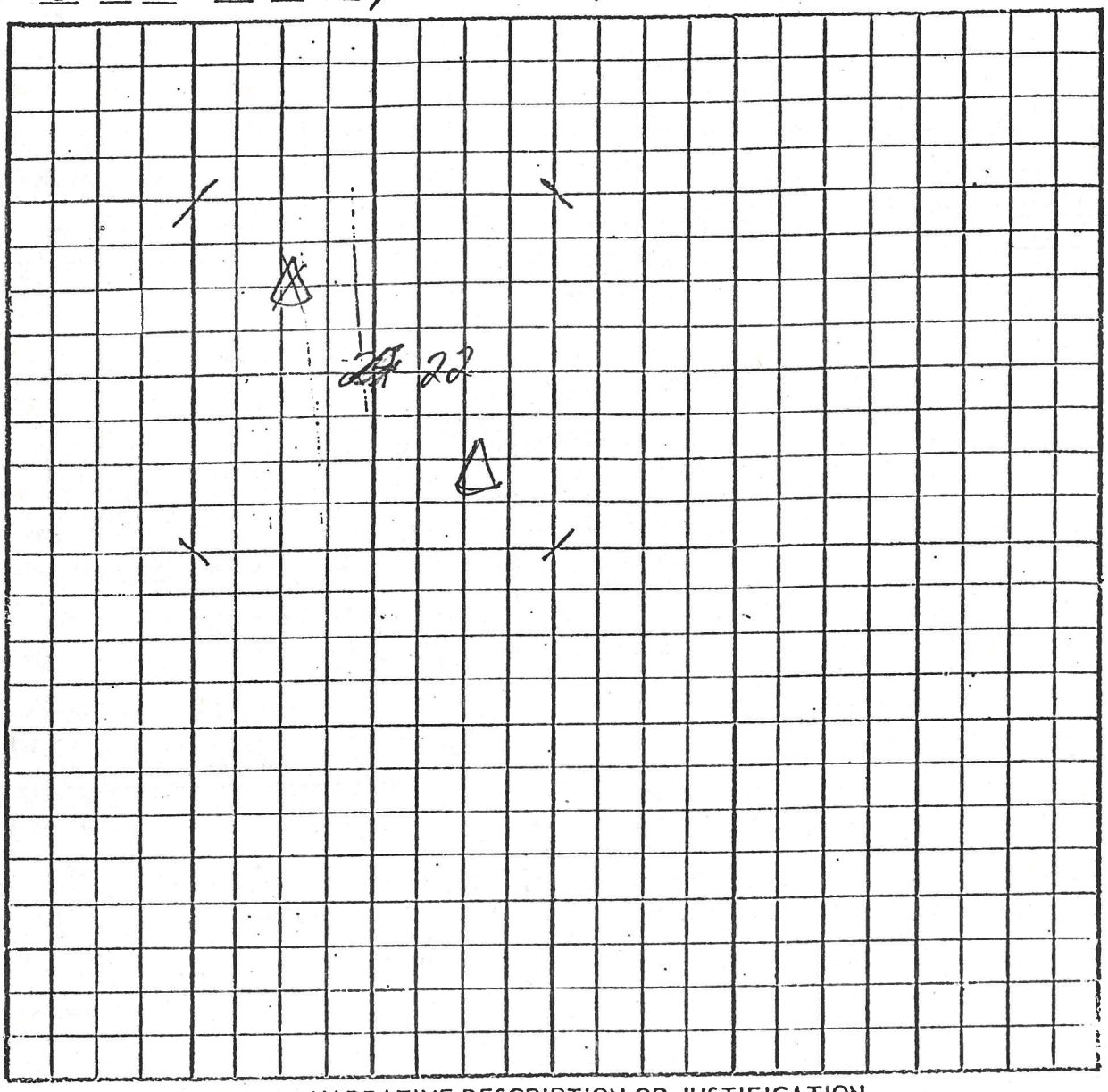
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
Sleep ring, misc. fittings, trough, vinyl liner, 50' corrugated apron, ing materials			3500.00			
struction (by Area Game &						1500.00
ipment Rental				300.00		
TOTALS Materials			3500.00			
Labor/Equipment				300.00		1500.00

Form 1630-8 (November 1972)

ENTIFICATION | STATE 0 2 | DISTRICT 0 1 | JOB NUMBER 4 4 8 3

VI – LOCATION PLAT

T. 34 N R. 10 W, ~~NW¼~~ SE¼ Sec. ~~24~~ 22 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, t will be constructed so as to be of use to all species of ne and non-game wildlife. Water will be provided at gro el to accomodate both large and small species. The nee r additional water in this area was identified in the Mt. mbull Habitat Analysis. This water development will open u arge new area of valuable habitat to wildlife. This develop ent is given 2nd priority in the Mt. Trumbull Habitat Analy

ared by Mel Wilhelm	Title W.S	Date	
oved by Kenneth M. Colter	Title DM	Date 7-24-7	

Fish & Game Coop.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4484
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION — Card 1

Job Name (11–30): WHITMORE CATCHMENT 2

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . .
9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . .
14. % Slope (53–54) . . . . .
15. Exposure (55) . . . . .
16. Soil Texture (56) . . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . .
21. Forbs (69–70) . . . . .
Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . .
24. Litter (75–76) . . . . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA — Card 2

25. Subactivity (11–14) 1285
26. Work Job Code (15–18) 6245

UNITS PLANNED

27. Primary (19–24) 10
28. Secondary (25–29) 5000

TIME OF AWARD

Fiscal Year (30–31) 77
80. Third (32) 1

TIME OF COMPLETION

Fiscal Year (33–34) 77
82. Third (35) 3

BLM COST
83. Method (36) . . . . .
84. Material (37–41) 3500
85. Contract (42–47) 300

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) 1500

MAINTENANCE

Responsibility (58) 5
89. Cycle (59–61) 701

III – JOB DETAILS AND BENEFITS — Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . .
42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . .
49. Method (22) . . . . .
51. AUM's Livestock Forage Added (23–26) . . . . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE
54. Method (29) . . . . .

FACILITIES 55. Type (30) . . . . .
56. Other Misc. (31) . . . . .

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38) . . . . .
61. Silt (39–44) . . . . .

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24
63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED
68. Fisherman (66–69) . . . . .
69. Hunter (70–73) 100
70. Other (74–77) . . . . .

IV – PROGRESS REPORT — Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . .
96. Participant (31) . . . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

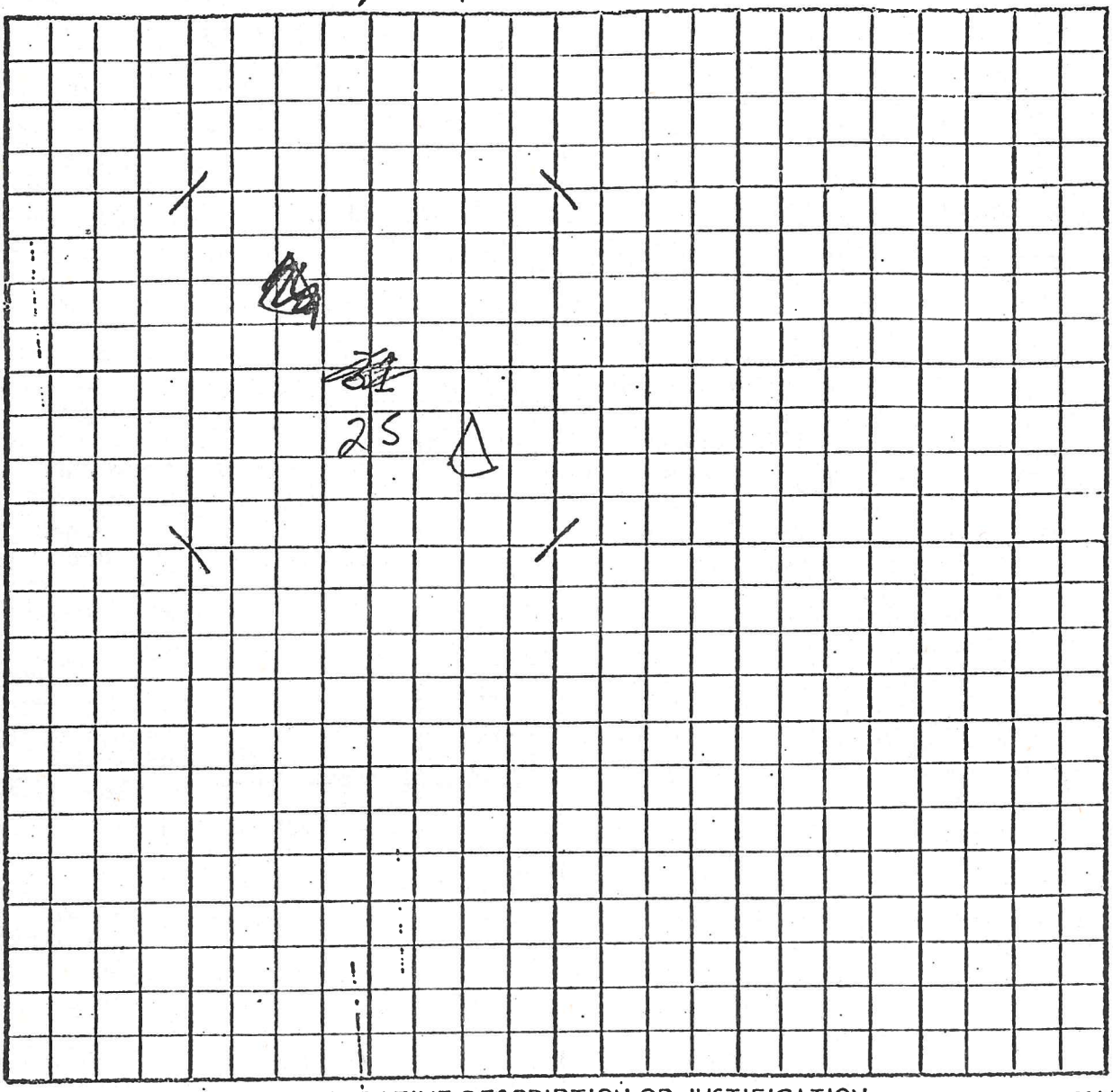
WORK DESCRIPTION AND MATERIALS (a)	UNITS: EA. MILE, ETC. (b)	UNITS: COST (c)	BLM COSTS: MATERIALS (d)	BLM COSTS: CONTRACT (e)	COOPERATOR COSTS: MATERIALS (f)	COOPERATOR COSTS: LABOR (g)
½' deep ring, misc. fittings, rain trough, vinyl liner, 25' x 50' corrugated apron, fencing materials			3500.00			
Construction (by Ariz. Game & Fish)						1500.00
Equipment Rental				300.00		
TOTALS Materials			3500.00			
Labor/Equipment				300.00		1500.00

Form 1630-8 (November 197

ENTIFICATION | TE 02 | DISTRICT 01 | JOB NUMBER 4484

VI – LOCATION PLAT

T. 34N R. ~~01~~ 10 W, ~~NW¼~~ SE¼ Sec. ~~31~~ 25 Scale 1 inch = Meridian GSRPM



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, t will be constructed so as to be of use to all species of ne and non-game wildlife. Water will be provided at grou el to accomodate both large and small species. The need r additional water in this area was identified in the Mt. mbull Habitat Analysis. This water development will open u large new area of valuable habitat to wildlife. This develop ent is given 6th priority in the Mt. Trumbull Habitat Analys

pared by Mel Wilhelm	Title W.B	Date
proved by Keith M. Colton	Title D.M.	Date 7-26-

Rect. Construction

UNITED STATE
DEPARTMENT OF THE I.. ERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 0
2. District (4–5) 0
3. Job No. (6–9) 4 4 8
4. Transaction Code (10) . . . . .

I – GENERAL DESCRIPTION — Card 1

Job Name (11–30): RIM CATCHMENT 2

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 0 2
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 0 1 5
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54) 1
15. Exposure (55) . . . . . 16. Soil Texture (56) 1
17. Precipitation (inches) (57–58) 1
18. Elevation (feet) (59–63) 3
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA — Card 2

75. Subactivity (11–14) 1 2 8 5
76. Work Job Code (15–18) 6 2 4 5

UNITS PLANNED

77. Primary (19–24) 1 0
78. Secondary (25–29) 5 0 0 0

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 7 7 80. Third (32) . . . 1

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 7 7 82. Third (35) . . . 3

BLM COST 83. Method (36) 2

84. Material (37–41) 3 2 0 0
85. Contract (42–47) 1 6 0 0

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) . . . . . 1 89. Cycle (59–61) . . . 7 0 1

III – JOB DETAILS AND BENEFITS — Card 3

37. Primary Job Objective (11) . . . . .

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 2 4 63. Primary Species (47–49) 1 0
64. Animal Months (50–54) 2 5
65. Number Increase (55–59) 4
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) . . . . . 1 0 0 70. Other (74–77)

IV – PROGRESS REPORT — Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . . .
Undeposited
99. Materials (57–61) . . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

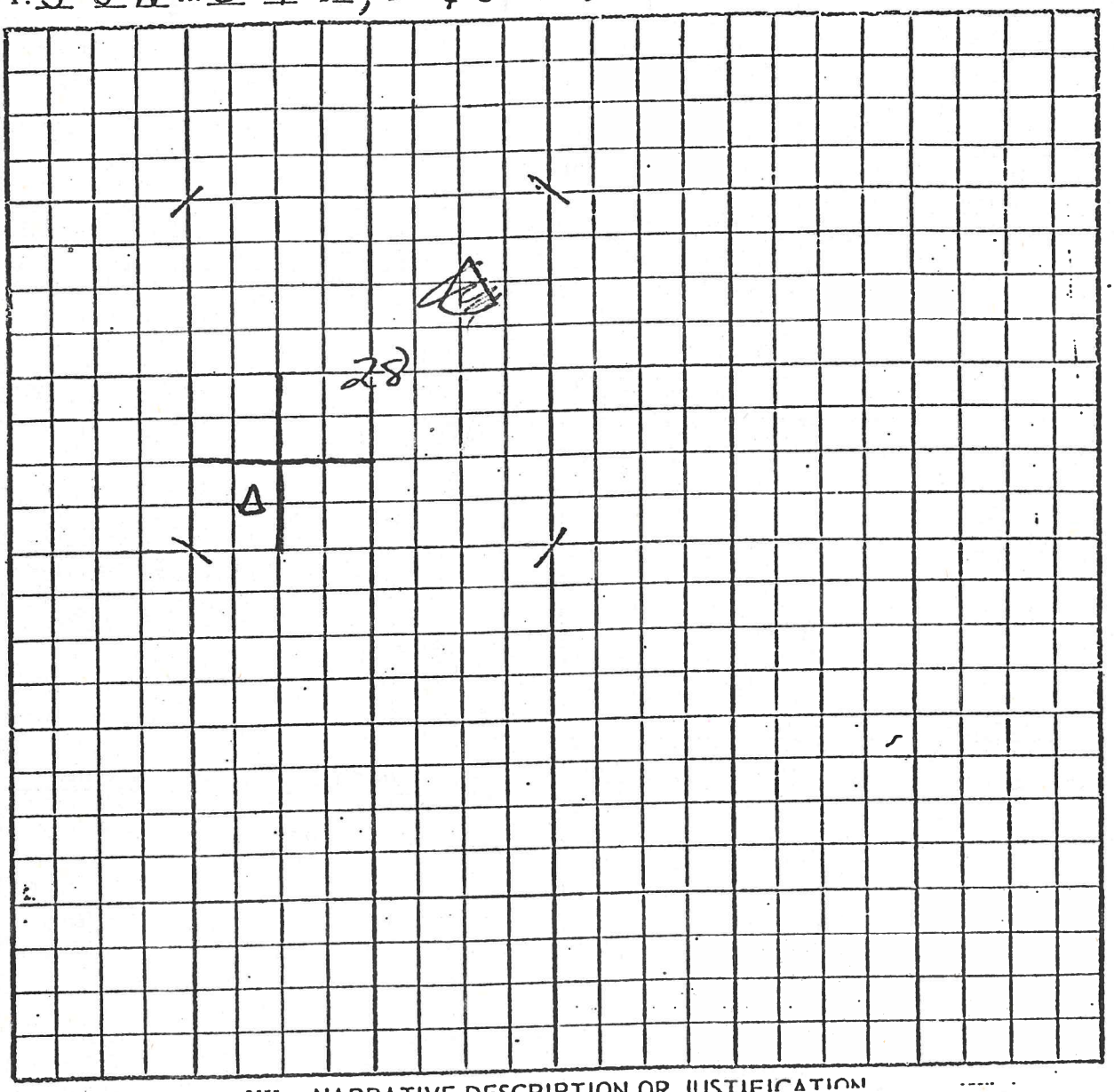
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
2½' deep ring & misc. fittings, rain trough, vinyl liner			3200.00			
30'x50' corrugated apron						
Fencing materials,						
Contract Fence Installation				500.00		
Equipment Rental				100.00		
TOTALS Materials			3200.00			
Labor/Equipment				600.00		

Form 1630–8 (November 19

IFICATION | ATE 0 2 | DISTRICT 0 1 | JOB NUMBER 4 4 8

VI – LOCATION PLAT

T. 3 S N R. 0 9 W, ~~SW~~ ¼ Sec. 28 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer ...nt will be constructed so as to be of use to all species o... ame and non-game wildlife. Water will be provided at grou... vel to accomodate both large and small species. The ne... or additional water in this area was identified in the Mt. ...rumbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This de... ...pment is given 7th priority in the Mt. Trumbull Habitat Anal...

Prepared by Mel Wilhelm	Title W.B.	Date
Approved by Keith M. Colton	Title DM	Date 7-26-

GPO

Accel. Construction

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION
1. State (2–3) . . . 0
2. District (4–5) . . . 0
3. Job No. (6–9) . . . 4 4 8
4. Transaction Code (10) . . .

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): RIM EXTENSION 2

LOCATION CODES
6. Special Project Code (31–34) . . .
7. Planning Unit (35–36) . . . 0 2
8. Sub-Basin (37–38) . . . 9. County (39–41) . . . 0 1 5
10. Watershed No. (42–44) . . .
11. Allotment No. (45–47) . . .
12. Wildlife Habitat Area (48–50) . . .

SITE AND VEGETATIVE DESCRIPTION
13. Present SSF (51–52) . . . 14. % Slope (53–54) . . .
15. Exposure (55) . . . 16. Soil Texture (56) . . .
17. Precipitation (inches) (57–58) . . .
18. Elevation (feet) (59–63) . . .
19. Vegetative Subtype (64–66) . . .

COMPOSITION (Percent)
20. Grasses (67–68) . . . 21. Forbs (69–70) . . .
22. Browse (71–72) . . .

COVER (Percent)
23. Vegetative (73–74) . . . 24. Litter (75–76) . . .
25. Bare Ground (77–78) . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) . . . 1 2 8 5
76. Work Job Code (15–18) . . . 6 2 4 5

UNITS PLANNED
77. Primary (19–24) . . . 1.0
78. Secondary (25–29) . . . 5 0 0 0

TIME OF AWARD
79. Fiscal Year (30–31) . . . 7 7 . . . 80. Third (32) . . . 1

TIME OF COMPLETION
81. Fiscal Year (33–34) . . . 7 7 . . . 82. Third (35) . . . 3

BLM COST 83. Method (36) . . . 2
84. Material (37–41) . . . 3 2 0 0
85. Contract (42–47) . . . 1 6 0 0

CONTRIBUTED COST
86. Material (48–52) . . .
87. Labor/Equipment (53–57) . . .

MAINTENANCE
88. Responsibility (58) . . . 1 . . . 89. Cycle (59–61) . . . 0 1

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) . . .

PLANT AND PEST CONTROL
39. Chemical (12) . . . 42. Method (13) . . .
45. Mechanical – Method (14) . . .

ARTIFICIAL REVEGETATION
47. Pounds Seed/Acre (15–17) . . .
48. Seedlings/Acre (18–21) . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . . .
52. Future SSF (27–28) . . .

WATERSHED TILLAGE 54. Method (29) . . .

FACILITIES 55. Type (30) . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL
59. Structure Type (32) . . .
STORAGE (Ac. Ft.) 60. Flood (33–38) . . .
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION
62. Type (45–46) 2 4 . . . 63. Primary Species (47–49) 1 0
64. Animal Months (50–54) . . . 2 5
65. Number Increase (55–59) . . . 4
66. Pounds Fish Increase (60–64) . . .
67. Rare/Endangered (65) . . .

VISITOR DAYS ADDED 68. Fisherman (66–69) . . .
69. Hunter (70–73) . . . 1 0 0 . . . 70. Other (74–77) . . .

IV – PROGRESS REPORT Card 4

COMPLETION DATA
UNITS 90. Primary (11–16) . . .
91. Secondary (17–21) . . .
TIME 92. Fiscal Year (22–23) . . .
93. Third (24) . . .
94. Contract No. (25–29) . . . CT

CONTRIBUTION DETAIL
95. Agreement (30) . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS
98. Deposited (52–56) . . .
Undeposited
99. Materials (57–61) . . .
100. Labor/Equipment (62–66) . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

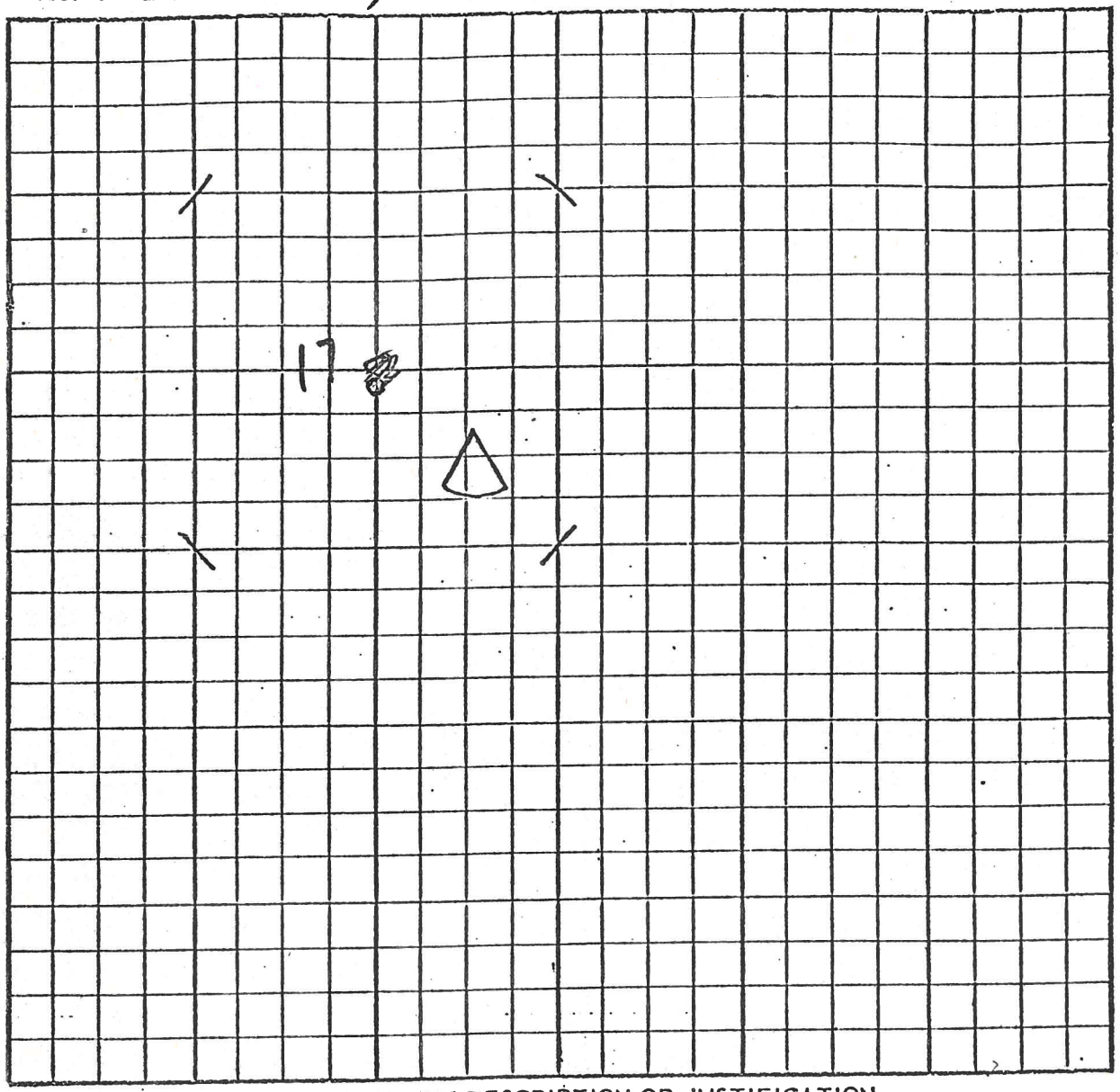
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
2½' deep ring & misc. fittings, rain trough, vinyl liner			3200.00			
30' x 50' corrugated apron						
Fencing materials				500.00		
Contract Fence Installation				100.00		
Equipment Rental						
TOTALS Materials			3200.00			
Labor/Equipment				600.00		

Form 1630-8 (November 19

NTIFICATION | TE 02 | DISTRICT 01 | JOB NUMBER 4486

VI – LOCATION PLAT

T. 3 S N R. 09 W, SE¼ Sec. 17 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for dee... will be constructed so as to be of use to all species of me and non-game wildlife. Water will be provided at gro... el to accomodate both large and small species. The need additional water in this drea was identified in the Mt. umbull Habitat Analysis. This water development will open large new area of valuable habitat to wildlife. This dev... ment is given 8th priority in the Mt. Trumbull Habitat Anal...

Prepared by Mel Wilhelm	Title Wildlife Biologist	Date
Approved by Kenneth M Colton	Title D.M.	Date 7-26-

Acct. Construction

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION
1. State (2–3) . . . 02
2. District (4–5) . . . 01
3. Job No. (6–9) . . . 4487
4. Transaction Code (10) . . . 1

I – GENERAL DESCRIPTION Card 1

Job Name (11–30): HELLS HOLE CATCHMENT

LOCATION CODES
Special Project Code (31–34) . . .
Planning Unit (35–36) . . . 02
8. Sub-Basin (37–38) . . . 9. County (39–41) . . . 015
Watershed No. (42–44) . . .
Allotment No. (45–47) . . .
2. Wildlife Habitat Area (48–50) . . .

SITE AND VEGETATIVE DESCRIPTION
Present SSF (51–52) . . . 14. % Slope (53–54) . . .
5. Exposure (55) . . . 16. Soil Texture (56) . . .
7. Precipitation (inches) (57–58) . . .
. Elevation (feet) (59–63) . . .
. Vegetative Subtype (64–66) . . .

COMPOSITION (Percent)
. Grasses (67–68) . . . 21. Forbs (69–70) . . .
. Browse (71–72) . . .

COVER (Percent)
. Vegetative (73–74) . . . 24. Litter (75–76) . . .
. Bare Ground (77–78) . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) . . . 1285
. Work Job Code (15–18) . . . 6245

UNITS PLANNED
77. Primary (19–24) . . . 10
8. Secondary (25–29) . . . 5000

TIME OF AWARD
79. Fiscal Year (30–31) . . . 77 80. Third (32) . . . 1

TIME OF COMPLETION
1. Fiscal Year (33–34) . . . 77 82. Third (35) . . . 3

BLM COST 83. Method (36) . . . 2
84. Material (37–41) . . . 3200
85. Contract (42–47) . . . 1500

CONTRIBUTED COST
86. Material (48–52) . . .
87. Labor/Equipment (53–57) . . .

MAINTENANCE
88. Responsibility (58) . . . 1 89. Cycle (59–61) . . . 701

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) . . . 7

PLANT AND PEST CONTROL
39. Chemical (12) . . . 42. Method (13) . . .
45. Mechanical – Method (14) . . .

ARTIFICIAL REVEGETATION
47. Pounds Seed/Acre (15–17) . . .
48. Seedlings/Acre (18–21) . . . 49. Method (22) . . .
51. AUM's Livestock Forage Added (23–26) . . .
52. Future SSF (27–28) . . .

WATERSHED TILLAGE 54. Method (29) . . .
FACILITIES 55. Type (30) . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL
59. Structure Type (32) . . .
STORAGE (Ac. Ft.) 60. Flood (33–38) . . .
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION
62. Type (45–46) . . . 24 63. Primary Species (47–49) . . . 612
64. Animal Months (50–54) . . . 600
65. Number Increase (55–59) . . . 50
66. Pounds Fish Increase (60–64) . . .
67. Rare/Endangered (65) . . .

VISITOR DAYS ADDED 68. Fisherman (66–69) . . .
69. Hunter (70–73) . . . 150 70. Other (74–77) . . .

IV – PROGRESS REPORT Card 4

COMPLETION DATA
UNITS 90. Primary (11–16) . . .
91. Secondary (17–21) . . .
TIME 92. Fiscal Year (22–23) . . .
93. Third (24) . . .
94. Contract No. (25–29) . . . CT

CONTRIBUTION DETAIL
95. Agreement (30) . . . 96. Participant (31) . . .
97. Contributor's Name (32–51) . . .

