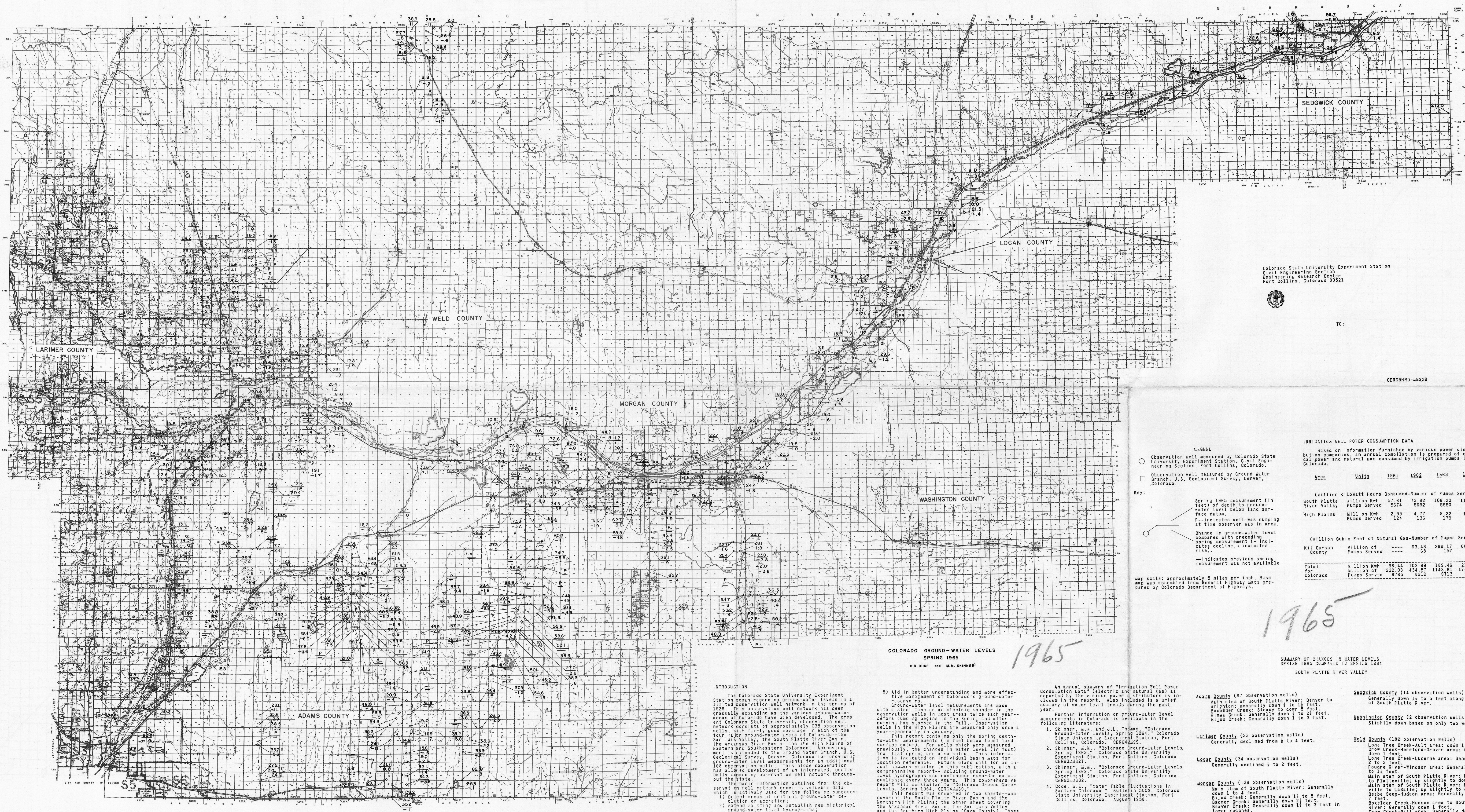




Colorado State University Experiment Station
Civil Engineering Section
Engineering Research Center
Fort Collins, Colorado 80521



TO:

DERGSHRD-ams29

LEGEND

- Observation well measured by Colorado State University Experiment Station, Civil Engineering Section, Fort Collins, Colorado.
 - Observation well measured by Ground Water Branch, U.S. Geological Survey, Denver, Colorado.
- Key:
- Spring 1965 measurement (in feet) of depth to ground-water level above land surface datum.
 - P - Indicates well was pumping at time observer was in area.
 - Change in ground-water level compared with preceding spring measurement (- indicates decline, + indicates rise).
 - Indicates previous spring measurement was not available.

Map scale: approximately 5 miles per inch. Base map was assembled from General Highway maps prepared by Colorado Department of Highways.

IRRIGATION WELL POWER CONSUMPTION DATA

Based on information furnished by various power distribution companies, an annual compilation is prepared of electrical power and natural gas consumed by irrigation pumps in Colorado.

Area	Units	1961	1962	1963	1964
(Million Kilowatt Hours Consumed-Number of Pumps Served)					
South Platte River Valley	Million Kwh	57.61	73.62	108.20	115.86
High Plains	Million Kwh	2.99	4.77	9.22	12.38
	Pumps Served	124	136	178	198

Area	Units	1961	1962	1963	1964
(Million Cubic Feet of Natural Gas-Number of Pumps Served)					
Kit Carson County	Million of Cubic Feet	---	63.43	289.17	688.29
	Pumps Served	---	63	157	305
Total	Million Kwh	58.44	103.89	189.46	212.99
	Million of Cubic Feet	232.08	434.57	1143.81	1746.23
Colorado	Pumps Served	8765	8919	9713	10828

