

Environmental Scorecard: Results from Workshop



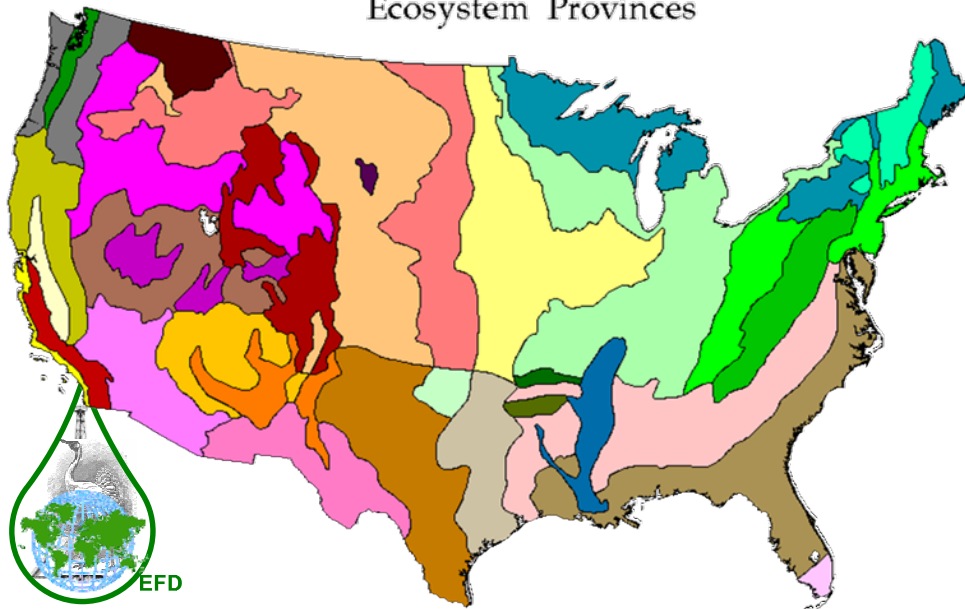
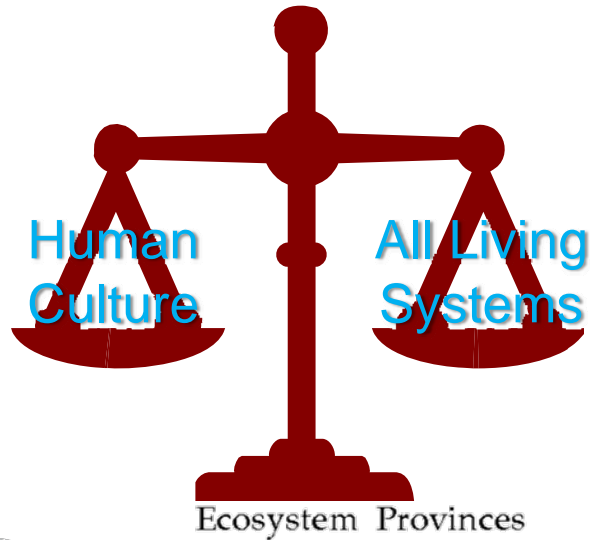
There is Only One Bus

and we are all on it

- Growing tension between energy needs and biodiversity values
- Many areas that are potentially valuable for energy are also recognized for biodiversity values
- Energy development can have a wide range of impacts on biodiversity
- **Challenge to energy companies:** Find a way to meet public demand for abundant, low-cost energy and, at the same time, meet society's expectations for corporate social and environmental responsibility, including biodiversity protection.
- **Challenge to conservation organizations:** Because there is a balance to be struck between economic development and the conservation of biodiversity, be a voice for biodiversity protection while appropriately partnering with industry



Tradeoffs



Energy Production *Oil and Gas Operations*

Upstream

Downstream

Field
Development

Exploration

Drilling

Completions

Field Operations

Processing

Refining

Transportation

Distribution

Stakeholder Engagement is Important!

Stakeholders are all those who are affected, interested in or have the capacity to influence a project.