CONTRIBUTIONS
98. Deposited (52–56) . . .
Undeposited
99. Materials (57–61) . . .
100. Labor/Equipment (62–66) . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

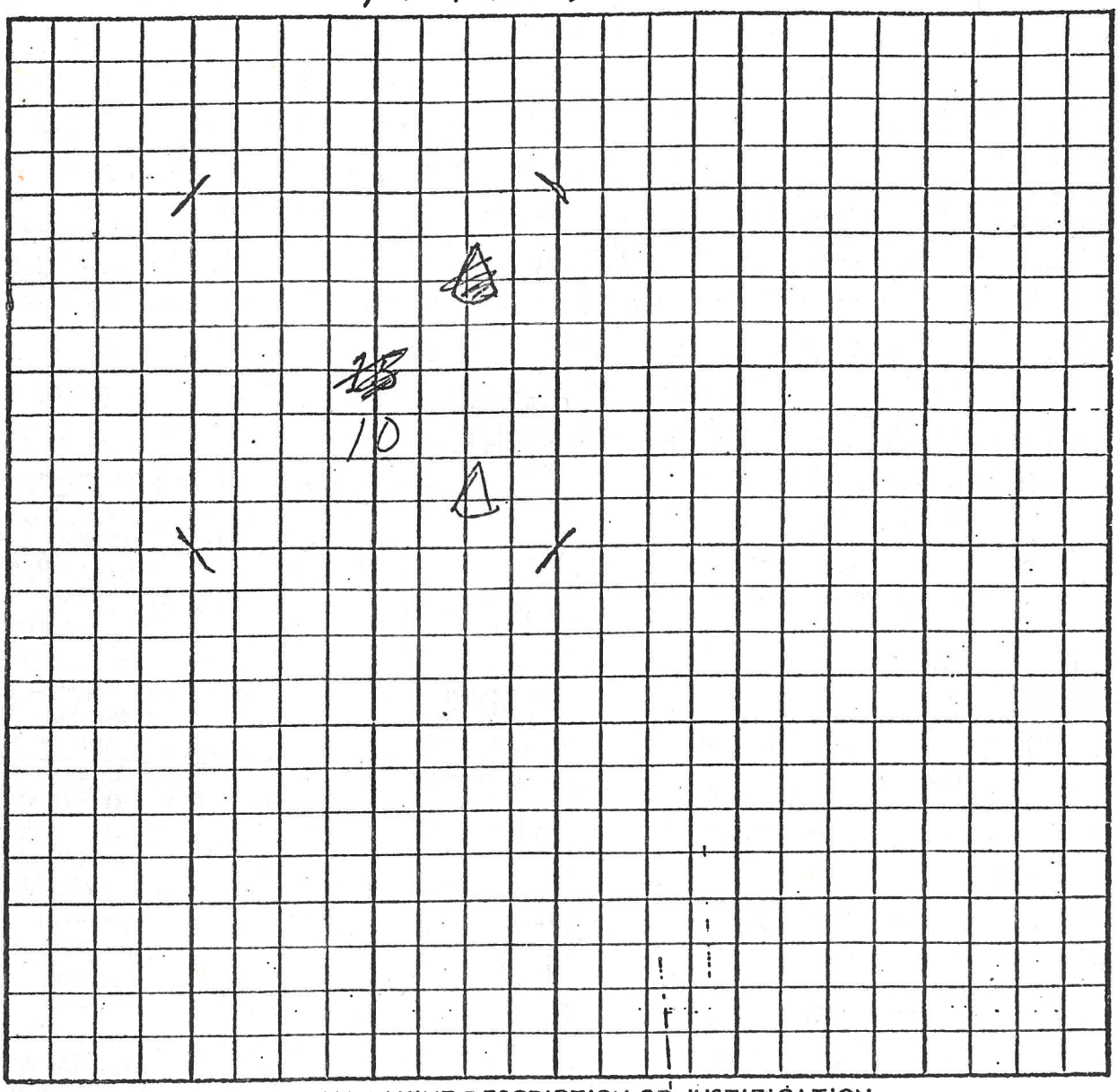
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
2½' deep ring, misc. fittings, rain trough, vinyl liner, 30'x50' corrugated apron, fencing materials.			3200.00			
Contract Fence Installation				500.00		
Equipment Rental				1000.00		
TOTALS Materials			3200.00			
Labor/Equipment				1500.00		

Form 1630-8 (November 1

FICATION | .TE 02 | DISTRICT 01 | JOB NUMBER 448-7

VI – LOCATION PLAT

T. 34 N R. 09 W, ~~NE~~ SE 1/4 Sec. ~~15~~ 10 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for turk
t will be constructed so as to be of use to all species of
me and non-game wildlife. Water will be provided at grou
ed to accomodate both large and small species. The nee
r additional water in this area was identified in the Mt. Trum
ll Habitat Analysis. This water development will open up
large new area of valuable habitat to wildlife. This deve
ment is given 9th priority in the Mt. Trumbull Habitat Analysis

pared by Mel Wilhelm	Title W. B.	Date 7-26-7
roved by Keith M. Cotton	Title D M	Date 7-27-7

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

I – GENERAL DESCRIPTION — Card 1

Name (11–30): SAWMILL CATCHMENT

ATION CODES

Special Project Code (31–34):
Planning Unit (35–36): 02
Sub-Basin (37–38):
9. County (39–41): 015
10. Watershed No. (42–44):
Allotment No. (45–47):
Wildlife Habitat Area (48–50):

SITE AND VEGETATIVE DESCRIPTION

Present SSF (51–52):
14. % Slope (53–54):
Exposure (55):
16. Soil Texture (56):
17. Precipitation (inches) (57–58):
18. Elevation (feet) (59–63):
Vegetative Subtype (64–66):

OMPOSITION (Percent)

20. Grasses (67–68):
21. Forbs (69–70):
Browse (71–72):

OVER (Percent)

23. Vegetative (73–74):
24. Litter (75–76):
Bare Ground (77–78):

II – ANNUAL WORK PLAN INPUT DATA — Card 2

75. Subactivity (11–14): 1285
76. Work Job Code (15–18): 6245

NITS PLANNED

77. Primary (19–24): 10
78. Secondary (25–29): 5000

IME OF AWARD

79. Fiscal Year (30–31): 77
80. Third (32): 1

TIME OF COMPLETION

81. Fiscal Year (33–34): 77
82. Third (35): 3

LM COST
83. Method (36): 2
84. Material (37–41): 3200
85. Contract (42–47): 1500

ONTRIBUTED COST

86. Material (48–52):
87. Labor/Equipment (53–57):

AINTENANCE

88. Responsibility (58): 1
89. Cycle (59–61): 701

JOB IDENTIFICATION

1. State (2–3): 1
2. District (4–5):
3. Job No. (6–9): 448
4. Transaction Code (10):

III – JOB DETAILS AND BENEFITS — Card 3

37. Primary Job Objective (11):

PLANT AND PEST CONTROL

39. Chemical (12):
42. Method (13):
45. Mechanical – Method (14):

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17):
48. Seedlings/Acre (18–21):
49. Method (22):
51. AUM's Livestock Forage Added (23–26):
52. Future SSF (27–28):

WATERSHED TILLAGE
54. Method (29):

FACILITIES 55. Type (30):
56. Other Misc. (31):

WATER DEVELOPMENT/CONTROL

59. Structure Type (32):
STORAGE (Ac. Ft.) 60. Flood (33–38):
61. Silt (39–44):

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46): 24
63. Primary Species (47–49): 61
64. Animal Months (50–54): 60
65. Number Increase (55–59): 5
66. Pounds Fish Increase (60–64):
67. Rare/Endangered (65):

VISITOR DAYS ADDED
68. Fisherman (66–69):
69. Hunter (70–73): 150
70. Other (74–77):

IV – PROGRESS REPORT — Card 4

COMPLETION DATA

UNITS 90. Primary (11–16):
91. Secondary (17–21):
TIME 92. Fiscal Year (22–23):
93. Third (24):
94. Contract No. (25–29): CT

CONTRIBUTION DETAIL

95. Agreement (30):
96. Participant (31):
97. Contributor's Name (32–51):

CONTRIBUTIONS

98. Deposited (52–56):
Undeposited
99. Materials (57–61):
100. Labor/Equipment (62–66):

V – DETAIL ESTIMATE OF UNITS AND COSTS

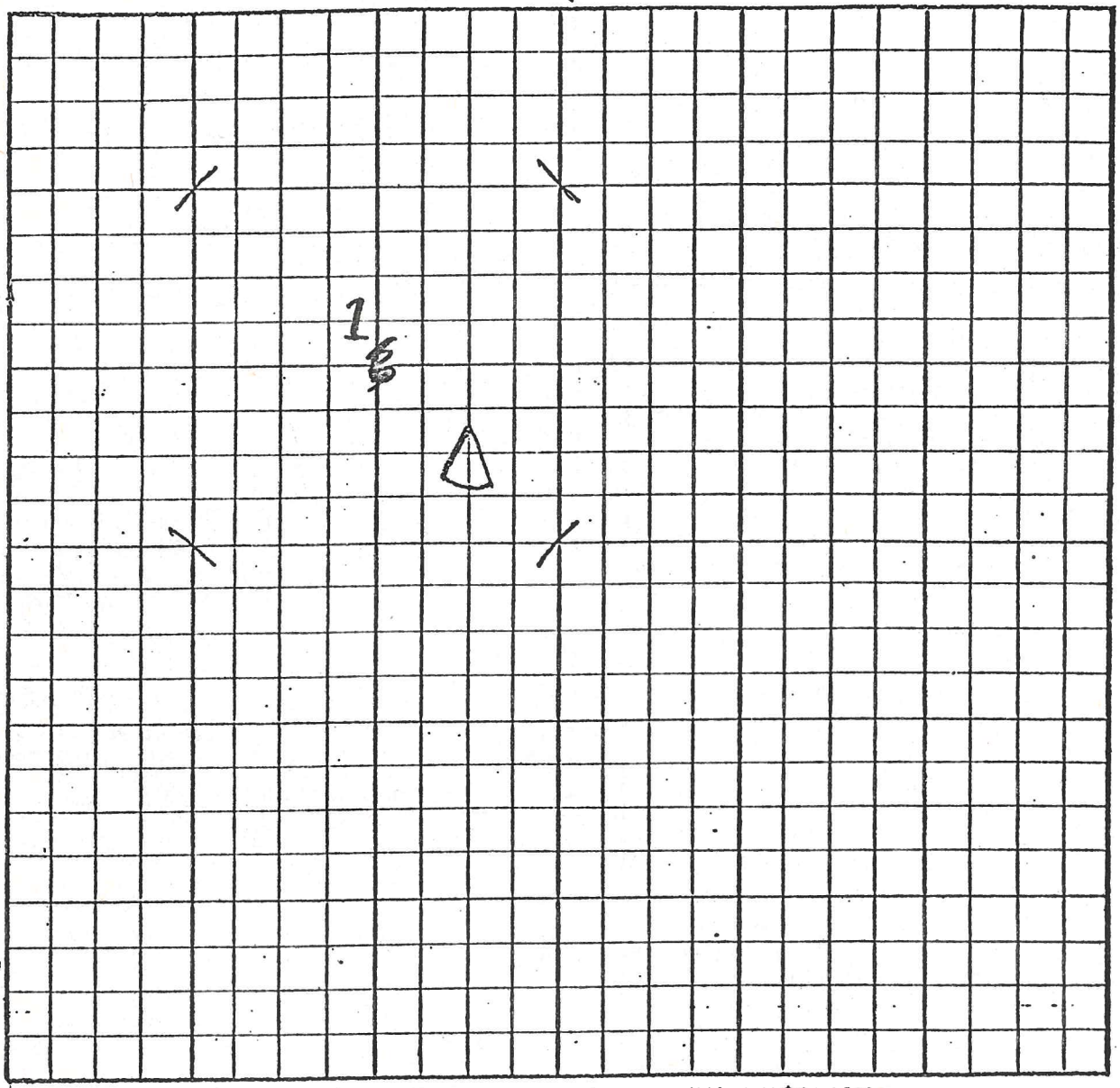
WORK DESCRIPTION AND MATERIALS (a)	UNITS: EA. MILE, ETC. (b)	UNITS: COST (c)	BLM COSTS: MATERIALS (d)	BLM COSTS: CONTRACT (e)	COOPERATOR COSTS: MATERIALS (f)	COOPERATOR COSTS: LABOR (g)
7½' deep ring, misc. fittings, rain trough, vinyl liner, 20'x50' corrugated apron. Fencing materials			3200.00			
Contract Fence Installation				500.00		
Equipment Rental				1000.00		
TOTALS Materials			3200.00			
Labor/Equipment				1500.00		

Form 1630–8 (November 19

...ION S... E 02 DISTRICT 01 (JOB NUMBER 4488

VI – LOCATION PLAT

T. 34 N R. 09 W, SE¼ Sec. 1 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

...is catchment is designed to provide water primarily for turkey, ... will be constructed so as to be of use to all species of ... e and non-game wildlife. Water will be provided at ground ... to accomodate both large and small species. The need ... ditional water in this area was identified in the Mt. Trum... Habitat Analysis. This water development will open up ... ge new area of valuable habitat to wildlife. This devel... ent is given 10th priority in the Mt. Trumbull Habitat Analysis.

... by Mel Wilhelm	Title W.B	Date 7-26-76
... by Garth M. Colton	Title DM	Date 7-27-76

GPO 853-181

Force Acct. Const.

11

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4489
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): TURKEY TRACK CATCH.

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54) . . . . .
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . . . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) . . . . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 10
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) 78 80. Third (32) . . . 1

TIME OF COMPLETION

81. Fiscal Year (33–34) 78 82. Third (35) . . . 1

BLM COST 83. Method (36) 2

84. Material (37–41) 3200
85. Contract (42–47) 1500

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) 1 89. Cycle (59–61) . 801

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22) . . . . .
51. AUM's Livestock Forage Added (23–26) . . . . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31) . . . . .

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38) . . . . .
61. Silt (39–44) . . . . .

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 63. Primary Species (47–49) 612
64. Animal Months (50–54) 600
65. Number Increase (55–59) 50
66. Pounds Fish Increase (60–64) . . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69) . . . . .
69. Hunter (70–73) 150 70. Other (74–77) . . . . .

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

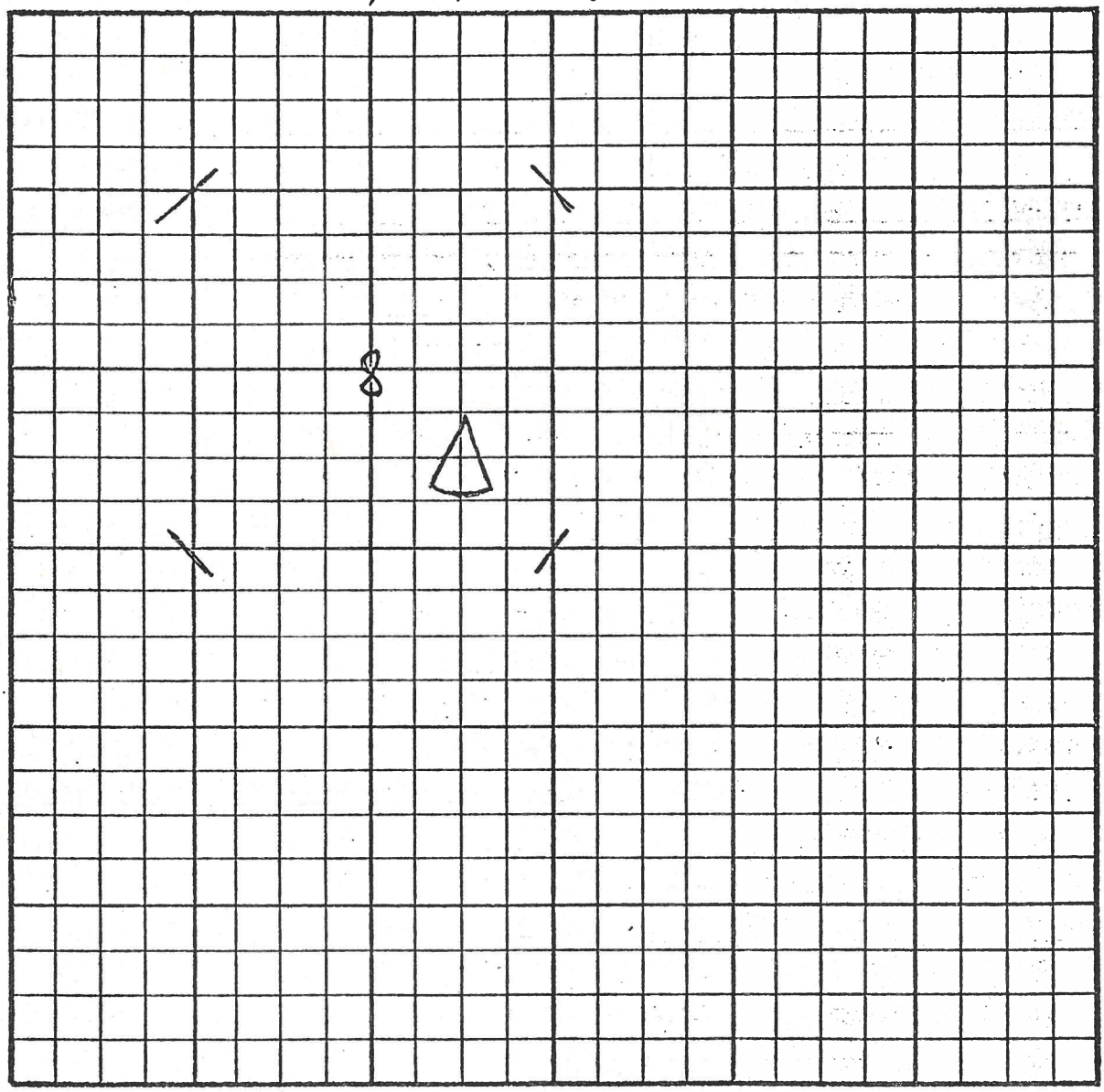
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
7½' deep ring, misc. fittings, rain trough, vinyl liner, 30'x50' corrugated apron, fencing materials			3200.00			
Contract fence installation				500.00		
Equipment rental				1000.00		
TOTALS Materials			3200.00			
Labor/Equipment				1500.00		

Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4489

VI – LOCATION PLAT

T. 34 N R. 08 W, SE¼ Sec. 8 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for turkey, at will be constructed so as to be of use to all species of me and non-game wildlife. Water will be provided at ground el to accomodate both large and small species. The need r additional water in this area was identified in the Mt. Trum- ll Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This devel- ment is given 11th priority in the Mt. Trumbull Habitat Analysis.

pared by Melvin J Wilhelm	Title Wildlife Biologist	Date 8-16-76
oved by Keith M Colton	Title DPM	Date 8-18-76

Force Acct. Const.

1.2

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4492
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): MT. TRUMBULL CATCH.

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . .
9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . .
14. % Slope (53–54) . . . . .
15. Exposure (55) . . . . .
16. Soil Texture (56) . . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION *(Percent)*

20. Grasses (67–68) . . . . .
21. Forbs (69–70) . . . . .
22. Browse (71–72) . . . . .

COVER *(Percent)*

23. Vegetative (73–74) . . . . .
24. Litter (75–76) . . . . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) 78
80. Third (32) 1

TIME OF COMPLETION

81. Fiscal Year (33–34) 78
82. Third (35) 3

BLM COST

83. Method (36) 2
84. Material (37–41) 3200
85. Contract (42–47) 1500

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) 1
89. Cycle (59–61) 801

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . .
42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . .
49. Method (22) . . . . .
51. AUM's Livestock Forage Added (23–26) . . . . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE

54. Method (29) . . . . .

FACILITIES

55. Type (30) . . . . .
56. Other Misc. (31) . . . . .

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .

STORAGE (Ac. Ft.)
60. Flood (33–38) . . . . .
61. Silt (39–44) . . . . .

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24
63. Primary Species (47–49) 612
64. Animal Months (50–54) 600
65. Number Increase (55–59) 50
66. Pounds Fish Increase (60–64) . . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED

68. Fisherman (66–69) . . . . .
69. Hunter (70–73) 150
70. Other (74–77) . . . . .

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS
90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . . .

TIME
92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .

94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . .
96. Participant (31) . . . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .

Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

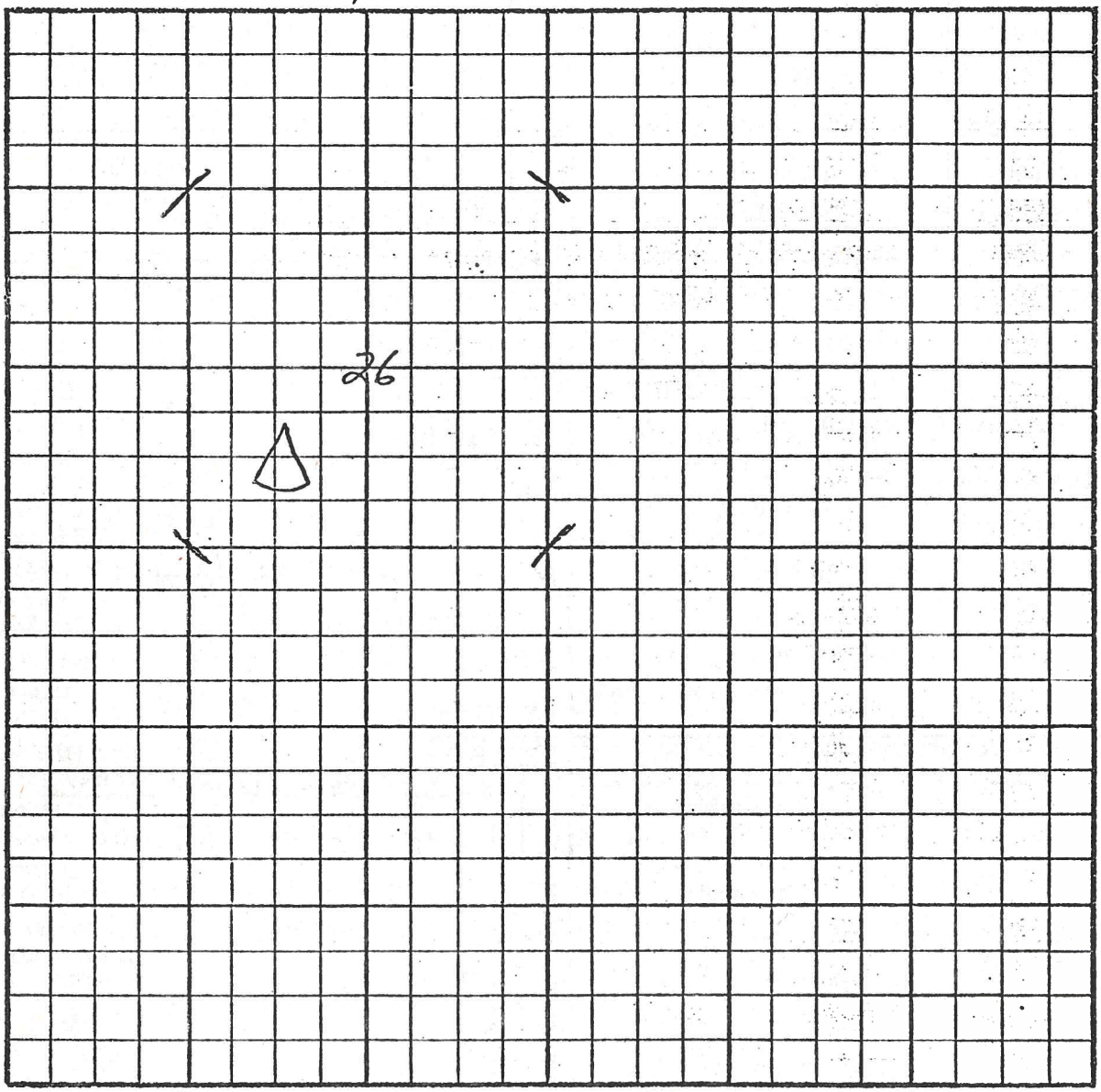
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
7½' deep ring, misc. fittings, rain trough, vinyl liner, 30'x50' corrugated apron, fencing materials			3200.00			
Contract fence installation				500.00		
Equipment rental				1000.00		
TOTALS Materials			3200.00			
Labor/Equipment				1500.00		

Form 1620-8 (November 1972)

JOB IDENTIFICATION | STATE 02 | DISTRICT 01 | JOB NUMBER 4490

VI – LOCATION PLAT

T. 35 N R. 08 W, SW¼ Sec. 26 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for turkey, it will be constructed so as to be of use to all species of game and non-game wildlife. Water will be provided at ground level to accomodate both large and small species. The need for additional water in this area was identified in the Mt. Trumbull Habitat Analysis. This water development will open up a large new area of valuable habitat to wildlife. This development is given 12th priority in the Mt. Trumbull Habitat Analysis.

Prepared by: Melvin J. Wilhelm	Title: Wildlife Biologist	Date: 8-16-76
Approved by: Keith M Colton	Title: DM	Date: 8-18-76

GPO 653-19

Ariz. Game & Fish Const.

13

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4491
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): BROAD CAN. CATCHMENT

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 62
8. Sub-Basin (37–38)
9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52)
14. % Slope (53–54)
15. Exposure (55)
16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68)
21. Forbs (69–70) . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74)
24. Litter (75–76) .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) 78
80. Third (32) . . . 1

TIME OF COMPLETION

81. Fiscal Year (33–34) 78
82. Third (35) . . . 3

BLM COST

83. Method (36) . . . . .
84. Material (37–41) 3500
85. Contract (42–47) 300

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) 1500

MAINTENANCE

88. Responsibility (58) 5
89. Cycle (59–61) . 801

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12)
42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21)
49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE

54. Method (29) . . . .

FACILITIES

55. Type (30)
56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .

STORAGE (Ac. Ft.)
60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24
63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED

68. Fisherman (66–69)
69. Hunter (70–73) 100
70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS
90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .

TIME
92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .

94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30)
96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .

Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
½' deep ring, misc. fittings, rain trough, vinyl liner, 20'x50' corrugated apron, fencing materials			3500.00			
Construction (by Ariz. Game & Fish)						1500.00
Equipment rental				300.00		
TOTALS Materials			3500.00			
Labor/Equipment				300.00		1500.00

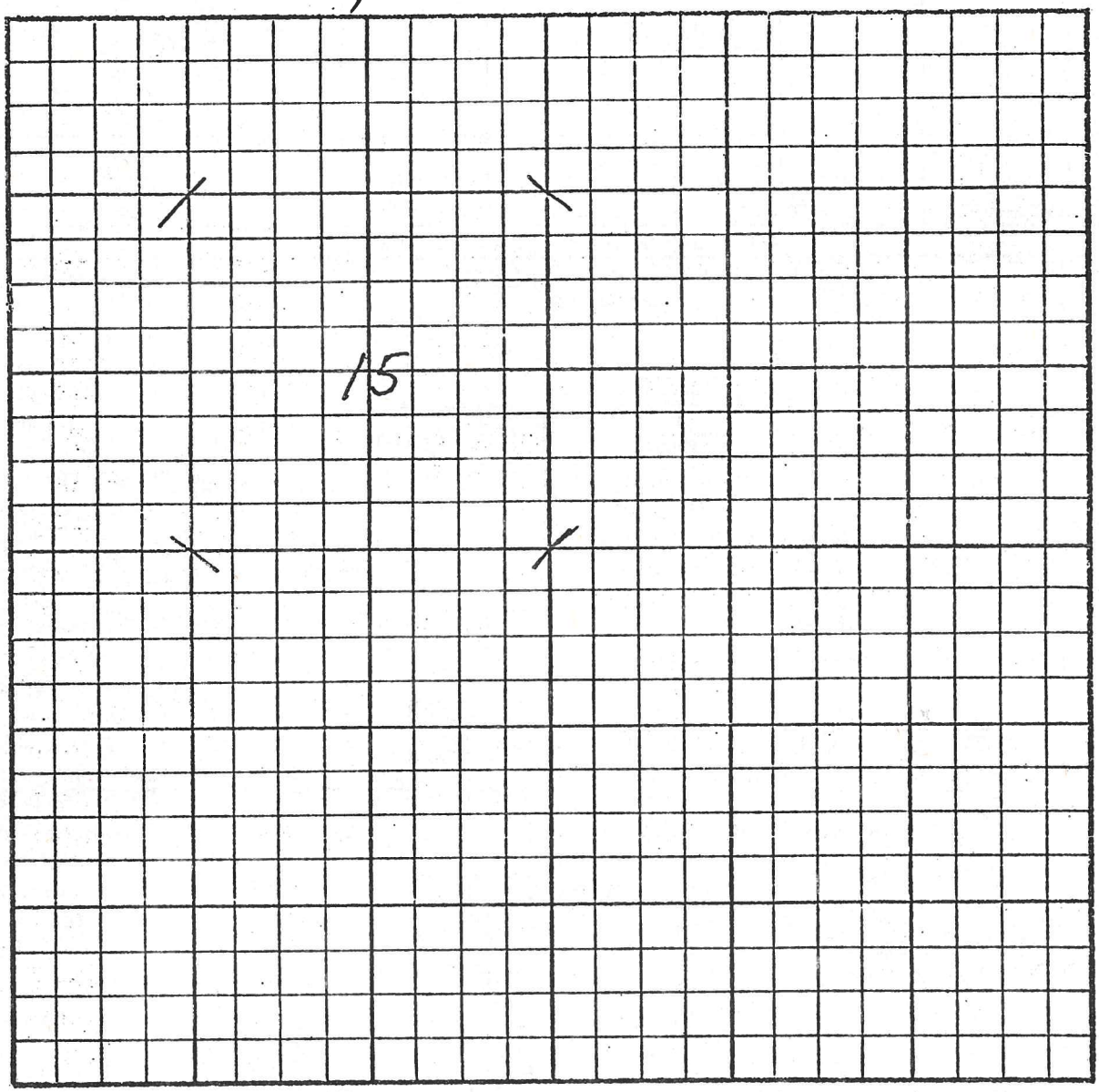
Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4491

VI – LOCATION PLAT

Scale 1 inch =

T. 3 S N R. 07 W, Sec. 15 Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, but will be constructed so as to be of use to all species of game and non-game wildlife. Water will be provided at grovel to accomodate both large and small species. The need for additional water in this area was identified in the Mt. Trumbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This development is given 13th priority in the Mt. Trumbull Habitat Analysis

Prepared by Melvin J. Wilkeby	Title Wildlife Biologist	Date 8-16-
Approved by Keith M. Colton	Title DM	Date 8-18-

GPO 853

Ariz. Game & Fish Const.

14

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4492
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): WITCH CATCHMENT

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54) . . . . .
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . . . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) . . . . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) 78
80. Third (32) 1

TIME OF COMPLETION

81. Fiscal Year (33–34) 78
82. Third (35) 3

BLM COST

83. Method (36) . . . . .
84. Material (37–41) 3500
85. Contract (42–47) 300

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) 1500

MAINTENANCE

88. Responsibility (58) . . . . . 5 89. Cycle (59–61) 801

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) . . . . . 64 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) . . . . . 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

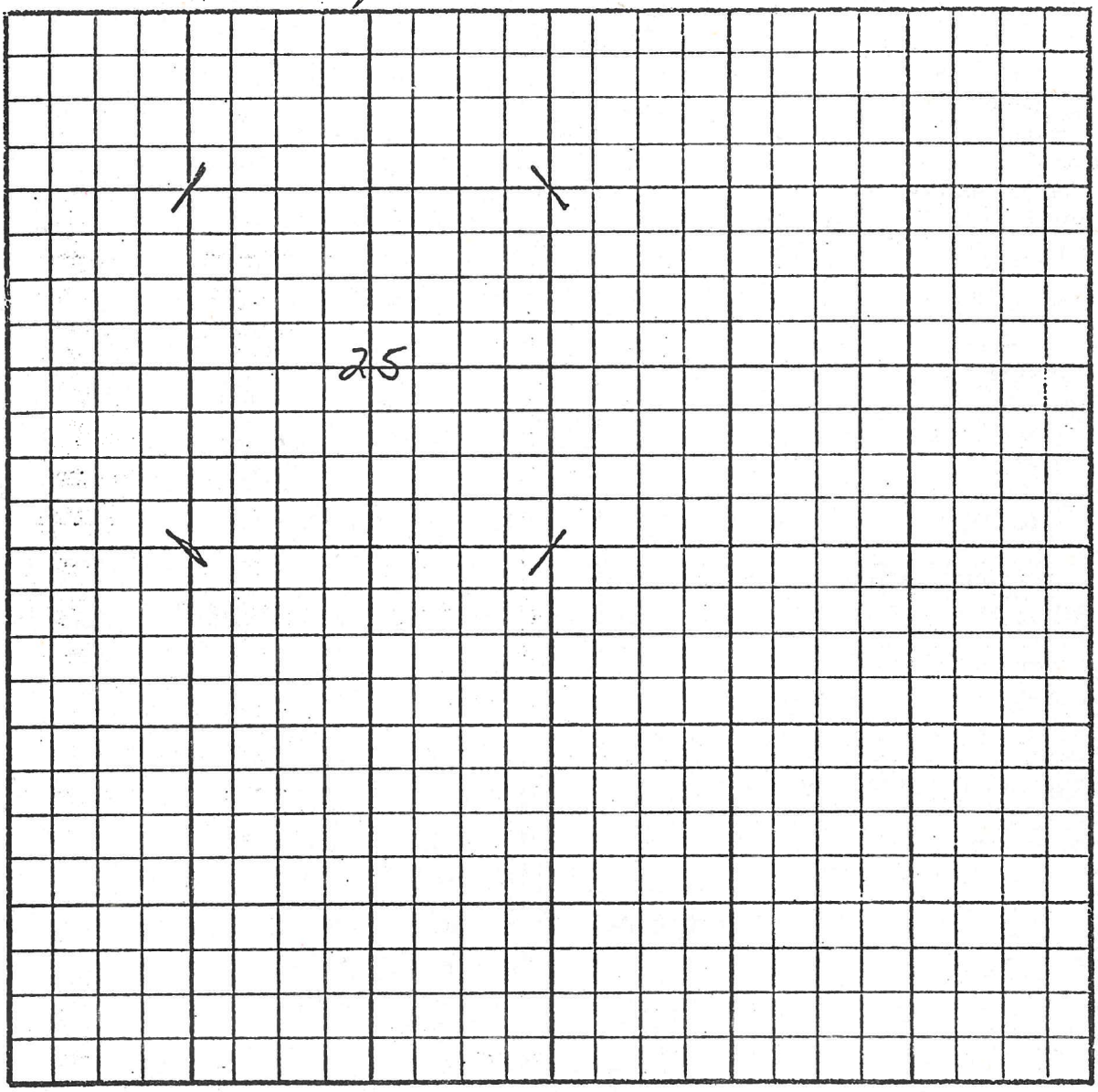
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
2½' deep ring, misc. fittings, rain trough, vinyl liner, 30'x50' corrugated apron, fencing materials			3500.00			
Construction (by Ariz. Game & Fish)						1500.00
Equipment rental				300.00		
TOTALS Materials			3500.00			
Labor/Equipment				300.00		1500.00

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4492

VI – LOCATION PLAT

Scale 1 inch =

T. 3 S N R. 08 W, Sec. 25 Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for de
but will be constructed so as to be of use to all species o
game and non-game wildlife. Water will be provided at gr
level to accomodate both large and small species. The nee
for additional water in this drea was identified in the Mt.
Trumbull Habitat Analysis. This water development will open
a large new area of valuable habitat to wildlife. This de
opment is given 14th priority in the Mt. Trumbull Habitat Ana

Prepared by Melvin J. Wilhelm	Title Wildlife Biologist	Date 8-16-7
Approved by	Title	Date

Ariz. Game & Fish Coast.
15

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION
1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4493
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): HAWLOCK KNOLL CATCH

LOCATION CODES
6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION
13. Present SSF (51–52) . . . . . 14. % Slope (53–54) . . . . .
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)
20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . . . .
22. Browse (71–72) . . . . .