1965

SUMMARY OF CHANGES IN WATER LEVELS SPRING 1965 COMPARED TO SPRING 1964

SOUTH PLATTE RIVER VALLEY

- Adams County** (67 observation wells)
Main stem of South Platte River: Denver to Brighton: Generally down 1 to 1 1/2 feet.
Boulder Creek: Steady to down 5 feet.
Kiowa Creek: Generally down 1 to 2 1/2 feet.
Big Horn Creek: Generally down 1 to 3 feet.
- Larimer County** (33 observation wells)
Generally declined from 1 to 4 feet.
- Logan County** (34 observation wells)
Generally declined 1 to 2 feet.
- Morgan County** (126 observation wells)
Main stem of South Platte River: Generally down 1 to 2 feet.
Brighton to Plattville: up slightly to down 1 foot.
Plattville to LaSalle: up slightly to down 2 feet.
Beche Deep-Hudson area: Generally down 1 to 1 1/2 feet.
Boulder Creek-Hudson area to South Platte River: Generally down 1 foot.
Crow Creek-Gill area: Generally down 1 to 2 feet.
Prospect Valley: Generally down 2 to 8 feet.
Kiowa Creek: Generally down 1 to 4 feet.
South Platte River near Masters: slightly up.
- Sedgwick County** (14 observation wells)
Generally down 1 to 5 feet along main stem of South Platte River.
- Washington County** (2 observation wells)
Slightly down based on only two wells.
- Weld County** (182 observation wells)
Lone Tree Creek-Ault area: down 1 to 6 feet.
Crow Creek-Herford-Grover area: Generally down 1 foot.
Lone Tree Creek-Lucerne area: Generally down 2 to 3 feet.
Poudre River-Windsor area: Generally down 1 to 1 1/2 feet.
Main stem of South Platte River: Brighton to Plattville: up slightly to down 1 foot.
Plattville to LaSalle: up slightly to down 2 feet.
Beche Deep-Hudson area: Generally down 1 to 1 1/2 feet.
Boulder Creek-Hudson area to South Platte River: Generally down 1 foot.
Crow Creek-Gill area: Generally down 1 to 2 feet.
Prospect Valley: Generally down 2 to 8 feet.
Kiowa Creek: Generally down 1 to 4 feet.
South Platte River near Masters: slightly up.

INTRODUCTION

The Colorado State University Experiment Station began recording ground-water levels in a limited observation well network in the spring of 1929. This observation well network has been gradually expanding as the various ground-water areas of Colorado have been developed. The present Colorado State University observation well network consists of approximately 1,535 observation wells, with fairly good coverage in each of the four major ground-water areas of Colorado—the San Luis Valley, the South Platte River Basin, the Arkansas River Basin, and the High Plains of Eastern and Southeastern Colorado. Acknowledgment is extended to the Ground Water Branch, U.S. Geological Survey, Denver, Colorado, for providing 168 observation wells. This close cooperation has allowed development of an integrated, continually expanding observation well network throughout the state.

The basic information obtained from the observation well network provides valuable data which is actively used for the following purposes:

- 1) Detect areas of critical ground-water depletion or accretion;
- 2) Extend existing and establish new historical ground-water level hydrographs;
- 3) Estimate changes in ground-water storage for specific areas;
- 4) Provide basic data for ground-water research and ground-water related water resource studies;

5) Aid in better understanding and more effective management of Colorado's ground-water reservoirs.

Ground-water level measurements are made with a steel case or an electric sounder in the observation wells in most areas twice each year—before pumping begins in the spring and after pumping has stopped in the fall. Observation wells in the High Plains are measured only once a year—generally in January.

This report contains only the spring depth-to-water measurements (in feet below local land surface datum). For wells which were measured previously, the changes in water level (in feet) from last spring are also noted. This information is indicated on individual basin maps for location reference. Future plans call for an annual summary similar to this publication, with a comprehensive report—including ground-water level hydrographs and continuous recorder data—published every three years. This comprehensive report will be similar to "Colorado Ground-Water Levels, Spring 1964, CCR64-459."

This report was prepared in two sheets—one covering the South Platte River Basin and the Northern High Plains; the other sheet covering the Arkansas River Basin, the San Luis Valley, and the Southern High Plains (Baca County). Those individuals or officials interested in a particular area will receive only one sheet. The second sheet may be obtained by contacting Colorado State University Experiment Station, Project 109, Civil Engineering Section.

An annual summary of "Irrigation Well Power Consumption Data" (electric and natural gas) as reported by the various power distributors is included in the report. Also included is a brief summary of water level trends during the past year.

Further information on ground-water level measurements in Colorado is available in the following literature:

1. Skinner, J.W. and J.L. Thomas, "Colorado Ground-Water Levels, Spring 1964," Colorado State University Experiment Station, Fort Collins, Colorado, CCR64-459.
2. Skinner, J.W., "Colorado ground-water Levels, Spring 1963," Colorado State University Experiment Station, Fort Collins, Colorado, CCR63-452.
3. Skinner, J.W., "Colorado ground-water Levels, Spring 1962," Colorado State University Experiment Station, Fort Collins, Colorado, CCR62-452.
4. Coe, W.E., "Water Table Fluctuations in Eastern Colorado," Bulletin 5009, Colorado State University Experiment Station, Fort Collins, Colorado, August 1959.

Junior and Assistant Civil Engineers, respectively, Engineering Research Center, Colorado State University, Fort Collins, Colorado.

SOUTH PLATTE RIVER VALLEY

SUMMARY OF CHANGES IN WATER LEVELS
SPRING 1965 COMPARED TO SPRING 1964

HIGH PLAINS

Cheyenne County (8 observation wells)
Water levels appeared to be holding relatively steady, ranging from 0.8 foot decline to 0.1 foot rise.

