

Negotiating New Environmental Governance
In the Platte River Basin:

Implementing The Endangered Species Act

Final Weeks

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Interdisciplinary Water Resources Seminar

Colorado State University
October 12, 2009

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Source

- Material drawn from book manuscript forthcoming from the University Press of Colorado.
- Title: *Negotiating New Environmental Governance on the Platte River Basin Water Commons: Implementing the Endangered Species Act.*

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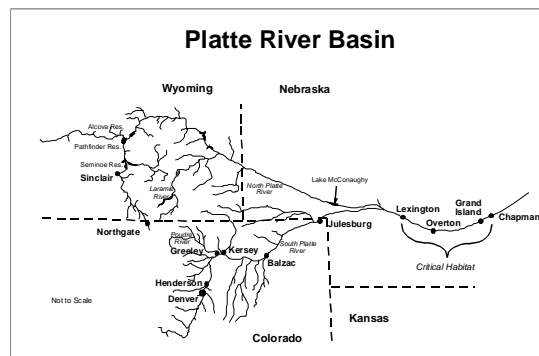
What Does Sociology Have To Do With The Natural Environment And Water Management?

- For every irrigation ditch, dam, reservoir, lake or river there is a set of organizations that account for how the water flows in interaction with people and the encompassing biotic web.
- If a piece of the biota is extinguished is likely because some people have organized to kill it.
- There is nothing more social and political than bulk flows of water molecules.

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Three States Agreement



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Environmental Problems Are Social

- When 97% of viable sandhill and whooping crane habitat was destroyed over the last century, it was no random accident of nature.
- We, the people, organized river flows to serve human utilitarian interests but did so at a heavy cost to biotic webs to which we are intimately tethered.
- Can we organize to restore a segment of our ecosystem in a manner that will make our society more sustainable?

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Sociological Problem

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The Problem

- 1. Improving species habitat on large landscapes is a public goods problem.
- 2. Public goods problems have special characteristics that discourage rational decision makers from individually addressing them on their own initiative.
- 3. Public goods problems require social organization to address them. Social organizations are the stuff of sociology.

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Two Types of Goods

- Private Goods—e.g., pizza, auto, tractor, seeds.
- Public Goods—e.g., riparian habitat restoration, flood control, national defense, education.

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Types of Goods--Private

a) Private Goods—investor can capture returns to investment.



Investor —————> Returns

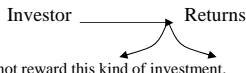
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b) Markets reward this kind of investment.
 c) As a society we invest heavily in private goods.

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Types of Goods--Public

a) Public Goods—investor cannot capture returns to investment.



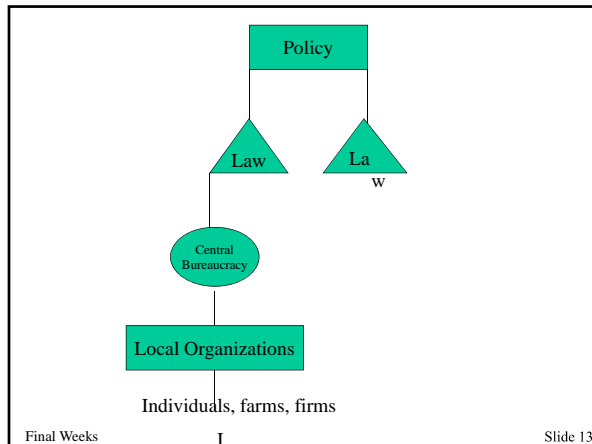
Investor —————> Returns

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Markets do not reward this kind of investment.

b) Central tendency is to under-invest in public goods—e.g., clean air, clean water, and other forms of ecosystem enhancement.

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- ### Nature of Middle Organizations On Platte
- 1. Mutual Irrigation Companies
 - 2. Irrigation Districts
 - 3. Conservancy Districts
 - 4. Municipal Water Providers
 - 5. Public Power and Irrigation Districts
 - 6. Environmental Organizations—e.g., Whooping Crane Trust, National Wildlife Federation, Audubon Society.

