1956

Colorado Breeding Pair Report, Jack R. Grieb

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Refuge Manager, Monte Vista Refuge, Monte Vista, Colorado

DATE: July 5, 1956

2-R

FROM : Regional Supervisor, Branch of Wildlife Refuges, Albuquerque, New Mexico

SUBJECT: Colorado Breeding Pair Survey Report, 1956

For your information we are enclosing a copy of a report on breeding pair survey, 1956, by Mr. Jack R. Grief, covering waterfowl nesting in Colorado.

George E. Barclay

Attachment

FISH & WILDLIFE SERVICE
Monte Vista Refuge
JUL 9 1956
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COLORADO BREEDING PAIR SURVEY REPORT, 1956

By

Jack R. Grieb

June 11, 1956

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Introduction

The 1956 breeding-pair surveys were conducted within the period May 14 to June 1. During this time, ground counts were made in the Yampa Valley and Brown's Park, and aerial counts in the South Platte, Cache la Poudre, and San Luis Valleys, and North Park. Counts in South Park were dropped from the regular survey areas this year because of the small counts usually recorded which were not worth the time and effort spent.

The following report briefly summarizes 1956 breeding conditions in Colorado for regions where permanent study areas have been established, and compares it to past records for the same areas.

Personnel cooperating on the 1956 count were: U. S. Fish and Wildlife Service, Ken Baer, Jim Robinson, and Ray Buller; Colorado Game and Fish Department, Sam Clifford pilot, Don Neff, and Jack R. Grieb.

Weather and Water Conditions

Because of the abundance of winter snows, and early spring rains, all of the important breeding areas in Colorado had good to excellent water conditions this year. It is believed that these conditions approach normal, and in some areas above normal. The one exception was Brown's Park where sloughs and marshes remained dry, similar to last year. However, at the time of this writing the Green River has overflowed its' banks and refilled these areas. Consequently, the water outlook for next year will be much improved.

Results

Examination of the duck breeding-pair estimates by area, (Table 1), revealed that: (1) The San Luis Valley was below the 1955 estimate and equal to the 1954 estimate despite what appeared to be increased water areas. This could have been caused by an abundance of water elsewhere in the State which permitted the birds to spread out this year. (2) North Park showed a substantial increase over 1955 with estimates similar to those of 1954, but still under the banner year of 1953. Water conditions were also much improved in North Park with marginal potholes and marshes filled with water for the first time in several years. (3) The South Platte Valley had a good increase in duck population over 1955, similar to the estimates for 1954. Water conditions were not as improved here as elsewhere. (4) The breeding population in the Cache la Poudre Valley showed a substanial increase over the years

1952, 1954, and 1955 which was similar to the excellent year of 1953. Water conditions were greatly improved in this area. (5) The Yampa Valley showed a tremendous increase in population over the past four years. Undoubtedly due to the excellent water conditions, but effected somewhat, perhaps, by the lateness of spring which prevented some birds from moving into the high country and causing them to concentrate in this area until higher elevations opened. (6) All marshes and sloughs in Brown's Park were dry this spring, and very few birds were using the river. The 1956 count was the lowest ever recorded for this area. Considering all areas, 1956 duck breeding populations show an increase of 18.6 per cent over 1955, and 11.0 per cent over 1954.

Table 1.-- Summary of Colorado Breeding Ground Conditions, 1956

Area	Total Estimated Breeding Pairs				
	1952	1953	1954	1955	1956
			Ducks		
San Luis Valley	--	--	6744	7504	6576
North Park	--	5676	3808	2881	3844
South Platte Valley	--	--	2188	1072	1803
Cache la Poudre Valley	1029	1619	1320	1164	1518
Yampa Valley	1790	1500	1540	2260	4126
Brown's Park	291	372	217	48	15
White River Plateau 1/	580	480	--	--	--
South Park 1/	--	431	195	145	--
Totals			16,012	15,074	17,882
			Geese		
Yampa Valley	120	130	110	20	84
Brown's Park	21	12	8	15	6
Totals	141	142	118	35	90

1/ White River Plateau not run because much snow remained in the area at the time of the count. South Park not covered due to insignificance of area and weather conditions at the time of the flight.

The Yampa Valley--Brown's Park goose flock showed a good increase in population this year over last, but still under the previous years of 1952, 1953, and 1954. Many non-breeding birds were noted which will mean an ultimate production under that indicated by the breeding populations. Preliminary results of an intensive goose nesting study initiated in this area this spring also indicate that past estimates of goose numbers may have been high. Total counts of geese obtained by this study will be used to correct the sample counts so that future estimates will be more accurate. In general, it is believed that the reduction in bag limits last year not only in Colorado, but in the major wintering area in the Imperial Valley of California has helped this flock.

Species composition of the duck breeding population was very similar to past years (Table 2). Mallards still make up the bulk of the breeding birds (41.7 per cent) and no other species make up more than 10 per cent of the total number. Gadwalls retained their increased status of 1955, and both redheads and scaups were increased over previous years.

Table 2.-- Species Composition of the Colorado Breeding Population, 1956 1/

Species	Number			Species Composition Per Cent		
	1954	1955	1956	1954	1955	1956
Mallard	11,295	9,633	11,027	70.4	63.9	61.7
Blue-winged teal	886	600	1,010	5.5	4.0	5.6
Pintail	873	750	710	5.5	5.0	4.0
Gadwall	852	1,874	1,495	5.3	12.4	8.3

Table continued

Table 2.-- Species Composition of the Colorado Breeding Population, 1956 1/ Cont'd.

Species	Number			Species Composition Per Cent		
	1954	1955	1956	1954	1955	1956
Baldpate	552	211	376	3.4	1.5	2.1
Shoveller	542	220	387	3.4	1.5	2.2
Cinnamon teal	442	509	862	2.8	3.4	4.8
Green-winged teal	220	407	406	1.4	2.7	2.3
Redhead	109	352	807	0.7	2.3	4.5
Scaup	99	369	556	0.6	2.4	3.1
Ruddy duck	48	44	12	0.3	0.3	0.1
Bufflehead	-	-	12	-	-	0.1
American Merganser	114	105	222	0.7	0.7	1.2
Totals	16,012	15,074	17,882	100.0	100.0	100.0

1/ Data derived from permanent transect records for the 1956 season. Data are corrected for unidentified pairs.

Summary

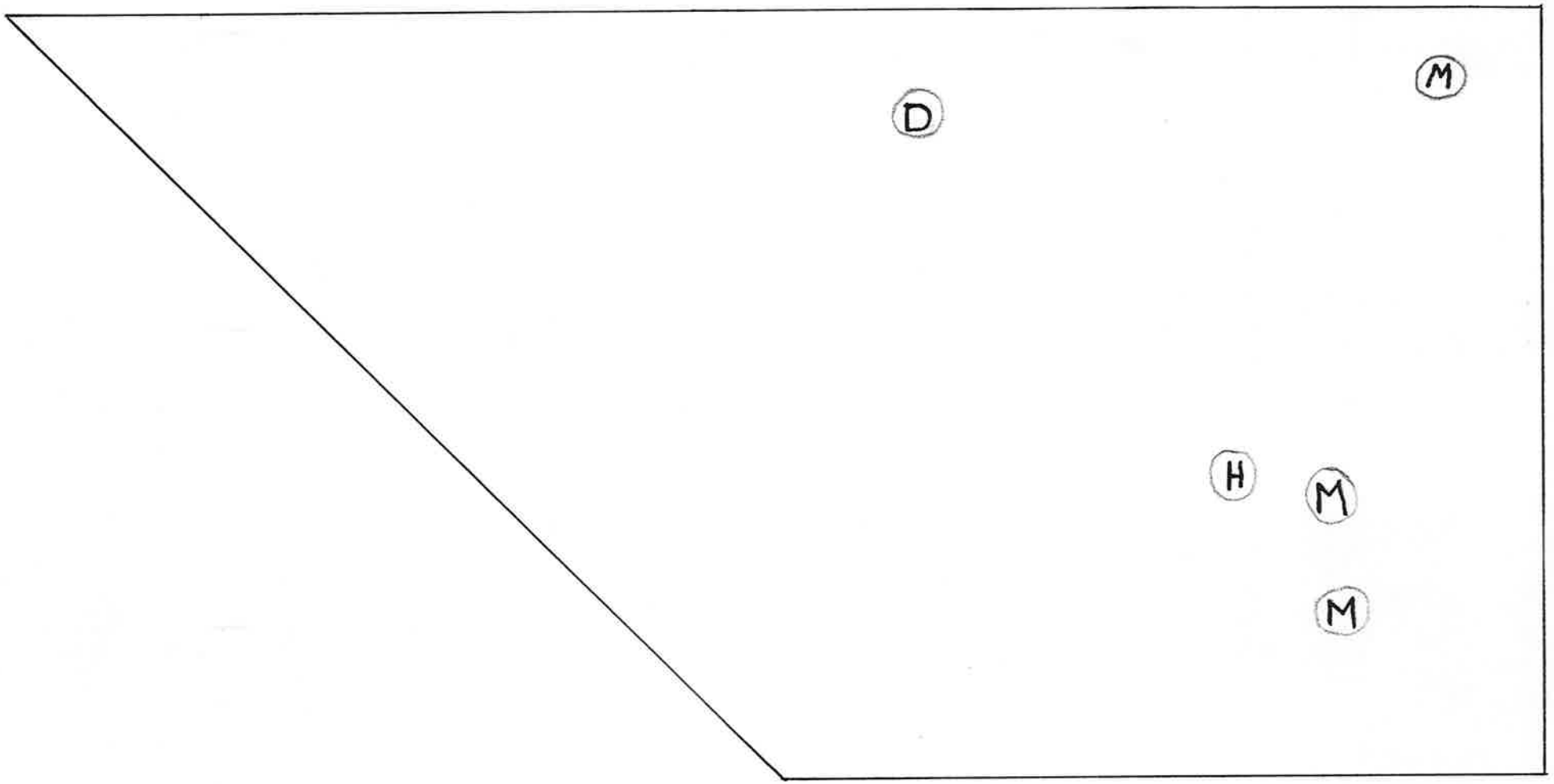
1. The 1956 breeding-pair surveys were conducted during the period May 14 to June 1 on permanent study areas in all important waterfowl breeding grounds in Colorado.