Kiowa County (8 observation wells)
Again, little information is yet available, however water levels appear steady ranging from plus 0.1 foot to minus 0.6 foot.

Kit Carson County (43 observation wells)
Water levels in the majority of wells showed decline ranging from 0.2 foot to 3.7 feet, with the larger declines generally in the area south of Burlington.

Lincoln County (3 observation wells)
Based upon little available information, water levels appear relatively steady.

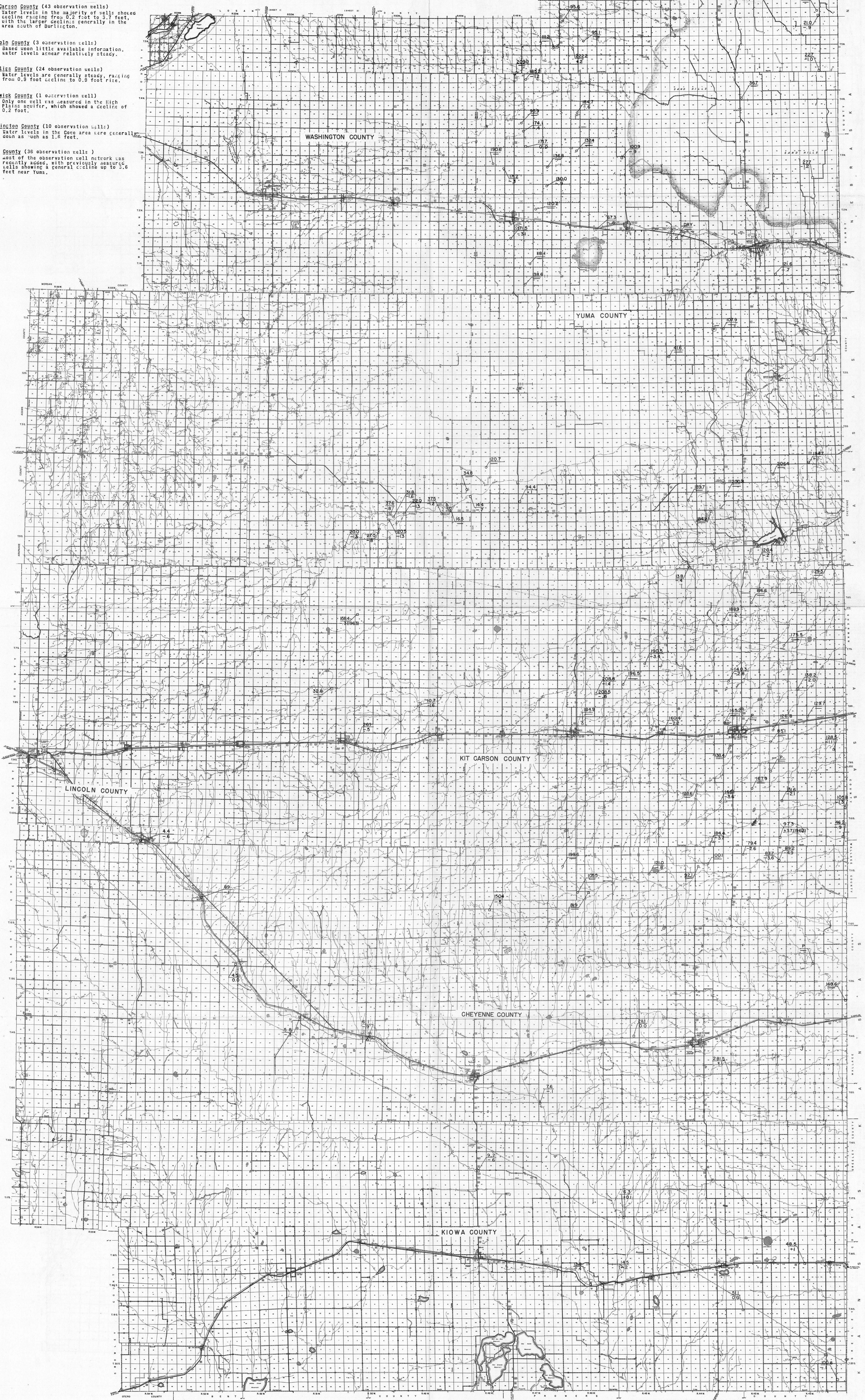
Phillips County (24 observation wells)
Water levels are generally steady, ranging from 0.9 foot decline to 0.8 foot rise.

