

CFLR Ecological Indicator Progress Report

Project Name: Longleaf Pine Ecosystem and Hazardous Fuels Reduction

State: Mississippi

Our landscape is defined as 382,000 acres encompassed by De Soto Ranger District on De Soto National Forest in Mississippi. Of those acres, 374,000 are planned to receive treatments.

To hone in on specific outcomes that influence desired future conditions, ecological indicators in this report will assess fire regime, fish and wildlife habitat improvement, and invasive species control. Water quality and specific metrics of watershed health were not part of the original proposal and will not be evaluated.

This report accounts for measurements and treatments applied from FY2012 to FY2014.

The explanation for expected progress toward the desired condition of the landscape for FY2014 will be given under each indicator subtitle.

Project-scale rating/scoring will be done as follows:

- Good = 75% or more of implemented treatments result in measurable progress towards individual **project-level** objectives according to stated metrics.
- Fair = 26% - 74% of implemented treatments result in measurable progress towards individual **project-level** objectives according to stated metrics.
- Poor = 25% or less of implemented treatments result in in measurable progress towards individual **project-level** objectives according to stated metrics.

Fire Regime Restoration

This indicator is based on returning fire to the landscape at historic intervals or frequency appropriate to maintain and restore ecosystems across the landscape with emphasis on hazardous fuel reduction. Longleaf pine ecosystems thrive when prescribed burned every 2 to 5 years. Some systems require a longer return interval. The goal to prescribe burn 800,000 acres during the life of the project encompasses repeated prescribed burned on some areas of the landscape to restore and maintain healthy forest areas.

Desired Conditions Target for Fire Regime Restoration and Maintenance of Fire Dependent Ecosystems: 50% change occurs across 75% of the landscape area by FY19.

1. Fire regimes and fire return intervals will be returned to historic occurrence frequency or returns (2 to 5 years) that allow maintenance and restoration of native ecosystems. This will be measured by acres that are burned by prescription.
2. Growth of volatile underbrush and fuel loading causes dangerous conditions for infrequent prescribed burning, fighting wildfire, and protecting resources. Hazardous fuel loading will be reduced across the landscape by prescribed burning and measured by reduction in tons of available fuel. This metric is monitored and recorded in the Feat-Firemon Integrated (FFI) Database. The desired range for reduction of fuel load is between 1 and 6 tons per acre. Monitoring plots determine the reduction in fuel loading for prescribed burning on the landscape.
3. Prescribed burning will reduce hazardous fuel loading and change fire behavior to allow better control of wildfires. This will be measured by evaluation of wildfire conditions and control measures taken on a wildfire if the wildfire occurred on Forest Service land (in our landscape) where prescribed burning occurred in the previous 3 years. A percent rating is given during evaluation in the Fuels Treatment Effectiveness Monitoring Database. This percent rating representing effectiveness of fuels treatments on acres burned will be the measured outcome.

Treatment	Metric	FY14 Goal	FY19 Goal*
Fire Return/Prescribed Burning	Acres Prescribe Burned	300,000	800,000
Reduction in Fuel Loading	Tons of Fuel Reduced per Acre	1 to 6 tons per acre	1 to 6 tons per acre
Fuel Treatment Effectiveness	Change in Fire Behavior & Wildfire Control % Rating	75% to 100%	75% to 100%

*Some parts of the landscape will receive repeated prescribed burning treatment to maintain and restore forest health, reduce fuel, and change fire behavior and effectiveness of control of wildfires.

Project Level Scoring

Treatment	FY 14 Completed Acres or Measures	FY14 Rating	% Project Area Treated
Fire Return/Prescribed Burning	221,285 acres	Good	28%
Reduction in Fuel Loading	2.8 tons of fuel per acre	Good	28%
Fuel Treatment Effectiveness	100% Rating	Good	28%

Good = 75% or more of implemented treatments result in measurable progress towards individual **project-level** objectives according to stated metrics.