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- ### Mid-Level Organizations Are Critical
- 1. They empower people to do things collectively that they cannot accomplish individually.
 - 2. They provide social space in which to blend generalized scientific principles with local realities.
 - 3. They monitor local landscapes 24/7.
 - 4. They make possible rapid adaptation;
 - 5. They fit general principles of law and science to local landscapes.

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- ### Two Big Questions For Discipline:
- 1. What are attributes of effective common pool resource organizations?
 - 2. How, and under what conditions, will individual self-seeking natural resource organizations—e.g., water providers—mobilize to produce and sustain a common pool collective good—e.g., restored habitats?

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- ### At CSU Sociologists Have Studied Attributes Of Effective Common Pool Resource Organizations
- Pakistan
 - India
 - Sri Lanka
 - Nepal
 - Northeast Thailand
 - Colorado—e.g. S. Platte, Arkansas Valley (Troy Lepper), Uncompahgre Valley (April Pratt)
 - New Mexico
 - Utah
 - Idaho

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References

- Freeman, D.M. "Wicked Water Problems." *J. Am. Water Resources Assoc.* Vol. 30 (June, 01) p. 483—491.
- Ostrom, E. *Governing the Commons*. Cambridge, 1990.
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Today's Mobilization Question:

- How was it possible to mobilize rational self-interested water providers to participate in habitat recovery--a public good—on a large river basin scale?

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Mobilization Problem

- No water provider investor can individually capture a financial benefit, because investor costs will increase, water project yields will decrease, negotiating a new order of things in the basin must inherently be:
 - 1. threatening to water provider historic agendas;
 - 2. costly in time, money, and effort;

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In Absence of Effective Social Organization:

- Action of any single player independently cannot produce sufficient improved habitat.
- Altruistic voluntary action of all other players could potentially satisfy the need, but...
- Each individually rational actor fears that non-sacrificing “free riders” will gain advantage.
- Therefore, it is individually rational to do nothing even given perfect information about the nature of the problem.

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Collective Action Requires Organization

- Each player requires assurance that each other player will contribute a “fair share” of the costs in return for getting a “fair share” of the reward—improved habitat and federal permits for water providers with regulatory certainty.
- Must organize to undertake collective project and control “free-riding.”

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Environmental Problem

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Whooping Crane

- 7.5' wingspan, about 14 pounds, about 5.5' tall.
- Brilliant white, black wingtips, bare red heads.
- Use central Platte in spring & fall migrations.
- Need wide shallow braided river
- Listed as endangered under Endangered Species Act.

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Interior Least Tern

- Smallest of tern species—9' body; 20' wingspan
- Black crown with white patch on forehead, yellow bill with black tip, orange-yellow feet.
- Nest on open sandbars in small depressions.
- Listed as endangered under Endangered Species Act.

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Piping Plovers

- Use much the same habitat as least terns and compete for same nesting sites
- Robin-sized shorebird with wingspan about 15'.
- Head, back, and wings pale brown, w black strip from eye to eye.
- Listed as threatened under Endangered Species Act.

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Bird Habitats Severely Compromised

- Faster summer flows moving through incised channels.
- Fluctuating flows across the daily cycle that is associated with hydropower and irrigation operations.
- Encroaching vegetation.
- Concentration of birds esp. during spring migration threatens disease transmission, esp for W. Cranes.

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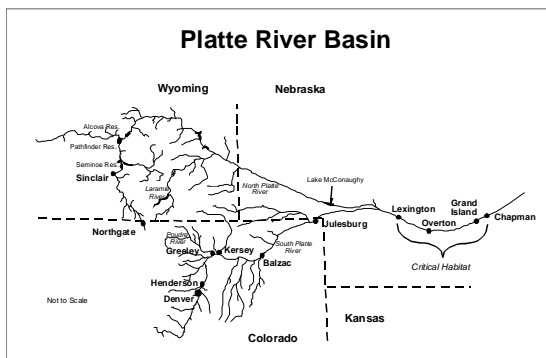
Pallid Sturgeon

- Habitat has been largely destroyed on Missouri and Mississippi by dams, dikes, levees.
- Lower Platte is free-flowing river with sandbars dividing channels, sloughs, backwaters, oxbows, and can provide habitat for all life stages—larval, juvenile, and adult.
- Listed as endangered under ESA
- Test hypothesis that program upstream will help; will research species needs.