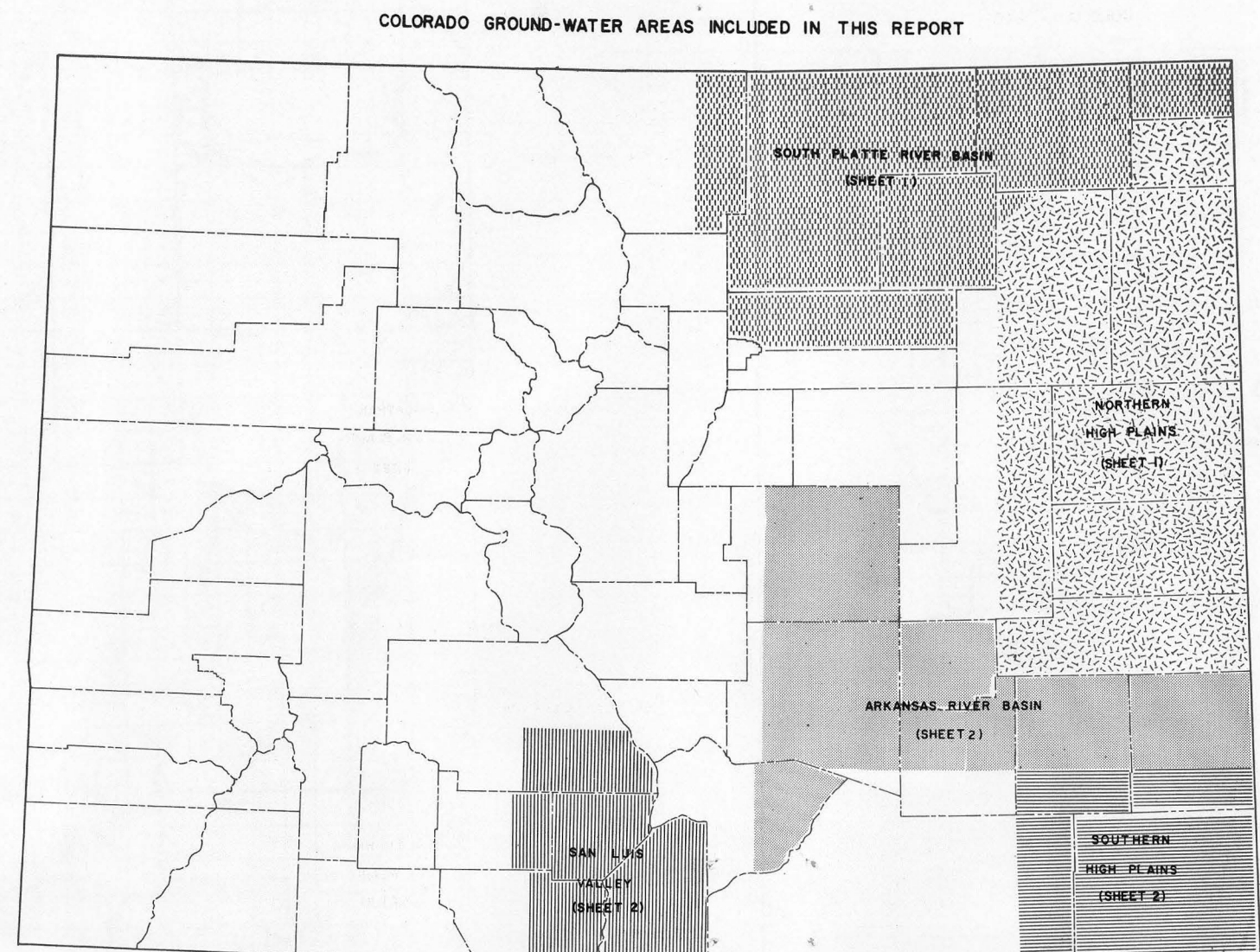
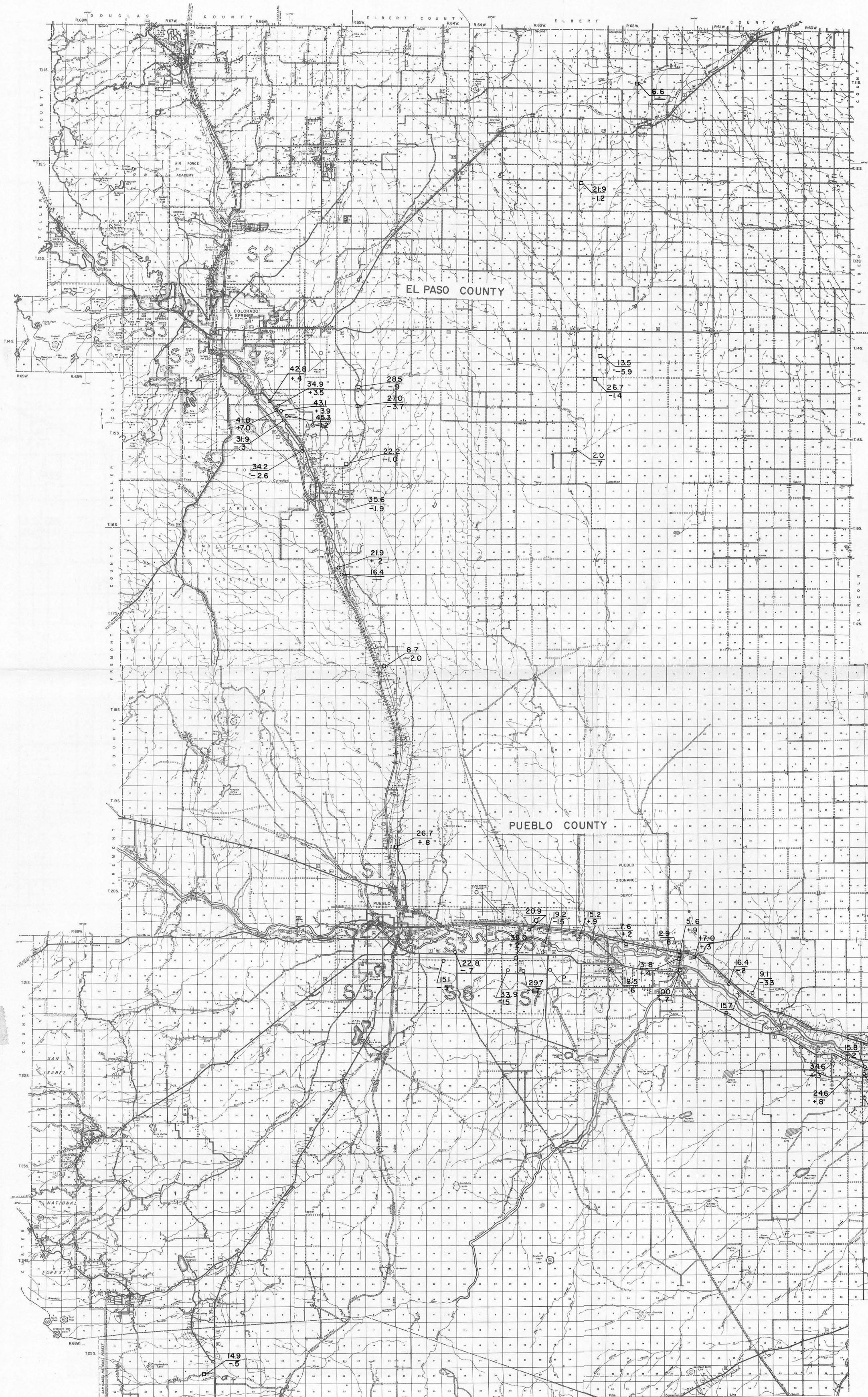
Sedgewick County (1 observation well)
Only one well was measured in the High Plains aquifer, which showed a decline of 0.2 foot.

