Platte River Cooperative Agreement
And
What It Means to the State of Nebraska

Prepared by Jim Cook
Legal Counsel, Nebraska Department of Natural Resources
May 18, 2004

Introduction and Summary of the Platte River Cooperative Agreement

On July 1, 1997, Nebraska, Colorado, Wyoming and the United States Department of the Interior entered into a partnership to develop a basin-wide "program" for four species, the least tern, the piping plover, the whooping crane and the pallid sturgeon, (target species) that have been listed as threatened or endangered under the federal Endangered Species Act (ESA). That program is being formulated pursuant to what is commonly called the Platte River Cooperative Agreement (CA). The basinwide program being developed has the following as its primary purposes: secure defined benefits for the target species and their associated habitats; serve as the reasonable and prudent alternative to offset the effects of existing and new water related activities; help prevent the need to list more basin-associated species pursuant to the ESA; and mitigate new water related activities in a state in a manner that will not increase the mitigation responsibilities of other signatory states, with the intent that mitigation will be implemented in the state where the activity occurs.

A ten-member governing body call the Governance Committee (GC) has been responsible for the activities undertaken to date and would be responsible in the future if the program is actually implemented. The GC includes representatives from the U.S. Fish and Wildlife Service (USFWS), the U.S. Bureau of Reclamation, each of the three states, water users from three geographic areas in the Platte River Basin, and environmental organizations. Dale Strickland of West Inc., is the Executive Director for the current effort.

The proposed program would take a phased, adaptive management approach. Assuming the cooperating partners agree to the terms of the program, the first increment is expected to be 13 years in length. It would have four primary components; the "Water Action Plan" (WAP), a "New Depletion Plan" from each of the three states and the federal government, a Habitat Plan, and an Integrated Monitoring and Research Plan. The first three are described in more detail below.

Water Action Plan (WAP)

Water goals for the program relate to "target flows", which have been identified by the USFWS. Those "target flows" include the "species" and "annual pulse" flows the USFWS believes are needed to provide adequate habitat for the endangered species in the Central Platte. Actual daily flows often fall short of those target flows, especially at certain times of the year. When historic post-development flows on days of shortage are compared to the target flows, the average annual shortage totals approximately 417,000 acre-feet (af). There is substantial disagreement among scientists about whether the identified target flows are biologically or

hydrologically necessary or even beneficial to the habitat and/or recovery of the species. That disagreement has taken many forms. For example, the USFWS target flows are substantially different from the instream flow appropriations granted in 1998 by the Nebraska Department of Water Resources (now the Department of Natural Resources) for the same threatened and endangered species. While the USFWS continues to believe its target flows are the right ones for recovery of the target species and their associated habitats, representatives of the USFWS have also stated they are willing to review and possibly revise the target flows as better science becomes available.

In the meantime, incremental reductions in shortages to the USFWS target flows will be sought if a program is initiated. The goal during the first increment of the proposed program would be to reduce shortages to the current target flows at Grand Island by an average of 130,000 to 150,000 af per year. Three projects already being implemented or planned by the three States would produce an estimated 80,000 af per year. The first project is an "environmental account" (EA) in Lake McConaughy, where 10% of the storable inflows between October and April are stored so they can be later released to reduce shortages to target flows. No more than 100,000 af can be added to the EA storage in any one storage season and no more than 200,000 af can be stored in the account at any one time. Decisions on the release of water from the EA are made by the USFWS. Since its creation in 1999, the EA has been used to increase flows in the central Platte River throughout much of the summers of 2000, 2001 and 2002.

The second project is an enlargement of Pathfinder Reservoir in Wyoming. Water from that project would be managed much like the environmental account in Lake McConaughy is managed. That project is still in the planning stage, but if implemented would provide 34,000 af in storage capacity for the program.

The third project is the Tamarack Project in Colorado. That project, which is expected to yield an average of about 10,000 af in the habitat area, would take water out of the river during times of excess flows (most often during the winter months) and temporarily store it in shallow alluvial aquifers where it would naturally return to the river at times when flow shortages are more likely. Tamarack is under construction and currently is partially operational.

The additional 50,000 to 70,000 af necessary to realize the shortage reduction goal of 130,000 to 150,000 af for the first increment would be obtained through other projects. Those projects would be implemented throughout the basin, would have to be acceptable to the states, and would be implemented throughout the first increment of the program.

A Reconnaissance Level Water Action Plan that lists the projects now proposed was completed in September, 2000, and would be revised as necessary when new information became available. Eight of the thirteen projects in the current Water Action Plan would be in Nebraska, four would be in Wyoming and one would be in Colorado. The proposed projects include storage and reregulation reservoirs, groundwater recharge/return projects (like the Colorado Tamarack project), leasing of water rights, power interference (paying hydropower generators to delay release of water until the water released would reduce shortages to target flows) and others. The current estimated cost to construct and operate those projects during the first 13-year increment of the program is about $45 million.

Inclusion of a project in the WAP at this time does not mean that decisions have been made to implement that project. It simply means that, if a program is actually begun, that project is likely to be advanced to the feasibility level of study to undergo further analysis (i.e. engineering studies, economic and social impact studies, etc.). Project revisions and substitutions are likely

before the list of projects to be implemented is finalized. Computer models being developed as part of a comprehensive Nebraska Cooperative Hydrology Study (COHYST) will, when completed, help Nebraska and the other parties assess the hydrologic impacts of some of the projects proposed.

The primary purpose of the Water Action Plan is to provide improved flows for the three avian species that are found in the Central Platte area, i.e. the whooping crane, the piping plover, and the least tern. As noted in the first paragraph, the pallid sturgeon is also a target species for the proposed program. It is hoped that providing improved flows for the avian species in the Central Platte area will also prove to be of benefit to the pallid sturgeon in the lower Platte. For now it is uncertain whether the proposed program, at some time, would include any other measures specifically intended to aid sturgeon recovery. However, during the program's first increment, research relating to the sturgeon's habitat requirements would be likely. The results of that research would be used to decide what else, if anything, could and/or should be done for the sturgeon in subsequent program increments.

New Depletion Plans

While the Water Action Plan is designed to improve flows in the Central Platte River at times when target flow shortages would otherwise occur, each state's New Depletion Plan will be designed to prevent an increase in shortages to target flows because of new or expanded uses of water begun on or after July 1, 1997. New surface water and groundwater uses that contribute to target flow shortages would be subject to mitigation, either with water or with dollars that could be used to produce water. The plans proposed by Wyoming and Colorado are not summarized here, but Nebraska's January 22, 2004 draft New Depletion proposal, which is subject to change, is summarized as follows:

- The Nebraska draft New Depletion Plan addresses and would provide protection for two sets of flows. Those two sets of flows together would serve as the reference points for determining (1) periods of flow shortage, i.e. when new depletions would have to be offset, and (2) periods of flow excess, i.e. when water was available for retiming so it could serve as the required offset for new depletions during flow shortages. The first set is the set of target flows for the threatened and endangered species. The other is the set of flows needed to protect Nebraska water rights (including the Nebraska instream flow appropriations), groundwater supplies dependent on river recharge, and flows needed for the Water Action Plan projects. The January 22, 2004 draft of the plan refers to that second set of flows as the "state-protected flows."

- For new or expanded uses of groundwater or surface water begun between **July 1, 1997 and December 31, 2005,** the draft plan proposes that the State of Nebraska would determine the extent to which those increases in water use would cause new depletions to state-protected flows and to USFWS target flows and would implement projects and programs as necessary to offset those new depletions when they occur. The models developed through the COHYST study would be used to determine the extent of new depletions caused by groundwater uses begun in that time period.

- For new or expanded uses of groundwater beginning **1-1-2006 or later,** a two step process would be used to offset any new depletions to target flows. First, those making certain new or expanded uses of groundwater would be responsible for offsetting new depletions to the

state-protected flows. Only new or expanded uses for which permits from the natural resources district are required would be subject to that requirement and then only those which are located within the Platte River Basin and within the geographic areas where wells pumped for 40 years would cause a depletion to the stream of 28% or more of the amount pumped in that period of time. The draft plan proposes that the State of Nebraska would be responsible for the second step of the process, which would be to offset depletions to target flows caused by those same new or expanded uses of groundwater to the extent those depletions would not otherwise be offset by the offsets for depletions to state-protected flows. As part of that second step, the State also would be responsible for offsetting depletions to target flows caused by certain new or expanded groundwater uses for which NRD permits are not required (e.g. wells with a capacity under 50 gallons per minute) and small impoundments for which neither surface water rights nor other state approval is required. The COHYST models mentioned above would be used to provide much of the information necessary to complete both of those steps.

- Also beginning 1-1-2006, any new surface water appropriations would be subject to state imposed conditions to avoid or offset new depletions to state-protected flows. Providing offset water could be a way to overcome problems in satisfying the requirement that there must be "unappropriated water" available for a new surface water right to be granted. As with groundwater, any new depletion to target flows not offset by the new user would be the responsibility of the state.

- All offset measures would have to be constructed and operated so that they would not cause additional shortages to either target flows or state-protected flows.

- Periodically, perhaps every 5 years starting on or around 2010, the state would conduct a new land use inventory to determine changes in irrigated acres, collect additional information as needed, use the COHYST models to determine the overall effects of changes in water use on flows, and assess the overall sufficiency of the combined offset measures to offset depletions to target flows. If more offset water was being provided collectively than was determined necessary through that assessment, credit for the offset of future new depletions would be available. If not enough offset water was being provided, the state would implement projects and programs as necessary to make up the deficiency. Also, as part of the 5 year assessments, the state would use available information and the COHYST models to estimate the extent of new depletions to target flows and state-protected flows because of the new and expanded groundwater uses not subject to the plan, (i.e. those outside the Platte River Basin and outside the 28% in 40 year depletion line) and would report that information to the Program's Governance Committee.

Habitat Plan

Terrestrial habitat is also deemed necessary to meet the needs of the species. The proposed program would over time result in the development and protection of 29,000 acres of habitat between Lexington and Chapman. That long-term goal could change as a result of adaptive management as the program is implemented. The goal for the first increment of the proposed program would be to develop and/or protect at least 10,000 acres. NPPD's Cottonwood Ranch property located between Overton and Elm Creek (2,650 acres) would be dedicated to the program. That would leave an unmet first increment need of 7,350 acres. That habitat would be acquired from willing participants via leasing, conservation easements, and purchases. The initial

focus would be placed on riverine and wet meadow type habitat that would or could form a "habitat complex." Some limited quantity of other types of habitat, such as sandpits, likely would also be acquired.

The current estimated cost of acquiring, developing and maintaining the 10,000 acres of land needed by the end of the first increment ranges from about $20 million to about $30 million depending upon how development would proceed. For example, the USFWS believes that further channel degradation is likely in the Platte unless additional sediments, especially fine grain sands, are made available to the stream. The Service proposes that habitat for the species would be improved by clearing some river islands that currently are heavily vegetated. At least some of those cleared islands would also be lowered so that, in theory, revegetation could be prevented by annual inundation of the islands with relatively low peak flows. The Service also proposes that in lowering those islands, the sand would be pushed into the river channel to increase the sand load, thereby reducing further channel incision and narrowing. That theory is controversial among the Cooperative Agreement parties and therefore would be tested on a small scale before island leveling/sediment augmentation became a major component of the program.

Another important element of the Habitat Plan, at least for the long term, is that the Platte River Whooping Crane Maintenance Trust, the Nebraska Game and Parks Commission, the Nature Conservancy, and the Audubon Society currently own several thousand acres of potentially eligible habitat. Eventually, those holdings are expected to contribute to meeting the 29,000 acre goal, but they will not count toward the 10,000 acre first increment goal.

What Does All of this Mean to Nebraska and Why Is the State Participating in the CA Process

Relicensing by the Federal Energy Regulatory Commission of the Platte hydropower projects at Lake McConaughy and at related facilities indicated to many Nebraskans that major problems were created when endangered species issues were addressed in a non-collaborative manner. Only after a less adversarial approach was made possible through the Cooperative Agreement negotiations were more acceptable relicensing provisions developed and accepted. Nebraskans also realized that choices between the strictly regulatory approach and the collaborative method were going to have to be made soon relative to other water uses, most notably ESA consultations regarding the operation of the North Platte projects that provide irrigation water to the Panhandle. Problems were also expected with other activities in Nebraska (e.g. Section 404 projects). In addition, many uncertainties existed about the application of the ESA to activities which were not then being treated as subject to the ESA, but which also affect flows, such as groundwater use. That combination of reasonably predictable but unacceptable consequences for some activities and huge uncertainty for others suggested to many Nebraskans that trying to meet the species needs in ways that inflicted less pain on water users was well worth the effort.

Possible Advantages of the Proposed Program

The following is a list and explanation of what Nebraska sees as the potential advantages of continuing with the collaborative approach to formulate a Platte River Recovery Implementation Program:

- *Basinwide approach - important both for funding and for providing water*

The recovery of the threatened and endangered species will be very resource intensive and beyond what the directly affected interests or the State of Nebraska could accomplish by themselves. Because the program is to address the impacts of water related activities throughout the basin, it is imperative that the entire basin participates in and contributes to the recovery process. It is also important to recognize that some of the upper reaches of the North and South Platte Rivers flow through areas that are owned and/or managed by various Federal agencies. Actions by those agencies have also contributed to the river's current condition and there are numerous federal water supply and irrigation projects and facilities on the Platte.

- *Incremental approach*

The initial recovery actions proposed by the USFWS (417,000 acre feet of reduction in shortages to the target flows and 29,000 acres of suitable habitat) are beyond what could be done in a single step process, and there are concerns that some of the requirements and actions might even be in excess of what is beneficial to the species. An incremental approach would allow actions to be implemented only after careful planning and that would hopefully prevent undue hardship from being imposed. The incremental approach would also allow for further study and possible refinement of recovery actions and proposals.

- *Grandfathering of pre 7-1-1997 water uses*

One of the concerns in Nebraska regarding the application of the ESA is that water could be taken from people with existing developments, both surface water and groundwater. The "grandfathering" of pre 7-1-1997 uses to prevent them from falling under ESA scrutiny, would prevent adverse impacts on those uses. Without a program and the included grandfather clause, there is nothing to insure that pre 1997 uses would be protected from the ESA.

- *Voluntary measures used throughout, rather than measures being imposed through the regulatory process*

As discussed earlier, the Platte system extends into three states. The states and their citizens know what actions are realistic, economically feasible and politically acceptable. By using voluntary participation rather than mandatory requirements for *the program activities that are needed to provide ESA coverage for pre 7-1-97 water related activities*, those involved would be far more motivated to make the program work for both the species and for the people living in the area. It is important to note, however, that for *the new depletions part of the Program*, the Nebraska plan described earlier would impose mandatory requirements on new or expanded surface water or groundwater uses begun on or after 1-1-06 if they cause certain kinds of depletions to the river or its tributaries.

- *Peer reviews*

A peer review process would require proposed actions to be evaluated by independent scientists, hopefully minimizing the possibility of implementing activities that are of little or no benefit to the species. Some of the proposed habitat and water activities are very costly, so it is imperative that all actions be reasonable, beneficial and scientifically supported.

- *Adaptive management would be employed*

Everyone involved in the process recognizes that there are many questions relative to the proposed recovery actions. Those include: details about how and to what extent the Platte River hydrologic system interacts with the underlying ground water system; how river flows relate to sediment movement and what effect each has on the streambed and banks; and basic questions about trends in species population numbers. It is important that the program be allowed the

flexibility to change as more information is learned about the river, the species and their desired habitats.

- *Having a seat at the table*

Allowing the states, the water users and the environmental community to participate in the decision making process for the Platte river species would be beneficial to the species, the USFWS, and the stakeholders in the basin. It would help soften fears about implementation of the ESA, and the collective thinking that is employed would encourage actions that are feasible, beneficial and more acceptable.

- *Federal financial assistance to be provided*

As discussed earlier the importance and appreciation of the basin and associated species extends far beyond the borders of the three states. Federal agencies own, have control of, and/or manage lands and water usage facilities on the river and a recovery program will be more expensive (the present estimate of out-of-pocket costs for the first 13 years is approximately $110M) than could be borne by the states alone or by their water users.

- *Better opportunity to achieve equity among those contributing to habitat declines*

Without a collaborative program, only those subject to federal jurisdiction would be held responsible for taking the steps deemed necessary by the USFWS to recover the species. This could place a disproportionately heavy burden on a few. The process outlined in the Cooperative Agreement would provide the forum for a more equitable distribution of that burden.

Important Considerations Prior to Nebraska's Acceptance of the Program

While the reasons stated above are why Nebraska believes it is important to make every reasonable effort to remain part of the current process to develop a recovery implementation program for the species, no conclusions have been reached about whether the proposed program, once fully formulated, will be acceptable to the state. A final decision by the Department of Interior is not expected until early 2005 and the states' decisions are not expected until sometime later in 2005. Each party likely will have its own set of considerations about the advantages and disadvantages of the proposed program before it decides whether accepting the proposed program is the right thing for it to do. For Nebraska, that decision will depend upon a number of factors including the following:

- *Achieving equity among the three states and the federal government*

Nebraska needs to believe that the burden of protecting and restoring these habitats and species will be borne equitably among the three states and the federal government.

