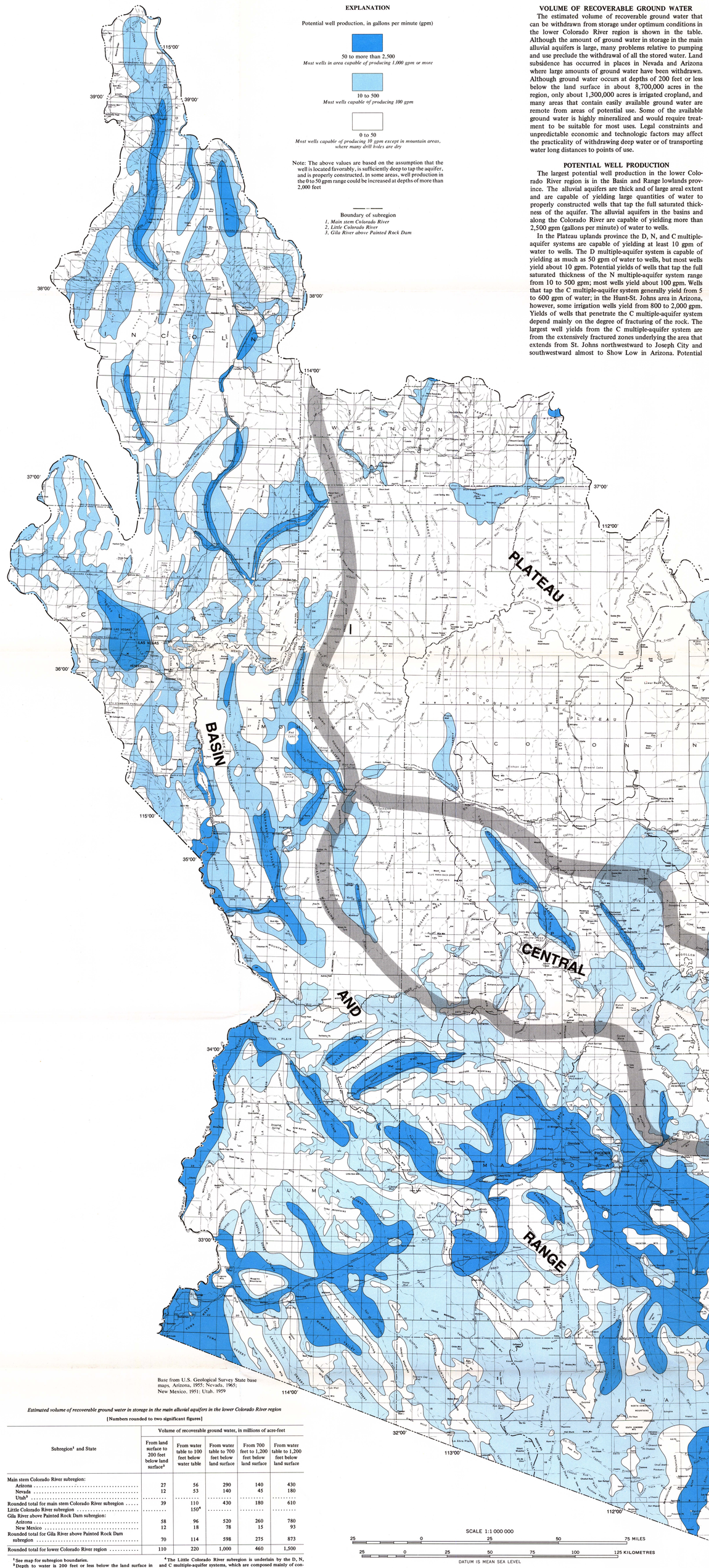

Base from U.S. Geological Survey State base maps, Arizona, 1955; Nevada, 1965; New Mexico, 1951; Utah, 1959

Estimated volume of recoverable ground water in storage in the main alluvial aquifers in the lower Colorado River region

[Numbers rounded to two significant figures]

