

DRAFT
**Timberland and Agricultural Land
Impact Assessment**

prepared for the



SRBA
Sulphur River Basin Authority

Authorization & Scope

- ▶ Work Order 1 to Sulphur Basin Group (SBG).
- ▶ Scope included Appraisal District approach for assessing timberland & agricultural land impacted by proposed projects.
- ▶ Assessment within defined limits of Wright Patman Lake Reallocation (WPLR) **of flood-to-water storage** and Marvin Nichols Reservoir (MNR) project study areas.
- ▶ Assessment of Timberland Use Distribution in the region.

Study Area Limits

Study Limits

- ▶ Estimation of the area, volume/value of timberlands, and value of agricultural lands impacted was within the following study boundaries:
 - WPLR: Between elevation 242.5' NGVD and 227.5' NGVD; and
 - MNR: Within elevation 313.5' NGVD.
- ▶ Upper limits selection was based on previous studies.

Study Limits

▶ WPLR

- 227.5' elevation proxy for the existing level;
- Area newly impacted by reallocation is between elevations 227.5' and 242.5'.
- Government & privately owned parcels are both wholly or partially within these two elevations.
- Private parcels are in Bowie & Cass Counties.
- In Morris County only government-owned parcels are impacted.

Study Limits

▶ MNR

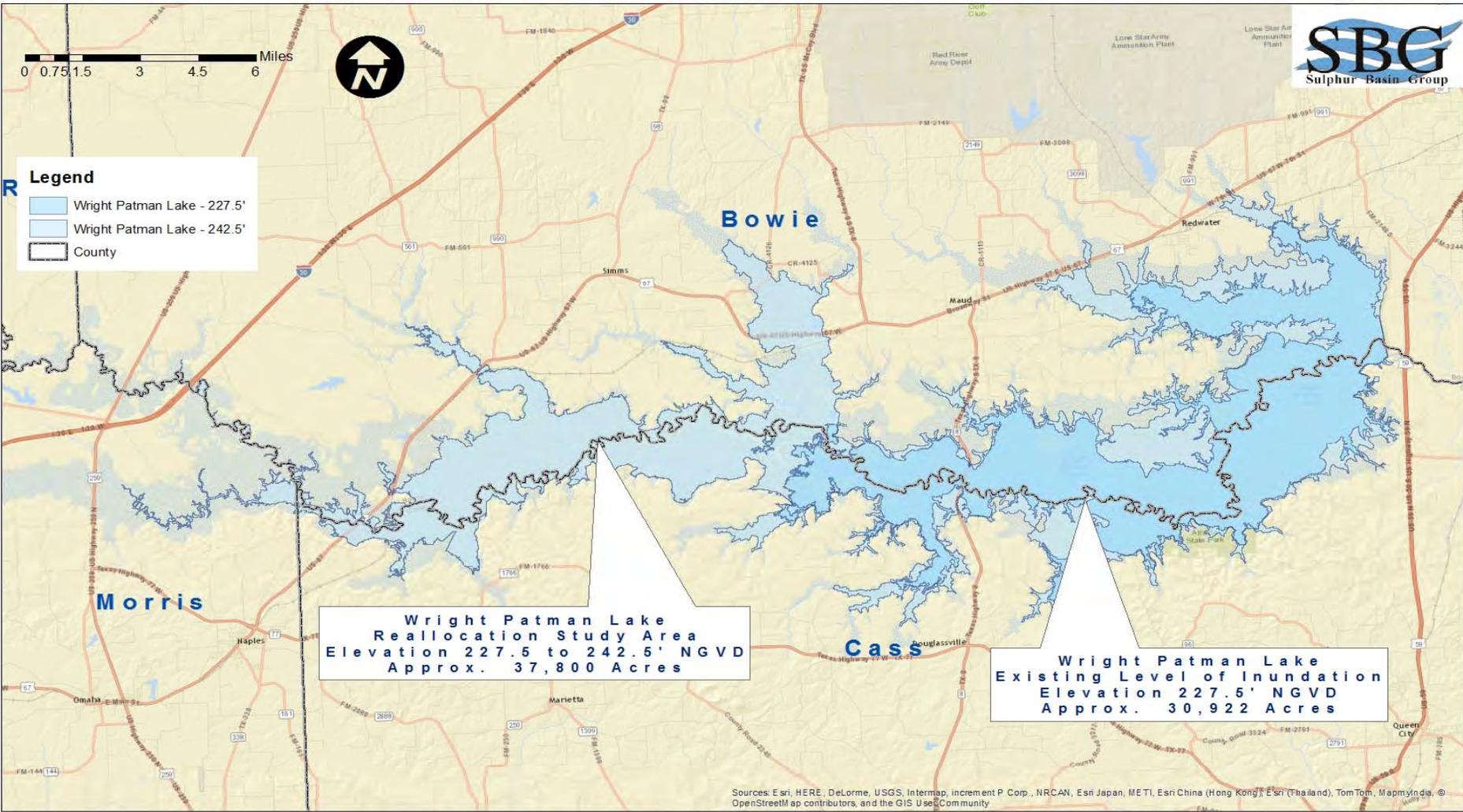
- Private parcels are both wholly or partially within elevation 313.5'.
- No government parcels.
- Private parcels are in Red River, Titus and Franklin Counties.