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Three States Agreement



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Degradation of Platte River

- Platte River supplies water to over 2.5 million people, irrigates 2.8 million acres, and generates 400 megawatts of electricity.
- In 70 mile stretch of the big bend region of the central Platte (Lexington to Chapman) about 97% of Whooping and Sandhill Crane roosting habitat has been lost due to:
 - Vegetation encroachment
 - Channelization—narrowing and deepening
 - Lack of critical pulse flows

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Endangered Species Act--1973

- Created demand for new collective goods—i.e., citizens must restore and sustain required habitats for listed species.
- Act prohibits the “taking” of any member of a species listed as “threatened” or “endangered.”
- Actors seeking Federal Approval for projects that would negatively impact listed species’ habitat must produce a “reasonable and prudent alternative” to protect the listed species.

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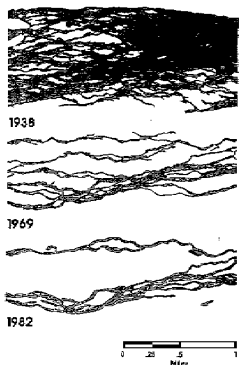
The Needed Public Good—River Restoration

- Need minimum flows during dry years to prevent major breaks in roosting habitat;
- Wet year flows for wetlands;
- Dry and wet year pulse flows to:
 - Inundate wet meadows
 - Scour young vegetation
 - Prevent nesting of shorebirds (terns/plovers) on low sandbars
 - Form shifting sandbars needed by cranes, terns, plovers.

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River Channel and Riverine Habitat



River channel area (shaded) near Odessa in 1938, 1969, and 1982

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Problem Summarized

- Within the frame of the Endangered Species Act, four species have been found to be in jeopardy.
- Whooping Crane, least tern, piping plover, and pallid sturgeon.
- A remedy must be found.
- To remove conditions causing jeopardy habitat must be improved in the big bend segment of the Platte River in central Nebraska.

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The Problem Summarized--2

- How to construct a set of organizational arrangements that will:
 1. empower the players to construct a basin-wide solution that they cannot produce individually.
 2. control “free-riding”—i.e., allocate fair shares of cost in water, land, and dollars among investors.

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The Political Problem:

Water Users Require Federal Permits;

DOI Must Implement ESA In Politically Charged Context.

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The Political Crunch

- Wyoming water users are dependent upon Federally constructed water facilities at Pathfinder Dam, Seminoe Dam, Glendo Dam, Gurnsey Dam etc.
- Nebraska users are dependent upon Kingsley Dam/Lake McConaughy; panhandle irrigators served by federal reservoirs in Wyoming.
- Colorado users are dependent upon Colorado Big Thompson Project and other mountain reservoirs on Federal Land.
- All require Federal permits to operate.
- Federal agencies must enforce the ESA in a way that will demonstrate that the law is workable.

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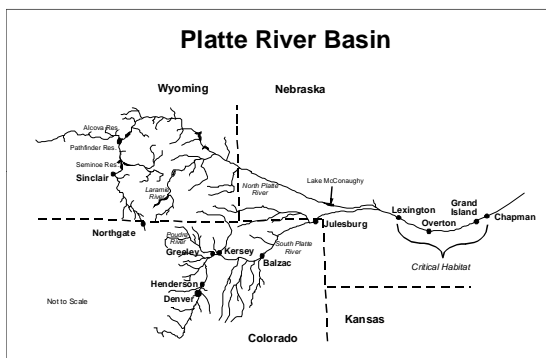
Colorado Permits

- Important water facilities (dams, reservoirs, canals, tunnels) are located on Federal forest lands.
- Fort Collins—Joe Wright Reservoir
- Greeley—Barnes Meadow Reservoir
- Water Supply and Storage Co.—Long Draw
- Denver—Dillon Reservoir
- Donut pattern—reservoirs surrounded by federal land
- Federal permits must be periodically renewed (20 yrs.)

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Crunch Continued

- Fish and Wildlife Service (FWS) allowed permits to remain valid on condition that the water users participate in developing a solution that will provide a public good—i.e. viable habitat for endangered and threatened species in the Big Bend reach of the Platte river.
- If program was not developed, and is not sustained, then FWS must compel each water user organization to go through permit consultations with FWS where they would be individually accountable.