2. Weather and water conditions were much improved over 1955 being good to excellent in all areas except Brown's Park.

3. Considering all areas, 1956 duck breeding populations show an increase of 18.6 per cent over 1955, and 11.0 per cent over 1954.

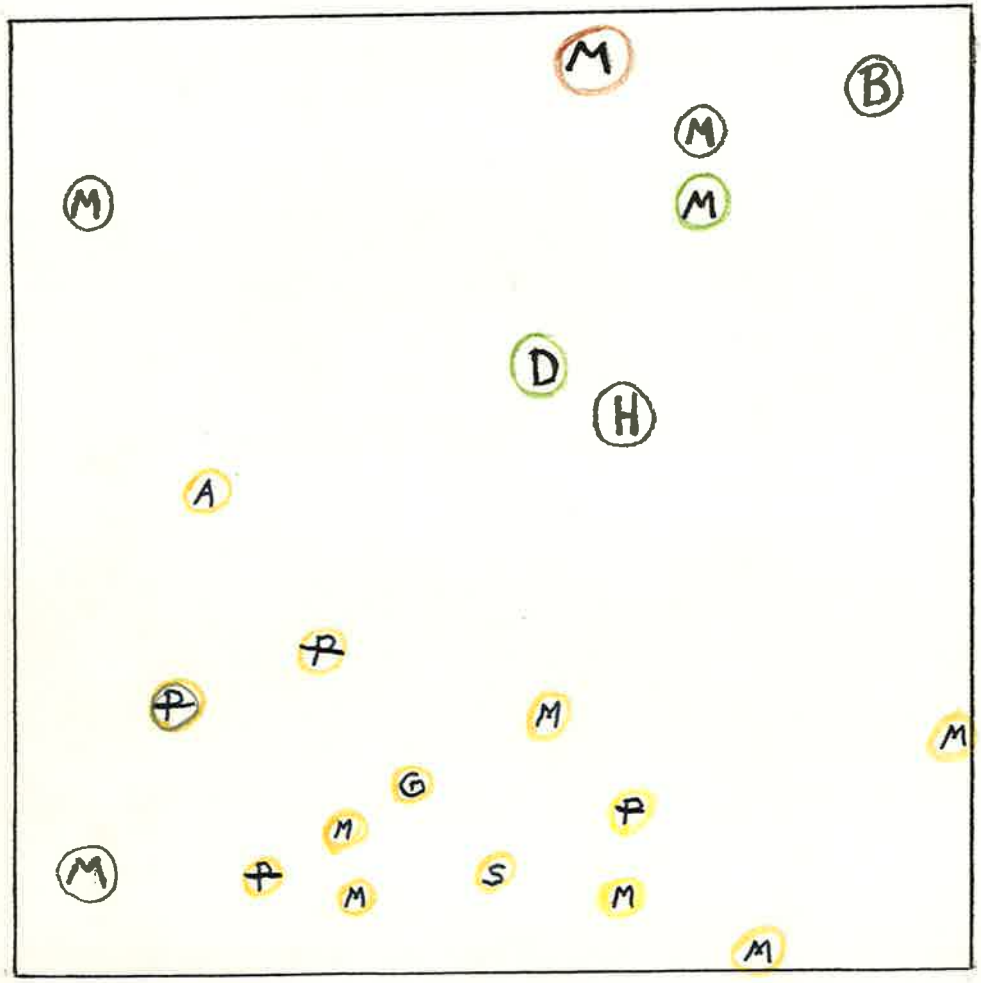
4. The Yampa Valley--Brown's Park goose flock showed a good increase in population this year over last, but still under the previous years of 1952, 1953, and 1954.

5. Species composition of the duck breeding population was similar to past years, with gadwalls, redheads, and scaups slightly above normal. The mallard is the most important nesting species making up 61.7 per cent of the total breeding population.



