LONG RANGE PROJECT WORK PLAN
FOR
MLRA 133B SOUTHWEST PROJECT SOIL SURVEY
Land Resource Region (LRR) P
Gulf Slope Cash Crops, Forest, and Livestock Region
of East Texas and Western Louisiana

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Introduction: This plan of work is for a soil survey of Major Land Resource Area MLRA 133B Southwest (SW). It contains information regarding the status of soils data at the initiation of the project. It also contains specific action items and completion dates. The action items are designed to direct the work needed to raise all soils information for the project area to National Cooperative Soil Survey (NCSS) standards and to maintain the information at current standards after project completion.

As new information is gathered, the plan of work will need to be reviewed and possibly revised. Accordingly, it will be reviewed by the Board of Directors and Technical Team to consider any appropriate adjustments. It will be reviewed by the Technical team annually to assist in directing the workload in the annual business plan.

Description of the Work Area: The counties included in MLRA 133B SW total about 20,879,031 acres of which approximately 15,263,026 acres are in the MLRA. The MLRA includes all or parts of 32 soil survey areas in Texas.

Most of the MLRA project area is in woodland and farms, about one-sixth of which is cropland. Pine and hardwood production are the main agricultural uses. A few large tracts are owned by large corporations and the federal government (U.S. Forest Service and U. S. Core of Engineers). Truck crops of corn, peas, watermelons, peanuts, and hay are the major crops. Livestock production is very important in the project area. The remaining area is used for wildlife land, urban land, industrial land, and wildlife refuges.

Elevation ranges from 82 to about 700 feet and increases from south to north. The average annual precipitation ranges from about 40 to 53 inches. The average annual air temperature ranges from 61 to 68 degrees F. and mean annual soil temperature ranges from 59 to 72 degrees F. The average frost-free period ranges from 200 to 270 days, decreasing from south to north.

Most of the soils are Udults. They are dominantly very deep to deep, and are coarse-loamy to fine in subsoil texture. The soils have a thermic temperature regime and an udic moisture regime. The sand and silt grain fraction mineralogy

is dominantly siliceous, and the clay mineralogy is mixed or smectitic. These soils formed mainly on reworked marine terraces and river terraces in alluvial sediments mainly of Pleistocene age on broad coastal plains, in marine coastal plains sediments on dissected ridges of Tertiary age, and alluvial sediments mainly of Pleistocene to Holocene age on narrower terraces and flood plains.

Purpose for Doing the Work: The purpose of this project is to coordinate soil survey work and maintain soil surveys within the MLRA project area in order to ensure proper classification of the soils, to create a uniform spatial database, and to develop uniform interpretations in accordance with NCSS standards. It is also the intent to study and refine the boundary lines of each MLRA and to align them with other natural resource boundaries such as those of geological units.

Soil surveys were published from 1959 to 2007, except the four most recently completed, which are currently scheduled for publication. All of the soil surveys are available on Web Soil Survey. Nine of the published surveys were published prior to 1980. Ten of the soil surveys were made at a scale of 1:20,000. The remaining 24 surveys are at a map scale of 1:24,000. The field work and final correlation for most was completed 2 to 10 years before the reports were published. Information provided in the reports reflects the knowledge of soil properties and soil behavior relative to the interpretation needs at the time of field mapping.

The published reports remain an excellent source of data. However, most surveys do not meet current NCSS standards. New information about soils is needed due to changes in demographics, technologies, environmental questions, and intensities of land use. There is a need to improve existing soil surveys and develop a coordinated database to address local, regional, and national concerns.

The project will provide a coordinated uniform soil database for use by private and public service sectors. The database will enable decision-makers to make more informed environmental assessments and resource management decisions.
The project will provide more comprehensive soil and site data for forest land; conserving water and protecting water quality; improving and maintaining pasture; developing wildlife habitat; developing soil interpretation ratings; and preparing watershed, recreational, and urban area plans.

Status of the Project: The fieldwork is scheduled to be completed by the year 2020. Work has been done on evaluating existing surveys, reviewing laboratory data, compiling individual county legends, and formulating modernization plans.

Management of Project: A Management Team will be composed of the NRCS from Louisiana, and Texas. It will also include Directors of the Louisiana and Texas Agricultural Experiment Stations who will serve as ad hoc members.

The Board of Directors is composed of representatives from the Louisiana and Texas Agricultural Experiment Stations, the State Soil Scientists from Louisiana and Texas and the Senior Soil Scientist for MLRA Region 16. Their duties are to direct and manage the MLRA project area update. The Senior Soil Scientist for MLRA Region 16 will serve as chairperson of the team.

The Technical Team is composed of the assigned Soil Data Quality Specialists for MLRA Region 16, and the MLRA 133B Correlation Team. Other ad hoc members will be assigned to assist as needed and will include a biologist, range conservationist, forester, geomorphologist, geologist, agronomist, and others from NRCS and other agencies that provide technical input to the project. The Board of Directors and Technical Team will meet at least annually for a review of progress and problems that need to be resolved.

Project Approach: Initial work will include legend development, investigations, and data gathering to build on work already completed during the evaluation process. It will include assessments of user needs, geomorphology investigations, and evaluations of existing information from the current soil surveys, previous special projects, geological mapping, water table studies, existing soil characterization data, various aerial photographs, and any other pertinent information. A strong emphasis is to be placed on working with potential users to assure that the soil survey meets their needs.

Early fieldwork will include transects of existing map units and collection of soil samples for characterization. Soil characterization will be provided by the soil laboratories at Texas A & M University and the National Soil Survey Laboratory at Lincoln, Nebraska. Re-correlation and map revision as well as remapping will be completed in conjunction with field checking and documentation. Work on the update will begin in the infant stage. The working approach will be to address specific problems. The order of precedence will be: Geology, Series, County, Mapunits, Mapunits specific to geology, and use and management across the entire MLRA project area.

In several counties with large timber company tracts and/or USFS land, the counties were mapped with broad Order 3 mapunits. These units do not fully identify or separate the soils on the landforms to meet present user needs. A specific task will be to check these soil surveys and update them to meet these needs. Sufficient investigations will be conducted to assure that the legend design and correlations are valid throughout the MLRA project area.

Segments that could be specific tasks are:

1. Landscape and geology versus series province.
2. Variability of base saturation and CEC/clay ratios on different Geologic units.
3. Hydric and nonhydric soils that are mapped and correlated as broad units (floodplains and upland flats)
4. Ustic/Udic line corrections.
5. Water table depth and duration; drainage class
6. Soils and miscellaneous areas such as iron and gravel mining reclamation areas.
7. Mapping of reclaimed (reconstructed) land owned by lignite mining companies?
8. Salinity study on Jackson geologic group and depressional areas on Terraces

Soil scientists working on specific landforms and geological units at the same time will assure accurate, consistent, and efficient correlation. Some of the survey work will be accomplished by updating quadrangles and documenting each STATSGO general soil map unit. Also, some work will be completed on major geological units early in the project to ensure the proper development of the legend and to assure smooth integration of mapping across the MLRA project area.

PLAN COMPONENTS

A. Data Collection

Data gathering and sampling will be started as early as possible for selected parts of the MLRA project area to assure that results are ready as needed. Detailed plans for sampling and data gathering will be developed as work progresses.

1. Evaluation of Current Data and Information

a. The Soil Data Quality Specialists will oversee the indexing and analysis of existing laboratory data for soils used in MLRA 133B. This data will be available at the State Office in Little Rock, AR and at survey field offices located within the MLRA project area.

b. All laboratory data will be entered on NRCS-SOIL-8(s) - Index of Laboratory Data forms. The Technical Team will classify the assembled laboratory data and pedons. Latitude and longitude coordinates will be provided. These coordinates will allow the spatial referencing of pedons for an evaluation of data voids. The index data forms will be updated as each subset of the MLRA project area is correlated.

c. The Soil Data Quality Specialist at Little Rock, AR, and the Regional Geomorphologist will consolidate all geological reference material and studies for the MLRA project area survey. Research will be analyzed for application to the project area.

d. The Soil Data Quality Specialists will work with the National Soil Survey Laboratory (NSSL) to develop a system to incorporate existing laboratory data into the NSSL data base and identify a system that will allow the effective use and analysis of existing and future lab data at the field level. This system should be compatible with National Soil Information System (NASIS) data format, data dictionary, and methods of retrieval. The expected date of completion is 2020.

e. Soil series and data mapunits on the MLRA legend will be evaluated and updated by the Technical Team as mapping progresses and data becomes available. Laboratory data will be used to update the range in characteristics for all major soil series. Differentia within competing series will be evaluated. Where separations with other series are not clear, plans will be made to study the series more closely. Where differentia cannot be identified or substantiated, series will be combined. Suites of soils will be studied by major landform and geology.