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Crunch Continued

- Each water user would have to devise a plan to help habitat on its own—prohibitively expensive and physically impossible.
- Each user/supplier needs regulatory certainty.
- One option is to cooperate to build a new public goods habitat recovery organization.

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Negotiations

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Time Line

- Discussions started in earnest by mid-1980's regarding Nebraska's Kingsley Dam re-licensing, mountain reservoirs plus proposals for Wildcat and Narrows in Colorado, Grayrocks reservoir in Wyoming.
- Governors agreed to negotiate in 1994.
- Cooperative Agreement produced in 1997.
- Constructing program in detail—1997-2006.
- Securing approvals—state and federal—2007.
- Launched habitat recovery program January, 2007.

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Individually Rational Water Providers Resisted

- Their supplies are highly variable.
- Each serves demanding & fickle customers.
- Each must obtain more supply than needed in average and wet years to serve dry years.
- Their mantra: always fight for more water; resist reduction of water project yields.
- Investments of water for environmental public goods threaten to make it more difficult to serve water users/consumers—i.e., us!

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States and Water Providers

- Insisted that any habitat recovery program operate on principle of defined contributions.
- Specific quantities of:
 - Land
 - Money
 - Water
- Could not tolerate open-ended negotiations of their assets.

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Administrators of the ESA Must Extract Water For Habitat Agendas

- Install environmental water accounts in basin storage projects that reduce project yields for utilitarian human uses.
- Increase costs of hydroelectric power.
- Decrease drought protection.
- Intrude upon sovereign state water agendas.

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Federal Stewards Of The ESA

- Strongly advocated a natural flow model of habitat restoration.
- Variable flows—5 components:
 - Magnitude of discharge;
 - Frequency of pulses;
 - Duration of high flows;
 - Timing of Peaks;
 - Flashiness—rate of change among magnitudes.
- Natural flow methods meant open-ended experimentation.

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The Two Visions Were Incompatible

- Defined contribution visions and natural flow visions were pitched against each other for years around the negotiating table.
- The conflicting visions would each survive in the final agreement.
- The states would never accept the validity of the natural flow vision in any part.

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Key To Success In Managing Clash

- Water suppliers in federal nexus who refused to participate must stand to lose more project yield than those who sit at table and work out “reasonable and prudent alternatives” that can better protect project yields.
- This takes time and deft political touch!

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Clashing Agendas

- When the federal ESA agenda comes into conflict with the utilitarian state water supplier agendas, expect a prolonged struggle.
- Support for a negotiated voluntary basin-wide habitat recovery program is rooted in the mutual desire to reduce costs of the fight.

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How Birds Got Voice

- Mid-1970’s Basin Electric Power Cooperative wanted to build a power plant at Wheatland, Wyoming. The plant required Laramie river (tributary to N. Platte) water.
- State of Nebraska and the National Wildlife Federation sued Basin Electric.
- Out-of-court settlement:
 - Basin Electric would replace consumed water.
 - Basin Electric estab. \$7.5 million trust fund dedicated to migratory bird species—Whooping Crane Trust.

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The Whooping Crane Trust

- Organized to advance habitat improvements on Platte system.
- Has been active in seeking allies to advance environmental agenda by purchasing quality habitat land and by filing legal actions against proposed activities thought to be of potential harm to riparian habitat in basin.

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Major Middle Level Environmental Organizations

- Whooping Crane Trust
- National Wildlife Federation
- Audubon Society
- Environmental Defense (1997-2001)

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Crisis

- Individually rational actors must face a **crisis** to become interested in taking on new costs, risks, and responsibilities.
- Crisis—the presence of great trouble that requires new kinds of action.
- The great trouble was threat of losing federal permits and licenses.