COVER (Percent)
23. Vegetative (73–74) . . . . . 24. Litter (75–76) . . . . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED
77. Primary (19–24) 10
78. Secondary (25–29) 5000

TIME OF AWARD
79. Fiscal Year (30–31) . . . . . 78 80. Third (32) 1

TIME OF COMPLETION
81. Fiscal Year (33–34) . . . . . 78 82. Third (35) 3

BLM COST 83. Method (36) . . . . .
84. Material (37–41) 3500
85. Contract (42–47) 300

CONTRIBUTED COST
86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) 1500

MAINTENANCE
88. Responsibility (58) 5 89. Cycle (59–61) 801

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL
39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION
47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22) . . . . .
51. AUM's Livestock Forage Added (23–26) . . . . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31) . . . . .

WATER DEVELOPMENT/CONTROL
59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38) . . . . .
61. Silt (39–44) . . . . .

WILDLIFE HABITAT DEVELOPMENT/PROTECTION
62. Type (45–46) 24 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69) . . . . .
69. Hunter (70–73) 100 70. Other (74–77) . . . . .

IV – PROGRESS REPORT Card 4

COMPLETION DATA
UNITS 90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL
95. Agreement (30) . . . . . 96. Participant (31) . . . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS
98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

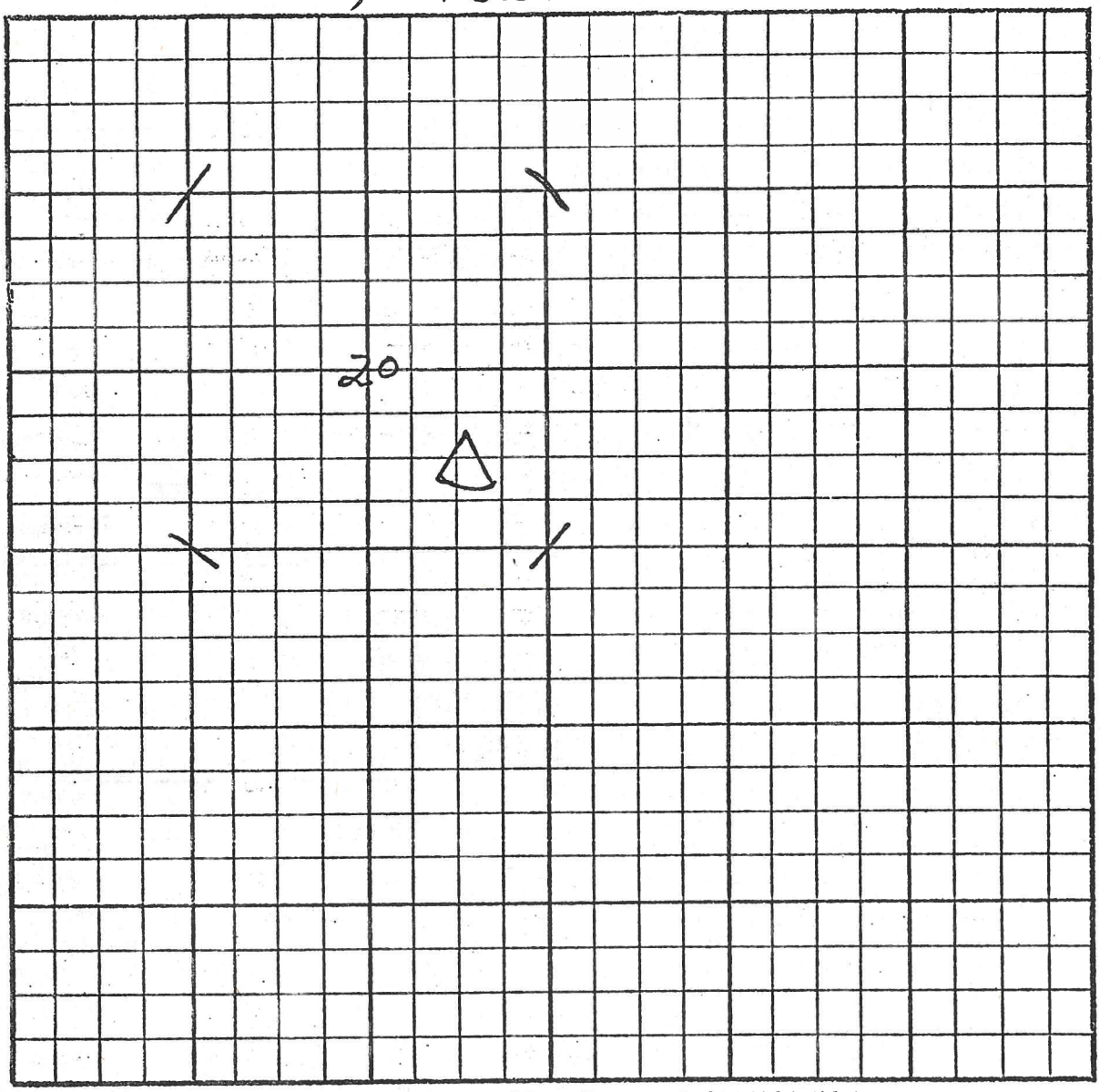
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
2½' deep ring, misc. fittings, rain trough, vinyl liner, 20'x 50' corrugated apron, fencing materials			3500.00			
Construction (by Ariz. Game & Fish)						1500.00
Equipment rental				300.00		
TOTALS Materials			3500.00			
Labor/Equipment				300.00		1500.00

JOB IDENTIFICATION | STATE 02 | DISTRICT 01 | JOB NUMBER 4493

VI – LOCATION PLAT

Scale 1 inch =

T. 3 S N R. 06 W, SE ¼ Sec. 20 Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, t will be constructed so as to be of use to all species of me and non-game wildlife. Water will be provided at ground el to accomodate both large and small species. The need additional water in this area was identified in the Mt. umbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This devel ment is given 15th priority in the Mt. Trumbull Habitat Analysis

Prepared by Melvin J Wilhelm	Title Wildlife Biologist	Date 8-16-76
Approved by Garth M Colton	Title DM	Date 8-18-76

GPO 853-1

Ariz. Game & Fish Coast.

16

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4249
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): IVAN DATCH CATCH 1

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 01
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION *(Percent)*

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . .
22. Browse (71–72) . . . . .

COVER *(Percent)*

23. Vegetative (73–74) . . . . . 24. Litter (75–76) .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) 78 80. Third (32) . . . 1

TIME OF COMPLETION

81. Fiscal Year (33–34) 78 82. Third (35) . . . 3

BLM COST 83. Method (36) . . . . .

84. Material (37–41) 3500
85. Contract (42–47) 300

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) 1500

MAINTENANCE

88. Responsibility (58) 5 89. Cycle (59–61) . 801

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . . .
Undeposited
99. Materials (57–61) . . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

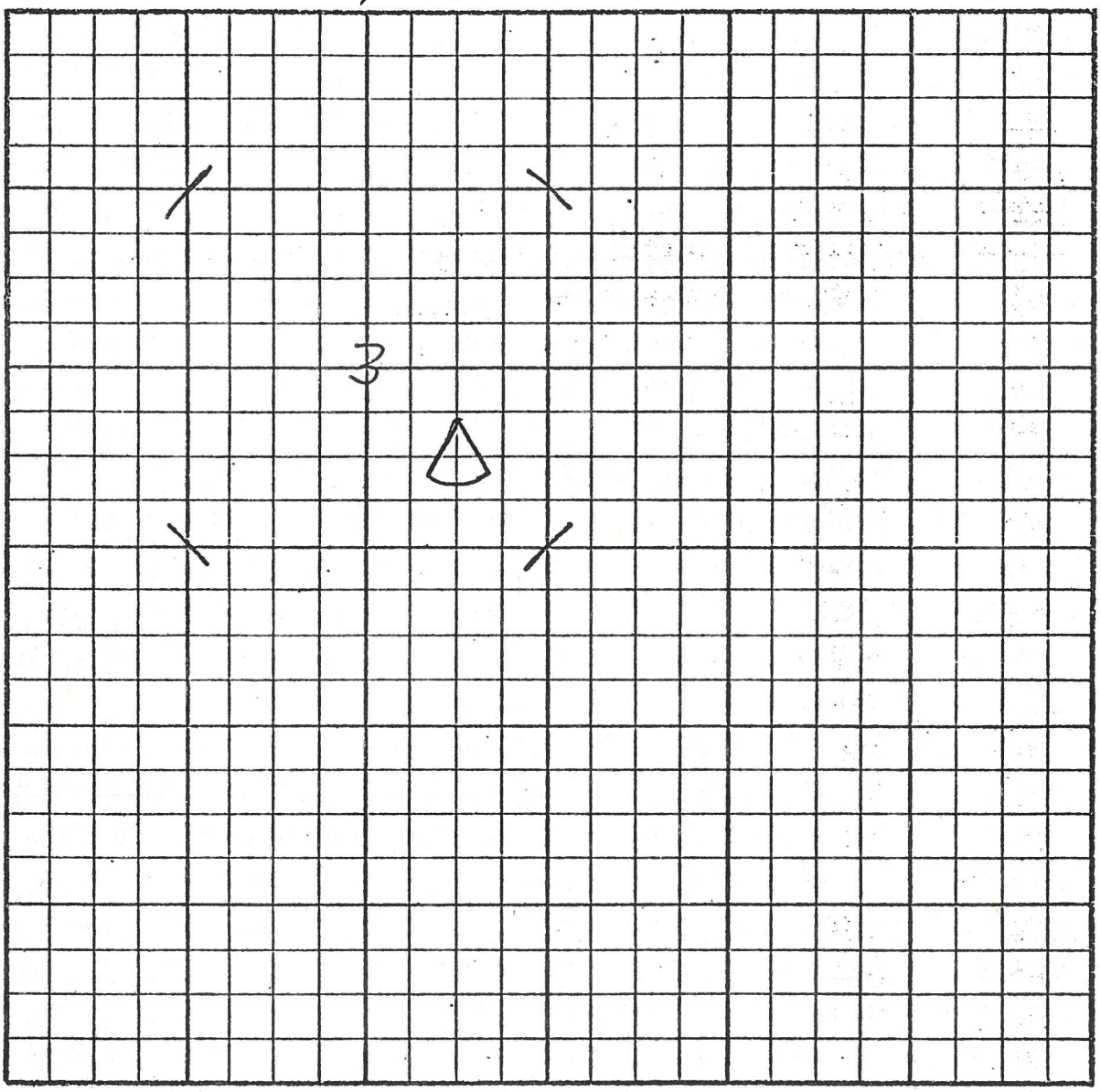
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
7½' deep ring, misc. fittings, rain trough, vinyl liner, 30'x50' corrugated apron, fencing materials			3500.00			
Construction (by Ariz. Game & Fish)						1500.00
Equipment rental				300.00		
TOTALS Materials			3500.00			
Labor/Equipment				300.00		1500.00

Form 1620-8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4494

VI – LOCATION PLAT

T. 34 N R. 11 W, SE 1/4 Sec. 3 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, it will be constructed so as to be of use to all species of game and non-game wildlife. Water will be provided at ground level to accomodate both large and small species. The need for additional water in this area was identified in the Mt. Trumbull Habitat Analysis. This water development will open up a large new area of valuable habitat to wildlife. This development is given 16th priority in the Mt. Trumbull Habitat Analysis.

Prepared by: Melvin J. Wilhelm	Title: Wildlife Biologist	Date: 8-16-76
Approved by: Keith M. Colton	Title: DM	Date: 8-18-76

GPO 853-191

Ariz. Game & Fish Const.

17

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4495
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): IVAN DATCH CATCH 2

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 01
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION *(Percent)*

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . .
22. Browse (71–72) . . . . .

COVER *(Percent)*

23. Vegetative (73–74) . . . . . 24. Litter (75–76) . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 78 80. Third (32) . . . 1

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 78 82. Third (35) . . . 3

BLM COST 83. Method (36) . . . . .

84. Material (37–41) 3500
85. Contract (42–47) 300

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) 1500

MAINTENANCE

88. Responsibility (58) . . . . . 5 89. Cycle (59–61) . . . 801

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) . . . . . 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

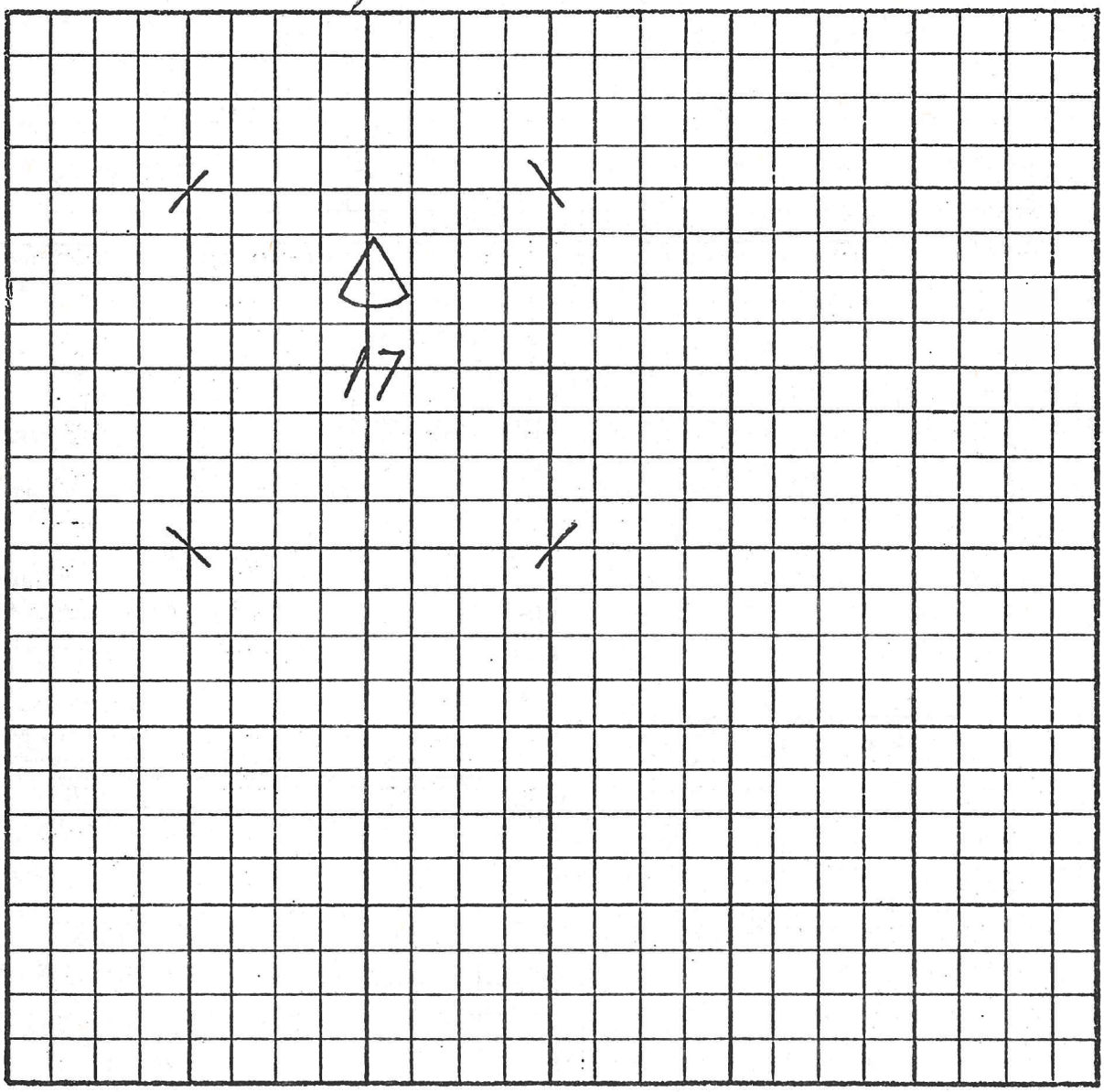
WORK DESCRIPTION AND MATERIALS (a)	UNITS		BLM COSTS		COOPERATOR COSTS	
	EA. MILE, ETC. (b)	COST (c)	MATERIALS (d)	CONTRACT (e)	MATERIALS (f)	LABOR (g)
2½' deep ring, misc fittings rain trough, vinyl liner, 30'x 50' corrugated apron, fencing materials			3500.00			
Construction (by Ariz Game & Fish)						1500.00
Equipment rental				300.00		
TOTALS Materials			3500.00			
Labor/Equipment				300.00		1500.00

Form 1620-8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4495

VI – LOCATION PLAT

T. 34 N R. 10 W, N½ Sec. 17 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for dee... ...unt will be constructed so as to be of use to all species of ...ame and non-game wildlife. Water will be provided at ground ...vel to accomodate both large and small species. The need ...or additional water in this area was identified in the Mt. ...rumbull Habitat Analysis. This water development will open up ... large new area of valuable habitat to wildlife. This develop...ment is given 17th priority in the Mt. Trumbull Habitat Analysis

Prepared by Melvin J. Wickelson	Title Wildlife Biologist	Date 8-16-76
Approved by Garth M. Colton	Title DM.	Date 8-18-76

rect. Const.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

I – GENERAL DESCRIPTION — Card 1

5. Job Name (11–30): WHITMORE CATCHMENT 3

LOCATION CODES

6. Special Project Code (31–34):
7. Planning Unit (35–36): 01
8. Sub-Basin (37–38):
9. County (39–41): 015
10. Watershed No. (42–44):
11. Allotment No. (45–47):
12. Wildlife Habitat Area (48–50):

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52):
14. % Slope (53–54):
15. Exposure (55):
16. Soil Texture (56):
17. Precipitation (inches) (57–58):
18. Elevation (feet) (59–63):
19. Vegetative Subtype (64–66):

COMPOSITION (Percent)

20. Grasses (67–68):
21. Forbs (69–70):
22. Browse (71–72):

COVER (Percent)

23. Vegetative (73–74):
24. Litter (75–76):
25. Bare Ground (77–78):

II – ANNUAL WORK PLAN INPUT DATA — Card 2

75. Subactivity (11–14): 1285
76. Work Job Code (15–18): 6245

UNITS PLANNED

77. Primary (19–24): 1.0
78. Secondary (25–29): 5000

TIME OF AWARD

79. Fiscal Year (30–31): 78
80. Third (32): 1

TIME OF COMPLETION

81. Fiscal Year (33–34): 78
82. Third (35): 3

BLM COST

83. Method (36): 2
84. Material (37–41): 3200
85. Contract (42–47): 1500

CONTRIBUTED COST

86. Material (48–52):
87. Labor/Equipment (53–57):

MAINTENANCE

88. Responsibility (58): 1
89. Cycle (59–61): 801

JOB IDENTIFICATION

1. State (2–3): 02
2. District (4–5): 01
3. Job No. (6–9): 4496
4. Transaction Code (10): 1

III – JOB DETAILS AND BENEFITS — Card 3

37. Primary Job Objective (11): 7

PLANT AND PEST CONTROL

39. Chemical (12):
42. Method (13):
45. Mechanical – Method (14):

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17):
48. Seedlings/Acre (18–21):
49. Method (22):
51. AUM's Livestock Forage Added (23–26):
52. Future SSF (27–28):

WATERSHED TILLAGE

54. Method (29):

FACILITIES 55. Type (30): 56. Other Misc. (31):

WATER DEVELOPMENT/CONTROL

59. Structure Type (32):

STORAGE (Ac. Ft.) 60. Flood (33–38):
61. Silt (39–44):

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46): 24
63. Primary Species (47–49): 103
64. Animal Months (50–54): 250
65. Number Increase (55–59): 42
66. Pounds Fish Increase (60–64):
67. Rare/Endangered (65):

VISITOR DAYS ADDED 68. Fisherman (66–69):
69. Hunter (70–73): 100
70. Other (74–77):

IV – PROGRESS REPORT — Card 4

COMPLETION DATA

UNITS 90. Primary (11–16):
91. Secondary (17–21):
TIME 92. Fiscal Year (22–23):
93. Third (24):
94. Contract No. (25–29): CT

CONTRIBUTION DETAIL

95. Agreement (30):
96. Participant (31):
97. Contributor's Name (32–51):

CONTRIBUTIONS

98. Deposited (52–56):

Undeposited

99. Materials (57–61):
100. Labor/Equipment (62–66):

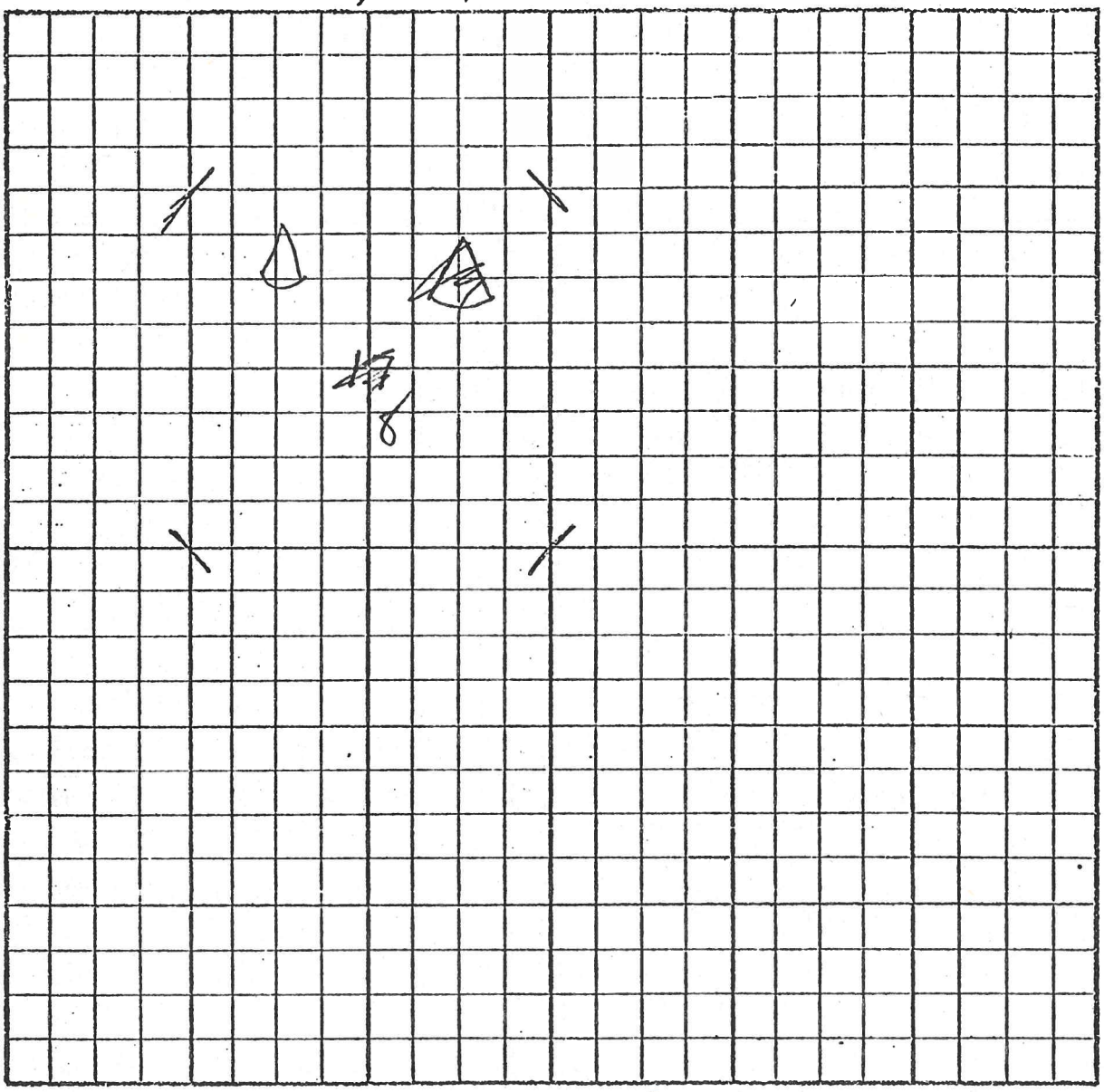
V – DETAIL ESTIMATE OF UNITS AND COSTS

WORK DESCRIPTION AND MATERIALS (a)	UNITS		BLM COSTS		COOPERATOR COSTS	
	EA. MILE, ETC. (b)	COST (c)	MATERIALS (d)	CONTRACT (e)	MATERIALS (f)	LABOR (g)
7½' deep ring, misc. fittings, rain trough, vinyl liner, 5'x 50' corrugated apron, fencing materials			3200.00			
Contract fence installation				500.00		
Equipment rental				1000.00		
TOTALS Materials			3200.00			
Labor/Equipment				1500.00		

JOB IDENTIFICATION | STATE 02 | DISTRICT 01 | JOB NUMBER 4496

VI – LOCATION PLAT

T. 33 N R. 09 W, NW¼ Sec. 8 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer. It will be constructed so as to be of use to all species of game and non-game wildlife. Water will be provided at grav- el to accomodate both large and small species. The need for additional water in this drea was identified in the Mt. Trumbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This devel- opment is given 18th priority in the Mt. Trumbull Habitat Analy-

Prepared by Melvin J. Wakkeen	Title Wildlife Biologist	Date 8-16-71
Approved by Keith M. Colton	Title DM	Date 8-18-71

Force Acct. Const.

19

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4467
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): HACKS RIM CATCHMENT

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 10
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 78 80. Third (32) . . . 1

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 78 82. Third (35) . . . 3

BLM COST 83. Method (36) 2

84. Material (37–41) 3200
85. Contract (42–47) 1500

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) 1 89. Cycle (59–61) . 801

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 4.2
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . . .
93. Third (24) . . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . . .
Undeposited
99. Materials (57–61) . . . . . .
100. Labor/Equipment (62–66) . . . . .

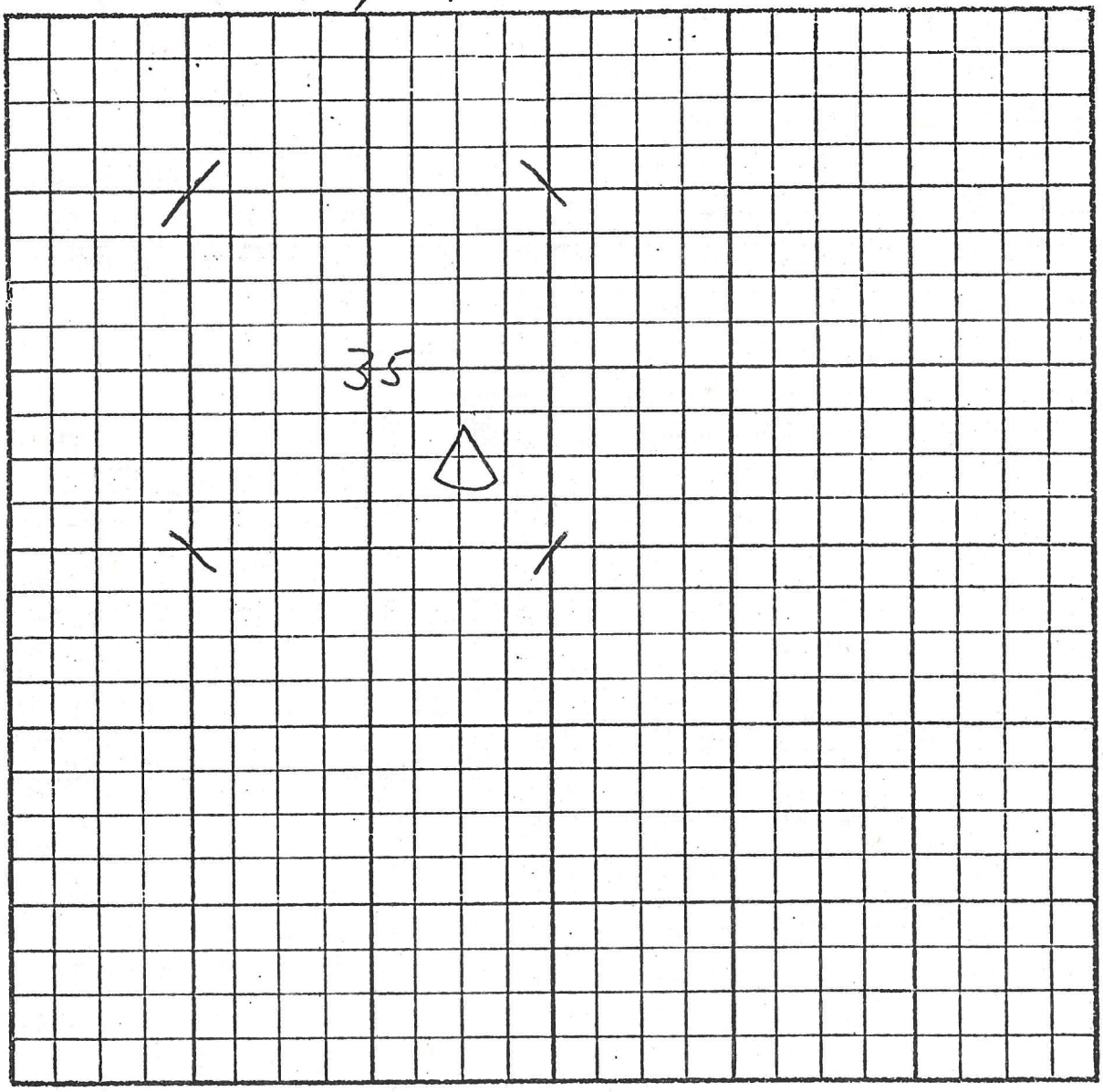
V – DETAIL ESTIMATE OF UNITS AND COSTS

WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
1½' deep ring, misc. fittings rain trough, ring liner, 20'x50' corrugated apron, fencing materials			3200.00			
Contract fence installation				500.00		
Equipment rental				1000.00		
TOTALS Materials			3200.00			
Labor/Equipment				1500.00		

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4497

VI – LOCATION PLAT

T. 37 N R. 05 W, SE¼ Sec. 35 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, t will be constructed so as to be of use to all species of ... me and non-game wildlife. Water will be provided at grou vel to accomodate both large and small species. The need r additional water in this area was identified in the Mt. umbull. Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This develop- ent is given 19th priority in the Mt. Trumbull Habitat Analysis

Prepared by Melvin J. Walchuk	Title	Wildlife Biologist	Date 8-16-74
Approved by Vaughn M. Colton	Title	DM,	Date 8-18-74

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4095
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION — Card 1

5. Job Name (11–30): WATER CANYON CATCH

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION *(Percent)*

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . .
22. Browse (71–72) . . . . .

COVER *(Percent)*

23. Vegetative (73–74) . . . . . 24. Litter (75–76) .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA — Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 10
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 80. Third (32) . . .

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 82. Third (35) . . .

BLM COST — 83. Method (36) . . . . .

84. Material (37–41) 4000
85. Contract (42–47) 3000

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) . . . . . 89. Cycle (59–61) . . . 01

III – JOB DETAILS AND BENEFITS — Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE — 54. Method (29) . . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .

STORAGE (Ac. Ft.) 60. Flood (33–38)

61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT PROTECTION

62. Type (45–46) 24 — 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED — 68. Fisherman (66–69)

69. Hunter (70–73) . . . 100 — 70. Other (74–77)

IV – PROGRESS REPORT — Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .

91. Secondary (17–21) . . . . .

TIME 92. Fiscal Year (22–23) . . . . .

93. Third (24) . . . . . .

94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .

97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .

Undeposited

99. Materials (57–61) . . . . .

100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

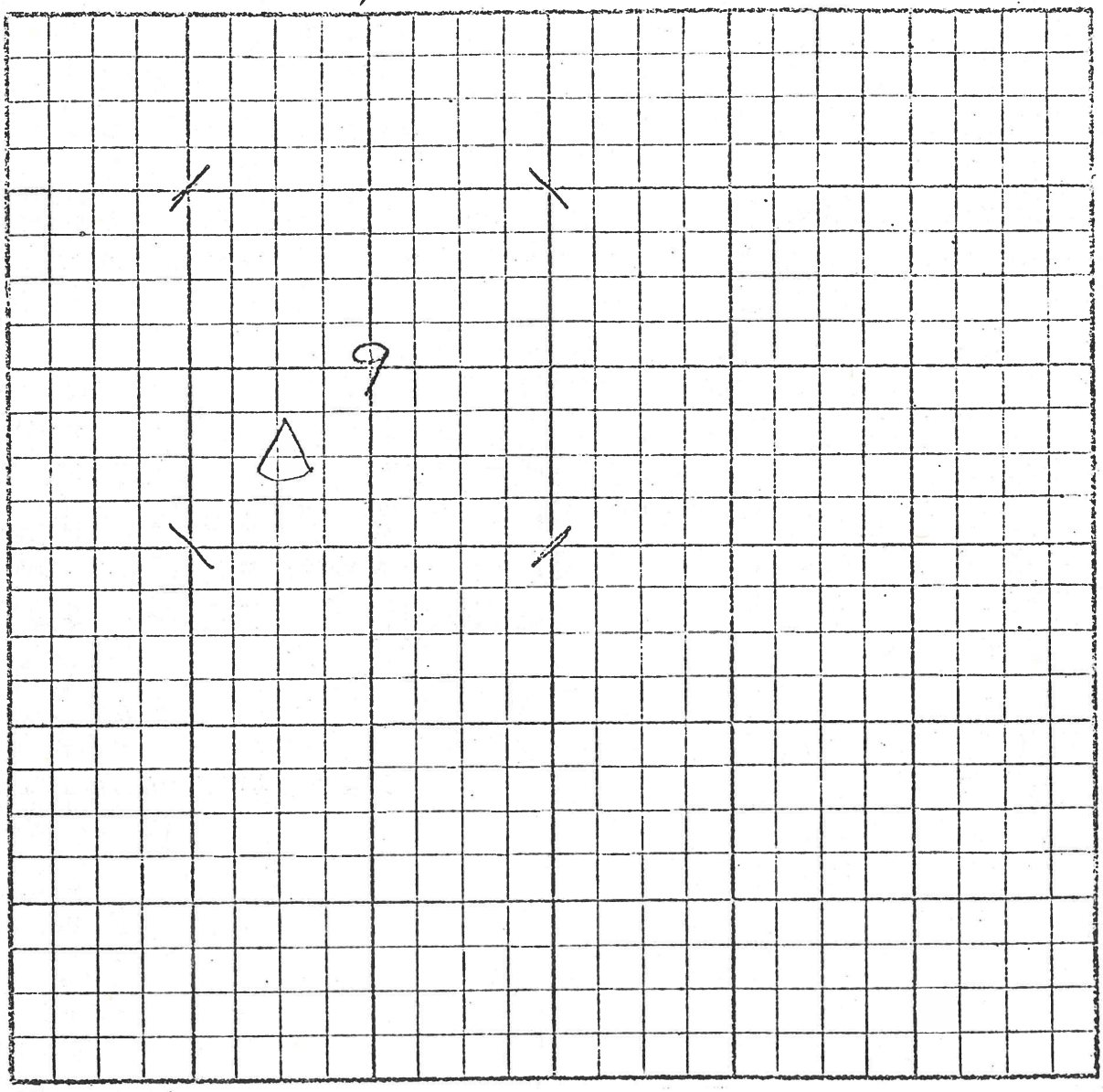
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
Installation				$3000.00		
Materials			$4000.00			
TOTALS Materials			4000.00			
Labor/Equipment				3000.00		

Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4497

VI – LOCATION PLAT

T. 36N R. 04W, SW¼ Sec 9 Scale 1 inch = Meridian G & S R P M



This catchment is designed to provide water primarily for deer, t will be constructed so as to be of use to all species of me and non-game wildlife. Water will be provided at ground el to accomodate both large and small species. The need additional water in this area was identified in the Mt. mbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This develo ment is given 20th priority in the Mt. Trumbull Habitat Analysi

Prepared by Mel Wilhelm	Title Wildlife Biologist	Date 12-15-70
Approved by	Title	Date

21

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4499
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): KAWAB CRK CATCHMENT

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54) . . . . .
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION *(Percent)*

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . . . .
22. Browse (71–72) . . . . .

COVER *(Percent)*

23. Vegetative (73–74) . . . . . 24. Litter (75–76) . . . . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 80. Third (32) . . . . .

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 82. Third (35) . . . . .

BLM COST 83. Method (36) . . . . .

84. Material (37–41) 4000
85. Contract (42–47) 3000

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) . . . . . 89. Cycle (59–61) 01

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

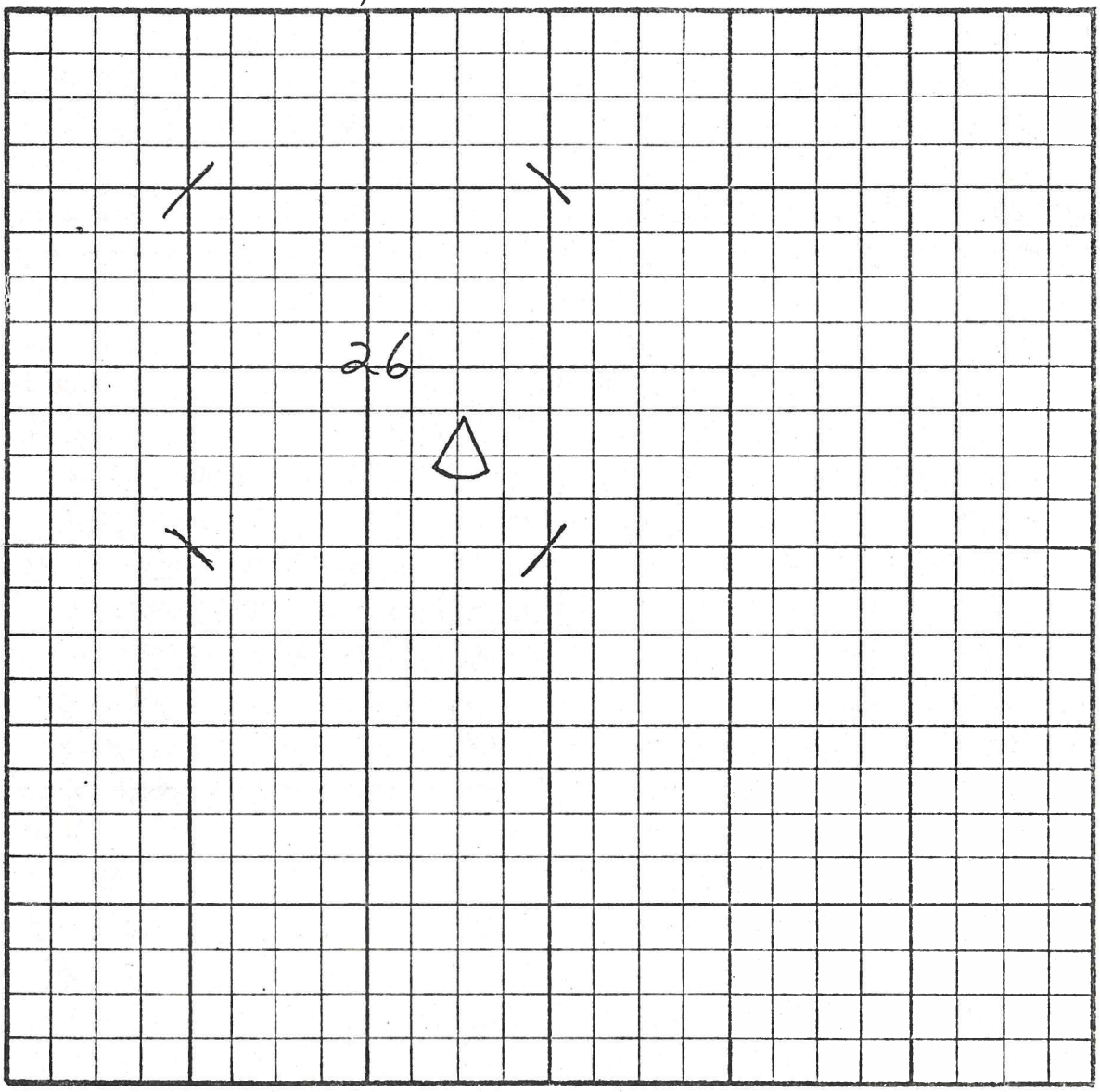
WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
Installation				$3000.00		
Materials			$4000.00			
TOTALS Materials			$4000.00			
Labor/Equipment				$3000.00		

Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4499

VI – LOCATION PLAT

T. 36 N R. 04 W, SE¼ Sec. 26 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, t will be constructed so as to be of use to all species of me and non-game wildlife. Water will be provided at grou el to accomodate both large and small species. The need additional water in this area was identified in the Mt. rumbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This develop- ment is given 21st priority in the Mt. Trumbull Habitat Analysis.

Prepared by Mel Wilhelm	Title Wildlife Biologist	Date 12-15-74
Approved by	Title	Date

GPO 853-106

22

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4500
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): ROBINSON WASH CATCH

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 80. Third (32) . . .

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 82. Third (35) . . .

BLM COST 83. Method (36) . . . . .

84. Material (37–41) 4000
85. Contract (42–47) 3000

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) . . . . . 89. Cycle (59–61) . . 01

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .

STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 . . . . . 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) 100 . . . . . 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

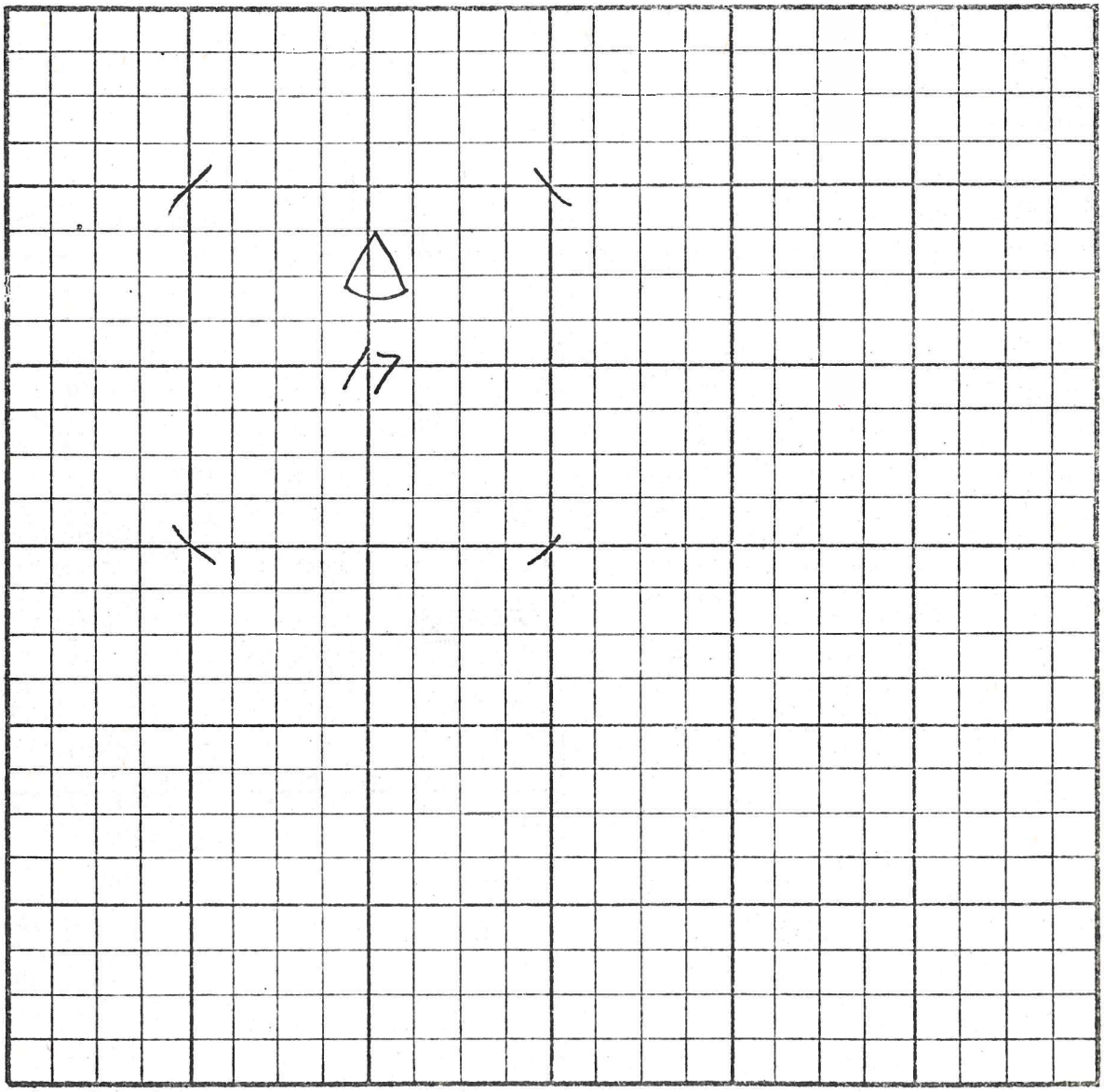
WORK DESCRIPTION AND MATERIALS (a)	UNITS		BLM COSTS		COOPERATOR COSTS	
	EA. MILE, ETC. (b)	COST (c)	MATERIALS (d)	CONTRACT (e)	MATERIALS (f)	LABOR (g)
Installation				$3000.00		
Materials			$4000.00			
TOTALS Materials			$4000.00			
Labor/Equipment				$3000.00		

Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4500

VI – LOCATION PLAT

T. 3 S N R. 04 W, N½ Sec. 17 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, it will be constructed so as to be of use to all species of game and non-game wildlife. Water will be provided at ground level to accomodate both large and small species. The need for additional water in this area was identified in the Mt. Trumbull Habitat Analysis. This water development will open up a large new area of valuable habitat to wildlife. This development is given a 2nd priority in the Mt. Trumbull Habitat Analysis.

Prepared by Mel Wilhelm	Title Wildlife Biologist	Date 12-15-76
Approved by	Title	Date

GPO 853-1

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 9507
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): MT. LOGAN RESEEDING

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6004

UNITS PLANNED

77. Primary (19–24) 600.0
78. Secondary (25–29) . . . . .

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 80. Third (32) . . .

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 82. Third (35) . . .

BLM COST 83. Method (36) . . . . .

84. Material (37–41) . . . . .
85. Contract (42–47) 18000

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) 1 89. Cycle (59–61) . 905

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .

STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 21 . . . . . 63. Primary Species (47–49) 612
64. Animal Months (50–54) 1200
65. Number Increase (55–59) 100
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) 200 . . . . . 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . . .
93. Third (24) . . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . . .

Undeposited

99. Materials (57–61) . . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
Plowing and reseeding	acres	30.00		$18,000.00		
TOTALS Materials						
Labor/Equipment				$18,000.00		

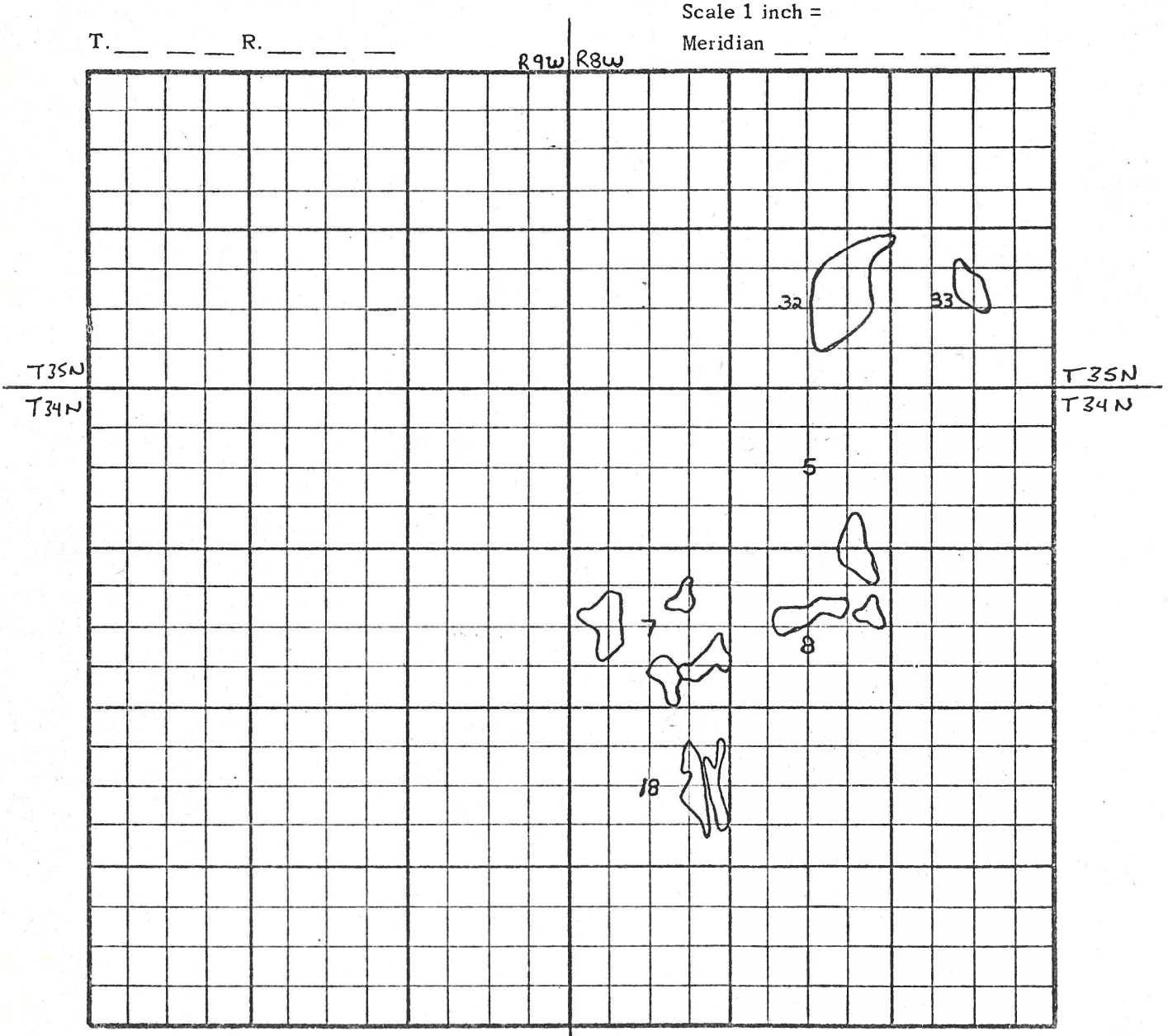
Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4507

VI – LOCATION PLAT

Scale 1 inch =

T.___ ___ ___ R.___ ___ ___ R9W R8W Meridian ___ ___ ___ ___ ___ ___



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This development is designed to improve forage conditions for all species of wildlife. As the woody species of plants grow, it will also improve cover in the treated area.

Prepared by	Title	Date
Mel Wilhelm	Wildlife Biologist	12-15-76
Approved by	Title	Date

GPO 853-19

23

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION
1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4501
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): SB CATCHMENT

LOCATION CODES
6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION
13. Present SSF (51–52) . . . 14. % Slope (53–54) . . .
15. Exposure (55) . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)
20. Grasses (67–68) . . . 21. Forbs (69–70) . . .
22. Browse (71–72) . . . . .

COVER (Percent)
23. Vegetative (73–74) . . . 24. Litter (75–76) . . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED
77. Primary (19–24) 10
78. Secondary (25–29) 5000

TIME OF AWARD
79. Fiscal Year (30–31) . . . 80. Third (32) . . .

TIME OF COMPLETION
81. Fiscal Year (33–34) . . . 82. Third (35) . . .

BLM COST 83. Method (36) . . . . .
84. Material (37–41) 4000
85. Contract (42–47) 3000

CONTRIBUTED COST
86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE
88. Responsibility (58) . . . 89. Cycle (59–61) . . . 01

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL
39. Chemical (12) . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION
47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . 49. Method (22) . . .
51. AUM's Livestock Forage Added (23–26) . . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . . .

FACILITIES 55. Type (30) . . . 56. Other Misc. (31) . . .

WATER DEVELOPMENT/CONTROL
59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38) . . . . .
61. Silt (39–44) . . . . .

WILDLIFE HABITAT DEVELOPMENT/PROTECTION
62. Type (45–46) 24 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69) . . .
69. Hunter (70–73) . . . 100 70. Other (74–77) . . . .

IV – PROGRESS REPORT Card 4

COMPLETION DATA
UNITS 90. Primary (11–16) . . . . .
91. Secondary (17–21) . . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL
95. Agreement (30) . . . 96. Participant (31) . . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS
98. Deposited (52–56) . . . . . .
Undeposited
99. Materials (57–61) . . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
Installation				$3000.00		
Materials			$4000.00			
TOTALS Materials			$4000.00			
Labor/Equipment				$3000.00		

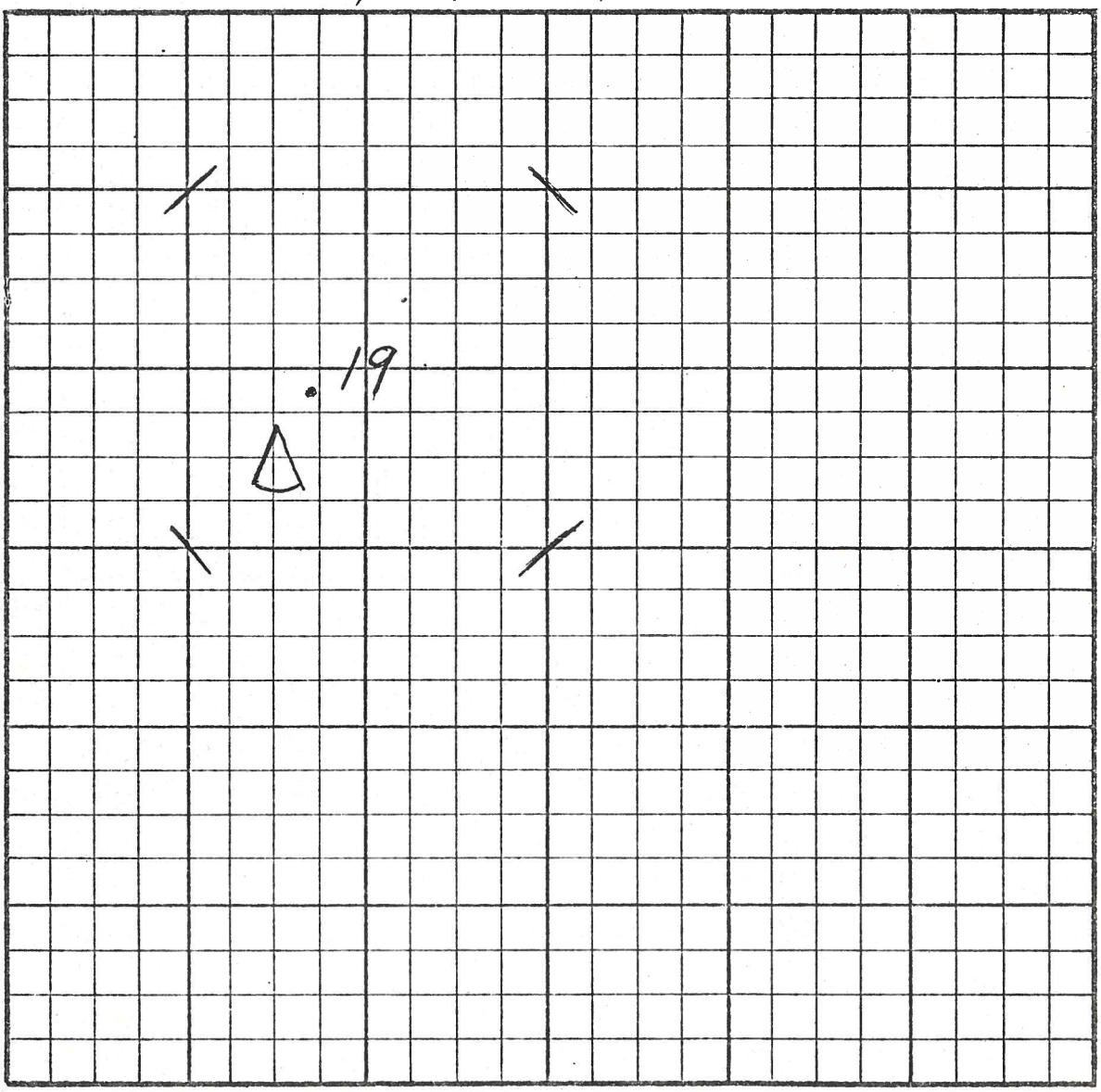
Form 1630–8 (November 1972)

JOB IDENTIFICATION | STATE 02 | DISTRICT 01 | JOB NUMBER 4501

VI – LOCATION PLAT

Scale 1 inch =

T. 35 N R. 05 W, SW¼ Sec. 19 Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, but will be constructed so as to be of use to all species of game and non-game wildlife. Water will be provided at ground level to accomodate both large and small species. The need for additional water in this area was identified in the Mt. Trumbull Habitat Analysis. This water development will open up a large new area of valuable habitat to wildlife. This development is given 23rd priority in the Mt. Trumbull Habitat Analysis.

Prepared by	Title	Date
Mel Wilhelm	Wildlife Biologist	12-15-76
Approved by	**Title**	**Date**

24

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4502
4. Transaction Code (10) . . . . . F

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): PINYON CATCHMENT

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 62
8. Sub-Basin (37–38) . . . . . 9. County (39–41) . . . 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54) . . . .
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) . . . .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 10
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 80. Third (32) . . . .

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 82. Third (35) . . . .

BLM COST 83. Method (36) . . . . .

84. Material (37–41) 4000
85. Contract (42–47) 3000

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) . . . . . 89. Cycle (59–61) 01

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 . . . . . 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) . . . . . 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

WORK DESCRIPTION AND MATERIALS (a)	UNITS EA. MILE, ETC. (b)	UNITS COST (c)	BLM COSTS MATERIALS (d)	BLM COSTS CONTRACT (e)	COOPERATOR COSTS MATERIALS (f)	COOPERATOR COSTS LABOR (g)
Installation				$3000.00		
Materials			$4000.00			
TOTALS Materials			$4000.00			
Labor/Equipment				$3000.00		

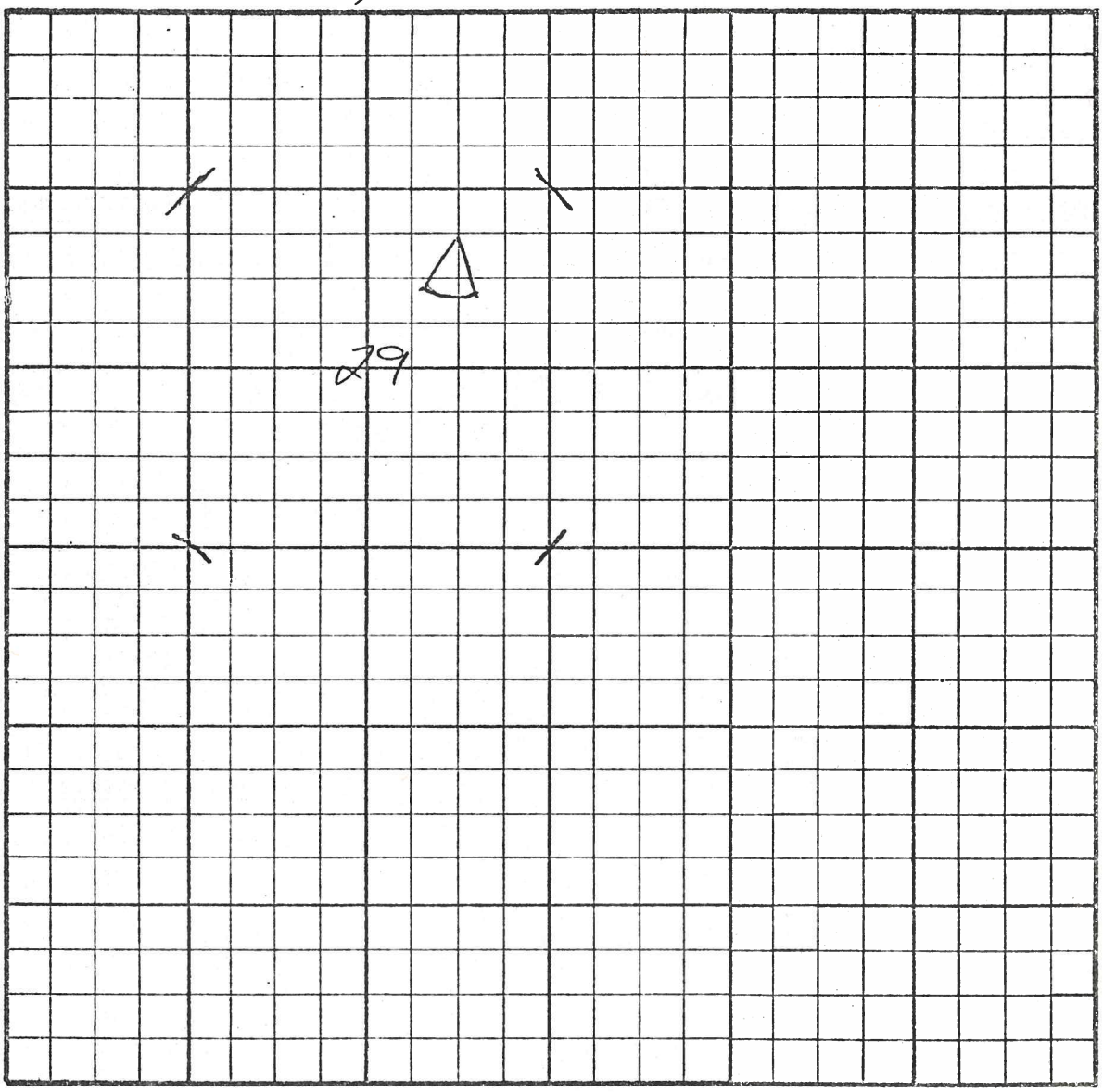
Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4502

VI – LOCATION PLAT

Scale 1 inch =

T. 36N R. 06W, NE¼ Sec. 29 Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, t will be constructed so as to be of use to all species of ame and non-game wildlife. Water will be provided at ground el to accomodate both large and small species. The need additional water in this area was identified in the Mt. rumbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This develop- ment is given 24th priority in the Mt. Trumbull Habitat Analysis

Prepared by Mel Wilhelm	Title Wildlife Biologist	Date 12-15-76
Approved by	Title	Date

GPO 853-1

25

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4503
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): PRONGHORN CATCHMENT

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (*Percent*)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . .
22. Browse (71–72) . . . . .

COVER (*Percent*)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 80. Third (32) . . .

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 82. Third (35) . . .

BLM COST 83. Method (36) . . . . .

84. Material (37–41) 4060
85. Contract (42–47) 3000

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) . . . . . 89. Cycle (59–61) . . 01

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .

STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 . . . . . 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) . . . . . 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

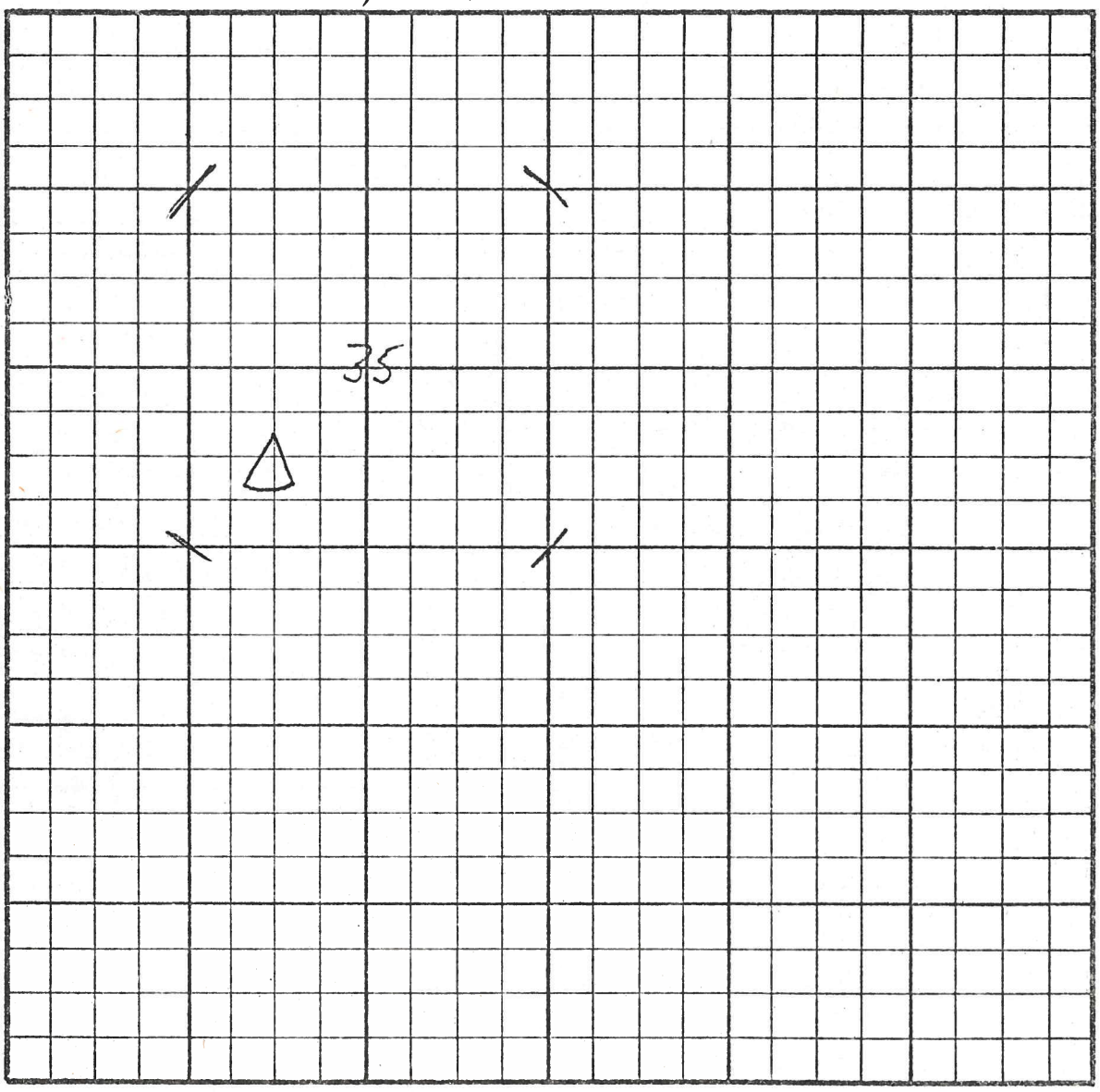
WORK DESCRIPTION AND MATERIALS (a)	UNITS		BLM COSTS		COOPERATOR COSTS	
	EA. MILE, ETC. (b)	COST (c)	MATERIALS (d)	CONTRACT (e)	MATERIALS (f)	LABOR (g)
Installation				$3000.00		
Materials			$4000.00			
TOTALS Materials			4000.00			
Labor/Equipment				3000.00		

Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4503

VI – LOCATION PLAT

T. 36N R. 06W, SW¼ Sec. 35 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, but will be constructed so as to be of use to all species of game and non-game wildlife. Water will be provided at ground level to accomodate both large and small species. The need for additional water in this area was identified in the Mt. Trumbull Habitat Analysis. This water development will open up a large new area of valuable habitat to wildlife. This development is given 25th priority in the Mt. Trumbull Habitat Analysis.

Prepared by Mel Wilhelm	Title Wildlife Biologist	Date 12-15-76
Approved by	Title	Date

GPO 853 - 198

26

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4564
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): LANGS RUN CATCHMENT

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 1.0
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 80. Third (32) . . .

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 82. Third (35) . . .

BLM COST 83. Method (36) . . . . .

84. Material (37–41) 4000
85. Contract (42–47) 3000

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) . . . . . 89. Cycle (59–61) . . 01

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .

STORAGE (Ac. Ft.) 60. Flood (33–38)
61. Silt (39–44)

WILDLIFE HABITAT DEVELOPMENT/PROTECTION

62. Type (45–46) 24 . . . . . 63. Primary Species (47–49) 103
64. Animal Months (50–54) 250
65. Number Increase (55–59) 42
66. Pounds Fish Increase (60–64) . . . .
67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) . . . . . 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . .
93. Third (24) . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
97. Contributor's Name (32–51)

CONTRIBUTIONS

98. Deposited (52–56) . . . . .
Undeposited
99. Materials (57–61) . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

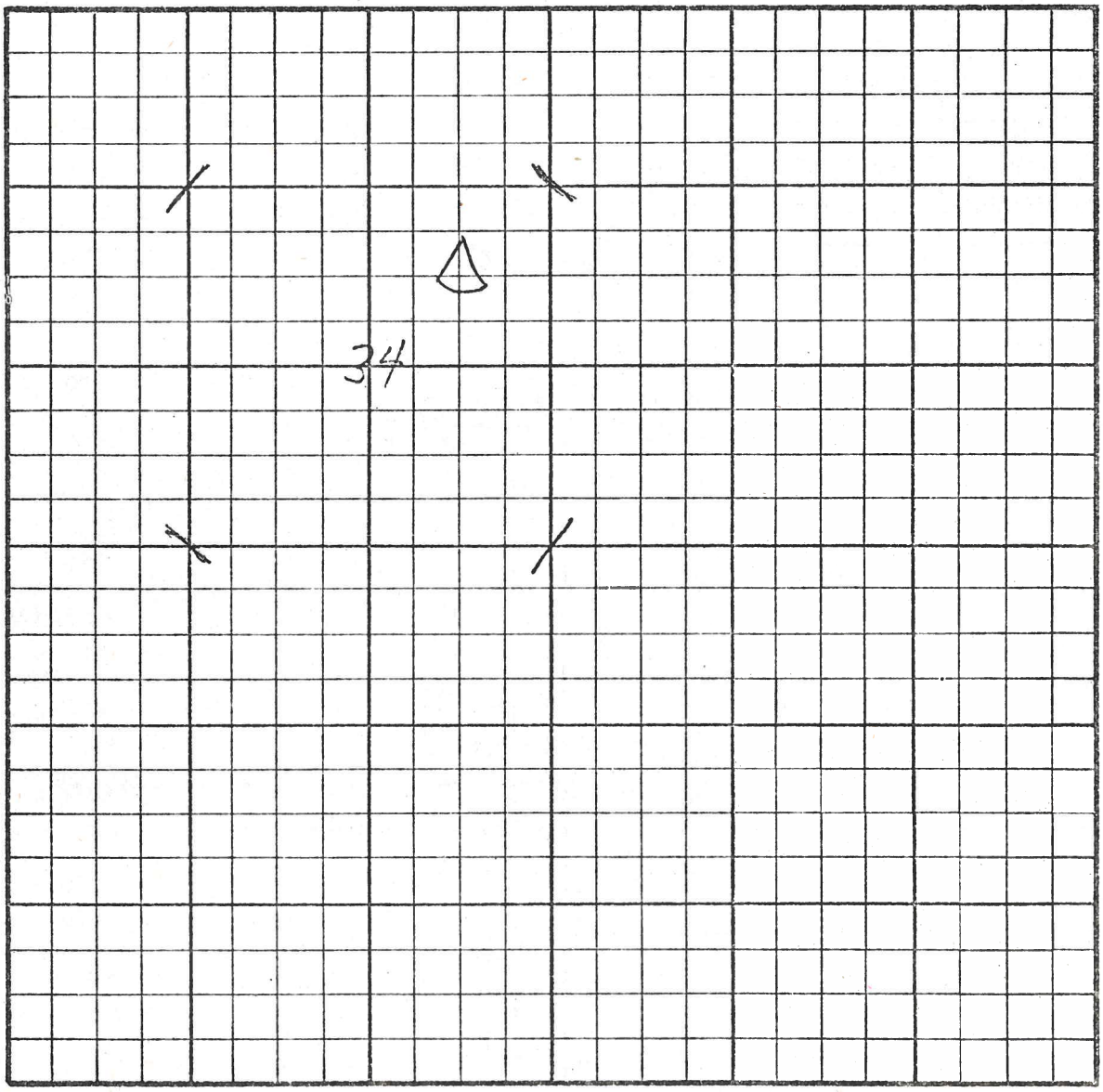
WORK DESCRIPTION AND MATERIALS (a)	UNITS		BLM COSTS		COOPERATOR COSTS	
	EA. MILE, ETC. (b)	COST (c)	MATERIALS (d)	CONTRACT (e)	MATERIALS (f)	LABOR (g)
Installation				$3000.00		
Materials			$4000.00			
TOTALS Materials			$4000.00			
Labor/Equipment				$3000.00		

Form 1630–8 (November 1972)

JOB IDENTIFICATION STATE 02 DISTRICT 01 JOB NUMBER 4504

VI – LOCATION PLAT

T. 36N R. 09W, NE¼ Sec. 34 Scale 1 inch = Meridian G & S R P M



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, it will be constructed so as to be of use to all species of game and non-game wildlife. Water will be provided at ground level to accomodate both large and small species. The need for additional water in this area was identified in the Mt. Trumbull Habitat Analysis. This water development will open up a large new area of valuable habitat to wildlife. This development is given 26th priority in the Mt. Trumbull Habitat Analysis.

Prepared by	Title	Date
Mel Wilhelm	Wildlife Biologist	12-15-76
Approved by	Title	Date

GPO 859 - 581

27

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JOB DOCUMENTATION REPORT

JOB IDENTIFICATION

1. State (2–3) 02
2. District (4–5) 01
3. Job No. (6–9) 4505
4. Transaction Code (10) 1

I – GENERAL DESCRIPTION Card 1

5. Job Name (11–30): FIWALE CATCHMENT

LOCATION CODES

6. Special Project Code (31–34) . . . . .
7. Planning Unit (35–36) 02
8. Sub-Basin (37–38) . . . . . 9. County (39–41) 015
10. Watershed No. (42–44) . . . . .
11. Allotment No. (45–47) . . . . .
12. Wildlife Habitat Area (48–50) . . . . .

SITE AND VEGETATIVE DESCRIPTION

13. Present SSF (51–52) . . . . . 14. % Slope (53–54)
15. Exposure (55) . . . . . 16. Soil Texture (56) . . . .
17. Precipitation (inches) (57–58) . . . . .
18. Elevation (feet) (59–63) . . . . .
19. Vegetative Subtype (64–66) . . . . .

COMPOSITION (Percent)

20. Grasses (67–68) . . . . . 21. Forbs (69–70) . . .
22. Browse (71–72) . . . . .

COVER (Percent)

23. Vegetative (73–74) . . . . . 24. Litter (75–76) .
25. Bare Ground (77–78) . . . . .

II – ANNUAL WORK PLAN INPUT DATA Card 2

75. Subactivity (11–14) 1285
76. Work Job Code (15–18) 6245

UNITS PLANNED

77. Primary (19–24) 10
78. Secondary (25–29) 5000

TIME OF AWARD

79. Fiscal Year (30–31) . . . . . 80. Third (32) . . .

TIME OF COMPLETION

81. Fiscal Year (33–34) . . . . . 82. Third (35) . . .

BLM COST 83. Method (36) . . . . .

84. Material (37–41) 4000
85. Contract (42–47) 3000

CONTRIBUTED COST

86. Material (48–52) . . . . .
87. Labor/Equipment (53–57) . . . . .

MAINTENANCE

88. Responsibility (58) . . . . . 89. Cycle (59–61) . . 01

III – JOB DETAILS AND BENEFITS Card 3

37. Primary Job Objective (11) 7

PLANT AND PEST CONTROL

39. Chemical (12) . . . . . 42. Method (13) . . . . .
45. Mechanical – Method (14) . . . . .

ARTIFICIAL REVEGETATION

47. Pounds Seed/Acre (15–17) . . . . .
48. Seedlings/Acre (18–21) . . . . . 49. Method (22)
51. AUM's Livestock Forage Added (23–26) . .
52. Future SSF (27–28) . . . . .

WATERSHED TILLAGE 54. Method (29) . . . .

FACILITIES 55. Type (30) . . . . . 56. Other Misc. (31)

WATER DEVELOPMENT/CONTROL

59. Structure Type (32) . . . . .
STORAGE (Ac. Ft.) 60. Flood (33–38)
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67. Rare/Endangered (65) . . . . .

VISITOR DAYS ADDED 68. Fisherman (66–69)
69. Hunter (70–73) . . . . . 100 70. Other (74–77)

IV – PROGRESS REPORT Card 4

COMPLETION DATA

UNITS 90. Primary (11–16) . . . .
91. Secondary (17–21) . . . .
TIME 92. Fiscal Year (22–23) . . . . . .
93. Third (24) . . . . . .
94. Contract No. (25–29) . . . . . CT

CONTRIBUTION DETAIL

95. Agreement (30) . . . . . 96. Participant (31) . . .
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CONTRIBUTIONS

98. Deposited (52–56) . . . . . .
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99. Materials (57–61) . . . . . .
100. Labor/Equipment (62–66) . . . . .

V – DETAIL ESTIMATE OF UNITS AND COSTS

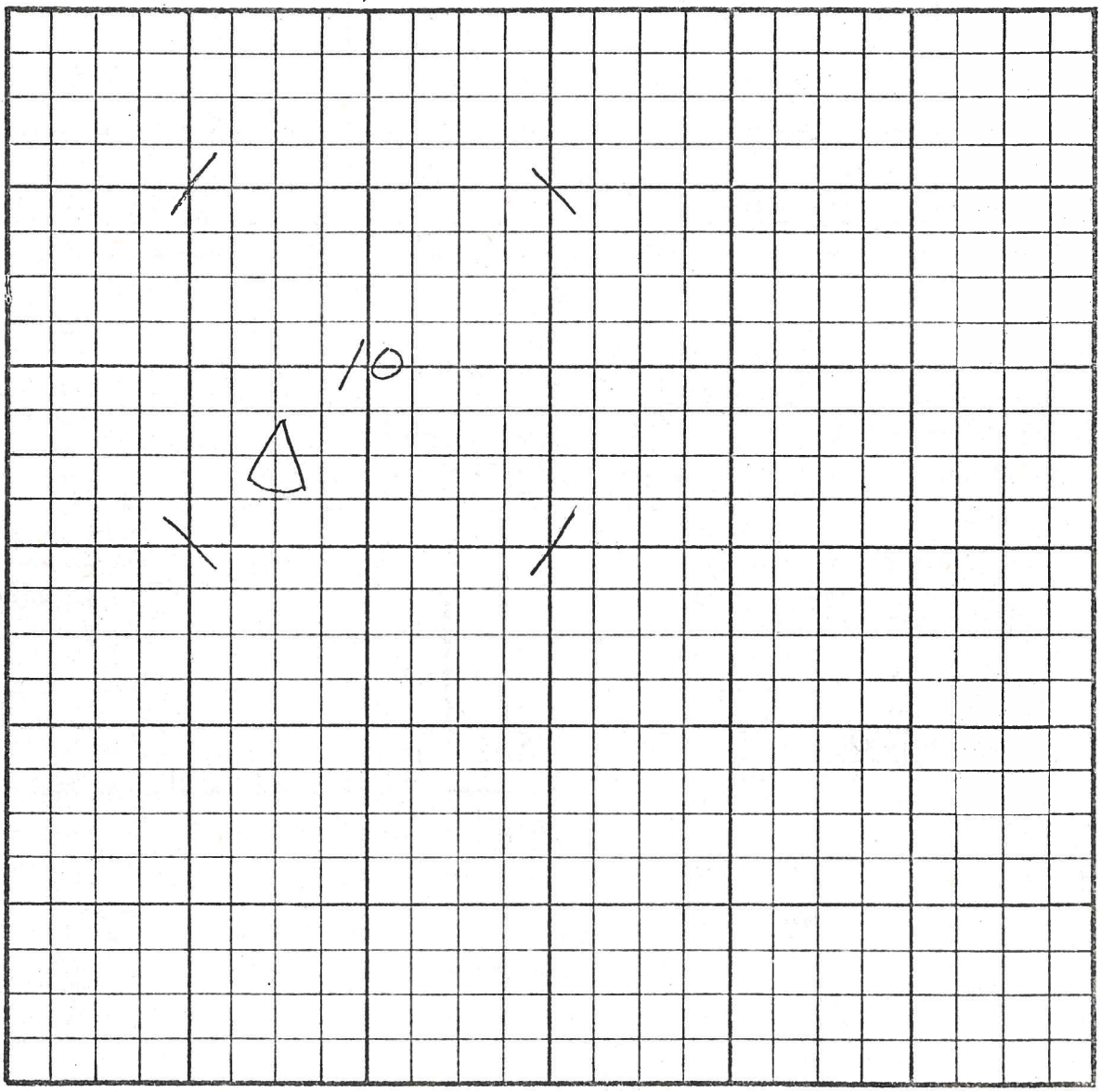
WORK DESCRIPTION AND MATERIALS (a)	UNITS		BLM COSTS		COOPERATOR COSTS	
	EA. MILE, ETC. (b)	COST (c)	MATERIALS (d)	CONTRACT (e)	MATERIALS (f)	LABOR (g)
Installation				$3000.00		
Materials			$4000.00			
TOTALS Materials			4000.00			
Labor/Equipment				3000.00		

Form 1630–8 (November 1972)

JOB IDENTIFICATION | STATE 02 | DISTRICT 01 | JOB NUMBER 4505

VI – LOCATION PLAT

T. 36N R. 09W, SW¼ Sec. 10 Scale 1 inch = Meridian GESRPM



VII – NARRATIVE DESCRIPTION OR JUSTIFICATION

This catchment is designed to provide water primarily for deer, t will be constructed so as to be of use to all species of ame and non-game wildlife. Water will be provided at grou el to accomodate both large and small species. The need additional water in this drea was identified in the Mt. rumbull Habitat Analysis. This water development will open up large new area of valuable habitat to wildlife. This develop ment is given 27th priority in the Mt. Trumbull Habitat Analys

Prepared by Mel Wilkelm	Title Wildlife Biologist	Date 12-15-74
Approved by	Title	Date

GPO 853-19

MT. TRUMBULL HABITAT AREA ANALYSIS

I. INTRODUCTION

The Mt. Trumbull Habitat Area is located between Andrus Canyon on the west and Kanab Creek on the east. It includes the Mt. Trumbull, Whitmore Point and Tuckup Point areas. The area includes portion of the Antelope and Grand Wash Planning Units of the Arizona Strip District of the Bureau of Land Management.

The habitat boundaries were designated so as to include the area used by the Mt. Trumbull deer herd. This herd uses approximately 36% of the deer habitat in Arizona Game and Fish Game Management Unit 13.

The following gives acres by vegetative type:

Vegetative type	%	Acres
Grassland	5%	21,930
Sagebrush	25%	109,650
Pinyon Juniper	65%	285,088
Ponderosa Pine	5%	21,930
	100%	438,598

The climate of the Mt. Trumbull Habitat Area is characterized by two periods of precipitation - winter snow storms from October to February and summer thundershowers July to September. Total precipitation varies from 7" to 20" as elevation changes from 3,500 to 8,029 feet. Periodic droughts are common. Summer moisture is often spotty and less dependable than the general winter type storms. Taprooted plant species such as sagebrush, juniper and other browse species are favored by the climatic and soil conditions over most of the habitat area. Spring winds may dry out the top layers of soil before temperatures get high enough for growth to begin. Woody species are better able to tap the deeper soil moisture remaining when temperatures are favorable.

The varied topography of the area provides a wide variety of exposures and elevations. The topography and elevation determines the seasonal ranges of wildlife species; for example, mule deer prefer the higher elevations in the summer months and lower canyon breaks during the winter period.

The wildlife which is produced within this habitat area is possibly its most important product. Hunting for the trophy sized mule deer is presently the most popular wildlife pursuit. However, the continuing decline in deer numbers since 1963 in concerning many people.

There is a good variety of game and nongame species within this habitat. This coupled with a general concensus that the habitat has a great potential for improvement prompted by the initiating of the following analysis.

II. ANALYSIS OF HABITAT FACTORS

This habitat analysis is the first step in formulating a management plan to provide for wildlife needs within the Mt. Trumbull habitat area. The analysis will draw together all available inventory data plus a review of other applicable information to formulate management recommendations. These management recommendations will then be reviewed by other agencies and interest groups, an environmental analysis record will be prepared and then based on the management recommendation plus comments received and environmental concern a habitat management plan for the area will be formulated. (The existing guidance from the Grand Wash and Vermillion Management Framework Plan has been incorporated in this analysis).

Although the Mt. Trumbull deer herd was the main factor in determining the habitat boundary, other wildlife species within the area must be given consideration. The following analysis will deal with these 10 categories of animals:

A. Merriam Turkey

B. Elk

C. Mule Deer

D. Predators

E. Small Game

1. Cottontail rabbits
2. Gambel quail
3. Mourning doves
4. Bandtail pigeon
5. Chukar

F. Waterfowl

G. Kaibab squirrel

H. Small Non-Game Mammals

I. Non Game Birds

J. Endangered Species

A. MERRIAM TURKEY:

Turkeys presently occur in the Mt. Trumbull area. This population is a result of a successful transplant effort in 1961 (2) thirty-seven turkeys were released at that time. Hunting is permitted, however, because of the remoteness of the area pressure is considered light.

Turkeys are generally closely associated with ponderosa pine type because of the need for suitable roosts. There are approximately 13,000 acres of ponderosa pine in the Mt. Trumbull area. Some use is also made in the pinyon-juniper woodland of the lower elevation particularly during winter when deep snows cover up food in the ponderosa areas.(3)

The following discussion will deal with the habitat components.

Food - Merriam turkeys are very adaptable in their food habits. Mast produced by ponderosa pine and gambel oak is a very important item in their diets. Juniper berries are a more reliable food source which is used during winter months when other mast is unavailable (4). The acorn crop on Mt. Trumbull can be very heavy some years and next to nothing on others.

The following is from Reeves and Swank (5) and concerns a study of turkey food preference in Arizona:

> "An analysis of 261 droppings separated into collection by month showed that seeds of ponderosa pine was the most important food item. It occurred high in frequency and volume from mid-November when it became available through the following July. Acorns were also of considerable importance. Spikelets of grasses showed up frequently and in good volume from May through November. The seeds of juniper appeared of importance from December through March. Green leafage of grasses, undetermined forbs, and clover occurred in various amounts throughout the year, but were high in both frequency and volume in March, April, and May.
>
> Insects occurred most frequently and in greatest volume in summer and early fall."

The most conspicuous deficiency in the plant composition of this area is the lack of perennial grasses and forbs. Heavy unmanaged livestock grazing during the past 75 years has almost completely eliminated any desirable understory vegetation. Grazing Management

should now be directed toward increasing the understory grasses and forbs. Allowing some areas to produce seed every year would also be of benefit to turkey.

A soil inventory completed in 1975 indicated several areas which would be well suited for reseeding grasses and forbs. To plow and reseed some of the existing "parks" in the ponderosa would help provide a greater diversity of forage plants for turkey use. These areas should be kept small and a good mixture of grasses, shrubs, and forbs should be seeded. A seeding trial plot was established in this area in the fall of 1975 to determine species adapted for reseeding. The results of this test plot should be used to design future reseeding in the area. Treatment areas should conform to existing parks. No trees should be removed to enlarge the areas.

The proposed thinning of ponderosa pine pole stands will probably be beneficial for turkey as removing trees will produce more seed. Any logging of mature trees will diminish seed production because the age class of trees cut is also the most prolific seed producers.

Cover - Ground cover is important for turkeys. The following is from Arizona Game & Fish Data supplied by Jantzen (4).

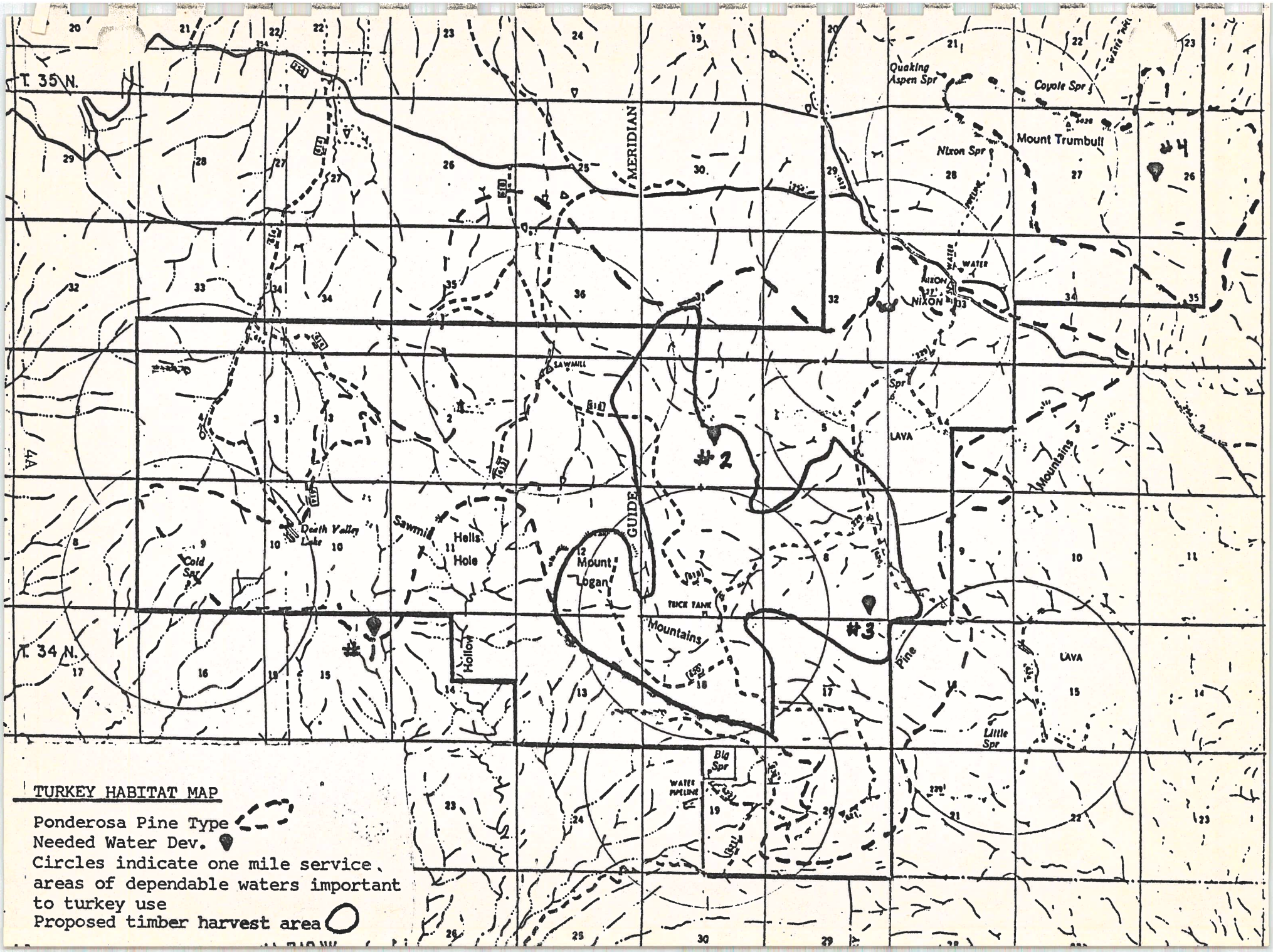
> "The height and density of ground cover is very important to the young poults. Good ground cover produces many more insects, which are a very important food item for young poults. Good ground cover furnishes protection for the young poults.
>
> Poult Survival of (Aug-Sept Surveys) Compared to Various Livestock Range in 1974 and 1975.

Type of Range	Poults/Hens 1974	Poults/Hens 1975
Cattle Grazed	1.5	1.6
Sheep Range All	4.5	4.4
Cattle Ungrazed (rested)	6.0	5.6

> NOTE: The grazed cattle range is very heavily grazed."

Burget (6) emphasized the importance of grasses and forbs as escape cover for small poults until they are able to fly.

In order to reduce conflicts between turkey habitat and livestock, grazing management should strive toward increasing the understory cover of grasses and forbs. Portions of the range should be rested every year to insure standing ground cover so essential to poult survival. Heavy use in any given year would have a


T. 35 N.
T. 34 N.
MERIDIAN
GUIDE
Quaking Aspen Spr
Coyote Spr
Mount Trumbull
Nixon Spr
NIXON
WATER
#2
#3
#4
LAVA
Mountains
Sawmill
Hells Hole
Death Valley Lake
Cold Spr
Mount Logan
TANK
Hollow
Pine
Little Spr
Big Spr
WATER PIPELINE
4A
TURKEY HABITAT MAP
Ponderosa Pine Type
Needed Water Dev.
Circles indicate one mile service areas of dependable waters important to turkey use
Proposed timber harvest area

detrimental impact on turkey reproduction for that year.

Due to the past heavy grazing use of this habitat area and the fact that turkeys have become established in spite of it leads us to believe that the population may be significantly increased if the ground cover were improved.

Water - Water is a critical factor for turkey habitat in this area. Turkeys will normally water once a day during the hotter part of the summer period. During winter they obtain needed moisture from snow. Succulent plant and insect material may provide sufficient water during some periods.

Turkeys use all types of water sources such as earthern reservoirs, springs and catchments. They seem to prefer reservoirs and springs over catchments (4).

Spicer (7) found that during the mating and nesting seasons of 1955 and 1956, 71.4 per cent of turkeys were within ½ mile of water and 93.6 per cent within one mile of water.

Turkeys generally nest within ½ mile of water, roosts are usually close to water and according to Burget (6) young poults have a greater need for water and are never found far from it. The attached map shows the available water in the suitable turkey habitat each water has a 1 mile circle drawn around it to indicate the area it adequately serves for turkey. Four new waters are identified as being needed to adequately provide for turkeys.

#1 Hells Hole Catchment
#2 Sawmill Catchment
#3 Turkey Track Catchment
#4 Mt. Trumbull Catchment

When the 4 catchments are installed the habitat will be well watered and additional areas made suitable for nesting and brood rearing.

Roost Trees & Timber Harvest - MacDonald and Jantzen (8) stated, "The presence of roost trees is probably an essential habitat requirement." Phillips (3) indicates lack of suitable roost trees is limiting use of historic turkey range in Williams Arizona Area. His studies have shown that when logging has removed suitable roost sites, turkeys no longer use the area.

The Mt. Trumbull timber plan proposes harvesting timber on about 4 sections of land near Mt. Logan (See Map). The proposed cut area is also the best part of the turkey habitat area. The plan states that adequate roost trees will be preserved for turkey.

Jantzen (Arizona Game & Fish) (4) defines roost trees as follows:

"What is a preferred roost? Without question the preferred roost is a clump of tall mature or over-mature ponderosa pine with fairly open canopies with large horizontal limbs, in fairly sheltered sites. The height to the first limb has some bearing. All trees within a roost site are important even though some may not be used as roost trees. Snags are also used when associated with a clump of preferred trees.

On the South Kaibab, I am recommending that we meet the following roost site requirements in order to allow the turkeys the use of all available habitat."

1. Average of Two Roost Sites per section on all ranges.

2. Preferred Trees, all sites.

   A. Tall, mature and overmature.
   B. Devoid of branches near ground.
   C. Relatively open canopies.
   D. Large horizontal branches.
   E. Minimum basal area of 80 sq. ft/acre. 20 factor prism.

3. Winter Roosts.

   Large flocks of turkeys
   10-40, usable trees
   Average 20 usable trees
   ¼ to 3 acres depending upon site

4. Summer Roosts.

   Small flocks of turkeys
   4 to 12, usable trees
   Average 8 usable trees
   ¼ to ½ acres
   Most within ½ mile of water

In referring to the Mt. Trumbull area, Mr. Jantzen (4) recommends the following:

"In your case, with a limited isolated range, I would suggest that all roosts meet the winter range requirements. Keep in mind that it may be necessary to leave 30 or 40 trees in a clump to have 20 usable trees are important with a site even though some are not utilized."

Other effects of timber program on turkeys:

1. Slash Disposal - After timber harvest there must be slash disposal usually by controlled burning or piling and burning. Turkeys will and do use slash for nesting cover, therefore, it is essential that no disposal is carried out during the nesting season, (April-June).

2. Precommercial and Commercial (pulp wood) Thinning- These types of operations probably are more beneficial than harmful, in that they allow for the production of more ground cover. However, there should be scattered patches left for cover. Turkeys use these for loafing, escape cover and protection for storms.

Another important aspect of thinning is opportunity to develop future roost sites for turkeys. The present sites will not last forever, therefore, thought must be given to the development of sites for the future.

3. Turkeys generally nest within ½ mile of water, therefore, it is a good idea to keep logging activity down during nesting season in these locations.

