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NATIONAL WETLANDS INVENTORY

**Map Report of Durango-Montrose
for the 1:100,000 Map Units of:**

Montrose SE, Durango NE, Durango SE,

**U.S. Fish and Wildlife Service
Denver, Colorado
September, 1993**

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I. INTRODUCTION

The United States Fish and Wildlife Service's National Wetlands Inventory (NWI) is producing maps showing the location and classification of wetlands and deepwater habitats of the United States. Classification of Wetlands and Deepwater Habitats of the United States by Cowardin et al. (1979) is the document used by the NWI to define and classify wetlands. Photo interpretation conventions, hydric soils lists and wetland plant lists are also used to implement the Cowardin classification system.

The purpose of this map report is to: (1) provide information on the production of NWI maps, including narrative on imagery and interpretation; (2) provide a descriptive crosswalk from NWI wetland codes on the map to common terminology and to representative plant species found on specific wetland sites; and (3) describe local geography, climate, and wetland communities.

II. FIELD RECONNAISSANCE

Field reconnaissance is a necessary procedure in order to accurately interpret aerial photography. Photographic signatures are correlated to the wetland habitat in the field. Collateral information including vegetative communities, soil types and topographic setting are further evaluated to aid in the photointerpretation process. This information is evaluated for seasonality and conditions existing at the time of photography and at ground truthing.

Project Area

The Durango/Montrose study area is located in the Rocky Mountain Forest Province in South Central Colorado. Field reconnaissance covered the area of each 1:100,000: Pueblo SW, Montrose SE, Durango NE and Durango SE. (Appendix A Locator Map).

Field Personnel

Chuck Elliott	-	U.S. Fish and Wildlife Service
Bill Pearson	-	U.S. Fish and Wildlife Service
Lynn Ashby	-	Geonex, Inc.
Jaymee Fojtik	-	Geonex, Inc.

Field Dates

August 17 - 22, 1992

Aerial Photography

Primary Source Data (100.0%)

Type: NHAP Color Infra-Red High Altitude

Scale: 1:58,000

Montrose SE; 09/22/83, 09/08/85, 09/12/85, 09/18/87

Durango NE; 09/22/83, 09/12/85, 09/18/87, 09/16/88

Durango SE; 09/22/83, 09/12/85, 09/16/88

Percentage Coverage: All 59 USGS quadrangles were covered with the NHAP photography.

Collateral Data

United States Geological Survey (USGS) Quadrangles

Soil Conservation Service Soil Surveys

Bailey's Description of the Ecoregions of the United States

National List of Plant Species That Occur In Wetlands:
Central Plains (Region V) and Intermountain (Region VIII)

Wetland Plants of the State of Colorado

Hydric Soils of the State Of Colorado

United States Fish and Wildlife Service Wetland Plant Keys

Cowardins Classification of Wetlands and Deepwater Habitats
of the United States

III. PHYSICAL DESCRIPTION OF PROJECT AREA

Geography

The study area is located in the southwestern portion of Colorado and is covered by the Rio Grande, Gunnison and San Juan National Forest. The La Garita Mountains, San Juan Mountains and Cochetopa Hills lie within these forests and range in altitude from 8,000 to 14,000 feet. The San Luis Valley borders the eastern portion of the study area.

Numerous saturated emergent areas cover these mountains and beaver activity is numerous throughout. Irrigated hayed fields were found in the northern portion. The Rio Grande, Conejos River and San Juan River flow through the study area.

Climate

The climate in the mountains varies with altitude. Precipitation ranges from 20 inches to 40 inches with a considerable part being snow. Permanent snow fields and glaciers cover only small areas. Average annual temperatures are 35°F and 45°F.

Vegetation

Vegetation varies with different zones. The uppermost zone is the alpine, which is characterized by alpine tundra and the absence of trees. The subalpine is next and is dominated by subalpine fir and Englemann spruce. The montane zone is characterized by ponderosa pine and Douglas-fir. Usually after a fire the original forest is replaced by aspen or lodgepole pine.

Soils

In the Rocky Mountains, soil orders occur in zones corresponding to the vegetation zones. These range from Mollisols and Alfisols in the montaine zone to Aridisols in the foothill zone. In addition, because of steep slopes and recent glaciation, there are areas of Inceptisols.

IV. DESCRIPTION OF WETLAND HABITATS IN PROJECT AREA

Riverine

Major rivers flowing through the work area are the Rio Grande, the Conejos River and the San Juan River. These are classified as R3UBH.

Small streams in the mountains were found to flow all year round. Signature may be weak but we will classify these as R3UBH.