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An Unyielding ESA Provides Crisis

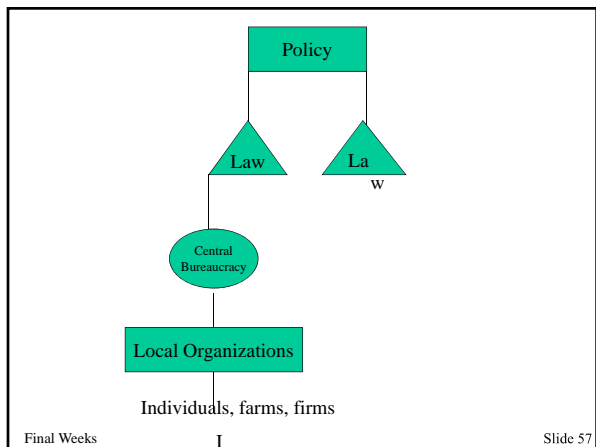
- 1. Negotiate or cease operations.
- 2. Water user organizations must give up a fraction of yield, decrease drought protection, and invest time and money to provide a collective good from which they capture no more benefit than any non-investor.

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II. Mobilizing Local Organizational Knowledge and Capacity

- A federal command and control approach will not work.
- Must mobilize local water user knowledge and commitment. States, not federal government, administer water appropriations.
- Water users have two options: a) individual consultations in which each would individually take responsibility for relief of jeopardy or b) a voluntary cooperative program using willing buyer/seller relationships.

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Mobilizing Local Capacity

- Law—the ESA—provides crisis, demands remedy.
- But creative construction of reasonable and prudent alternatives (RPAs) must come from those who have the local site-specific knowledge to make things work.
- This creative construction occurs, in a major way, within middle level organizations—mutual companies, irrigation districts, conservancy districts, municipalities, natural resource districts (Neb.).

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Recall the Public Goods Problem

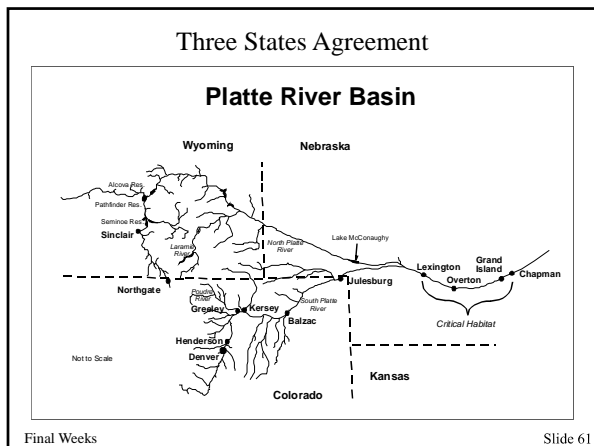
- The local organizations in the Platte Basin confront fact that they will bear new costs but will not capture any more benefits from provision of the new public good (habitat restoration) than others who do not contribute.

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Defining the Solution:

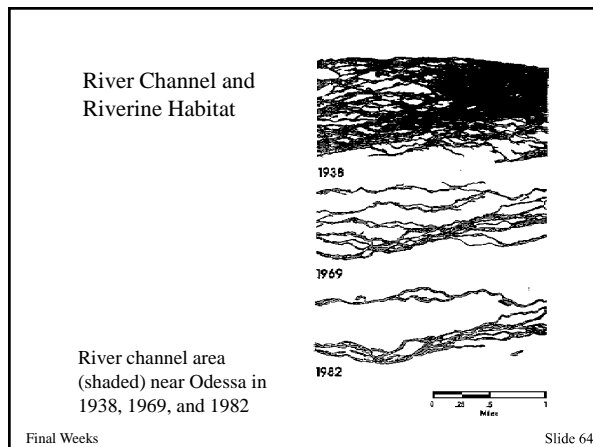
Constructing An Environmental Public Good Or, Creating the Reasonable and Prudent Alternative