4. I think logging activities of any kind should be kept at a minimum in the close vicinity of water. Thinning may reduce the cover of travel lanes to water. Logging of trees around water can have a detrimental affect on many birds."

The proposed harvest of timber from the Mt. Logan area poses a few threats to turkey habitat and possibly may improve some of the habitat. In it's present deteriorated condition, the seed of ponderosa pine are more important than they would be if more grass seed was available. Any significant reduction in seed producing trees could reduce the turkeys' food supply.

If roost trees were adequately protected and understory vegetation increased as a result of the tree canopy being reduced, the quality of the turkey habitat may stay stable or improve slightly. In weighing the good and bad which could result from harvest of commercial timber in the turkey habitat, the proposed timber harvest poses more of a threat to turkey habitat than a likely method to improve it. However if adequate precautions are taken, and better ground cover results, some of the timber could probably be harvested with no adverse effects on turkeys.

Management Framework Plan (MFP) Recommendations

The MFP for the Vermillion Planning Area is completed and contains the following directives:

Proposal 7: Provide water for wildlife in "dry areas".

Proposal 34: Clear small areas and plant forage species to enable increased wildlife production. This treatment should be confined to sagebrush and juniper areas.

The proposal to cut timber was a little controversial and was modified by the State Director to read as follows:

Proposal #38

"Commercial timber will be managed and harvested under a management plan directed to preserve the natural beauty of the area for recreation, with emphasis on wildlife habitat improvement, featuring the Kaibab squirrel, mule deer and wild turkey (note: add more if needed). Manmade facilities will be kept to a minimum and dispersed properly to stay within a primitive surrounding. Timber will be managed under an even-aged system of silviculture. Cutting areas will be designed so they blend naturally with the topography and landscape. No cutting will take place where regeneration or young growth is not sufficiently established.

No trees shall be cut other than Ponderosa Pine which have obtained sawlog size except to provide proper spacing for residual stand. In stands of old growth Ponderosa Pine (25-300+ years old) with an 80 to 140 year-old understory, the old growth may be removed and the understory commercially thinned to an average spacing of about 18 feet.

In stands where old growth is not present, trees twelve inches in diameter and larger may be harvested. The appearance of a continuous overstory should be retained. The first cut should range from removal of all large trees in an overstory to release the younger growing stock, to a thinning (commercial and precommercial) from below to improve the spacing of the larger trees.

Selection and shelterwood cuttings will be large enough to permit new Ponderosa Pine reporduction to become established. Holes in forest canopy should not exceed one tree height. This will provide effective environment for seedling survival and source of seed."

Two other recommendations which were made concerning livestock grazing may also affect turkey habitat.

Proposal #17: Allow only 50% utilization in pastures containing critical watershed, crucial wildlife or travel influence and zones of highway 89A and Tuweep road.

Proposal #39: Maintain livestock use at present level. Allocate all increased forage to wildlife.

Management Recommendation for turkey habitat: Based on the preceeding analysis and MFP guidance, the following management recommendations were formulated.

1. Manage Livestock grazing so as to increase desirable understory grasses and forbs such as.

Grasses	Forbs
Western wheat grass	Mt. Dandelion
Squirrel tail	Deer Vetch
Mt. Brome	Penstemon

2. Limit utilization of key species to 50% in key areas.

3. Defer grazing in the ponderosa pine area until June 9 each year to provide adequate cover for nesting.

Timber Management

4. Designate and protect at least 8 roost tree areas within the 2,400 acre proposed timber harvest area. (Roost sites should meet Jantzen's Criteria 4).

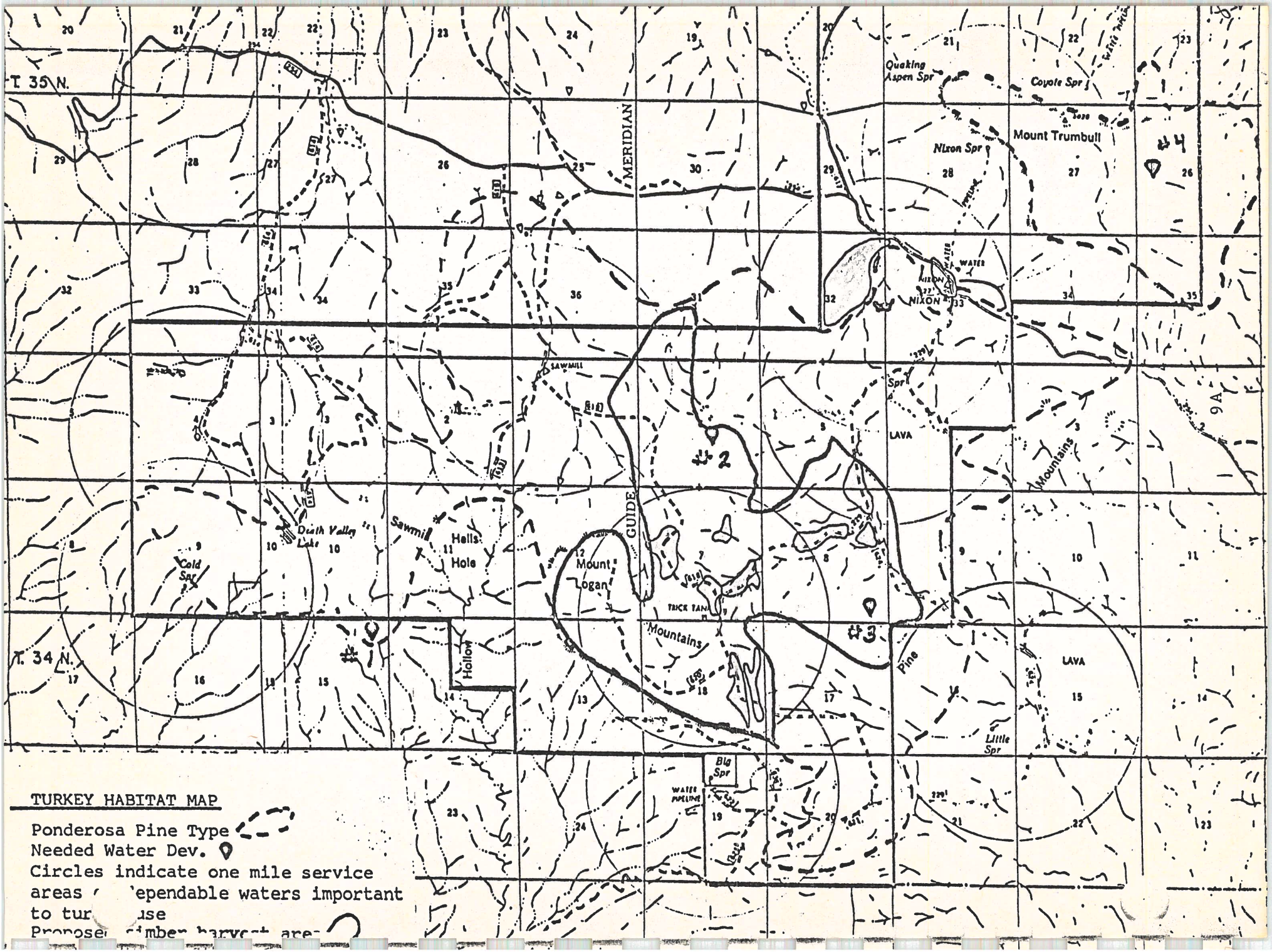
5. Prohibit logging activity during April, May and June to avoid disruption of nesting turkeys.

6. Allow no logging, thinning or slash disposal within ¼ mile of the Mt. Logan Catchment or proposed Sawmill and Turkey Track Catchments.

7. Plow and reseed 300 acres of open parks in the ponderosa type and seed to a mixture of grasses, forbs, and shrubs. See map on page 9A).

8. Develop the following four catchments to provide water for turkeys.

   a. Hells Hole Catchment, Sec. 10 T 34 N R 9 W
   b. Saw Mill Catchment, Sec. 1 T 34 N R 9 W
   c. Turkey Track Catchment, Sec. 8 T 34 N R 8 W
   d. Mt. Trumbull Catchment, Sec. 26 T 35 N R 8 W



TURKEY HABITAT MAP

Ponderosa Pine Type

Needed Water Dev.

Circles indicate one mile service areas of dependable waters important to turkey use

Proposed timber harvest area

1. Phelps, John E., 1973, Guidelines for Managing The Habitat of Merriam Turkey, State of Utah, Dept. of Natural Resouces, Publication 73-5.

2. Hewitt, 1967, The Wild Turkey and Its Management, Pub. by Wildlife Society.

3. Phillips, Fred, Dec. 1975, Personal Communication, Arizona Game & Fish, Dec. 1975.

4. Jantzen, Robert A., 1976, Personal Communication, Arizona Game & Fish, Letter dated June 5, 1976.

5. Reeves & Swank, 1955, Food Habits of Merriam Turkey, Arizona Game & Fish Dept., Completion Report, April, 1955.

6. Burget, M. L., 1957, The Wild Turkey in Colorado, In Phelps, John E., 1973, Guidelines for Managing the Habitat of Merriam Turkey, State of Utah Dept. of Natural Resources, Publication 73-5.

7. Spicer, R. L., 1959, Wild Turkey in New Mexico, In Phelps, John E., 1973, Guidelines For Managing the Habitat of Merriam's Turkey, UDNR Pub. 73-5.

8. MacDonald, D. and R. Jantzen, 1967, Management of Merriam's Turkey, In O. H. Hewitt, 1967, The Wild Turkey and Its Management, Pub. by Wildlife Society.

B. ELK

The question of transplanting elk into this area was addressed in the Vermillion Management Framework Plan. The following are MFP proposals and comments concerning elk.

> Proposal 41. Establish a herd of 50 to 100 elk in this area and parts of adjacent Area 3. (Introduction of elk could interfer with livestock objectives in some allotments. Where this occurs, how should this conflict be resolved? Elk will increase fence maintenance costs. Who should be responsible for maintenance of fences damaged by elk? This area is already a cruicial deer habitat area. Elk use will likely conflict with deer use. How should this conflict be resolved?

Comments - Considerable disagreement with this proposal. The opposition suggested there wasn't sufficient forage or water and these animals would just become a nuisance. The Arizona Game and Fish Department was strongly in favor of this proposal.

The ultimate realization of this proposal depends on several things. First, will more forage be developed by mechanical means? Second, will additional forage produced be allowed for wildlife? Third, is it economically more feasible to allocate additional forage to elk than livestock? The answers to all of these questions are not available at this time. Obviously, more study of this proposal is necessary. The recommendation is to retain this proposal, but to study the proposition further before a final recommendation is made.

Elk are a very adaptable game animal capable of living in a wide variety of habitats. Huntable elk herds occur in habitat similar to the Mt. Trumbull area in other parts of Arizona. A small elk herd could probably be established in this area. The main problem is to analyze the impact of elk on the other wildlife species and land uses within the habitat area. The following factors must be considered.

a. The forage resource of this area is already over taxed by livestock and wildlife. Reductions in livestock use are being made to accommodate present wildlife use. There is no present surplus of forage for elk use.

b. Mule deer numbers are at a current low point. Management efforts to supply more water and better quality of forage are needed. The introduction of elk would bring about additional competition with an already declining deer herd.

c. Twenty per cent of this habitat area is under Park Service jurisdiction. Their policies are definitely against introduction of exotic wildlife species. There would be no reasonable way of planting elk on national resource lands and keeping them off Park lands.

Management Recommendations

Based on the preceeding analysis and MFP direction, it is recommended that no elk transplants be considered in the immediate future. When future studies show sufficient improvement in forage condition to support an elk herd, the proposal could be reconsidered.

C. MULE DEER

Mule deer are the most sought after game animal in this area. The Arizona Strip is remote, primitive and hard to hunt. However, the large size mule deer found here attract the more dedicated trophy hunters of several states. The per cent hunter success is often low, but many hunters come back year after year.



"Arizona Strip Trophy Buck"

In the last 10 years there has been a general decline in deer numbers. The following table contains the hunt data for 1962 to 1975 deer season:

Table #1

REGION II - UNIT 13 - VIRGIN MOUNTAINS-MT. TRUMBULL

Year	Season Arrangement	Bucks	Antler-less	Total Kill	Hunters	Percent Hunter Success
1962	38 days any deer	627	147	774	2,354	32.9
1963	any deer	560	95	655	1,783	36.7
1964	Bucks	309		309	1,181	26.2
1965	Bucks	158		158	790	20.0
1966	Bucks	301		301	1,237	24.3
1967	Bucks	460		460	1,815	25.3
1968	Bucks	623		623	2,337	26.7
1969	Bucks	641		641	2,572	24.9
1970	Bucks	554		554	2,959	18.7
1971	Bucks; 3000	640		640	2,473	25.9
1972	Bucks; 3000, 10 days	528		528	2,377	22.2
1973	Bucks; 3000, 10 days	319		319	2,300	17.0
1974	Bucks; 2500, 10 days	573		573	2,046	28.0
1975	Bucks; 2000, 10 days	265		265	1,132	23.4

RATIO INFORMATION

Year	Does/Buck	Reproduction
1962	3.7	43.0
1963	2.3	20.7
1964	2.1	26.1
1965	3.2	38.3
1966	3.2	46.2
1967	3.2	33.3
1968	2.9	45.8
1969	4.3	37.9
1970	4.0	32.1
1971	2.4	31.3
1972	5.0	20.8
1973	5.3	25.7
1974	5.8	17.0
1975	7.6	29.8

In 1962 and 1963 deer numbers were sufficient to warrant an either-sex deer hunt. Since 1964 there has been buck-only hunting. Deer numbers haven't bounced back under the buck-only hunting.

In February 1972 Executive Order 11643 was issued curtailing the poisoning of predators on federal land. Since that time predator control has been by steel traps and hunting only. Effective coyote control with poisons is not, under present regulations, a viable option for increasing deer numbers on federal lands unless M-44s or cyanide guns are again allowed.

The following is from Owen Wright's "History of the Arizona Strip":

> "The deer on BLM land have increased from a few head in 1945 to an estimated 3,000 in 1963. Extended deer hunts have decreased the herd to approximately 1,500. There is a drift from Mt. Trumbull onto BLM lands in the winter and a small drift from the Kaibab Forest on the west and north in the winter months also. The herd should be increased to at least 5,000 head on all of the BLM lands on the Strip.
>
> While goats were rather plentiful during the early years of Taylor Grazing on the Strip District, they went out of the picture about 1945. Sheep numbers have decreased from approximately 80,000 to around 10,000 in 1966. They are on the District only during the winter and spring months."

Perhaps the reduced competition with sheep and goats, additional waters being developed for livestock, predator control measures being pursued by the BSF&W and favorable climatic conditions allowed deer numbers to peak out in the early 60's.

There are differing opinions of why the decline in numbers since 1963. Most are one or a combination of the following: 1. Over-kill of breeding does during either-sex hunts of 1962 and 1963, 2. Constant predator pressure mainly from coyotes, 3. Drought conditions prevailing since 1964, 4. Livestock competition for available forage, 5. Disease or parasite infestations, and 6. Other habitat deficiencies (water and cover).

This general decline in mule deer numbers is not unique with the Arizona Strip. Most of the western states have experienced similar declines.

Present Deer Use

Over all deer numbers are currently low in the habitat. However uneven distribution is resulting in some portions of the summer

range in the Mt. Emma Area being severely overused. Bitterbrush and other desirable forage species are dying due to heavy deer use. The following picture shows heavy use of juniper in the Cove area South east of Mt. Emma.



"Winter Deer Use of Juniper on East Side of Mt. Emma"

The Whitmore Canyon area just below Big Spring is also receiving heavy use. Desirable browse plants are in low vigor and sagebrush and juniper shows significant deer use. This problem is caused in part by the prohibition on hunting in adjacent Park lands. Deer number in this area cannot be adequately harvested because of the park refuge.

Habitat Components

1. Food - The Mt. Trumbull Habitat Area provides year long range for mule deer. In past planning efforts concerning the Arizona Strip the 6,000 foot elevation has been considered the breaking point between summer and winter range. Of course other factors play an important role in determining seasonal deer use patterns, but for planning purposes the 6,000' elevation will be used in analyzing this habitat area. The following table lists acreage in early season of use area.

Summer Range	Winter Range	Total
119,234 acres	319,364 acres	438,598
27%	63%	100%

In order to adequately evaluate this habitat area for mule deer, the entire habitat used had to be considered. This included both lands administered by BLM and some by the National Park Service. The following gives a breakdown of acreage administered by each agency.

BLM			PARK SERVICE		
Summer	Winter	Total	Summer	Winter	Total
95,706	220,954	316,660	23,528	98,410	121,938

Thus BLM has management responsibility for 72% of the total habitat area and manages 80% of the summer range and 69% of the winter range. Although Park Service lands are considered in this Analysis Management options are limited on Park Service Lands. Under present policies water or forage development for habitat improvement are not allowed nor is harvest of surplus animals allowed in lands within the Grand Canyon National Park Boundaries. Management recommendations will apply only to lands administered by BLM.

The following discussion of food for deer within the habitat area will be discussed under Summer Range and Winter range.

Summer Range

The summer range portion of this habitat lies above 6,000' elevation. This area has cooler average temperatures and higher rainfall and thus favors better growth of succulent forage plants during the critical summer period. These ranges are generally used April through September. During this period fawns are born and nursing does require more nutritious forage to meet milk production needs. The poor fawn survival that limits mule deer production on the Arizona Strip is believed to be mainly by a lack of good summer range.

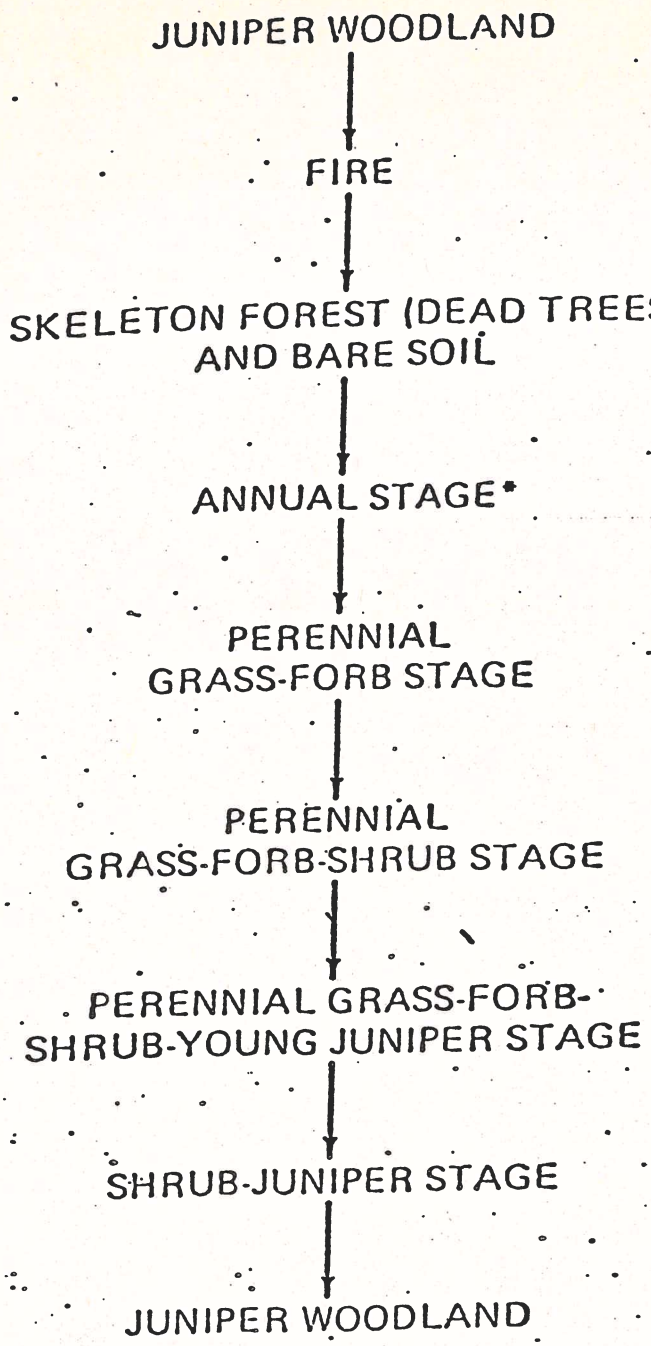
This presumption is borne out by a comparison of the Arizona Strip mule deer herd with that of the Kaibab Unit as shown in the following table:

DEER HUNT DATA COMPARISONS
ARIZONA STRIP (UNIT 13) AND KAIBAB (UNIT 12A)

YEAR	FAWNS 100 DOES		% HUNT SUCCESS		DOES/BUCK	
	STRIP	KAIBAB	STRIP	KAIBAB	STRIP	KAIBAB
1961	44.3	64.4		31.6	1.5	3.2
1962	43.0	67.3	32.9	47.4	3.7	5.1
1963	20.7	64.1	36.7	54.7	2.3	3.0
1964	55.6	65.3	26.2	58.0	1.8	1.9
1965	47.1	100.0	20.0	38.1	1.4	1.4
1966	51.5	103.1	24.3	49.7	1.1	3.7
1967	82.1	73.9	25.3	22.0	1.6	2.4
1968	69.3	109.1	26.7	37.6	2.0	2.0
1969	37.9	79.3	24.9	44.1	4.3	3.6
1970	32.1	76.7	18.7	40.5	4.0	2.8
1971	28.4	67.2	25.9	48.4	2.3	3.1
1972	28.3	89.5	22.2	48.2	3.7	2.1
1973	25.5	63.7	17.0	51.3	3.1	5.4
Average	45.5	83.6	25.1	44.0		

As can be seen the Kaibab has consistently higher fawn production. Hunter harvest success is also consistently higher for the Kaibab Unit. The more productive deer herd of the Kaibab is possibly a reflection of a better summer range existing at the higher elevations. Winter ranges are similar for the two units but the Arizona Strip lacks the spruce fir aspen summer range so preferred on the Kaibab.

Plant succession is a major factor affecting the quality of summer range in the Mt. Trumbull Habitat Area. As plant succession progresses woody species dominate the site until a closed stand of P.J. results. The following chart shows the stages of succession (from "vegetation changes following fire in the pinyon-juniper type of West Central Utah" by Barney and Frischknecht, Journal of Range Mangement, March 1974) which operate in this area.



The perennial grass forb stage is the most productive of succulent forage during the summer period. As shrubs reinvade desirable grass species such as squirreltail, mutton grass and western wheatgrass and forbs such as penstemon, mt. dandelion, deer vetch and globe mallow are crowded out. Mature pinyon-juniper stands generally have a composition of less than 5% of these desirable species.

In order to increase forage production in pinyon-juniper sites, succession must be set back by use of fire or mechanical means to kill the woody plants. After the destruction of the pinyon-juniper, shrub communities can be expected to dominate the site within thirty-five years and pinyon-juniper to dominate in seventy years. Heavy grazing following disturbance may hasten the re-invasion as desirable species lose vigor and are not as competitive. Re-invasion into smaller areas would be expected to occur more rapidly because of shorter distances for seed dissemination to take place from established pinyon-juniper stands.

The ponderosa pine areas are also in need of management for improving forage production. The study of ungrazed ponderosa types in the Mt. Emma area indicates a good potential for valuable understory forage plants exists in other pondersoa types around Mt. Logan if livestock grazing is controlled.



"Good Condition Ponderosa Pine Range near Mt. Emma"



"Poor Condition Ponderosa Pine Range near Mt. Logan

There are also numerous "parks" scattered through the ponderosa which would be very amenable to revegetative efforts. A soil survey in 1974 indicated a good response could be expected if these "parks" were plowed and reseeded to a good forage mixture.

An overall improvement in forage conditions in the summer range would be expected to improve fawn survival and general productivity of this herd. Fawn survival and allowable harvest increased 50 to 100%.

Winter Range

As discussed earlier some parts of the winter range are presently over-used by deer. Over 75% of the entrie winter range is only lightly used. Efforts are needed to help alleviate the over-used areas and spread it out into the other winter range areas such as Whitmore Point, Tuckup and S. B. Point.



"Whitmore Point Winter Range"

Deer being the creatures of habit that they are; to obtain shifts in their winter use areas may be difficult bordering on impossible. The overuse of these areas is probably largely due to lack of any harvest in Park Lands in Slide Mountain and Mt. Emma areas. National Park or Monument Lands are closed to hunting. The refuge provided by the park is contributing to over-population of this area and range deterioration of both BLM and Park Service habitat. Water developments on BLM in this vicinity may be a partial solution to attract deer on to BLM land to allow the harvest of more animals. Late season either sex hunting in the Whitmore Cnyon area is another possible management tool. Food or forage production in this habitat area is presently management tool. Food or forage production in this habitat area is presently at a fraction of its potential.

There are two main methods of changing forage production; 1. Land treatment, or 2. Livestock manipulation. They will be discussed in that order and general guidelines for their application formulated to benefit mule deer.

a. Land Treatment - Land treatment projects involving removal of woody plants by mechanical means or controlled burning are needed to set back plant succession to a more desirable community. Woody plants tend to create patches

of wildlife forage with increased "edge effect." Greater plant species' diversity is created when pinyon-juniper or sagebrush communities are altered. Prior to the beginning of grazing and fire prevention practices, wildfires were a natural factor of plant succession. The size of treated or burned areas has a significant effect on the use they receive from deer.

The following is from an article in December 1974 Journal of Forestry by D. R. Patton, titled Patch Cutting Increased Deer and Elk Use of a Prime Forest in Arizona:

> "Data obtained in this study indicates that a well-stocked ponderosa pine watershed can be cut in opening sizes that vary from a few to 32 acres to benefit deer and elk. Maximum opening size for deer and elk habitat has been determined to be about 45 acres in Arizona. Total acreage may not be important as long as the cut area is not more than 1,600 feet across (1,600 is approximately the diameter of a 45-acre circular opening); however, a shorter distance (1,200 feet) is probably more benefical.
>
> Managers have a choice of either creating many openings with varying sizes or creating fewer openings in long, narrow, contoured strips. Either design would benefit deer and elk, but the long, narrow strip probably would not enhance small game and nongame habitat because it does not provide a maximum edge effect compared to a large number of small openings with the same acreage. Both types of openings can be designed to blend in with the landscape."

The following recommendations and discussion were taken from the Final Report of a study entitled, Control of Pinyon-Juniper as a Deer Management Measure in Arizona, by Clay Y. McCulloch, Research Biologist with the Arizona Game and Fish.

> "To conserve deer habitat, all pinyon-juniper control projects completed for any purpose should be confined to extensive, dense stands of trees; ie; stands more than one-half mile wide with average crown cover exceeding 20 per cent and overall stocking rates greater than 75 trees per acre, with widespread scarcity of all species of forage, herbaceous as well as shrubby. Tree control should aim to restore the formerly open condition of stands which may have become closed during the last 75 years as a result of grazing, fire suppression, and other unusual influences.
>
> Areas cleared of trees should be no wider than one-

eighth mile (660 feet). Much wider treeless areas appeared tolerable or even attractive to deer on the remote site at Prospect Ridge, but that width was not necessarily optimum. Also, the wider openings may latter prove undersirable for deer as recreation use and other human activity increases in those areas. Tall cover forms such as trees ans shrubs may help to buffer the displacement of deer by people.

Minimum width of tree control strips or patches should be about 100 feet. Narrower clearings would tend to have minimal gains in forage production. A juniper tree 18 feet tall can inhibit herbaceous growth as far as 25-30 feet from the center of the tree crown (Arnold 1964). Pinyon-juniper clearings for deer need not be of equal length and width, but tree eradication strips should not be excessively long. They are aesthetically more desirable if boundaries can result inadvertently where trees are uprooted by heavy machinery which avoids steep slopes and rocky sites. Otherwise, some willful design is needed to make the openings pleasing to look at for the land using public (Williamson and Currier 1971)."

Mr. McCulloch went on to make two other important points:

1. Cleared areas should not make up over one-third of a seasonal habitat area. For every 100 acres cleared, 200 acres should be left untouched.

2. A buffer zone of uncleared area should be left around recreation developments or other people-use areas to minimize disturbance to wildlife.

The following guidelines should be followed when designing land treatment projects to enhance mule deer habitat in the Mt. Trumbull Area:

1. Openings should be small, irregular shaped; 660 foot maximum width is optimum, but shouldn't exceed 1,220 feet. Edges should be irregular to create maximum edge effect.

2. Treatment should be as thorough as possible to get a maximum soil disturbance to provide good seed bed; and use of a disc plow on mountain clearings is recommended.

3. A mixture of seed should be seeded with the purpose of supplying succulent forage over a long period. The wheatgrasses should include crested and intermediate. Yellow sweet clover and alfalfa should be included as part of the forbs. A species trial plot was established on Mt. Trumbull in the fall of 1975. The performance of the 30 different species seeded here should be evaluated in order to plan seeding mixture on future sites.

4. Livestock grazing must be managed after seeding to allow even most palatable species to maintain themselves. This type of management would include a maximum allowable utilization figure and adequate rest from grazing to allow plants to maintain optimum vigor and production. If adequate protection cannot be obtained via a grazing system, then fencing to exclude livestock from wildlife food patches may be necessary. Livestock would then be allowed to use the area only to enhance wildlife value; ie., seed trampling and removal of old growth.

Livestock Manipulation

The manipulation or management of livestock grazing has the most potential for affecting wildlife habitat. The entire habitat area is grazed by livestock except for a few steep slopes. Therefore, the effect of grazing is felt throughout the habitat.

Unmanaged yearlong grazing is detrimental to the well being of wildlife habitat. The lack of succulent forage on some summer range is due partly to past grazing abuse - first by sheep and wild horses and then cattle. Areas of pinyon-juniper that haven't received heavy grazing use in the past will have 10 to 30% of the composition made up of desirable forage species. Species such as muttongrass, squirreltail, western wheatgrass, penstemon, dandelion and deer vetch make up a small but important part of the composition in relic areas.

Intensive grazing systems combined with moderate stocking rates are needed to allow this habitat area to produce the wildlife forage needed. Key species for management should include those species which are most valuable to wildlife and livestock. Management should be directed at providing the maximum succulent forage possible during the summer period. Maximum vigor and production of browse species should be an objective on other ranges. The following objectives and key species should be included in AMP's for this habitat:

1. Spring-Summer Range, April through September

   Management should maximize production and availability

of succulent forage during this time. Key species for mule deer could include:

Grasses	Forbs	Browse
Introduced Wheatgrasses	Mt. Dandelion	Birch Leaf Mt. Mahogar
Muttongrass	Penstemon (Pe Li)	Gambel Oak
Squirreltail	Deer Vetch (Lotus spp)	Ceanothus spp.
Western Wheatgrass	Menodora spp.	Bitterbrush
Mt. Brome	Yellow Sweet Clover	Silk Tassel

Indicate those species that would represent phenology for each category.

2. Fall-Winter Range, October through March

Management should be directed toward maximizing the vigor of desirable browse species. Cool season grasses should also be considered important during this period. Some grasses at lower elevations may stay green all winter. Key species on the winter range for mule deer should include:

Grasses	Forbs	Browse
Squirreltail	Mallow	Cliffrose
Stipa sp.	Penstemon spp.	Bitterbrush
Indian ricegrass		Ceonothus spp.
		Eriogonum spp.
		Sagebrush

The livestock grazing of this habitat should be closely regulated and intensively managed. Rest-rotation grazing management should be applied throughout. However, excessive use should not be allowed (over 50%) in any key areas. Stocking rates should be adjusted to limit utilization in the grazed pastures to this figure or less.

Top priority should be given to AMP's on the critical summer ranges above 6,000.

Cover - The habitat boundaries were established based mainly on herd units and cover factors. The pinyon-juniper vegetative

type generally affords adequate cover for deer needs.

Fawning cover may be lacking in some areas. Without adequate ground vegetation, fawns may be more susceptible to coyote predation. Cover from ground level to three feet may be completely lacking. Fawns lying in such an area would have little to hide in. From the coyote's eye level, they may as well be lying in the middle of a clearing.



"Good Fawning Cover"

Cover needs should be considered when land treatment projects are planned. Leaving some downed trees and leaving some areas of thick shrub ground cover should be done where possible. Species of browse such as four-wing saltbush should be seeded in the larger openings for cover.

Water - Water is necessary for mule deer needs on the habitat area. The best watered areas also have the highest deer use. Deer numbers were nil until livestock waters were developed. (According to long-time residents of the Strip).