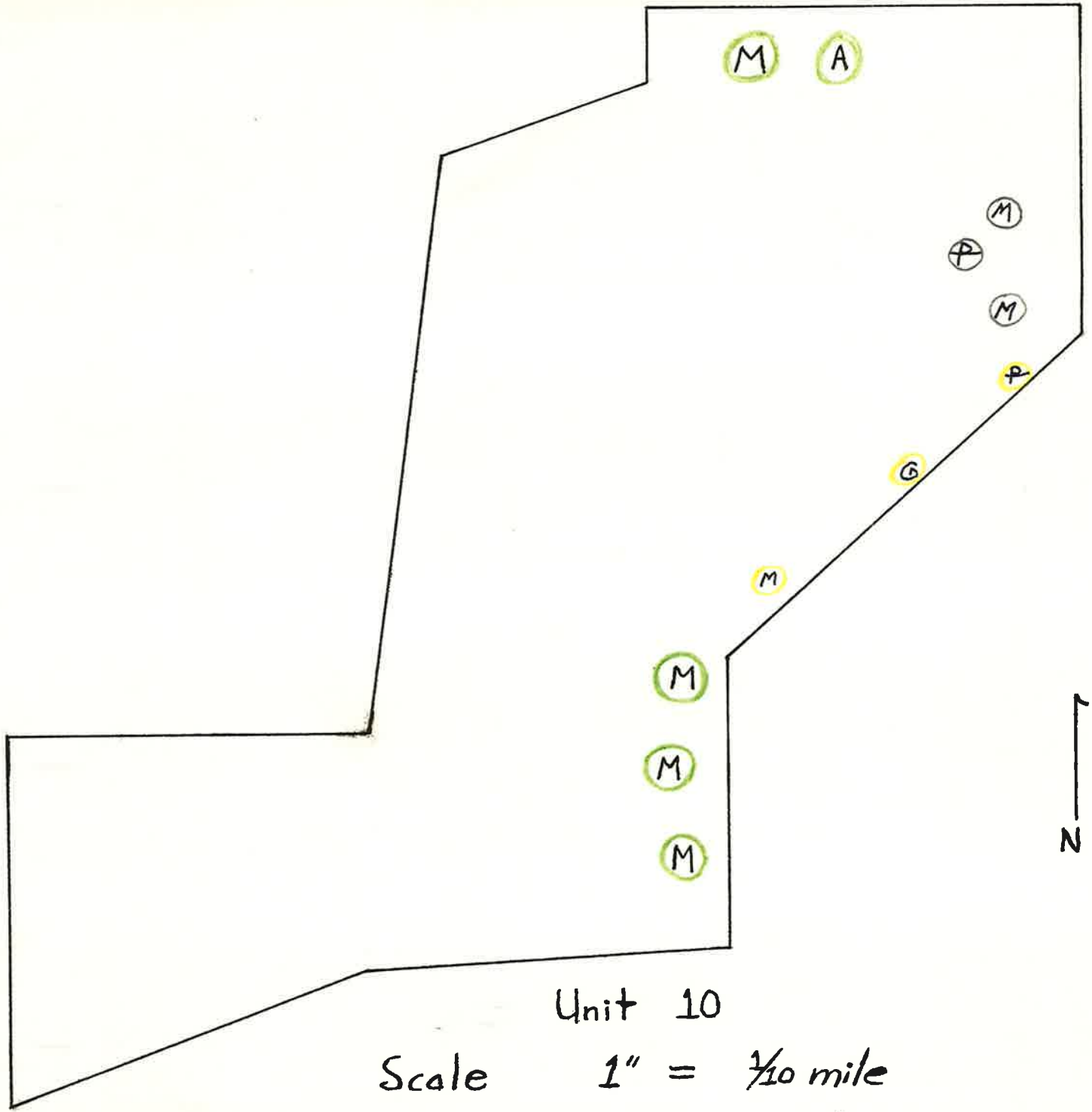
Unit 14

Scale 1" = ⅒ mile



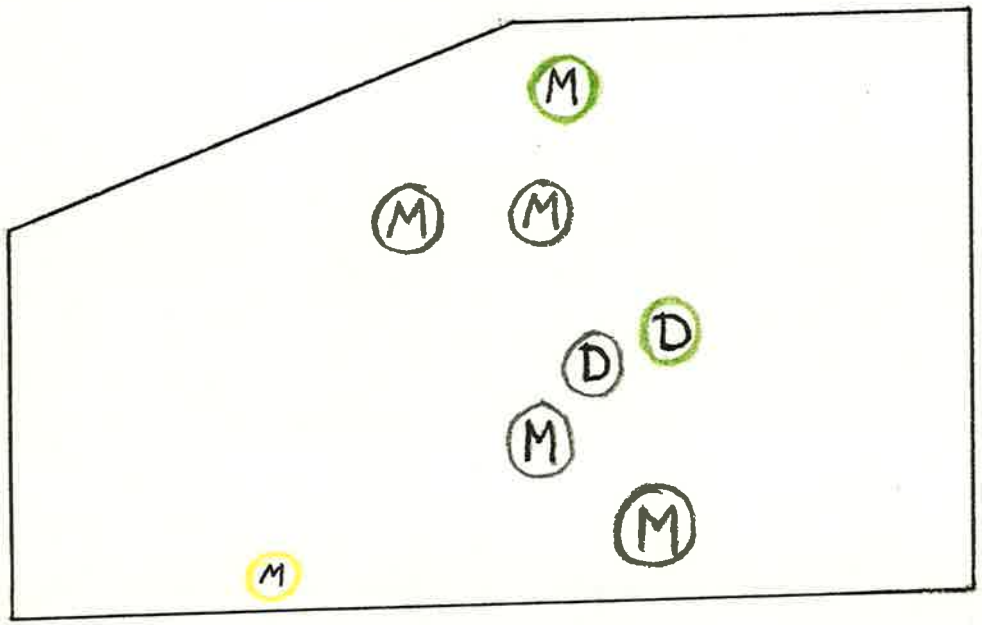
Unit 12

Scale 1" = 1/10 mile



Unit 10

Scale 1" = 1/10 mile



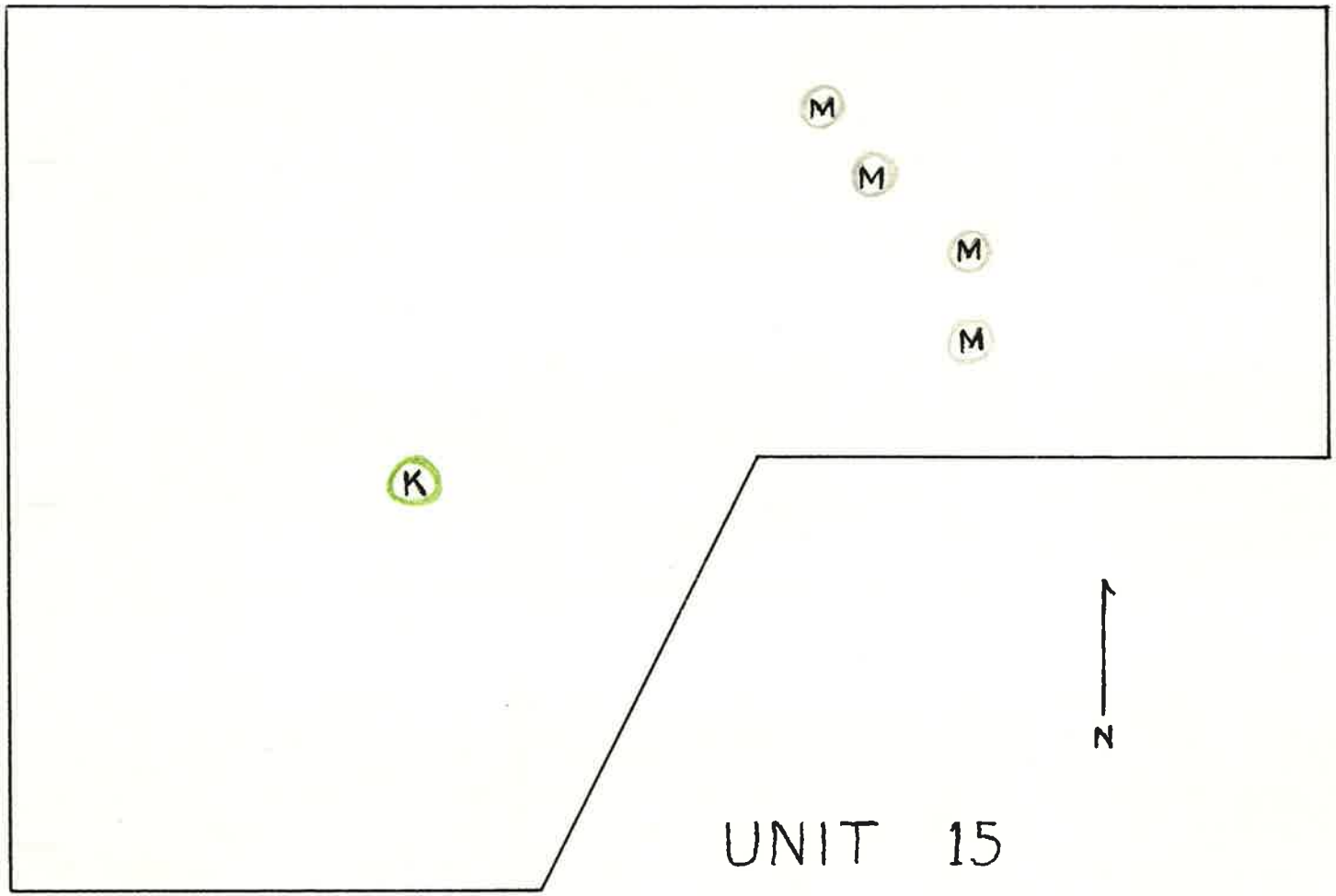
Unit 9

Scale 1" = 1/10 mile

Legend

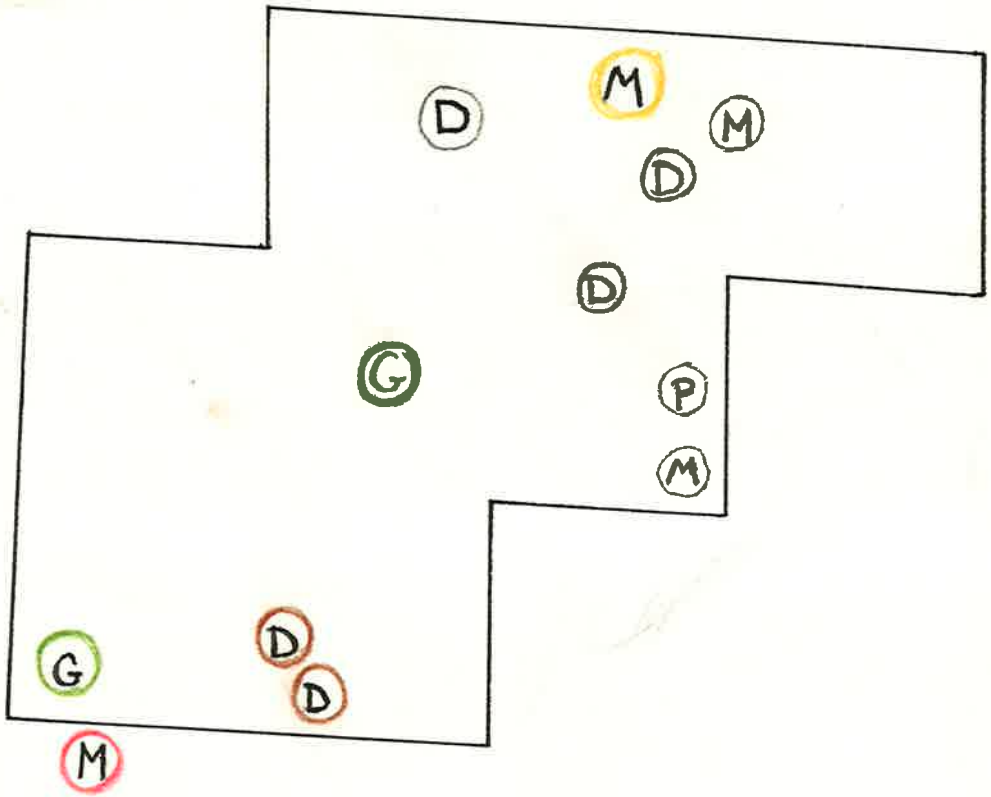
- Greasewood
- Sedge
- Rush
- Canadian Thistle
- Cattails

G – Gadwall
M – Mallard
P – Pheasant
D – Dove
A – Avocet
H – Hawk
K – Killdeer
B – Bittern
~~P~~ – Pintail
S – Shoveler



UNIT 15

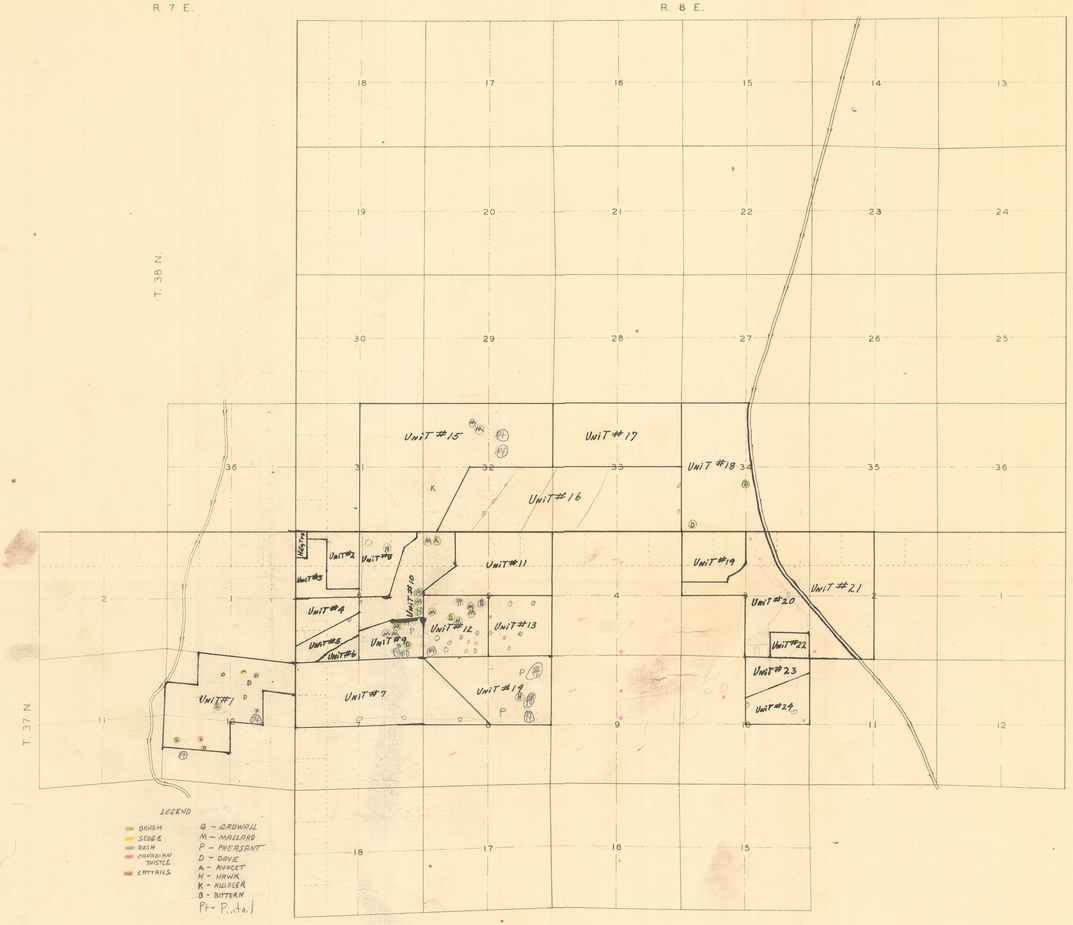
SCALE 1" = 2/10 mi.



N

Unit 1

Scale 1" = 2/10 mile



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

PROPOSED
MONTE VISTA NATIONAL WILDLIFE REFUGE

RIO GRANDE COUNTY
COLORADO
1949

SCALE 2 IN. = 1 MILE
NEW MEXICO PRINCIPAL MERIDIAN

	BY	DATE
BASE	W.A.B.	7-49
FIELD WK.		
CHECKED		

Vegetative Cover Map

LEGEND

M-1 Carex sp.

M-2 Sarcobatus vermiculatus

M-3 Alopecurus pratensis

M-4 Eleocharis sp.

M-5 Juncus sp.

M-6 Distichlis stricta

M-7 Scirpus validus

M-8 Menodora scabra

M-9 Sisymbrium sp.

M-10 Scutellaria galericulata

M-11 Typha sp.

M-12 Agrostis sp.

M-13 Sidalcia neomexicana

M-14 Lactuca sp.

