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A. Dan Tarlock

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THE ROLE OF MARKET TRANSFERS IN THE ACCOMMODATION OF NEW USES:

A CASE STUDY OF THE TRUCKEE-CARSON BASIN

A. DAN TARLOCK
CHAIRMAN, COMMITTEE ON WESTERN WATER
MANAGEMENT CHANGE, WATER SCIENCE AND
TECHNOLOGY BOARD, NATIONAL ACADEMY OF
SCIENCES*

* The views expressed in this presentation are solely those of the author and do not represent the views of the Committee or the National Academy

MOVING THE WEST'S WATER TO NEW USES:
WINNERS AND LOSERS

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I. THE ISSUES: FROM TRADITIONAL TO NON-TRADITIONAL USES

The arid Truckee Meadows Lathontan Valley area of western Nevada is in transition from a low density urban and agricultural area to a high density urban area with a declining agricultural base and large areas devoted to the preservation of Native American cultures and wildlife habitats. This transition mirrors the land use changes that many areas of the West are facing and is another stage in the constant redefinition of the West which began with its settlement. See R. Athearn, *The Mythic West* (1986). The Truckee Meadows Lathontan Valley transition is characterized by intense water allocation conflicts between traditional and non-traditional users. Through the use of federal environmental and Indian law, Native American users have been able to gain the power to influence water allocation that was denied them in earlier adjudications. Before non-agricultural Native American rights were recognized, a productive wildlife habitat, the Stillwater Marsh, was able to co-exist precariously with an upstream irrigation district. However, the reallocation of water for Native American uses along with other upstream uses has reduced the marsh to 4,000 to 6,000 acres. Environmental Assessment, Acquisition of Water Rights for Stillwater Wildlife Management Area (U.S. Department of Interior, Fish and Wildlife Service, July 13, 1989). To restore the wetland, wildlife interests are turning to the market to gain rights denied them by early adjudications and subsequent "re-allocations." The

effort underway to restore the marsh is an excellent case study of the intersection between market, regulatory and judicial reallocation of water.

II. PHYSICAL DESCRIPTION OF THE TRUCKEE-CARSON BASIN

A. THE BASIN

The Truckee River arises in Lake Tahoe in the Sierra Nevada Mountains of California, and the Carson River arises in the Sierra Nevada south of Lake Tahoe. The two Rivers flow easternward to Nevada into the Great Basin so they are closed system rivers. The rivers serve the metropolitan Reno-Sparks area, the Truckee-Carson Irrigation District (TCID) in Fallon, Nevada and Native American and wildlife uses. The two rivers drain respectively into Pyramid Lake and the Lathontan marshes, the Stillwater, Carson Sink and Carson Lake Marshes. See Map in Appendix No. 1.

B. THE WATER BUDGET

Rainfall averages about nine inches per year in the Truckee-Carson basin of western Nevada. The available surface supplies are fully appropriated by adjudications begun in the reclamation era. There are 750,000 acre feet of decreed surface water rights; 90% of these are currently dedicated to agriculture use. Average annual surface run-off is generally sufficient to meet these decreed rights, but there are substantial reallocation pressures as irrigated agriculture continues to decline. The 1990- 1980 average inflow of the Truckee into Nevada is 570,000 acre feet per year; the flow of the Carson is more variable because it is unregulated. Winter flows are in the average range of 15,000 to 25,000 acre feet and the average May-June runoff is about is in the neighborhood of 65,000 acre feet. Groundwater resources are also limited because they are managed on a safe yield basis and can provide only about 20% of the supply in the urban Truckee Meadows area. Washoe County is currently considering pumping groundwater from the interstate Honey Lake Basin on the California-Nevada border north of Reno and importing 17,000 acre feet per year into the Truckee Meadows area. Ranchers in California have raised concerns

and the city of Reno has suggested that it will not allow the imported groundwater to flow into its treatment plant if the quality of the Truckee River will be threatened.