Washington County (10 observation wells)
Water levels in the Cone area were generally down as much as 1.6 feet.

Yuma County (36 observation wells)
Most of the observation well network was recently added, with previously existing wells showing a general decline up to 3.6 feet near Yuma.

NORTHERN HIGH PLAINS





INTRODUCTION

The Colorado State University Experiment Station began recording ground-water levels in a limited observation well network in the spring of 1925. This observation well network has been gradually expanding as the various ground-water areas of Colorado have been developed. The present Colorado State University observation well network consists of approximately 835 observation wells, with fairly good coverage in each of the four major ground-water areas of Colorado—the San Luis Valley, the South Platte River Basin, the Arkansas River Basin, and the High Plains of the Eastern and Southeastern Colorado. Acknowledgment is extended to the ground-water branch, U.S. Geological Survey, Denver, Colorado for providing ground-water level measurements for an additional 158 observation wells. This close cooperation has allowed development of an integrated, continually expanding observation well network throughout the State.

The basic information obtained from the observation well network provides valuable data which is actively used for the following purposes:

- 1) Detect areas of critical ground-water depletion or accretion;
- 2) Extend existing and establish new historical ground-water level hydrographs;
- 3) Estimate changes in ground-water storage for specific areas;
- 4) Provide basic data for ground-water research and ground-water related water resource studies;

COLORADO GROUND-WATER LEVELS SPRING 1965

H.R. DUKE and M.M. SKINNER¹

5) Aid in better understanding and more effective management of Colorado's ground-water reservoirs.

Ground-water level measurements are made with a steel tape or an electric sounder in the observation well. The measurements are made before pumping begins in the spring and after pumping has stopped in the fall. Observation wells in the High Plains are measured only once a year—generally in January.

This report contains only the spring depth-to-water measurements (in feet below local land surface datum). For wells which were measured previously, the changes in water level (in feet) from last spring are also noted. This information is indicated on individual basin maps for location reference. Future plans call for an annual summary similar to this publication, with a comprehensive report—including ground-water level hydrographs and continuous recorder data—published every three years. This comprehensive report will be similar to "Colorado Ground-Water Levels, Spring 1964, CER64-59."

This report was prepared in two sheets—one covering the South Platte River Basin and the Northern High Plains; the other sheet covering the Arkansas River Basin, the San Luis Valley, and the Southern High Plains (Baca County). Those individuals so critically interested in a particular area will receive only one sheet. The second sheet may be obtained by contacting Colorado State University Experiment Station, Project 105, Civil Engineering Section.

An annual summary of "Irrigation Well Power Consumption Data" (electric and natural gas) as reported by the various power distributors is included in the report. Also included is a brief summary of water level trends during the past year.

Further information on ground-water level measurements in Colorado is available in the following literature:

1. Skinner, J.W. and J.L. Thomas, "Colorado Ground-Water Levels, Spring 1964," Colorado State University Experiment Station, Fort Collins, Colorado. CER64-59.
2. Skinner, J.W., "Colorado Ground-Water Levels, Spring 1963," Colorado State University Experiment Station, Fort Collins, Colorado. CER63-52.
3. Skinner, J.W., "Colorado Ground-Water Levels, Spring 1962," Colorado State University Experiment Station, Fort Collins, Colorado. CER62-53.
4. Coe, D.E., "Water Table Fluctuations in Eastern Colorado," Bulletin 2005, Colorado State University Experiment Station, Fort Collins, Colorado. August 1958.

¹Junior and Assistant Civil Engineers, respectively, Engineering Research Center, Colorado State University, Fort Collins, Colorado.

SUMMARY OF CHANGES IN WATER LEVELS SPRING 1965 COMPARED TO SPRING 1964 ARKANSAS RIVER VALLEY

IRRIGATION WELL POWER CONSUMPTION DATA

Based on information furnished by various power distribution companies, an annual compilation is prepared of electrical power and natural gas consumed by irrigation canals in Colorado.

Area	Units	1961	1962	1963	1964
(Million Kilowatt Hours Consumed-Number of Pumps Served)					
Arkansas River Valley	Million Kwh	11.12	11.15	23.15	31.48
River Valley	Pumps Served	1416	1415	1515	1944
San Luis Valley	Million Kwh	26.15	11.75	47.80	52.75
Pumps Served		1482	1355	1554	1772
Grand Valley	Million Kwh	.456	.455	.582	.534
Pumps Served		55	55	57	64
(Million Cubic Feet of Natural Gas-Number of Pumps Served)					
Baca County	Million of	232.08	371.14	854.44	1057.96
Pumps Served		---	203	281	378

