



Using GPS Technology at the Texas General Land Office
June 13th, 2012

[CGSIC/USSLS](#) Meeting at the Texas Association of Counties

Texas General Land Office (GLO)
Examples of how GPS is used in Natural Resource
Management:

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Examples of how GPS is used in Natural Resource Management:

- **Oil and Gas Leasing Compliance**
- **Beach and Dune Protection**
- **Species Habitat Mapping**
- **Oil Spill Response**
- **PSF Land Surveying**
- **Permitting Structures on Permanent School Fund Lands (PSF)**
- **Range Management/Brush Control**

Texas General Land Office (GLO)

Examples of how GPS is used in Natural Resource Management:

- One of the primary responsibilities of the GLO is to lease the vast land and mineral holdings for energy and mineral development, with the proceeds going to the PSF funds to help pay for public education.
- Since 1922, the Texas General Land Office has deposited more than \$12.3 billion into the state's Permanent School Fund from oil and gas production on PSF lands.
- This wealth of oil and gas makes the Texas General Land Office the only state agency that actually brings in more money than it costs the taxpayers.
- Oil and gas leases on PSF lands generate more revenue than any other source of income for the public education endowment. Managing these leases well is one of the Land Office's core functions.
- Leases for oil and gas development occur both onshore and offshore. Typically, the Land Office receives about 20 to 25 percent royalty from oil or gas produced from our leases on state land. The Land Office can take this royalty in cash or in actual oil and gas, which can be sold competitively to public entities as gas or electricity.
- GPS and Geographic Information Systems (GIS) are critical to the Energy Resource Division that manages the oil and gas leasing that occurs on PSF lands.

Using GPS for Natural Resource Planning and Compliance Activities.

- Oil and Gas Lease compliance locating producing Oil and Gas wells on PSF lands. Collecting GPS points for wells to assure Texas Railroad Commission well spacing rules are being met and for possible lease drainage and other infractions.
- GLO field staff use GPS for mapping pipeline easements on PSF lands for auditing and compliance purposes and other surface damage activities.
- GPS equipment was used during the Hurricane “Ike “event to map homes that fell on the beach after the tremendous erosion that occurred during the storm surge. GPS was used by the GLO Land Surveyors to reestablish the 4.5 elevation line for structures to be rebuilt after the storm.
- GPS is used extensively to map critical coastal wildlife habitats that could be impacted by Oil Spills along the Texas Coast. Geographic Response plans are mapped in the field by using GPS exporting the points and displaying them in a Oil Spill GIS Response Application.
- High accuracy GPS equipment is used to perform land surveying activities on PSF lands. Licensed State Land Surveyors on staff at the GLO use GPS to locate Original Texas Land Survey corners.
- GPS is used to locate permitted structures such as cabins and fishing piers that are located in public waters along the Texas Coast.
- GLO land management staff use GPS extensively to map and develop brush control plans for range and habitat improvement projects. Selective brush control, what we now call ‘Brush Sculpting,’ is an efficient way to enhance wildlife habitat and improve grazing opportunities.
- GLO field staff use GPS to map and visualize management alternatives to estimate costs for improvements such as fences, pipelines, and other projects on PSF lands.

GPS Equipment used at the General Land Office:

- Delorme PN 40 and Delorme PN 60 units. Assigned to Oil Spill Response, Professional Services , and Energy Resources Field Inspection Teams. Fifty total hand held units deployed to field staff. All data collected in the field is uploaded into the GLO/GIS Enterprise System. The .GPX file format is easily imported into the Environmental System Research Institute (ESRI) ArcGIS 10.0 software.
- The Surveying Division at the GLO uses Leica GX 1230 GPS. Surveying has two rovers and two bases. They use PDL pacific crest radios with their base units. They also use Leica Geo office software to down load manage the data.

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GIS at the Texas General Land Office

To visualize the results of GPS field data collection at the GLO, please see the following webpage to access GIS data and GIS online applications:

<http://www.glo.texas.gov/GLO/agency-administration/gis/index.html>