0 0.75 1.5 3 4.5 6 Miles



Legend

- Wright Patman Lake - 227.5'
- Wright Patman Lake - 242.5'
- County

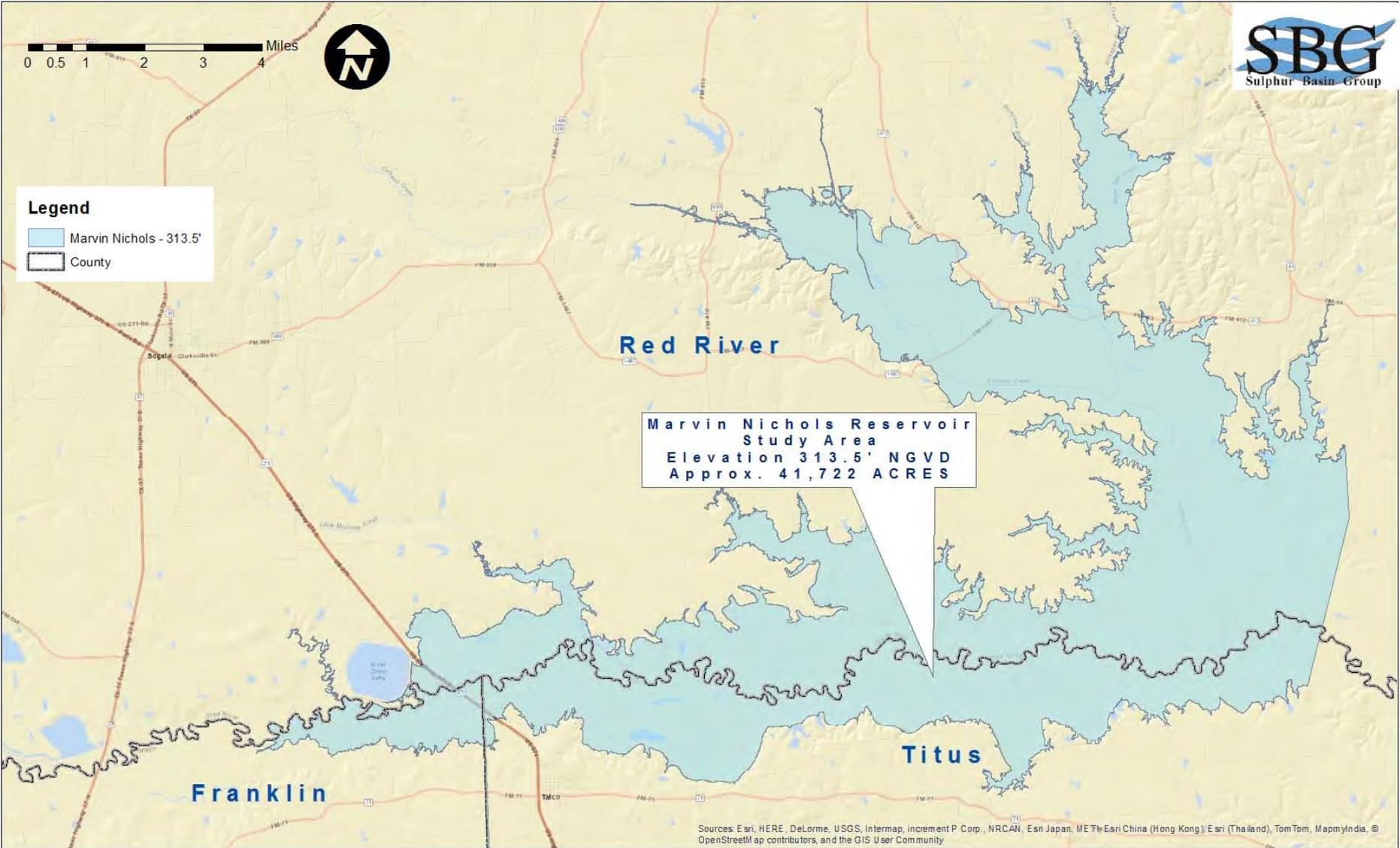


**Wright Patman Lake
Reallocation Study Area
Elevation 227.5 to 242.5' NGVD
Approx. 37,800 Acres**

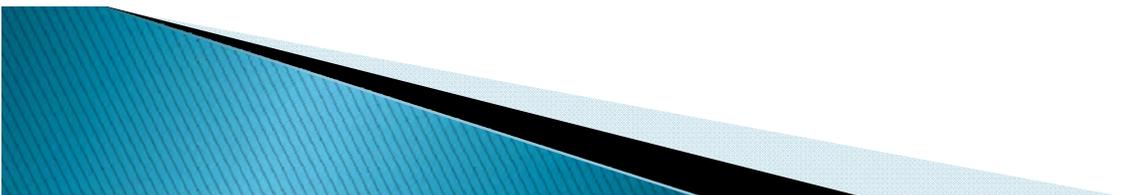
**Wright Patman Lake
Existing Level of Inundation
Elevation 227.5' NGVD
Approx. 30,922 Acres**