M-15 Trifolium repens

M-16 Beckmannia syzigachne

M-17 Plantain

M-18 Cleome Sonorae

M-19 Sium suave

M-20 Bromus inermis

M-21 Agropyron smithii

M-22 Allium sp.

M-23 Lepidium latifolium

M-24 Chenopodium album

M-25 Potentilla anserina

M-26 Kochia scoparia

M-27 Orthocarpus luteus

M-28 Trifolium procumbens

M-29 Calamagrostis inexpansa

M-30 Verbena bracteata

M-31 Verbena macdougalii

M-32 Spartina gracilis

M-33 Phleum pratense

M-34 Typha sp.

M-35 Spheralcea coccinea

M-36 Mentzelia decapetella

M-37 Convolvulus arvensis

M-38 Mirabilis linaris

M-39 Gaura coccinea

M-40 Agropyron elongatum

M-41 Dracocephalum nuttallii

M-42 Sisyrinchium demissum

M-43 Sparganium sp.

M-44 Cirsium canadensis

M-45 Helianthus sp.

M-46 Mimulus pilosa

M-47 Mentha arvensis

M-48 Rumex sp.

OENOTHERA

M-49 Onagra longissima

M-50 Asclepias

M-51 #1. Plant collection

M-52 #2. " "

M-53 #3. " "

M-54 #4. " "

M-55 #5. " "

M-56 #6. " "

M-57. #7. " "

M-58 #8. " "

M-59 Lepidium draba

M-60 Bidens cernua

M-61 Aster rubrotinctus

M-62 Polygonum persicarius

M-63 #9. Plant collection

M-64 Salicornia rubra

M-65 Echinochloa crusgalli

M-66 Lycopus lucidus

M-67 Cleome serrulata

M-68 Iris missouriensis

M-69 Salsola kali

M-70 Sparganium eurycarpum

M-71 Scirpus paludosis

M-72 Gentiana thermalis

W-1 Potamogeton pectinatus

W-2 Sagittaria sp.

W-3 Lemna minor

W-4 Zannichellia palustris

W-5 Ranunculus circinatus

W-6 Polygonum amphibium

W-7 Alisma sp.

W-8 Callitriche hermaphroditica

North East 1/4 Section 31.

Pond #1 Water clear, 30". Aquatic vegetation probably 50%: difficult to determine due to Green Algae covering 97% of the surface. From several samples taken of the aquatic vegetation it is estimated that composition is 50% W-1, and 50% W-4.

Bank vegetation 100%: M-3, 70%; M-28, 20%; M-26, 5%. Some M-16, M-5, M-4, M-47, M-62, M-17, M-67.

Pond #2 Water clear, 4". Water covering only 40% of the bottom, Aquatic vegetation 45%: W-5, 60%; W-1, 30%; W-4, 10%. Bank vegetation 100%: M-3, 75%; M-26, 15%; M-16, 3%; M-62, 3%. Some M-24, M-4, M-5, M-27, M-17, M-45, M-28.

Pond #3 Water clear, 4". Water covering only 30% of the bottom. Aquatic vegetation 5%: W-5, 85%; W-1, 15%. Bank vegetation 95%: M-3, 80%; M-26, 15%; some M-16, M-62, M-45, M-17, M-27, M-47, M-24, M-4, M-5, M-25, M-28, M-44.

Pond #4 Water clear, 48". Aquatic vegetation 5%: W-1, 50%; W-4, 50%. Surface 98% covered with Green Algae. Banks and bottom very rocky. Bank vegetation 100%: M-28, 30%; M-45, 30%; M-26, 30%; M-20, 5%. Some M-62, M-67, M-16, M-48, M-51, M-25, M-29, M-56, M-5.

Fence Row Cover

The East, South, and West boundaries of this quarter have no fence row cover. The North side, however, is bounded by a fence and a county road drain ditch.

Cover of the ditch and fence is as follows: M-26, 30%; M-3, 15%; M-33, 10%; M-16, 10%; M-28, 20%; M-45, 10%. Some M-67, M-20, M-19, M-56, M-18, M-15, M-48, M-5, M-4, M-25, M-23, M-59, M-1, M-50, M-13, M-44, M-49.

An 1,100 foot Artesian well in the North West corner feeds an irrigation ditch which runs the length of the West boundary. Water has been in the ditch only since July 28, 1958, which appears to have not been long enough to establish a distinct vegetative type. Bank vegetation is the same as adjacent areas.

South East 1/4 Section 31.

Fence Row Cover

The North, East, and West boundaries of this quarter have no fence row cover. The South side is bounded by a fence and a drainage ditch for a refuge road. Cover for the South boundary is as follows: total cover, 100%: M-1, 20%; M-5, 30%; M-4, 10%; M-3, 5%; M-56, 5%; M-18, 5%; M-23, 5%; M-6, 15%. Some M-45, M-27, M-58, M-9, M-7, M-2, M-16, M-29, M-68, M-10, M-47, M-48, M-17, M-24, M-26, M-25.

Section 12.
North West, North East, and South West 1/4's

Since these quarters are all traversed by Spring Creek, which unites them in a single riparian cover type, no attempt is made to treat them individually.

North Branch of Spring Creek

From West end of stream to a point 440 yards East. Water cloudy, 24", average stream width 18'. Aquatic vegetation 40%; W-1, 80%; W-4, 20%. Bank soil is spongy black humus; stream bottom soft black silt. Bank vegetation 70%; M-23, 30%; M-5, 20%; M-44, 20%; M-1, 10%; M-45, 10%. Some M-48, M-25, M-13, M-24, M-63, M-67, M-41.

From above point to metal diversion structure. Soil types same as before. Stream now 8feet wide and 12" deep. Aquatic vegetation 60%, same composition as before except for a 4'by 25' patch of W-6. Bank vegetation 100%: M-3, 80%; M-1, 10%; M-63, 5%. Some M-5, M-4, M-21, M-22, M-13, M-48, M-56, M-29, M-47, M-67, M-10, M-29, M-54, M-22.

From diversion structure to East boundary; water clear, 10" deep and 4 feet wide. Aquatic vegetation (submergent) 20%: W-1, 90%; W-4, 10%. Last 35 feet of stream at East end 95% covered with W-3 and traces of W-6. Bank vegetation for North bank 98%: M-2, 85%; M-26, 5%. Some M-6, M-21, M-5, M-23, M-4, M-67. Bank vegetation for South bank 100%: M-26, 50%; M-10, 10%; M-47, 10%; M-25, 10%; M-69, 8%; M-24, 5%. Some M-45, M-56, M-1, M-13, M-5, M-4, M-62, M-63, M-29, M-26, M-44, M-48.

Middle Branch of Spring Creek

At the time this area was mapped, the middle branch was hardly running, and in two weeks time was completely dry.

Vegetation composition is nearly constant for the entire length of this section of the stream. Consequently, cover will be listed for the entire length of this section rather than for separate intervals.

Water clear, 3". Bottom, black silt and slightly pebbly. Vegetation on the exposed areas of the stream bed 75%: M-4, 80%; M-56, 10%; M-1, 5%. Some M-7, M-11, and W-2. Aquatic vegetation 30%: W-1, 80%; W-4, 20%. Good stands of W-3 and some W-6 scattered the length of this branch. Bank vegetation 85%: M-4, 30%; M-1, 10%; M-3, 40%; M-21, 10%; M-56, 5%. Some M-24, M-25, M-26, M-48, M-47, M-67, M-13, M-23, M-22, M-5, M-32, M-70.

South Branch of Spring Creek

Cover types are considerably diversified on this branch of the creek. Therefore cover will be given for 100 yard intervals up to point Z-1 on the map.

Section 12.
North West, North East, and South West 1/4's

South Branch of Spring Creek. From East boundary to a point 100 yards West. Water muddy, 24". Aquatic vegetation 70%: W-1, 50%; W-4, 50%. Scattered traces of W-2, W-6, M-7. Bank vegetqion 100%: M-25, 40%; M-26, 40%; M-4, 10%; M-3, 3%. Some M-48, M-23, M-1, M-5, M-6, M-14, M-24, M-7, M-47, .

100 to 200 yards. Water cloudy, 8". Aquatic vegetation 30%: W-1, 70%; W-4, 30%. Some W-2, and W-6. Bank vegetation 70%; M-25, 40%; M-26, 30%; M-6, 10%; M-4, 5%; M-5, 5%. Some M-47, M-48, M-1, M-16, M-3, M-23, M-44, M-21, M-32.

200 to 300 yards. Water clear, 8". Aquatic vegetation 30%; W-1, 70%; W-4, 30%. Some W-2. Bank vegetation 60%: M-25, 60%; M-4, 20%; M-26, 13%. Some M-6, M-5, M-2, M-48, M-1, M-23, M-44, M-7, M-3, M-13, M-22.

300 to 400 yards. Water clear, 8". Aquatic vegetation 30%: W-4, 30%; W-1, 70%. These conditions hold true up to 350 yards. At this point the stream deepens to 16" of clear water. Aquatic vegetation 60%: W-1, 50%; W-4, 50%. Bank vegetation 100%: M-25, 40%; M-4, 20%; M-26,85%; M-44, 5%; M-6, 5%. Some M-2, M-3, M-1, M-5, M-16, M-23, M-21, M-48, M-47.

400 to 500 yards. Water clear, 8". Aquatic vegetation 85%: W-1, 70%; W-4, 30%. Trace of W-6. Bank vegetation 95%: M-26, 40%; M-2, 40%; M-4, 5%; M-6, 5%. Some M-25, M-48, M-47, M-23, M-3, M-16 M-21, M-5, M-24, M-14.

500 to 600 yards. Water clear, 8". Aquatic vegetation 85%: W-1, 70%; W-4, 30%. Bank vegetation 95%. M-5, 40%; M-26, 40%; M-23, 10%. Some M-56, M-4, M-25, M-48, M-7, M-13, M-14, M-3, M-32, M-21.

600 yards to diversion structure. Water clear, 18". Aquatic vegetation 85%: W-1, 70%; W-4, 30%. Some scattered stands of W-6. Bank vegetation 70%: M-23, 20%; M-2, 20%; M-25, 10%; M-26, 20%; M-6, 10%. Some M-22, M-59, M-29, M-28, M-32, M-21, M-24, M-16, M-7, M-18, M-67, M-48, M-4, M-5, M-44, M-13, M-56, M-45, M-9, M-1, M-58.

