Exploration in the Eagle Ford Shale: Impact on Wildlife Habitat and What to do About It



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The Last Great Habitat

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The Value of Habitats

Examples Worst Habitat Concrete, pavement Bermuda Grass **Other Exotic Plants** •King Ranch Bluestem •Wilman Lovegrass •Buffelgrass **Fragmented Native Habitat Best Habitat Unfragmented Native Habitat**



Why You Should Care

- Because everyone believes you don't, or won't care
- Because most all of the surface owners do
- Because it's the right thing to do
- Because it's an opportunity to be the real hero for the surface owner

The Impact

 Direct Impacts -Roads -Pads -Flowlines -Pipelines -Pits

- Silent Killers
 - Fragmentation vs. Continuous Large Tracts of Habitat
 - Acres Impacted are Greater Than the Footprint
 - Dispersal Mechanism and Corridor for Invasive Plants: Disturbance attracts weedy exotics

- Silent Killers
 - Inappropriate Restoration After
 Disturbance
 - Lack of Topsoil
 - Inappropriate Planting & Restoration Techniques
 - Wrong Seeds
 - Pipeline management (mowing, managing invasives that may come in)
 - Erosion and loss of topsoil due to poor road placement, construction and management

- Disturbance in Core or Critical Habitats: all habitats have "sweet spots" for each wildlife species
- Secret Weapons of Exotic Invasive Plants:
 Allelopathic Effects
 - Poison Soil Microbes
 - Dominance of Exotics:
 - The Cascading Effects...



The Impact (Cont.) • The Cascading Effects... Overabundance of Exotics Reduced Number of Flowering Plants and Native Grasses

Lower Native Plant Diversity

Reduced Number of Insect Numbers and Species

The Cascading Effects...

Reduced Populations of Species that Require Insects as Food

50% Decline in Bobwhite Quail Populations

(affects landowner income and rural economics)

May last forever without restoration



- Decrease Collateral Damage

 Avoid critical habitats, if possible
 Drainages, ramaderos, creeks
 Brush thickets with high diversity of shrubs
 - Live Oak forests and mottes
 - Areas dominiated by native plants

- Decrease Collateral Damage (Cont.)

 Save all top soil for restoration
 Consolidate multiple wells from one drill pad
 Expand existing drill pads rather than add
 - new ones

1. Decrease Collateral Damage (Cont.) -Use existing roads if possible; minimize new roads through any habitat - Place roads, flow lines, and pipelines carefully; avoid critical habitats, unsuitable soils, flood-prone areas; use an existing right-of-way (fence-line, road, anything previously disturbed)

2. Give Growers Confidence in Their Native Seed Market

– We must ramp up production of native seed!

– Contract with commercial growers 1-2 years ahead of activity, much like you contract with drilling companies, fracking companies, etc.

What You Can Do... 2. Give Growers Confidence in Their Native Seed Market (Cont.) - Suggest landowners contract with seed dealers

Pogue/Fowlerton Seed Farm: Rhodesgrass example for Japan

3. Remember This for Wildlife Values

Best Restoration
• Plant Native Seeds

• Plant Annual Cover Crops: wheat, oats, sorghum, peas, millet

• Do Nothing: Seeds are in the soil bank – just give them a chance

Worst Restoration

Worst Approach: Plant Bermuda Grasses (Africa), Wilman Lovegrass (Africa), King Ranch Bluestem (Mediterranean), Buffelgrass (Africa), Kleberg Bluestem (Africa)

Please Help Us With Solutions

Fact: Texas Parks & Wildlife
 Department can give technical guidance

 Fact: South Texas Natives and NRCS released 14 spp to commercial growers since 2001





Please Help Us With R&D for **Restoration in the Eagle Ford** Contribution of the Oil & Gas Industry to this **Research & Development for Native Plants** • 2001-Present \$3.9 million spent - Private Landowners: 56.0% 36.0% - TxDOT: - State and Federal Grants: 5.0% - Oil & Gas Industry: 2.5% Other: 0.5% 100%

Please Help Us With Solutions

- Contract with commercial growers
 - Douglass King Seed Co.
 - Pogue Agri Partners
- Encourage landowners to contract with growers for native seed
- Help us with Research & Development of native seeds and techniques for restoration

Where To Go For Help

- Encourage landowners to seek guidance from TPWD, CKWRI, NRCS or a private consultant.
- Go to our websites for restoration techniques
 - www.tpwd.state.tx.us
 - ckwri.tamuk.edu/research-programs/southtexas-natives/
 - www.nrcs.usda.gov