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, Mapbox, OpenStreetMap contributors, and the GIS User Community





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Timberland Use Distribution

Timberland Use Distribution

- ▶ Contacted three major timber users in the region to collect data.
- ▶ Users included the International Paper Texarkana Mill (Domino, Texas), the Domtar Ashdown Mill (Ashdown, Arkansas), and the West Fraser New Boston Mill (New Boston, Texas).
- ▶ West Fraser confidentially provided data.
- ▶ All three cited confidentiality and recommended the Texas A&M Forest Service document entitled “Harvest Trends 2013,” as the best source.

Timberland Use Distribution

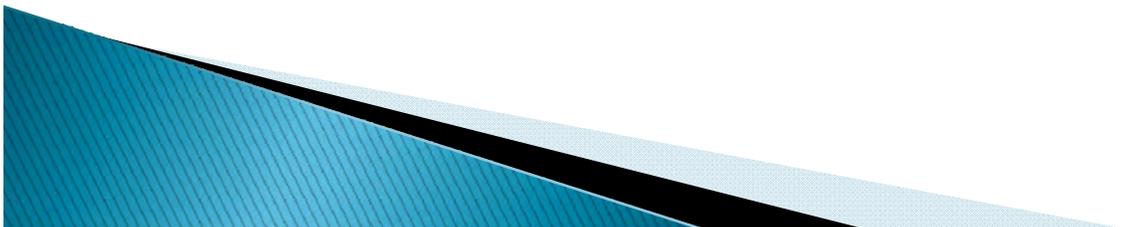
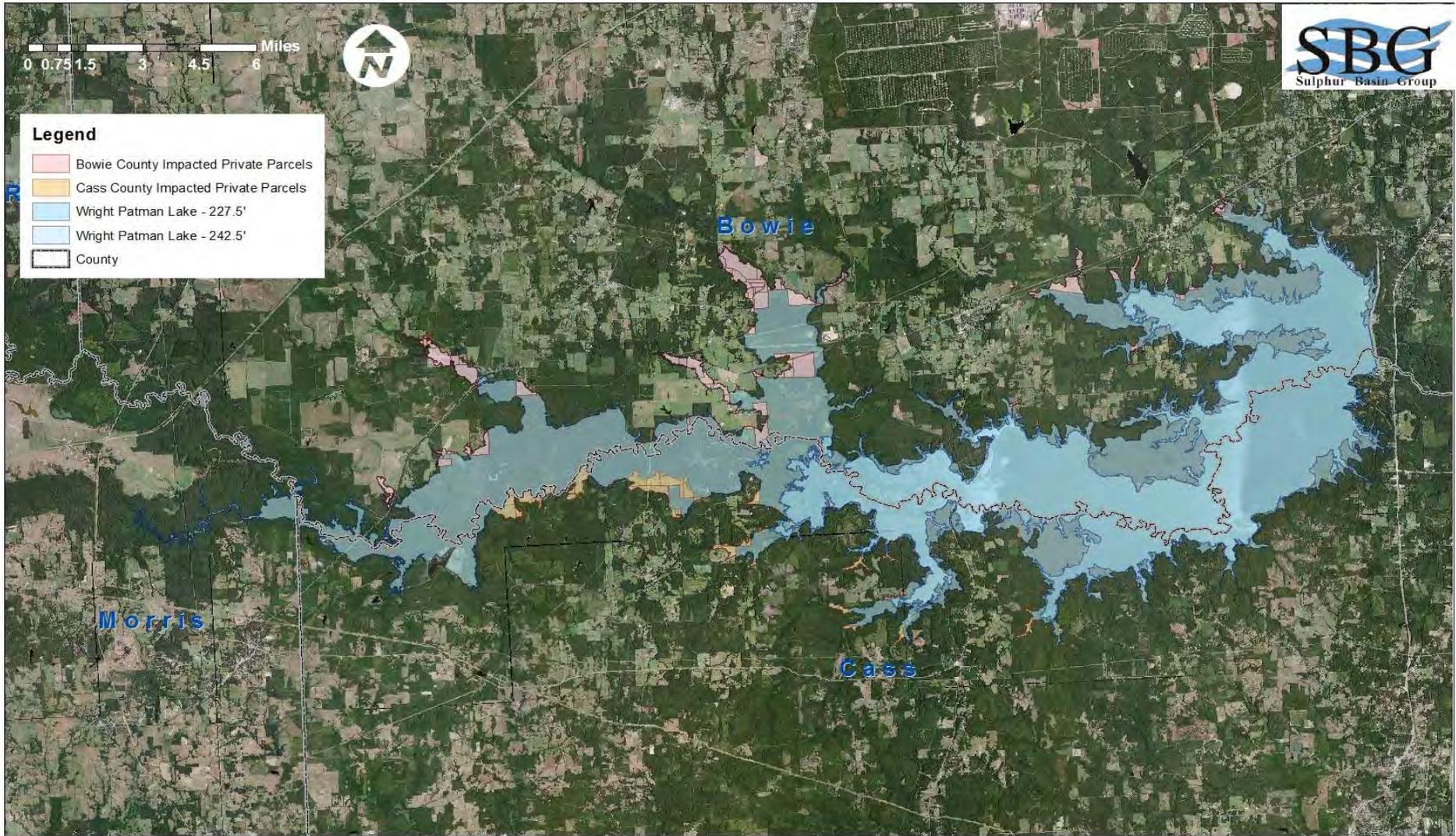
County	Volume Harvested (cubic feet)					
	Pine		Hardwood		Total	
Bowie	7,977,449	23.3%	6,612,207	26.5%	14,589,656	24.7%
Cass	18,477,965	54.0%	9,310,599	37.3%	27,788,564	47.0%
Franklin	326,276	1.0%	1,144,085	4.6%	1,470,361	2.5%
Morris	1,896,567	5.5%	1,160,139	4.7%	3,056,706	5.2%
Red River	4,509,199	13.2%	5,140,016	20.6%	9,649,215	16.3%
Titus	1,001,683	2.9%	1,566,883	6.3%	2,568,566	4.3%
Total	34,189,139	100.0%	24,933,929	100.0%	59,123,068	100.0%