Subregion[1] and State	Volume of recoverable ground water, in millions of acre-feet				
	From land surface to 200 feet below land surface[2]	From water table to 100 feet below water table	From water table to 700 feet below land surface	From 700 feet to 1,200 feet below land surface	From water table to 1,200 feet below land surface
Main stem Colorado River subregion:					
Arizona	27	56	290	140	430
Nevada	12	53	140	45	180
Utah[3]	.....	.....	.....	.....	.....
Rounded total for main stem Colorado River subregion	39	110	430	180	610
Little Colorado River subregion	.....	150[4]	.....	.....	.....
Gila River above Painted Rock Dam subregion:					
Arizona	58	96	520	260	780
New Mexico	12	18	78	15	93
Rounded total for Gila River above Painted Rock Dam subregion	70	114	598	275	873
Rounded total for lower Colorado River region	110	220	1,000	460	1,500

[1] See map for subregion boundaries.
[2] Depth to water is 200 feet or less below the land surface in 13,600 square miles — 10,900 square miles in Arizona, 1,500 square miles in Nevada, and 1,200 square miles in New Mexico — which constitutes about 10 percent of the region.
[3] The quantity of ground water stored in the alluvial aquifers in Utah is minor.
[4] The Little Colorado River subregion is underlain by the D, N, and C multiple-aquifer systems, which are composed mainly of consolidated rocks, and ground-water storage in the alluvial aquifers is minor. About 16 million acres is underlain by the three aquifer systems, and about 150 million acre-feet of ground water is stored in a typical 100-foot-thick section of aquifer.

MAP OF THE LOWER COLORADO RIVER REGION SHOWING GENERALIZED WELL-PRODUCTION POTENTIAL

VOLUME OF RECOVERABLE GROUND WATER

The estimated volume of recoverable ground water that can be withdrawn from storage under optimum conditions in the lower Colorado River region is shown in the table. Although the amount of ground water in storage in the main alluvial aquifers is large, many problems relative to pumping and use preclude the withdrawal of all the stored water. Land subsidence has occurred in places in Nevada and Arizona where large amounts of ground water have been withdrawn. Although ground water occurs at depths of 200 feet or less below the land surface in about 8,700,000 acres in the region, only about 1,300,000 acres is irrigated cropland, and many areas that contain easily available ground water are remote from areas of potential use. Some of the available ground water is highly mineralized and would require treatment to be suitable for most uses. Legal constraints and unpredictable economic and technologic factors may affect the practicality of withdrawing deep water or of transporting water long distances to points of use.

POTENTIAL WELL PRODUCTION

The largest potential well production in the lower Colorado River region is in the Basin and Range lowlands province. The alluvial aquifers are thick and of large areal extent and are capable of yielding large quantities of water to properly constructed wells that tap the full saturated thickness of the aquifer. The alluvial aquifers in the basins and along the Colorado River are capable of yielding more than 2,500 gpm (gallons per minute) of water to wells.

In the Plateau uplands province the D, N, and C multiple-aquifer systems are capable of yielding at least 10 gpm of water to wells. The D multiple-aquifer system is capable of yielding as much as 50 gpm of water to wells, but most wells yield about 10 gpm. Potential yields of wells that tap the full saturated thickness of the N multiple-aquifer system range from 10 to 500 gpm; most wells yield about 100 gpm. Wells that tap the C multiple-aquifer system generally yield from 5 to 600 gpm of water; in the Hunt-St. Johns area in Arizona, however, some irrigation wells yield from 800 to 2,000 gpm. Yields of wells that penetrate the C multiple-aquifer system depend mainly on the degree of fracturing of the rock. The largest well yields from the C multiple-aquifer system are from the extensively fractured zones underlying the area that extends from St. Johns northwestward to Joseph City and southwestward almost to Show Low in Arizona. Potential well yields in this area range from 50 to more than 2,500 gpm, and most wells will be capable of producing 1,000 gpm if the well is favorably located and sufficiently deep to tap the saturated thickness of the aquifer. The C multiple-aquifer system is dry in four areas in Arizona and New Mexico (sheet 1).

In the Central highlands province the alluvial aquifers are capable of yielding as much as 500 gpm of water to wells; however, as much as 2,500 gpm of water may be obtained from the deep and most permeable parts of the alluvium. Most wells that tap the hard rock of the mountains yield less than 10 gpm, but in places the hard rock is capable of yielding as much as 50 gpm to wells.