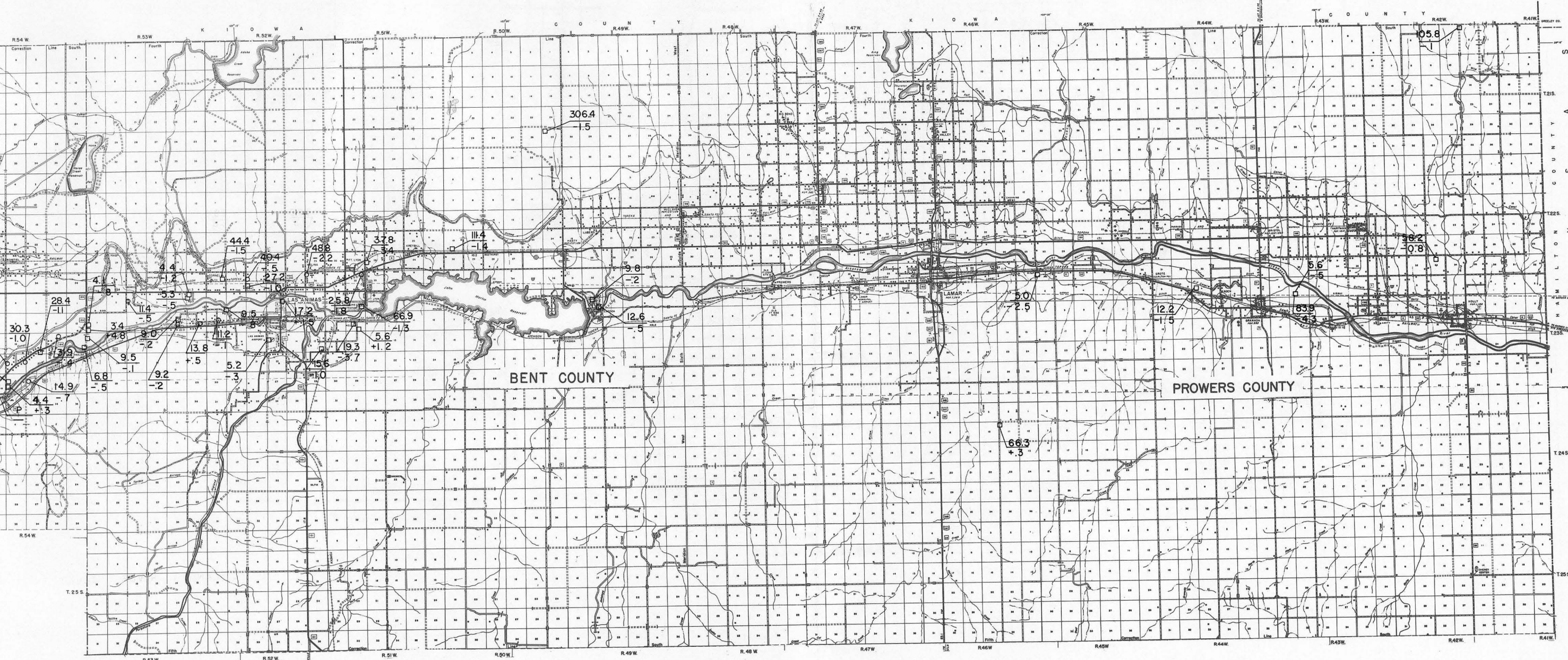
1961	Million Kwh	88.44	105.59	195.46	212.99
for	Million of	232.08	434.57	1143.61	1746.25
1962	Pumps Served	1816	1355	1554	1772