III. THE PLUMBING

A. CARRY OVER STORAGE

Carry-over storage and transbasin diversions can play a large role in meeting existing demands in a basin, but only the latter plays a significant role in the two basins. The Carson River has only been dammed at the lower end to supply the TCID. Lathontan Dam and Reservoir is an earth and gravel fill structure completed in 1915 with a storage capacity of 314,000 acre feet. Several upstream reservoirs have been constructed on the Truckee, but there is insufficient carry-over storage to provide normal flows during a two or three year drought cycle. Lake Tahoe, located on the California-Nevada border, is both a natural lake of great beauty and relative purity and a storage reservoir for the Truckee. Lake Tahoe could provide all the carry-over storage that the area would need for the long term, but most of the water has been dedicated to in-place, nonconsumptive uses. Lake Tahoe has a total capacity of 122,160,280 acre feet, but the

lake level is regulated to fluctuate a maximum of 7 feet so there are only 744,600 acre feet of effective storage capacity in the lake. Six other small storage reservoirs have been constructed on the Truckee and its tributaries with a total capacity of 316, 770 acre feet. Stampede Reservoir, constructed in the 1960s, contains the bulk of this capacity with 226,500 acre feet.

B. TRANSBASIN DIVERSIONS

To guarantee firm supplies to the Newlands project (TCID), the Truckee river is diverted to the Carson through the Truckee canal which runs from Derby dam to Lake Lathontan. See map Appendix No. 1

IV. THE CLAIMANTS

Four major water users compete for the basin's limited supplies. Both traditional and non-traditional users claim substantial shares of the area's water resources. In addition to the usual conflicts between municipal and industrial and irrigated agriculture (both non-Indian and Indian irrigators), aboriginal Native American fisheries and wildlife maintenance compete for the some 750,000 acre feet per year of decreed rights.

A. IRRIGATED AGRICULTURE

The rapidly growing metropolitan Reno-Sparks dominates the upper Truckee River and 75 percent of the agricultural uses west of the city have already been converted to M & I uses. Irrigated agriculture still dominates the eastern end of the Truckee and Carson rivers.

1. The History of the Truckee-Carson Irrigation District. The Truckee-Carson Irrigation District is one of the nation's oldest reclamation projects. The basin was the home of the chief sponsor of the Reclamation Act of 1902, Senator Frank Newlands of Nevada. Senator Newlands financed the Truckee Carson project in 1888 with a fortune made practicing law and inherited from his silver miner father-in-law. "It was one of the most ambitious reclamation efforts of its day and it failed . . ." R. Reisner, Cadillac Desert 116 (1986). Senator Newlands became the chief proponent of federal support for reclamation and the Reclamation Act of 1902 was drafted by him. The Newlands Project became the first project funded under the 1902. Carson river water was augmented by diverting Truckee River Water in 1915. The project was originally

projected to encompass 232,000 acres, but this number progressively declined. In 1985, the Department of the Interior estimated that only 63,100 acres have ever been irrigated and only 56,400 have project water rights. Still, the Bureau of Reclamation projects that the number of irrigated acres may increase. United States Department of Interior, Bureau of Reclamation, Draft Environmental Impact Statement for the Newlands Project Proposed Operating Criteria and Procedures 68- 69 (1986). Today, the bulk of the District is dedicated to the production of forage crops, alfalfa and irrigated pasture. The continued production of low-value crops is criticized in M. Reisner and S. Bates, *Overtapped Oasis: Reform or Revolution in Western Water* 32-34 (1990). Vegetables, fruits and specialty crops account for only 2% of the acreage.

2. Truckee-Carson Irrigation District Water Rights* Then and Now. After the Truckee-Carson Irrigation District was formed, it became necessary to adjudicate the rights to the river. The resulting adjudication confirmed existing agricultural, power and municipal uses. The adjudication allowed the

TCID to survive and provided the framework for the conservation of upstream irrigation rights to M & I uses. However, the adjudication excluded a major claimant, the Pyramid Lake Tribe, as well as a smaller Piate Shoshone Tribe. As the Pyramid Lake Tribe began to assert its rights against the TCID, diminished return flows from the TCID imperiled a wildlife area. At the present time, efforts are underlay to integrate a market solution to this environmental problem into going regulatory efforts to promote the Indian fishery.

B. NATIVE AMERICAN CLAIMANTS

Two Indian reservations assert inconsistent claims.