Riverine bars and flats will be classified as R3USC and R3USA.

Lacustrine

Mountain lakes will be classified as L1UBH. Lakes in the lacustrine system with aquatic bed will be classified as L2ABG.

Reservoirs will be L1UBHh and flats associated with these will carry the L2USCh or L2USAh classification.

Large mining pits will be classified as L1UBGx.

Palustrine

The majority of wetlands in the study area are palustrine. Saturated emergents are numerous throughout the higher elevations. Hayed fields can be found in Montrose SE.

Emergents as PEMF, PEMC, PEMB and PEMA were found throughout with the PEMB and PEMC the dominant cover types. Areas of aquatic bed PABG and PABF were seen as well as an abundance of beaver ponds PABGb. Areas of scrub-shrub PSSC, PSSB and PSSA were more commonly found than wet forested PFOA.

Field check sites were documented where problems existed; i.e., wetland areas that were not readily recognizable on the photography. Vegetation observed in these wetland habitats were grouped according to class and water regime. The following plant species were identified on check sites and represent only a fraction of all wetland plant species occurring in the project area.

TABLE I
OBSERVED WETLAND VEGETATION

Palustrine Saturated Emergents: PEMB

Polygonum bistortoides bistort american
Carex aquatilis water sedge

Palustrine Seasonal Emergents: PEMC

Carex sp. sedge
Eleocharis sp. spikerush

Palustrine Temporary Forested: PFOA

Populus angustifolia narrowleaf cottonwood
Populus deltoides eastern cottonwood
Alnus sp. alder

Palustrine Seasonal/Temporary Scrub-shrub: PSSC, PSSA

Salix sp. willow
Alnus sp. alder

TABLE II
OBSERVED WETLAND VEGETATION TABLE
(grouped by sub-class)

A. EMERGENT

<u>Carex</u> sp.	sedge
<u>Carex aquatilis</u>	water sedge
<u>Eleocharis</u> sp.	spikerush
<u>Polygonum bistortoides</u>	bistort american

B. SCRUB-SHRUB

<u>Alnus</u> sp.	alder
<u>Salix</u> sp.	willow

C. FORESTED

<u>Alnus</u> sp.	alder
<u>Populus angustifolia</u>	narrowleaf cottonwood
<u>Populus deltoides</u>	eastern cottonwood

Table 1. NWI WETLAND CLASSIFICATION CODES, COWARDIN DESCRIPTION AND COMMON TERMINOLOGY

NWI CODE WATER REGIME	COWARDIN DESCRIPTION	COMMON DESCRIPTION	VEGETATION
R3UB (F,H)	Riverine, upper perennial, unconsolidated bottom	Mountain streams, major drainage areas	Unconsolidated bottom
R4SB (A,C)	Riverine, intermittent,streambed	Small streams, creeks	Streambed
L1UB (G,H)	Lacustrine, littoral, unconsolidated shore	Deep lakes, mining pits	Unconsolidated bottom
L2AB (G)	Lacustrine, littoral, aquatic bed	Shallow lake marshes	Aquatic bed
L2US (C,A)	Lacustrine, littoral, unconsolidated shore	Flats	Unconsolidated shore
PUB (H)	Palustrine, unconsolidated bottom	Open water	Unconsolidated bottom

Table 1. NWI WETLAND CLASSIFICATION CODES, COWARDIN DESCRIPTION AND COMMON TERMINOLOGY

NWI CODE WATER REGIME	COWARDIN DESCRIPTION	COMMON DESCRIPTION	VEGETATION
PAB (F,G)	Palustrine, aquatic bed	Deep basins, impoundments, beaver ponds, excavated ponds, or sewage treatment settling ponds	Aquatic bed
PEM (A,B,C,F)	Palustrine, emergent	Basins, depressions, marshes, meadows, springs, seeps, or drainage areas	<u>Carex</u> sp. (sedge) <u>Eleocharis</u> sp. (spikerush) <u>Juncus balticus</u> (baltic rush) <u>Scirpus acutus</u> (hardstem bulrush) <u>Typha</u> sp. (cattail)
PSS (C,B,A)	Palustrine, scrub-shrub	Willow thicket, river banks, or drainage areas	<u>Alnus</u> sp.(alder) <u>Salix</u> sp. (willow)
PFO (A)	Palustrine, forested	River banks, floodplains, or drainage areas	<u>Alnus</u> sp.(alder) <u>Populus deltoides</u> (eastern cottonwood) <u>Populus angustifolia</u> (narrowleaf cottonwood)
PUS (C,A)	Palustrine, unconsolidated shore	Dug outs, impoundments	Unconsolidated shore