POTENTIAL FOR ARTIFICIAL RECHARGE

In most of the lower Colorado River region, the potential for artificial ground-water recharge is large. Dewatering of the aquifers by pumping in excess of the rate of natural replenishment has created additional potential for ground-water storage and has increased ground-water gradients from areas of recharge to areas of discharge.

Artificial recharge may be accomplished through wells, pits, spreading grounds, or by increasing local infiltration of streamflow in natural channels. Of all the methods for artificially increasing recharge to ground water, the most technically complex is recharge through wells. Silt and bacteria-laden water, chemical incompatibility of recharge water with native ground water, air entrainment and dissolved gases in the recharge water, incomplete recovery of recharged water, potentially short well life, and high cost of recovered water are among the problems involved in artificial recharge through wells. Recharge pits and spreading grounds are feasible methods of artificial recharge in areas where conditions are favorable. However, the most effective method of artificial recharge—particularly in the Basin and Range lowlands province—is by increasing the infiltration of streamflow in natural channels.

Stream channels provide exceptionally efficient avenues for recharge. In the upper Santa Cruz River basin in Arizona data indicate that as much as 70 percent of the inflow to the Santa Cruz River system infiltrates to the ground-water reservoir (Burkham, 1970, p. 1). Conjunctive management of the surface-water and ground-water systems is possible by regulating streamflow and depth to ground water near stream channels so that the maximum possible amount of streamflow infiltrates to the ground-water reservoir. Management of the ground-water system is an integral part of the method, and wells must withdraw sufficient ground water from the aquifer to provide storage for the infiltrating streamflow. Conjunctive management of surface-water and ground-water systems may increase ground-water recharge locally, but the net increase in recharge to the ground-water reservoirs in the lower Colorado River region would be extremely small.

SELECTED REFERENCES

The following list of references is not meant to be exhaustive. It includes only selected reports for a given area. Persons needing additional information may address inquiries to the district chief of the U.S. Geological Survey at the following addresses:

Arizona	Room 5–A Federal Bldg. 301 West Congress Street Tucson, Arizona 85701
Nevada	Room 229, Federal Bldg. 705 North Plaza Street Carson City, Nevada 89701
New Mexico	P.O. Box 4369 Albuquerque, New Mexico 87106
Utah	8002 Federal Bldg. 125 South State Street Salt Lake City, Utah 84138

ARIZONA

Akers, J. P., 1964, Geology and ground water in the central part of Apache County, Arizona: U.S. Geol. Survey Water-Supply Paper 1771, 107 p.

Anderson, T. W., 1968, Electrical-analog analysis of ground-water depletion in central Arizona: U.S. Geol. Survey Water-Supply Paper 1860, 21 p.

———1972, Electrical-analog analysis of the hydrologic system, Tucson basin, southeastern Arizona: U.S. Geol. Survey Water-Supply Paper 1939-C, 34 p.

Armstrong, C. A., and Yost, C. B., Jr., 1958, Geology and ground-water resources of the Palomas Plain-Dendora Valley area, Maricopa and Yuma Counties, Arizona: Arizona State Land Dept. Water-Resources Rept. 4, 49 p.

Arteaga, F. E., White, N. D., Cooley, M. E., and Sutheimer, A. F., 1968, Ground water in Paradise Valley, Maricopa County, Arizona: Arizona State Land Dept. Water-Resources Rept. 35, 76 p.

Babcock, H. M., 1972, Annual report on ground water in Arizona, spring 1970 to spring 1971: Arizona Water Comm. Bull. 1, 45 p.

Babcock, H. M., Brown, S. C., and Hem, J. D., 1947, Geology and ground-water resources of the Wellton-Mohawk area, Yuma County, Arizona: U.S. Geol. Survey open-file report, 22 p.

Bowie, J. E., and Kam, William, 1968, Use of water by riparian vegetation, Cottonwood Wash, Arizona, with a section on vegetation by F. A. Branson and R. S. Aro: U.S. Geol. Survey Water-Supply Paper 1858, 62 p.

Briggs, P. C., 1969, Ground-water conditions in McMullen Valley, Maricopa, Yuma, and Yavapai Counties, Arizona: Arizona State Land Dept. Water-Resources Rept. 40, 31 p.