Academia

- Texas A&M University College Station
- Texas A&M University Kingsville
- University of New Hampshire
- UT Medical Center
- Mississippi State University
- Sam Houston State
- University of South Alabama
- John Hopkins University
- University of Arizona
- University of Texas
- University of Houston

Environmental Organizations

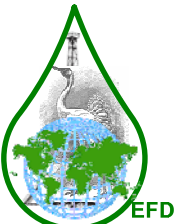
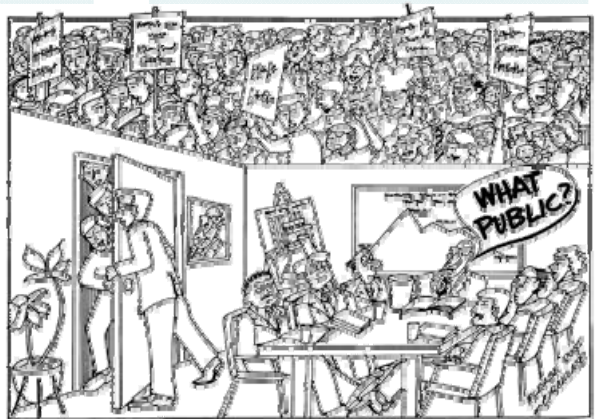
- NRDC
- Environmental Defense
- The Nature Conservancy
- Conservation International
- Mercer Arboretum
- Bureau of Applied Anthropology/Arizona
- Clinton Climate Initiative
- Rocky Mountain Clean Air
- McFaddin Ranch

Industry

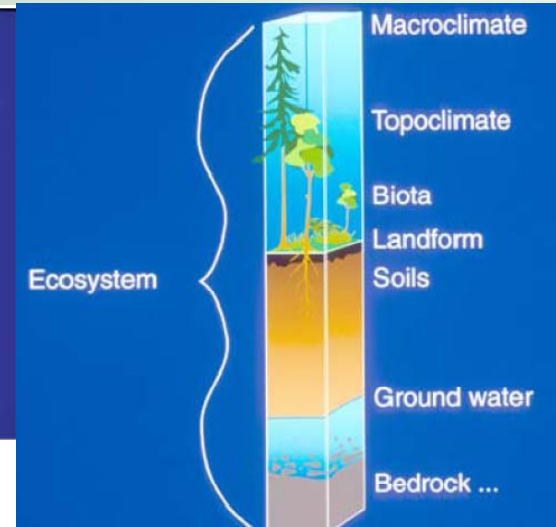
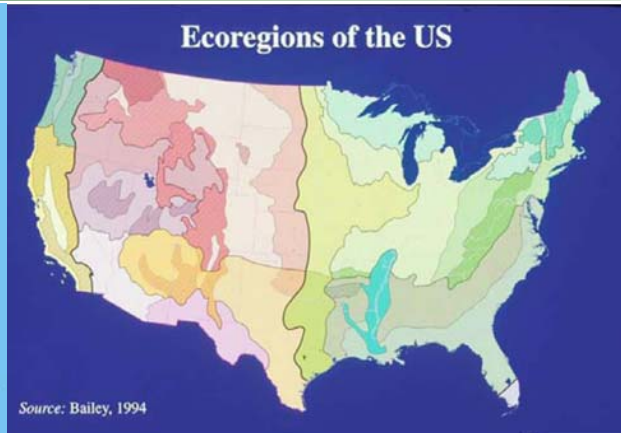
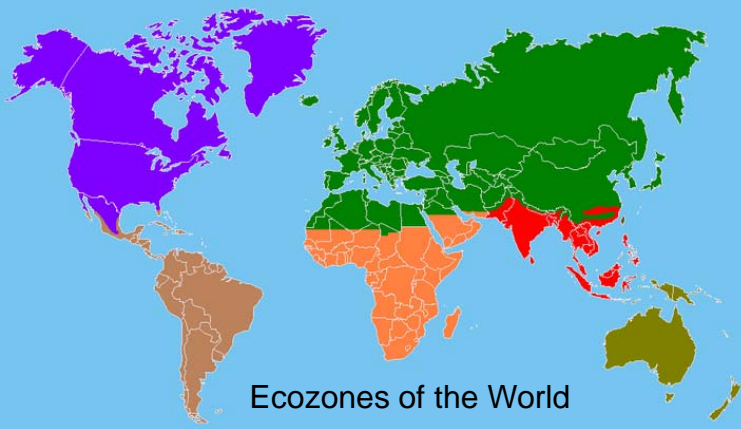
- API
- Ballard Exploration
- BP
- Shell
- Chevron
- StatoilHydro
- ConocoPhillips
- Devon
- King Exploration
- Halliburton
- Huisman
- National Oil Well – Varco
- MI Swaco
- TerraPlatform
- T. Baker Smith
- Weatherford
- Derrick Equipment
- Composite Mats
- Ecology and Environmental Inc.
- PTTC
- IADC