From above diversion structure (Z-1 on map) to South boundary of the North West 1/4 of section 12. Stream broadens from an average width of 3 feet to an average width of 20 feet at pool areas. Water clear, 3'. Aquatic vegetation 90%: W-1, 75%; W-4, 23%; W-6, 2%. Bank vegetation 85%: M-22, 50%; M-21, 10%; M-67, 15%; M-3, 10%; M-1, 5%. Some M-45, M-7, M-67, M-24, M-4, M-5, M-56, M-18, M-13, M-48, M-58, M-9, M-23, M-28, M-16, M-25, M-47, M-29, M-44, M-2, M-14, M-27, M-62, M-61, M-50.

From the South boundary of the North West 1/4 of Section 12, to point Z-3 on map. Water clear, 5' deep in poolcenters. Aquatic vegetation 85%: W-1, 75%; W-4, 25%. Considerable amounts of green Algae at edges of pools and on submergent aquatic plants. Traces of M-7 and W-6. Bank vegetation 100%: M-5, 50%; M-67, 20%; M-1, 10%;

Section 12
North West, North East, and South West 1/4's

M-63; 10%; M-13, 5%. Some M-25, M-21, M-44, M-3, M-23, M-56, M-29, M-24.

From Z-3 to Goose Pens. Water cloudy, 3'. Aquatic vegetation 70%: W-1, 60%; W-4, 40%. Banks on this part of the creek are 3 feet tall and vertical. As a result the only true "bank vegetation" to be found here is a 45 foot strip of Salix sp. which is located 30 feet North of Goose Pens.

North West 1/4 Section 7.

Pond #1 Dry. Bank vegetation 100%: M-9, 30%; M-24, 25%; M-44, 30%; M-58, 10%. Some M-15, M-25, M-26, M-48, M-62, M-47, M-27, M-20, M-40, M-46, M-56, M-4, M-5.

Pond #2 Dry. Bank vegetation 100%: M-44, 20%; M-58, 15%; M-9, 35%; M-24, 25%. Some M-48, M-56, M-25, M-27, M-47, M-20, M-15, M-26, M-62, M-40, M-46, M-45, M-2, M-5.

Pond #3 Water muddy, 12". Aquatic vegetation 40%: W-1, 60%; W-4, 40%. Bank vegetation 35%: M-26, 80%; M-9, 8%; M-58, 5%. Some M-27, M-2, M-48, M-4, M-5, M-47.

Pond #4 Dry. Bank vegetation 100%; M-26, 80%; M-58, 5%; M-24, 5%. Some M-56, M-45, M-44, M-48, M-3, M-27.

Pond #5 Dry. Bank vegetation 100%: M-26, 85%; M-3, 5%; M-5, 5%. Some M-40, M-56, M-58, M-27, M-6, M-48, M-46, M-47, M-20, M-29, M-48, M-46.

Pond #6. Dry. Bank vegetation 100%: M-44, 30%; M-24, 20%; M-9, 35%; M-62, 5%; M-20, 5%. Some M-16, M-58, M-47, M-48, M-61, M-49, M-4, M-5, M-56, M-23, M-29, M-27, M-25, M-26, M-45.

Pond #7 Dry. Bank vegetation 95%: M-26, 85%; M-24, 5%; M-58, 5%. Some M-44, M-5, M-4, M-3, M-6, M-20.

Pond #8 Dry. Bank vegetation 95%: M-26, 85%; M-9, 5%; M-58, 5%. Some M-45, M-47, M-48, M-56, M-3, M-20, M-21, M-24.

Pond #9 Water muddy, 12". Aquatic vegetation 40%: W-1, 50%; W-4, 50%. Bank vegetation 10%: M-3, 30%; M-4, 30%; M-6, 10%; M-40, 5%; M-26, 10%. Some M-27, M-58, M-44, M-56, M-48.

Pond #10 Dry. Bank vegetation 100%: M-26, 70%; M-24, 10%; M-29, 5%; M-3, 5%; M-60, 3%. Some M-40, M-58, M-20, M-56, M-48, M-62, M-4, M-5, M-40.

Ditch D-1 Water muddy, 16". Aquatic vegetation 65%: W-1, 60%; W-4, 38%; W-6, 2%. Bank vegetation 100%: M-26, 30%; M-47, 25%; M-25, 20%; M-5,10%; M-48, 5%. Some M-44, M-56, M-1, M-4, M-6, M-11, M-13, M-21, M-45, M-61, M-17, M-9. Scattered traces of W-3 and W-5, in and on the water.

North East 1/4 Section 7.

Pond #1. Water turbid, 14". Aquatic vegetation 80%; W-1, 65%; W-4, 35% Bank vegetation; 95%: M-26, 70%; M-9, 15%; M-24, 10%. Some M-28, M-45, M-25, M-4, M-5.

Pond #2. Water turbid, 12". Aquatic vegetation 60%; W-1, 50%; W-4, 50% Bank vegetation; 100%: M-9, 25%; M-26, 15%; M-24, 60%. Some M-47, M-46, M-25, M-27, M-14, M-4, M-5, M-7

Pond #3 Water clear, 8"; Aquatic vegetation 75%; W-1, 65%; W-4, 35% Bank vegetation; 100%: M-24, 60%; M-27, 5%; M-26, 30%; M-28, 5%. Some M-25, M-4, M-5, M-9, M-47, M-40; several patches of white clover near pond banks (total area of patches about 5 sq. yards).

Pond #4 Dry; scattered traces of M-7 in damp bottom, also some M-25 scattered around edges of bottom. Bank vegetation; M-26, 60%; M-24, 20%; M-25, 3%; M-3, 3%. Some M-45, M-29, M-4, M-5, M-6, M-18, M-46.

Pond #5 Water clear, 6". Aquatic vegetation 40%; W-1, 40%; W-4, 60%. Bank vegetation; 90%: M-26, 70%; M-24, 5%; M-9, 20%; Some M-5, M-4, M-27, M-25, M-46, M-44, M-47, M-48.

Pond #6 Water clear, 5". Aquatic vegetation 20%; W-4, 80%; W-5,20%. Bank vegetation; M-24, 40%; M-26, 30%; M-9, 15%; M-45, 5%; M-3, 5%. Total bank vegetation, 90%. Some M-46, M-4, M-5, M-23, M-48, M-47, M-18.

Pond #7 Dry. Bank vegetation; 90%: M-26, 30%; M-24, 40%; M-9, 10%; M-45, 10%; M-3, 5%. Some M-46, M-4, M-5, M-47; M-48, M-23, M-44.

Pond #8 Dry. Bank Vegetation; 25%: M-26, 45%; M-24, 40%; M-28, 5%; M-45, 5%. Some M-46, M-58, M-14, M-9, M-23, M-44, M-25, M-5.

Pond #9 Water clear, 4". Aquatic vegetation 60%; W-1, 40%; W-4, 60%. Bank vegetation 95%: M-26, 70%; M-24, 20%; M-51, 2%. Some M-27, M-48, M-44, M-28, M-9, M-4, M-5.

Pond #10 Dry. Some M-46 near well and some M-25 scattered over dry bottom. Bank vegetation. 100%; M-26, 80%; M-28, 10%; M-56, 8%. Some M-45, M-5, M-3, M-4, M-49, M-25, M-48, M-40.

Pond #11 Dry. Bank Vegetation; 95%: M-26, 40%; M-24, 30%; M-28, 10%; M-45, 10%; M-44, 5%. Some M-49, M-51, M-5, M-4, M-27, M-25, M-23.

Pond #12 Water clear, 10". Aquatic vegetation 65%: W-1, 30%; W-5, 50%; W-4, 20%. Bank vegetation 75%; M-26, 70%; M-24, 10%; M-9, 10%; M-45, 5%. Some M-23, M-25, M-5, M-4, M-28, M-58, M-18, M-44.

North East 1/4 Section 7.

Pond #13 Water clear, 3". Aquatic vegetation 80%: W-5, 65%; W-4, 20%; W-1, 15%; scattered M-7 in water at edges of pond. Bank vegetation 95%: M-26, 90%; M-25, 5%. Some M-16, M-7, M-4, M-5, M-3, M-44, M-20, M-29, M-25, M-9, M-46, M-48, M-55.

Pond #14 Water clear, 4". Aquatic vegetation 90%: W-1, 35%; W-4, 35%; W-5, 30%. Bank vegetation 95%: M-26, 90%; M-24, 3%; M-28, 5%. Some M-4, M-5, M-44, M-58, M-46, M-25, M-9, M-16, M-7, M-47.

Note: Mimulus pilosa found near all active wells in this quarter section.

No fence row cover is found on any side of this quarter, however a distinctive vegetative type is found on the North boundary along the bank of an irrigation ditch. This cover comprises a strip approximately 50 feet wide and extending the entire legth (East to West) of the North side.

Composition is as follows: M-11, 15%; M-4, 65%; M-5, 5%; 5% (even distribution) M-16, M-3, M-7.

South West 1/4 Section 6.

North Branch of Spring Creek

From West boundary to structure X-2; Water clear, 6". Bottom, soft black silt. Aquatic vegetation 90%: W-1, 50%; W-4, 50%; Scattered traces of W-3, W-6 and M-11. Bank vegetation 90%: M-2, 75%; M-47, 10%; M-25, 5%; M-1, 5%. Some M-50, M-5, M-4, M-6, M-16, M-13, M-7, M-8, M-11, M-24, M-23, M-19, M-49.

From structure X-2 to X-1; Water clear, 12". Bottom soft black silt. Aquatic vegetation 90%: W-1, 50%; W-4, 50%; scattered patches of W-6 and considerable amounts of M-4 and M-1 at water's edge. Bank vegetation 100%: M-4, 30%; M-25, 20%; M-47, 25%; M-45, 15%; M-6, 5%;. Some M-1, M-5, M-8, M-19, M-21, M-40, M-23, M-26, M-44, M-49, M-50, M-48, M-13, M-14, M-24, M-29. Good stands of M-16 coming in near X-1.

From structure X-1 to East boundary; Water clear, 3". Bottom soft black silt. Aquatic vegetation 65%: W-1, 50%; W-4, 50%. Bank vegetation 90%: M-24, 40%; M-47, 20%; M-45, 30%; M-28, 5%. Some M-4, M-5, M-6, M-8, M-50, M-11, M-21, M-23, M-13, M-16, M-24, M-25, M-26, M-49, M-48 , M-44, M-12.