V. WATER REGIME DESCRIPTION

- (A) Temporarily Flooded - Surface water present for brief periods during growing season, but water table usually lies well below soil surface. Plants that grow both in uplands and wetlands are characteristic of this water regime.
- (B) Saturated - The substrate is saturated to the surface for extended periods during the growing season, but surface water is seldom present.
- (C) Seasonally Flooded - Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is extremely variable, extending from saturated to a water table well below ground surface.
- (F) Semipermanently Flooded - Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land's surface.
- (G) Intermittently Exposed - Surface water is present throughout the year except in years of extreme drought.
- (H) Permanently Flooded - Water covers the land surface throughout the year in all years.
- (K) Artificially Flooded - The amount and duration of flooding is controlled by means of pumps or siphons in combination with dikes or dams.

VI. IMAGERY

Overall the emulsion of the NHAP color infra-red photography is of high quality. The majority of our photography was flown in 1983, 1985, 1987 and 1988. Ground truthing revealed field conditions similar to those portrayed on imagery.

PHOTOGRAPHIC CONVENTIONS

Riverine Systems

Permanent rivers in the study area will be classified as R3UBH. Photo signature will be open water and subclass will be determined by characteristics exhibited on photo and topographic quad. Some examples of this classification are the San Juan, Rio Grande and Conejos Rivers as R3UBH. Small streams in the mountains were found to flow year round. We will classify these as R3UBH also. This includes named and unnamed perennial or intermittent on topo.

Smaller stream channels in lower elevations with an open water signature will be classified as R3UBF. Intermittent streams with little to no water present in channel will be labeled R4SBC and R4SBA.

Sand and mud flats along perennial rivers will be classified as R3USC and R3USA. Signature will vary from white to blue gray mixture.

Lacustrine System

Mountain lakes, regardless of size, with any part of the shoreline as bed rock will be classified as L1UBH.

Lakes over twenty acres with an aquatic bed signature will be classified as L2ABG.

Flats associated with reservoirs over (20) twenty acres will be classified as L2USCh and L2USAh. Signatures will vary from a bluish gray to white.

Large mining pits with an open water signature will be classified as L1UBGx.

Palustrine System

Temporarily flooded emergents PEMA were seen mostly in the lower elevations. Hayed fields in the northern portion of the study area contained the largest area of temporary emergents observed. Signatures were usually a light pink or a darker pink/red with light tints of mottling.

Seasonally flooded emergents PEMC were also found more in the lower elevations. These usually were in drainages, swales and pockets. Signatures range from dark tones of pink, red and brown. Often these are a mixture of two or more signatures.

Semipermanently flooded emergents PEMF were found as swales and pockets and in shallow lakes. Signatures vary from dark black red to a green blue and have a textured return.

Saturated emergents PEMB were sometimes difficult to distinguish and have varying signatures depending on the location within the study area. These areas are found as springs, on slopes and in the mountains. While ground truthing we found that the majority of emergent wetlands regardless of slope were saturated in the higher elevations. Signatures varied from a light pink to mottled deeper shades of pink, red and brown.

The aquatic bed classification is used on a variety of wetlands. Areas of pockets, swales, basins and oxbows will be classified as PABF. Impoundments and man-made ponds will also carry this classification but will have the appropriate special modifiers assigned to their classification. Mountain ponds will be labeled PABG, beaver ponds will also be labeled this but will carry the beaver (b) modifier. Sewage ponds will be classified as PABK and have the excavated modifier (x). Signatures on these wetlands will be open water or an aquatic bed signature, usually a pink return.

Scrub-shrub, temporarily flooded PSSA were found in lower elevations and are not directly associated with stream channels. Seasonally flooded shrubs PSSC were found associated directly with streams or beaver and usually had an emergent understory. Signature is a pink/red with a fluffy texture. Seasonal shrubs tend to be darker in signature. Saturated shrubs PSSB will be found on slopes. Forested wetlands will be temporarily flooded PFOA. These were found to be next to rivers or in channels.

VII. MAP PREPARATION

Wetland delineation and classification is in accordance with Cowardin et al (1979). Further wetland mapping guidance is provided by NWI photographic and cartographic conventions in concert with National consistency. Delineations are produced through stereoscopic interpretation of 1:58,000 scale color infrared photography. NHAP photography was taken during September of 1983, 1985, 1987 and 1988.

Field checks of areas found within Montrose SE, Durango NE, Durango SE photography were made prior to the actual delineation of wetlands. Field check sites were selected to clarify varying signatures found on the photography. These photographic signatures were then identified in the field using vegetation types and soil types, as well as additional input from field personnel.