- *Having a better understanding of what will happen if no program is implemented*

Nebraskans need a clear understanding of the implications of the "No Action" or "no Program" alternative, so that we can determine the best choice for Nebraskans. For example, how would both present and future groundwater uses be treated in the absence of a collaborative effort? This question concerns not only how the groundwater users might be affected by the ESA, but also how they might be affected by Nebraska actions to manage hydrologically connected groundwater and surface water for internal reasons. This need to evaluate optional futures for groundwater users appears to be problematic; the draft programmatic EIS for the proposed program does not include a quantitative analysis of the "No Action" alternative because

to perform a quantitative analysis would require speculation about the results of future ESA consultations in the absence of a program. Without such a quantitative analysis, it will be difficult for each of the states to compare how that state and its citizens would be affected if there is a program and how they would be affected if there is not a program.

- *The ability of Nebraska to develop and implement an acceptable "new depletion plan"*

The Nebraska New Depletions proposal summarized earlier demonstrates the difficulty of implementing a program that requires the integrated management of groundwater and surface water where previously that has not been done. That is especially true in a hydrologic system as complex and variable, both geologically and hydrologically, as is the Platte. It is important to note, however, that the COHYST models will demonstrate the extent to which streamflows are being depleted by groundwater use and how such use is now harming or could in the future harm Nebraska's own users of surface water. Also, the 2004 Nebraska Legislature made it clear that Nebraska will manage groundwater to protect those streamflows even if the state decides not to participate in the proposed endangered species program. That direction came through the enactment of LB962, a bill that was the work product of a 49 member Nebraska Water Policy Task Force appointed by Governor Johanns in the summer of 2002. For the area subject to coverage by the new depletion plan, the objectives of that plan are very compatible with the objectives of LB962. Therefore, answers have already been provided for many of the difficult policy questions surrounding implementation of the new depletion plan. The details of how to accomplish those mutual objectives remain to be worked out. Also to be finalized is how the state will pay for the costs of offsetting the impacts of new groundwater uses begun between July 1, 1997 and December 31, 2005.

- *Public acceptance*

Nebraskans also need to believe that the actions being proposed are based on good science, that the proposed recovery actions are reasonable and justified, and that the program is in the best interest of the citizenry. With regard to the validity of the science used by the USFWS to justify the target flows and land habitat requirements, an evaluation of that science has just been completed by the National Academy of Sciences (NAS). The NAS report is still being assessed by the state and by the other participants in the Cooperative Agreement process. In general, however, it does not appear that the NAS identified any "fatal flaws" in the science that has been relied upon the USFWS. That same science has been utilized thusfar as the basis for formulating the components of the proposed program.

- *Program costs*

Like most other states, Nebraska is currently experiencing substantial revenue shortfalls. A large portion of the originally estimated costs of a program that would have fallen to the state will be covered by the water and land contributions of The Central Nebraska Public Power and Irrigation District and NPPD. However, the estimated costs of the Program have risen substantially since 1997 and no decisions have as yet been made about how those increased costs are to be shared among the states and the federal government. What is known is that offsetting the impacts of new depletions to USFWS target flows because of new groundwater development will require substantial expenditures by the State of Nebraska. All of this comes at a time when the state and its citizens will be asked to do more and more with fewer funds. Additional federal assistance will be needed on all program elements other than the new depletion plan if the program is to be affordable to the state.

Need More Information?

If you would like more information about the Cooperative Agreement, the proposed Platte River Recovery Implementation Program or other issues referenced in this paper, please contact the Nebraska Department of Natural Resources at (402) 471-2363.

FROM THE OFFICE OF GOVERNOR MIKE JOHANNS

NEWS RELEASE

State Capitol, P.O. Box 94848, Lincoln, Nebraska 68509-4848, Phone (402)471-2244

For Immediate Release
March 15, 2001

Contact: Chris Peterson, 402-471-1967 or
Ann Bleed (Dept. of Natural Resources),
402-471-0569

Settlement to Nebraska v. Wyoming Lawsuit Approved

Lincoln, NE – After over 14 years of litigation before the U. S. Supreme Court, Governor Mike Johanns and Attorney General Don Stenberg have approved a settlement of the Nebraska v. Wyoming lawsuit. In compliance with Special Master Owen Olpin's Order, details of the settlement were released at the close of business on Thursday, March 15, 2001.

"The Attorney General and I have personally spent a great deal of time on this issue over the last several months," said Governor Johanns. "The issues in the lawsuit and settlement are complex. After carefully considering input from those most affected by the settlement and very careful attention and deliberation, we decided approval of the settlement agreement was in the best interest of Nebraska."

The settlement negotiation process has spanned off and on as many years as the lawsuit itself. The last round of settlement negotiations started in July of 1999. On March 13th, the states of Wyoming, Nebraska and Colorado reported to Owen Olpin, the Special Master appointed to hear the case by the U. S. Supreme Court, that they had approved a settlement agreement.

In mid April the Audubon Society, the Platte River Whooping Crane Environmental Trust, the Nebraska Public Power District and the Central Nebraska Public Power and Irrigation District, all friends of the court, must also report to the Special Master. Sometime after that, Special Master Olpin will make his recommendation to the U. S. Supreme Court, which will make the final determination of whether to accept or reject the settlement.

In approving the settlement, Governor Johanns noted that developing a settlement that was acceptable to Nebraska would not have been possible without the very capable and diligent efforts of Nebraska's litigation team and numerous consultants. He also recognized Derrel Martin and Raymond Supalla, professors at the University of Nebraska, who provided their considerable expertise and many, many hours that contributed to a successful settlement and Dave Cookson, Assistant Attorney General, who was extremely helpful in the negotiations. The Governor also wishes to thank the negotiating team, the so-called "gang of six" that included Roger Patterson and Ann Bleed, Director and Deputy Director of the Nebraska Department of Natural Resources; Gordon J. Fassett, the former Wyoming State Engineer and Michael Purcell also from Wyoming; John Lawson, Project Manager of the North Platte Projects Office of the Bureau of Reclamation; and Ken Randolph also from the Bureau of reclamation office in Casper, Wyoming.

*See attachment for a summary of the Settlement Agreement.

###

Summary of Nebraska v. Wyoming Settlement Agreement

The lawsuit was originally filed in 1986 to stop the development of new water uses on the North Platte River and its tributaries and to protect Nebraska's right to water for the Inland Lakes for irrigation and other purposes. In 1993, the U.S. Supreme Court ruled that Nebraska's rights to store 46,000-acre feet of water annually in the Inland Lakes and use that water for irrigation are legally protected. Nebraska also successfully prevented the construction of reservoirs in Wyoming. In addition, Nebraska successfully defeated Wyoming's claim to reapportion the river and change the U.S. Supreme Court's 1945 Decree. The 1945 Decree apportions the water in the lower portion of the North Platte River in Wyoming 75% to Nebraska and 25% to Wyoming. Finally, Nebraska defeated Wyoming's claim that the quantity of water diverted by irrigation canals in Nebraska was limited by beneficial consumptive use. A University of Nebraska economist has valued these victories as being worth $20,000,000 a year in perpetuity for the State of Nebraska.

As a result of investigations conducted in the first years of the case, Nebraska learned of additional depletions to the river that had taken place in Wyoming, as well as future developments that were planned in Wyoming. In 1995 Nebraska amended the lawsuit to stop further depletion of river flow caused by increasing consumptive use in Wyoming.

The Settlement provides the same protection that Nebraska hoped to get at trial. The Modified Decree includes new injunctions on Wyoming that plug the holes in the existing decree while preserving the critical apportionment of natural flow, 75% to Nebraska, 25% to Wyoming, that is the foundation of the original 1945 decree. The Settlement also includes over 100 pages of detailed procedures for water use regulation, measurement, accounting and reporting that along with the injunctions in the Modified Decree and other provisions in the Settlement Stipulation, will insure that Nebraskans get the water to which we are entitled.

The Settlement provisions include:

- An injunction in the Modified Decree strictly limiting the number of acres Wyoming can irrigate to no more than 226,000 acres in the area upstream of Guernsey Reservoir all the way to the Colorado-Wyoming state line. All acres irrigated by surface water, by water from reservoirs and by groundwater from wells are included in this limit. Also included are acres from which irrigation water was transferred to non-irrigation uses. The original decree restricted the number of acres that could be irrigated from surface water to 168,000 acres above Pathfinder Dam and along the mainstem between Pathfinder Dam and Guernsey Reservoir. However, there was no limit in the 1945 decree on the number of acres that could be irrigated on the tributaries to the North Platte River between Pathfinder Dam and Guernsey Reservoir. The new limit includes the estimated 55,000 acres irrigated from these tributaries and all the acres irrigated by ground water wells above Guernsey Dam.

- An injunction in the Modified Decree prohibiting Wyoming from consuming for irrigation more than 1,280,000 acre feet of water above Pathfinder Dam or more than 890,000 acre feet between Pathfinder Dam and Guernsey in any ten-consecutive year period. The 1945 Decree limited the number of acres that Wyoming could irrigated but did not limit the amount of water Wyoming could consume. The Modified Decree will limit Wyoming's actual consumptive use of water to the amount of water they have used in the past. Future increases in consumptive use will be precluded. Under the Settlement data needed to determine the consumptive use of water will be collected jointly by Nebraska, Wyoming and the U. S. Bureau of Reclamation. The collection of and access to these data will be extremely valuable to Nebraska for monitoring Wyoming's consumptive use of water.

- To protect both Nebraska and Wyoming irrigation districts that contract for water in the U. S. Bureau of Reclamation storage reservoirs, the Settlement provides for an automatic call for water administration by Wyoming in dry years. The call for administration will be automatic and no longer subject to political pressures from other Wyoming water users in years when the forecasted water supply is less than that needed to fully irrigate the lands with contracts with the Bureau of Reclamation.

These three measures – a specific limit on the number of acres than can be irrigated, a strict limit on the amount of water that can be consumed on these acres and increased water administration - will work together with the detailed requirements for monitoring and collecting data to limit and control Wyoming's water use in a real and verifiable way.

Other provisions include:

- On the Laramie River, the Modified Decree limiys Wyoming to the irrigation of no more than 39,000 acres downstream of the area covered by the Laramie River Decree between Colorado and Wyoming. The area served by the Wheatland Irrigation District is not included in this limitation. The Settlement also requires that the Basin Electric Power Cooperative operate the Grayrocks Reservoir in accordance with the 1978 Settlement agreement that allowed the reservoir to be constructed. The Grayrocks Reservoir diverts and stores water from the Laramie River for Basin Electric's Laramie River Station. In addition the settlement requires Wyoming to buy out the rights to the Corn Creek Irrigation District and to retire the Goshen pumping plant and transfer those water rights to the North Platte River where the water will be allocated as part of the natural flow that is split 75% /25% to Nebraska and Wyoming.

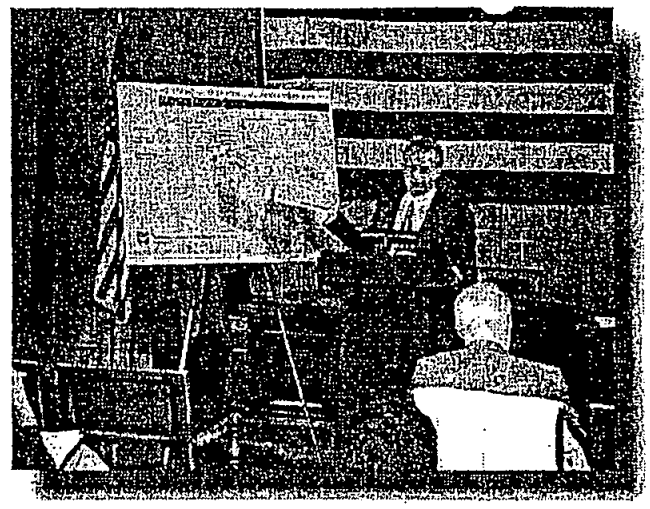
- Between Whalen Dam and the Nebraska-Wyoming Stateline the Modified Decree requires Wyoming to provide water to replace any depletion to the river that occurs between May 1 and September 30 as a result of ground water pumping if the depletion occurs at a time when natural flow is needed to meet the demands of the canals diverting from that reach. The Modified Decree also requires Wyoming to administer diversions from the tributaries and drains to the North Platte River as part of Wyoming's entitlement of 25% of the natural flow.

- The Settlement also preserves the historic operation of the Glendo Excess to Ownership account, which allows the Bureau to store water in times of excess for later use when there is not enough water to meet demand. Historically, the Bureau has stored water in this account primarily in high flow years This practice has allowed the Bureau to provide additional water for Wyoming and Nebraska irrigation districts in water short years.

- Finally, the Settlement establishes a North Platte Decree Committee to collect data, monitor water use in Wyoming, and serve as a forum to settle disputes among the parties to the Decree. It is hoped that by cooperatively collecting data and providing a forum to air disputes, this committee will help the parties to the lawsuit avoid future litigation. If this committee is to be effective, the Nebraska Department of Natural Resources will have to provide the personnel and resources to actively participate in the activities of the committee.

Also included in the settlement are several provisions that were negotiated in the mid-nineties. These include provisions relating to the use of storage water from Glendo and Pathfinder Reservoirs, the measurement and reporting of water stored in small reservoirs above Pathfinder Dam, the allocation of storage water in water short years, and the assessment of conveyance losses when transporting storage water down the river.

Settlement to the Nebraska v. Wyoming Lawsuit Approved



Roger K. Patterson, Director of the Department of Natural Resources, explains provisions of the settlement at the March 15, 2001 news conference.

The details to the settlement of the Nebraska v. Wyoming Lawsuit, originally filed in 1986, were released on **Thursday, March 15, 2001** at a news conference held by Governor Mike Johanns. *"The issues in the lawsuit and settlement are complex. After carefully considering input from those most affected by the settlement and very careful attention and deliberation, we decided approval of the settlement agreement was in the best interest of Nebraska,"* said Governor Johanns.

The original lawsuit was filed in 1986 to stop the development of new water uses on the North Platte River and its tributaries and to protect Nebraska's right to water for the Inland Lakes for irrigation and other purposes. In 1993, the U.S. Supreme Court ruled that Nebraska's rights to store 46,000-acre feet of water annually in the Inland Lakes and use that water for irrigation are legally protected. In addition, Nebraska successfully defeated Wyoming's claim to reapportion the river and change the U.S. Supreme Court's 1945 Decree. The 1945 Decree apportions the water in the lower portion of the North Platte River in Wyoming 75% to Nebraska and 25% to Wyoming. Finally, Nebraska defeated Wyoming's claim that the quantity of water diverted by irrigation canals in Nebraska was limited by beneficial consumptive use. A University of Nebraska economist has valued these victories as being worth $20,000,000 a year in perpetuity for the State of Nebraska. In 1995 Nebraska amended the lawsuit to stop further depletion of river flow caused by increasing consumptive use in Wyoming.

The Settlement provides protections for Nebraska that had been hoped to get at trial. The Modified Decree includes new injunctions on Wyoming that plug the holes in the existing decree while preserving the critical apportionment of natural flow, 75% to Nebraska, 25% to Wyoming, that is the foundation of the original 1945 decree. The Settlement also includes over 100 pages of detailed procedures for water use regulation, measurement, accounting and reporting that, along with the injunctions in the Modified Decree and other provisions in the Settlement Stipulation, insure that Nebraskans get the water to which we are entitled.

The 100 plus pages of Settlement details and additional information is available at the agency's homepage site at **http://www.dnr.state.ne.us** under North Platte River Settlement.

North Platte Decree Began in Argument Arising Out of 1934 Drought

When the tremendous drought of 1934 was at its peak, Wyoming water users held back all the water they could, leaving little for Nebraska irrigators downstream.

Although there had been shortages before and argument arose between the two states with every dry spell, these would die down when the rains came. In 1934, though, the rains didn't come and Nebraska demanded a fair share of the water.

The demand was made at a conference held in Wyoming that summer. Paul F. Good, the Nebraska attorney general; R.H. Willis, head of the Bureau of Irrigation; and Robert L. Cochran, state engineer and future governor, asked Wyoming officials to recognize senior rights to water in Nebraska. It was the contention of the Nebraska delegation that projects with senior rights should get water before subsequent rights in Wyoming. Water should be appropriated on the "first-in-time, first-in-right" basis regardless of state lines, they said. In fact, the U.S. Supreme Court had ruled that states using the same river for irrigation must share the water according to distribution rights. That ruling was made, ironically, when Wyoming demanded more water from Colorado.

But Wyoming officials said that with no compact or decree, it would not close down subsequent appropriations in favor of prior Nebraska appropriations. Nebraska's request for water was "refused in such terms that it became very, very evident that no relief could be obtained otherwise than by suit," Good later said.

In October 1934, Good received permission from the U.S. Supreme Court to file suit, with the purpose of forcing Wyoming to recognize Nebraska priorities.