———1969, Ground-water conditions in Ranegras Plain, Yuma County, Arizona: Arizona State Land Dept. Water-Resources Rept. 41, 28 p.

Briggs, P. C., and Werho, L. L., 1966, Infiltration and recharge from the flow of April 1965 in the Salt River near Phoenix, Arizona: Arizona State Land Dept. Water-Resources Rept. 29, 12 p.

Brown, R. H., Harshbarger, J. W., and Thomas, H. E., 1956, Analysis of basic data concerning ground water in the Yuma area, Arizona: U.S. Geol. Survey open-file report, 117 p.

Brown, S. G., Davidson, E. S., Kister, L. R., and Thomsen, B. W., 1966, Water resources of Fort Huachuca Military Reservation, southeastern Arizona: U.S. Geol. Survey Water-Supply Paper 1819-D, 57 p.

Brown, S. G., and Schumann, H. H., 1969, Geohydrology and water utilization in the Willcox basin, Graham and Cochise Counties, Arizona: U.S. Geol. Survey Water-Supply Paper 1859-F, 32 p.

Burkham, D. E., 1970, Depletion of streamflow by infiltration in the main channels of the Tucson basin, southeastern Arizona: U.S. Geol. Survey Water-Supply Paper 1939-B, 36 p.

Cooley, M. E., Harshbarger, J. W., Akers, J. P., and Hardt, W. F., 1969, Regional hydrogeology of the Navajo and Hopi Indian Reservations, Arizona, New Mexico, and Utah, with a section on vegetation by O. N. Hicks: U.S. Geol. Survey Prof. Paper 521-A, 61 p.

Culler, R. C., and others, 1970, Objectives, methods, and environment—Gila River Phreatophyte Project, Graham County, Arizona: U.S. Geol. Survey Prof. Paper 655-A, 25 p.

Davidson, E. S., 1961, Facies distribution and hydrology of intermontane basin fill, Safford basin, Arizona, *in* Geological Survey research, 1961: U.S. Geol. Survey Prof. Paper 424-C, p. 151–153.

———1973, Geohydrology and water resources of the Tucson basin, Arizona: U.S. Geol. Survey Water-Supply Paper 1939-E, 81 p.

Denis, E. E., 1968, Ground-water conditions in the Waterman Wash area, Maricopa and Pinal Counties, Arizona: Arizona State Land Dept. Water-Resources Rept. 37, 23 p.

Fenneman, N. M., 1931, Physiography of Western United States: New York, McGraw-Hill Book Co., 534 p.

Gatewood, J. S., Robinson, T. W., Colby, B. R., Hem, J. D., and Halpenny, L. C., 1950, Use of water by bottom-land vegetation in lower Safford Valley, Arizona: U.S. Geol. Survey Water-Supply Paper 1103, 210 p.

Gillespie, J. B., Bentley, C. B., and Kam, William, 1966, Basic hydrologic data of the Hualapai, Sacramento, and Big Sandy Valleys, Mohave County, Arizona: Arizona State Land Dept. Water-Resources Rept. 26, 39 p.

Green, C. R., and Sellers, W. D., eds., 1964, Arizona climate: Tucson, Arizona Univ. Press, 503 p.

Halpenny, L. C., and others, 1952, Ground water in the Gila River basin and adjacent areas, Arizona—a summary: U.S. Geol. Survey open-file report, 224 p.

Hardt, W. F., and Cattany, R. E., 1965, Description and analysis of the geohydrologic system in western Pinal County, Arizona: U.S. Geol. Survey open-file report, 92 p.

Heindl, L. A., Cosner, O. J., Page, H. G., Armstrong, C. A., and Kister, L. R., 1962, Summary of ground water on the Papago Indian Reservation, Arizona: U.S. Geol. Survey Hydrol. Inv. Atlas HA-55, 1 sheet.

Kam, William, 1964, Geology and ground-water resources of McMullen Valley, Maricopa, Yavapai, and Yuma Counties, Arizona: U.S. Geol. Survey Water-Supply Paper 1665, 64 p.

Kam, William, Schumann, H. H., Kister, L. R., and Arteaga, F. E., 1966, Basic ground-water data for western Salt River Valley, Maricopa County, Arizona: Arizona State Land Dept. Water-Resources Rept. 27, 72 p.

