THE WEST AND NATURAL RESOURCES
The West and Natural Resources

- U.S. government(s) own around 775 million acres of land—more than one-third of the total land area
  - Alaska – 359 million acres
  - National Parks- 71 million acres
  - Forest Service/BLM – 191 million acres
  - Native American and Tribal Trust lands – 53 million
  - The Pentagon – 30 million acres
- Most of this land is in west of the 100th meridian
- Most of our minerals, timber and oil come from these lands and much is leased for ranching
- A fundamental problem for each of these industries is the assignment of property rights
Brief history of land settlement

- Should land policy benefit the Treasury?

- Should land policy favor the small guy?
Land Ordinances of 1785 and 1787

- Laid the ground rules for settlement
- Territories to become new states on equal footing with old states
  - Lands surveyed into rectangular plots of 6 mile sq townships each with 36 sections of 640 acres
- Most of original states metes and bounds
- Land would be auctioned with a minimum acreage requirement of 640 acres and a price of $1 per acre, paid in cash
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Territorial Gains

- Louisiana Purchase (1803) nearly doubled national territory.
- Florida (1819)
- Texas joined the U.S. in 1845
- Oregon Settlement (1846) with GB
- Mexican Cession (1848) – added CA, NV, UT and parts of CO, NM and WY
- Gadsden Purchase (1853)
- Alaska (1867) purchased from Russia
- Hawaii (1898) and Puerto Rico (1899)
Timeline

- 1787 – 1/3 cash but balance in three months
- 1796 – reservation price raised to $2 per acre – ½ in 30 days and balance in a year
- 1800 - acreage requirement dropped to 320 acres – ¼ in 30 days and balance in 3 years
- 1804 – acreage requirement dropped to 160 acres
- 1820 – reservation price dropped to $1.25; acreage requirement dropped to 80; and credit repealed
- 1832 - acreage requirement dropped to 40 acres
Timeline cont.

- 1841 – General Pre-Emption Act put a ceiling on maximum acreage to 160 acres and sales in cash
- 1854 Graduation Act – lowered prices of land that had been auctioned but not sold – e.g. 12.5 cents/acre for land unsold for 30 years
- 1862 Homestead Act – free (maximum 160) 5 year residency and improvement requirement
- 1877 Desert Land Act – 640 acres at $1.25/acre provided the settler irrigated 1/3 of it – fraud?
- 1891 General Revision Act – ended cash sales
- 1909 Enlarged Homestead Act – 320 acres, 5 year residency and improvement requirement
- 1916 Stock Raising Homestead Act – 640 acres
Impact of move towards low land price policy

1) Earlier western movement than would have been the case had land been sold at higher prices

2) Higher wages in the East

3) Some rent dissipation through the race for property rights
Settlement on the High Plains

- Settlement and Cattle raising began in the 1860s with lower transportation costs.

- Government had established the price of land $1.25/acre – at this price it was not profitable to buy but it was profitable to use provided you could internalize the externality caused by overgrazing.
Costs of “open access” to land

• Overuse of the asset
• Race for PR- resources used to secure “first possession”, e.g. move to frontier too early
• Land Conflict – expenditures to defend or gain control over resource
• Too much investment – if rights are upon extraction or help to determine PR
• Too little investment – if you will not reap the return, e.g. annual vs perennial crops
Benefits of Secure PR

- Incentive to retain and enhance the value of assets.

- Promotes trade: specialization and voluntary trade creates wealth

- Incentive to invest. Provides security that individual investors will reap the returns of their investment.

- Ability to invest. Secure property provides collateral.
Open Access to De Facto Rights

- Squatters (capitalists with cattle) precede labor to the frontier – late 1860s.
- Range rights established by first possession; homesteading; and pre-emptive rights
- Overgrazing under open access
- Incentive for Commons- Cattlemen’s Associations: 1) branding of cattle; 2) ranchers relatively homogeneous; and 3) round-up – collective activity with economies of scale
Open Access to *De Facto*: U.S.

- Exclude outsiders: posted that range was fully stocked and backed up by excluding intruder from roundup.
- Prevent overstocking: stipulated number of cows and bulls on range and enforced through round-up.
- Ownership on ranges determined by “branding”
- Commons effective: market for range rights
Commons/Conflict and *De Jure* PR

- 1880 Commission recommended lower prices as well as leases - Congress did not approve recommendations
- 1880s Homesteaders (farmers) beginning to encroach on claims of ranchers.
- Potential conflict: Homesteaders had specified *de jure* rights; General Land Office GLO opted not to enforce rights of homesteaders
- Little Actual Conflict: Ranchers had overwhelming violence potential; relied on intimidation
GLO continued on the side-lines

Maintenance of *de facto* rights for ranchers

1900: Wheat boom and surge in homesteaders

President Teddy Roosevelt supported “small guy” and championed conservation of National lands. Cut “illegal fences” with cavalry.