2. Detailed Sampling Plan

The information gathered from the evaluation of current laboratory data will determine where emphasis is needed for detailed sampling and investigations. Data for most of the dominant, or benchmark soils are insufficient and characterization data will be needed for all Typical Pedons in the MLRA as well. Samples will be taken to a depth of 80 inches (2 meters) for characterization. The expected date of completion for the sampling plan developed by the Technical Team is 2020.

3. Documentation

Transects of map unit delineations will determine map unit composition and additional mapping needs. A standardized numerical inclusion formula will be developed by the Technical Team to consistently differentiate dissimilar from similar inclusions as identified by transects. The minimum standards of documentation for the survey area are outlined in Attachment 1. The NASIS Site and Pedon tables will be

used to store all profile descriptions taken during the project and used for typifying pedons. All site and pedon data from ongoing and previous surveys will also be uploaded into the program.

B. Annual Business Plan

The Technical Team will compile and develop an annual business plan of operations for the MLRA project area. This plan will outline the year's operation with task assignments and accomplishments. These tasks will be taken from the subset members' work plans each year. The plan will be reviewed and approved by the Board of Directors and Technical Team.

C. Special Studies

(See Attachment 1 and WORK PLANS at the end of this document)

D. Classification

1. Numerous miscellaneous land types and phases of series are used throughout older soil surveys. Many of these have been correlated to established series. Additional data is needed to support the classification of these soils to determine if proper correlation has been made. New series will be proposed and used as phases of some map units.

2. Current laboratory data and changes to SOIL TAXONOMY indicate that some series need to be reclassified. During the evaluation of data, these series will be identified and any additional sampling needs will be incorporated into the sampling plan. Based on the analysis of existing and new laboratory data the series will be reclassified if appropriate. The Technical Team will evaluate the data with an expected date of completion.

E. Legend Development

1. Development of an initial legend for the MLRA project area in NASIS has been initiated by selecting map units from recently completed or updated legends from different parts of the MLRA. In addition to an initial list of map unit names, consideration will be given to the coordination of slope classes, soil symbols, alphabetic, and to the coordination of conventional and special symbols.

2. The status for the legend and data map unit documentation of the published surveys will have to be changed to one of the following:

   a. Maintenance needed
   b. Change Maintenance
   c. Correct DMU'S on targeted geology
   d. Make sure you leave the **old DMU's attached as no and the new one as yes**, 4a) write a text note to document changes or in correlation text note at final correlation reflecting history.
   e. These new DMU's can be shared across geology
   f. Adjustment can be made to the MU name as needed.
   g. Map symbols will be left as they are for each survey area at this time.

h. As each project area is completed a final correlation will include re-alphabetizing symbols

F. Field Reviews

1. MLRA Project Area Maintenance Field Reviews

Field reviews will be conducted by an NRCS Soil Data Quality Specialist from the MLRA Region 16 office with the assistance of representatives of cooperating agencies. Reviews will be conducted over each project area.
Since the subset survey has been through a previous correlation, field reviews are considered as MLRA project area maintenance reviews. Therefore, the "Initial" Field Review has previously been conducted.

2. Land Use Field Reviews

To ensure interdisciplinary involvement and MLRA project area coordination, land use reviews will be conducted in addition to the project soil survey progress field reviews. Maintenance field reviews generally are inadequate to cover all use and management concerns of land users due to time constraints. Land use reviews, conducted by ad hoc committees' assigned responsibility for a particular land use, will provide a forum for dialogue and correlation of interpretations in the field. These reviews will help identify data gaps and ensure that user needs have been covered in the descriptive legend. Other participants will include district conservationists and their staff, conservation district board members, county extension personnel, private consultants, and other state and federal agencies. Soils grouped according to similar use and management will be reviewed. Inventory-related documentation will be reviewed. Soil limitations and suggested management will be discussed and recorded. These reviews will be conducted by an interdisciplinary specialist (agronomist, forester, range conservationist) assigned by the Board of Directors

3. Final Field Review and Correlation

Each project area will be required to have a Final Maintenance Field Review to ensure that standards have been met. A correlation report will be completed for each project area. After the last project area has been completed a final MLRA project area correlation document will be generated.

G. Re-correlation

Based on the evaluation of map units in previously completed soil surveys, an estimated 15 million acres will need some re-correlation. Many of these areas can be re-digitized as mapped or in some cases correlated to a new series based on recent work.

H. Interpretations

Data from research studies will be used to develop new interpretations, improve current interpretations, and provide added interpretations for local needs. Special emphasis will be placed on coordinating interpretations between similar soils and between soils that are associated on a given landscape or geology. The Technical Team and Project Leader will investigate and resolve differences in interpretations regarding items such as capability classification, drainage classification, permeability, soil erodibility, soil loss tolerance, and other factors. Map Unit Record (MUR) data will be used to identify where these differences exist. A proposal for

the resolution of discrepancies will be developed and distributed in each state for review and comment. The anticipated date of completion is 2004.

I. Coordination

Soil classification, correlation, interpretations, and mapping concerns that are identified during field work will be brought to the attention of the Technical Team. If differences in proposed resolutions cannot be resolved, special field studies will be scheduled. Field stops will be made at various locations within the MLRA project area to study the situation and develop a resolution that is agreeable.

J. Hierarchy of Terminology

A hierarchy of terminology will be developed to describe landscapes, landforms, and positions on landforms consistently throughout the MLRA project area. This will be reviewed and approved by the Technical Team. .

K. Potential Special Research Projects: This project will take a new approach to soil survey and many new technologies and methodologies will be used or tested during the project. The following paragraphs discuss potential special projects. The Agricultural Experiment Stations and the Natural Resources Conservation Service will take the lead in these projects. Assistance will be obtained from the National Soil Survey Center and the National Cartography and GIS Center. Some research has been initiated and completed and the project should try to use these research data where feasible. The development of special projects will be dependent to some extent on the availability of funds from local, state, and federal sources. A list of potential Special Projects follows:

1. The Role of GIS technology and ancillary digital geographic data bases in soil survey updates--GIS technology has primarily been viewed as a tool to display and manipulate soil survey information after the mapping is completed. However, GIS technology can also contribute to mapping operations by analyzing spatial relationships among ancillary geographic data sources (such as digital elevation models, digital aerial photos, satellite imagery, geologic mapping, surface hydrology, and existing soil mapping) and by producing products prior to mapping. These GIS derived products describe and map combinations of landscape features correlated to the spatial distribution of soil properties

2. Soil-landscape studies of certain major landforms--Mapping consistency can be improved by understanding the soil-landscape relationships and the soil genesis related to landforms and geology of regional importance. Studies should include geomorphologic investigations and a consideration of the soil continuum to a depth of 10 to 20 feet. These investigations can provide valuable information for making interpretations related to water quality and soil formation.