Landscape-scale scoring

- Good = Expected progress is being made towards Desired Conditions across 50% or more of the CFLR landscape area.
- Fair = Expected progress is being made towards Desired Conditions across 25% to 49% of the CFLR landscape area
- Poor = Expected progress is being made towards Desired Conditions across 0% to 24% of the CFLR landscape area

Treatment	FY 14 Completed Acres or Measures	Landscape Rating	% Landscape Treated
Fire Return/Prescribed Burning	221,285 acres	Good	59%
Reduction in Fuel Loading	2.8 tons of fuel per acre	Good	59%
Fuel Treatment Effectiveness	100% Rating	Good	59%

Fish and Wildlife Habitat Condition

Wildlife habitat improvement with herbicide is applied to undesirable understory brush species and midstory ladder fuel species to open stands up to light and allow prescribed fire to be more effective. Thinning pine trees creates open stands and more favorable conditions for grasses and forbs to grow thereby increasing forage for wildlife and pollinator species. Harvest of off-site pine species and restoration of longleaf pine provides a more resilient forest community and provides long term benefits to threatened, endangered, and sensitive species that thrive in this native ecosystem type.

Desired Conditions Target for Fish and Wildlife Habitat Condition: 40% change occurs across 10% of the landscape area by FY19.

1. Habitat improvement/fuel reduction will occur via the treatment of undesirable brush species with herbicide. This treatment creates more open forest stands and favorable conditions for wildlife species. Post herbicide treatment evaluations will be used to measure the effectiveness for control of undesirable species.
2. Thinning of small diameter trees will create more open stands and more favorable conditions for grasses and forbs to grow, improving habitat for wildlife species including threatened and endangered species. Effectiveness of thinning will be measured by meeting the desired basal area remaining on site after treatment.
3. Longleaf restoration is a primary long-term landscape goal of the proposal. Longleaf restoration (cutting off-site pine species and planting of longleaf pine) allows for the native resilient upland fire maintained ecosystem to return to the landscape. Effectiveness of longleaf pine restoration is measured by adequate stocking recorded during survival checks. This longleaf restoration metric is pass (100% effective – Good) or fail (not certified for number of longleaf seedlings needed to be adequately stocked – Poor).

Treatment	Metric	FY14 Goal	FY19 Goal
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Habitat Improvement with Herbicide	Treatment Effectiveness	75% to 100%	70% to 100%
Thinning	Desired Basal Area Met	85% to 100%	85% to 100%
Longleaf Restoration	Certification of Seedling Survival	100% = certified	100% = certified

Project Level Scoring

Treatment	Completed Acres	Project Rating	% Project Area Complete
Habitat Improvement w/ Herbicide	7,381 acres with 85% effectiveness	Good	105%
Thinning	3,486 acres with 95% BA met	Good	20%
Longleaf Restoration	408 acres certified stocked	Good	7%

Good = 75% or more of implemented treatments result in measurable progress towards individual **project-level** objectives according to stated metrics.

Landscape-scale Scoring

- Good = Expected progress is being made towards Desired Conditions across over 1% or more of the CFLR landscape area.
- Fair = Expected progress is being made towards Desired Conditions across .5% to 1% of the CFLR landscape area
- Poor = Expected progress is being made towards Desired Conditions across 0% to .5% of the CFLR landscape area

Treatment	Completed Acres	Landscape Rating	% Landscape Treated
Habitat Improvement w/ Herbicide	7,381 acres with 85% effectiveness	Good	2%
Thinning	3,486 acres with 95% BA met	Fair	1%
Longleaf Restoration	408 acres certified stocked	Poor	< 1%

Note: The University of Southern Mississippi (USM) has entered into Challenge Cost Share Agreements with the De Soto Ranger District. These agreements will utilize the skill and expertise of this nearby institution to monitor and study the effects of thinning, longleaf restoration, and pitcher plant bog restoration identified in our CFLR Proposal. USM was part of the collaborative team for the De Soto CFLRP proposal and now play a greater role in monitoring effects on the landscape. The monitoring of CFLRP and high priority accelerated ecosystem restoration activities in these agreements has been designed to provide descriptive data for tracking and analyses of project effectiveness.

USM will collect data from shared monitoring points on De Soto Ranger District. These monitoring points are in areas planned for CFLR and high priority accelerated ecosystem restoration activities. Soil samples will be collected to conduct and provide analyses for organic matter, total nitrogen, extractable phosphorus, pH, moisture content, particle size, and other parameters requested by the Forest Service as the project progresses.