In December that year, Good, speaking in North Platte at a meeting of the Nebraska State Irrigation Association, said, "If we were in Europe, or almost any other part of the world right now, we would be engaged in a war with Wyoming, probably. I can imagine our troops having first occupied Torrington, advancing up the river to Casper and then having captured the Pathfinder Dam and assuming control, all for the purpose of protecting our rights over a dispute that has arisen."

Nebraska also asked the court to make Wyoming change the priority date of a project being constructed. A permit for the construction of the Casper-Alcova irrigation project, now called the Kendrick project, was filed in September 1934. Even so, the Wyoming state engineer entered a priority date of Dec. 6, 1904 for it. His reasoning was that in 1904 an application was made for an irrigation project in the area and the new application was but an amendment to the older application. However, the new application changed the land description, point of diversion and point of storage and switched the area to be irrigated from south and east of the river to north and west. Nebraska officials wanted the date changed since there were 60,000 to 100,000 acres of irrigated lands in Nebraska with priorities after 1904 but prior to 1934.

Wyoming failed to answer the suit but instead filed a motion to dismiss it on the grounds that Nebraska had not brought Colorado into it. Colorado also uses water from the North Platte for irrigation.

Before Nebraska filed an answer to the motion, Wyoming agreed to change the priority date of the Casper-Alcova project, although it made no difference to them since they refused to recognize Nebraska priorities anyway.

Nebraska filed an answer to the motion to dismiss in March 1935 and the U.S. Supreme Court overruled the Wyoming motion in April. Wyoming finally filed an answer to the original suit.

On Oct. 14, 1935, the Court appointed a Minnesota attorney as special master. A special master is appointed by the court in original actions between states to receive evidence and hear testimony and arguments. At the end of all the hearings, the special master issues a report or recommendations to the full Supreme Court. Parties involved may file exceptions to the report and briefs are submitted. The court then hears oral argument and makes a decision.

Soon after the appointment of the special master, Wyoming's lawyers decided to enter an amended answer. They sought to further delay the case by asking that Colorado be brought in. They also claimed in the new answer that Nebraska had no right to more water because it already let too much go to waste with no major dams or reservoirs on the North Platte River. They also said they intended to prove that Nebraska lands east of Oshkosh had no need for irrigation.

Wyoming officials agreed that priority should rule within a state but beneficial use should govern interstate rights. They said they could make better use of the water and should, therefore, be able to keep more of it.

The first testimony was finally heard in July 1936, as it had taken time for Colorado lawyers to prepare. Colorado officials were mainly concerned with retaining as much water as possible for the North Park region and future development.

The U.S. government entered the case in 1938 to assert its ownership of all unappropriated water.

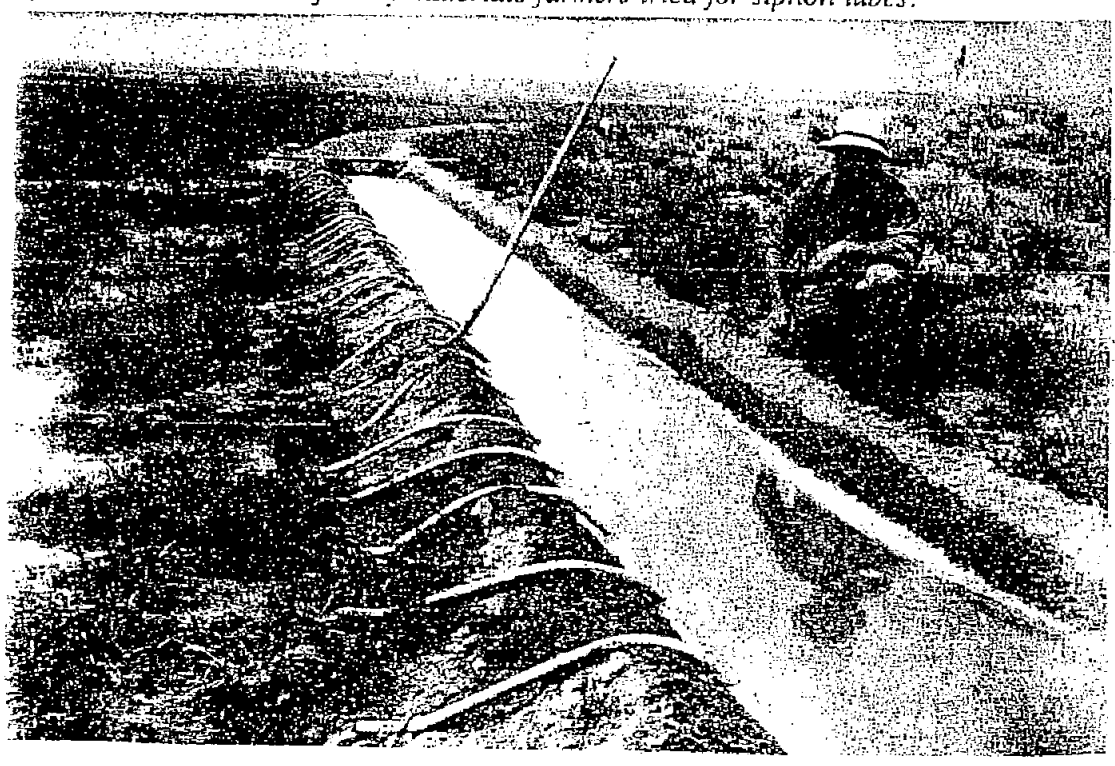
When all was said and done in December 1941, the testimony filled nearly 30,000 pages and made use of about 1,200 exhibits. The Minnesota attorney filed his report in September 1944.

The Supreme Court handed down its decision on Oct. 8, 1945, expanding on its previous decision in the Wyoming vs. Colorado case. In Nebraska vs. Wyoming, the court fully defined the concept of equitable appropriation.

The Court placed restrictions on the amount of North Platte River water Colorado irrigators could divert, store or export and limited the amount of land that could be irrigated in the North Park region. The Court placed similar restrictions on Wyoming. In effect, the Court required Wyoming to allow a sufficient flow of water to pass in the North Platte River during the

(continued on next page)

The North Platte Decree represents the first legal compact between Nebraska and Wyoming regarding North Platte River flows. Wyoming irrigators held back all the water they could during the 1934 drought, forcing a legal battle. Here, C.M. Corr, 12 miles north of Riverton, Wyoming, uses electric conduit pipe as siphon tubes in the summer of 1941. This was one of many materials farmers tried for siphon tubes.



Nebraska State Historical Society

irrigation season. Under the decision, Nebraska was entitled to 75 percent of that flow.

In 1951, Colorado officials notified those in Nebraska and Wyoming that it would seek to have restrictions imposed by the 1945 decree lifted or modified. They said irrigators in the North Park region needed to put additional acres under irrigation to maintain the economy. A stipulation was made in October 1952 authorizing the construction of the federal Glendo project. It also allowed Colorado to divert water sufficient to develop an additional 10,000 acres.

Nebraska filed suit against Wyoming in 1986, alleging the 1945 decree would be violated if Wyoming was allowed to construct its planned dam and reservoir on Deer Creek, a North Platte River tributary. Wyoming claimed the project was exempt from the decree because water stored would be used for municipal rather than irrigation purposes.

Additional issues surfaced shortly thereafter. Wyoming contended that streamflows in the Laramie River, another Platte tributary, were not regulated by the 1945 decree. Wyoming officials said they could, therefore, use as much of it for irrigation as they chose. Nebraska claimed that in accordance with the decree, it was entitled to 75 percent of the Laramie flow.

Wyoming also questioned Nebraska's right to divert North Platte River water into Lake Alice, Lake Minatare and Winters Creek Lake, located in northeastern Scotts Bluff County, and argued that Nebraska farmers living near the Nebraska-Wyoming border were not being regulated in accordance with limits placed on them under the 1945 decree. In effect, Wyoming officials were trying to gain the use of more water by requiring Nebraska irrigators to use less. Nebraska asked the U.S. Supreme Court to declare a Dec. 9, 1904, priority for the lakes to store 46,000 acre-feet of flow during October, November and April.

The U.S. Supreme Court appointed a special master to preside over the negotiations in June 1987. Oral arguments were heard in June 1991.

In preliminary rulings issued in February 1992, the special master ruled that Nebraska does have a right to divert water into Lake Alice, Lake Minatare and Winters Creek Lake and that there are no restrictions under the 1945 decree as to how much water Nebraska farmers along the Nebraska-Wyoming border can divert. The special master also ruled that Nebraska is entitled to historical flows in the Laramie River during both the irrigation and non-irrigation seasons in accordance with the 75 percent for Nebraska and 25 percent for Wyoming split established in 1945. The special master did not rule on construction of the Deer Creek Dam.

Arguments to the rulings were heard on March 9, 1992. The special master is now preparing a final ruling and will send his recommendations to the U.S. Supreme Court. The Court's ruling will likely be made sometime in 1993.

Also, in March 1991, Nebraska filed a motion with the special master requesting that the 1945 decree be extended to regulate the appropriation of non-irrigation-season streamflows. The master denied the motion, and Nebraska filed a similar motion directly with the U.S. Supreme Court later that year. The motion is currently pending before the Court.

—Brad Rundquist, weekend and copy editor,* Ft. Dodge (Iowa) Messenger, *and formerly CSD editorial assistant

(Continued from p. 209)

movement that had faded to a more benign progressivism. The support for the common farmer and the distrust of large businesses and monopolies that had characterized populism were still evident. However, progressives had replaced angry rhetoric with more practical ways of getting government to help the common worker. Water projects represented such a way for the average farmer. This was certainly one explanation for the politics of George Norris. But even more important was Norris' abiding interest in public power.

Norris holds a special place in any history of Nebraska and certainly in the history of Nebraska water and power development. He began his 40-year legislative career in 1903, initially serving in the U.S. House of Representatives. By 1942, when his bid for a sixth term in the U.S. Senate was defeated, Norris was one of the most prominent and respected men in American politics, and for good reason. His record included sponsorship of legislation resulting in: the Tennessee Valley Authority (TVA) *(see vignette on TVA, p. 209);* putting the Rural Electrification Administration (REA) on a permanent footing; the 20th Amendment to the U.S. Constitution, which abolished the lame-duck session of Congress; and labor reform (the Norris-La Guardia Anti-Injunction Act). Norris also played a major part in Nebraska's creation of the nation's only unicameral, non-partisan state legislature. His long-term interest in public-power issues was reflected in the interest shown in public power by members of the Nebraska legislature.

While it is difficult to find Norris' fingerprints on all of the major water legislation affecting Nebraska in his lifetime, his work provides the backdrop for much of what happened. Although Norris played no direct role in passage of the Nebraska Public Power Enabling Act, much of his legislative career was dedicated to public power. His advocacy of legislation creating a Mississippi River Valley Authority was not successful, but the cumulative effect of public-power systems in Nebraska bears some resemblance to a little TVA. When the Tri-County Project needed help at the federal level, Norris provided it. Although Tennessee receives 98 percent of its power from public sources, Nebraska is the only state in the nation with an all-public power system. It is no coincidence that Nebraska is also a state that spawned and was shaped by the career of George Norris.

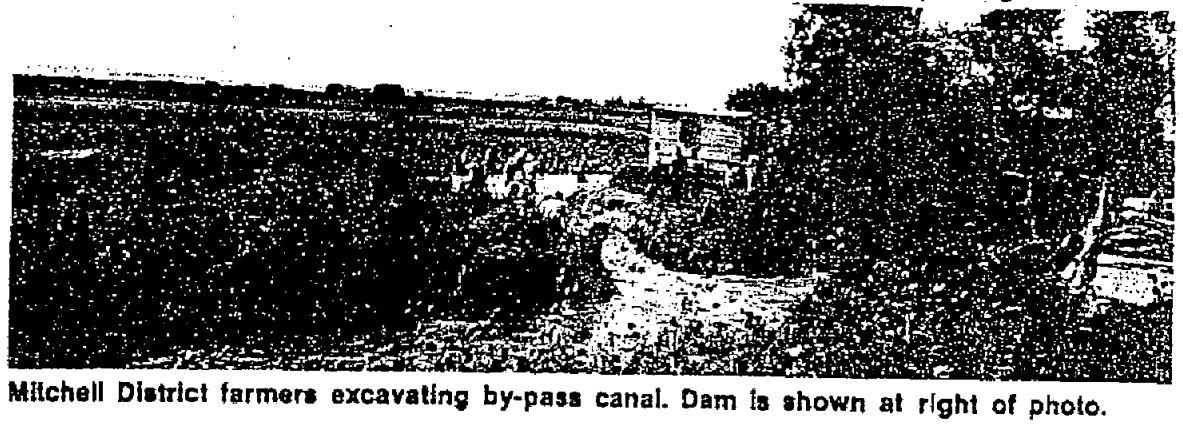
While the backing of Norris and the dogged persistence of supporters such as McConaughy and Kingsley must be seen as reasons for Tri-County's success, other major reasons stem from the national politics of the time. The Depression had ushered in the greatest program of public-works spending in U.S. history. The federal administration was very sympathetic to water projects, both for their direct benefits and as a means of public-sector employment. Nebraskans had been hit with both the Dust Bowl drought years and a massive flood in the Republican Basin in 1935, events that likely were not lost on the federal administration. Nor had Nebraska hurt itself with the administration in its own political manueverings. Passage of the state Public Power Enabling Act in 1933 set the stage, election of Democratic governors for the terms between 1931 and 1941 helped and legislative championing by Senator Norris secured Nebraska's influence in Washington.

To obtain funding for construction, Tri-County supporters overcame powerful opposition. Initial opposition was based on a belief that there was insufficient flow. Subsequent reports did not support that view. Private-power interests opposed Tri-County, but within a few years they no longer existed. Some supporters of the Sutherland project opposed Tri-County both because it could compete for funds and might compete for water. There were water and funds enough for both, it turned out. Some politicians were skeptical of the project. Many were later convinced. Even conservative farmers were doubtful, but many were later to become project supporters.

The completed Tri-County project had

Workers repairing dam.

Nebraska sack dam across Mitchell canal, located ¼ mile below Wyoming line.



Mitchell District farmers excavating by-pass canal. Dam is shown at right of photo.

Remember the Water War of 1935?

They called it the Water War of 1935. Actually it was a fairly peaceful dispute between the Mitchell Irrigation District and the State Department of Roads and Irrigation (now Water Resources).

On July 10th there was not enough water in the North Platte River Basin to supply all irrigation appropriators. Diversion works of appropriators having priority dates later than October 17, 1889, were ordered closed by the department. The Mitchell District, having a priority of June 20, 1890, was affected by the order.

As required by law, R. H. Willis, chief of the Irrigation Bureau, served the directors of the district and the head gate keeper with proper notice of the closing. However, the head gates remained open.

Again on August 7th, additional notices were served to close the head gates saying, if the order was not obeyed, a dam would be erected in the district's canal. By this time junior priority appropriators had registered many complaints with the department saying that they felt that law-abiding projects were being penalized and a premium was being offered to the unlawful diverters.

Construction of the dam began August 8th. Whenever some progress was made on the dam, the district officials would release additional water from their head gates, washing out the work. This continued for six days until the dam was completed.

Finally a motion was filed in District Court on August 25th charging the directors of the district with being in contempt of court for refusing to lock the head gates on the district's canal in accordance with the State's order.

This whole incident followed a 25-year controversy over whether or not the Mitchell District could be regulated by the department because its appropriation was secured under Wyoming law and its head gates took water from the North Platte River above the Nebraska state line in Wyoming. A 1931 Nebraska court decision found that since the 18,000-acre Mitchell District (valued at $700,000) was located within Nebraska's boundaries, it fell under its jurisdiction. Yet when ordered to shut down in 1935, the district refused to obey and Wyoming sided with the district and continued to deliver their 194 cubic feet per second of water.

On August 24th, 100 of the water users in the valley decided to outwit the dam builders, in a peaceable way and without interfering with the men guarding the dam, they cut a new ditch around the dam so that water began to flow into the Mitchell canal.

Two days later, as the tension began to mount, the Mitchell directors and the state officials decided to meet. The directors were given 48 hours to comply with the department's orders to guarantee its head gates would be closed so North Platte River water could be administered in accordance with Nebraska law. When the directors asked their constituents to sign a pledge promising not to interfere with the state construction of dams or dikes

and to adhere to the proper administration of water to the Mitchell canal by law, they refused.

When the Mitchell District failed to obey the state demand, two companies of the National Guard—Gering and Scottsbluff (around 180 men)—were called in reluctantly by Governor Cochran to protect the repair work on the dam.

Martial law was declared and the ScottsBluff Star-Herald* called it "the climax to a day crammed with dramatic and tense moments in the fight staged by the embattled farmers of the Mitchell District against the state officials" (Aug. 29, 1935). It was also referred to as a "blot" on the history of the county and "a day of sorrow". H. J. Paul, Brigadier General commanding the Nebraska National Guard, called it undesirable duty.

Guards were posted at the head gates and at strategic points along the canal. "The scene near the dam was strongly reminiscent of war times. Armed guardsmen watched the workers, whose bodies cast long shadows in the fitful light caused by the oil flares" (August 29th).