3. NSSL sampling and Ksat determination on Benchmark Soils for which there is no NSSL characterization data

4. Saturated Hydraulic Conductivity (Ksat) studies on Redland soils (The Nacogdoches and Trawick series have proven to be poor pond sites even though they have 40 percent or more clay - ponds tend to leak yet septic systems also often fail)

5. Water table studies by piezometer with data-logger on numerous soils in the MLRA which are in the moderately well to somewhat poorly

drained classes, for which there is presently no documentation regarding the presence and timing of water tables

6. Drainage class studies on Vertisols and soils in Vertic subgroups (drainage class designations are inconsistent between closely-similar pedons due to an absence of data)

7. Creation of landscape/geology diagrams to illustrate water movement into (inflow), laterally through and at a lower point out of (outflow) as seepage, within soil catenas on various landforms

8. Floodplain mapunit composition (Many older surveys do not adequately identify the numerous and varied inclusions in floodplains; this became a more significant problem with the advent of hydric versus non-hydric soils designations)

Attachment 1

SUMMARY AND ORGANIZATION OF SUPPORT DATA

The MLRA Project Leader ensures the systematic collection of useful notes by providing each survey member with a list of specific instructions about the kind of information needed for each taxonomic unit or map unit. Documentation Guidance is in accordance or as established in Most Efficient Organization (MEO) for soil mapping 133B, otherwise referred to as the A76 contract mapping agreement, established by Texas, May 2003, Field Soil Mapping section (C.5.3) and NSSH, Part 627, respectively. The recommended minimum standards of documentation that are needed to support the taxonomic units and map units within the update project soil survey descriptive legend are as follows:

A. New series establishment

To establish a new series with an extent of less than 2,000 acres, at least 5 pedon descriptions are required. For an extent of over 20,000 acres, 10 pedon descriptions are required, and for acreages between, the number may be determined proportionately. Larger acreages may require more descriptions to adequately represent the extent of the series.

B. Taxonomic unit

Each taxon within a map unit requires three complete pedon descriptions that represent the concept for the taxon in the survey area. Pedon descriptions may be from transects within the named map units.

C. Map unit

Thirty points (commonly 3, 10-point transects) are required for each map unit up to 7,500 acres in size. For map units totaling more than 7,500 acres, 10 additional points are required per additional 10,000 acres, up to a total of 60 points which is generally sufficient for determining map unit composition. Each major component requires at least one pedon description from each map unit in which it occurs. The above requirements are based on documentation at 40 percent of that required for initial surveys.

D. Exceptions

Exceptions to the minimum standards for documentation of taxonomic and map units apply when map units of small acreage are added along the boundary of an ongoing soil survey or modern published soil survey for the purpose of effecting a quality join. Part 627.04 NSH provides more information. In these instances the documentation from the joining soil survey area that has the larger acreage may be used for correlation.

Attachment 2

QUALITY JOINS FOR EXISTING SURVEYS

All original surveys will eventually be joined in the update mapping process to become the MLRA-wide survey with no soil-mapping differences at the county or soil survey area boundaries. This will ensure consistent interpretations for each map unit across the span of the MLRA.

Until the updated survey is available, *quality joins* will be accomplished in limited specific areas as needed, as in the case of CSP Watersheds.

A *quality join* requires that two soil survey areas join exactly along common boundaries and share the same map unit name and interpretations. Inventory related values such as crop yields, site indices, and range or pasture productivity may differ by no more than 15 percent.

The following examples describe the most common join situations and provide general procedures for obtaining a *quality join* between survey areas:

A. If two surveys of the same order of mapping are being joined, then a *quality join* will be made. If a map unit is small in extent (less than 100 acres) for one survey area and is mainly along the survey boundary, then the taxonomic unit, map unit descriptions and the documentation from the adjoining survey area that has the larger acreage may be used for correlation.

B. Two soil surveys of different orders of mapping have a *quality join* if the boundaries of the areas which appear on the soil map are also soil boundaries. As long as a hard copy soil survey is used as the official copy, each area is identified by a note printed parallel to the boundary that separates the areas of each survey order (for example, "Limit of Order 3 Survey"). For digital soil survey work, a note will be made in the NASIS database under Legends, Legend, Mapunit History. Chapter 2 of the Soil Survey Manual provides more information. Each soil line of the survey of lower intensity must join a soil line of the adjacent survey of higher intensity, but the converse is not required.

C. If a soil survey joins a survey area that requires extensive revision or is out-of-date and is therefore acknowledged as being substandard in some part, then it is not necessary to *quality join* or revise any part of the out-of-date survey until an update project is initiated. Part 610 NSH provides more information.

TABLE 1

COUNTIES IN MLRA 133B southwest
STATUS OF LEGENDS IN MLRA 133B (continued)

Symbol	Area Name	Status	Correlation Date	Delivery Date	Mapping Scale
TEXAS COUNTIES:					
TX001	ANDERSON COUNTY, TEXAS	Out-of-date	11/1970	11/15/1975	20,000
TX005	ANGELINA COUNTY AREA, TEXAS	Published	07/1984	02/15/1988	24,000
TX600	AUSTIN AND WALLER COUNTIES, TEXAS	Published	03/1981	03/15/1984	24,000
TX037	BOWIE COUNTY, TEXAS	Published	09/1978	12/15/1980	20,000
TX603	CAMP, FRANKLIN, MORRIS, AND TITUS COUNTIES, TEXAS	Published	09/1984	03/15/1990	24,000
TX073	CHEROKEE COUNTY, TEXAS	Out-of-date	03/1949	03/15/1959	20,000
TX161	FREESTONE COUNTY, TEXAS	Project	02/1986		24,000
TX185	GRIMES COUNTY, TEXAS	Published	05/1988	01/15/1996	24,000
TX203	HARRISON COUNTY, TEXAS	Published	11/1989	10/15/1994	24,000
TX213	HENDERSON COUNTY, TEXAS	Published	02/1978	02/15/1980	20,000
TX225	HOUSTON COUNTY, TEXAS	Project	04/1994	*	24,000
TX610	HOPKINS AND RAINS COUNTIES, TEXAS	Out-of-date	10/1973	12/15/1977	20,000
TX611	JASPER AND NEWTON COUNTIES, TEXAS	Published	06/1980	08/15/1982	20,000
TX614	LAMAR AND DELTA COUNTIES, TEXAS	Update		07/15/1979	24,000
TX614	LAMAR AND DELTA COUNTIES, TEXAS	Out-of-date	09/1975	07/15/1979	20,000
TX289	LEON COUNTY, TEXAS	Published	08/1985	01/15/1990	24,000
TX313	MADISON COUNTY, TEXAS	Published	07/1989	06/15/1994	24,000
TX616	MARION AND CASS COUNTIES, TEXAS	Initial			24,000
TX339	MONTGOMERY COUNTY, TEXAS	Out-of-date	04/1967	10/15/1972	20,000
TX347	NACOGDOCHES COUNTY, TEXAS	Published	05/1976	03/15/1980	24,000
TX365	PANOLA COUNTY, TEXAS	Out-of-date	04/1971	08/15/1975	20,000
TX617	POLK AND SAN JACINTO COUNTIES, TEXAS	Published	12/1983	07/15/1988	24,000
TX387	RED RIVER COUNTY, TEXAS	Out-of-date	09/1972	02/15/1977	24,000
TX401	RUSK COUNTY, TEXAS	Published	06/1993		24,000
R08F13D02	SAM HOUSTON NATIONAL FOREST	Non-project			24,000
TX419	SHELBY COUNTY, TEXAS	Project			24,000
TX423	SMITH COUNTY, TEXAS	Published	06/1987	07/15/1993	24,000
TX455	TRINITY COUNTY, TEXAS	Project			24,000
TX457	TYLER COUNTY, TEXAS	Initial			24,000
TX608	UPSHUR AND GREGG COUNTIES, TEXAS	Published	03/1981	05/15/1983	24,000
TX467	VAN ZANDT COUNTY, TEXAS	Project	03/1994	*	24,000
TX471	WALKER COUNTY, TEXAS	Published	05/1975	07/15/1979	20,000
TX499	WOOD COUNTY, TEXAS	Published	03/1993	*	24,000
TX619	San Augustine and Sabine Counties	Initial			24,000