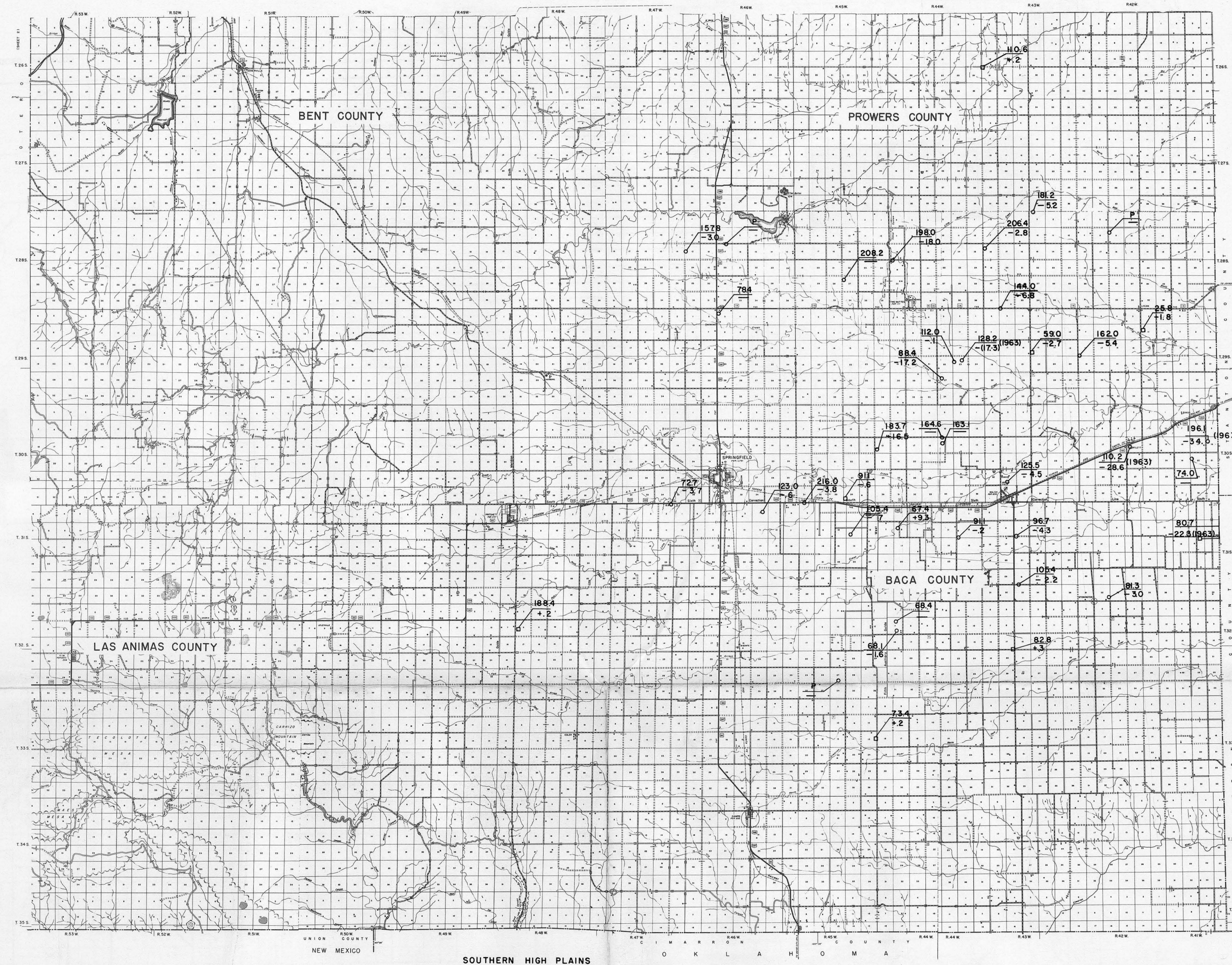
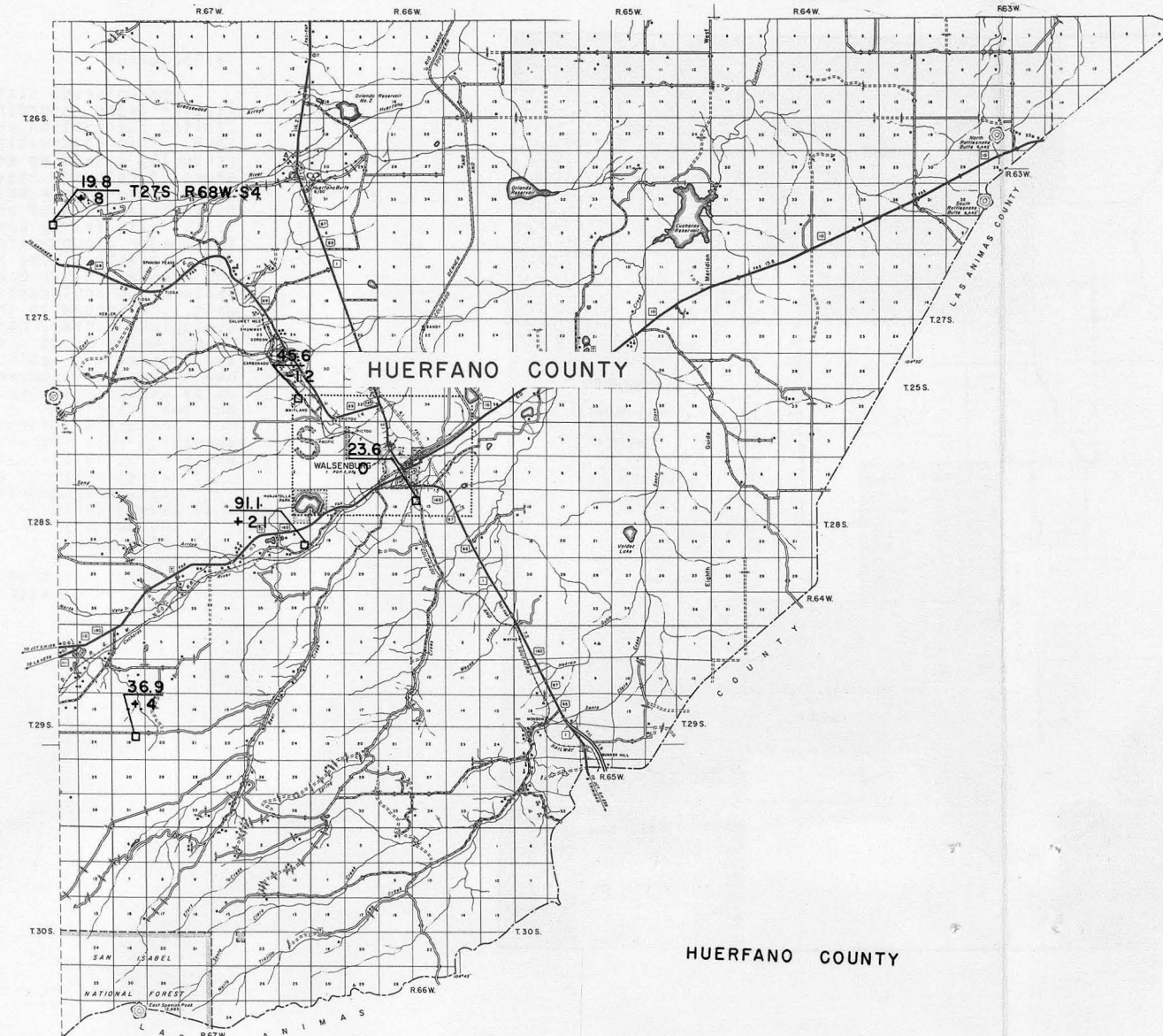
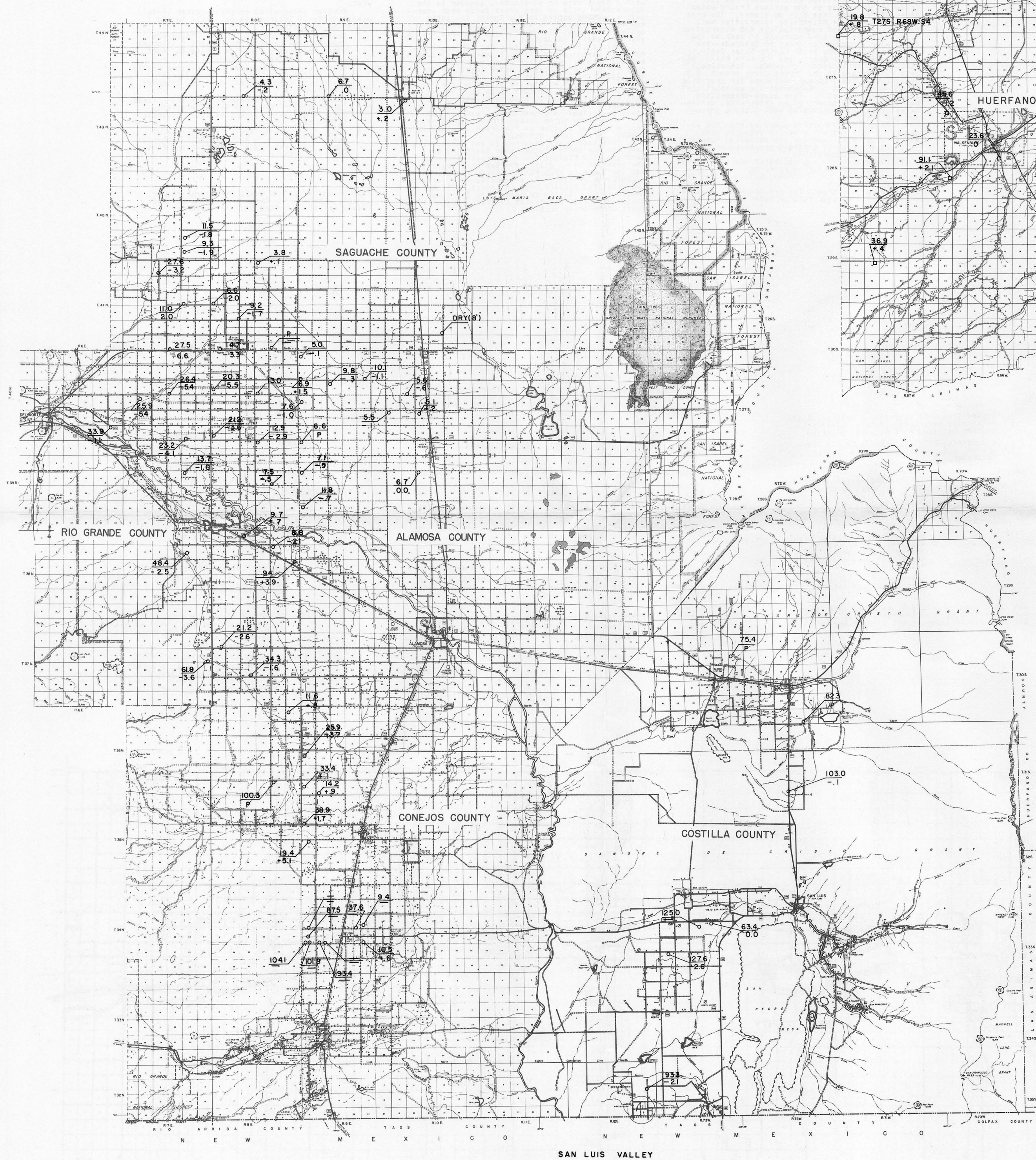
* majority of irrigation wells pumping from surface supplies.