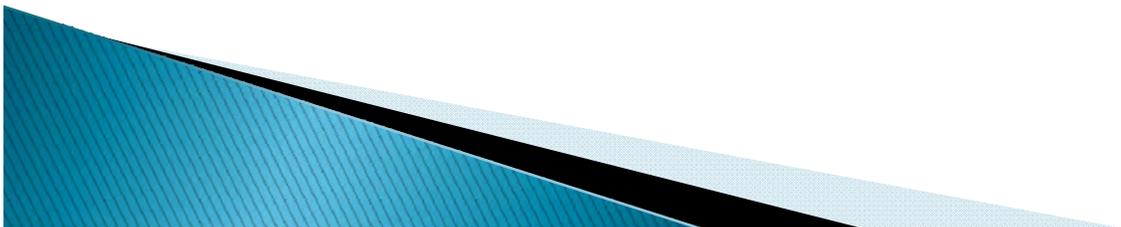
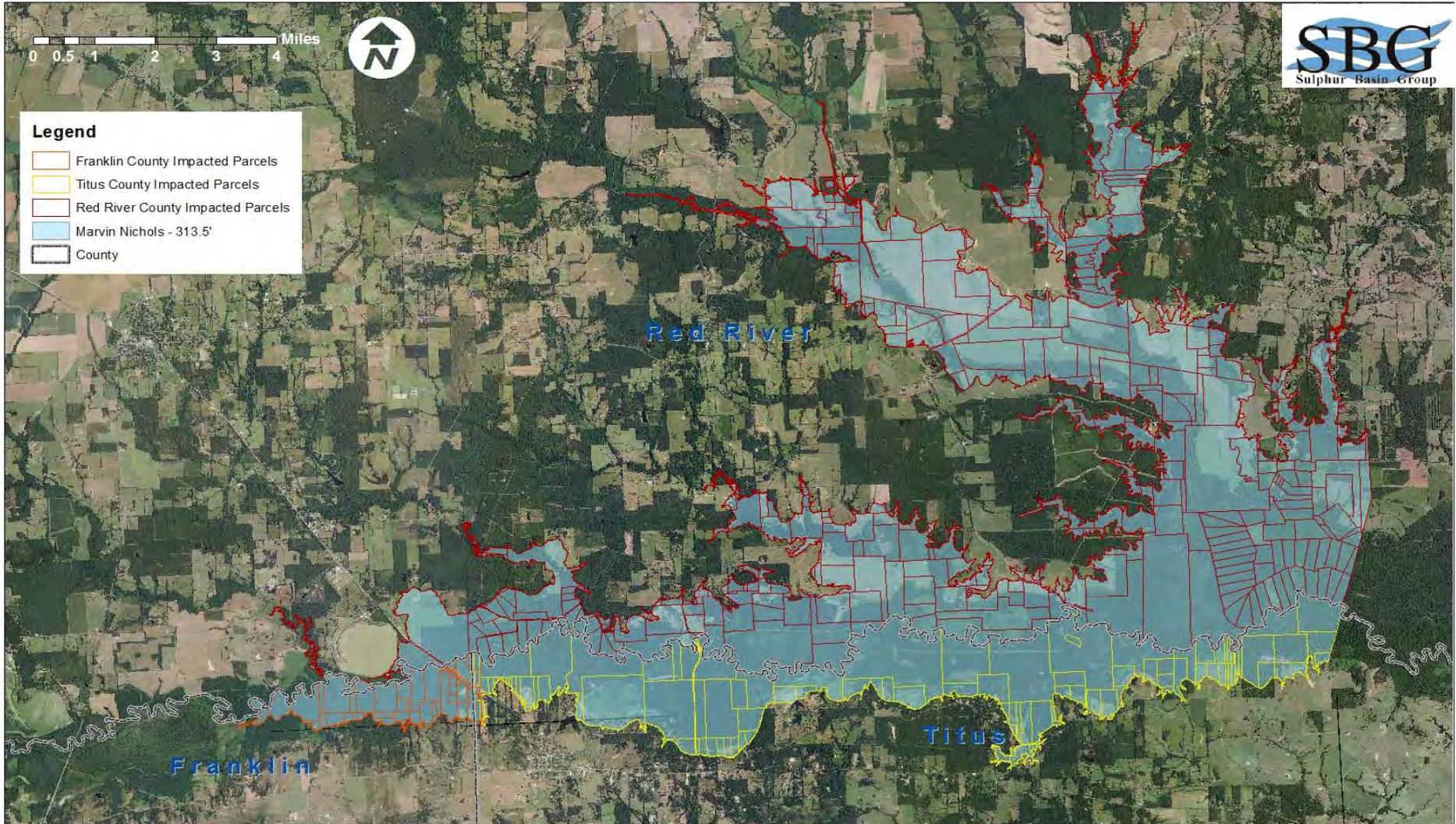
County	Harvest Value (thousand dollars)			
	Stumpage		Delivered	
Bowie	6,181	26.6%	16,175	25.3%
Cass	10,845	46.6%	29,629	46.4%
Franklin	539	2.3%	1,616	2.5%
Morris	1,078	4.6%	3,182	5.0%
Red River	3,546	15.2%	10,366	16.2%
Titus	1,077	4.6%	2,891	4.5%
Total	23,266	100.0%	63,859	100.0%