Table 2

SOIL SURVEY AREAS IN MLRA 133B

AREA SYMBOL	AREA NAME	TOTAL AREA ACRES	133B ACRES
TX001	ANDERSON COUNTY, TEXAS	690,925	596,150
TX005	ANGELINA COUNTY AREA, TEXAS	553,619	514,645
TX037	BOWIE COUNTY, TEXAS	590,503	559,954
TX073	CHEROKEE COUNTY, TEXAS	679,559	674,450
TX161	FREESTONE COUNTY, TEXAS	571,437	117,078
TX185	GRIMES COUNTY, TEXAS	512,192	135,770
TX203	HARRISON COUNTY, TEXAS	585,082	578,434
TX213	HENDERSON COUNTY, TEXAS	607,181	382,240
TX225	HOUSTON COUNTY, TEXAS	791,642	789,978
TX289	LEON COUNTY, TEXAS	690,861	284,274
TX313	MADISON COUNTY, TEXAS	302,451	7,745
TX339	MONTGOMERY COUNTY, TEXAS	688,742	354,007
TX347	NACOGDOCHES COUNTY, TEXAS	627,232	599,784
TX365	PANOLA COUNTY, TEXAS	526,611	519,424
TX387	RED RIVER COUNTY, TEXAS	675,546	498,870
TX401	RUSK COUNTY, TEXAS	600,084	590,178
TX619	SAN AUGUSTINE AND SABINE COUNTIES, TEXAS	747,948	646,125
TX419	SHELBY COUNTY, TEXAS	534,176	506,003
TX423	SMITH COUNTY, TEXAS	607,853	596,173
TX455	TRINITY COUNTY, TEXAS	456,608	442,592
TX457	TYLER COUNTY, TEXAS	600,044	426,960
TX467	VAN ZANDT COUNTY, TEXAS	549,964	60,418
TX471	WALKER COUNTY, TEXAS	512,870	386,750
TX499	WOOD COUNTY, TEXAS	445,402	419,539
TX600	AUSTIN AND WALLER COUNTIES, TEXAS	752,224	43,998
TX603	CAMP, FRANKLIN, MORRIS, AND TITUS COUNTIES, TEXAS	757,326	671,010
TX608	UPSHUR AND GREGG COUNTIES, TEXAS	555,470	550,414
TX610	HOPKINS AND RAINS COUNTIES, TEXAS	673,076	391,562
TX611	JASPER AND NEWTON COUNTIES, TEXAS	1,221,791	833,516
TX614	LAMAR AND DELTA COUNTIES, TEXAS	775,795	282,970
TX616	MARION AND CASS COUNTIES, TEXAS	884,327	845,862
TX617	POLK AND SAN JACINTO COUNTIES, TEXAS	1,110,490	956,453
	TOTAL ACRES	20,879,031	15,263,026

Table 3

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WORK PLANS

LONG RANGE PLAN

YEGUA, JACKSON GROUP AND CATAHOULA GEOLOGIC FORMATIONS
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PURPOSE: THIS PLAN IS DESIGNED TO PROVIDE GUIDANCE FOR COMPLETING SOIL SURVEY MAPPING AS WELL AS MLRA UPDATE MAPPING INCLUDING THE RESEARCH NECESSARY TO DO SO, ON THE ABOVE GEOLOGIC FORMATIONS IN THE WESTERN PART OF MLRA 133B.

ACREAGE TOTALS:

CATAHOULA GEOLOGICAL FORMATION	476,777 Acres
YEGUA/*JACKSON GEOLOGICAL GROUP	1,026,545 Acres

*(JACKSON GROUP INCLUDES Whitsett, Nash Creek, Manning, Wellborn, Yazoo, Caddell, and Moodys Branch GEOLOGIC FORMATIONS)

ACREAGE BY COUNTY FOR EACH SOIL SERIES OF THE CATAHOULA FORMATION:

ANGELINA COUNTY

Browndell	310	Acres
Corrigan	1,850	
Kisatchie	1,250	
Letney	2,430	
Rayburn	2,120	
Stringtown	3,260	
Tehran	1,075	
Total	12,295	Acres

JASPER/NEWTON COUNTIES (MAP AT ORDER 2 INTENSITY)

Bonwier-Stringtown	5,240	Acres
Browndell-Rock Outcrop	3,616	
Corrigan-Rayburn	12,140	
Kisatchie-Rayburn	18,320	
Rayburn-Corrigan	8,680	
Rayburn-Kisatchie	11,720	
Stringtown-Bonwier	9,070	
Tahoula	1,590	
Tehran-Letney	123,340	
Total	193,716	Acres

POLK/SAN JACINATO COUNTIES

Colita	9,420	Acres
Colita-Laska	37,030	
Colita-Kitterll	2,520	
Laska	14,580	
Rayburn	12,681	
Stringtown-Bonwier	43,650	
Total	119,881	Acres

SAN AUGUSTINE/SABINE COUNTIES:

Soils to be determined		
Tehran	4,296	
Letney	4,313	
Kisatchie	2,017	
Corrigan	1,006	
Rayburn	1,701	
Total	13,333	Acres

TRINITY COUNTY		
Colita	12,866	Acres
Colita-Laska	6,815	
Corrigan	4,584	
Kitterll	247	
Kitterll-Browndell	985	
Laska	3,269	
Letney	1,832	
Rayburn	1,265	
Stringtown	1,349	
Tehran	530	
Total	33,742	Acres
TYLER COUNTY		
Browndell-Kitterll	5,759	Acres
Colita	9,508	
Colita-Laska	5,044	
Corrigan	7,146	
Laska	2,369	
Rayburn	9,214	
Total	39,040	Acres
WALKER COUNTY		
Arriola	6,907	Acres
Elmina Assoc.	18,096	
Falba	31,498	
Falba and Arol	4,349	
Kitterll-Rock Outcrop	3,920	
Total	64,770	Acres
TOTAL FOR CATAHOULA FORMATION	**1,026,545**	**Acres**

ACREAGE BY COUNTY FOR EACH SOIL SERIES OF THE YEGUA AND JACKSON GROUP GEOLOGIC FORMATIONS:

ANGELINA COUNTY:		
Diboll	22,050	Acres
Fuller	52,640	
Herty	13,800	
Keltys	47,175	
Kurth	20,430	
Moswell	28,930	
Raylake	6,590	
Rosenwall	31,380	
Total	222,995	Acres
HOUSTON COUNTY:		
Fuller	58,039	Acres
Herty	30,969	
Kellison	2,946	
Keltys	19,569	
Kurth	68,601	
Lovelady	8,824	
Moswell	25,620	
Penning	19,684	
Total	234,252	Acres

POLK/SAN JACINTO COUNTIES:		
Herty	5,240	Acres
Keltys	3,550	
Moswell	17,010	
Total	25,800	Acres
SAN AUGUSTINE/SABINE COUNTIES:		
Herty	3,775	Acres
Kurth	11,413	
Moswell	103,907	
Penning-Kurth	14,328	
Raylake	15,218	
Rosenwall	14,155	
Total	162,796	Acres
TRINITY COUNTY:		
Fuller	111,538	Acres
Herty	12,226	
Kellison	3,627	
Keltys	45,185	
Kurth	48,102	
Lovelady	15,064	
Moswell	14,279	
Penning	20,018	
Rosenwall	15,023	
Total	286,062	Acres
TYLER COUNTY:		
Colmesneil	870	Acres
WALKER COUNTY:		
Arriola	7,483	Acres
Elmina Assoc.	19,604	
Falba	34,122	
Falba and Arol	4,711	
Galilee-Gomery Assoc.	4,640	
Gomery	14,350	
Rosenwall-Goreen	8,860	
Total	93,770	Acres
TOTAL FOR YEGUA/JACKSON GROUP FORMATIONS	**476,777**	**Acres**

PRIMARY PROBLEMS TO BE ADDRESSED IN YEGUA/JACKSON GROUP

1. Yegua and Caddell formations - Should the Diboll and Fuller series be combined? Should the "A" slope be a different series than the "B" slope due to greater salinity and wetness? What is the correct texture family of each series? Man-hours needed: 160

2. Yegua and Caddell formations - Are the Herty-like soils with calcareous subsoil (primarily of the Yazoo geologic formation) dissimilar enough in interpretations to the Herty series, and of significant extent to warrant a different series or map unit? Man-hours needed: 240

3. Catahoula formation - Does the Colita soil have enough wetness and salinity to fit the current classification? Man-hours needed: 160

4. Catahoula formation - Is the Laska soil classified correctly? (texture family; solum thickness; paralithic contact?) Man-hours needed: 320

5. Catahoula formation - existing Walker County map units of Elmina and Falba series are mapped on the Jackson Group as well as the Catahoula geological areas in this county, but probably should be mapped as different series for these different formations. In addition, the Falba series is of the "ustic" moisture regime and MO-9 area, but probably should be mapped a corresponding series of the "udic" moisture regime in this area of MO-16 (possibly the Goreen series in the Jackson Group areas, and Corrigan or Kisatchie in the Catahoula areas). Man-hours needed: 80

6. Any other questions with series or map units discovered during the process of update mapping or during the above geologic studies will be addressed.