End of *de facto* range rights – G had violence advantage
The California Gold Rush

- Gold Discovered on January 24, 1848 at Sutter’s Mill
- Sutter had a land grant from Mexico and the rights to the minerals but 9 days later California belonged to the U.S.
- No formal mineral law with respect to mining on public lands and little ability to enforce
- Prediction contained in a letter from Capt J. L. Folsom in 1848 to the War Dept:

  “All law, both civil and military, is at an end. Among the mines, and indeed most part of the country out of the villages, no authority but that of the strongest exists... I think the whole country will sink into anarchy and the worst possible confusion.”
The California Gold Rush

- 1849 – “the world rushed in” approximately 40,000, making the estimates of the population around 107,000
- 1852 – 265,000 people
- Did anarchy ensue?
- 1866 – 500 separate mining camps along the western foothills of the Sierras within an area of 300 x 150 miles
The Mining Camp Codes

- **1. description of the boundaries**
- **2. exclusivity to claims**
- **3. must mark claim**
  
  “All and everybody, this is my claim, fifty feet on the gulch, cordin to Clear Creek District Law, backed up by shotgun amendments. Any person found trespassing on this claim will be persecuted to the full extent of the law. This is no monkey tale but I will assert by rites at the pint of the sicks shirter if legally necessary so taik heed and good warnin”
- **4. must work claim**
- **5. must provide common defense**
- **Claims had value – they were bought and sold**
- **Little violence and considerable investment in ditches, sluice**
Property Rights to Deep-Vein Ore; the Comstock Lode

- **1859:** value of production $260,000
- **1861:** production at the Comstock mine worth $2.5 million; 20,000 miners working 3,149 claims in an area 1 x 5 miles

- **Problems:**
  - Who enforced claims?
  - Who arbitrated disputes?
  - Who had rights to underground veins?
  - Miners needed security of property rights for greater investments
First Legislative Assembly of the Territory of Nevada in 1862

The Representative Bokkelen from Virginia City

“We are called upon to make laws of a peculiar character, to protect and perpetuate interests that differ essentially from those of most of the other territories...the principle resources of this territory exist in its marvelously rich mines, which for their proper development and advancement require judicious thought and enactments by which titles to them can be secured and permanency given to that class of property by which means we may invite foreign (Californian) capital to seek investment among us.”

- Between 1861-1866: Nevada passed 47 mineral rights law which became the foundation for U.S. mineral law
1. Used strategic traps: mouths of tributaries, waterfalls....

2. allowed for escapement

3. fishing rights were heritable individual properties

4. socially efficient in that they caught salmon in least costly fashion
The Columbia River Fishery

- **Arose in the 1860s following advances in canning**
  - 1866 - 4000 cases (=48 1lb cans)
  - 1869 - 100,000 cases
  - 1871 - 200,000 cases
  - 1913 - 2,583,000 cases

- **Initial Gear:** traps, fish wheels, gillnets and beach seine

- **By 1888:**
  - 1600 drift gillnets (545 miles)
  - 136 fish traps
  - undisclosed number of beach seines
  - seven fish wheels

- **By 1892:**
  - 2,500 drift gillnets
  - 500 fish traps
  - undisclosed number of beach seines
  - 75 fish wheels

- **Result:** productivity declined
Legislative Solution

- Oregon 1926 initiative banned fish wheels; preserves fishery – for awhile but at higher cost of fishing
- Quote from entrepreneur who had owned a fish wheel: “To build this business took 47 years. The law of Oregon destroyed it in one day”
- Washington banned fish wheels and traps in 1934
- Overtime: coalition of sport fishermen and “small guys” won – we kept banning the most productive gear

- Results: i) technical regress has lead to social waste by allowing entry with inefficient gear; ii. Inability to prevent overfishing – we continually “stock” fisheries
Oil production in the Continental U.S.

**Problem:** rights to oil based on extraction; numerous surface rights to a given pool of oil

- **Results:**
  1. redundant wells – the U.S. has more oil wells than the rest of the world.
  2. extensive surface storage
  3. reduced recovery due to dissipation of pressure
  4. foreign policy

- 1914 – Director of U.S. Bureau of mines estimated annual losses of excessive drilling at $50 million (¼ of US production)
- 1937 – excessive wells cost $200 million
- Price of Oil: $2.29/barrel (1926); $0.18 (1931); $0.10 (1933)
Solutions

- 1. Consolidation through purchase – rare because of hold-out problem
- 2. Pro-rationing; all parties remain over field but fix total production and assign quotas based on surface rights
- 3. Unitization – a single firm develops the field and all share in the returns; generally based on surface rights

- Private agreements were uncommon and by the time they did occur most the dissipation had already occurred
Legislative Solutions and State Enforcement

- TX – requires unanimous agreement of surface owners (hold-out problem)
- OK – consolidation with 63% majority
- WY – majority rule, vote during exploration

1975 Production from unitized fields

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<tr>
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<th>Production from unitized fields</th>
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<tbody>
<tr>
<td>TX</td>
<td>20%</td>
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<tr>
<td>OK</td>
<td>38%</td>
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<tr>
<td>WY</td>
<td>82%</td>
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- Shows that the rules for establishing property rights have important efficiency implications