1. The Pyramid Lake Reservation

The Pyramid Indian Reservation is the home of the Kuyuidokado, cui-ui eaters, band of the of the Northern Piate culture. The Tribe claims additional flows to maintain the level of Pyramid Lake, which in John C. Fremont's much quoted phrase is "set like

a gem in the mountains" and to maintain sufficient flows at the end of the Truckee to support its traditional fishery. Native American dependence of the fishes of Pyramid Lake goes back at least 4,000 years. For a complete anthropological explanation of the basis of this culture see M. Knack and O. Stewart, *As Long As The River Shall Run: An Ethnohistory of the Pyramid Lake Reservation* (1984). Before man began to divert and consume the Truckee for irrigated agriculture, 600,000 acre feet flowed into the lake. Annual average inflows are now about one-half of the historic virgin inflow. Additional flows are needed to allow the cui-ui, "a large omnivorous sucker found only in Pyramid Lake," which the Tribe considers sacred, and the Lathontan cut throat trout to spawn. Buchanan and Coleman, *The Cui-ui, Endangered Species Accounts* (National Audubon Society, 1987). The cui-ui spawn in the mouth of the Truckee and then migrate quickly back into the lake. Derby Dam diversions for the Newlands Project reduce the flow of the Truckee northward by about 50%. By 1926, a delta had formed at the mouth of the Truckee and fish would reproduce during high water years when there were sufficient flows to cut a channel through the delta.

2. The Piante-Shoshone Fallon Reservation

On the eastern edge of the Truckee-Carson Irrigation District is the Fallon Indian Reservation. This forgotten tribe was promised irrigation water in return for surrendering some of its lands when the Newlands Project was formed. As it often the case with respect to Indian irrigation, the promise has yet to be redeemed. The Tribe claims about 18,700 acre feet per year of Winters' rights to irrigate an additional 3,100 acres.

C. WILDLIFE INTERESTS

Protection of the Pyramid Lake Tribe has come at the expense of the Stillwater Wildlife Management Area, and wildlife protection has recently emerged as a major potential water use in this already stressed area. The Carson River drains into the Lathontan marshes and Carson sink, and this area has suffered from human intervention. Before human settlement, 100,000 acres of wetlands were sustained by the Carson River, and the Lathontan and Pyramid ecosystems were harmoniously maintained. The development of the Truckee-Carson Irrigation District created a conflict between the two ecosystems that continues to the present. In 1905, Derby Dam was constructed on the Truckee near Fernley and the Truckee

Canal diverted about one-half of the Truckee's flow into the Carson Basin. Still, two ecosystems continued harmoniously because of TCID return flows until the Pyramid Lake tribe forced the Bureau of Reclamation to limit the amount of water used in the Truckee-Carson Irrigation District. Starting in the 1970s, inflows into the Stillwater Wildlife Management Area were diminished and became polluted. The Stillwater National Wildlife Refuge and Management Area and the Lathontan Valley Wetlands are a key support habitat of the Pacific Flyway. They support about one half of Nevada's waterfowl and have been designated as a Western Hemispheric Shore Bird Preserve because it is home to one third of the flyway's bald eagles, peregrine falcons and great white pelicans. The Nature Conservancy rates Nevada 6th among all states in ecosystem diversity because of its wetlands, but the state has lost 85% of this base in the 20th century. The wetlands have shrunk from 50,000 to 7,000 acres due to the recent drought in the West and upstream diversions. As a result, the ecosystem is now stressed and both the federal government and private environmental groups are moving aggressively to secure water rights for this new use. If this world heritage reserve is to be preserved as a wildlife sanctuary, it requires more and cleaner water. Biologists estimate that approximately 55,000 acre feet are needed to support a permanent 25,000 acre marsh.

D. URBAN USERS

To accommodate the continued unchecked growth and in the Reno-Sparks area, water suppliers in Washoe County have had to acquire existing water rights. Reno is attempting to acquire a sufficient water reserve to withstand an extreme drought and has had to reverse its historic no water metering policy. The price of water has risen over the past 15 years from about \$750.00 per acre foot to between \$2,500.00 and \$3,000.00 per acre foot. Most of the existing water rights have now been acquired by WESTPAC, the water supply division of Sierra Pacific Power, for M & I uses. The major potential third party effects of these reallocations will be on downstream users. Downstream water right holders are entitled to return flows. Water used by Reno has historically been returned to the stream as treated effluent. The problem is that these discharges violate the Clean Water Act, and Reno and Sparks have decided to use land disposal. This will, of course, reduce return flows. The issues turn on Reno's rights and duties with respect to the reduced and future effluent. The Pyramid Lake Tribe takes the position that the effluent will cause an unacceptable level of phosphate and nitrogen in the Truckee which all interfere with the spawning runs