LEGEND

- Observation well measured by Colorado State University Experiment Station, Civil Engineering Section, Fort Collins, Colorado.
 - Observation well measured by Ground Water branch, U.S. Geological Survey, Denver, Colorado.
- Key:
- Spring 1965 measurement (in feet) of depth to ground-water level below local surface datum.
 - P—Indicates well was pumping at time observer was in area.
 - Change in ground-water level compared with preceding spring measurement (+ indicates declines, - indicates rise).
 - Indicates previous spring measurement was not available.

Map scale: approximately 5 miles per inch. Base map used acquired from General Highway map prepared by Colorado Department of Highways.





SUMMARY OF CHANGES IN WATER LEVELS
SPRING 1965 COMPARED TO SPRING 1964

Alamosa County (12 observation wells)
Up 1.5 feet to down 1.1 feet.

Conejos County (16 observation wells)
All wells showed a rise in water level, from 0.1 foot to 5.1 feet.

Costilla County (7 observation wells)
All wells showed a decline in water level, from 0.1 foot in the central part of the county to 2.6 foot in the San Acacio area.

Rio Grande County (17 observation wells)
Majority of wells showed decline to as much as 5.5 feet north of Monte Vista. Two wells in the eastern part rose 0.7 foot and 3.9 feet respectively.

Saguache County (14 observation wells)
Majority of wells showed decline, especially southern part of county. Fluctuation ranged from 0.2 foot rise to 6.6 feet decline.

Baca County (39 observation wells)
Majority of wells showed a decline; water level changes ranged from 17.2 feet decline north of Walsh to 3.3 feet rise south of Vista.

Colorado State University Experiment Station
Civil Engineering Section
Engineering Research Center
Fort Collins, Colorado 80521



TO:

FROM
**Civil Engineering Section
Foothills Campus
COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO 80521**

TO
**Mr. Robert E. Glover
1936 South Lincoln Street
Denver 10, Colorado**

POSTMASTER: THIS PARCEL MAY BE OPENED FOR POSTAL INSPECTION IF NECESSARY
RETURN POSTAGE GUARANTEED