State/Federal Agencies

- US Department of Energy
- Bureau of Land Management
- US Park Service
- Texas Railroad Commission
- Texas General Land Office
- Texas Dept. of Agriculture
- Texas Dept. of Transportation
- US Minerals Management Services
- Texas Parks & Wildlife
- Texas Water Board
- Texas Commission on Environmental Quality
- US Environmental Protection Agency
- US Fish and Wildlife
- Argonne National Laboratory
- Big Thicket Preserve
- Idaho National Laboratory



Environmental Tradeoffs Scorecard Development



Six Attributes

- Air
- Water
- Waste Management
- Biodiversity
- Site (soil/sediment)
- Human Health/Societal

Three Levels

- Ecozone – characterized by the evolutionary history of the plants and animals they contain.
- Ecoregion – controlled by macroclimate that lies above the modifying effects of the earth's surface.
- Subregion – controlled by the irregularities of the surface.

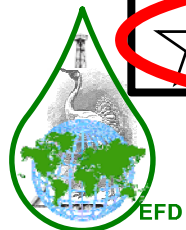


Potential Scorecard

Tradeoff Facts	
Project:	
Location:	
Ecosystem:	
	Max Score
AIR	
WATER	
SITE	
BIODIVERSITY	
SOCIETAL	
TOTAL	100
★ ★ ★ ★ ★	

Questions

- What should the heading be?
- What Ecosystems should be considered and what should they be called?
- What are the correct attributes?
 - What about logistics?
- How should each topic be emphasized for different Ecosystems?
- How many points for the stars?

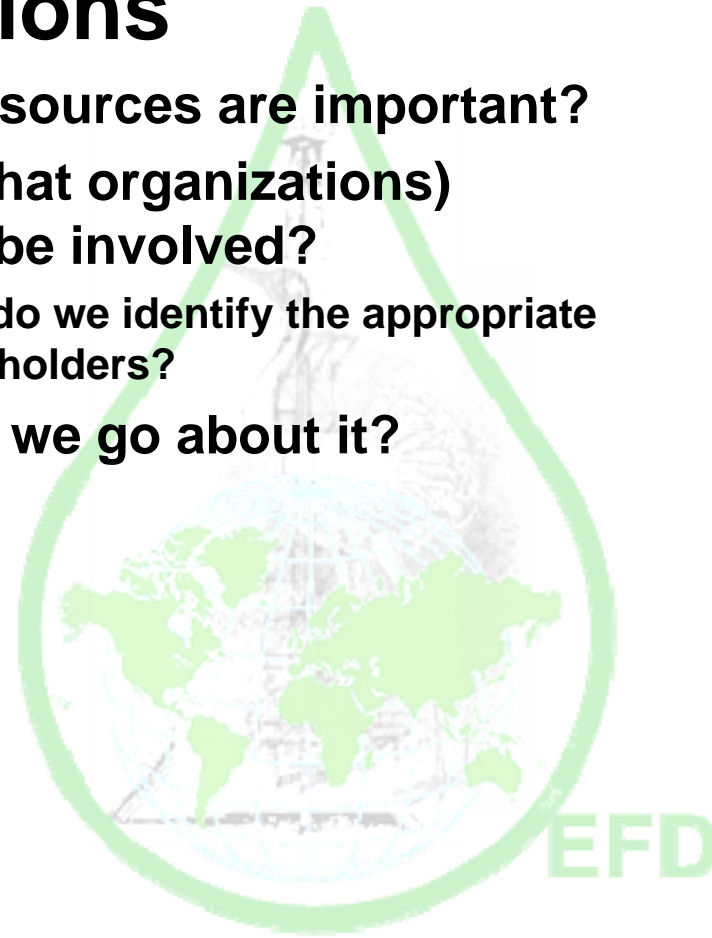
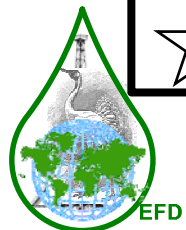


Developing the Scorecard

Tradeoff Facts		
Project:		
Location:		
Ecosystem:		
<hr/>		
	Max	Score
AIR		
WATER		
SITE		
BIODIVERSITY		
SOCIETAL		
TOTAL	100	EFD
<hr/>		
★ ★ ★ ★ ★		

Questions

- What resources are important?
- Who (what organizations) should be involved?
 - How do we identify the appropriate stakeholders?
- How do we go about it?