JOEL BOLIN: LONG RANGE PLAN
WECHES, REKLAW, SPARTA, COOK MOUNTAIN GEOLOGICAL FORMATIONS

PURPOSE: THIS PLAN IS DESIGNED TO PROVIDE GUIDANCE FOR COMPLETING MLRA UPDATE MAPPING INCLUDING THE RESEARCH NESESSARY TO DO SO, ON THE ABOVE GEOLOGIC FORMATIONS IN MLRA 133B.

ACREAGE BY COUNTY FOR EACH SOIL SERIES OF THE WECHES FORMATION:

ANDERSON COUNTY		
Alto	2,880	Acres
Bub	9,630	
Elrose	24,140	
Hannahatchee	6,700	
Trawick	40,310	
Total	83,660	Acres
CHEROKEE COUNTY		
Alto	4,300	
Bub-Nacogdoches	37,600	
Hannahatchee	16,100	
Magnolia	52,600	
Nacogdoches	71,900	
Percilla	4,600	
Total	187,100	Acres
HOUSTON COUNTY		
Alto	10,100	Acres
Chireno	1,425	
Elrose	3,835	
Hannahatchee	3,517	
Percilla	455	
Trawick	15,304	
Trawick-Bub	1,328	
Total	35,964	Acres
NACOGDOCHES COUNTY		
Alto	12,480	
Bub	1,225	
Chireno	1,070	
Hannahatchee	13,250	
Nacogdoches	64,010	
Percilla	860	
Trawick-Bub	36,455	
Total	129,350	Acres
RUSK COUNTY		
Hannahatchee	2,640	Acres
SAN AUGUSTINE & SABINE COUNTIES		
Alto	8,362	Acres
Bub	3,301	
Chireno	494	
Hannahatchee	4,030	
Nacogdoches	28,007	
Tuscosso	8,033	
Trawick	17,557	
Total	69,784	Acres

ACREAGE BY COUNTY FOR EACH SOIL SERIES OF THE REKLAW FORMATION:

CHEROKEE COUNTY		
Bowie	59,600	Acres
Cuthbert	22,600	
Ruston	7,300	
Total	89,500	Acres
NACOGDOCHES COUNTY		
Bowie	14,400	Acres
Cuthbert	66,540	
Kirvin	40,205	
Sacul	48,450	
Total	169,595	Acres
RUSK COUNTY		
Bowie	25,129	Acres
Cuthbert	80,830	
Kirvin	59,285	
Redsprings	51,762	
Sacul	13,496	
Ulto	10,414	
Total	240,916	Acres

ACREAGE BY COUNTY FOR EACH SOIL SERIES OF THE SPARTA FORMATION:

ANDERSON COUNTY		
Arenosa	10,090	Acres
Bowie	18,610	
Chipley	2,980	
Darco	98,300	
Eustis	9,090	
Fuquay	94,550	
Kirvin	75,898	
Leefield	4,170	
Sacul	23,492	
Tenaha	15,360	
Total	325,540	Acres
CHEROKEE COUNTY		
Bowie lfs	56,000	Acres
Eustis	41,400	
Lakeland	43,900	
Ruston lfs	24,800	
Total	166,100	Acres
HOUSTON COUNTY		
Betis	14,106	Acres
Bowie	4,933	
Cuthbert	25,826	
Darco	19,943	
Grapeland	3,644	
Kirvin	17,809	
Lilbert	18,466	
Rentzel	10,279	
Sacul	5,326	
Tenaha	13,325	
Tonkawa	561	
Total	134,218	Acres

NACOGDOCHES COUNTY

Betis	6,015	Acres
Briley	10,710	
Darco	40,725	
Lilbert	38,535	
Osier	3,200	
Rentzel	8,255	
Tenaha	27,588	
Total	135,028	Acres

RUSK COUNTY

Betis	13,201	Acres
Darco	26,487	
Lilbert	47,062	
Rentzel	3,210	
Tenaha	45,354	
Total	135,314	Acres

SAN AUGUSTINE & SABINE COUNTIES

Betis	2,439	Acres
Bowie	11,339	
Cuthbert	48,343	
Darco	6,976	
Grapeland	780	
Kirvin	31,801	
Lilbert	10,016	
Rentzel	6,410	
Sacul	7,935	
Smithdale	5,185	
Tenaha	34,709	
Tonkawa	1,289	
Total	167,222	Acres

ACREAGE BY COUNTY FOR EACH SOIL SERIES OF THE COOK MOUNTAIN FORMATION:

CHEROKEE COUNTY

Boswell	20,000	Acres
Susquehanna	15,800	
Total	35,800	Acres

HOUSTON COUNTY

Etoile	13,607	Acres
Lacerda	8,311	
Latex	19,946	
Naclina	999	
Woodtell	38,808	
Total	81,671	Acres

NACOGDOCHES COUNTY

Etoile	5,105
Lacerda	8,025
Naclina	1,100
Woodtell	11,275
Total	25,505

SAN AUGUSTINE & SABINE COUNTIES

Eastwood	36,364	Acres
Etoile	4,979	
Lacerda	5,355	
Latex	8,886	
Naclina	1,104	

Total	56,688 Acres

PRIMARY PROBLEMS TO BE ADDRESSED IN WECHES, REKLAW, SPARTA, COOK MOUNTAIN FORMATIONS:

1. HANNAHATCHEE SERIES: Is the Hannahatchee series classified correctly? Is the textural family fine-loamy or coarse-loamy? Does it have an irregular decrease in organic carbon?
2. TUSCOSSO SERIES: Is the Tuscosso series classified correctly in relation to its wetness?
3. TRAWICK SERIES: Does the Trawick series typically have a mollic surface? Does the Trawick series occur on 1-5% slopes? Also solum thickness?
4. ALTO SERIES: Does the Alto series qualify as prime farmland? Does it have sufficient available water capacity? Is the bulk density so high as to be root limiting? What is the typical organic matter content of the surface?
5. MAGNOLIA SERIES: The Magnolia series is no longer active. What series should these areas mapped as Magnolia in Cherokee county be correlated to?
6. REDLAND PERMEABILITY: The redland soils, even with clayey particle-size families, tend to make poor pond reservoir sites. The permeability rate for some to the redland soils appears to be greater than was previously assigned for soils with more than 40 percent clay. A study is needed to determine if present interpretations are accurate.
7. CUTHBERT SERIES: There may be a significant acreage of soils mapped Cuthbert that have a fine-loamy textural family. Is this dissimilar enough and of significant extent to warrant a different series or map unit?
8. RUSTON/SAILES/SMITHDALE SERIES: The soils mapped Ruston in Nacogdoches, Panola, Cherokee and possibly Upshur/Gregg counties are not the Ruston series. What series and map unit would best fit these areas?
9. LEAGUEVILLE/MELHOMES/OSIER SERIES: The soils mapped Osier in Nacogdoches county are probably not the Osier series. What series and map unit would best fit these areas?

PROJECTS NEEDED

1) Hannahatchee Study (Fluventic feature, Texture Family) - 40 hours
   Nacogdoches County - 13,250 acres
   Rusk County - 2,640 acres
   San Augustine/Sabine Counties – 4,030 acres

2) Tuscosso wet – Marietta study - 40 hours
   Nacogdoches County - 18,375 acres
   Cherokee County - 900 acres
   San Augustine/Sabine Counties – 8,033 acres

3) Bienville / Terrace study - 40 hours
   Panola County - 8,704 acres
   Nacogdoches County - 2,115 acres
   Cherokee County - 10,500 acres
   Shelby County - ?