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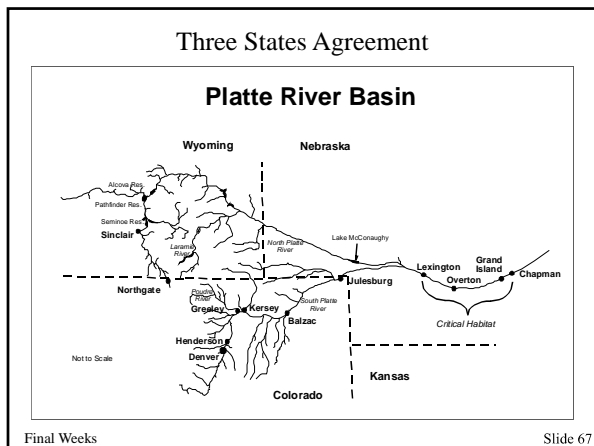
- ### Platte Habitat Recovery Program Will
- Re-time 130-150,000 acre-feet of water/year.
 - Enhance shallow braided river qualities by producing spring pulse flows, summer minimum in-stream flows, and preserve some fraction of natural peak flows.
 - Create regulatory certainty for water users. Permits will be granted on condition that program milestones are fulfilled.
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- ### Pulse Flows
- 8,000 cfs at top of target habitat 1-3 days/year;
 - At low irrigation demand times, October-April;
 - Run 5,000 cfs of Program Environmental Account Water on top of 3,000 cfs of natural flow.
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- ### Program will
- Purchase land or purchase/lease conservation easements on 10,000 acres of prime habitat complexes with buffer zones in first 13 years. Later will increase to total of 29,000 acres. Place in care of a conservation trust organization.
 - USFWS will annually determine that the program serves as a reasonable and prudent alternative to shutting down or modifying user projects under ESA.
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- ### Side Payments
- Negotiations have been about at least two big things:
 1. Finding solutions at the table.
 2. Building coalitions of constituents within each state to support/implement solutions.
 3. Requires active involvement of local organizations functioning between central bureaucracies and local individuals.
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- #### Water Users Must Make Alliances
- Use side-payments to reward needed water user allies and bring them into a coalition of support for the proposed habitat recovery program.
 - Well designed side-payments are essential to making peace among coalition partners within each state.
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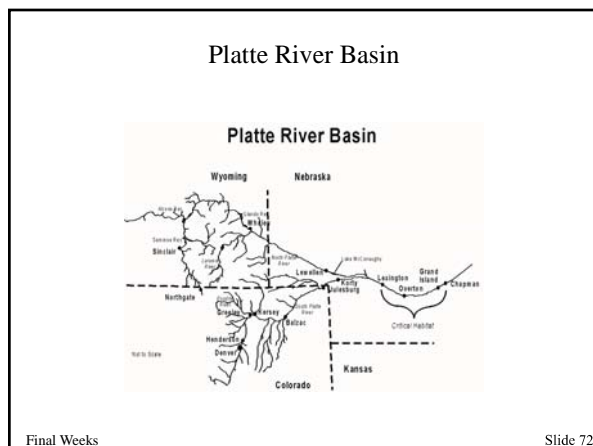
Colorado Contribution