Collateral data included USGS topographic maps, SCS soil surveys, USGS water resources data, vegetation, climate, and ecoregional information.

The user of the map is cautioned that, due to the limitation of mapping primarily through aerial photointerpretation, a small percentage of wetlands may be unidentified. Since the photography was taken during a particular time and season, there may be discrepancies between the maps and current field conditions. Changes in landscape which occurred after the photography was taken would result in such discrepancies.

Aerial photointerpretation and drafting were completed by Geonex, Inc., St. Petersburg, Florida with quality control conducted by the FWS.

VIII. MAP ACQUISITION

To discuss any questions concerning these maps, please contact:

Regional Wetland Coordinator
U.S. Fish and Wildlife Service - Region 6
Denver Federal Center
P. O. Box 25486
Denver, CO 80225

To order maps call 1-800-USA-MAPS.

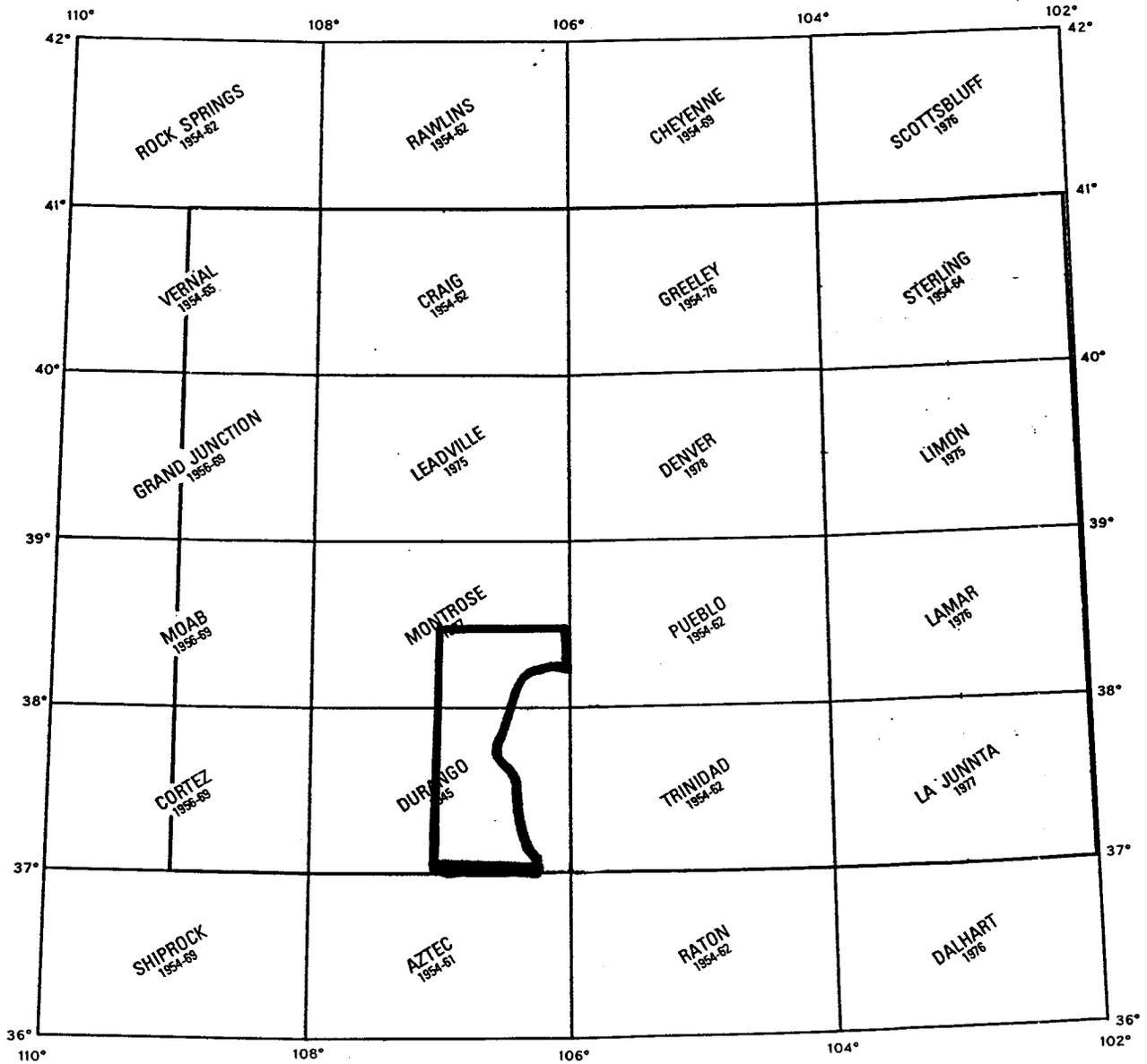
Maps are identified by the name of the corresponding USGS 1:24,000 scale topographic quadrangle name. Topographic map indices are available from the USGS.