Kister, L. R., 1973, Quality of ground water in the lower Colorado River region, Arizona, Nevada, New Mexico, and Utah: U.S. Geol. Survey Hydrol. Inv. Atlas HA-478, 2 sheets.

Ligner, J. J., White, N. D., Kister, L. R., and Moss, M. E., 1969, Water resources, *in* Mineral and water resources of Arizona: Senate Comm. on Interior and Insular Affairs, 90th Cong., 2d sess., committee print, p. 469–569.

McDonald, C. C., and Hughes, G. H., 1968, Studies of consumptive use of water by phreatophytes and hydrophytes near Yuma, Arizona: U.S. Geol. Survey Prof. Paper 486-F, 24 p.

McDonald, H. R., Wolcott, H. N., and Hem, J. D., 1947, Geology and ground-water resources of the Salt River Valley area, Maricopa and Pinal Counties, Arizona: U.S. Geol. Survey open-file report, 45 p.

McGavock, E. H., 1968, Basic ground-water data for southern Coconino County, Arizona: Arizona State Land Dept. Water-Resources Rept. 33, 49 p.

Metzger, D. G., 1957, Geology and ground-water resources of the Harquahala Plains area, Maricopa and Yuma Counties, Arizona: Arizona State Land Dept. Water-Resources Rept. 3, 40 p.

Moosburner, Otto, 1972, Analysis of the ground-water system by electrical-analog model, Avra Valley, Pima and Pinal Counties, Arizona: U.S. Geol. Survey Hydrol. Inv. Atlas HA-215, 2 sheets.

Roeske, R. H., and Werrell, W. L., 1973, Hydrologic conditions in the San Pedro River valley, Arizona, 1971: Arizona Water Comm. Bull. 4, 76 p.

Robinson, T. W., 1965, Introduction, spread, and areal extent of saltcedar (*Tamarix*) in the Western States: U.S. Geol. Survey Prof. Paper 491-A, 12 p.

Stulik, R. S., 1964, Effects of ground-water withdrawal, 1954–63, in the lower Harquahala Plains, Maricopa County, Arizona: Arizona State Land Dept. Water-Resources Rept. 17, 8 p.

Stulik, R. S., and Moosburner, Otto, 1969, Hydrologic conditions in the Gila Bend basin, Maricopa County, Arizona: Arizona State Land Dept. Water-Resources Rept. 39, 63 p.

Stulik, R. S., and Twenter, F. R., 1964, Geology and ground water of the Luke area, Maricopa County, Arizona: U.S. Geol. Survey Water-Supply Paper 1779-P, 30 p.

Thomsen, B. W., and Schumann, H. H., 1968, Water resources of the Sycamore Creek watershed, Maricopa County, Arizona: U.S. Geol. Survey Water-Supply Paper 1861, 53 p.

Twenter, F. R., and Metzger, D. G., 1963, Geology and ground water in Verde Valley—the Mogollon Rim region, Arizona: U.S. Geol. Survey Bull. 1177, 132 p.

van Hylckama, T. E. A., 1970, Water use by salt cedar: Water Resources Research, v. 6, no. 3, p. 728–735.

Weist, W. G., Jr., 1965, Geohydrology of the Dateland-Hyder area, Maricopa and Yuma Counties, Arizona: Arizona State Land Dept. Water-Resources Rept. 23, 46 p.

White, N. D., 1963, Analysis and evaluation of available hydrologic data for San Simon basin, Cochise and Graham Counties, Arizona: U.S. Geol. Survey Water-Supply Paper 1619-DD, 33 p.

———1963, Ground-water conditions in the Rainbow Valley and Waterman Wash areas, Maricopa and Pinal Counties, Arizona: U.S. Geol. Survey Water-Supply Paper 1669-F, 50 p.

White, N. D., and Childers, Dallas, 1967, Hydrologic conditions in the Douglas basin, Cochise County, Arizona: Arizona State Land Dept. Water-Resources Rept. 30, 26 p.

White, N. D., and Hardt, W. F., 1965, Electrical-analog analysis of hydrologic data for San Simon basin, Cochise and Graham Counties, Arizona: U.S. Geol. Survey Water-Supply Paper 1809-R, 30 p.