of two endangered species. It wants clean replacement water. The Fish and Wildlife Service, in contrast, may accept piped treated effluent for the wetlands. See the Minutes of the Steering Committee for a Negotiated Water Settlement for September 12, 1990, November 15, 1989 (Mimeo, Office of Senator Harry Reid of Nevada, various dates). All western states have struggled with this issue with inconsistent results. See A.D. Tarlock, Law of Water Rights and Resources § 5.05[4] (1988). The Arizona supreme court, for example, has held that sewage effluent is waste water and thus a city owns no obligation to downstream users to continue to discharge it or to provide substitute supplies. Arizona Public Service Co. v. Long, 160 Ariz. 429, 773 P.2d 988 (1989). The Nevada state engineer has taken the opposite position.

V. ALLOCATION TRUCKEE AND CARSON

A. INTERSTATE SHARES

Both the Truckee and Carson are interstate rivers and are shared between Nevada and California. There has been no formal allocation between the two states by Supreme Court decree, compact or act of Congress. There is, however, a long history of judicial decrees, federal agreements and unapproved compacts to provide a de facto

allocation of both appropriated and unappropriated waters. Plans to divert Lake Tahoe go back to the mid-nineteenth century and a series of agreements have fixed the level of the lake and thus the amount that could be diverted. In 1955, the two state legislatures authorized the negotiation of a compact; a draft compact was prepared in 1966 and both states finally ratified it by 1971. Basically, subject to minor diversions in the Tahoe Basin, the compact confirmed the Orr Ditch decree, gave California a possible 26,000 acre feet from the Truckee and allocated the rest of the flow to Nevada. No hearings were ever held because California's senators opposed it as did the Pyramid Lake Tribe. The 1966 compact is now considered dead, but many of the provisions are incorporated into pending federal legislation, S. 1554, 101 Cong., 1st. Sess, to settle disputes on the Truckee. See Kramer, Lake Tahoe, the Truckee River, and Pyramid Lake: The Past, Present and Future of Interstate Water Issues, 19 Pacific L. J. 1139 (1988); Jackson and Pisani, A Case Study in Interstate Resource Management: The California- Nevada Water Controversy 1865- 1955 (California Water Resources center, U.C. Davis, Contribution No. 142 1973) and Jackson and Pisani, A Case Study in Interstate Resource Management: The California- Nevada Water Controversy 1955- 1968 (California Water Resources Center, U. C. Davis, Contribution No. 147

1974).

B. NEVADA

1. The Role of Law of Prior Appropriation

The law of prior appropriation has served to create firm property rights in the West's variable streams and this function has played a dominant role in allocating the waters of the two rivers. The waters of the Truckee and Carson were appropriated in the late nineteenth and early twentieth century and this allocation remained relatively constant until the Indians were able to challenge it in the 1970s. Prior appropriation continues to operate as a constraint on reallocation options, but it also serves as a source of rights for new traditional and non-traditional uses. In addition to market reallocation, the law of prior appropriation is also under stress. Federal regulatory programs, the public trust and other theories are being used to reallocate water to new uses. See generally Symposium, New Challenges to Western Water Law, 29 National Resources J. 331 (1989).

2. The Floristan Rates and the Orr Ditch Decree

(a) Floristan Rates

The supply of the Truckee was initially

determined by a series of agreements that fixed the flow rates in the Truckee to maximize the initial beneficial use of the river for hydroelectric power generation. Subsequently, the available supply of the Truckee was then allocated by an adjudication as was the Carson. Briefly, the first dam at the mouth of the Truckee at Lake Tahoe was constructed in 1870; the Truckee River flows were first established in 1908 for hydroelectric power generation. These flows are the Floristan Rates because they are measured at the Floristan stream gage near the California-Nevada border. In 1915, the Bureau of Reclamation acquired the Lake Tahoe dam in a consent decree that settled a condemnation suit. This decree gave the United States the right to raise the level of Lake Tahoe and obligated it to maintain the Floristan rates. Adjudication of the Truckee began in 1913, shortly after the California Conservation Commission recommended that the state seek an equitable apportionment of the Truckee and Lake Tahoe. In 1935, the United States Department of Interior approved the Truckee River Agreement which modified the original Floristan rates to allow additional flood storage. In brief, 400 cubic feet per second are required during the winter months and 500 cubic feet per second during the summer months.