Middle Branch of Spring Creek

From West boundary to 300 yards East; Water clear, 12". Bottom firm and gravelly but becoming covered with 1 to 4 inches of black soft silt at about 200 yds. East of West boundary. Aquatic vegetation 95%: W-1, 50%; W-4, 50%. Scattered stands of M-7 in and along water; also some W-3 scattered sparsely on water for first 150 yards. Very little true "bank vegetation" is to be found along this stream. i.e. Adjacent cover approaches the stream with little change in composition.

Bank vegetation 70%: M-56, 65%; M-25, 20%; M-1, 5%; M-47, 5%. Some M-24, M-16, M-14, M-48, M-29.

From 300 yds. to East side: Water clear, 6". Bottom of soft black silt. Aquatic vegetation 90%: W-1, 50%; W-4, 48%; traces of W-6 and W-5, with sparse scatterings of W-3. Bank vegetation 95%: M-1, 60%; M-4, 30%; M-56, 5%: some M-48, M-47, M-3, M-5, M-7, M-29, M-25, M-13, M-18.

South Branch of Spring Creek

From East boundary to structure Z-1: For first 300 ft. South bank has no bank vegetation. Aquatic vegetation 70%: W-1, 50%; W-4, 48%: traces of W-6 and W-5 scattered over West half of ditch. Water cloudy 18" at East end but decreases to 6" at West end. Bank vegetation 75%: M-4, 15%; M-5, 75%; M-1, 5%: Some M-47, M-50, M-48, M-45, M-44, M-24, M-25, M-26, M-16, M-56, M-6, M-3, M-8.

From Z-1 to West boundary: Water cloudy 12" at Z-1 to 6" at West end. Aquatic vegetation 65%: W-1, 50%; W-4, 48%; W-6 and W-5 scattered from Z-1 to West end.

South West 1/4 Section 6.

Bank vegetation 70%: M-4, 35%; M-1, 20%; M-56, 10%; M-16, 10%; M-59, 5%; M-8, 5%; M-2, 5%; M-2, 5%: Some M-7, M-25, M-44, M-47, M-48 M-50, M-45, M-19, M-24, M-28, M-26, M-13, M-21, M-11, M-14.

Resettlement Ditch

From EAst to West: Water cloudy 18". Bottom soft black silt intermixed with gravel. Aquatic vegetation 95%: W-1, 60%; W-4, 38%; trace of W-6. Surface 40% covered with W-3. North bank vegetation 15%; M-2, 85%; M-48, 5%; M-23, 5%. Some M-7, M-60, M-28, M-16, M-24, M-4, M-5.
South bank vegetation 85%: M-2, 90%; M-8, 5%; some M-48, M-60, M-24, M-28, M-16, M-5, M-4, M-23, M-11, M-7.

Drain Ditch Along Highway

From North branch of Spring Creek to North boundary: For first 300 feet bank vegetation 20%; M-2, 85%; M-26, 10%: some M-28, M-24, M-44, M-6, M-48. From 300 feet out to North boundary; Several dense stands of M-11 in wet bottom. Bank vegetation 60%; M-48, 30%; M-25, 15%; M-28, 25%; M-44, 5%; M-59, 10%; M-16, 5%; M-61, 5%. Some M-50, M-45, M-5, M-24, M-23, M-7, M-6, M-14, M-20

North Fence Line

From North East corner to Willow grome; Fence cover M-2, 80%; M-26, 15%; M-5, 3%. Some M-28, M-14, M-50, M-45, M-24. From East end of Willow grove to West boundary; upper story of mature Salix amygdaloides spaced 15 to 20 feet apart. Understory; 85% coverage. M-26, 40%; M-28, 40%; M-61, 5%; M-24, 10%. Some M-45, M-5, M-15, M-50, M-23, M-59, M-44.

Ditch Along West Side

From North East corner South to North branch of Spring Creek; Water muddy, 2". No aquatic vegetation. Bank vegetation 15%; M-48, 85%; M-4, 10%; some M-3, M-16, M-5, M-60

Pond #1 Dry. Bank vegetation 85%; M-26, 85%; M-24, 5%; M-3, 5%. Some M-13, M-1, M-4, M-5, M-25.

Pond #2 Water cloudy, 18". Aquatic vegetation 95%; W-1, 50%; W-8, 50%. Traces of W-5 and W-6. Bank vegetation 50%: M-26, 85%; M-3, 5%; M-1, 5%. Some M-25, M-14, M-13, M-4, M-5.

Pond #3 Dry. Bank vegetation 85%: M-26, 90%; M-24, 5%; M-3, 3%. Some M-5, M-14, M-28.

Pond #4 Dry. Bank vegetation 75%: M-26, 90%; M-24, 5%; M-3, 4%. Some M-5, M-14, M-28, M-12.

Pond #5 Water muddy, 12". Bank vegetation 85%: M-24, 25%; M-26, 30%; M-1, 20%; M-28, 15%; M-3, 5%. Some M-14, M-23, M- 44.

South West 1/4 Section 6.

Pond #6. Dry. Bank vegetation 95%: M-26, 90%; M-24, 3%; M-3, 4%: Some M-1, M-28, M-21, M-45, M-5, M-56.

Pond #7 Water muddy, 2". No aquatic vegetation. Bank vegetation 5%: M-2, 98%. Some M-6, M-24.

Pond #8 Water cloudy, 12". Aquatic vegetation 65%; W-1, 50%; W-4, 50%. Bank vegetation 90%; M-26, 85%; M-3, 2%; M-24, 5%; Some M-45, M-6, M-13, M-28.

Pond #9 Water muddy, 24". Aquatic vegetation 80%: W-1, 10%; W-4, 20%; W-5, 70%; trace of W-3 and W-2 at South end. Bank vegetation 90%: M-26, 80%; M-24, 3%. Some M-48, M-23, M-58, M-14, M-45, M-3, M-28.

Pond #10 Water clear, 3". Aquatic vegetation 30%: W-1, 60%; W-4, 40%. Bank vegetation 95%; M-3, 70%; M-16, 5%; M-26, 20%. Some M-4, M-5, M-45, M-46,M-7, M-48, M-24, M-28, M-44.

Pond #11 Dry. Bottom vegetation 85%: M-26, 80%; M-3, 10%; M-28, 5%. Some M-4, M-5, M-45, M-16, M-14, M-59, M-13, M-48, M-23. Bank vegetation 85%: M-26, 85%; M- 24, 5%; M-28, 5%; Some M-5, M-4, M-23, M-45, M-14, M-59, M-13, M-48, M-23, M-59, M-18, M-20.

Pond #12 Dry. Bottom vegetation 75%: M-28, 80%; M-3, 10%; M-59, 5%. Some M-13, M-45, M-48, M-16. Bank vegetation 95%; M-26, 50%; M-59, 35%; M-24, 5%; M-3, 5%. Some M-14, M-45, M-48, M-50, M-28, M-5.

South East 1/4 Section 6.

Spring Creek From West to North East

Water clear, 10". Bottom gravelly, but silted along edges of bottom. Bottom vegetation 85%: W-1, 50%; W-4, 50%. Good stands of M-7 near West end but these dwindling in first 200 yards to scattered patches over the remaining length of the stream. Sparse scatterings of W-6 are found in the last 200 yards of the stream before it reaches the North boundary.

Little "bank vegetation" is to be found along Spring Creek in this quarter. The banks slope gradually down to the stream and are in most places very wet areas supporting heavy growths of Carex sp. and Eleocharis sp.

Bank vegetation for the length of the stream 97%: M-1, 80%; M-4, 10%; M-5, 5%; Some M-13, M-48, M-47, M-7, M-56, M-32, M-3, M-33.

Ponds 1. a,b,c 1 b and c dry. 1a Water clear 2". Aquatic vegetation 25%: W-1, 50%; W-4, 50%. Bank vegetation on all three ponds is the same. Bank vegetation 100%: M-28, 90%; M-24, 5%. Some M-45, M-48, M-46, M-20, M-29, M-19, M-4, M-5.

Pond #2 Water clear, 3". Almost completely covered with algae. Pool covers only 80% of pond bottom. Aquatic vegetation in pool 45%: W-1, 40%; W-4, 60%. Dry portion of bottom 15% covered with M-62; 85% bare ground. Bank vegetation 100%: M-28, 90%; M-24, 3%: Some M-26, M-45, M-29, M-20; some M-46 around well.

Pond #3 Water cloudy, 2". Aquatic vegetation 95%: W-1, 50%; W-4, 50%. Bank vegetation 98%: M-28, 90%; M-4, 3%. Some M-5, M-56, M-3, M-24, M-26, M-20.

Pond #4 Water muddy, 2". Aquatic vegetation 100%: W-1, 50%; W-4, 50%. Bank vegetation 10%: M-5, 70%; M-3, 25%; Some M-28, M-4, M-7, M-48, M-56.

Pond #5 Dry. Some M-11 on island. Bank vegetation 100%: M-28, 92%; M-4, 4%. Some M-56, M-3, M-44, M-45.

Pond #6 Dry. Bank vegetation 100%. M-28, 90%; M-4, 5%. Some M-45, M-3, M-44, M-56, M-29, M-28.

Pond #7 Water muddy, 30". Aquatic vegetation 75%: W-1, 60%; W-4, 40%. Bank vegetation 100%: M-28, 90%; M-56, 5%. Some M-1, M-4, M-5, M-48, M-26, M-24, M-46, M-16, M-62.

Pond #8 Dry. Bottom cover 90%: M-4, 95%; M-3, 3%. Some M-46, M-13, M-3, M-25. Bank vegetation 90%: M-26, 90%; M-24, 5%. Some M-3, M-4, M-5, M-28, M-56, M-20.

South East 1/4 Section 6.

Pond #9 Water muddy, 2". Aquatic vegetation 90%: W-1, 85%; W-4, 12%; W-5, 3%. Bank vegetation 85%: M-6, 80%; M-28, 5%; M-2, 5%; M-26, 5%. Some M-2, M-4, M-18, M-24.

Pond #10 Water clear, 14". Aquatic vegetation 100%: W-1, 60%; W-4, 40%. Bank vegetation 95%: M-26, 80%; M-28, 10%; M-25, 2%; M-24, 3%. Some M-46, M-45, M-6, M-14, M-18, M-62, M-47.

Pond #11 Water cloudy, 30". Aquatic vegetation 95%: W-1, 50%; W-4, 50%. Bank vegetation 100%: M-28, 85%; M-24, 5%; M-24, 5%. Some M-16, M-59, M-62, M-18, M-56, M-4, M-5, M-47. Opposite shore line: 100% covered; M-4, 85%; M-5, 15%.