White, N. D., Matlock, W. G., and Schwalen, H. C., 1966, An appraisal of the ground-water resources of Avra and Altar Valleys, Pima County, Arizona: Arizona State Land Dept. Water-Resources Rept. 25, 66 p.

NEVADA

Eakin, T. E., 1962, Ground-water appraisal of Cave Valley in Lincoln and White Pine Counties, Nevada: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Reconn. Ser. Rept. 13, 19 p.

———1963, Ground-water appraisal of Dry Lake and Delamar Valleys, Lincoln County, Nevada: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Reconn. Ser. Rept. 16, 26 p.

———1963, Ground-water appraisal of Garden and Coal Valleys, Lincoln and Nye Counties, Nevada: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Reconn. Ser. Rept. 18, 29 p.

———1963, Ground-water appraisal of Pahranagat and Pahroc Valleys, Lincoln County, Nevada: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Reconn. Ser. Rept. 21, 36 p.

———1964, Ground-water appraisal of Coyote Spring and Kane Spring Valleys and Muddy River Springs area, Lincoln and Clark Counties, Nevada: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Reconn. Ser. Rept. 25, 40 p.

———1966, A regional interbasin groundwater system in the White River area, southeastern Nevada: Nevada Dept. Conserv. Nat. Resources, Water-Resources Bull. 33, 271 p.

Eakin, T. E., and Moore, D. O., 1964, Uniformity of discharge of Muddy River Springs, southeastern Nevada, and relation to interbasin movement of ground water, *in* Geological Survey research, 1964: U.S. Geol. Survey Prof. Paper 501-D, p. 171–176.

Glancy, P. A., 1968, Water-resources appraisal of Mesquite-Ivanpah Valley area, Nevada and California: Nevada Dept. Conserv. Nat. Resources, Water-Resources Reconn. Ser. Rept. 46, 57 p.

Glancy, P. A., and Van Denburgh, A. S., 1969, Water-resources appraisal of the lower Virgin River Valley area, Nevada, Arizona, and Utah: Nevada Dept. Conserv. Nat. Resources, Water-Resources Reconn. Ser. Rept. 51, 87 p.

Loeltz, O. J., and Malmberg, G. T., 1961, The ground-water situation in Nevada, 1960: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Inf. Ser. Rept. 1, 20 p.

———1963, Ground-water conditions in the vicinity of Lake Mead Base, Las Vegas Valley, Nevada: U.S. Geol. Survey Water-Supply Paper 1669-Q, 17 p.

Malmberg, G. T., 1964, Land subsidence in Las Vegas Valley, Nevada, 1935–63: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Inf. Ser. Rept. 5, 10 p.

———1965, Available water supply of the Las Vegas ground-water basin, Nevada: U.S. Geol. Survey Water-Supply Paper 1780, 116 p.

———1967, Hydrology of the valley-fill and carbonate-rock reservoirs, Pahrump Valley, Nevada-California: U.S. Geol. Survey Water-Supply Paper 1832, 47 p.

Maxey, G. B., and Eakin, T. E., 1949, Ground water in White River Valley, White Pine, Nye, and Lincoln Counties, Nevada: Nevada State Engineer Water Resources Bull. 8, 59 p.

McGuinness, C. L., 1963, The role of ground water in the national water situation: U.S. Geol. Survey Water-Supply Paper 1800, 1121 p.

Rush, F. E., 1964, Ground-water appraisal of the Meadow Valley area, Lincoln and Clark Counties, Nevada: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Reconn. Ser. Rept. 27, 43 p.

———1968, Water-resources appraisal of the lower Moapa-Lake Mead area, Clark County, Nevada: Nevada Dept. Conserv. Nat. Resources, Water-Resources Reconn. Ser. Rept. 50, 66 p.

Rush, F. E., and Eakin, T. E., 1963, Ground-water appraisal of Lake Valley in Lincoln and White Pine Counties, Nevada: Nevada Dept. Conserv. Nat. Resources, Ground-Water Resources Reconn. Ser. Rept. 24, 29 p.