Declaration of martial law was said to be the climax of more than four years of open court battle and over 40 years of controversy over water rights.

A military tribunal was established. Law abiding citizens were told they would not be bothered. Property rights were said to be inviolate unless needed by the government. Business was told to continue as usual. The papers were asked not to print information against the U.S. or the Guard. No one was permitted within one mile of the dam. Riot guns and tear gas arrived. "The tin hats worn by the ScottsBluff Guardsmen lent an especially war-like atmosphere to the scene" (August 30th). The Guard worked night and day to help complete repair work on the dam.

There was no violence reported over the five-day long siege. The Guard was relieved of duty September 4th, leaving the local sheriffs in control. Some praised the action to restore law and order and others denounced such an abuse of power and misuse of public funds. The dam building, originally estimated at $500 was finally billed at $2,500—and that was, with workers receiving up to 50 cents per hour!

The Nebraska Supreme Court later upheld the state's right to control and regulate the Mitchell Irrigation District because its irrigated land and essentially all of the canals are within the borders of Nebraska.

On March 31, 1936, the Mitchell District lost in the U.S. Supreme Court its claim that Nebraska had no control over its water rights. Nebraska Attorney General William Wright said this decision closed the case which climaxed eight months earlier with the calling in of the Guard.

On May 3, 1936, the state ordered the Mitchell diversion closed until they applied for and received an appropriation by the state. On November 14, 1940, the state held hearings to appropriate water of the North Platte River for irrigation under Docket 1052. They received a June 20, 1890, priority right to divert 194.29 cubic feet per second of water.

** All quotes are dated from issues of the ScottsBluff Star-Herald, Scottsbluff, Nebraska.*

Surplus property donated by feds

If you have a minimal budget but are greatly in need of office, electrical or mechanical equipment then read on.

Political subdivisions and tax exempt non-profit educational and public health agencies may participate in the Federal Surplus Property Donation Program. The Department of Roads will administer all types of personal, capital and real property available in new or repairable conditions.

A small service charge will be assessed against items so that this program will be financially self-sustaining.

In order to establish your organization's eligibility, call, visit or write the Federal Property Assistance Section at 3321 North 35th Street, Lincoln (north of Cornhusker Highway, Adams and North 35th St. intersection), 402/477-6012. Details of the program and the specific surplus items offered are available at this office.

Calendar

April

11 North Platte River Natural Flow Meeting, Torrington, Wyoming

11-13 Water Right Adjudication Hearing, Bridgeport

May

3 Governor's Water Data Coordination Committee Meeting, Lincoln

9-10 Water Right Adjudication Hearing, Imperial

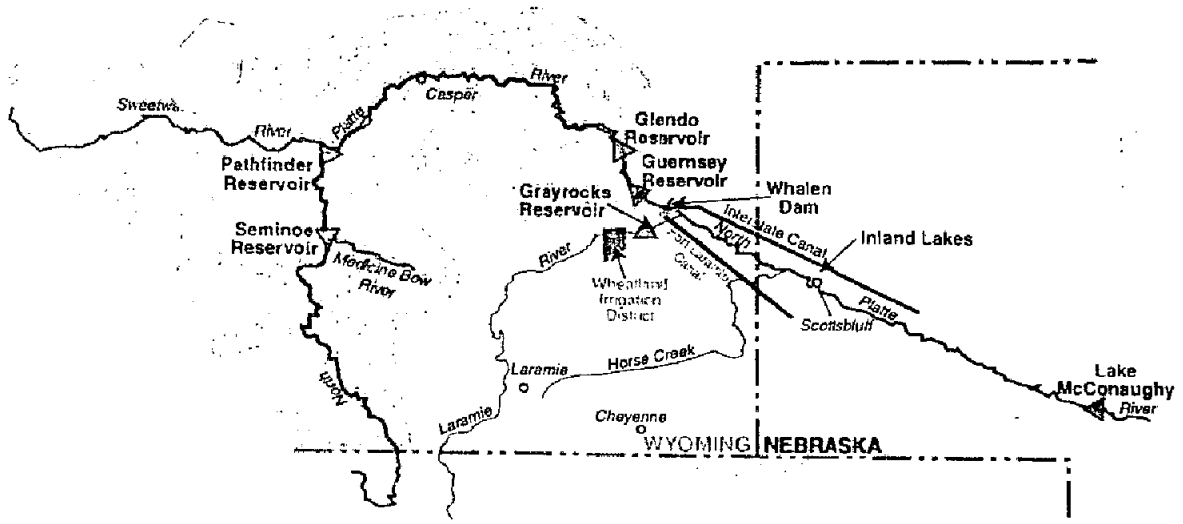
18 Kansas-Nebraska Blue River Compact Meeting, Topeka

June

13-14 Water Right Adjudication Hearing, Taylor-Ord

July

6 Republican River Compact Meeting, Denver

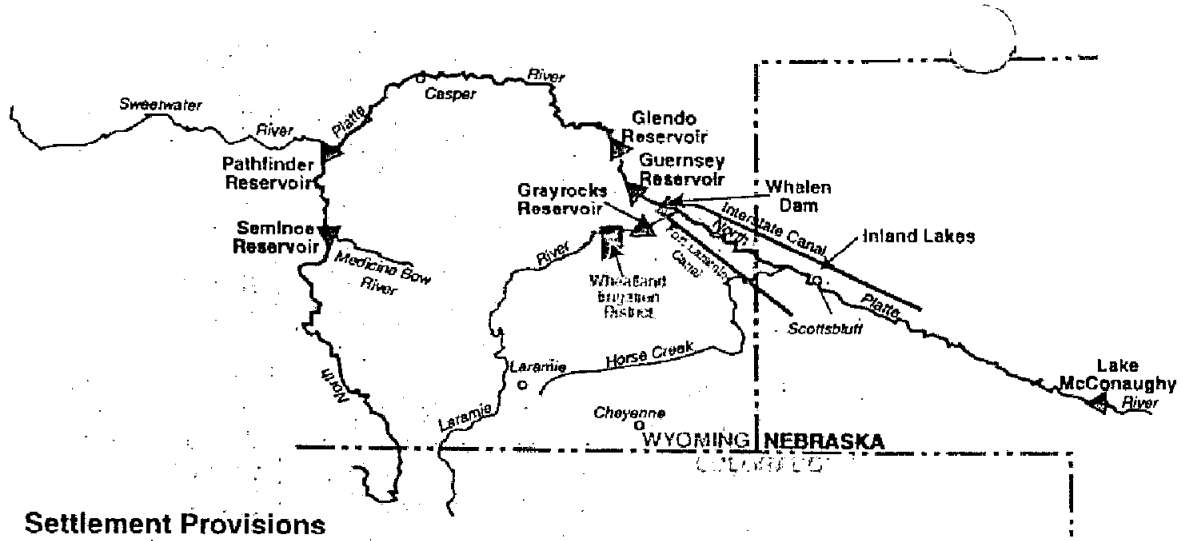


Settlement Provisions
Colorado State Line to Guernsey Reservoir

- Limit on Irrigated Acres - 226,000 acres
- Limit on Consumptive Use - 217,000 acre-feet per year
  (128,000 acre-feet per year above Pathfinder - 89,000 acre-feet per year Pathfinder to Guernsey)
- Automatic Water Regulation in Drought Years

Nebraska Department of Natural Resources
March 15, 2001

North Platte River Settlement

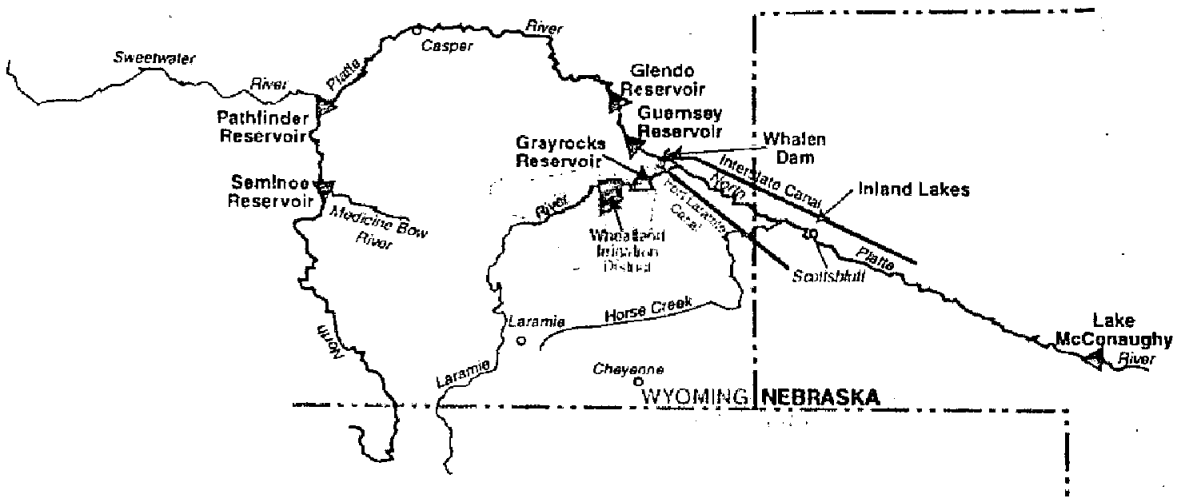


Settlement Provisions
Whalen Dam to Wyoming/Nebraska State Line

- Existing Wells
  - Wyoming Must Cease Pumping or Replace Depletions Resulting From Ground Water Pumping if Flow is Needed to Meet Irrigation Demand
- New Wells
  - Wyoming Must Cease Pumping or Replace All Year Around Depletions
- Wyoming Diversions From Tributaries and Drains Must be Charged Against Their 25% Share

Nebraska Department of Natural Resources
March 15, 2001

North Platte River Settlement



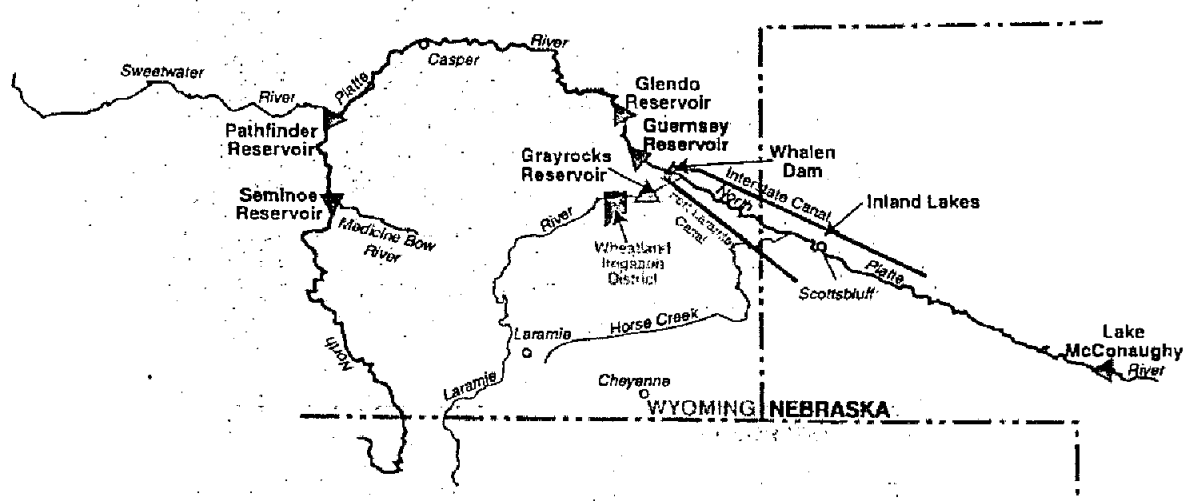
Settlement Provisions
Laramie River

- Limit on Irrigated Acres - 39,000 acres (not including the Wheatland Irrigation District)
- Addresses Operation of Grayrocks Reservoir
- Prevents Construction of Corn Creek Irrigation District
- Retires Goshen Pumping Plant and Transfers Water Rights to North Platte River

Note: Upper Laramie down to and including Wheatland Irrigation District
Covered by the 1922 Colorado Wyoming Decree

Nebraska Department of Natural Resources
March 15, 2001

North Platte River Settlement



General Settlement Provisions

- The Historic Operation of Glendo Reservoir is Preserved
- Data Required on Diversions, Pumping, Permitting and Consumptive Use
- North Platte Decree Committee Created
  - Parties-Nebraska-Wyoming-Colorado-United States
  - Collect Data, Conduct Studies, Resolve Disputes
- Recourse to the Court is Preserved in the Event of Future Disputes

Nebraska Department of Natural Resources
March 15, 2001

North Platte River Settlement

VII. CONCLUSION AND RECOMMENDATION

The proposed settlement now before the Court promises greater certainty of water entitlements for all of the parties and a reduced likelihood of future litigation. The parties have resolved their clashing interpretations of the Court's 1945 decree and their conflicting views of the relevant facts by agreeing upon a settlement package that is fair, equitable and more workable at a practical level than is the existing regime on the River. I recommend, therefore, that the Court enter an order, in the form accompanying this report, approving the Final Settlement Stipulation, issuing the Modified Decree and dismissing with prejudice the parties' respective claims, counterclaims and cross-claims in this action.

It is noteworthy that in this case the parties ultimately did not seek to overturn the basic division of North Platte waters ordered by the Court in 1945.[79] Rather, their contending positions sought relief, by way of either enforcement or decree modification, to carry out their differing views of the full effect of that division. Likewise, in their settlement negotiations the parties worked to find common ground in devising administrative and technical solutions designed to carry out the 1945 apportionment scheme and not to transform it in fundamental ways.

That the parties did not frontally challenge the 1945 division is not to gainsay the breadth of the gulf that

[79] It must be noted, however, that Nebraska did make two attempts to expand the scope of the 1945 apportionment, both of which were summarily rebuffed by the Court. In 1988, the Court denied Nebraska's motion to amend its pleadings to seek injunctions against Wyoming, Colorado and the United States prohibiting further depletions to the North Platte to protect wildlife habitat. *See supra* at 13 and note 19. In 1991, Nebraska moved for an apportionment of non-irrigation season flows, which the Court denied in April, 1993. *See supra* at 13-14, 16, and note 24.

separated their litigation positions. At the extreme, as noted in this report, was the Nebraska contention that, "in-aid-of" Nebraska's apportionment, the 1945 decree should be read to freeze Wyoming's upstream depletions at 1945 levels, a position sharply contrasting with Wyoming's claimed right to initiate new depletions at will so long as express injunctions in the decree are not transgressed. Nebraska approached creativity's outer limits in arguing that specific numeric ceilings on Wyoming's irrigated acreage should be read as also imposing absolute ceilings on Wyoming's irrigation consumptive uses even though no reference is made to consumptive uses in the decree.

Against this backdrop, it is a singular achievement that Nebraska, Wyoming and the other parties to this action have succeeded in finding common ground on a global settlement. It nonetheless remains accurate to say that the proposed Modified Decree, with all of its new sophisticated administrative and technical accompaniments, still speaks to implementing, more accurately and more fairly, the Court's basic 1945 scheme.

The settlement's lynchpin is its resolution of the opposing claims of Nebraska and Wyoming, once again the principal North Platte protagonists. The two states have agreed upon specified and secure upstream irrigated acreage and consumptive use rights for Wyoming in exchange for more far-reaching and more comprehensive injunctions protecting Nebraska from uses exceeding Wyoming's specified entitlements. A noteworthy component brings Wyoming's hydrologically connected groundwater pumping into the settlement on a par with other irrigation water sources. Further, the two states have agreed that Wyoming's withdrawals of water from the apportioned fourth river section must take account of tributary and drain diversions and groundwater pumping in proximity to the River along with canal diversions. These trade-offs are reasonable and

appropriate and entirely compatible with equitable apportionment principles, the basic 1945 scheme, and the Court's opinions in this case.

Colorado's concerns throughout the current proceedings focused on the prospect of future demands that might one day be made on its water users for the benefit of downstream wildlife and wildlife habitat. When the parties determined to address those wildlife issues in another forum, Colorado concentrated its attention in that forum while continuing to monitor these proceedings. Driven by those circumstances, the settlement appropriately leaves Colorado's water use rights as they were established in the 1945 decree.

Claims asserted by Wyoming and Nebraska against the United States were resolved by agreements to make substantial adjustments in Bureau of Reclamation storage water contracting and deliveries. Those changes will translate into greater flexibility in using federal storage water supplies and in the inauguration of a new regime for allocating storage water between the two States' contractors during periods of shortage. Those changes will enable vital storage water supplies to be administered in useful conjunction with natural flows under the terms of the Modified Decree.

The intervention of Basin Electric as a party in 1999 facilitated the resolution of thorny disputes over the contributions of the Laramie River tributary. Most important, Wyoming's revised water administration will finally accommodate secure implementation of the 1978 settlement agreement that enabled the construction and operation of Basin Electric's Grayrocks Reservoir on the Laramie. That final puzzle piece completed the work of folding the lower Laramie River's contributions into the apportionment regime.