Timberland & Agricultural Land Impact Assessment Methodology

Assessment of Impact Area

- ▶ County Appraisal District (CAD) approach was very useful in estimating the type/quantity of timberland and agricultural land.
- ▶ CAD approach was not a good basis for assessing actual “value” of privately owned timberland or agricultural land.
- ▶ Impacted areas were generated by intersecting parcel and project boundaries, providing a database of impacted parcels.

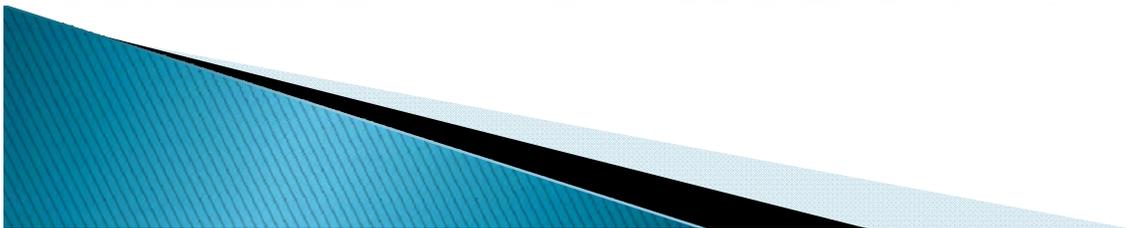
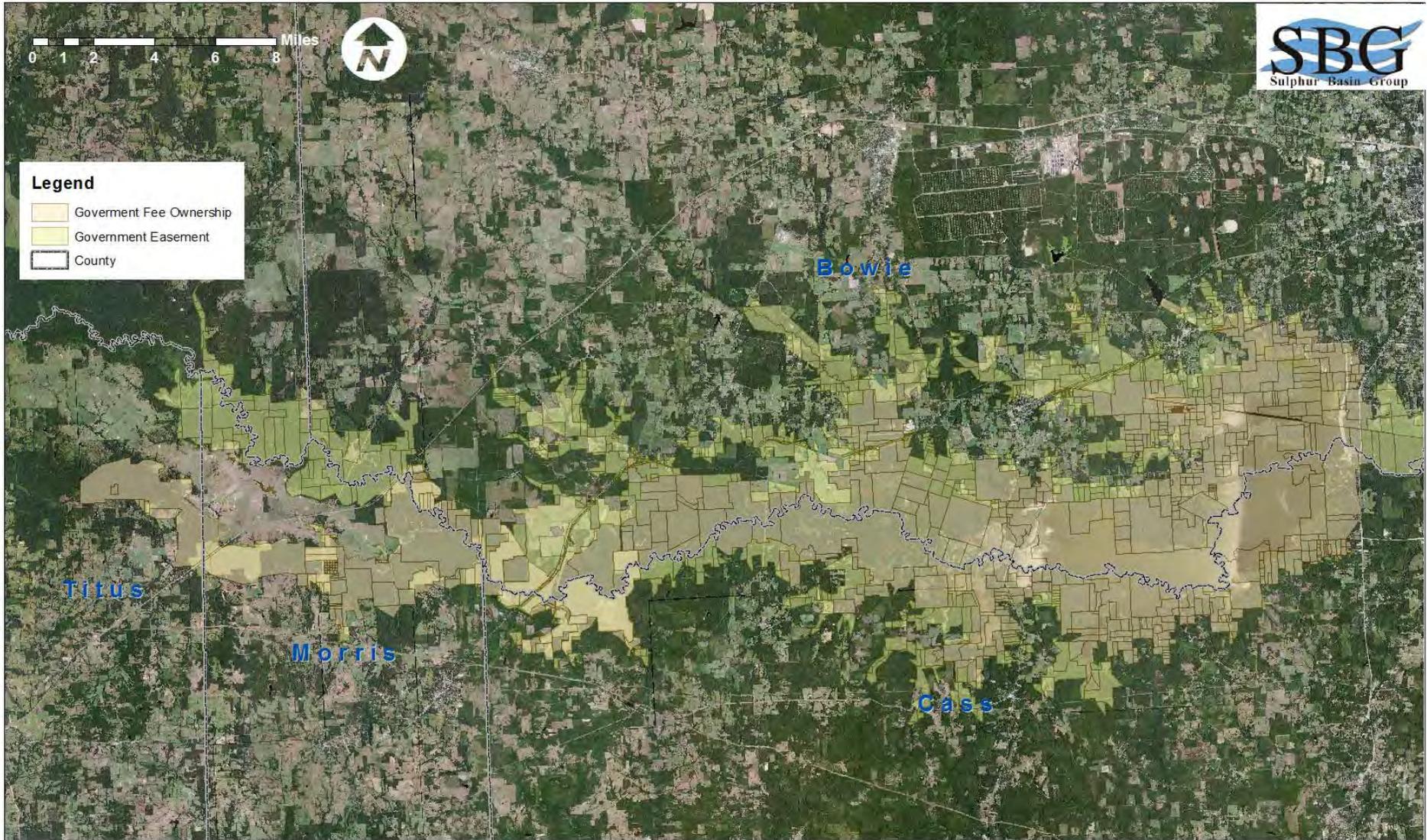