Pond #12 Water muddy, 24". Aquatic vegetation 80%: W-1, 20%; W-4, 80%. Bank vegetation 95%: M-28, 70%; M-6, 20%; M-3, 5%. Some M-25, M-26, M-24, M-18, M-4, M-5. Opposite shore line: 30% covered; M-4, 100%.

Pond #13a,b,c Cover of all three ponds is the same. Dry, bare bottom. Bank vegetation 100%: M-5, 80%; M-4, 20%. Some M-18, M-24, M-26.

Pond #14 Dry. Bank vegetation 100%: M-28, 70%; M-4, 10%; M-5, 5%; M-29, 5%; M-24, 5%. Some M-59, M-26, M-56, M-28, M-7. Few scattered stands of M-7 on banks of waterway between ponds #14 and #15.

Pond #15 Dry. Bank vegetation 100%: M-20, 80%; M-28, 15%; M-56, 2%. Some M-4, M-5, M-24, M-44, M-19, M-48, M-47, M-45, M-61.

Pond #16 Water clear, 24". Aquatic vegetation 80%: W-1, 50%; W-4, 50%. Bank vegetation 100%: M-28, 40%; M-20, 40%; M-29, 5%; M-24, 10%. Some M-47, M-48, M-46, M-1, M-44, M-7, M-23, W-2.

Pond #17 Dry. Bank vegetation 98%: M-28, 70%; M-59,5%; M-6, 10%; M-4, 10%. Some M-56, M-2, M-18, M-45, M-24, M-26, M-5.

Pond #18 Dry. Good stands of W-2 and M-7 scattered over bottom. Bank vegetation; 100%: M-28, 70%; M-24, 10%; M-26, 5%; M-4, 10%. Some M-28, M-62, M-3, M-48, M-20, M-44, W-7.

Pond #19 Water cloudy, 8". Aquatic vegetation 70%: W-1, 50%, W-4, 50%. Bank vegetation 70%: M-2, 50%; M-28, 20%; M-59, 10%; M-45, 5%; M-4, 10%. Some M-25, M-20, M-18, M-19, M-21, M-40, M-44, M-46, M-5, M-28, M-15.

Pond #20a,b Dry. Scattered good stands of W-2. Bank vegetation same for both ponds. Bank vegetation 100%; M-28, 80%; M-56, 5%; M-6, 5%; M-26, 5%. Some M-24, M-18, M-1, M-3, M-25, M-62, M-M-44, M-63, M-48.

South East 1/4 Section 6.

Pond # 21 Water clear, 18". Aquatic vegetation 90%: W-1, 3%; W-4, 3%; W-5, 94%. Bank vegetation 95%: M-28, 90%; M-56, 5%. Some M-4, M-5, M-3, M-24, M-26, M-40, M-20, M-29, M-44, M-45, M-60, M-25.

Pond #22 Water milky colored, 18". Aquatic vegetation 80%: W-5, 95%; W-1, 2.5%; W-4, 2.5%. Bank vegetation 100%: M-28, 85%; M-24, 5%; M-1, 3%; M-4, 3%. Some M-25, M-26, M-24, M-48, M-20, M-40, M-21.

Pond #23 Water muddy, 24". Aquatic vegetation 75%; W-5, 50%; W-1, 25%; W-4, 25%. Bank vegetation 75%: M-26, 95%; M-4, 2%. Some M-5 M-3, M-2, M-40, M-20, M-21, M-45, M-48, M-24.

Ditch D-1

Ditch D-1 runs North and South and lies approximately 45 feet West of ponds #21, #22, #23. Excavated earth forms a dyke on the East side of the ditch; the West side is not banked and is normally flooded by the ditch. Water clear, 36".

Aquatic vegetation 90%: W-1, 60%; W-4, 40%. W-3 scattered the entire length of the ditch, covering 20 to 40% of the surface. Scattered traces of M-7 in water. East bank vegetation: M-4, 20%; M-5, 30%; M-26, 40%; M-6, 3%;, M-25, 3%. Some M-28, M-16, M-24, M-23, M-48, M-3, M-11, M-49, M-44, M-61, M-63.

Ditch D-2

This ditch forms the South boundary of the South East 1/4 of section 6. Water is clear, 18". Aquatic vegetation 95%: W-1, 60%; W-4, 40%. Lemna minor scattered the entire length of the ditch, covering up to 40% of the surface near the West end.

Bank vegetation from West end to a point directly South of Pond #23. Bank vegetation 75%: M-26, 60%; M-6, 30%; Some M-28, M-48, M-45, M-59, M-23, M-3, M-24, M-62, M-9, M-4, M-5,, M-60.

Bank vegetation from directly South of Pond #23 to the East boundary. Bank vegetation 65%: M-26, 60%; M-6, 30%; M-4, 5%. Some M-16, M-7, M-11, M-5, M-18, M-48, M-44, M-45, M-60, M-3, M-19, M-25, M-9, M-24, M-26, M-2, M-28, M-23, M-50, M-61, M-23.

Ditch D-3

Ditch D-3 is formed by a dyke which extends from the South East corner of this quarter to a point 1/4 mile North and turns North West to terminate .32 miles from the East boundary.

South East 1/4 Section 6.

Ditch D-3

Bank vegetation from South East corner to 1/4 mile North. Bank vegetation 40%; M-26, 90%; M-3, 2%; M-5, 7%. A trace of M-2, M-4, M-64.

Water cloudy and 6" at South end but changing to clear and 30" at North end. Aquatic vegetation 65%; W-1, 80%; W-4, 10%; W-5, 10%.

From 1/4 mile North of South East corner, to .32 miles North West. Aquatic conditions same as for the rest of the ditch, except for a 4 by 6 foot patch of W-6 100 feet out from East boundary. Bank vegetation 70%; M-26, 80%; M-6, 5%; M-4, 5%; M-5, 5%. Some M-2, M-3, M-48, M-44, M-45, M-18, M-25, M-60.

Drain Ditch along North Side of D-3

From West to East. Water muddy, 18". Aquatic vegetation 40%: W-5, 100%. Bank vegetation 90%: M-4, 65%; M-2, 15%; M-6, 10%; M-26, 5%. Some M-18, M-25, M-24, M-5, M-62, M-3.

North East 1/4 Section 6

Pond #1 Dry. Bottom cover 50%; 98% M-3; M-64, 2%. Bank vegetation 100%; M-26, 93%; M-28, 4%. Some M-3, M-48, M-14, M-64.

Pond #2 Water clear, 24". Aquatic vegetation 40%: W-5, 80%; W-1, 10%; W-4, 10%. Bank vegetation 95%: M-28, 80%; M-3, 10%; M-56, 21%. Some M-24, M-26, M-25, M-20, M-45.

Pond #3 Dry. Bottom cover 100%: M-56, 40%; M-28, 40%; M-3, 15%. Some M-26, M-15, M-48. Bank vegetation 95%: M-26, 90%; M-28, 5%. Some M-25, M-63, M-53, M-17, M-45, M-24.

Ditch Along North Side

From East to West; No water in ditch. Bank vegetation 100%: M-5, 20%; M-3, 25%; M-28, 15%; M-24, 5%; M-26, 5%; M-15, 5%; M-25, 5%; M-47, 5%. Some M-10, M-16, M-23, M-59, M-44, M-17, M-45, M-25, M-1, M-48, M-49, M-13, M-33, M-18, M-60, M-9, M-21, M-29, M-56. Bottom of ditch rocky and sides gravelly.

North West 1/4 Section 6.

Spring Creek From South to North

From South boundary to area of pure M-2: Water muddy, 4". Bottom gravelly but covered with 1 to 3 inches of black silt. Aqautic vegetation 40% scattered in patches. W-1, 70%; W-4, 30%. From the South line to the M-2 area, no true bank is to be found on the West border of the stream. The West bank is normally flooded and supports a heavy growth of Carex sp. in a strip averaging 10 feet in width for this particular section of the stream. Bank vegetation is 100%: M-1, 80%; M-4, 10%; M-5, 5%; some M-47, M-16, M-25, M-13.

The East bank of this section of the stream is a bank approximately 4 feet tall. Bank vegetation is 100%: M-3, 60%; M-23, 10%; M-16, 10%; M-13, 5%; M-5, 5%; M-1, 5%. Some M-28, M-56, M-14, M-47, M-26, M-24, M-63, M-18, M-45, M-25, M-44.

From South edge of M-2 stand to North boundary: Water muddy, 4". bottom gravelly and covered with 1 to 3 inches of silt. Aquatic vegetation 15%, sparsely scattered. W-1, 50%; W-4, 50%. Banks on this part of the stream are approximately 4.5 feet high. Bank vegetation 70%; M-8, 50%; M-2, 30%; M-3, 10%. Some M-48, M-4, M-5, M-16, M-6, M-28, M-18, M-21, M-47, M-19, M-25, M-14.

Pond #1 Dry. Bottom cover 40%; M-4, 90%; Some M-7, M-16, W-2. Bank vegetation 100%: M-9, 60%; M-24, 15%; M-44, 10%; M-47, 5%; M-62, 5%. Some M-25, M-46, M-45, M-1, M-5, M-48, M-16, M-27, M-20.

Pond "2 a,b Pond a: Water clear, 4". Aquatic vegetation 30%: W-1, 50%; W-4, 50%. Bank vegetation 95%: M-44, 70%; M-20, 10%; M-5, 5%; M-4, 10%. Some M-45, M-54, M-40, M-16, M-28, M-1, M-25, M-51, M-24, M-26, M-48.
Pond b: Dry. No bottom cover. Bank vegetation same as Pond a.

Pond #3. Water muddy, 18". Aquatic vegetation 80%: W-5, 30%; W-1, 40%; W-4, 30%. Some W-2. Bank vegetation 100%: M-28, 45%; M-44, 15%; M-9, 20%; M-56, 10%; M-4, 5%. Some M-25, M-7, M-16, M-62, M-46, M-58, M-1, M-47.