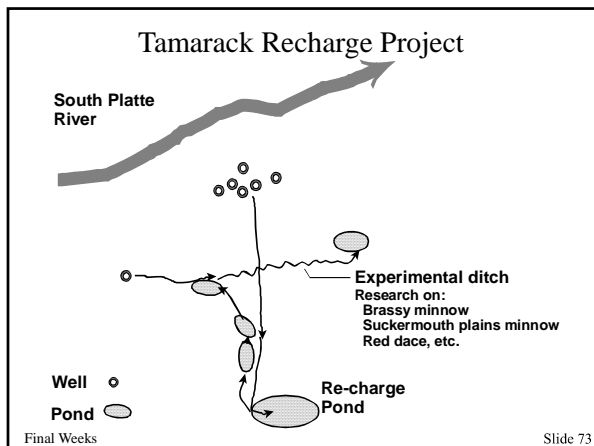
Tamarack Plan Groundwater Recharge

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- #### Tamarack Recharge Project
- Install large capacity wells in river alluvium to pump water up slope to re-charge pits during times of low demand on the river (i.e. fall, winter, spring).
 - Re-charge pits are positioned to deliver water back to river at needed times—e.g., for spring surge and ice scouring.
 - Water pumped to re-charge pits will return to river from 60-270 days from moment of pumping. Longer time intervals (1100-1600 days) could provide draught protection.
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- #### Local Organizations--Colorado
- In Colorado, water providers established three organizations to mobilize themselves:
 - 1. Platte River Project—primarily M&I providers along the front range—these entities were in, or potentially in, a federal nexus.
 - 2. South Platte Lower River Group (SPLRG)—mostly not in a federal nexus, but were located where water could be best manipulated. Created Tamarack solution and demonstrated it.
 - 3. Then water interests created a new organizational entity to administer Colorado contribution beginning Oct. 1, 2006—S Platte Water Related Activities Program (SPWRAP).
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- ### Colorado Side-Payment
- Front range water users secured cooperation of lower S. Platte groundwater users by building in a component that would assist augmentation of their wells.
 - Well owners needed augmentation water to protect senior surface priorities.
 - Augmentation means replacement of well depletions to river and keeps junior wells pumping without damaging senior ditch rights and riverine habitat.
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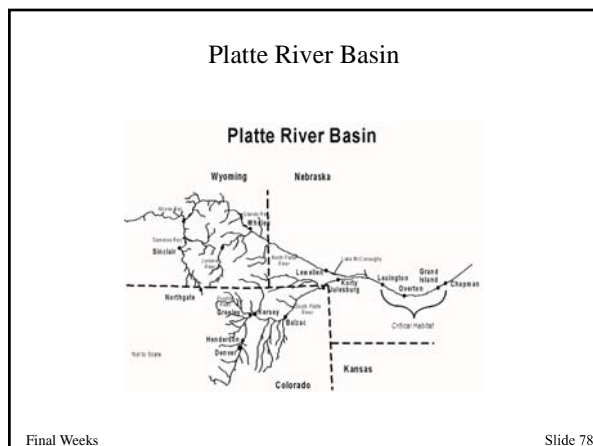
- ### Colorado Side-Payment
- Front range water users, in the federal nexus and in need of regulatory certainty under ESA, required assistance of water users on lower S. Platte river.
 - Lower S. Platte well-owner associations were in need of augmentation plans to comply with state law, to protect themselves under terms of Colorado-Nebraska compact.
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Wyoming Contribution

Restoration of Lost Capacity At Pathfinder

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- ### Wyoming Water
- Wyoming water—raise Pathfinder dam for additional 54,000 a.f./year 34,000 a.f. of which will be for restoration.
 - Additionally, water leasing and leasing of pipeline company water in storage.
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Organizations--Wyoming

- Irrigation Districts operating U.S. Bureau of Reclamation (USBR) irrigation projects diverting water from the North Platte river.
- Mutual Irrigation Companies on Upper North Platte
- State of Wyoming Water Development Commission

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Wyoming Side-Payments

- Wyoming state authorities have arranged to help address irrigation district dam safety issues and a selenium seep problem on the Kendrick Project.
- The cooperative habitat recovery program is much less expensive than a series of prolonged individual project consultations with the USFWS. A fraction of the money saved can be invested in pressing water management problems.

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Local Organizations—Nebraska

- In Nebraska:
 - Neb. Public Power District (NPPD)
 - Central Neb. Pub. Power & Irrig. District (CNPPID)
 - Western Panhandle Irrigation Districts
 - Natural Resource Districts (NRDs)

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Nebraska Water

- River flow re-timing with:
- Nebraska water—Lake McConaughy environmental account of 26,000 a.f./year, plus water leasing, conservation cropping, fallowing irrigated land, pumping high groundwater tables.

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Nebraska Side Payments

- State authorities made peace with well users by providing resources to supply augmentation water to Central Platte river that will offset depletions caused by Nebraska groundwater wells.
- State provided augmentation water to replace irrigation well depletions to river caused by wells constructed 1997-2005.
- Needed for reasons of Nebraska law and the Platte river habitat recovery program.

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Nebraska Side Payments

- Reduced resistance to federal ESA habitat recovery program;
- Bought time to organize a Water Policy Task Force (2002-03) that eventuated in
- LB 962 enacted by Unicameral, April, 2004

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Nebraska LB962

- Provides for integrated management of state’s surface and groundwater.
- Well owners will meet their obligations to Nebraska senior surface diverters.
- Well birth control has now been installed by declarations of fully appropriated and over-appropriated river segments.

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Side-Payments

- Are essential to coalition building on behalf of the ESA mandated Platte River Recovery Program.
- Take much time to work out.
- Negotiations are beyond negotiating room.