Lower winter flows of 350 c.f.s. to 300 c.f.s. are allowed when the level of the lake is between 6226.0 and 6225.25 feet.

(b) The Orr Ditch Decree

Truckee River use is controlled by the "Orr Ditch" decree, *The United States of America v. Orr Water Ditch Company, Final Decree, D. Nev. 1944*), the establishment of minimum levels for Lake Tahoe and the Truckee River Agreement. Lake Tahoe storage is limited to 744,000 acre feet and withdrawals from the storage pool are controlled by the Truckee River Agreement. Truckee River Agreement, 1935. The Orr Ditch decree was not made final until 1944 and not immunized from collateral attack by the Pyramid Lake Tribe until 1983. This decree is administered by a federal water master; his basic task is to maintain a minimum flow at the California-Nevada state line relative to the level of Lake Tahoe. The Orr Ditch Decree defines rights as quantified appropriations

(c) The Carson River Decree

The Carson River use is allocated by the Alpine decree. The Alpine decree defines rights in terms of maximum consumptive uses rather than as quantified appropriations. The decree limits the amount of water that can be transferred to non-

irrigation uses from the Carson Unit of the project to a net consumptive use of 2.99 acre foot per acre. *United States v. Alpine Land & Reservoir Co.*, 697 F.2d 851 (9th Cir. 1983). cert. denied, 464 U.S. 863 (1983).

VI. INDIAN WATER RIGHTS: THE PYRAMID LAKE TRIBE MOVES FROM THE BOTTOM TO THE TOP OF THE SYSTEM

The "Orr Ditch" decree supported the Newlands project at the expense of the Pyramid Lake Tribe. In the 1960s, the Tribe began to attack the original decree. Although, the Supreme Court ultimately affirmed the finality of the decree, a series of indirect attacks have rendered the project's rights more uncertain in the past two decades and has given the Tribe the power to influence the future allocation in the basin and perhaps to veto any allocations detrimental to the survival of *cui-ui*.

A. OCAP

The Pyramid Lake Tribe's objection to the "Orr Ditch" decree is that they received 14,742 acre feet for irrigation with the first priority but no water for its traditional fishing culture, which became imperiled after the Truckee Canal diverted about one-half of the virgin flow of the Truckee to the Carson basin. After a long period of protest within the Bureau of the Indian Affairs, the tribe turned to litigation to restore the

Truckee flows. The tribe strategies were to modify the operation of the TCID and to re-open the "Orr Ditch Decree."

1. The Origins of OCAP

In 1967, the Department of the Interior began to impose operating restrictions on the TCID to increase its efficiency. The Secretary's 1972 OCAP, 43 C.F.R. Part 418 (1972), was challenged by the Tribe because it delivered more water to the district than it was entitled to under the Orr Ditch and Alpine decrees and violated the Department's trust duty to the Tribe. A federal district court held in 1973 that the Secretary failed to justify his selection of a high end allocation for the District and owed the tribe a trust duty to maintain the level of the laked to support the fisheries and ordered DOI to modify the operation of the TCIDs. "In order to fill his fiduciary duty, the Secretary must insure, to the extent of his power, that all water not obligated by court decree or contract with the District goes to Pyramid Lake." Pyramid Lake Piate Tribe of Indians v. Morton, 354 F. Supp. 252 (D.D.C. 1973). The court ordered that TCID's allowance be reduced from 406,000 acre feet to 288,129 acre feet, but the District did not comply.

2. OCAP Today

The Pyramid Lake Tribe has continued to press the Department of Interior to reduce TCID's allowance, and DOI has issued a progressively stringent set of Operating Criteria and Procedures for the Newlands Project (OCAP) which have reduced to the District's rights from 406,000 acre feet per year to somewhere between 327,000 to 367,000 acre feet per year. OCAP "are predicated on water being used on . . . water righted land in a similar manner as in the past with the project operating at reasonable efficiency," which the DOI defines as about 60% for both the divisions of the project, by reducing seepage, evaporation and spill loses. Basically, the OCAPs try to ensure that headgate deliveries match court decreed water duties, establish efficiency targets for the Project's distribution system, and set a maximum allowable diversion (MAD) that reduces annual diversions as the project efficiency increases. If TCID's actual delivery exceeds the target efficiency for a water year, the district will receive a Lathontan storage credit. The net result is that more water is flowing into Pyramid Lake, less into the Stillwater Wildlife Refuge Area and the Fallon Reservation still has an unsatisfied Winters right.