Pond #4 a,b Pond a: Water milky, 18". Aquatic vegetation 95%: W-1, 50%; W-4, 45%; W-5, 5%. Bank vegetation 100%: M-44, 80%; M-4, 10%; M-26, 5%. Some M-62, M-46, M-25, M-1, M-24, M-40, M-45.
Pond b. Water clear, 24". Aquatic vegetation 100%: W-1, 60%; W-4, 40%. Bank vegetation 100%: M-44, 20%; M-29, 10%; M-1, 40%; M-5, 10%; M-26, 10%. Some M-45, M-56, M-7, M-46, M-48, M-17, M-62, M-40, M-54, M-24, M-23, M-28, M-19.

North West 1/4 Section 6.

Ponds #5 a,b Pond a: Dry. Bottom vegetation 30%: M-16, 90%; M-4, 10%. Bank vegetation 85%; M-28, 40%; M-26, 40%; M-1, 10%; M-20, 3%; M-62, 3%. Some M-29, M-3, M-7, M-44, M-24, M-40, M-45.
Pond b: Water muddy, 18". Aquatic vegetation 85%: W-1, 50%; W-4, 50%. Bank vegetation 100%; M-28, 85%; M-24, 5%; M-20, 5%. Some M-62, M-56, M-44, M-46, M-26, M-25, M-48, M-7, M-16, M-19, M-1.

Pond #6 a, b Pond a: Water clear, 14". Aquatic vegetation 95%; W-1, 40%; W-4, 55%; W-5, 5%. Bank vegetation 100%: M-26, 80%; M-45, 5%; M-28, 5%; M-3, 5%. Some M-4, M-5, M-18, M-46, M-16, M-1, M-48, M-44, M-7, M-62, M-63, M-20.
Pond b. Water clear, 14". Aquatic vegetation 98%; W-1, 50%; W-4, 40%; W-2, 3%; W-6, 2%. Bank vegetation 100%: M-24, 90%; M-1, 3%. Some M-44, M-45, M-4, M-5, M-48, M-40, M-28, M-3, M-63, M-7, M-47.

Pond #7 Dry. Bottom cover 80%: M-3, 80%; M-4, 5%; M-5, 10%. Some M-16, M-20. Bank vegetation 80%: M-26, 80%; M-3, 10%; M-28, 5%. Some M-2, M-14, M-20, M-40, M-45, M-5, M-56, M-5, M-46, M-57.

Pond #8 Water clear, 24". Aquatic vegetation 100%: W-1, 50%; W-4, 50%. Bank vegetation 100%: M-28, 85%; M-26, 10%. Some M-2, M-58, M-6, M-10, M-47, M-48, M-62, M-56, M-16, M-45.

Pond #9 Water clear, 24". Aquatic vegetation 100%: W-1, 50%; W-4, 50%. Bank vegetation 75%: M-2, 40%; M-26, 40%; M-28, 15%. Some M-8, M-3, M-48, M-62, M-58, M-4, M-5, M-6, M-56, M-16.

North West 1/4 Section 5.

Pond #1 Water clear, 2". Aquatic vegetation 75%: W-1, 80%; W-4, 20%1 Traces of W-5. Water covers only 80% of the pond bottom. Uncovered portion has 100% vegetation cover; W-6, 40%; M-4, 40%. Bank vegetation 100%: M-28, 55%; M-3, 20%; M-60, 15%; M-56, 5%. Some M-1, M-4, M-5, M-16, M-20, M-48. Water surface 45% covered with green Algae.

Pond #2 Water clear, 12". Aquatic vegetation, none. Green Algae covering 50% of pool. Bank vegetation M-28, 60%; M-56, 10%; M-4, 15%; M-20, 10%. Some M-67, M-23, M-48, M-18, M-5, M-4, M-29, M-15, M-46, M-60.

Pond #3 Water clear, 18". Aquatic vegetation 80%: W-1, 60%; W-4, 40%. Bank vegetation 100%: M-28, 75%; M-20, 10%; M-56, 5%; M-3, 5%. Some M-60, M-15, M-4, M-5, M-48, M-23, M-18, M-67, M-40, M-25.

Pond #4 Water muddy, 16". No aquatic vegetation. Bank vegetation 55%: M-28, 40%; M-3, 30%; M-56, 20%; M-4, 3%. Some M-2, M-40, M-26, M-6, M-18, M-48, M-23, M-29, M-5, M-25.

Pond #5 Water clear, 12". Aquatic vegetation 15%: W-1, 80%; W-4, 20%. Green Algae covering 90% of surface. Bank vegetation 60%: M-28, 70%; M-3, 10%; M-4, 10%. Some M-26, M-5, M-18, M-2, M-40, M-6, M-25, M-56, M-20.

Pond #6 Water clear, 12". Aquatic vegetation 80%: W-1, 70%; W-4, 30%. Bank vegetation 60%: M-28, 60%; M-3, 25%; M-6, 5%; M-4, 5%. Some M-18, M-2, M-26, M-56, M-20, M-5, M-16, M-63, M-25.

Pond #7 Water clear, 12". Aquatic vegetation 80%: W-1, 60%; W-4, 40%. Bank vegetation 100%: M-28, 40%; M-1, 25%; M-29, 20%; M-56, 10%. Some M-40, M-20, M-60, M-3.

Pond #8 Water clear, 8". Aquatic vegetation 65%: W-1, 60%; W-4, 40%. Bank vegetation 100%: M-28, 15%; M-56, 10%; M-40, 5%; M-1, 65%; M-5, 5%. Some M-25, M-15, M-4, M-20, M-29, M-18.

Pond #9 Water cloudy, 18". Aquatic vegetation 45%: W-1, 50%; W-4, 50%. Bank vegetation 75%; M-28, 75%; M-4, 10%; M-3, 8%. Some M-5, M-56, M-63, M-40, M-20, M-25. Traces of Algae on pond surface.

Pond #10 Dry. Bottom 50% covered with vegetation: M-4, 50%; M-62, 50%. Bank vegetation 100%: M-28, 30%; M-3, 35%; M-20, 10%; M-56, 15%; M-40, 5%. Some M-60, M-5, M-4, M-16, M-1, M-25, M-54, M-24, M-26.

Pond #11 Water cloudy, 8". Aquatic vegetation 50%: W-1, 60%; W-4, 35%; W-6, 5%. Traces of W-2. Bank vegetation 100%: M-28, 45%; M-56, 20%; M-20, 15%; M-4, 10%; M-3, 5%. Some M-60,

North West 1/4 Section 5.

M-54, M-26, M-24, M-23, M-1, M-40, M-62, M-20, M-29.

Pond #12 Water clear, 24".. Aquatic vegetation 85%: W-5, 70%; W-1, 20%; W-4, 10%. Bank vegetation 100%: M-28, 60%; M-56, 20%; M-4, 10%; M-3, 5%. Some M-40, M-20, M-5, M-4, M-48, M-25, M-24, M-29.

Pond #13 Water clear, 24". Aquatic vegetation 100%: W-5, 75%; W-1, 15%; W-4, 10%. Bank vegetation 75%: M-28, 40%; M-5, 30%; M-4, 10%; M-3, 15%. Some M-26, M-24, M-56, M-63, M-29, M-25, M-18, M-6, M-21, M-16.

Pond #14 Water cloudy, 18". No aquatic vegetation. Bank vegetation 100%: M-28, 80%; M-4, 10%; M-63, 5%. Some M-40, M-20, M-16, M-29, M-56, M-25, M-5, M-1, M-4, M-48.

Pond #15a,b Pond a. Water clear, 18". Aquatic vegetation 50%: W-1, 70%; W-4, 30%. Bank vegetation 100%: M-28, 70%; M-3, 10%; M-4, 10%; M-56, 5%. Some M-40, M-20, M-5, M-29, M-60, M-7, M-25, M-10, M-47. Algae covering 35% of the pond surface.
Pond b. Water clear, 12". Aquatic vegetation 8%: W-1, 80%; W-4, 20%. Algae covering 90% of the pond surface. Bank vegetation same as for pond #15 a.

Pond #16 Water cloudy, 14".. Aquatic vegetation 70%: W-1, 60%; W-4, 40%. Bank vegetation 100%: M-28, 70%; M-5, 5%; M-26, 10%; M-24, 5%; M-3, 5%. Some M-63, M-18, M-56, M-29, M-25, M-4, M-6, M-48, M-20, M-40.

Pond #17 Water clear, 36". Aquatic vegetation 75%: W-1, 60%; W-4, 30%; W-5, 10%. Good stands of W-3 in a strip 1 to 1 1/2 feet wide along water's edge on North and East sides of pond. Also some W-3 scattered sparsely over all of the pond. Bank vegetation for East bank 90%: M-26, 30%; M-4, 15%; M-62, 5%. Some M-32, M-51, M-5, M-11, M-69, M-60, M-48, M-58, M-24. Bank vegetation for North bank 70%: M-69, 60%; M-4, 10%; M-26, 20%. Some M-4, M-60, M-48, M-45, M-2, M-6, M-7, M-18, M-3, M-14, M-36, M-62.

North East 1/4 Section 5.

Ditch along dyke on East boundary. Water cloudy, 6" to 18". Considerable amounts of green Algae scattered over surface, and covering almost all aquatic vegetation. Aquatic vegetation 20%: W-1, 50%; W-4, 50%. Bank vegetation 75%: M-26, 60%; M-4, 38%. Traces of M-3, M-24, M-64, M-5, M-71.

Between East fence line and dyke, 300 feet North of South West dorner; Scirpus olneyi in patches covering approximately 2 acres. Located on North side of this patch is a stand of M-11 covering 250 sq. feet.

Bank vegetation for North boundary dyke; 40%: M-2, %; M-26, %. Water 5", muddy. NO aquatic vegetation.

Pond #1. Water clear, 18". Aquatic vegetation 10%: W-1, 70%; W-4, 30%. Bank vegetation 85%: M-26, 90%; M-3, 5%. Some M-4, M-5, M-24.

No fence row cover exists on any side of this quarter.

Definition of Terms as Used
in Accompanying Notes

Aquatic Vegetation: Aquatic plants growing in and on the water. Measurements given as the amount of bottom area covered by submergents and surface covered by floating plants.

Bank Vegetation: The vegetation growing at or near the water's edge, and which differs distinctly from the vegetation found adjacent to the area. Bank vegetation is recorded as the per cent of the bank covered by vegetation, and is followed by a quantitative breakdown by species.

Fence Row Cover: The cover type found along a fence row, and which is distinctly different from adjacent cover types.

Following are the field notes supplemental to a cover map of the Monte Vista National Wildlife Refuge, Monte Vista, Colorado. Notes are applicable to individual quarter sections unless otherwise stated.