4) Trawick Study (Mollic surfaces, Occurrence on 1-5% slopes, Depth Class)- 40 hours
   Nacogdoches County - 35,505 acres
   San Augustine/Sabine Counties – 17,557 acres

5) Alto, Chireno study - 40 hours
   Nacogdoches County -

San Augustine/Sabine Counties -

6) Gallime / Bernaldo study - 40 hours
Nacogdoches County - 10,950 acres
Rusk County - 7,465 acres
Shelby County - ?
San Augustine/Sabine Counties - ?

7) Magnolia study - 40 hours
Cherokee County - 52,600 acres
San Augustine/Sabine Counties - ?

8) Fragipan study - 120 hours
Cart (Panola County) - 54,000 acres
Erno (Panola County) - 32,207 acres
Thage (Panola County) - 3,437 acres

9) Redland Permeability Study (Amoozemeter) (Nacogdoches, Trawick, Bub, Elrose) - 40 acres

10) Plinthaquic Study on Queen City Formation - 40 hours

11) High Base/Low Base sand study on Queen City Formation - 40 hours

12) Bisequal Study on Wilcox Formation - 80 hours
Kullit (Panola County) - 29,295 acres
Sawlit (Rusk County) - 31,000 acres
Metcalf (Shelby County) - ?
Keithville (San Augustine/Sabine Counties) - ?

13) Darco/Lilbert/Rentzel on Jackson Group Study - 40 hours
San Augustine/Sabine Counties

14) Wet Terrace Study - 80 hours
Mollville & Guyton (San Augustine/Sabine Counties)
Guyton & Bonn (Shelby County) -
Mollville (Panola County) - 3,764 acres
Mollville (Nacogdoches County) - 4,082 acres
Mollville (Rusk County) - 388 acres
Verdun (Panola County) - 1,396 acres
Wrightsville (Panola County) - 20,689 acres

15) Latch/Leagueville/Melhomes/Osier Study - 40 hours
Nacogdoches County - 2,980 acres

16) Clayey versus loamy Cuthbert Study - 40 hours
San Augustine/Sabine Counties

17) Ruston/Sailes/Smithdale Study - 40 hours
Nacogdoches County - 5,500 acres
Panola County - 2,500 acres
Upshur/Gregg Counties - 5,918 acres
Cherokee County - 7,300 acres

TERRACES OF WESTERN PART OF MLRA 133B (LEVI STEPTOE)

PURPOSE: THIS PLAN IS DESIGNED TO PROVIDE GUIDENCE FOR COMPLETING SOIL SURVEY MAPPING AS WELL AS MLRA UPDATE MAPPING AND RESEARCH NECESSARY TO DO SO, ON THE TERRACES IN THE WESTERN PART OF MLRA 133B.

BOWIE COUNTY:
1. ADATON-MUSKOGEE SOILS---41,000 acres
2 EYLAU SOILS----------40,900 acres
3. McKAMIE SOILS----------16,000 acres

MARION-CASS COUNTY:
1. GALLIME SOILS--glossic great group or subgroup
2. GUYTON SOILS--classification
3. CASSCO SOILS--fragic or non fragic
4. THAGE SOILS--fragic or non fragic
5. ERNO SOILS--fragic or non fragic

HARRISON COUNTY:
1. BERNALDO SOILS-- glossic great group or subgroup-30,420 ac.
2. BIENVILLE SOILS--lamellae thickness-1,895 ac.
3. CART SOILS--fragic or non fragic-2,295 ac.
4. ERNO SOILS-- fragic or non fragic-6,007 ac.
5. GUYTON SOILS--classification-12,492 ac.
6. LATCH SOILS--plinthic-5,314 ac.

CAMP, FRANKLIN, MORRIS, AND TITUS COUNTIES:
1. BERNALDO SOILS-- glossic great group or subgroup-16,509 ac.
2. BEINVILLE SOILS-- lamellae thickness-894 ac.
3. FREESTONE SOILS--classification-61,959 ac.
4. SACUL SOILS--on toe slopes-1,810 ac.

UPSHUR-GREGG COUNTIES:
1. BIENVILLE SOILS--lamellae thickness-3,864 ac.
2. LATCH-MOLLVILLE SOILS--classification-8,023 ac.

SMITH & CHEROKEE COUNTIES:
1. BERNALDO SOILS-- glossic great group or subgroup-3,240 ac.
2. GALLIME SOILS-- glossic great group or subgroup-10,830 ac.
3. AMITE (ATTOYAC)- classification
4. CADDO (ALAZAN)- classification
5. CAHABA (ATTOYAC)-classification
6. HUCKABEE (BEINVILLE)-lamellae thickness
7. INDEPENDENCE (BIENVILLE)-lamellae thickness

HENDERSON & ANDERSON COUNTIES:
1. BERNALDO SOILS- glossic great group or subgroup
2. FREESTONE SOILS- classification

NACOGDOCHES COUNTY:
1. BERNALDO SOILS--19,108 ac.
2. BIENVILLE SOILS--2,115 ac.
3. MOLLVILLE SOILS--7,040 ac.

POLK-SAN JACINTO COUNTIES
1. BERNALDO---10,240 ac.
2. BIENVILLE----19,190 ac.
3. ANNONA-FREESTONE ---USFS SURVEY

PANOLA COUNTY:
1. BIENVILLE SOILS--lamellae thickness-8,704 ac.
2. CART-ERNO SOILS--fragic or non fragic--80,517 ac.
3. THAGE SOILS-- fragic or non fragic--3,437 ac.
4. WRIGHTSVILLE SOILS--classification--38,780 ac.
5. MOLLVILLE SOILS--classification--10,757 ac.
6. VERDUN SOILS--classification

ANGELINA COUNTY:
1. BERNALDO SOILS- glossic great group or subgroup-18,000 ac.
2. BIENVILLE SOILS--lamellae thickness--3,600 ac.

WALKER COUNTY:
1. LANDMAN --- 5,790 ac.

MONTGOMERY COUNTY:
1. ALBANY (LANDMAN) --- 28,387 ac.

TRINITY COUNTY:
1. HAINESVILLE --- 1,580 ac.
2. LATEX ----- 2,209 ac.
3. SAWLIT-SAWTOWN --- 683 ac.

HOUSTON COUNTY:
1. BERNALDO --7,217 ac.
2. LATEX --- 19,187 ac.
3. BERNALDO-BESNER --1,627 ac.
4. SAWLIT-LATEX -- 7,581 ac.
5. FREESTONE --- 17,186 ac.
6. HAINESVILLE -- 5,248 ac.
7. FREESTONE-DERLY ---18,513 ac.

WOOD COUNTY:
1. BERNALDO ---13,694 ac.
2. GALLIME --- 3,708 ac.
3. MOLLVILLE ---985 ac.
4. LATCH-MOLLVILLE --- 2,785 ac.
5. FREESTONE -- 38,911 ac
6. HAINESVILLE ---1,354 ac.
7. LEAGUEVILLE --1,000 ac.

RUSK COUNTY:
1. BERNALDO ---5,965 ac.
2. BEINVILLE ---2,332 ac.
3. DERLY ---711 ac.
4. LATEX ---12,523 ac.
5. MOLLVILLE-BESNER--776 ac
6. SAWLIT-SAWTOWN---32,313 ac.
7. GALLIME-ALAZAN ---2,980 ac.

SHELBY COUNTY:
1. BERNALDO-
2. GALLIME-GUYTON-
3. GALLIME-
4. GUYTON-
5. GUYTON-CART--
6. HAINESVILLE--
7. METCALF
8. METCALF-SAWTOWN
9. METCALF-TIMPSON

10.MOLLVILLE-BESNER

MLRA Studies (Queen City & Midway Formations)Don Sabo

Piezometer installation & monitoring:

1) Fragipan study on Cart, Erno-Cart, Thage-Cart, Eylau, and Cassco to determine percent for classification (app. 240 hours)
   a) Bowie Co.: Eylau-40,900 ac.
   b) Harrison Co.: Cart complexes-4,550 ac., Erno-Cart-6,007 ac.
   c) Marion & Cass Co.
   d) Miller Co. Ark.: Eylau-21,165 ac.