My recommendation that the Court approve the entire settlement package is grounded in significant part on the

merits of the detailed rigorous implementing procedures that have been incorporated into that package. Data gathering, monitoring, and administering mechanisms will greatly enhance the parties' ability to live with the Modified Decree. The most promising of these mechanisms is the North Platte Decree Committee, which the parties have chartered to assist them in decree administration. The NPDC has the potential to aid the parties in many ways in accomplishing the necessary tasks to make the Modified Decree work, and it will assist them in resolving the future disputes that will surely arise. The parties are justified in their optimism that the NPDC will greatly reduce the likelihood of their future resort to the Court.

VIII. PROPOSED ORDER

I recommend that the Court issue the following Proposed Order.

Respectfully submitted,

Owen Olpin
Special Master

October 12, 2001

STATE OF NEBRASKA
v.
STATE OF WYOMING, et al.
No. 108, Original

[PROPOSED] ORDER

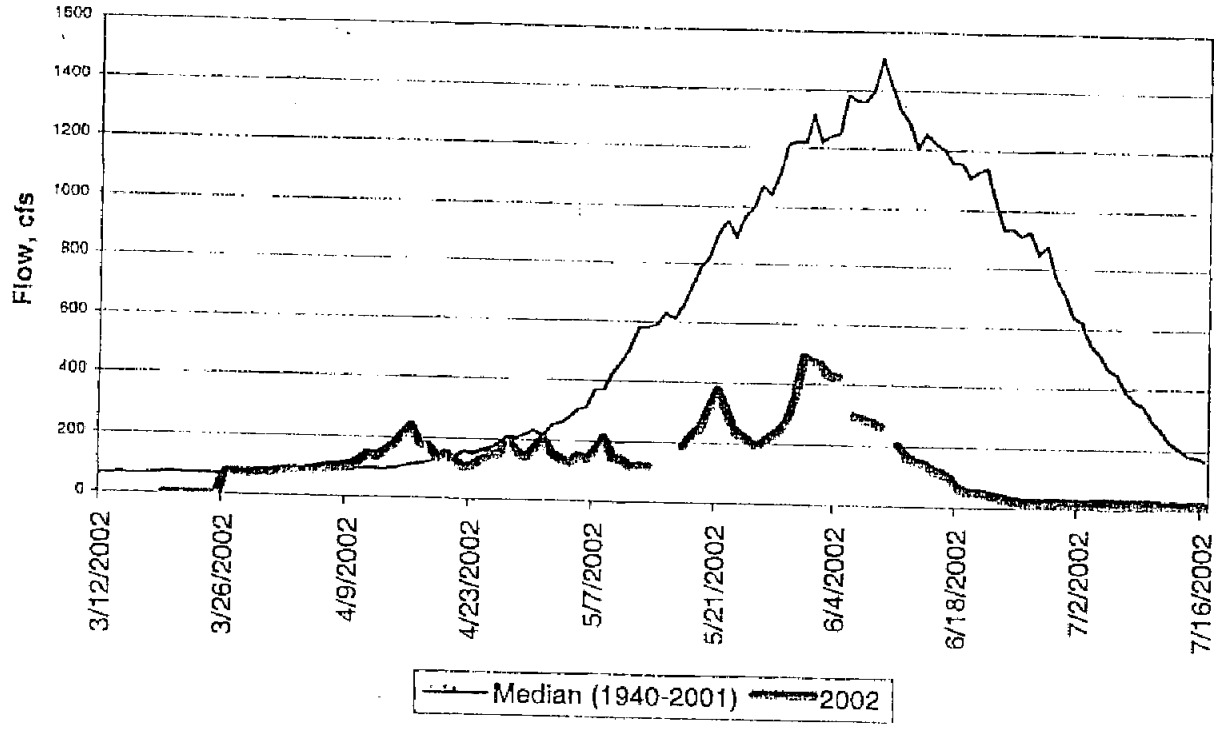
Decided_____ Order Entered_____

This cause, having come to be heard on the Final Report of the Special Master appointed by the Court, IT IS HEREBY ORDERED THAT:

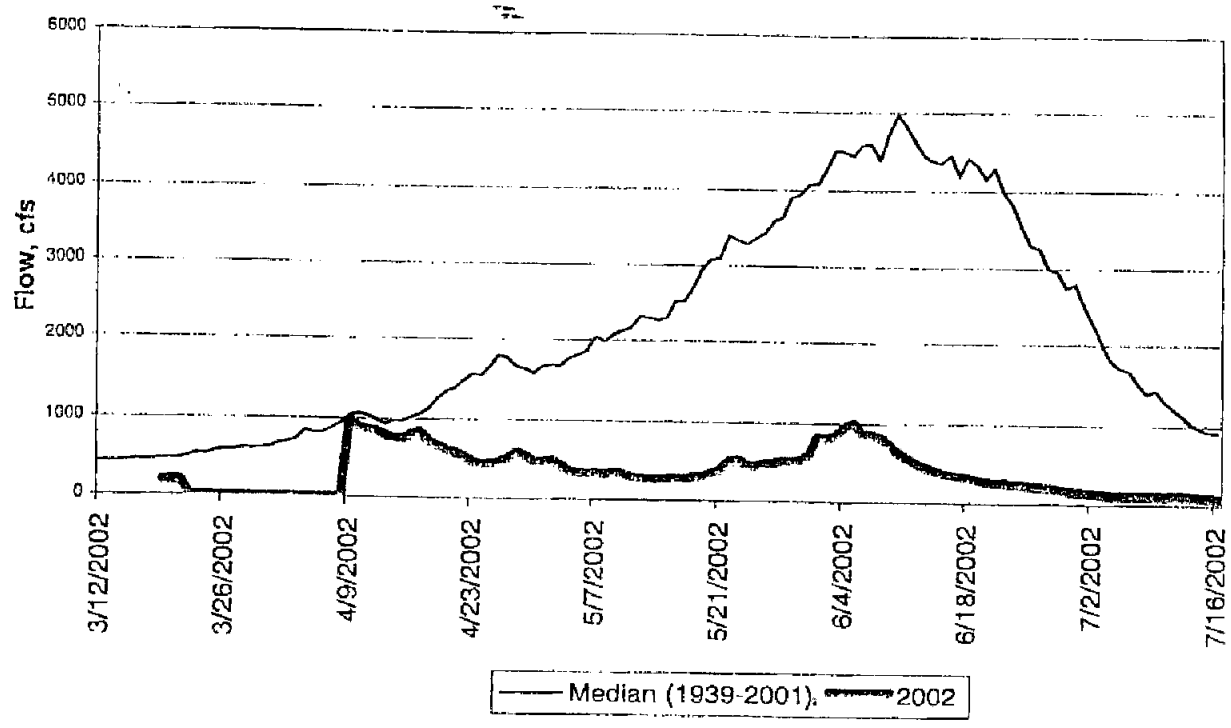
1. The Final Settlement Stipulation executed by all of the parties to this case and presented to the Special Master on March 15, 2001, is approved;
2. The proposed Modified Decree submitted as Appendix A to the Final Settlement Stipulation is entered, replacing the decree originally entered in this case on October 8, 1945, as modified on June 15, 1953;
3. All claims, counterclaims and cross-claims brought in this case are hereby dismissed with prejudice; and
4. The parties shall share in the cost of this litigation in the manner that this Court shall order following the entry of the Modified Decree.

Provisional Data

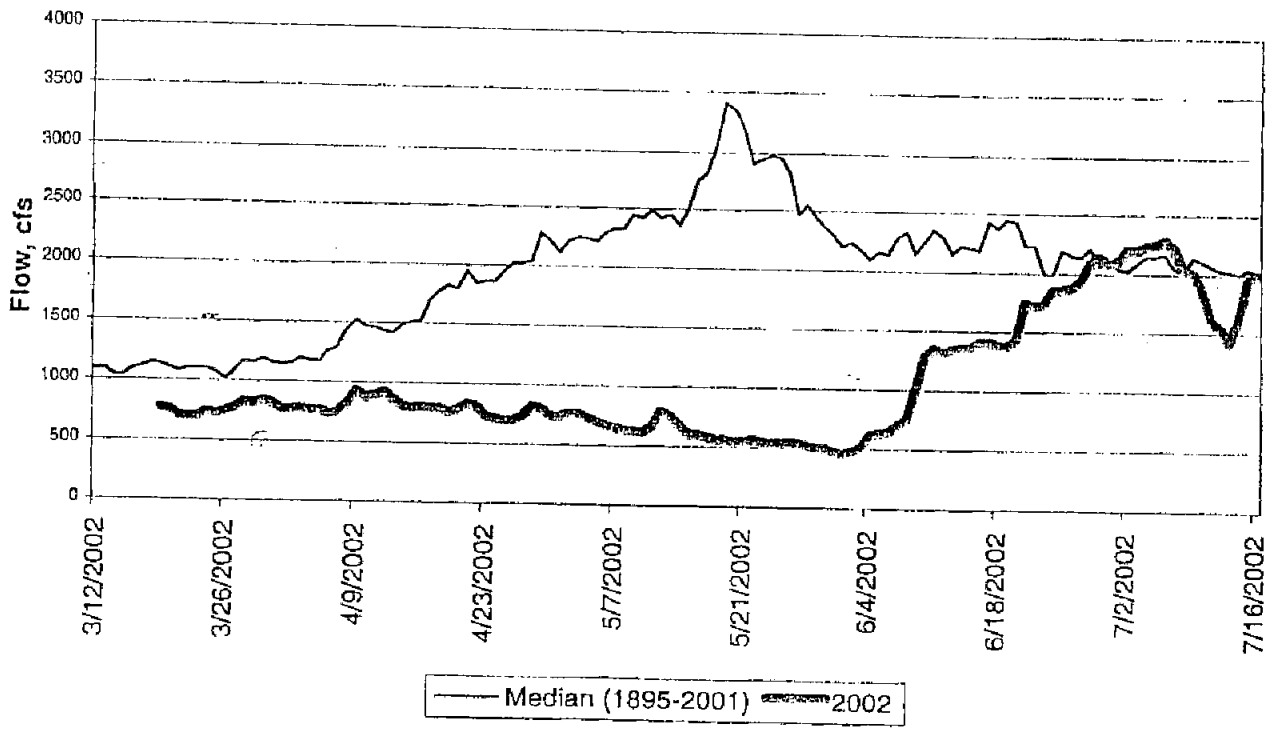
Encampment River Near Encampment



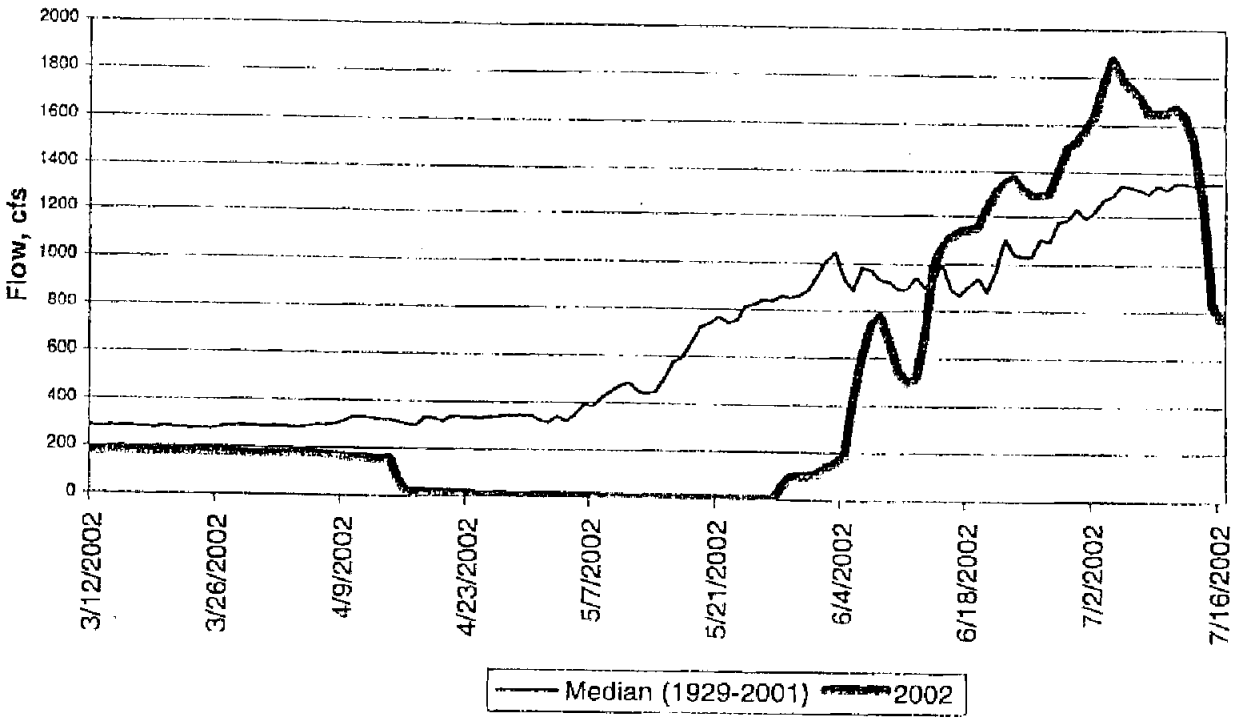
North Platte River Above Seminoe



North Platte Riverat the Orin Gage

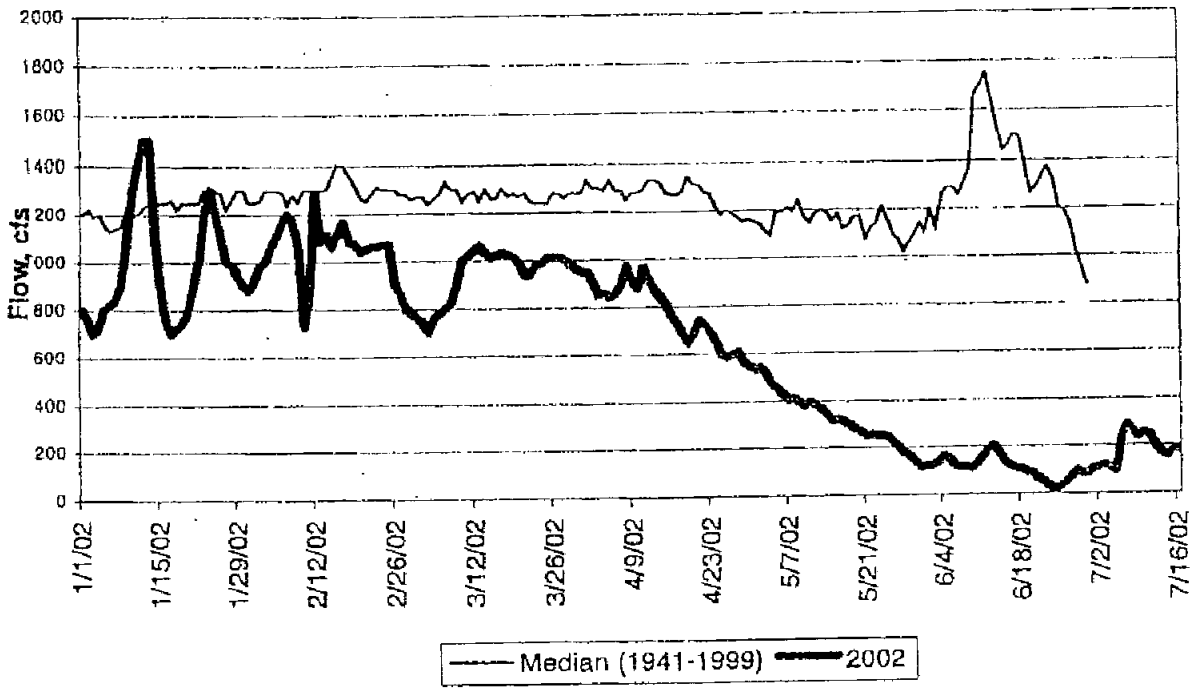


North Platte River at the NE-WY State Line



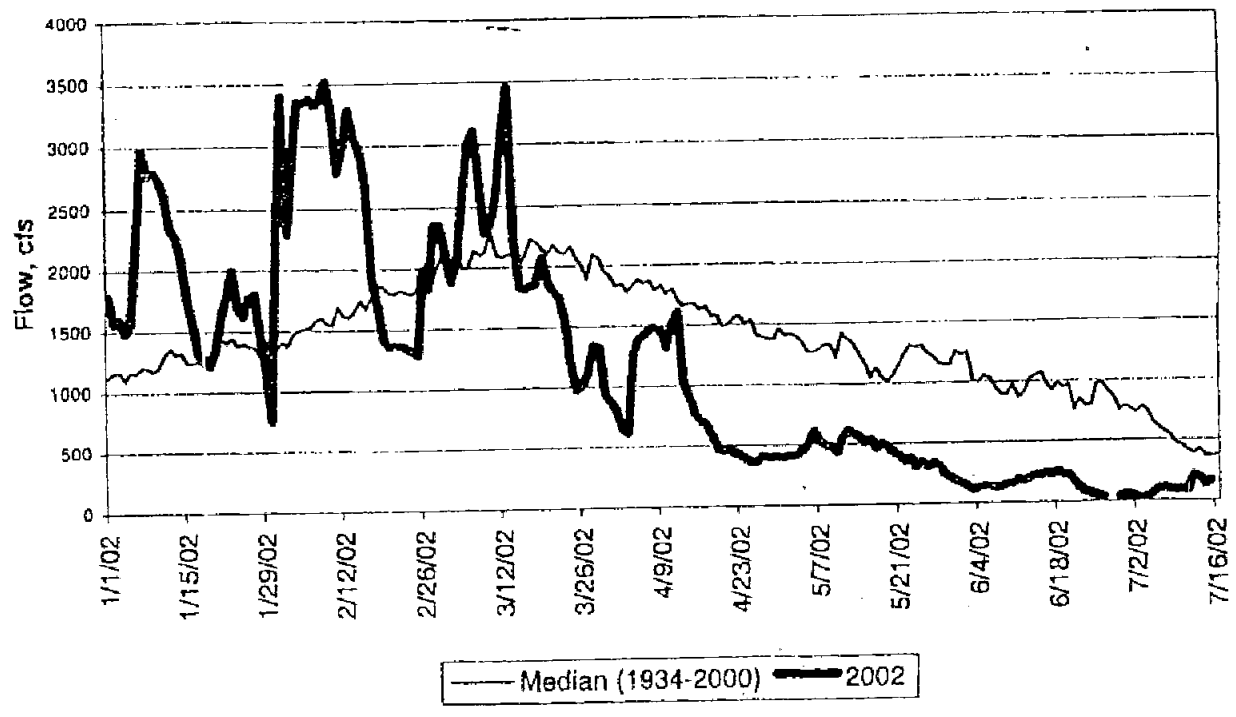
June (1941-1999) Median Volume - 78,700 AF
June 2002 Volume - 6,970 AF (8%)