Data will also be collected and analyzed from monitoring sites with regard to vegetation structure and composition including but not limited to species identification, species diversity, species richness, canopy cover, litter type and depth, stem counts, and herbaceous understory cover. Photo points are also utilized as part of the monitoring process.

As of now, only baseline data has been collected. Treatments will begin to be applied to areas set up for monitoring in the coming year. Results of this monitoring will be used to support or modify current and future treatments on the landscape and serve as an indicator of wildlife habitat improvement based on observable changes through the longleaf ecosystem restoration process, bog restoration work, and associated hazardous fuel reduction.

Invasive Species

Desired Conditions Target for Landscape Scale Invasive Species Severity: 1% of the CFLR landscape area was restored by reducing invasive species severity (preventing, controlling, or eradicating targeted invasive species) to meet desired conditions by FY19.

1. An inventory of roads, trails, and openings across the landscape will be completed and updated for cogongrass, a nonnative invasive plant species as part of the overall landscape plan to protect the integrity and function of native ecosystems by not allowing nonnative invasive plants to dominate the landscape. Success of inventory will be measured by acres completed toward the goals of the proposal.
2. Cogongrass will be treated with herbicide to restore native species composition on roads, trails, and openings. Effectiveness of treatment will be evaluated and recorded in the national database. This percentage will be the metric for evaluated effectiveness in this report.

Treatment	Metric	FY14 Goal	FY19 Goal
Cogongrass Inventory	Acres Inventoried - Roads, Trails, Openings	405 acres	810 acres
Cogongrass Treatment	Effectiveness of Treatment on Acres Inventoried	75% to 100%	70% to 100%

Project Level Scoring

Treatment	Completed Acres	Project Rating	% Project Area Complete
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Cogongrass Inventory	439 acres	Good	54%
Cogonrass Treatment	439 acres with > 75% effectiveness	Good	54%

Good = 75% or more of implemented treatments result in measurable progress towards individual **project-level** objectives according to stated metrics.

Landscape-scale Scoring

- Good = Expected progress is being made towards Desired Conditions toward > 1% of the CFLR landscape area.
- Fair = Expected progress is being made towards Desired Conditions toward 0.1% to 1% of the CFLR landscape area
- Poor = Expected progress is being made towards Desired Conditions toward 0% of the CFLR landscape area

Treatment	Completed Acres	Landscape Rating	% Landscape Treated
Cogongrass Inventory	439 acres	Fair	< 1%
Cogonrass Treatment	439 acres with > 75% effectiveness	Fair	< 1%

Current Project-scale Evaluation

Ecological Indicators	Datasets and/or databases of records used	Project Level Good, Fair, Poor and (%) treatments resulting in measurable progress as defined above	Are you achieving your CFLRP objectives? (Y/N)	If NO, briefly explain...
Fire Regime Restoration	FACTS, Feat-Firemon Integrated (FFI) Fire Effects Monitoring Database, Fuels Treatment Effectiveness Database	Good	Yes	
Fish and Wildlife Habitat Condition	FACTS, Post-treatment Evaluation Datasets	Good	Yes	
Watershed Condition*	N/A	N/A	N/A	N/A
Invasive Species	TESP-IS	Good	Yes	

Current Landscape Scale Evaluation

Ecological Indicators	Datasets and/or databases of records used	Good, Fair, Poor and (%) landscape across which progress is being made towards desired conditions	Are you achieving your CFLRP objectives? (Y/N)	If NO, briefly explain...
Fire Regime Restoration	FACTS, Feat-Firemon Integrated (FFI) Fire Effects Monitoring Database, Fuels Treatment Effectiveness Database	Good	Yes	
Fish and Wildlife Habitat Condition	FACTS, Post-treatment Evaluation Datasets	Fair	Yes	
Watershed Condition*	N/A	N/A	N/A	N/A
Invasive Species	TESP-IS	Fair	Yes	

*The treatments applied to project areas across the landscape will benefit water quality and watershed function but this was not addressed as a primary objective of the Longleaf Pine Ecosystem Restoration and Hazardous Fuels Reduction Proposal and primary treatments proposed were not linked to the WCATT. This indicator will not be used.