B. REOPENING THE ORR DITCH DECREE

OCAP reductions only slightly ameliorate the decline of Pyramid Lake. The tribe tried to reopen the "Orr Ditch Decree" because the Department of Interior representation of both the Tribe and TCID in the adjudication constituted a conflict of interest, but the United States Supreme Court held that the Tribe was bound by the decree because the adjudication was intended to be final and Congress imposed a duty of dual representations on the Bureau of Reclamation. *Nevada v. United States*, 463 U.S. 110 (1983). The tribe continues to chip away at the decree with limited success. For example, the tribe recently raised a public interest objection to the TCID's transfers of water from unirrigated lands with water rights to irrigated lands without water rights, but the court dismissed it as simply a collateral attack on the Orr ditch decree. *United States v. Alpine Land & Reservoir Co.*, 878 F.2d 1217 (9th Cir. 1989).

C. THE ENDANGERED SPECIES ACT

The Tribe has been able to use the Endangered Species Act to accomplish indirectly what they could not do directly. As a result of ESA litigation, the Tribe now controls the largest unallocated blocks

of water on the Truckee. After the cui-ui was listed as endangered and the Lathontan cutthroat as threatened, the Tribe sued to require that the Department of the Interior operate Stampede Reservoir, built in the 1960s to supplement Reno's supply, to maintain these species instead of for M & I uses. The Ninth Circuit Court of Appeals held that the Secretary had a duty to subordinate all other uses to the fish until they were no longer endangered or threatened as opposed to refraining from any action that jeopardized their bare survival. *Carson-Truckee Irrigation District v. Clark*, 741 F.2d 257 (9th Cir. 1984), cert. denied, 470 U.S. 1083 (1985). Although endangered species protection is now the sole reservoir purpose, Stampede storage can be released to TCID as part of the a reservoir credit established by the yearly OCAP. TCID is entitled to a storage credit for the difference between the actual amount saved and the target amount. DOI need not carry the credit from year to year. *Pyramid Lake Tribe of Indians v. Hodel*, 882 F.2d 364 (9th Cir. 1989). Carson-Truckee Irrigation District has given the Pyramid Lake tribe great leverage with upstream users, primarily WESTPAC, to match the leverage that the earlier decision gave it with the TCID. Reno-Sparks cannot

now use Stampede reservoir as a drought reserve, the purpose that the reservoir was actually intended to serve.

VIII. THE PARTIAL SETTLEMENT: PYRAMID LAKE AND RENO CUT A DEAL

Sierra Pacific Power and the Pyramid Lake Tribe have entered into a water rights settlement which is currently pending before Congress. S. 1554, 101 Cong., 1st. Sess. (Jan. 3, 1989). With respect to the Truckee River, the agreement will allow the management of Stampede Reservoir both for Spring spawning flows for the cui-ui and for drought reserve storage for the benefit of Reno-Sparks. Downstream users will be protected, although continued discharges from the Reno-Sparks sewage treatment plant may be necessary to firm up downstream rights. The TCID was not a party to the final negotiations on the Reid Bill. In early 1990, Representative Vucanovich introduced legislation that precludes any agreement without the inclusion of the TCID and the Fallon Shoshone Piate Tribe.

IX. THE BUY OUT OF THE TRUCKEE-CARSON IRRIGATION DISTRICT

Water for the Stillwater Wildlife Management area is unlikely to come from the Truckee River because of the rights of the Pyramid Lake Tribe under federal Indian/Law and the Endangered Species Act and the demands of the Reno-Sparks area. Therefore, the water must come from the TCID. Since the Pyramid Lake Tribe is the beneficiary of all savings achieved through the OCAP, rights for the refuge

must be at the expense of existing users in the District. OCAP seeks to serve all existing rights holders through the more efficient operation of the project. Water for wildlife must come from the reallocation of TCID water. Title III of S. 1554 authorizes the Secretary of Interior purchase TCID water rights from willing sellers and transfer and hold these water rights. The Environmental Defense Fund, consistent with its efforts to solve water problems through market transfers, has urged the use of voluntary water rights acquisitions to provide the necessary water for the Management Area. Environmental interests are proceeding on the assumption that 50,000 acre feet of reduced TCID diversions or deliveries are necessary to restore the management area. This water could come from increasing conveyance efficiencies or by retiring approximately 23% of the existing irrigated acreage. See Yardis, Birds Versus Fish: An Environmental Perspective on Water Resource Conflicts in the Truckee- Carson River Basins (Comments Prepared for the "Water in Balance Forum, Reno, Nevada, May, 1987 mimeo).