2) High of low base study on Lilbert, Pickton, Kullit, & Scottsville to determine Alfisol, Ultisol line (app. 480 hours)
   a) Camp, Franklin, Morris, & Titus Co.: Lilbert-23,995 ac., Pickton-8330 ac., Kullit-18,621 ac.,
   b) Angelina Co.: Lilbert-2,960 ac.,
   c) Houston Co.: Lilbert-26,055 ac.,
   d) Rusk Co.: Lilbert-47,062 ac.,
   e) Nacogdoches Co.: Lilbert-38,535 ac., Kullit-5,910 ac.,
   f) Harrison Co.: Lilbert-15,911 ac., Pickton-1,217 ac., Scottsville-87,748 ac.
   g) Marion & Cass Co.
   h) Upshur & Gregg Co.: Lilbert-64,814ac., Kullit-22,354 ac.,
   i) Wood Co.: Lilbert-18,909 ac., Pickton-6,770 ac., Kullit-9,924 ac.,

3) Bisequal study on Kullit, Metcalf, Ruston, Sawlit, & Scottsville soils to determine range and
   Classification (app. 400 hours)
   a) Bowie Co.: Ruston-22,154 ac.,
   b) Anderson Co.: Kullit-6,280 ac.,
   c) Cherokee Co.: Ruston-36,300 ac.,
   d) Nacogdoches Co.: Ruston-5,499 ac.,
   e) Red River Co.: Kullit-21,975 ac.,
   f) Panola Co.: Kullit-29,295 ac., Ruston-2,469 ac.,
   g) Camp, Franklin, Morris, & Titus Co.: Kullit-18,621 ac.,
   h) Harrison Co.: Metcalf-3,920 ac., Scottsville-87,748 ac.
   i) Marion & Cass Co
   j) Smith Co.: Kullit-2,050 ac.,
   k) Upshur & Gregg Co.: Kullit-22,354 ac., Ruston-5,918 ac.,
   l) Wood Co.: Kullit-9,924 ac.,
   m) Caddo Parish La.: Ruaton-13,160 ac.
   n) Miller Co., Ark.: 4,981 ac.

4) Cuthbert study to determine family & surface texture, % gravel, base saturation, sola depth, and tree site data (app. 480 hours)
   a) Camp, Franklin, Morris, & Titus Co.: 58,970 ac.
   b) Angelina Co.: 10,010 ac.,
   c) Cherokee Co.: 11,300 ac.,
   d) Freestone Co.: 32,300 ac.,
   e) Henderson Co.: 52,990 ac.,
   f) Houston Co.: 35,741 ac.,
   g) Leon Co.: 35,510 ac.,
   h) Nacogdoches Co.: 66,540 ac.,
   i) Red River Co.: 4,230 ac.,
   j) Rusk Co.: 80,830 ac.
   k) Van Zandt Co.: 23,546 ac.,
   l) Harrison Co.: 66,169 ac.
   m) Marion & Cass Co.
   n) Smith Co.: 105,255 ac.
   o) Upshur & Gregg Co.: 109,548 ac.

p) Wood Co.: 50,879 ac.

5) Sailes and Smithdale soil study to determine Paleudults vs Hapludults, slope, and landscape (app. 160 hours)
   a) Bowie Co.: Smithdale-1,800 ac.
   b) Marion & Cass Co
   c) Caddo Parish, La.: Smithdale-6,676ac.
   d) Miller Co., Ark.: Smithdale-14,388 ac,

6) Sacul, Kirvin, Tenaha soil study to determine landscape position, sola depth, texture, % gravel, and slope for mapping consistency (app. 640 hours)
   a) Bowie Co.: Sacul-4,600 ac.,
   b) Anderson Co.: Sacul-4,540 ac., Kirvin-82,622 ac., Tenaha-17,067 ac.,
   c) Angelina Co.: Sacul-18,708 ac., Kirvin-6,527 ac., Tenaha-3,549 ac.,
   d) Houston Co.: Sacul-7,338 ac., Kirvin-25,429 ac., Tenaha-18,004 ac.,
   e) Nacogdoches Co.: 48,450 ac., Kirvin-40,205 ac., Tenaha-27,588 ac.,
   f) Panola Co.: Sacul-124,285 ac., Kirvin-21,402 ac., Tenaha-4,759 ac.,
   g) Rusk Co.: Sacul-13,496 ac., Kirvin-59,285 ac., Tenaha-45,354 ac.,
   h) Cherokee Co.: Kirvin-4,730 ac.,
   i) Henderson Co.: Kirvin-7,990 ac.,
   j) Leon Co.; Kirvin-8,140 ac.,
   k) Van Zandt Co.: Kirvin-6,723 ac., Tenaha-1826 ac.,
   l) Hopkins & Rains Co.: Kirvin-3,838 ac.,
   m) Camp, Franklin, Morris, & Titus Co.: Sacul-10,359 ac., Kirvin-30,900 ac.,
   n) Harrison Co.: Sacul-12,382 ac., Kirvin-35,688 ac.,
   o) Smith Co.: Sacul-2,050 ac., Kirvin-35,120 ac., Tenaha-14,890 ac.,
   p) Upshur & Gregg Co.: Sacul-21,154 ac., Kirvin-54,394 ac., Tenaha-24,102 ac.
   q) Wood Co.: Sacul-2,723 ac., Kirvin-22,433 ac., Tenaha-9,093 ac.,
   r) Caddo Parish, La.: Sacul-22,739 ac.,
   s) Miller Co., Ark.: Sacul-73,975 ac.

7) Briley and Tenaha soil study to determine Paleudults vs Hapludults on ridgetops (app. 200 hours)
   a) Camp, Franklin, Morris, & Titus Co.: Briley-3,195 ac.,
   b) Smith Co.: Briley-2,940 ac.,
   c) Nacogdoches Co.: Briley-10,710 ac., Tenaha-27,588ac.,
   d) Upshur & Gregg Co.: Briley-9,519 ac.
   e) Wood Co.: Briley-2,908 ac.,
   f) Caddo Parish, La.: Briley-4,600 ac.,
   g) Miller Co., Ark.: Briley-5,389 ac.

8) Rentzel and Leagueville soil study to determine proper classification and water table (app. 240 hours)
   a) Angelina Co.: Rentzel-810 ac.
   b) Houston Co.: Rentzel-13,114 ac.
   c) Nacogdoches Co.: Rentzel-8,255 ac.
   d) Rusk Co.: Rentzel-3,210 ac.
   e) Upshur & Gregg Co.: Rentzel-3,073 ac.

9) Midway Group soil study to determine fine-loamy vs fine-silty family in Bowie, Red River, Titus,
   Van Zandt Co. (app. 400 hours)

10) Bottomland study by drainage system (composition, complexes vs consociation, family texture, hydric features) (app. 800 hours)

11) Hannahatchee study of gray mottles at TP and MLRA (app. 200 hours)
   Anderson Co.: 6,700 ac., Cherokee Co.: 16,100 ac., Houston Co.: 3,669 ac.,
   Nacogdoches Co.: 13,250 ac., Rusk Co.: 2,640 ac.,

12) Piezometer installation (80 hours) & monitoring (16 hours/year,3-5 years)
   a. Bowie - Lilbert (water table study - 3 ea.)
   b. Kullit - Sacul (water table study - 3 ea.)
   c. Alazan - Leagueville (hydric features - 3 ea.)

WILCOX GEOLOGICAL GROUP MLRA 133B (Levi Steptoe)

THIS PLAN IS DESIGNED TO PROVIDE GUIDANCE FOR COMPLETING SOIL SURVEY MLRA UPDATE MAPPING AND RESEARCH NECESSARY TO DO SO, ON THE SOUTHWESTERN PART OF MLRA 133B (EASTERN TEXAS).

ANDERSON COUNTY:

1. BOWIE	-	18,200 Ac.
2. DARCO	-	18,300 Ac.
3. KULLIT	-	6,280 Ac.
4. LARUE	-	19,150 Ac.

BOWIE COUNTY:

1. ALUSA	10,000 Ac.
2. ANNONA	36,000 Ac.
3. MCKAMIE	16,000 Ac.
4. RUSTON	22,154 Ac.
5. SAWYER	116,300 Ac.
6. WOODVILLE	39,500 Ac.
7. WRIGHTSVILLE	44,936 Ac.