The following excerpt is from BLM Manual on the Life History and Habitat Requirements of Mule Deer (6601-6):

> "Captive deer in southern Arizona required an average of one to one and one-half quarts of water per hundredweight in winter and from two to three quarts of water

in summer (Nichol) 1938). Elder (1954), in Arizona, observed that deer watered at least twice daily and consumed an average of 6.3 quarts per drinking period. Swank (1958), in Arizona, found that most watering occurred soon after sunrise and especially at sunset. In summer, deer watered up to one and one-half hours before sunset, and usually watered more than one each day. Fawns one month of age were observed drinking water.

Swank reported that deer congregated around water during the dry period of the year when plants are dormant. Water dispersal at two-mile intervals was considered ideal as, in chaparral, one mile is about the distance deer will move to water in the driest of months.

Hansen and McCulloch (1955) estimated deer would not go over one and one-half miles under the same conditions and observed that when watering sites dried up, deer moved and concentrated in other watered areas. At Fort Station, in south-central New Mexico, range use by deer decreased as the distance from water increased (Wood, et al, 1970), Range within one-half mile of water received twice as much use as range one-half mile distance and four times as much use as range over a mile from water. Wood concluded that deer are very much dependent upon free water and about one and one-half miles was about the maximum distance they would move from it. In Utah, Julander (1966) reported that water may be an important factor in the distribution of deer on dry, fall ranges, but on summer ranges, intensity of use may increase with distance from water because of better forage."

The most critical need for water occurs on the summer range. During the hot months of June - August, deer cannot be expected to travel more than one and one-half miles to water. This one and one half mile distance was used in determining how well the habitat is watered.

All available waters are of some importance to mule deer, but for analysis purposes only permanent springs, or historically dependable reservoirs, etc., were considered. The numerous small ponds or "dirt tanks" provide water sometimes, but cannot be depended on during the critical times. Before deer can be expected to permanently establish in

an area there must be dependable water. Otherwise, during dry years, they have to relocate on the permanent waters of other areas.



"Earthen Reservoirs Often Go Dry During the Time of Greatest Need"

Lack of permanent waters in the Whitmore Point and Tuckup Point areas may partially account for the light deer use in those areas.

The service area of each dependable water was determined on the water overlay. (See Habitat Map). By analyzing the areas of suitable habitat needing water, it was determined that additional water catchments are needed. The attached Table I contains the proposed locations.

These locations are approximate. Each development should be located on the ground to take advantage of topography and cover to insure optimum verstility for wildlife. Priorities are indicated on the tables. Generally, top priority should be given to developing adequate water in summer range areas.

TABLE 1

Project Name	Location	Type	Priority
Mt. Emma Catchment #1	SW¼ NE¼ SEC. 1 T33N R9W	Catchment	1
" " " #2	SW¼ SW¼ SEC. 18 T33N R8W	"	2
Slide Mt. Catchment	SE¼ SE¼ SEC. 32 T34N R8W	"	3
Rim Catchment #1	SE¼ SE¼ SEC. 17 T35N R9W	"	7
" " #2	SW¼ SW¼ SEC. 28 T35N R9W	"	6
Whitmore Catchment #1	NE¼ SE¼ SEC. 22 T34N R10W	"	4
" " #2	SE¼ SE¼ SEC. 25 T34N R10W	"	5
" " #3	SW¼ NW¼ SEC. 8 T33N R9W	"	14
Witch Catchment	SEC. 25 T35N R8W	"	9
Broad Canyon Catchment	SEC. 15 T35N R7W	"	8
Hancock Knoll Catchment	SE¼ SEC. 20 T35N R6W	"	11
Ivan Patch Catchment #1	SE¼ SEC. 3 T34N R11W	"	12
" " " #2	N½ SEC. 17 T34N R10W	"	13
Hacks Rim Catchment	SE¼ SEC. 35 T37N R5W	"	15
Water Canyon Catchment	SW¼ SEC. 9 T36N R4W	"	16
Kanab Creek Catchment	SE¼ SEC. 26 T36N R4W	"	17
Robinson Wash Catchment	N½ SEC. 17 T35N R4W	"	18
S. B. Catchment	SW¼ SEC. 19 T35N R5W	"	19
Pinyon Catchment	NE¼ SEC. 29 T36N R6W	"	20
Pronghorn Catchment	SW¼ SEC. 35 T36N R6W	"	21
Langs Run Catchment	NE¼ SEC. 34 T36N R9W	"	22
Finale Catchment	SW¼ SEC. 10 T36N R9W	"	23
Mt. Trumbull Catchment	SW¼ SEC. 26 T35N R8W	"	10

The other consideration needed is to make all existing livestock waters available to mule deer. The direction given in a district manager memo dated 5/8/75 concerning wildlife access to livestock water developments on NRL should be implemented in this habitat area (See Appendix 1).

The following two waters need particular attention:

Sawmill Tank: Sec. 1 T34 N R9W. This is an important water for wildlife including deer and turkey. The net wire fence with two barb strands on top is a hindrance to wildlife using this water source.

Big Spring Pipeline: Sec. 31 T34N R8W. This line provides water for deer on summer range near Slide Mountain. Steps should be taken to insure the line is not shut off during the critical months May through September.

Space - Deer densities are generally low over the entire "Arizona Strip" The exception occurs on the summer range where deer concentrate.

Total deer population estimates are of questionable accuracy. However, some estimates are needed to evaluate the deer forage demand on the habitat area. In January 1975, steps were taken to make a wildlife forage allowance for the Arizona Strip District, in accordance with manual requirements and Instruction Memorandum No. 74-397 (Washington). Based on the best data available and in discussion with Arizona Game and Fish personnel, it was determined that 6,000 deer would be a reasonable number to make forage allowances for in Game Management Unit 13, of which Mt. Trumbull Habitat Area is a part. Based on total acreage within the three deer habitat areas of Unit 13, the following table of acres, percent total and deer numbers was formulated:

Habitat Area	Acres	Percent	No. Deer
Black Rock	367,917	35	2,116
Parashaunt	397,247	38	2,284
Mt. Trumbull	278,206	27	1,600
TOTALS	1,043,370	100	6,000

After conducting an indepth analysis of the Mt. Trumbull Habitat Area it was found necessary to include an additional 160,392 acres in the planning for this habitat. This will necessitate a revision of the original forage allocation estimate for each habitat area. The Mt. Trumbull habitat would now make up 36% of the total and the estimated total deer population in an average year would be 2,160. There are a total of 438,598 acres in the habitat area and a deer density of one deer per 203 acres. This amounts to .2 deer per section (sq. mile).

The following is from Technical Supplement 1601.6:

"In Arizona, Swank (1958), estimated deer-carrying capacity of chaparral ranges to average 10 (range 5 to 30) per square mile. The actual density was about 70 deer per square mile of occupied habitat. The usual stocking rate for cattle was given as seven head per square mile. North of the chaparral zone the deer density on entire yearlong range was up to 26 per square mile, but winter concentrations reached 60 deer per square mile."

It would appear that deer densities for the habitat area are not in excess of other areas. Crowding is probably not a significant factor, only competition for food and water.

The previously discussed deer population estimates of 2,160 should not be construed as any kind of an upper limit only a figure to base forage allocations at the present time. Deer numbers should be limited by forage production of the habitat area. Future increases in forage due to land treatment, fires or livestock management should be allocated so as to satisfy an increased wildlife demand should herd expansion beyond the 2,160 number occur.

The potential deer herd of this unit could be increased 100% to 4,320 deer for a density of 6.4 deer per sq. mile.

Management Framework Plan Direction

The major portion of the habitat area occurs with the Vermillion Planning Unit. The following guidance comes from the Vermillion Management Framework Plan (MFP).

Proposal #7 Provide water for wildlife in dry areas.

Proposal #17 Allow only 50% utilization in pastures containing critical watershed, crucial wildlife or travel influence zones of Highway 89A and Tuweep Road.

(All area 6,000' and above were designated as crucial to wildlife.)

Proposal #34 Clear small areas and plant forage species to enable increased wildife production. This treatment should be confined to sagebrush and juniper areas.

Proposal #38
"Commerical timber will be managed and harvested under a management plan directed to preserve the natural beauty of the area for recreation, with emphasis on wildlife habitat improvement, featuring the Kaibab squirrel, mule deer and wild turkey. Man-made facilities will be kept to a minimum and dispersed properly to stay within a primitive surrounding."

A small portion of this habitat area lies within the Grand Wash P.U. The following directive comes from the Grand Wash MFP.

Proposal #5 Establish a rest-rotation grazing system for livestock on all areas used in common by deer and cattle.

Proposal #6 Provide water for wildlife where suitable feed is available and water is limited.

Management Recommendations:

Based on the preceeding analysis and Management Framework Plan Directives, the following recommendations are made.

1. Manage the Mt. Trumbull area to provide habitat for 4,200 head of mule deer and maintain a healthy viable herd.

2. Manage livestock grazing within the habitat so as to improve the habitat for mule deer in accordance with guide lines on page 26 of this analysis. Limit livestock utilization of forage to 50% of key species within key areas within summer range.

3. Develop 23 water catchments to provide needed water for mule deer and other uses where practical.

4. Plow and reseed 300 acres of "parks" in Mt. Logan area as wildlife food "patches".

5. Insure that other vegetative manipulation projects meet criteria on page 24 of this analysis.

6. Take steps to insure water is safely available for wildlife at livestock water facilties. The waters on the attached list need special attention to provide for mule deer needs. (See page 30).

1. Wright, Owen, History of the Arizona Strip, Arizona Strip District, Bureau of Land Management files.

2. Patton, D. R., 1974, Patch Cutting Increased Deer and Elk Use of a Prime Forest in Arizna, Journal of Forestry, Dec., 1974.

3. McCulloch, Clay Y., 1973, Control of Pinyon-Juniper as a Deer Management Measure in Arizona, Final Report, Arizona Game & Fish Project No. 2-78-R.

4. William, R. M., and W. F. Currier, 1971, Applied Landscape Management in Plant Control. In McCulloch, 1973 #3 above.

5. 1974, Species Life History and Habitat Requirements of Mule Deer, Bureau of Land Management Manual, Tech. supplement 6601-6.

D. PREDATORS

The following analysis will deal with the mammalian predators; mountain lion, coyote, bobcat, desert gray fox, kit fox, badger and ringtail cat. The effects of predators on the other wildlife species is a controversial subject. Mountain lions are uncommon in the habitat area. Lions do regularly prey on mule deer, however, at their present number, they probably have no significant effect on deer numbers.

Coyotes are fairly common throughout the area. Livestockmen report some coyote predation on their calves each year. Coyotes are also known to kill mule deer in this area. The important question is not whether they do or do not kill deer, but what effect they have on the overall deer population. Ongoing research dealing with this problem is in progress in several states. The findings of this research should help us understand this coyote-mule deer relationship better. Since the Executive Order in 1972 banning the use of toxicants on federal land, there has been no effective means of controlling coyotes. Some local authorities have expressed the opinion that the restriction placed on BSF& W poisoning program in the early 1960's made them ineffective.for significantly lower coyote predation. If this were the case, the decline of the deer herd in Unit 13 would coincide with the decrease in the predator control program's effectiveness since 1960.

The other predator species are generally not suspected of any significant damage to game species. The bobcat may occasionally take a fawn or young mule deer, or turkey.

Hunting of predators is an important use of this area. When other game seasons are closed, people enjoy calling predators in this area. This type of hunting activity ranks second only to big game hunting.

Predators have a positive value which is hard to define. In recent years fur prices for the larger furs (coyote, fox and bobcat) have increased greatly. This has resulted in an increased interest in trapping these animals for their pelts. In an attempt to determine the number of animals taken and the value of the fur, a cooperative study was made by the BLM and Arizona Game and Fish. All known trappers were contacted concerning the number of animals taken and average price per pelt. This information was tabulated for the entire Arizona Strip District for the winter of 1973-74.

Species	No. Taken	Average Value	Total Value
Coyote	664	$25.00	$16,600.00
Bobcat	277	70.00	19,390.00
Fox	163	12.00	1,956.00
Badger	53	0.00	0.00
		TOTAL	$37,946.00

When considering the recreation values of predators (calling and nonconsumptive), plus the economic value of the pelts, we must recognize they are an important and valuable resource to at least one segment of the public. When predators were causing damage to big game, such as mule deer, or to livestock, the usual reaction was to get rid of the predator. The predator has usually been considered to have only a negative value. Future management should be more objective. Predator control has a cost in the control effort itself, and loss of a wildlife resource. Lack of control has a cost in loss of other wildlife and livestock. Predator control should be planned with specific wildlife objectives in mind, such as:

1. Allowing establishment of introduced animals.
2. Cutting losses of fawns in important mule deer fawning areas.
3. Helping a herd come back after other factors have severely reduced it. The old philosophy of a continual and all-out war on predators to favor other wildlife species is not in keeping with BLM policy on wildlife. The following is part "A" of the Manual policy statement.

> "A. Administer the public lands on a multiple use basis for the benefit of all wildlife with particular emphasis on the protection and restoration of the habitat of rare and endangered species."

The Manual definition of wildlife is as follows:

> "Wildlife. Includes all species of mammals, birds, fish, mollusks, crustaceans, amphibians, reptiles, or other progency or eggs which, whether raised in captivity or not, are normally found in a wild state. Feral horses and burros are excluded."

Generally practices which increase numbers and densities of prey species, such as rodents and rabbits, will encourage predator population increases.

1. Management Recommendations

More information is needed concerning predator and prey relationships. A cooperative study or predators on the Arizona Strip with the Arizona Game and Fish or a university, would be a means of acquiring better information.

The harvest of predators for fur and sport should be encouraged as a means of reducing predators in problem areas.

Effective methods or reducing predator populations are needed as a management tool to enhance other wildlife values.

The positive values of predators for recreation, fur, and as a natural population control of other wildlife species, should be carefully weighed against predator damage prior to approving any control effort.

E. SMALL GAME

The small game animals which will be included in this discussion are:

1. Cottontail rabbits
2. Gambel Quail
3. Mourning Doves
4. Bandtail Pigeons
5, Chukar

Data on hunter pressure and kills for Unit 13 are lacking. Hunting of small game species is on a small scale and often a secondary activity of the big game hunter during the deer season. Because of the need for a nonresident hunting license, plus the poor roads, hunting pressure by local people is very low. In years of good quail population, more people are willing to hunt Unit 13. Although overall hunting pressure for small game is light, it is still an important secondary activity for people hunting deer, cutting firewood or Christmas trees, or just sightseeing. If better small game densities were produced, more people would be attracted to the area for hunting.

The high value of small game species for nonconsumptive uses should also be emphasized. Small game species are often seen and are an added interest to the nonhunting recreationist.

1. Cottontail Rabbit

The cottontail occurs throughout the habitat area. Numbers are somewhat cyclic probably affected mostly by climatic conditions.

Of the three habitat components-food, cover and water - cover is the most limiting factor. Where adequate cover, such as brush, downed trees, or rocks occur, cottontails are well established.

Rabbit numbers have greatly increased in areas where trees have been knocked down and left. Burning of the piles has been a common practice. This eliminates the cover for rabbits.

Rabbits eat a variety of grasses, forbs and shrubs. Heavy livestock grazing of course reduces the amount of forage available for the small animals. Much needed cover is also often destroyed by heavy grazing.

Cottontails obtain most of their water requirement from their food. They will drink water when it is available, but it is not a necessary part of their habitat.

2. Gambel Quail

Quail occur in localized areas over much of the habitat. Although generally considered a desert species, Gambel Quail have been seen at elevations above 6,000 feet in the Mt. Trumbull Area.

Studies in Arizona have indicated that Quail numbers are dependent on winter or spring moisture. A lush growth of annuals in the spring stimulates mating and nesting activity.

An abundance of annual vegetation and brush or tree cover are necessary for good Quail habitat. Water is heavily used by Quail when available. However, water is not limiting as Quail can get sufficient moisture from their food. Studies in southern Arizona showed Quail could go through their life cycle without free water. Where water occurs, it should be made available for Quail, but not developed just for them.

Management practices which increase annual seed production and cover would favor Quail. Inclusion of such species as rye that produce large seeds and some brush species for cover in reseedings would benefit Quail. Heavy grazing may favor annual vegetation in the beat-out areas, but then livestock eat most of the annuals produced. Light to moderate grazing which allows maximum seed production would favor Quail the most.

3. Mourning Dove

Doves are the most common game bird of the area. They nest throughout most of the habitat, from the blackbrush areas to the ponderosa pine zone. Doves begin migrating south in the fall, but some doves have been seen using reseeded areas up until December. Some doves may stay all year in the lower areas below the snow level.

Doves are capable of foraging over a wide area. Like quail, doves prefer disturbed areas where annual vegetation produces abundant seeds. Doves are capable of utilizing very small seeds. The following is from Techn. Supplement 6601-4:

> "Feeding Behavior. Mourning doves are seed eaters; about 98% of their food consists of seeds and the remaining 2% of animal matter is probably taken by accident or mistaken for seeds. The weakly developed feet determine the feeding behavior. Doves do not scratch in the litter for food as do most upland game birds, nor do they cling to upright stalks or seed heads. They feed on seeds which are lying exposed on the surface of the ground."

Water is a necessary habitat requirement for doves. Due to their flying ability they can go a long way to obtain it. If all livestock and wildlife waters are made available to doves, this should adequately provide for their needs.

Seeded areas attract doves in substantial numbers. Species which produce abundant seeds such as yellow sweet clover and annual rye would improve the food provided for doves.

Doves have a fast reproductive rate. Each pair may have six or more young each year. Therefore, they respond rapidly to habitat improvement.

4. Bandtail Pigeons

Bandtails occur in the higher elevations of the habitat area during the summer months. Bandtails occur in the higher elevations of the habitat area during the summer months. Bandtails have a very low reproductive rate. Often only one young is raised per year. This coupled with market hunting in the early 1900's brought the species near extinction. They are now a legal game bird in Arizona. The population is believed to be fairly stable at present.

Bandtails are seed eaters. During periods of heavy mast crops they will migrate into these areas. The acorns produced by gambel oak and turbinella oak are probably very important to pigeons within the habitat area. The nuts of pinyon pines may also be an important food item for Bandtails. The larger seeds produced by other plants are necessary to carry the pigeons over between mast crops which are very erratic on the Arizona Strip. Management of livestock to allow seed production by forage plants would help improve food production for Bandtails.

Water is also needed by pigeons. Like the dove , they are able to fly some distance to obtain water. Existing water should be made available by use of ladders or floats.

5. Chukar

In 1949, 200 game farm chukars were released at Fredonia. During 1959-60, 333 chukars from Nevada and California were released in Snake Gulch a tributary to Kanab Creek. They now occur throughout Kanab Creek and up into several canyons on the west side including Hacks Canyon. The Mt. Trumbull habitat area contains other areas where chukar might become established such as Whitmore and Parshaunt Canyons.

The following quote is from "The Chukar Partridge," by Glen C. Christensen:

> "Exotic plants such as red-stem filaree (Erodium cicutarium) and cheatgrass (Bromus tectorum) play a very important part in providing favored foods for the chukar, and cheatgrass is considered by me to be a major factor in influencing habitat desirability in the life cycle of the chukar. It would seem that the early introduction of cheatgrass into the Western United States may well have paved the way for the subsequent introductions and successful establishment of the chukar."

The areas mentioned have an abundance of cheatgrass and filaree. Other vegetation includes sagebrush, blackbrush, cliffrose and juniper.

Topography of these areas is rough and rocky. Numerous steep-walled canyons dissect the area. Chukar seem to prefer rough areas in other states so this should add to the desirability of these areas.

Winter snows would not be a problem in this area, as snow seldom lasts very long except on the north slopes. Cheatgrass usually stays green here throughout the winter if moisture is available.

Chukar are dependent on water during the summer months and are usually found within one mile of it during this time. The catchments proposed for mule deer on the winter range would also benefit chukar. After the proposed catchments are installed efforts should begin to transplant chukar into these areas. Chukar could possible be trapped in Kanab or Hacks Canyon for the transplant efforts.

Chukar currently occur on some 4 to 5 thousand acres of the Mt. Trumbull Habitat Area. There is an estimated 40,000 acres of potentially suitable habitat within the habitat area.

The propsect of introducing an exotic bird like the chukar into other areas of the Arizona Strip may cause concern to some groups. The following questions must be considered.

Is there an unfilled ecological niche into which chukar might fit? This area has been changed somewhat from the pristine or relic condition. Exotic species of plants have invaded the area. Such species as cheatgrass, filaree and russian thistle occur throughout. These species are prime food plants for chukar. Or to put it another way, the invasion of these exotic species has created a niche suitable for chukar. No significant competition is expect to occur between chukar and other native birds.

Will chukar move into "Park Lands"? Chukar in the lower end of Kanab Creek are already inside the boundary of the Grand Canyon National Park. If chukars were planted in the Whitmore Canyon area they also may eventually inhabit Park land.

What value would chukar have in the habitat area? Of course chukar have been successfully established in several western states and have become a popular upland game bird in many areas. Recreational hunting opportunities could be enhanced by establishing them in other areas. They would also add an interesting species of wildlife for the enjoyment of the non hunter. Some purists might resent their presence because they are not a native animal.

The Grand Wash MFP addressed the question of exotic game birds as follows:

Recommendation:

Investigate possibility of establishing exotic upland game species; such as partridge, tinamous, etc.

Rational:

Limited opportunity is presently available to hunt small game in this unit. Establishement of more species and numbers would increase hunting and recreational values. This will not interfere with any of the present uses.

Based on the preceding analysis and MFP direction, the following management recommendations are made:

Management Recommendations for Small Game

All existing and future waters developed should be designed so they are freely available to small game animals.

Livestock Management should include objectives to:

1. Increase seed and forage production of desirable plants.
2. Avoid extreme utilization in pastures to provide for Cottontail and Quail needs. These animals have small home ranges and cannot always move to the "rested" pasture.

Reseeding projects should include species for seed production and cover for small game. Some downed trees and brush should be left for escape cover.

Valuable small game plants which should be included in treated areas if possible:

1. Annual rye (Large seeds attractive to game birds)
2. Yellow Sweet Clover (Large seeds plus succulent forage)
3. Four-wing Saltbush (Large seeds plus good cover plant)
4. Wheat Grasses (Forage production plus some seeds)

Transplant chukar into Whitmore and Parashaunt Canyon areas.

Develop proposed water catchments for deer in a manner so as to also provide for chukar needs in Hacks Canyon and Whitmore Point areas.

F. WATERFOWL

Waterfowl make use of the small water impoundments within the habitat area during spring and fall migration. Such species as avocets, sandpipers, blacknecked stilts and the more common ducks seem almost out of place in the arid lands of the Arizona Strip.

At present these reservoirs supply only a rest stop with very little in the way of food. Livestock use around the reservoir edge keep them bare of any vegetation.



"Water But Little Food For Migrating Waterfowl"

The MFP's for this habitat area identified a potential for fencing reservoirs to allow more productive water fowl habitat to develop around them. Reservoirs could be fenced to allow the banks and shoreline to become vegetated and livestock could have access to only a portion of the shoreline.

Most of the reservoirs in this habitat area were developed by livestock operators under sec. 4 permits. Some operators feel that a reservoir must be trampled by livestock each year to keep it holding water. In order to properly coordinate the fencing of reservoirs, the actual project plans should be worked ou in the Allotment Grazing Management Plan. As far as this analysis can go would be to recommend a few reservoirs be fenced on an experiemental basis as can be worked out in Allotment Management Plans. The potential for improving waterfowl habitat exists but depends on the cooperation of other users.

There is one area around Crosby Detention Dam which has potential for developing water fowl habitat. The dam and dike were built by BLM for erosion control. Fencing the flooded area and developing a few potholes to hold water would be a boon for waterfowl.

Management Recommendation

Develop a plan for potential waterfowl habitat development around Crosby Dam Area, this may include fencing and constructing potholes. This would probably be done as a multiple use plan including water shed and range input. Section 10 and 11 T 35 NR9W.

G. KAIBAB SQUIRREL

The Kaibab Squirrel is a tassel-eared tree squirrel associated with the ponderosa pine types of Arizona, New Mexico, Colorado and Utah. Some authorities recognize the Kaibab Squirrel as a distinct species Sciurus kaibabensis, other consider it a subspecies of the more common Abert squirrel Sciurus aberti (1). The Kaibab squirrel is found only on the Kaibab Plateau an area 30 X 70 miles. Because of its limited range it was listed in the U. S. Department of Interior's 1973 "List of Threatened Wildlife" (Red Book). It is feared that some disease outbreak or disaster could completely eliminate this species.

In an effort to establish the squirrel in another locality and insure its continued existence, a project was begun to introduce Kaibab Squirrels into the Mt. Trumbull area. The following squirrels were transplanted from the Kaibab Plateau to Mt. Trumbull:

No	Date	Sex	
		Females	Males
8	Spring 1972	7	1
2	May 1973	1	1
3	October 1973	2	1
Totals 13		10	3

Four of the females in the original transplant were believed to be pregnant.

The original plans were worked out between the Kaibab National Forest and Arizona Game and Fish. In April, 1974 the administration of the Mt. Trumbull area was transferred to the BLM and became part of the Arizona Strip District.

The original plan between the A.G.& F. and F. S. called for a transplant of 20-40 animals. So far there have been 13. In a telephone conversation with Dave Brown of the Arizona Game and Fish, he indicated they hoped to continue with the original plan. He feels releases in two or three additional sites around Mt. Logan may be needed to improve the chances of success of this introduction effort.

The Vermillion Management Framework Plan (MFP) contains the following recommendations and rational concerning the Kaibab Squirrel and its habitat.

ACTIVITY RECOMMENDATIONS	RATIONAL
Continue attempt to establish the Kaibab squirrel in the Mt. Trumbull area.	This is considered a possible insurance habitat for the survival of the Kaibab squirrel if it can become established here.

These recommendations were approved in the MFP process.

Habitat Requirements

The ponderosa pine provides the basic habitat requirements for the Kaibab squirrel. For the purpose of this analysis it will be assumed that the Abert and Kaibab Squirrel have simular habitat requirements. Abert squirrels live in the ponderosa pine ecosystem and depend on pine for food and cover. Optimum cover conditions are found in pine stands where an average dbh between 11 and 13 inches in tree densities from 200-250 trees per acre (6).



"Kaibab Squirrels Need the Larger Size Ponderosa Pine Trees"

The Kaibab squirrel eats both the seed and twig bark of the ponderosa pine. Nests are also constructed in the branches of ponderosa pine.

Patton found no Abert squirrel nests in pondersoa pine trees less than 8 inches dbh and very little use of feed trees less than 10" dbh (7).

On the Kaibab Plateau basal area of pine was found to be an index to quality of squirrel habitat. Basal areas from 120 to 175 sq. ft. per acre were correlated with nest abundance to rank habitat according to their quality (3). On the Beaver Creek Watershed in Northern Arizona, Abert's squirrels were found to use from 2 to 6 nests within their home ranges (5).

Most of the studies reviewed indicate Kaibab Squirrels are dependent on the native ponderosa pine. Measurements from 538 ponderosa pines

with squirrel clippings underneath showed squirrels prefered trees 11 to 30 inches diameter, breast height. The smallest tree with clippings was 4 inches; the largest, 36. Average diameter of all trees used was 19 inches.

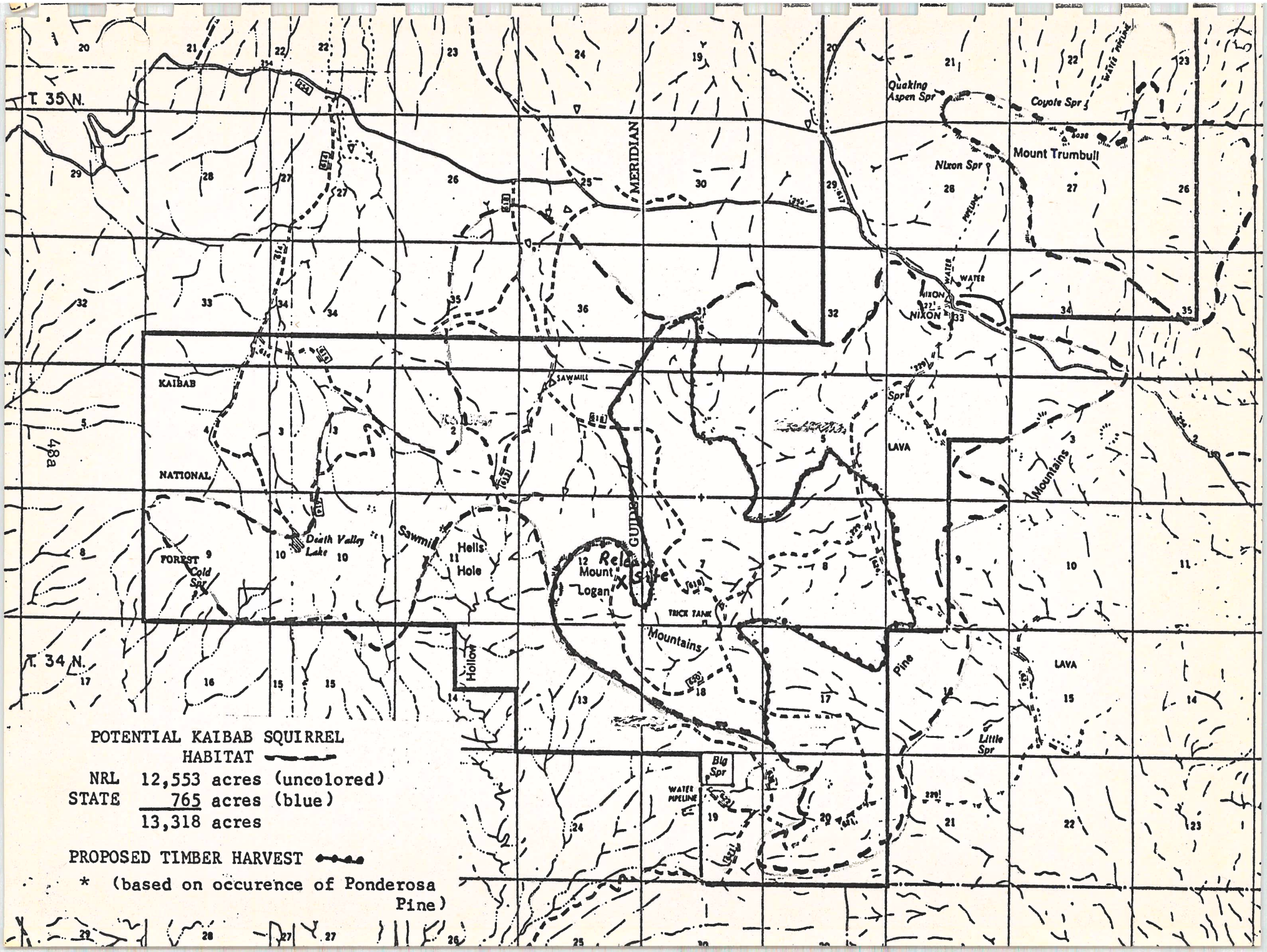
In speaking about his findings, Dr. Patton points out that "Key factors in Abert squirrel habitat are (1) tree density and basal area near nest sites, (2) tree grouping, (3) position of the nest tree crown in the canopy, and (4) size of trees in which squirrels nest and feed.

> "Our data indicate best overall nesting conditions are found in ponderosa pine stands of 200 to 250 trees per acre, or the equivalent of that density for areas less than an acre in size. Average diameter for trees in these stands will probably be 11 to 13 inches. Basal area will be from 150 to 200 square feet per acre.
>
> Squirrels seem to select nest trees near the center of close-knit clumps of pines where interlocking crowns provide a canopy of 80 percent or better above the nest. Nest trees themselves may range from 11 to 22 inches in diameter; trees that are about 15 inches are the preferred size."
>
> "For feeding, Abert squirrels will need to find the slightly larger trees I described earlier," Patton explains. "Ideally, these larger trees would be near the nest site. A mature Gambel oak or two on each acre would also help the food situation." (2)

It is evident that in order to provide adequate Kaibab squirrel habitat on the Mt. Trumbull area the larger mature ponderosa pines are necessary. Unfortunately the same size classes the squirrels prefer are also the most desired for commercial timber harvest. The following section will deal with an analysis of the Mt. Trumbull Area for Kaibab squirrel habitat.