Environmental Tradeoffs Scorecard Development

EFD Facts

Project:
Location:
Ecosystem:

	Max	Score
AIR	10	0
WATER	15	0
SITE	15	0
WASTE MANAGEMENT	20	0
BIODIVERSITY	20	0
SOCIETAL	20	0
	100	0

☆☆☆☆



Environmentally Friendly Drilling Scorecard

Project:
Location:
Ecosystem:
Date:

0 Points Achieved Possible Points: 100

★ 55 - 64 points ★★ 65 - 74 points ★★★ 75 - 84 points ★★★★ 85 - 94 points ★★★★★ 95 - 100 points

0 Air		Possible Points: 10		0 Water		Possible Points: 15	
Prerq 1	On-site Power - Tier 3 Engines			Prerq 1	Stormwater Management Plan		
Prerq 2	Contractual Obligations for Logistics			Prerq 2	Water Management Plan		
Credit 1	Site Emissions - Stationary	2		Credit 1	Water Usage Tracking	4	
Credit 2	Site Emissions - Temporary	2		Credit 2	Setbacks from Streams/Sources	3	
Credit 3	Site Emissions - Logistics/Transport	2		Credit 3	Reduce Water Usage	2	
Credit 4	Dust Suppression	2		Credit 4	Reuse of Water/Fluids	2	
Credit 5	Electric Rig	1		Credit 5	Recycling of Water/Fluids	2	
Credit 6	Green Completions	1		Credit 6	Monitor Nearby Surface Waters	1	
				Credit 7	Pressure Testing of Surface Casing	1	

0 Site		Possible Points: 15		0 Societal		Possible Points: 20	
Prerq 1	Regulatory Compliance			Prerq 1	Community Engagement		
Prerq 2	Erosion & Sedimentation Control			Prerq 2	Communication Plan		
Credit 1	Pre-Existing Site	3		Credit 1	Public Outreach	5	
Credit 2	Pad Drilling	2		Credit 2	Noise Control	2	
Credit 3	Protect and Restore Habitat	2		Credit 3	Training of Local First Responders	2	
Credit 4	Contractor Guidelines	2		Credit 4	Remote Alarms for Toxic Releases	2	
Credit 5	Site Restoration Plan	2		Credit 5	Emergency Management Plan	2	
Credit 6	Match Site/Access to Topography	1		Credit 6	Dispute Resolution Plan	2	
Credit 7	Avoidance of Archeological Sites	1		Credit 7	Land Use Damage Plan	2	
Credit 8	Logistics Plan - Offsite Storage	1		Credit 8	Landowner Indemnification	1	
Credit 9	Planting of Native Vegetation	1		Credit 9	Water Well Mitigation Agreement	1	
				Credit 10	Surface Use Agreement	1	

0 Waste Management		Possible Points: 20	
Prerq 1	Waste Management Plan		
Prerq 2	Title		
Credit 1	Closed Loop Mud System	5	
Credit 2	Title	2	
Credit 3	Title	2	
Credit 4	Title	2	
Credit 5	Title	2	
Credit 6	Title	2	
Credit 7	Title	2	
Credit 8	Title	1	
Credit 9	Title	1	
Credit 10	Title	1	

0 Biodiversity		Possible Points: 20	
Prerq 1	Species Protection		
Prerq 2	Habitat Protection/Enhancement		
Prerq 3	Regulatory Requirements		
Credit 1	Restoration/Interim Reclamation	3	
Credit 2	Reduction of Surface Disturbance	3	
Credit 3	Erosion Prevention	3	
Credit 4	Voluntary Offsite Mitigation	2	
Credit 5	Invasive Species Prevention	2	
Credit 6	Restoration of Fragmented Habitat	2	
Credit 7	Reintroduction of Species, Habitat	2	
Credit 8	Avoidance of High Value Areas	1	
Credit 9	Wildlife Protection	1	
Credit 10	Habitat Enhancement	1	

EFD Facts

Project:
Location:
Ecosystem:

	Max	Score
AIR	10	0
WATER	15	0
SITE	15	0
WASTE MANAGEMENT	20	0
BIODIVERSITY	20	0
SOCIETAL	20	0
	100	0

☆☆☆☆