Assessment of Impact Area

▶ WPLR

- Corps provided GIS shape files for fee-owned government land, as well as for easements and land use classifications.
- Where there were conflicts the Corps shape files were assumed to be correct in most cases.
- Analysis done such that the Impacted Parcel database had complete coverage with no gaps.



Assessment of Impact Area

- ▶ General land use for each project study area boundary derived from this process is below:

	Wright Patman Lake	Marvin Nichols Site
Project Area Size	37,800 acres	41,722 acres
Classification by percentage		
Hardwood	59.4%	53.6%
Mixed	32.1%	13.7%
Pine	5.4%	3.2%
Range	3.1%	31.7%

Assessment of Impact Area

- ▶ Common 21 Category Schema is as follows:
 - Hardwood (H1 – H4)
 - Mixed pine and hardwood (M1–M4)
 - Pine (P1–P4)
 - Rangeland (R1–R4)
 - Tilled cropland (TD) – one category only
 - Wildlife Reserve (Conservation Easement) further subdivided as:
 - WLDF–U (unclassified)
 - WLDF–R (rangeland)
 - WLDF–T (timber)
 - Waste – a category used only by Titus CAD representing “unusable” land

Assessment of Impact Area

- ▶ Total area of each classification for WPLR is shown below:

WRIGHT PATMAN LAKE – ITEMIZED MARKET AREA IMPACT (ACRES)				
CLASS	BOWIE	CASS	GOVERNMENT	TOTAL
H1	1,166.96	68.66	16,034.13	17,269.75
H2	400.70	91.93	2,747.27	3,239.90
H3	297.33	91.19	1,476.74	1,865.27
H4	0.00	66.82	0.00	66.82
M1	8.30	301.15	9,073.82	9,383.27
M2	115.78	200.12	144.35	460.25
M3	329.40	75.51	395.43	800.34
M4	0.00	56.88	0.00	56.88
P1	11.24	27.82	1,956.55	1,995.60
P2	22.89	0.00	0.00	22.89
P3	34.68	0.00	0.00	34.68
P4	0.00	0.00	0.00	0.00
R1	68.38	238.82	0.00	307.20
R2	469.67	0.00	0.00	469.67
R4	187.31	48.15	0.00	235.46
TD	0.00	0.00	0.00	0.00
WLDF-U	0.00	143.87	0.00	143.87
WLDF_R	0.00	0.00	0.00	0.00
WLDF-T	0.00	0.00	1,410.94	1,410.94
Waste	0.00	0.00	0.00	0.00
TOTAL	3,114.40	1,410.92	33,239.23	37,746.55

Assessment of Impact Area

- ▶ Total area of each classification for MNR is shown below:

MARVIN NICHOLS RESERVOIR – ITEMIZED MARKET AREA IMPACT (ACRES)				
CLASS	RED RIVER	TITUS	FRANKLIN	TOTAL
H1	759.10	476.26	823.97	2,059.33
H2	12,328.83	1,891.82	26.66	14,247.31
H3	3,300.79	871.31	714.98	4,887.08
H4	11.02	1,043.11	0.00	1,019.17
M1	61.16	0.00	0.00	61.16
M2	943.98	75.19	0.00	1,019.17
M3	948.11	1.89	0.00	950.00
M4	11.81	616.15	0.00	627.97
P1	0.00	111.34	0.00	111.34
P2	4.48	526.96	0.00	531.44
P3	0.00	468.89	0.00	468.89
P4	0.00	214.36	0.00	214.36
R1	121.81	111.34	49.67	282.82
R2	0.00	526.96	0.00	526.96
R3	0.00	468.89	0.00	468.89
R4	11,169.61	214.36	12.94	11,396.90
TD	14.80	0.00	0.00	14.80
WLDF-U	0.00	0.00	0.00	0.00
WLDF_R	0.00	445.23	0.00	445.23
WLDF-T	0.00	3,019.39	0.00	3,019.39
Waste	0.00	83.57	0.00	83.57
TOTAL	29,675.50	11,167.02	1,628.22	42,470.73

Valuation Process for Timberland & Agricultural Land Impact Assessment

Valuation Process

- ▶ CAD data substantially informed the assessment of the quantity of timber and agricultural lands, but not quality/value.
- ▶ To assist with the quality/value process, SBG employed additional resources including:
 - Agricultural Land – American Society of Farm Managers & Rural Appraisers (ASFMRA); and
 - Timberland – Kingwood Forestry Services (KFS).

Valuation Process

▶ Agricultural Land

- The valuation process was based on the “lease value” approach typically in use by all CADs and other agencies.
- Values used for estimating value of impacted agricultural lands were adapted from ASFMRA’s publication “Texas Rural Land Value Trends 2013.”
- Used a factor of three times the values selected for rental/lease value (equivalent to three years of rental/lease).

Valuation Process

▶ Timberland

- Timber “density” and value of each timber classification was based on estimation and visual inspection by KFS.
- On the government–owned property, the sites inspected represented 94% of the classification types.
- Privately–held property was inspected where public access was available; this work was augmented with inspection of aerial imagery to assess parcel similarities.

Valuation Process

- ▶ Timberland (continued)
 - Although not as much of impacted timber could be inspected in MNR, as a rule, impacted timber within WPLR is larger and of better quality.
 - The estimated volumes of timber are expressed in tons and classified as Hardwood Sawtimber (HST), Hardwood Pulpwood (HPW), Pine Sawtimber (PST) & Pine Pulpwood (PPW).

Valuation Process

WRIGHT PATMAN LAKE – ITEMIZED TIMBER VOLUME ASSESSMENT (TONS)				
CLASS	BOWIE	CASS	GOVERNMENT	TOTAL
H1 - HST	35,009	2,060	360,768	397,836
H2 - HPW	18,032	4,137	123,627	145,795
H3 - HPW	8,920	2,736	44,302	55,958
M1 - HPW	332	12,046	362,953	375,331
M2 - PST	2,894	5,003	3,609	11,506
M4 - HPW	0	569	0	569
M4 - PPW	0	569	0	569
P1 - HST*	56	139	9,783	9,978
P1 - HPW*	169	417	29,348	29,934
P1 - PST	1,011	2,504	176,089	179,604
P1 - PPW	169	417	29,348	29,934
P2 - HST*	114	0	0	114
P2 - HPW*	343	0	0	343
P2 - PST	1,145	0	0	1,145
TOTALS	68,194	30,596	1,139,827	1,238,617

*Pine classification have some hardwood that is accounted

Valuation Process

MARVIN NICHOLS RESERVOIR – TIMBER VOLUME ASSESSMENT (TONS)				
CLASS	RED RIVER	TITUS	FRANKLIN	TOTAL
H1 – HST	22,773	14,28	24,719	61,780
H1 – HPW	18,978	11,906	20,559	51,483
H2 – HST	61,644	9,459	133	71,237
H2 – HPW	369,865	56,755	800	427,419
H3 – HPW	99,024	26,139	21,449	146,612
H4 – HPW	110	10,431	0	10,541
M1 – HS*	612	0	0	612
M1 – HPW*	1,223	0	0	1,223
M1 – PST	1,223	0	0	1,223
M1 – PPW	306	0	0	306
M2 – HST	4,720	376	0	5,096
M2 – PPW	9,440	752	0	10,192
M3 – HPW	28,443	57	0	6,280
M4 – HPW	118	6,162	0	6,280
M4 – PPW	59	3,081	0	3,140
P1 – HPW*	0	557	0	557
P1 – PST*	0	5,567	0	5,567
P1 – PPW	0	1,113	0	1,113
P2 – HST*	0	0	0	0
P2 – PST	112	13,174	0	13,286
P2 – PPW	134	15,809	0	15,943
P3 – HPW*	45	5,270	0	5,314
P3 – PPW	0	23,444	0	23,444
P4 – PPW	0	5,359	0	5,359
TOTALS	651,868	217,019	67,701	936,588

*Pine classifications have some hardwood that is accounted.