North Platte River near Lewellen



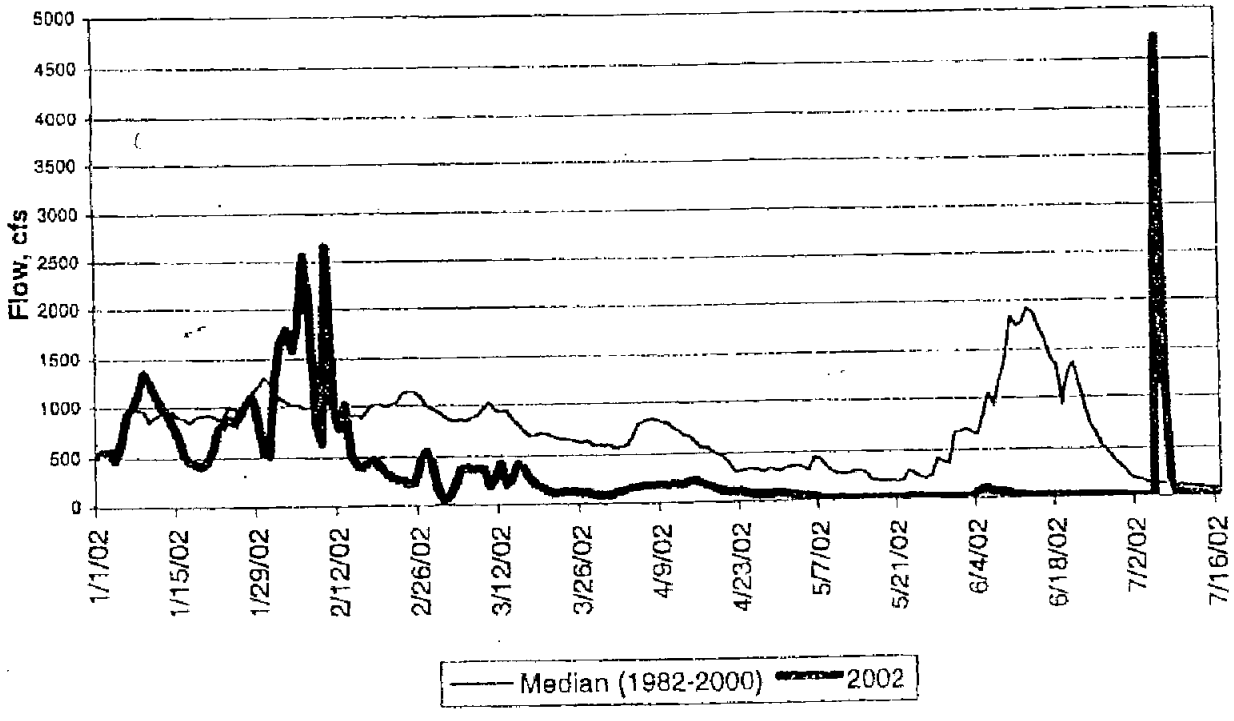
June (1934-2000) Median Volume - 56,400 AF
June 2002 Volume - 8,270 AF (15%)

Platte River near Grand Island



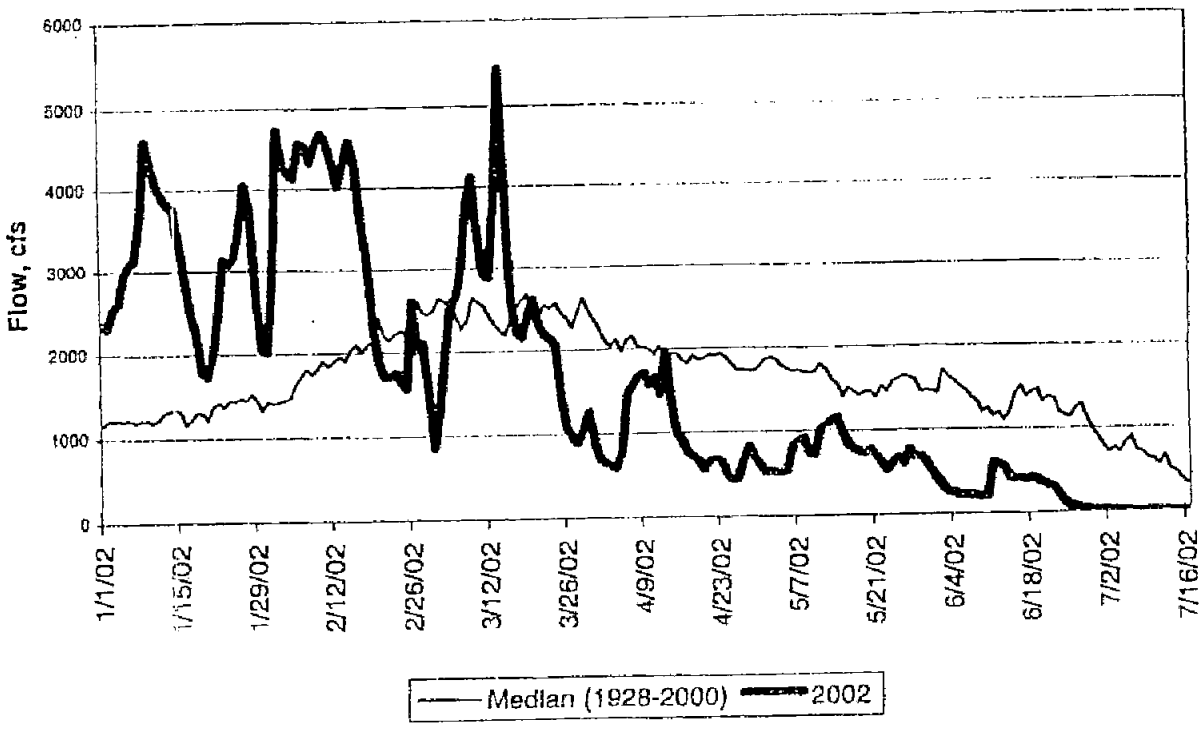
June (1982-2000) Median Volume - 63,800 AF
June 2002 Volume - 1,380 AF (2%)

South Platte River at Roscoe



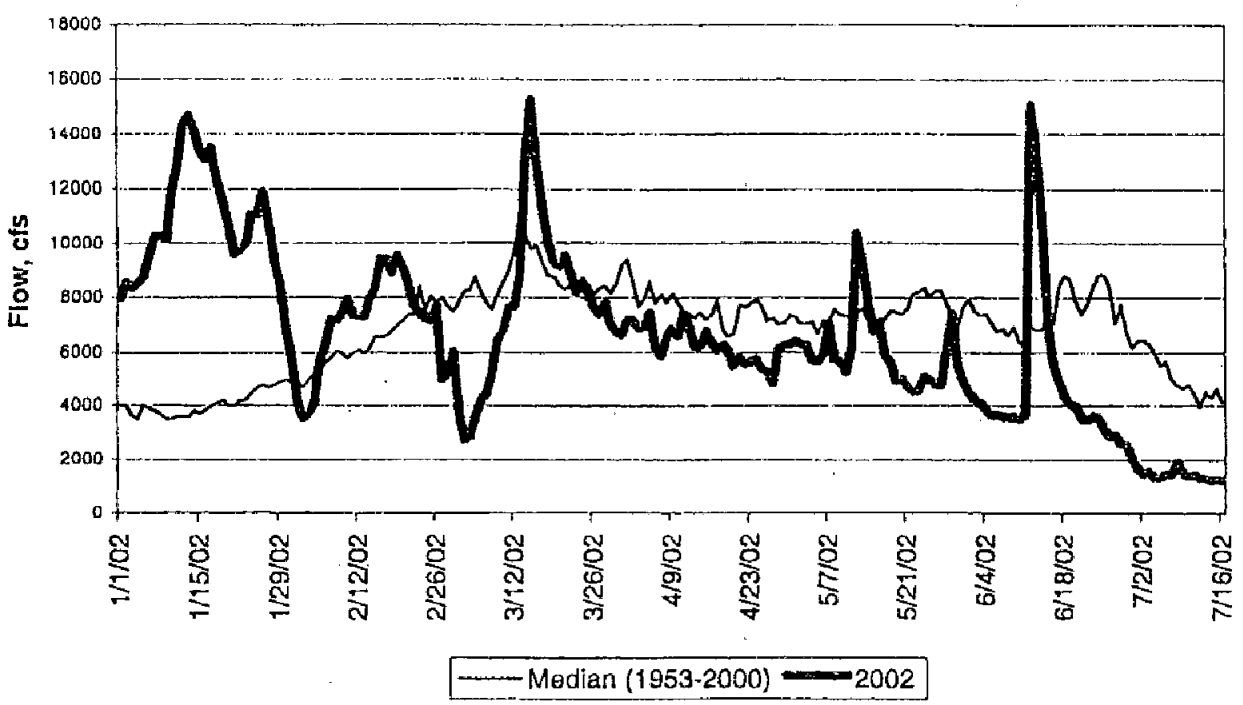
June (1928-2000) Median Volume - 78,300 AF
June 2002 Volume - 16,200 AF (21%)

Platte River near Duncan



June (1953-2000) Median Volume - 443,000 AF
June 2002 Volume - 282,000 AF (64%)

Platte River at Louisville



Selected Gaging Stations along the North Platte River in Wyoming

N
W E
S

Orin

Above Seminoe

Stateline

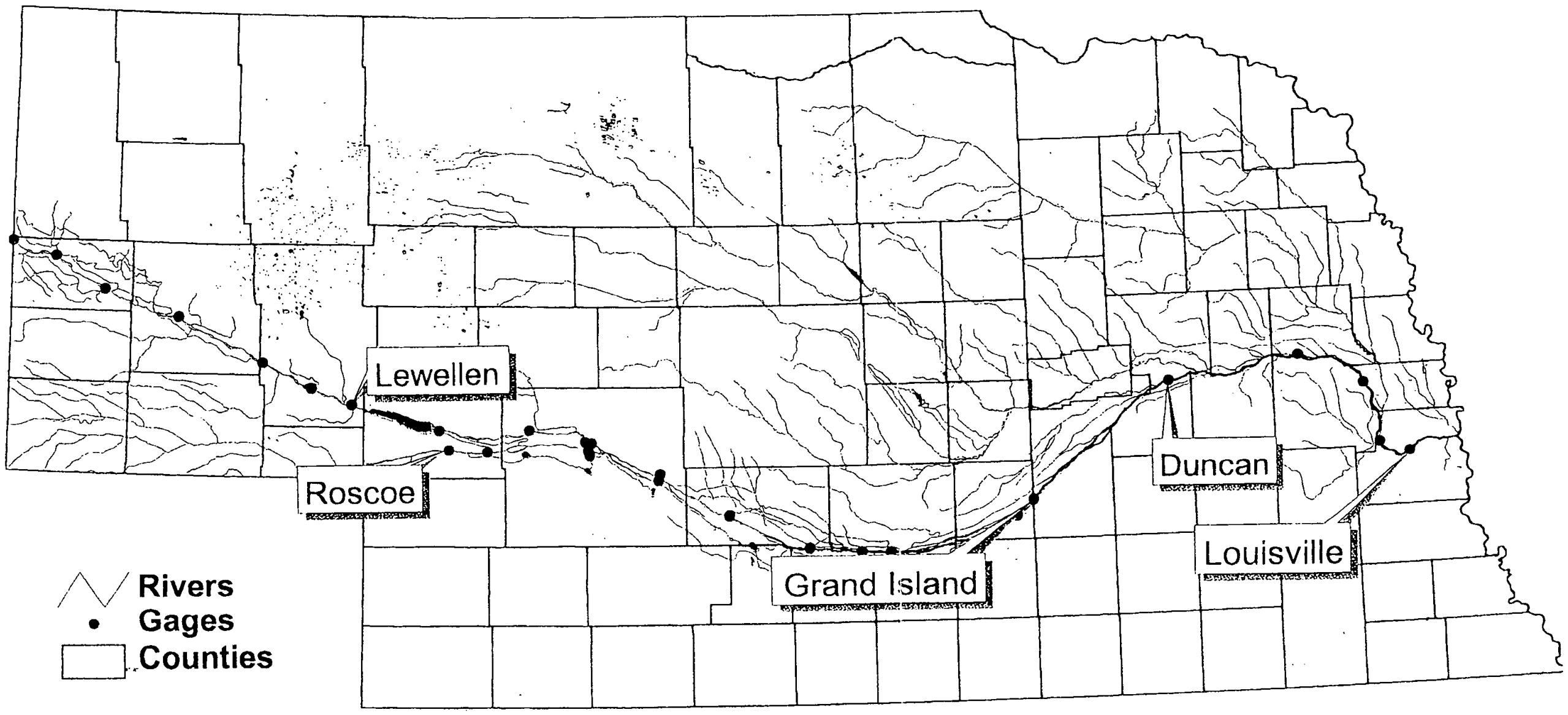
Encampment

Rivers
Gages
Counties

50 0 50 100 150 Miles

DNR 017232

Selected Gaging Stations along the Platte River in Nebraska



NEBRASKA
Department of Natural Resources

DNR 017233

SUMMARY

The North Platte River and the South Platte River rise in the Rocky Mountains of Colorado and flow through Wyoming and Colorado, respectively, to join in western Nebraska to form the Platte River, which continues eastward to its confluence with the Missouri River. The central Platte River and the lower Platte River are the focus of this report. The central Platte River (as defined in this report) includes the reach from Lexington to Columbus, Nebraska, and the lower Platte River is the segment from Columbus to the confluence with the Missouri River (Figure S-1).

A portion of the Platte River corridor is within the North American Central Flyway and provides habitat for migratory and breeding birds, including three endangered or threatened species: the whooping crane (*Grus americana*), the northern Great Plains population of the piping plover (*Charadrius melodus*), and the interior least tern (*Sterna antillarum athalassos*). Most of the interest related to habitat areas for these listed birds extends from Lexington to Chapman (Figure S-1). The broad, shallow waters of the lower Platte River provide important habitat for the endangered pallid sturgeon (*Scaphirhynchus albus*).

Continentwide conditions are responsible for the declines in populations of those four species that resulted in their listings under the Endangered Species Act (ESA) or, in the case of the cranes, prior legislation. The decline in whooping crane populations began many years ago with overhunting and widespread habitat destruction. Whooping cranes, the rarest species of crane in the world, were federally listed as endangered in 1967 under the Endangered Species Preservation Act. Critical habitat for the whooping crane was designated in 1978. Only about 185 wild birds remain, and another 118 are in captivity.

The northern Great Plains population of the piping plover was federally listed as threatened in 1986. Critical habitat for the piping plover was designated in 2002. The population on the Platte River was estimated in 2001 at about 85 nesting pairs. The number and extent of suitable nesting sites have declined with changes in magnitudes and frequency of river flows, flooding from local runoff, changes in vegetation, and human interference during nesting.

Interior least terns were federally listed as endangered in 1985. Observations of the interior least tern are rare in the central Platte River. The estimated total number of birds in the lower Platte River area is now less than 500. Their population decline results from the loss of open sandy areas in and along rivers, a byproduct of inundation by reservoirs, channelization, large-scale changes in flow regimes, and replacement of open areas with woodlands, sand and gravel mines, housing, and roadways.