Rush, F. E., and Huxel, C. J., Jr., 1966, Ground-water appraisal of the Eldorado-Piute Valley area, Nevada and California: Nevada Dept. Conserv. Nat. Resources, Water-Resources Reconn. Ser. Rept. 36, 29 p.

Rush, F. E., and Kazmi, S. A. T., 1965, Water-resources appraisal of Spring Valley, White Pine and Lincoln Counties, Nevada: Nevada Dept. Conserv. Nat. Resources, Water-Resources Reconn. Ser. Rept. 33, 36 p.

Thomas, H. E., 1964, Water resources, *in* Mineral and water resources of Nevada: U.S. 88th Cong., 2d sess., Senate Doc. 87, p. 273–314 .

NEW MEXICO

Busch, F. E., and Hudson, J. D., 1968, Ground-water levels in New Mexico, 1966: New Mexico State Engineer Basic Data Rept., 71 p.

Bushman, F. X., and Valentine, C. P., 1954, Water well records and well water quality in southwestern San Agustin Plains, Catron County, New Mexico: New Mexico Bur. Mines and Mineral Res. Circ. 26, 19 p.

Callahan, J. T., and Cushman, R. L., 1955, Geology and ground-water supplies of the Fort Wingate Indian School area, McKinley County, New Mexico: U.S. Geol. Survey Circ. 360, 12 p.

Cooley, M. E., Harshbarger, J. W., Akers, J. P., and Hardt, W. F., 1969, Regional hydrogeology of the Navajo and Hopi Indian Reservations, Arizona, New Mexico, and Utah, with a section on vegetation by O. N. Hicks: U.S. Geol. Survey Prof. Paper 521-A, 61 p.

Doty, G. C., 1960, Reconnaissance of ground-water in Playas Valley, Hidalgo County, New Mexico: New Mexico State Engineer Tech. Rept. 15, 40 p.

McGuinness, C. L., 1963, The role of ground water in the national water situation: U.S. Geol. Survey Water-Supply Paper 1800, 1121 p.

Reeder, H. O., 1957, Ground water in Animas Valley, Hidalgo County, New Mexico: New Mexico State Engineer Tech. Rept. 11, 67 p.

Schwennesen, A. T., 1917, Ground water in San Simon Valley, Arizona and New Mexico, with a section on agriculture by R. H. Forbes: U.S. Geol. Survey Water-Supply Paper 425-A, 33 p.

———1918, Ground water in the Animas, Playas, Hachita, and San Luis basins, New Mexico, with a section on analyses of water and soil by R. F. Hare: U.S. Geol. Survey Water-Supply Paper 422, 152 p.

Trauger, F. D., 1960, Availability of ground water at proposed well sites in Gila National Forest, Sierra and Catron Counties, New Mexico: New Mexico State Engineer Tech. Rept. 18, 20 p.

UTAH

Cordova, R. M., Sandberg, G. W., and McConkie, Wilson, 1972, Ground-water conditions in the central Virgin River basin, Utah: Utah Dept. Natural Resources Tech. Pub. 40. (In press.)

Goode, H. D., 1964, Reconnaissance of water resources of a part of western Kane County, Utah: Utah Geol. and Mineralog. Survey Water-Resources Bull. 5, 63 p.

———1966, Second reconnaissance of water resources in western Kane County, Utah: Utah Geol. and Mineralog. Survey Water-Resources Bull. 8, 44 p.

Marine, I. W., 1963, Ground-water resources of the Bryce Canyon National Park area, Utah, with a section on the drilling of a test well: U.S. Geol. Survey Water-Supply Paper 1475-M, 46 p.

Wilson, M. T., and Thomas, H. E., 1964, Hydrology and hydrogeology of Navajo Lake, Kane County, Utah: U.S. Geol. Survey Prof. Paper 417-C, 26 p.

Hydrology by personnel of the U.S. Geological Survey: In Arizona by E.S. Davidson and others; in Nevada by F.E. Rush; in New Mexico by W.A. Mourant; in Utah by Donald Price, modified by S.G. Brown

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PRELIMINARY MAPS SHOWING GROUND-WATER RESOURCES IN THE LOWER COLORADO RIVER REGION, ARIZONA, NEVADA, NEW MEXICO, AND UTAH

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