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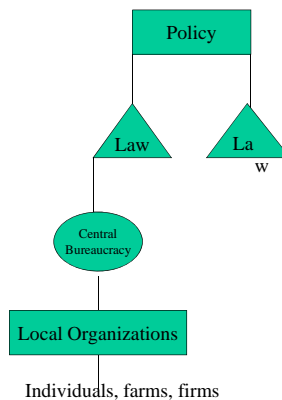
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Conclusions

- A top-down “command and control” approach from the Department of Interior (DOI) can not work to put large scale river basin programs together.
- Need scope for local knowledge and political coalition building that comes with side-payments far beyond reach of DOI.

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Public Goods Produced

- River restoration—critical habitat for endangered species—meaningful enforcement of the Endangered Species Act fitted to local site specific conditions.
- Regulatory certainty for water users.

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Water Provider Organizations

- Such as mutual ditch companies, irrigation districts, conservancy districts, municipal water departments,
- Central to our civilization in the arid West,
- May be party to creating our environmental problems but only because we gave them that mandate.
- They must be central to any solution(s).
- They must not be stereotyped, stigmatized, & attacked.

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Middle Level Organizations Provide:

- 1. Local knowledge to be blended with scientific principles and legal requirements;
- 2. Capacity to be mobilized to produce public goods in form of enhanced wildlife habitat;
- 3. Capacity to rapidly adapt to changing conditions.

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All Parties Better Off

- Federal Department of Interior has found a way to implement the ESA without attempting a top-down command and control approach that could never work and make the Act itself politically endangered.
- Produced improved habitat for species listed under ESA.
- Colorado water users, while organizing for compliance, also produce water for augmentation of junior wells vis a vis senior ditch rights, and also produced an experimental ditch to study state listed fish species with hope that they can be recovered without ever being listed by federal government under ESA. Will get enhanced drought protection.

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All Are Better Off-2

- Wyoming has provided for enhanced water supplies for Casper area, is addressing long neglected dam safety issues, and selenium seep problems.
- Nebraska has addressed a long neglected issue regarding groundwater well depletions that were damaging senior surface rights. The politics of ESA provided at least partial political cover to address a potential financial time-bomb—i.e., a successful case wherein a senior ditch user could establish state liability for not protecting such seniors from well operators with junior rights.

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Water Users (Us)

- In cities homeowners will pay a few dollars more per year on water bills.
- Agriculture may pay a few cents more per acre foot diverted or may find profit in selling/leasing fractions of water on a willing seller/buyer basis.
- Will pay a bit more for electrical power.
- Will sacrifice an increment of drought protection.

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Water Users (All of Us)

- Will have enhanced bird and fish habitats over a 70 mile stretch of Platte river plus improvements downstream near the mouth at the Missouri.
- Will have restored a small but significant piece of the unpriced non-market commonwealth for generations yet to come.

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Environmental Problems May Foster Civil Society

- May be opportunities to create trust, transparency, reciprocity—and thereby build common ground.
- It takes thoughtful and well designed social organizations to foster environmental responsibility in a manner that promotes civil society.

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Sociologically, Mobilization Was Product Of:

- 1. ESA Structured and managed crisis;
- 2. Roughly equal power balance;
- 3. Safe autonomous mid-level organizational space within which local adaptations could implement law;
- 4. Proposed restoration actions could be justified by good participatory civic science;
- 5. Side payments needed for coalition building could be formulated; and
- 6. Visions of proportional sacrifice could be adopted.

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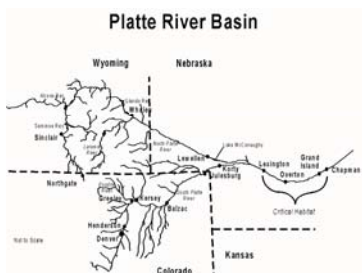
Platte River Basin Negotiations

- 1. Reveal relationships among science, politics, law, and policy preferences of multiple and conflicting constituencies.
- 2. Captured in David M. Freeman, *Negotiating New Environmental Governance For The Platte River Basin Water Commons: Mobilizing Water Users To Implement The Endangered Species Act*. University Press of Colorado, forthcoming 2010.

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Platte River Basin



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The End

Discussion

Final Weeks

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