Habitat Analysis

The attached map shows the potential habitat for Kaibab squirrels based on occurrence on ponderosa pine. In a telephone conversation with Dave Brown, Arizona Game & Fish, he stated the area around Mt. Logan was considered the best habitat for squirrels. The area on top of Mt. Trumbull was not rated as high, but is still a likely spot for a release. The far west area around Death Valley Lake is probably marginal, due to scattered ponderosa stands.



POTENTIAL KAIBAB SQUIRREL HABITAT

NRL 12,553 acres (uncolored)
STATE 765 acres (blue)
13,318 acres

PROPOSED TIMBER HARVEST

* (based on occurence of Ponderosa Pine)

The following chart shows the acres and status of potential habitat.

Potential Kaibab Squirrel Habitat

National Resource Lands	12,553 acres
State	765
Total	13,318

(8,400 acres were considered potential in original Forest Service Report).

Patton radio tracked three Abert squirrels and found they had home ranges of 10, 30 and 85 acres. He considered a 10-acre home range in ideal habitat a good estimate. Squirrels home ranges overlap considerably and densities of one squirrel per acre occurred in ideal habitat areas (5). The habitat quality of Mt. Trumbull is probably lower than that encountered on the Kaibab Plateau. There are,13,318 acres of ponderosa pine type, however, the original Forest Service transplant evaluation only considered 8,400 acres of this as being potential Kaibab squirrel habitat. If we assume the habitat capable of supporting only 1/20 the density of squirrels, that an optimum habitat could, the following carrying capacities might be expected.

8,400 acres ÷ 20 = 420 (Forest Service estimate)

13,318 acres ÷ 20 = 650 (Total ponderosa acreage)

Thus habitat may exist to support a population of 420 to 650 squirrels.

Brown's evaluation of the area indicates 2,500 acres of quality squirrel habitat in Mt. Logan Area (8). He stated that this area would support a population greater than 50.

It is difficult to estimate the potential population of squirrels which may be established in this area. However, the figures indicate a potential for a significant population.

Management Needs

The primary need now is to protect the existing ponderosa pine in the area. The area has been cut over in the past. The mature ponderosa pine which remain are the critical element in the habitat of Kaibab squirrels. The following timber management practices have been recommended in the Mt. Trumbull Timber Plan:

1. Harvest of commercial size timber.
2. Thinning of young timber.
3. Control burning.

Each of these items will be discussed separately.

1. Commercial Harvest - The area proposed for harvest is the same area considered to be the best quality squirrel habitat (See map). The harvest of timber would have two adverse effects - (a) mature trees would be removed, and (b) access would be improved resulting in greater people interference with all wildlife species. The chances for Kaibab squirrels being successfully established in this area would be reduced by both of these effects.

2. Thinning - This practice of thinning the pole stands would improve their growth rate and seed production. This would benefit the Kaibab squirrel. However, if access roads are improved to facilitate thining, a negative impact on squirrels may result.

3. Control Burning - The practice of control burning could be beneficial to the squirrels. Heavy brush cover under ponderosa pine stands is not conducive to good habitat. The squirrels prefer the pine stands with little understory except grass. Fire could be used to reduce understory sagebrush, etc. Of course any fire which killed the mature trees would be harmful.

Management Recommendations

1. Continue to cooperate with Arizona Game and Fish in trying to establish Kaibab squirrels in the Mt. Trumbull area.

2. Protect existing mature ponderosa pine from commercial harvest or fire to provide habitat for the Kaibab squirrel.

3. Limit upgrading of access roads or other practices which would allow an increase in people pressure into the area.

4. Establish permanent type studies to monitor Kaibab squirrel numbers on the Mt. Logan Area.

1. Burt and Grossenheider, 64. A Field Guide to Mammals, P. 124.

2. USDA Forest Service - 1975, Ponderosa Pine and Abert Squirrels Forestry Research.

3. Ratcliss, Patton and Folliott, Ponderosa Pine Basal Area and the Kaibab Squirrel, Jounral Forestry.

4. USDA Forest Service, Abert's Squirrels Prefer Mature Ponderosa Pine Rocky Mountain Forest and Range and Expt. Sta. Note-169.

5. USDA Forest Service, Nest Use and Home Range of Three Abert Squirrels as Determined by Radio Tracking. Rocky Mountain Forest and Range Expt. Sta. Note-281.

6. USDA Forest Service, Unpublished data on Abert Squirrels.

7. Patton, 1974. Characteristics of Ponderosa Pine Stands Selected by Abert's Squirrels for cover. Ph.D. Dissertation, Univ. of Arizonia, Tucson.

8. Brown, 1970. Re-Evaluation of the Mount Logan and Mount Trumbull Areas as Potential Kaibab Squirrel Habitat. Ariz. Game & Fish Special Report.

H. SMALL NON-GAME MAMMALS

The small mammals in this habitat area are important because of their large numbers, their effect on forage produced and as a prey species for predators. An inventory of small mammals was made in representative habitats of this area. The following data and observations resulted from this study:

Rodent Densities in Representative Vegetative Habitats of the Arizona Strip District.

Based on numbers of rodents trapped in 400 trap nights on each representative vegetative type (Summer, 1975) the following estimates of density were made.

TYPE	# RODENTS/ACRE	LBS. WT. RODENTS/ACRE	LBS. FOOD CONSUMED/YR.
Ponderosa	20	1.13	103
Gambel Oak Ponderosa Woodland	50	2.81	256
Mt. Shrub	44	2.48	226
Pinyon-Juniper	40	2.25	205
Sage Brush (good understory)	68	3.83	349
Blackbrush	30	1.69	154
Grassland *estimated	20	1.13	103
Joshua Tree	20	1.13	103
Creosote Bush	44	2.48	226
TREATED P.J. TYPES			
1. Old (10 y.t)	56	3.15	287
2. New (debris burned)	46	2.59	236
3. New Edge ½ in ½ out PJ	42	2.36	215
4. New Middle of Chaining	240	13.50	1,232

Total Wt. = .9 oz. X # of rodents ÷ 16= lbs. live rodents

Est. Rodents consume 25% of body wt. per day.
Data from Dr. O. J. Reichman, Museum of Northern Arizona, Flagstaff.

*NOTE: This study didn't include rabbits, estimate of forage consumed are for rodents only.

The estimated food consumption figures per acre per year are quite surprising. There are several factors which may bear directly on the validity of these consumption estimates.

1. The population samples were taken in later part of summer which is the normal high point in the annual flucuations. Yearly average population may be lower.

2. The food consumption rate of 25% of body weight per day may be affected by periods of inactivity in winter.

3. Rodents often cut down plant stems to get to seed heads. Thus more forage may be damaged than the 25% indicates.

4. The majority of the rodents in all types were of the genus Peromyscus. They feed primarily on seeds and fruits. Insects also are a significant part of their normal diet. Succulent plant material may be important during dry periods.

This study data indicates small mammals may be utilizing a large portion of the total forage produced in any habitat type. Vegetative manipulation has a big impact on rodent populations as evidenced by densities of 40 per acre in undisturbed P.J. to 240 per acre in a newly chained area with a variety of seeded forage species. Much of the increased forage resulting from chainings may be utilized by increased rodent population.

The small rodents are primary prey species for about all of the predators of this area from eagles to coyotes to gopher snakes. These species will benefit from practices which increase their prey base.

Practices such as reseedings or improved grazing management which result in an increased production of forage plants will increase the overall animal density of this habitat.

No management recommendation will be made concerning small mammals however they will benefit from the recommendation made for other species.

I. NON GAME BIRDS

The variety of habitat types within the Mt. Trumbull Habitat area is reflected by the variety of nongame birds found here. There are 230 species expected to occur within this area and 140 species have been verified as occurring. There are seven different species of woodpeckers which occur in the pine forests around Mt. Trumbull. When the 13 species of warblers, 13 species of sparrows and 14 species of raptors are considered the great variety of birds found here becomes more impressive.

Some of these birds such as the Mountain Plover, Feruginous Hawk, Bald Eagle and Peregrire Falcon are rare, threatened, or endangered and therefore deserve special consideration.

The best way to protect or enhance nongame birds is to protect the native ecosystem on which they depend. Because of the large number of different species involved, this analysis will have to be in the general ecosystem approach, rather than consider specific needs of each bird species.

The following habitat change agents will be discussed as they relate to nongame birds:

1. Livestock Grazing
2. Timber Harvest and Management

1. Livestock Grazing - Livestock grazing occurs over the entire habitat.

Grazing has caused changes which were detrimental to the native ecosystems. Unmanaged livestock grazing tends to decrease the diversity of plants occurring as a result of the most palatable plants being killed by overuse. As plant diversity decreases, the diversity of bird life decreases. However, not all species of birds are harmed by overgrazing, horned lark and mourning doves prefer the annual vegetation which is encouraged by overuse. Light to moderate grazing pressures produce only slight effects on bird population.

Grazing Management systems which will allow native communities to recover will benefit nongame birds. This is especially true if utilization is grazed pastures is light to moderate. Bird populations respond to small changes in habitat that easily go unnoticed by man. The seed production in rested pastures or litter left when grazing is light to moderate may be highly beneficial to the needs of some bird species. More information is needed to determine grazing effects on birds.

Range Improvements

Conversion of brush and tree types to more desirable forage species has been a common practice within the habitat area. The following discussion is from Buttery and Shields (3).

> "Type conversion can be beneficial or detrimental to bird habitat, depending upon the extent, pattern, availability, and stage of maturity of the type, its successional stage in the climax community, and whether it provides for specialized habitat requirements of certain bird species. Probably no other practice provides such abrupt changes between vegetative types as type conversion. These abrupt changes produce what is well known to wildlife biologists as "edge effect." The most diverse and dense bird populations are often found in the ecotone of two contrasting vegetation types (Lay, 1938, Johnston and Odum 1956, Johnston 1957)."

The existing land treatment areas should be studied and their effects on bird populations should be evaluated. New land treatment projects should be designed so as to maximize edge effect and species diversity. No more than 1/3 of the total acreage of a type should be treated so complete types are not changed.

Water Developments

Water is a scarce commodity on the Arizona Strip. It should be made safely available for bird use at every opportunity. The waters which have been developed in the Mt. Trumbull Habitat area receive heavy use from birds. Water development is a good opportunity for improving the habitat.

2. Timber Harvest and Management

The ponderosa pine areas of the District are important habitat for a variety of birds. Timber harvest or improvement practices have a potential for significantly altering their habitat. Generally timber management will be applied to (1) Improve the stand by removing undesirable trees and, (2) To harvest timber on a sustained yield basis. The area of greatest concern for birds lies in the removal of so called undesirable or high risk trees. Snags used for nesting by cavity nesting birds fall in this category.

Cavity nesters are divided into two categories those that excavate their own holes such as woodpecker and "secondary cavity" nester which depend on holes made by other birds. Some typical secondary cavity nesters of our area include western bluebird, Mountain chickadee, sparrow hawk and several of the small owls. There are at least 41

species of birds which nest in tree cavities in the forest types of Arizona and New Mexico 95). So far 17 cavity nesters have been verified as occurring in the Arizona Strip.



"Home For a Cavity Nester"

Over 80% of the cavity nesting birds eat insects associated with trees. Balda found secondary cavity nesters contribute 56 to 108 breeding pairs per 100 acres of ponderosa pine (4). This amounted to from 40 to 55 percent of all breeding pairs in the type. In winter secondary cavity nesters contribute 63 to 73 percent of all winter residents. Thus the major consumption of forest insects larve and eggs during the winter months is done by secondary cavity nesters (4). It would seem therefore that any consideration on the part of the timber manager to optimize habitat for cavity nesting birds would yield benefits of better forest insect control.

The next obvious question is how many snags are needed for bird habitat. Balda (4) recommends 27 snags per 10 acres. Fairly uniform spacing between snags is also desirable. Rather than having 27 in one acre andnone in the remaining 9.

For the purposes of cavity nesting birds a snag should be a dead or dying tree 10' dbh or greater.

The following 7 considerations are very pertinent to the management of ponderosa pine on the Arizona Strip. (These are from Balda (4).

"Cautions and Other Consideration."

1. This report deals solely with the secondary cavity nesting species of the Southwestern coniferous forest. It does not incorporate data about other species that use snags for hunting perches or cache sites. The Goshawk, a relatively rare raptor, uses snags for nest-sites and hunting perches. The Acorn and Lewis' Woodpeckers both cache acorns and other foods in dead snags. A recent survey (pers. observ.) reveals that Lewis' Woodpeckers used dead snags exclusively for caching whereas Acorn Woodpeckers use Dead and dying snags for about 80 per cent of their caching.

2. Because snags are transient and eventually disintegrate and fall, they are of value to secondary cavity nesting species for only a limited number of years. Thus, it is necessary to leave trees in the pine forest that will become suitable snags in the future. Severe timber cutting at this time can be detrimental to the cavity nesters in the future.

3. This report does not allow extra snags for winter roosts because we believe ample snags will be available after the summer residents depart in the fall. In this regard, our snag density figures could be conservation.

4. The Starling, an introduced species, is now rapidly invading the ponderosa pine forest of central Arizona. Winter records from Flagstaff have shown a yearly winter increase of from 13 to 65 per cent in some years. In the past 11 years the Starling has changed in status from a rare winter visitor to a common winter visitor. Nests have been found in snags in the vacinity of Flagstaff, Our secondary cavity nesting species cannot compete behaviorally for cavities with Starlings. If present trends continue, secondary cavity nesters will not be able to maintain stable populations if any snags are removed.

5. One might argue that secondary cavity nesting species can use the same holes numerous times for nesting. This usually does not happen, as nestlings tend to foul the cavity and attract parasites. Also, constant use of the same hole may attract predators. Thus, holes apparently must remain unoccupied for some time between nestings.

6. In the mixed coniferous forest some species of cavity nesters seem especially attracted to Aspen. In this soft wood some excavating can be done by nuthatches. The role of Aspen to secondary cavity nesters needs special consideration. The same is true for Gambel Oak.

7. Some primary cavity nesting species (those that excavate their own nesting holes) are particular to dead snags. For example, of eight Red-shafter Flicker nests found near Flagstaff, seven were located in dead snags. In the Chricahua Mountains, 57 per cent of the Red-shafter Flicker nests were in snags and 100 per cent of the Acorn Woodpeckers nests were also in snags. Snags are valuable to these species, and removal below suggested densities may also effect these two insectivorous species."

The timber management program can be compatible with the needs of non-game birds if a diversity of age classes is maintained and sufficient trees are left to supply the needs of cavity nesting species. Where possible 27 snags should be left per 10 acre and 27 to 54 overmature trees or trees expected to become snags in the near future. Trees which have little to no economic value such as wolf trees, spike tip, etc. could be left for bird use. The important thing is for the forest manager to leave enough live trees to insure an adequate supply of snags in the near future.

Ponderosa pine snags are also sought after by people gathering fire wood. The number of snags near existing roads have greatly diminished in the last few years. The long term impacts of any new road construction or major upgrading of existing roads would be adverse to wildlife values in this area. Steps should be taken to protect the remaining snags either through permit restrictions or signing for public education.

Endangered Species

The endangered species discussed earlier are not known to nest in this area. They are mostly winter migrants. Of course if any nesting efforts were discovered, then precaution to protect the site from human disturbance would be necessary. The main concern of current management should be toward managing present habitats to provide a diversity of vegetation and prey species. Properly designed P-J chainings greatly increase the small rodent population. These areas are favorite raptor hunting grounds. Suitable perching trees increase the use of these areas by raptors.

Management Recommendations for Non-Game Birds

1. Manage livestock grazing toward protection and improvement of native vegetation types. Rest rotation systems can accomplish this if heavy grazing use is not allowed in used pastures (do not exceed 50% utilization of key species in key areas.)

2. Vegetative manipulative projects should be carefully designed to create maximum edge effect. No more than 1/3 of a type should be treated. A diversity of plant species should be seeded following the treatment.

3. Water Developments - All water should be equipped so as to be safely available for bird.use. Additional water should be developed in presently dry areas.

4. The needs of birds should be carefully considered in any timber harvest operation. Where possible the following trees should be left uncut.

    1. 27 snags (10" DBH & above) should be left per 10 acre tract.
    2. 27 to 54 live trees which are expected to die and become snags in the next 20 years or which presently provide nesting cavities should be left per 10 acre tract. Live trees left to become snags could be those having alot of defect which are of low value for commercial purposes.

5. Steps should be taken to protect snags from cutting for firewood. Signs should be erected to educate and warn public about cutting of snags. Wood permits should contain stipulation prohibiting the falling of snags for firewood in ponderosa areas.

6. Initiate studies to monitor trends in bird populations, effects of water developments and importance of cavities.

Non-Game Bird Literature Review

1. Thomas & Others, 1975, Silvicultural Options and Habitat Values in Coniferous Forests, USDA Gen. Tech. Rpt. WO-1*.

2. Wiens, 1975, Rangeland Avifaunas: Their Composition, Energetics, and Role in the Ecosystems USDA Gen. Tech. Rpt. WO-1*.

3. Buttery & Shields, 1975, Range Management Practices and Bird Habitat Values, USDA Gen. Tech. Rpt. WO-1*.

4. Balda, Russel P., The Relationship of Secondary Cavity Nesters to Snag Densities in Western Coniferous Forests, USFS, Albuquerque, New Mexico, Techn. Bul. No. 1.

5. Scott & Patton, 1975, Cavity Nesting Birds of Arizona and New Mexico Forests, USDA, FS Gen. Tech. Rpt. RM-10.

*NOTE: USDA Gen. Tech. Rpt. WO-1 is a publication of papers presented at a Symposium on Management of Forest and Range Habitat for Non-Game Birds.

J. ENDANGERED SPECIES

The BLM's responsibilities for implementation of the 1973 Endangered Species Act are spelled out in Section 7 of the Act. The following exerpt is from a Washington Office Instruction Memorandum (74-348).

> "Section 7 of the Act specifically relates to Bureau programs in that each Federal agency is charged with the task of taking such actions necessary to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species, or result in the destruction or modification of habitat of such species."

No endangered species are known to occur within the habitat area. It is suspected that the Southern Bald Eagle and Peregrine Falcon may be occasional visitors to the area. Appendix 1 contains a list of all species considered rare or threatened which may occur in the area.

Ongoing efforts to monitor the occurrence of endangered and threatened wildlife within the habitat area needed. The management recommendations of habitat improvement and water development will have no adverse effect on threatened or endangered wildlife. The habitat area's net productivity and diversity of wildlife species should be enhanced by such measures.

EAR NO. AZ-010-6-106

ENVIRONMENTAL ANALYSIS RECORD

MT. TRUMBULL HABITAT MANAGEMENT PLAN

A. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This EAR is prepared so as to analyze the environmental impacts of implementing the Mt. Trumbull Habitat Management Plan (HMP). The Mt. Trumbull Habitat Area includes some 438,598 acres of the Arizona Strip. A habitat analysis of this area was made in 1976 to determine the needs of wildlife. All major wildlife species were considered in this analysis. Management recommendations were developed to meet the following objectives:

General = The overall goal of the Mt. Trumbull Habitat Management plan is to improve and protect wildlife habitat. Attainment of this goal will increase the diversity and abundance of wildlife species for consumptive and nonconsumptive recreational use.

Specific Objectives

1. To increase the carrying capacity of the habitat from the present 2,160 deer yearlong to 4,320 deer yearlong by improving the habitat. A corresponding increase in the deer herd is expected which will increase consumptive recreation use from present 2,500 hunter days to 5,000 hunter days by 1996.

2. To maximize turkey population through protection and improvement of existing turkey habitat.

3. To increase the production of quality forage for wildlife by establishing livestock grazing management systems keyed to the productivity of plants important to wildlife, based on elevation, by 1986.

   a. Above 6,000 feet, increase forb densities from a trace to five percent, and grasses from five percent to fifteen percent.

   b. Below 6,000 feet, increase the density of cliffrose, bitterbrush, and ceanothus from ten percent to 20 percent.

4. Construct 26 new wildlife waters based on HMP implementation schedule.

5. To manage areas above 6,000 feet elevation and wildlife waters as crucial wildlife habitat.

6. To increase the mule deer production and fawn survival rate from the present five year average of 30 fawns per hundred does to a five-year average of 75 fawns per hundred does by 1996.

7. Establish a viable Kaibab Squirrel population within all suitable habitat.

8. Establish Chukar in Whitmore and Parashaunt Canyons.

9. Protect and enhance existing habitat to insure a continued diversity and abundance of nongame birds.

10. To plow and reseed 600 acres of barren parks in the Mt. Logan area for wildlife food patches.

Alternatives to this proposed action could be very complex. Each objective could have several alternatives, however, the objectives are based on guidance from the Vermillion Managment Framework Plan which was updated in June 1976. There are two main alternatives:

1. Partial implementation of the plan.

   This could involve the development of the proposed waters, but allow no plowing and seeding, or one species such as mule deer could be emphasized and objectives for other species could be discarded.

2. No implementation

   This alternative would violate the guidance of the Vermillion MFP.

B. DESCRIPTION OF THE EXISTING ENVIRONMENT

1. Air: The air quality of the habitat area is generally high except when pollution drifts up from the Las Vegas or Los Angeles Areas.

2. Land: The habitat area contains all types of terrain from the steep and rugged Pine Mountains to the gently rolling country around June Tank. The soils of the area vary from shallow to moderately deep. Soil type, depth and rock content have a controlling influence on the vegetation they will support.

3. Water: Water is a critical element in this habitat area. There are no perennial streams in the area. There are several springs which exist and their flows vary between less than one gal/min. to five gal/min. from Big Spring.

Reservoirs for livestock use have been constructed in many areas. These reservoirs are occasionally dry and not dependable for wildlife use.

Catchments for wildlife use have been constructed. With adequate storage, these facilities are dependable water sources.

4. Vegetation: A variety of plant communities exist in the area. Generally grasslands occur at lower elevations and Ponderosa Pine at high elevations. The following table gives the acres in each type:

Vegetative Type	%	Acres
Grassland	5	21,930
Sagebrush	25	109,650
Pinyon Juniper	65	285,088
Ponderosa Pine	5	21,930
	100	438,598

As the table indicates, Pinyon Juniper is the major vegetative component. These areas are often dominated by trees to such an extent that little forage is produced by forbs, grasses and shrubs in the understory.

5. Animals: The Habitat Area is inhabited by a variety of wildlife. Common mammals include mule deer, coyotes, cottontail rabbits, and rock squirrels. There is a good representation of bird life, warblers, wrens, sparrows, jays and woodpeckers. Common birds of prey include Coopers hawk, red tail hawk and Golden Eagles. Common reptiles include western rattlesnakes, western whiptail lizards, sagebrush lizards and short-horned lizards.

6. Ecological Interrelationships: The soils plus the climate interact in determining the type and production of the various plant communities within the habitat area. There are two main periods of precipitation; winter and summer. Droughts are frequent and severely limit plant growth. Deep-rooted shrubs and trees are favored by this precipitation pattern and tend to become dominant on suitable sites. Shallow-rooted forbs and grasses are a small but important part of the composition of Pinyon Juniper sites.

The past abuse of the area by livestock, combined with successional trends toward shrub and tree dominance, have resulted in large expanses of sagebrush and Pinyon Juniper communities. These communities have little diversity and are low producers of wildlife forage.

Management of such types to improve the variety of plant species and their production will benefit wildlife populations. Wildlife species can rapidly respond to favorable habitat changes. As the plant communities become more diversified and more productive, wildlife species will become more diversified and productive.

Water is a limiting habitat element in this area. The development of additional waters will open up some areas to additional species of animals. This may cause competition between established species not needing free water, such as wood rats and those needing water, such as mule deer.

When considering any change in a habitat, it must be realized that it will probably benefit some animals and harm others. Actions which increase the diversity and productivity of habitats should be considered beneficial as long as rare or endangered species are not adversely affected. To increase the net production and diversity of plants will have a similar effect on wildlife. As insect and other small animal populations increase, animals on the next step of the food chain will increase in numbers and possibly in species. Avian, mammalian and reptilian predator numbers will respond to an increased food supply.

Livestock and wildlife compete for the forage plants produced. As livestock come under sound grazing systems, plant production will increase. If livestock numbers are not increased proportionately, a greater amount of forage will then be available for wildlife use.

7. Human Values: The habitat area has many demands by man for such pursuits as grazing livestock, hunting, sightseeing and camping. Most users other than livestock interest put a high value on the primitive nature of the area.

Archaeological evidences are numerous within the habitat area. This will necessitate careful layout of projects to protect these values.

C. ANALYSIS OF PROPOSED ACTION AND ALTERNATIVES

1. ENVIRONMENTAL IMPACTS

a. Anticipated Impacts

The following discussion will deal with the elements impacted by the proposal as identified by the attached check list.

(1) Air Pollution: The plowing and seeding of six-hundred acres will expose the soil to erosion for a short period. The water development will also cause some short term soil disturbance.

(2) Soil Structure: The proposed plowing will improve the soil structure.

(3) Soil Erosion: The soil will be exposed to erosion between the time of plowing and the establishment of the seeded species.

(4) Land Use Compatability: The character of the land lends itself readily to providing wildlife habitat. Increasing wildlife numbers will have an adverse impact on other uses of the land such as domestic livestock grazing and logging.

(5) Sediment Land: The soil disturbance involved in plowing will increase the possibility of water erosion for a short period.

(6) Grasses: The grass composition will be increased by the plowing and seeding.

(7) Forbs: Forbs will also be increased by reseeding. However, as wildlife numbers increase forbs will be utilized more for food.

(8) Shrubs: The plowing will kill some of the sagebrush and locust which presently exists. Increase in wildlife numbers, especially mule deer may cause overuse of some shrubs such as bitterbrush.

(9) Trees: The establishment of the Kaibab Squirrel will cause an impact on the Ponderosa Pine which they utilize for food. The habitat needs of the squirrel will limit some silvicultural practices which would improve the growth rate of thin timber stand. The removal of diseased or overmature timber will be curtailed.

(10) Mammals and Birds: The objectives of the HMP are to enhance the habitat of mammals and birds.

(11) Aquatic Birds: The protection and development of aquatic habitat will have a positive impact on aquatic birds.

(12) Reptiles: Overall the objectives of the HMP will have a positive impact on reptiles. The plowing however may have a short term negative impact as dens may be destroyed.

(13) Man: The plowing and seeding will have a short term negative impact on scenic value. The restrictions on camping to minimize conflicts with wildlife during their reproductive season may have a negative impact on the recreation experience of users during this time. The increase in the density and diversity of wildlife species will increase the opportunities for recreation uses.

(14) Succession: The plowing will set plant succession back, but will provide suitable conditions for the re-establishment of some plant species that have been removed by destructive grazing in the past. An increase in wildlife numbers may contribute to overuse of some areas.

(15) Food and Community Relationships: Existing food chains will be enhanced. Water developments in presently dry habitat will allow their utilization by a greater variety of animals. More net plant production will result as a greater diversity of plants are obtained. Increased competition may result between present livestock use and wildlife. The competition between animal species which need water and those that don't may increase. The overall effect will be an increase in the diversity and density of wild animals in this habitat area.

(16) Harmonious and accentuating Landscape Features: The water catchment construction and plowing will disrupt the natural landscape to a small degree. In the case of the plowing the disruption will be for a short period. The increase of wildlife species will add desirable qualities to these two elements of the landscape. The construction of a water catchment on Mt. Trumbull will have a negative impact on the primitive value which presently exists.

(17) Educational and Scientific: Several methods of improving habitat will be used to implement this HMP. These will include re-vegetation, water catchment construction and livestock grazing manipulations. The success or failure of these methods will add to our knowledge of habitat improvement practices.

(18) Cultural Values: The cultural values in the Mt. Trumbull area are very high. Any construction activity or land treatment practice could impact some of these archaeological sites greatly.

(19) Attitudes and Expectations: This effort by BLM to improve wildlife habitat will have a beneficial effect on the general attitude of the public toward BLM. Those who view BLM as a livestock grazing dominated agency may take notice of this AMP effort. To some user groups concerned with livestock or timber this effort will be counter to their interests. Some will question the value of establishing the Kaibab Squirrel in the Mt. Trumbull area and possibly postponing any further timber cutting.

(20) Social Welfare: Constraints on livestock grazing and timber cutting associated with wildlife habitat management and protection will decrease the economic benefits to the local economy arising from this area. The increase in wildlife and associated recreation opportunities may partially mitigate this loss. However, in monetary terms to the local economy, the expected losses will out-weigh any economic gain. The successful establishment of the Kaibab Squirrel on Mt. Trumbull area will improve the prospects for the subspecies survival. This may in turn allow less restrictive logging practices on the historic range of the squirrel on the Kaibab Plateau. If this happens there could be an overall increase in money flow into the local economy. Therefore, there may be a loss to the local economy in the short term and possibly an increase in the long term.

b. Possible Mitigating or Enhancing Measures

(1) Locate all water development projects so as to minimize their visual impact. Keep fence clearing to a minimum.

(2) Lay out proposed plowing sites with aid of the Recreation Planner to minimize their visual impact.

(3) Design water catchments to make them fit into the natural landscape. Particular attention is needed for the Mt. Trumbull catchment.

(4) Study Ponderosa Pine stands and Kaibab Squirrel needs to determine how much timber harvest can be allowed and still maintain suitable squirrel habitat.

(5) Allow some camping outside the planned campground in the Mt. Trumbull area during summer period.

(6) Clear all development sites prior to any disturbance. If archaeological values are found, the project should be relocated.

(7) Correlate all developments with other resource specialists to insure their input.

c. Recommendations for Mitigation or Enhancement

(1) Carefully locate all water development projects as to minimize their visual impact. Keep fence clearing to the minimum needed for construction. The Mt. Trumbull Catchment will require special consideration. The following criteria will apply.

(a) Location will be coordinated with Recreation Planner.

(b) Apron will be designed so as to appear as natural as possible.

(c) All work will be with hand tools.

(d) No fencing will be required.

(2) Correlate the location of plowing sites with other resources to insure multiple resource input.

(3) Study the Kaibab Squirrel needs in the Mt. Trumbull area to determine if timber harvest can be allowed.

(4) Allow camping outside the Trumbull Campground along the scenic corridor during the summer period. Camping could be allowed along the Logan road north of the allotment fence boundary Sec. 5 8W3NW.

(5) Conduct a thorough cultural resource clearance of all proposed construction or plowing sites. Any significant value will be avoided.

d. Residual Impacts

(1) Competition between wildlife and other users such as livestock will increase.

(2) Opportunity for timber harvest will be diminished.

(3) Additional man made facilities will be placed on the land.

2. RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

The short-term use will be considered as 5-10 years as the HMP is implemented. The proposed habitat improvement projects will have an effect on scenic values.

The long-term objective of improving wildlife habitat and increased density and diversity of wildlife species is well worth the short-term expenditures. An increased opportunity for wildlife-related recreation pursuits will be a long-term benefit. An improved habitat for possible future use of such endangered species as the Bald Eagle and Peregrine Falcon may result. The improvement in waterfowl habitat will also be a step to reverse the presently occurring losses of such habitat. The establishment of the Kaibab Squirrel will help to insure the survival of this animal.

3. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposal calls for development and management of the habitat area for the benefit of the wildlife resource. No irreversible commitments of resources are being proposed.

D. RECORDATION OF PERSONS, GROUPS, AND GOVERNMENTAL AGENCIES CONSULTED

The habitat analysis and formulation of management recommendations for a Habitat Management Plan are in compliance with directives given in the Grand Wash MFP and Vermillion MFP, which was compiled with public participation. The Arizona Game and Fish Department and personnel of the Arizona Wildlife Federation were also consulted. Members of the local Dixie Wildlife Federation have also been consulted.

E. INTENSITY OF PUBLIC INTEREST

Public interest is of low-to-moderate intensity in this action. As the proposals are implemented, more interest will be generated.

F. PARTICIPATING STAFF

An interdisciplinary team approach was used in filling out the work sheet. The District Wildlife Biologist compiled this analysis, based on written and oral comments received in the team effort. The following specialists participated:

Wayne B. Erickson - Recreation Planner
Larry R. Oldroyd - Chief, Division of Resource Mgmt.
Dennis R. Carter - Surface Protection Specialist
Ferron L. Leavitt - Vermillion Area Manager
Garold W. Lamb - Shivwits Area Manager
Gary L. Fullmer - Environmental Coordinator

G. SUMMARY CONCLUSION

The analysis is considered to be a sufficient indepth look at the environmental impacts of the proposed HMP. No significant public controversy is expected. The residual impacts have been mitigated to an acceptable level consistant with the District Management frame work decision.