Per Acre Valuation

- ▶ Estimated value for each land cover classification was based on “Stumpage” (\$/ton) and estimated density in tons per acre.
- ▶ Density values differ for each project site based on the inspection effort.
- ▶ Estimates provided in the following tables:

Per Acre Valuation

WRIGHT PATMAN LAKE					
STUMPAGE (\$/TON)	\$ 35.00	\$ 15.00	\$ 30.00	\$ 8.00	VALUE
PRODUCT	HST (TONS/AC)	HPW (TONS/AC)	PST (TONS/AC)	PPW (TONS/AC)	(\$/ACRE)
CATEGORY					
H1	30	40			\$1,650.00
H2	15	45			\$1,200.00
H3		30			\$ 450.00
H4		15			\$ 225.00
M1	10	40	20	5	\$1,590.00
M2		15	25	5	\$1,015.00
M3		15		10	\$ 305.00
M4		10	10		\$ 230.00
P1	5	15	90	15	\$3,220.00
P2	5	15	50	30	\$2,140.00
P3		10		60	\$ 630.00
P4		5		25	\$ 275.00

Per Acre Valuation

MARVIN NICHOLS RESERVOIR					
STUMPAGE (\$/TON)	\$ 35.00	\$ 15.00	\$ 30.00	\$ 8.00	VALUE (\$/ACRE)
PRODUCT	HST	HPW	PST	PPW	
CATEGORY					
H1	30	25			\$1,425.00
H2	5	30			\$ 625.00
H3		30			\$ 450.00
H4		10			\$ 150.00
M1	10	20	20	5	\$1,290.00
M2	5	30	5	10	\$ 855.00
M3		30			\$ 450.00
M4		10		5	\$ 190.00
P1		5	50	10	\$1,655.00
P2		10	25	30	\$1,140.00
P3		10		50	\$ 550.00
P4		5		25	\$ 200.00

Per Acre Valuation

- ▶ On the basis of these land cover unit values, a summary of the overall estimated value of hardwood and pine sawtimber and pulpwood within the WPLR & MNR study areas are below:

	HST	HPW	PST	PPW	TOTAL
Wright Patman Lake	\$19,262,603	\$17,379,554	11,397,617	\$723,932	\$48,763,706
Marvin Nichols Site	\$4,855,341	\$10,697,914	\$755,160	\$475,978	\$16,784,393

Timberland & Agricultural Land Impact Assessment

Summary & Conclusions

Summary & Conclusions

- ▶ WPLR comprises about 35,200 acres of impacted timberlands (between 242.5' & 227.5' elevations);
- ▶ MNR comprises about 26,200 acres of impacted timberlands beneath the 313.5' elevation; and
- ▶ The total value of both timberland and agricultural land resources for each project is shown by County or Government in the following tables:

Summary & Conclusions

Total Market Impact Summary – Wright Patman Lake

PARCELS	TOTALS	TIMBERLAND	RANGE/CROP	WPA-RANGE	WPA-TIMBER
BOWIE	\$2,955,549	\$2,878,320	\$77,229	\$0	\$0
CASS	\$4,432,503	\$1,087,311	\$3,345,192	\$0	\$0
GOVERNMENT	\$45,432,998	\$44,798,075	\$0	\$0	\$634,924
TOTAL	\$52,821,051	\$48,763,706	\$3,422,421	\$0	\$634,924

Summary & Conclusions

Total Market Impact Summary – Marvin Nichols Site

ARCELS	TOTALS	TIMBERLAND	RANGE/CROP	WPA-RANGE	WPA-TIMBER
RED RIVER	\$12,122,136	\$11,594,247	\$527,888	\$0	\$0
TITUS	\$5,197,786	\$3,677,581	\$128,089	\$33,392	\$1,358,724
FRANKLIN	\$1,522,086	\$1,512,564	\$9,522	\$0	\$0
TOTAL	\$18,842,008	\$16,784,393	\$665,499	\$33,392	\$1,358,724

Summary & Conclusions

CATEGORY	HST	HPW	PST	PPW
BOWIE	41,273	81,498	5,216	6,851
CASS	6,589	27,788	13,530	4,248
GOVERNMENT	502,498	1,049,351	361,175	79,393
WPL TOTAL	550,360	1,158,637	379,921	90,491
RED RIVER	89,749	546,125	6,055	9,939
TITUS	24,123	124,221	19,117	49,558
FRANKLIN	24,852	42,849	0	0
MNR TOTAL	138,724	713,194	25,172	59,497
COMBINED TOTAL	689,084	1,871,831	405,093	149,989
WPL %-age Combined	80%	62%	94%	60%
MNR %-age Combined	20%	38%	6%	40%

▶ Combining

- Bowie/Cass Hardwood: 66.7%
- Bowie/Cass Pine: 84.7%

End of Presentation