A. FIRST PURCHASES

In December of 1989, the Nature Conservancy paid \$135,000.00 to purchase the water rights (about 400 acre feet) from 150 acres of marginal farmland. Nature Conservancy News Release, December 13, 1989. The purchased was financed by a loan from the Nature Conservancy's Land Preservation Fund which will be repaid by the Fish and Wildlife Service.

B. TRANSFER APPROVAL

Water rights may be held to promote wildlife management in *State v. Morros*, 776 P.2d 263 (Nev.1988); Nev. Rev. Stat. § 533.023. In April of 1990 the Nevada State Engineer approved an application of the Nevada Waterfowl Association to transfer 189 acre feet of water from agriculture to fish and wildlife maintenance. The Nature Conservancy and the Nevada Waterfowl Association avoided protests from the TCID and the Pyramid Lake Tribe by applying only for a one year temporary transfer authorized under Nev. Rev. Stat. § 533.345.

C. A FREE OR MONITORED MARKET

Voluntary water transfers seem an attractive way to address the third party effects of past water allocation choices because they provide an accurate measure of the value of water and thus of all relevant third party effects. The clean water that reaches the refuge thus represents a more efficient and fair allocation of resources. This is especially true for marginal agricultural areas such as the TCID. Crop production is currently not central to the economic prosperity of the Fallon area because of the expansion of a Naval Air station. There are, however, a number of critical questions raised by market allocation from traditional to non-traditional uses.

1. Do Market Prices Capture All Relevant Third Party Effects

Market price is not always the most reliable indicator of the value of water. Water may have a variety of intangible or unquantified values associated with the importance to which an entire community attaches to a stable allocation pattern. There may be community interest in the status quo which is not reflected in individual bargains. Individual farmers, almost all of whom earn their livelihood off the irrigated land, may be satisfied with compensation, but the character of the area may change and there may be dislocations among those who depend on the agricultural base of the area. Some of these effects can be mitigated by the operation of the market. Transfer deliveries can be delayed to allow suitable replacement species, yearly and total ceilings may be placed on the amount of water which may be acquired for a given use and parcels can be selected for acquisition with an eye toward minimum disruption of the area. Community participation mechanisms can increase the legitimacy of transfers.

2. Should the Market Be Monitored

The acquisition of water rights may require the

operation of a monitored market. because of the third party effects on individual farmers, the TCID as an on-going, viable entity and on the economy of the surrounding community, there may have to be criteria for water rights acquisition. The Environmental Defense Fund has suggested:

(1.) Delay in the exercise of the right to allow the seller to substitute less water dependent ground cover and crops

(2.) Phased purchases by yearly and overall acquisition ceilings perhaps tied to expected imported water

(3.) Acquisition priorities such as high water quality benefits and low carriage loses. See Yardis, Statement on the Truckee-Carson-Pyramid Lake Water Rights Settlement Act (S.1554) before the Sub committee on Water and Power, Energy and National Resources Committee: United States Senate, (Feb. 6, 1990)

3. The Larger Community

Entity interests may also have to be protected. TCID O & M expenses and repayment obligations must be protected. In addition, the county may face lost property and sales tax revenues.

D. IMPLEMENTATION: WILL IT WORK?

The federal government has already appropriated money for water rights acquisition. However, any market solution must be closely evaluated because there is a possibility of unjustified windfall profits to sellers. There are two initial problems with the acquisition alternative. First, there are serious issues of implementation. Not every water right should be classified as eligible for acquisition. In the TCID, not all lands have project water rights and many rights are paper rights. That is, the right is based on decreed amounts rather than actual beneficial use. A water right which is not put to be beneficial use may be lost by either forfeiture or abandonment. In Nevada, pre-1913 water rights can only be abandoned while post-1913 rights may be terminated more easily through forfeiture. In *re Manse Spring and Its Tributaries*, 108 P.2d 311 (Nevada, 1940). Because most water rights in Nevada pre-date 1913, it is difficult to terminate a water right and thus there is need to ensure that water rights that are purchased in fact represent water put to active use for some period of time before the transfer. Second, the water must be of a sufficient quality to promote restoration. There are currently no state water quality standards for

wetlands.