IX. LITERATURE CITED

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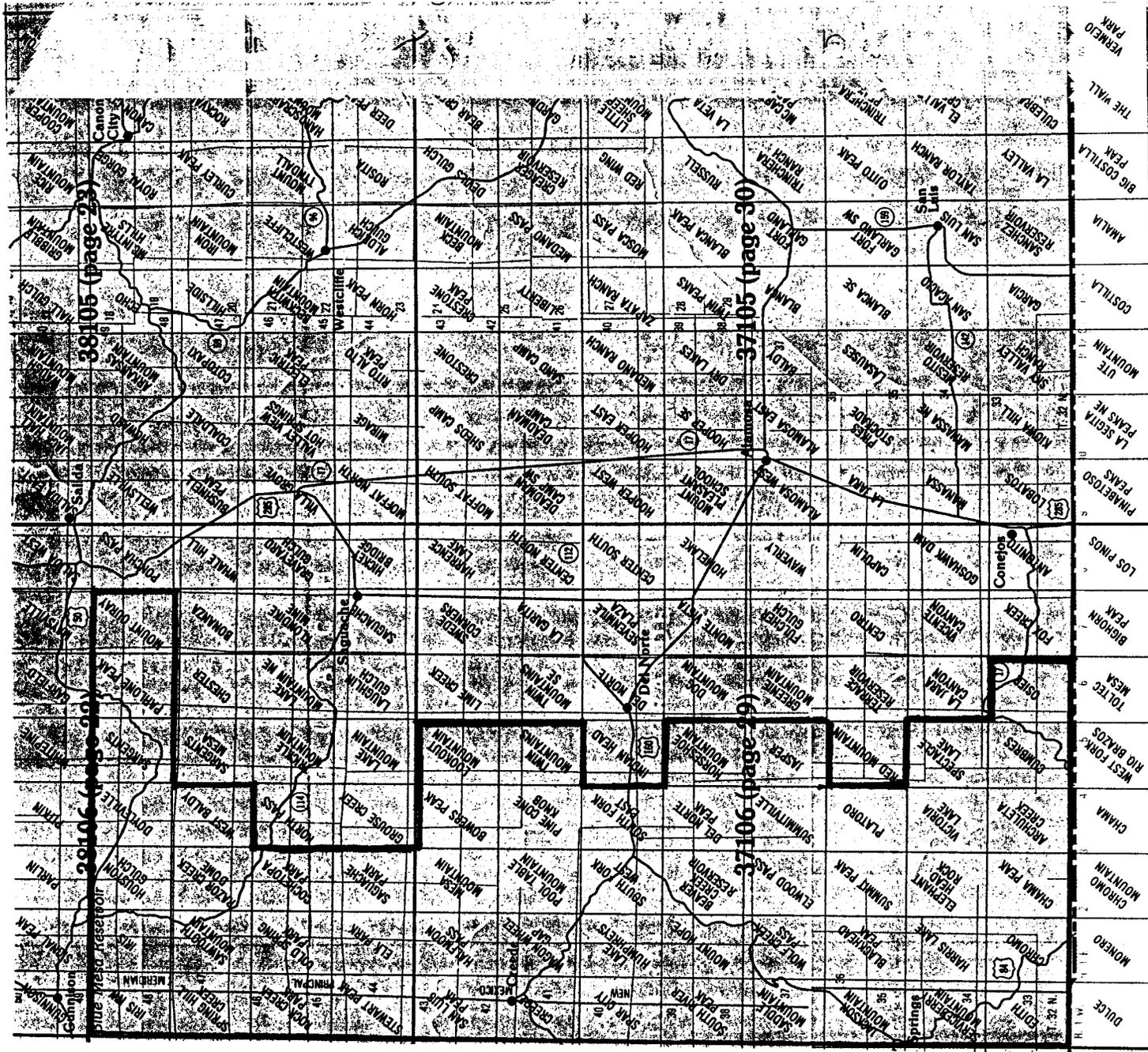
APPENDIX A
LOCATOR MAP

DURANGO/MONTROSE PROJECT AREA



APPENDIX B
LOCATOR MAP

DURANGO/MONTROSE PROJECT AREA



8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8

107° 106° 105°

SCALE 1:1,000,000