The pallid sturgeon was federally listed as endangered in 1990 in the lower Platte River. Populations of pallid sturgeon have declined throughout its range; 500 observations per year in the 1960s declined to about seven per year in the 1980s. Pallid sturgeon seem to prefer warm, turbid waters with annually variable flows and firm, sandy channel bottoms; however, extensive damming has disrupted fish passage and resulted in cooler stream flows, less turbid waters, and inconsistent flow regimes. Commercial harvesting, now illegal, also contributed to the decline of the pallid sturgeon.

The Platte River delivers water, mostly from precipitation in the Rocky Mountains, to an extensive water-control system for irrigated agriculture and urban water in all three states. This

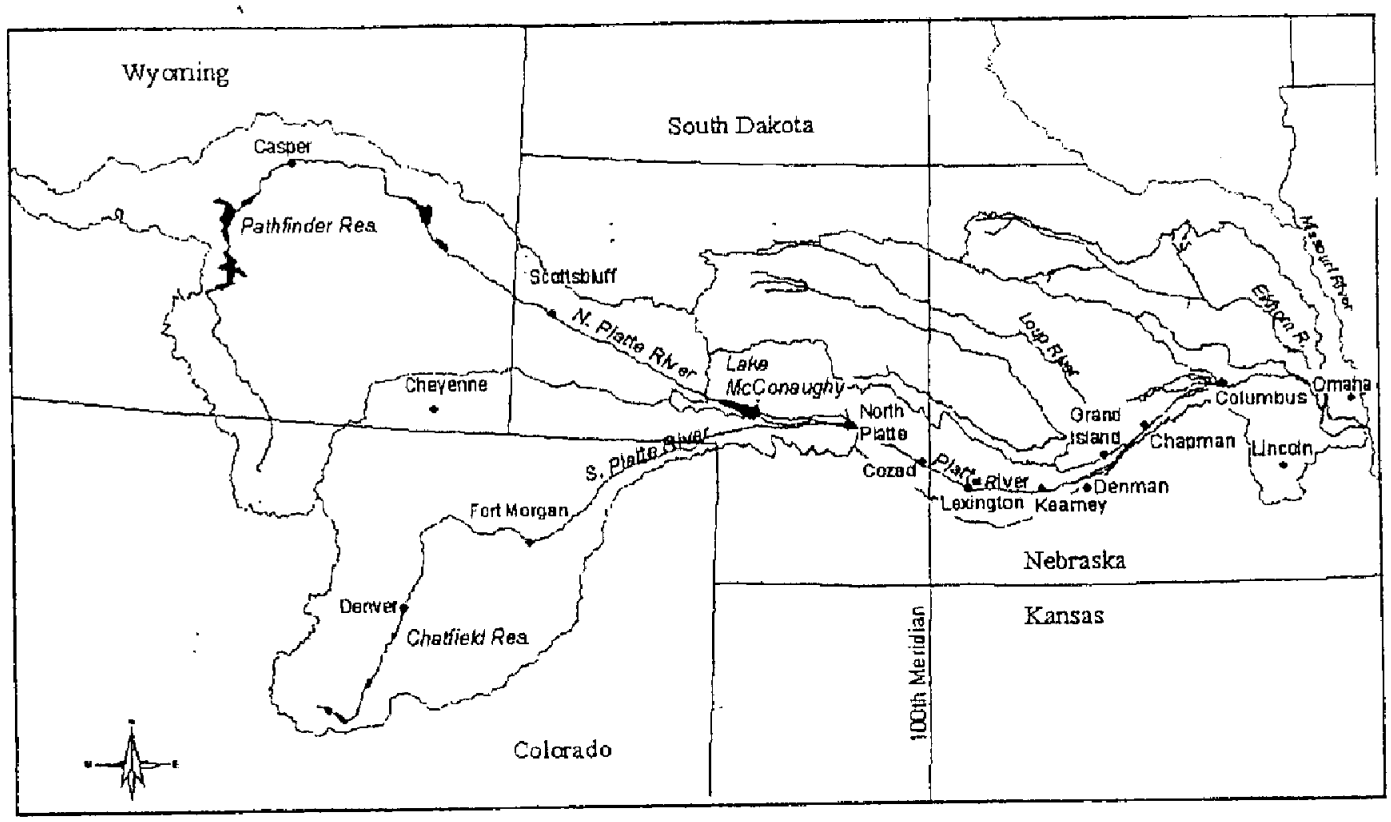


Figure S-1 General location and features of Platte River Basin, including its position across 100th meridian. Source: Adapted from DOI 2003.

system of large dams with storage reservoirs and diversion works with canals provides such benefits as water supply, flood control, electrical power generation, and recreation; it also has substantially altered the river's hydrology and geomorphology. Additional hydrological alterations occur with additions to groundwater through seepage from canals and irrigation and subtractions from wells. The geomorphic and hydrological alterations have caused changes in wildlife habitat and may affect species that depend on particular types of habitat. For example, altered stream flow has resulted in the expansion of woodlands and narrowing of river channels, but the endangered and threatened birds that breed or stop over in the central Platte River appear to prefer sparsely vegetated, open, sandy areas near shallow water.

Protection of federally listed species has been in tension with water management in the Platte River Basin for more than 25 years. Dam construction, new diversions, and federal relicensing of power projects have all been complicated by conflicts with the perceived needs of endangered and threatened species. The conflicts were sharpened by the ongoing litigation among the basin states over division of the waters of the North Platte River, which is not governed by an interstate compact. In 1997, in an effort to find a nonadversarial means of resolving listed-species disputes in the Platte River Basin, the basin states and the federal government entered into a cooperative agreement that established a Governance Committee representing state, federal, environmental, and water-user interests. The committee was charged with developing and implementing a recovery program for the listed species of the basin. Progress toward a recovery program proved slower than the parties had hoped. Meanwhile, implementation of the ESA in the Platte River Basin was increasingly controversial as the U.S. Fish and Wildlife Service (USFWS) issued a series of "jeopardy opinions", finding that any new depletions of the Platte River would have to be compensated by mitigation measures, and a lawsuit forced the designation of "critical habitat" for the northern Great Plains population of the

piping plover. Members of the Governance Committee, the interests they represent, and others whose interests would be affected by any recovery program began to question the science supporting current management of the basin's listed species and sought an outside review of the science before the recovery program was made final.

In 2003, the Department of the Interior (DOI) asked the National Academies to direct its investigative arm, the National Research Council, to evaluate independently the habitat requirements for the whooping crane, piping plover, interior least tern, and pallid sturgeon; to examine the scientific aspects of USFWS's instream flow recommendations and habitat suitability guidelines; and to assess the scientific support for the connections among the physical systems of the river related to the habitat as explained and modeled by the U.S. Bureau of Reclamation (USBR) (Box S-1). To help focus the National Research Council's task, the Governance Committee offered 10 specific questions related to science and policy for the four threatened and endangered species (Box S-2).

The National Research Council formed the Committee on Endangered and Threatened Species in the Platte River Basin to address the charge described in Boxes S-1 and S-2. The 14-member committee includes biologists specializing in the study of cranes, plovers, terns, and sturgeon; ecologists; engineers specializing in hydraulics, hydrology, and civil-environmental topics; a geomorphologist; a geographer; legal, economic, and water-policy experts; and a farmer.

The committee met three times. Its first two meetings (held in Kearney and Grand Island, Nebraska) were open to the public and included invited presentations from researchers and decision-makers and a public-comment session. During those two meetings, the committee participated in an observational flight over the Platte River from Lake McConaughy to Chapman,

BOX S-1
Statement of Task for the National Research Council

A multidisciplinary committee will be established to evaluate the central Platte River habitat needs of the federally listed whooping crane, Northern Great Plains breeding population of the piping plover, interior least tern, and the Lower Platte River habitat needs of the pallid sturgeon. The committee will review the government's assessments of how current Platte River operations and resulting hydrogeomorphological and ecological habitat conditions affect the likelihood of survival of and/or limit the recovery of these species, and whether other Platte River habitats do or can provide the same values that are essential to the survival and/or recovery of these species. The committee will consider the scientific foundations for the current federal designation of central Platte habitat as "critical habitat" for the whooping crane and Northern Great Plains breeding population of the piping plover.

The study will also examine the scientific aspects of (1) the processes and methods used by the U.S. Fish and Wildlife Service in developing its Central Platte River instream flow recommendations, taking the needs of the listed species into account (i.e., annual pulse flows, and peak flows); (2) characteristics described in the U.S. Fish and Wildlife Service habitat suitability guidelines for the central Platte River; and (3) the Department of Interior's conclusions about the interrelationships among sediment movement, hydrologic flow, vegetation, and channel morphology in the central Platte River.

BOX S-2
Governance Committee's 10 Review Questions

The Governance Committee offers these questions to focus NAS in their scientific review. Not all members of the GC agree with all of the questions. However, we are unanimous that the NAS not review the Program, but stay focused on the science related to the questions. During the implementation of the review, individual GC members expect that they will have the opportunity to provide the NAS with their views on the specific issues and areas of concern to be reviewed. In reviewing the government's assessments, the committee should consider how the following 10 questions apply to them.

1. Do current Central Platte habitat conditions affect the likelihood of survival of the whooping crane? Do they limit its recovery?

2. Is the current designation of Central Platte River habitat as "critical habitat" for the whooping crane supported by the existing science?

3. Do current Central Platte habitat conditions affect the likelihood of survival of the piping plover? Do they limit its recovery?

4. Is the current designation of Central Platte River habitat as "critical habitat" for the piping plover supported by the existing science?

5. Do current Central Platte habitat conditions affect the likelihood of survival of the interior least tern? Do they limit its recovery?

6. Do current habitat conditions in the Lower Platte (below the mouth of the Elkhorn River) affect the likelihood of survival of the pallid sturgeon? Do they limit its recovery?

7. Were the processes and methodologies used by the USFWS in developing its Central Platte River Instream Flow Recommendations (i.e. species, annual pulse flows, & peak flows) scientifically valid?

8. Are the characteristics described in the USFWS habitat suitability guidelines for the Central Platte River supported by the existing science and are they essential to the survival of the listed avian species? To the recovery of those species? Are there other Platte River habitats that provide the same values that are essential to the survival of the listed avian species and their recovery?

9. Are the conclusions of the Department of the Interior about the interrelationship of sediment, flow, vegetation, and channel morphology in the Central Platte River supported by the existing science?

10. What were the key information and data gaps that the NAS identified during their review?

Nebraska, and visited the Rowe Sanctuary and Shelton Cottonwood Demography Site. The third meeting (held in Boulder, Colorado) was not open to the public, so the committee could complete its report. Members of the committee visited DOI researchers at their installations in Denver and Grand Island. The committee also reviewed documents describing the methods and procedures used by DOI investigators in reaching their determinations and other written documentation provided by experts and the public.

The focus of the committee's review is the habitat needs of the Platte River endangered and threatened species. The ESA protects *critical habitat*, defined as the specific areas that contain physical or biological features essential to the conservation of the species and that may require special management considerations or protection (ESA § 3(5)). This report uses the term only to refer to areas that have been formally designated under the ESA. Other key terms in the statement of task, defined by the committee for the purpose of this report, are *limit,* which was interpreted by the committee to mean adversely affect or influence; *recovery*, interpreted to mean improvement in the status of listed species to the point at which they would no longer be designated as endangered or threatened; and *survival,* interpreted to mean the persistence of the listed entity.

This report represents the unanimous consensus of all members of the National Research Council committee. It is limited to the specific charge as agreed on by the Research Council, USFWS, USBR, and the Governance Committee (Box S-1).

To address its charge, the committee considered the extent of the data available for each question and whether the data were generated according to standard scientific methods that included, when feasible, empirical testing. The committee also considered whether those methods were sufficiently documented and whether and to what extent they had been replicated, whether either the data or the methods used had been published and subject to public comment or been formally peer reviewed, whether the data were consistent with accepted understanding of how the systems function, and whether they were explained by a coherent theory or model of the system. To assess the scientific validity of the methods used to develop instream flow recommendations, the committee applied the criteria listed above, but focused more directly on the methods. For example, the committee considered whether the methods used were in wide use or generally accepted in the relevant field and whether sources of potential error in the methods have been or can be identified and the extent of potential error estimated. The committee acknowledges that none of the above criteria is decisive, but taken together they provide a good sense of the extent to which any conclusion or decision is supported by science. Because some of the decisions in question were made many years ago, the committee felt that it was important to ask whether they were supported by the existing science at the time they were made. For that purpose, the committee asked, in addition to the questions above, whether the decision-makers had access to and made use of state-of-the-art knowledge at the time of the decision.

The study committee did not evaluate three items that are closely related to, but not part of, its charge: USBR's draft environmental impact statement, which was completed and released after the committee finished its deliberations on this report; an advanced computer model, SEDVEG, to evaluate the interactions among hydrology, river hydraulics, sediment transport, and vegetation being developed, but not yet completed or tested, by USBR for application on the Platte River; and the Central Platte River Recovery Implementation Program proposed in the cooperative agreement by the Governance Committee.

Principal Findings of the Committee

1. Do current central Platte habitat conditions affect the likelihood of survival of the whooping crane? Do they limit [adversely affect] its recovery?

The committee concluded that, given available knowledge, current central Platte habitat conditions adversely affect the likelihood of survival of the whooping crane, but to an unknown degree. The Platte River is important to whooping cranes: about 7% of the total whooping crane population stop on the central Platte River in any one year, and many, if not all, cranes stop over on the central Platte at some point in their lifetimes. Population viability analyses show that if mortality were to increase by only 3%, the general population would likely become unstable. Thus, if the cranes using the Platte River were eliminated, population-wide effects would be likely. Resources acquired by whooping cranes during migratory stopovers contribute substantially to meeting nutrient needs and probably to ensuring survival and reproductive success. Because 70-80% of crane mortality occurs during migration, and because the Platte River is in a central location for the birds' migration, the river takes on considerable importance. The committee concluded that current habitat conditions depend on river management in the central Platte River, but the population also depends on events in other areas along the migratory corridor. If habitat conditions on the central Platte River—that is, the physical circumstances and food resources required by cranes—decline substantially, recovery could be slowed or reversed. The Platte River is a consistent source of relatively well-watered habitat for whooping cranes, with its water source in distant mountain watersheds that are not subject to drought cycles that are as severe as those of the Northern Plains. There are no equally useful habitats for whooping cranes nearby: the Rainwater Basin dries completely about once a decade, and the Sandhills are inconsistent as crane habitat, while the Niobrara and other local streams are subject to the same variability as the surrounding plains. Future climatic changes may exacerbate conflicts between habitat availability and management and human land use. If the quality or quantity of other important habitats becomes less available to whooping cranes, the importance of the central Platte River could increase.

2. Is the current designation of central Platte River habitat as "critical habitat" for the whooping crane supported by the existing science?

An estimated 7% of the wild, migratory whooping crane population now uses the central Platte River on an annual basis and many, if not all, cranes stopover on the central Platte at some point in their lifetimes. The proportion of whooping cranes that use the central Platte River and the amount of time that they use it are increasing (with expected inter-annual variation). The designation of central Platte River migratory stopover habitat as critical to the species is therefore supported because the birds have specific requirements for roosting areas that include open grassy or sandy areas with few trees, separation from predators by water, and proximity to foraging areas such as wetlands or agricultural areas. The Platte River critical habitat area is the only area in Nebraska that satisfies these needs on a consistent basis. However, some habitats designated as critical in 1978 appear to be largely unused by whooping cranes in recent years, and the birds are using adjacent habitats that are not so designated.

Habitat selection (to the extent that it can be measured) on multiple geographic scales strongly suggests that Nebraska provides important habitat for whooping cranes during their

spring migration. Riverine, palustrine, and wetland habitats serve as important foraging and roosting sites for whooping cranes that stop over on the central Platte River. Whooping cranes appear to be using parts of the central Platte River that have little woodland and long, open vistas, including such areas outside the zone classified as critical habitat. In some cases the cranes appear to be using areas that have been cleared of riparian woodland, perhaps partly explaining their distribution outside the critical habitat area.

3. Do current central Platte habitat conditions affect the likelihood of survival of the piping plover? Do they limit [adversely affect] its recovery?

Reliable data indicate that the northern Great Plains population of the piping plover declined by 15% from 1991 to 2001. The census population in Nebraska declined by 25% during the same period. Resident piping plovers have been virtually eliminated from natural riverine habitat on the central Platte River. No recruitment (addition of new individuals to the population by reproduction) has occurred there since 1999. The disappearance of the piping plover on the central Platte can be attributed to harassment caused by human activities, increased predation of nests, and losses of suitable habitat due to the encroachment of vegetation on previously unvegetated shorelines and gravel bars.

The committee concluded that current central Platte River habitat conditions adversely affect the likelihood of survival of the piping plover, and, on the basis of available understanding, those conditions have adversely affected the recovery of the piping plover. Changes in habitat along the river—including reductions in open, sandy areas that are not subject to flooding during crucial nesting periods—have been documented through aerial photography since the late 1930s and probably have adversely affected populations of the piping plover. Sandpits and reservoir edges with beaches may, under some circumstances, mitigate the reduction in riverine habitat areas. Because piping plovers are mobile and able to find alternative nesting sites, changes in habitat may not be as severe as they would be otherwise, but no studies have been conducted to support or reject this hypothesis.