X. CONCLUSION

The net effect of the changes occurring in the Truckee-Carson basin suggest that the concept that a watershed should be managed to promote bio-diversity by restoring, to the maximum extent possible with competing uses, pre- human intervention conditions is gradually replacing the former principle that river systems should be managed to maximize consumptive uses.

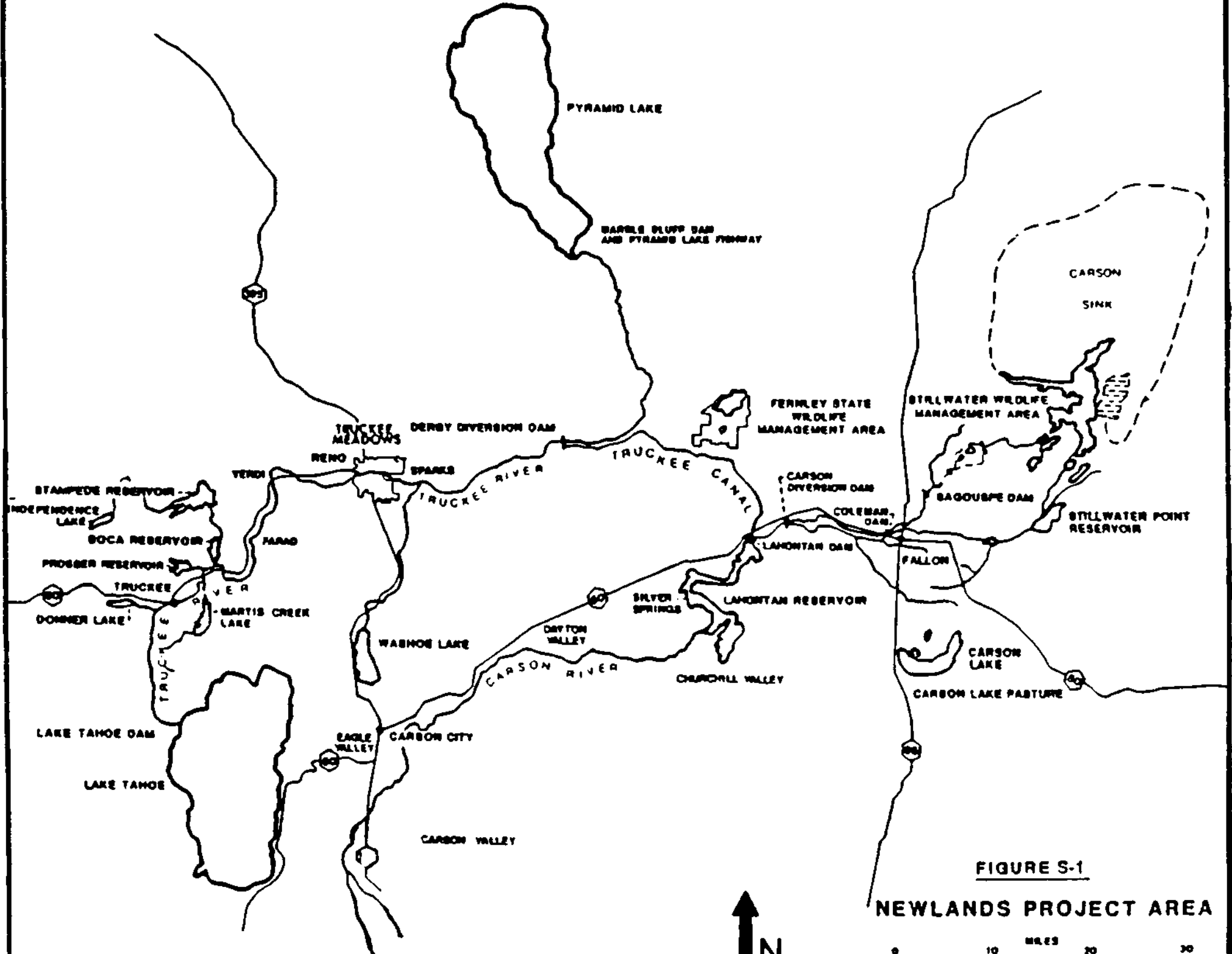


FIGURE S-1
NEWLANDS PROJECT AREA