FRANKLIN COUNTY:

1. BOWIE	5,266 Ac.
2. DARCO	3,331 Ac.
3. KULLIT	824 Ac.
4. LILBERT	4,320 Ac.
5. PICKTON	3,967 Ac.
6. RAINO	11,008 Ac.
7. WOLFPEN	5,270 Ac.

HARRISON COUNTY:

1. DARCO	2,500 Ac.
2. EASTWOOD	61,900 Ac.
3. LATEX	16,481 Ac.
4. LILBERT	15,911 Ac.
5. METCALF	7,840 Ac.
6. PICKTON	1,217 Ac.
7. SCOTTSVILLE	87,748 Ac.
8. WOLFPEN	16,080 Ac.

HENDERSON COUNTY:

1. AXTELL	51,810 Ac.
2. PICKTON	104,400 Ac.
3. WOLFPEN	59,030 Ac.
4. LARUE	5,550 Ac.
5. LUFKIN-RAINO	6,850 Ac.

HOPKINS-RAINS COUNTIES:

1. LUFKIN-RAINO	21,614 Ac.
2. PICKTON	7,190 Ac.
3. WOLFPEN	36,733 Ac.

MORRIS COUNTY:

1. BOWIE	21,353 Ac.
2. DARCO	860 Ac.
3. KULLIT	5,668 Ac.
4. LILBERT	9,411 Ac.
5. PICKTON	236 Ac.
6. RAINO	4,877 Ac.

7. WOLFPEN 519 Ac.

PANOLA COUNTY:

1. BOWIE	56,000 Ac.
2. KULLIT	29,300 Ac.
3. LUCY	1,900 Ac.
4. LUVERNE	18,650 Ac.
5. RUSTON	2,500 Ac.
6. SACUL	42,800 Ac.

RUSK COUNTY:

1. BOWIE	25,129 Ac.
2. DARCO	26,487 Ac.
3. LATEX	12,523 Ac.
4. LILBERT	47,062 Ac.

SMITH COUNTY:

1. DARCO	13,940 Ac.
2. BOWIE	38,870 Ac.
3. KULLIT	2,050 Ac.
4. OAKWOOD	6,850 Ac.
5. PICKTONF	61,713 Ac.
6. WOLFPEN	68,190 Ac.

VAN ZANDT COUNTY:

1. OAKWOOD	4,500 Ac.
2. PICKTON	31,000 Ac.
3. WOLFPEN	63,000 Ac.
4. WOODTELL	100,000 Ac.
5. RAINO	17,000 Ac.

WOOD COUNTY:

1. BOWIE	16,017 Ac.
2. DARCO	41,710 Ac.
3. KULLIT	9,924 Ac.
4. OAKWOOD	16,232 Ac.
5. PICKTON	6,770 Ac.
6. WOLFPEN	13,986 Ac.

LONG RANGE BUSINESS PLAN 133B (Joseph J. Castille)

The purpose of this business plan is to complete the data acquisition from field studies in conjunction with field mapping to enhance the correlation, classification and interpretations of the soils in MLRA 133B. Finalization of all studies will be compiled and incorporated into the NASIS database for comprehensive documentation. This will be a joint venture with other soil scientists within the resource area, collecting and redefining taxonomic units and soil series as the appropriate data indicates changes or consolidation. The multi-year study encompasses a three to five year plan. These studies will enhance the accuracy of the data being place in Arcview/Toolkit and other data bases that will be available to the public domain.

Objectives and Areas of Study

Studies Needed:

1. Fragic properties (imagi pans?)
2. Wet properties
3. Glossic vs glossudalfs
4. Pond suitability
5. Poor pine growth
6. Base saturation and pH
7. Hapl vs Pale on terraces
8. Water tables on marginal soils
9. Bottomland composition (complex vs consociation, family texture?)
10. Redefinition of the ustic /udic line from encroaching series from the
11. west side of the 133B MLRA.
    A. Houston Black-Heiden-Ferris mapped in Walker Co.
    B. Bliberville-Frelsburg-Latium mapped in Grimes Co.
    C. Weirgate-Burkeville being mapped in counties east of Walker Co.
11. All of these series are on the Fleming formation and consistency is needed
12. for effective interpretations.

Soil Sampling
1. OSD types
2. All new TPs

Documentation needed
1. Transect, etc. needed
2. Grab samples analyzed (local lab)

Geologic formations:

Willis (upper and lower stratum) and the Fleming formation.
The study area will start in Tyler Co. extending eastward to the Sabine River. Westward, from Polk Co. to the ustic moisture regime.

Montgomery Co. (Total county Acreage --- 697,000)

Willis formation

Unit # 1	--- Conroe association (27%)	188,190	acres
Unit # 2	--- Splendora-Boy-Susquehanna (22%)	153,340	“
Unit # 3	--- Wicksburg-Susquehanna (19%)	132,430	“
Unit # 4	--- Sorter association (10%)	69,700	“
Unit # 6	--- Albany-Tuckerman association	48,790	“
Unit # 8	--- Hockley-Katy (1%)	6,970	

Fleming formation

Unit # 5	--- Ferris-Houston Black-Kipling (8%)	55,760
	Bottomlands	
Unit #7	--- Tuscumbia association (6%)	4,182

Walker Co. (Total county Acreage --- 505,600)

	Willis formation	
Unit # 1	--- Depcor-Annona-Huntsburg (40%)	202,240
Unit # 8	--- Conroe association (1%)	5,056
Unit # 6	--- Kaman-Landman-Elysian (2%)	10,112
	Fleming formation	
Unit # 3	--- Ferris-Annona-Houston Black (6%)	30,336
	Bottomlands	
Unit # 4	Kaufman-Gowker (6%)	30,336

Polk and San Jacinto Co. (Total acreage --- 1,110,490)

	Willis formation	
Unit #1	--- Pinetucky-Doucette (23%)	255,413
Unit # 5	--- Conroe association (4%)	44,420
Unit # 2	--- Woodville-Pinetucky (18%)	199,888
	Fleming formation	
Unit # 4	--- Weirgate-Burkeville-Woodville (5%)	55,525
Unit # 15	-- Garner association (2%)	22,210

Jasper and Newton Co. (Total acreage --- 1,234,560)

	Willis formation	
Unit #1	--- Pinetucky-Shankler-Doucette (15%)	185,184
Unit # 2	--- Tehran-Letney (13%)	160,493
	Fleming formation	
Unit # 11	--- Woodville-Redco (6%)	74,074
TOTAL STUDY ACREAGE		**1,972,287**

Note: This acreage does not include Tyler Co. (need a general soils map)

1. Data collection and evaluation of the following series:

   A. Depcor, Wicksburg and Doucette –comparative analysis; Gunter, Shankler, and Boy - comparative analysis.

      These series are very similar and extend across the resource area.

2.(Walker,Montgomery and Tyler Co.)

   A. Sand size fraction analysis: loamy fine sand or loamy sand (high percentage of medium sands in adjoining counties with similar series).

   B. Differentiation of sand fractions in the upper and lower Willis stratigraphy.

C. Base saturation analysis: Huntsburg (Walker Co.)

D. Reclassification of the Leggett series ?? (Polk and San Jacinto Co,)

E. Inclusions of taxonomic units: loamy surface Woodville

3. Terrace soils:

A. Annona and Freestone (Walker Co.)

4. Upland soils:

A. Conroe – deep development of profile or less than 60 inches when the clay content decreases by 20 per cent of the maximum (Montgomery Co.)

B. Comparison of the Rogan series vs the Conroe series.

C. Comparison of the Sunsweet series to other units described as “desurfaced” units.

D. Red sands ---Tenaha like; (Tyler and Jasper Co.)

5. Bottomland soils:

A.(mollic ? – Kosse, Kanebreak, Kian and Kaman)
B. Wet sands in the creek bottoms --- medium sands?
C. Gladewater and Pluck association (Walker and Montgomery Co.)