4. Is the current designation of central Platte River habitat as "critical habitat" for the piping plover supported by the existing science?

The designation of central Platte habitat as critical habitat for the piping plover is scientifically supportable. Until the last several years, the central Platte supported substantial suitable habitat for the piping plover, including all "primary constituent elements" required for successful reproduction by the species. Accordingly, the central Platte River contributed an average of more than 2 dozen nesting pairs of plovers to the average of more than 100 pairs that nested each year in the Platte River Basin during the 1980s and 1990s. The critical habitat designation for the species explicitly recognizes that not all areas so designated will provide all necessary resources in all years and be continuously suitable for the species. It is also now understood that off-stream sand mines and reservoir beaches are not an adequate substitute for natural riverine habitat.

5. Do current central Platte habitat conditions affect the likelihood of survival of the interior least tern? Do they limit [adversely affect] its recovery?

The committee concluded that current habitat conditions on the central Platte River adversely affect the likelihood of survival of the interior least tern—in much the same fashion as they affect the likelihood of survival of the piping plover—and that on the basis of available information, current habitat conditions on the central Platte River adversely affect the likelihood of recovery of the interior least tern. Reliable population estimates indicate that the total (regional) population of interior least terns was at the recovery goal of 7,000 in 1995, but some breeding areas, including the central Platte River, were not at identified recovery levels. The central Platte subpopulation of least terns declined from 1991 to 2001. The number of terns using the Platte River is about two-thirds of the number needed to reach the interior least tern recovery goal for the Platte. The interior tern is nesting in substantial numbers on the adjacent lower Platte River, but numbers continue to decline on the central Platte, reflecting declining habitat conditions there. The decline in the tern population on the central Platte River has been coincidental with the loss of numerous bare sandbars and beaches along the river. Control of flows and diversion of water from the channel are the causes of these geomorphic changes. Woodland vegetation, unsuitable as tern habitat, has colonized some parts of the central Platte River. Alternative habitats such as abandoned sand mines or sandy shores of Lake McConaughy are not suitable substitutes for Platte River habitat because they are susceptible to disturbance by humans and natural predators. The shores of Lake McConaughy are available only at lower stages of the reservoir, and they disappear at high stages.

6. Do current habitat conditions in the lower Platte (below the mouth of the Elkhorn River) affect the likelihood of survival of the pallid sturgeon? Do they limit [adversely affect] its recovery?

Current habitat conditions on the lower Platte River (downstream of the mouth of the Elkhorn River) do not adversely affect the likelihood of survival and recovery of the pallid sturgeon because that reach of the river appears to retain several habitat characteristics apparently preferred by the species: a braided channel of shifting sandbars and islands; a sandy substrate; relatively warm, turbid waters; and a flow regime that is similar to conditions that were found in the upper Missouri River and its tributaries before the installation of large dams on the Missouri. Alterations of discharge patterns or channel features that modify those characteristics might irreparably alter this habitat for pallid sturgeon use. In addition, the lower Platte River is connected with a long undammed reach of the Missouri River, which allows access of the pallid sturgeon in the Platte River to other segments of the existing population. Channelization and damming of the Missouri River have depleted pallid sturgeon habitats throughout its former range, so the lower Platte may be even more important for its survival and recovery. The population of pallid sturgeon is so low in numbers, and habitat such as the lower Platte River that replicates the original undisturbed habitat of the species is so rare that the lower Platte River is pivotal in the management and recovery of the species.

7. Were the processes and methodologies used by the USFWS in developing its central Platte River Instream Flow Recommendations (i.e. species, annual pulse flows, and peak flows) scientifically valid?

USFWS used methods described in an extensive body of scientific and engineering literature. Reports of interagency working groups that addressed instream flow recommendations cite more than 80 references that were in wide use and generally accepted in the river science

and engineering community. The committee reviewed that information, as well as oral and written testimony critical of the research conducted by DOI agencies, and it concluded that the methods used during the calculations in the early 1990s were the most widely accepted at that time. Revisions were made as improved knowledge became available. Although the Instream Flow Incremental Method (IFIM) and Physical Habitat Simulation System (PHABSIM) were the best available science when DOI agencies reached their recommendations regarding instream flows, there are newer developments and approaches, and they should be internalized in DOI's decision processes for determining instream flows. The new approaches, centered on the river as an ecosystem rather than focused on individual species, are embodied in the concepts of the normative flow regime. Continued credibility of DOI instream flow recommendations will depend on including the new approach.

The instream flow recommendations rely on empirical and model-based approaches. Surveyed cross sections along the river provided DOI investigators with specific information on the morphology of the river and vegetation associated with the river's landforms. The portions of the cross sections likely to be inundated by flows of various depths were directly observed. Model calculations to simulate the dynamic interaction of water, geomorphology, and vegetation that formed habitat for species were handled with the prevailing standard software PHABSIM, which has seen wide use in other cases and has been accepted by the scientific community. The software was used by DOI researchers in a specific standard method, IFIM, which permits observations of the results as flow depths are incrementally increased.

The continuing DOI model developments, including the emerging SEDVEG model, are needed because of the braided, complex nature of the Platte River—a configuration that is unlike other streams to which existing models are often applied. The committee did not assess the newer models, because they have not yet been completed or tested, but it recommends that they be explored for their ability to improve decision-making.

The committee also recognizes that there has been no substantial testing of the predictions resulting from DOI's previous modeling work, and it recommends that calibration of the models be improved. Monitoring of the effects of recommended flows should be built into a continuing program of adaptive management to help to determine whether the recommendations are valid and to indicate further adjustments to the recommendations based on observations.

8. Are the characteristics described in the USFWS habitat suitability guidelines for the central Platte River supported by the existing science and are they [the habitat characteristics] essential to the survival of the listed avian species? To the recovery of those species? Are there other Platte River habitats that provide the same values that are essential to the survival of the listed avian species and their recovery?

The committee concluded that the habitat characteristics described in USFWS's habitat suitability guidelines for the central Platte River were supported by the science of the time of the original habitat description during the 1970s and 1980s. New ecological knowledge has since been developed. The new knowledge, largely from information gathered over the last 20 years, has not been systematically applied to the processes of designating or revising critical habitat, and the committee recommends that it be done.

The committee also concluded that suitable habitat characteristics along the central Platte River are essential to the survival and recovery of the piping plover and the interior least tern. No alternative habitat exists in the central Platte that provides the same values essential to the

survival and recovery of piping plovers and least terns. Although both species use artificial habitat (such as shoreline areas of Lake McConaughy and sandpits), the quality and availability of sites are unpredictable from year to year. The committee further concluded that suitable habitat for the whooping crane along the central Platte River is essential for its survival and recovery because such alternatives as the Rainwater Basin and other, smaller rivers are used only intermittently, are not dependable from one year to the next, and appear to be inferior to habitats offered by the central Platte River.

9. Are the conclusions of the Department of the Interior about the interrelationship of sediment, flow, vegetation, and channel morphology in the central Platte River supported by the existing science?

The committee concluded that DOI conclusions about the interrelationships among sediment, flow, vegetation, and channel morphology in the central Platte River were supported by scientific theory, engineering practice, and data available at the time of those decisions. By the early 1990s, when DOI was reaching its conclusions, the community of geomorphologists concerned with dryland rivers had a general understanding of the role of fluctuating discharges in arranging the land forms of the channel, and DOI included this understanding in its conclusions about the river. In the early 1990s, engineering practice, combined with geomorphology and hydrology, commonly used IFIM and PHABSIM to make predictions and recommendations for flow patterns that shaped channels, and this resulted in adjustments in vegetation and habitat. In fact, despite some criticisms, IFIM and PHABSIM are still widely used in the professional community of river restorationists in 2004. In applying scientific theory and engineering practice, the DOI agencies used the most current data and made additional measurements to bolster the calculations and recommendations. Since the early 1990s, more data have become available, and the USBR has conducted considerable cutting-edge research on a new model (SEDVEG) that should update earlier calculations but is not yet in full operation (and was not reviewed by this committee).

Sediment data are obtained by sampling sediment concentrations and multiplying the concentrations by discharges and duration. For flow, gaging records on the Platte River are 50 years in duration or longer, and they are in greater density than on many American rivers; the gages provide quality data on water discharge for the Platte River. Murphy and Randle (2003) review the analyses and other sources of knowledge about the flows that provide a sound basis for DOI decisions. In addition to the review by Murphy et al. (2001) concerning vegetation, several studies over the last 20 years have provided an explanation of vegetation dynamics that the committee found to be correct and that is the basis of DOI decisions. Early work by USFWS (1981a) and Currier (1982) set the stage for an evolution of understanding of vegetation change on the river that was later expanded by Johnson (1994). For channel morphology, there is a long history of widely respected research to draw on, including early geomorphologic investigations by Williams (1978) and Eschner et al. (1983), continuing with the reviews by Simons and Associates (2000), and culminating in recent work by Murphy and Randle (2003).

10. What were the key information and data gaps identified in the review?

The committee reached its conclusions for the preceding nine questions with reasonable confidence based on the scientific evidence available. However, the committee identified the

following gaps in key information related to threatened and endangered species on the central and lower Platte River, and it recommends that they be addressed to provide improved scientific support for decision-making.

A multiple-species perspective is missing from research and management of threatened and endangered species on the central and lower Platte River. The interactions of the protected species with each other and with unprotected species are poorly known. Efforts to enhance one species may be detrimental to another species, but these connections remain largely unknown because research has been focused on single species. One approach is to shift from the focus on single species to an ecosystem perspective that emphasizes the integration of biotic and abiotic processes supporting a natural assemblage of species and habitats.

There is no systemwide, integrated operation plan or data-collection plan for the combined hydrological system in the North Platte, South Platte, and central Platte Rivers that can inform researchers and managers on issues that underlie threatened and endangered species conservation. Natural and engineered variations in flows in one part of the basin have unknown effects on other parts of the basin, especially with respect to reservoir storage, groundwater storage, and river flows.

A lack of full understanding of the geographic extent of the populations of imperiled species that inhabit the central Platte River and a lack of reliable information on their population sizes and dynamics limit our ability to use demographic models to predict accurately their fates under different land-management and water-use scenarios. Detailed population viability analyses using the most recent data would improve understanding of the dynamics of the populations of at-risk species and would allow managers to explore a variety of options to learn about the probable outcomes of decisions. Continuation of population monitoring of at-risk species using the best available techniques, including color-banding of prefledged chicks and application of new telemetry techniques, is recommended.

There is no larger regional context for the central and lower Platte River in research and management. Most of the research and decision-making regarding threatened and endangered species in the Platte River Basin have restricted analysis to the basin itself, as though species used its habitats in isolation from other habitats outside the basin. There are substantial gaps in integrative scientific understanding of the connections between species that use the habitats of the central and lower Platte River and adjacent habitat areas, such as the Rainwater Basin of southern Nebraska and the Loup, Elkhorn, and Niobrara Rivers and other smaller northern Great Plains rivers.

The committee is confident that the central Platte River and lower Platte River are essential for the survival and recovery of the listed bird species and pallid sturgeon. However, in light of the habitat it provides and the perilously low numbers of the species, there is not enough information to assess the exact degree to which the Platte contributes to their survival and recovery.

Water-quality data are not integrated into knowledge about species responses to reservoir and groundwater management and are not integrated into habitat suitability guidelines. Different waters are not necessarily equal, either from a human or a wildlife perspective, but there is little integration of water-quality data with physical or biological understanding of the habitats along the Platte River.

The cost-effectiveness of conservation actions related to threatened and endangered species on the central and lower Platte River is not well known. Neither the cost effectiveness nor the equitable allocation of measures for the benefit of Platte River species has been evaluated. The ESA does not impose or allow the implementing agencies to impose a cost-benefit test. Listed species must be protected no matter what the cost, unless the Endangered Species Committee grants an exemption. Cost effectiveness, however, is another matter. The ESA permits consideration of relative costs and benefits when choosing recovery actions, for example. USFWS has adopted a policy that calls for minimizing the social and economic costs of recovery actions, that is, of choosing actions that will provide the greatest benefit to the species at the lowest societal cost (Fed. Regist. 59: 3472 [1994]). In addition, persons asked to make economic sacrifices for the sake of listed species understandably want assurances that their efforts will provide some tangible benefit. In the Platte, the direct economic costs of measures taken for the benefit of species appear reasonably well understood. The biological benefits are another matter. For example, the costs of channel-clearing and other river-restoration measures are readily estimated. Their precise value for cranes is more difficult to estimate, although their general use is fairly well established.

The allocation of conservation costs and responsibility also has not been systematically evaluated. USFWS has concentrated its efforts to protect listed species in the Platte system on federal actions, such as the operation of federal water projects. That focus is understandable. Water projects with a federal nexus account for a large and highly visible proportion of diversions from the system. In addition, those actions may be more readily susceptible to regulatory control than others because they are subject to ESA Section 7 consultation. But some nonfederal actions also affect the species. Water users that depend on irrigation water from the federal projects may well feel that they are being asked to bear an inordinate proportion of the costs of recovering the system. A systematic inventory of all actions contributing to the decline of the species could help the parties to the cooperative agreement channel their recovery efforts efficiently and equitably. The National Research Council committee charged with evaluating ESA actions in the Klamath River Basin recently reached a similar conclusion (NRC 2004).

The effects of prescribed flows on river morphology and riparian vegetation have not been assessed. Adaptive-management principles require that the outcomes of a management strategy be assessed and monitored and that the strategy be adjusted accordingly, but there has been no reporting of the outcomes of the 2002 prescribed flow, no analysis of vegetation effects of managed flows, no measurement of their geomorphic effects, and no assessment of their economic costs or benefits.

The connections between surface water and groundwater are not well accounted for in research or decision-making for the central and lower Platte River. The dynamics of and

connections between surface water and groundwater remain poorly known, but they are important for understanding river behavior and economic development that uses the groundwater resource. The effects of groundwater pumping, recently accelerated, are unknown but important for understanding river flows.

Some of the basic facts of issues regarding threatened and endangered species in the central and lower Platte River are in dispute because of unequal access to research sites. Free access to all data sources is a basic tenet of sound science, but DOI agencies and Nebraska corporations managing water and electric power do not enter discussions about threatened and endangered species on the central and lower Platte River with the same datasets for species and physical environmental characteristics. USFWS personnel are not permitted to collect data on land privately owned by some of the companies. As a result, there are substantial gaps between data used by DOI and data used by the companies, and resolution is impossible without improved cooperation and equal access to measurement sites.

Important environmental factors are not being monitored. Monitoring, consistent from time to time and place to place, supports good science and good decision-making, but monitoring of many aspects of the issues regarding threatened and endangered species on the central and lower Platte River remains haphazard or absent. Important gaps in knowledge result from a lack of adequate monitoring of sediment mobility, the pallid sturgeon population, and movement of listed birds. Responses of channel morphology and vegetation communities to prescribed flows and vegetation removal remain poorly known because the same set of river cross sections is not sampled repeatedly. Groundwater may play an important role in flows, but groundwater pumping is not monitored.

Long-term (multidecadal) analysis of climatic influences has not been used to generate a basis for interpretation of short-term change (change over just a few years). The exact interactions between climate and the system are poorly known because only short-term analyses of climate factors have been accomplished so far. In addition, the relative importance of human and climatic controls remains to be explicitly defined by researchers, even though such knowledge is important in planning river restoration for habitat purposes.

Direct human influences are likely to be much more important than climate in determining conditions for the threatened and endangered species of the central and lower Platte River. Potentially important localized controls on habitat for threatened and endangered species on the central and lower Platte River are likely to be related to urbanization, particularly near freeway exits and small cities and towns where housing is replacing other land uses more useful to the species. Off-road vehicle use threatens the nesting sites of piping plovers and interior least terns in many of the sandy reaches of the river. Sandy beaches and bars are inviting to both birds and recreationists. Illegal harvesting has unknown effects on the small remaining population of pallid sturgeon. In each of those cases, additional data are required to define the threats to the listed species.

Successful, sustainable solutions of species issues in the Platte River Basin must begin with water management. The committee found that sufficient scientific knowledge and understanding exist and have been used to make informed decisions about the management of water resources, the Platte River, and the threatened and endangered species that use the river as habitat. Regarding the critical understanding and modeling that DOI has used to explain the connections among stream flow, sediment movement, vegetation, and habitats, the committee found that valid science was used when recommendations were made in the past but that future decisions must rely on the use of newer methods and perspectives, particularly the concept of normative flow regimes. The quality of the information upon which decisions are based could be further improved by publishing research findings in peer-reviewed journals or in externally reviewed synthesis volumes to increase accessibility and decrease the reliance on non-peer-reviewed literature. The committee found numerous gaps in knowledge. Addressing them could substantially improve science and management for the river, its human population, and its threatened and endangered species. Those gaps are mostly related to problems of integration of the various lines of scientific investigation, to a focus on highly localized rather than more broadly based ecosystem perspectives, to a lack of analysis of basinwide connections, to a lack of standardized procedures for data collection among government and private agencies, and to lack of understanding of the relative cost-effectiveness and distributional consequences of alternative conservation measures.