

CFLR Ecological Indicator Progress Report

Project Name: Missouri Pine-Oak Woodland Restoration Project

State: MO

Initial Landscape-scale Desired Conditions for the life of the project as defined by the Collaborative¹

The “landscape” should be the landscape identified in project proposals or subsequently approved proposal edits. See page three of the original guidance for further information.

The “Landscape Area” includes all NFS lands within the Missouri Pine-Oak Woodlands Restoration Project, 126,388 acres; this is a slight change in the NFS acres (+344 ac) in the proposal due to shifts in project area boundaries to match natural features and prescribed fire lines.

Desired Conditions Target for Fire Regime Restoration: **37 %** change (relative to the desired condition) occurs across **22%** of the landscape area by the end of 2014.

Goal: The Collaborative Woodland Group’s goal for the MoPWR project is to restore fire-mediated pine and pine-oak bluestem woodlands that are more resilient to anticipated climate changes. This common goal is supported by the goals for the individual members of the group. The Current River Hills Conservation Opportunity Area plan specifies “conserve large blocks of healthy forests and woodlands.” The Central Hardwoods Joint Venture Bird Conservation Plan targets 137,000 acres of pine bluestem woodland. Goal 1 of the MTNF 2005 Land and Resource Management Plan is to Promote Ecosystem Health and Sustainability by “Maintaining, enhancing, or restoring site-appropriate natural communities, including the full range of vegetation composition and structural conditions.” The Forest Plan specifies restoring 6 to 7 percent of fire-adapted open pine and pine-oak woodland on Forest lands in the Current River Hills. Goal 2 of the Forest Plan is to restore the FRCC 2 or 3 to class 1 with the objective of using prescribed fire to reduce hazardous fuels and improve FRCC on 45,000 acres or more per year.

The Forest has **planned** to conduct prescribed fire activities on approximately **75,466 acres**, with a return interval of 3 to 5 years for each burn unit. This is a change from the 64,000 acres identified in the proposal due to changes in individual prescribed fire units. Approximately 54% (**40,464 acres**) of these acres will have some form of silvicultural treatment prescribed designed to reduce canopy and basal area.

Full structural FRCC restoration will come from a combination of thinning and burning as shown on the table below.

¹ Desired condition targets should be written in the above format. Desired conditions that feed each “desired condition target” may vary widely and may not apply to every project in the landscape. Keep in mind the above “desired conditions targets” and desired conditions are outcomes, not out puts. Each desired condition target should be over the same landscape. For example, if the Fire Regime Restoration desired condition target is over all of the National Forest System lands within the landscape, the other three desired conditions target should be as well. If the Fire Regime Restoration desired condition target is over all ownerships in the landscape, the others should be as well.

| Fire Regime Condition Class Changes by Treatment Types For Typical Untreated *Open and Closed Woodlands, assuming basal area >100, Closed canopy, Fuel model 9, no previous fire within 10 years | | | | | | | | | | | | | |
|---|----------|---------|------|------|-------|----------|-------|---------|------|------|-------|--------|--------|
| Treatment | start ** | yr 1 | yr 2 | yr 3 | yr 4 | yr 5 | yr 6 | yr 7 | yr 8 | yr 9 | yr 10 | yr 11 | yr 12 |
| No treatment | III | III | III | III | III | III | III | III | III | III | III | III | III |
| Rx every 3 years | III | Rx III* | III | III | Rx II | II | III | Rx II | II | II | Rx II | II | Rx I? |
| Rx every 6 years | III | Rx III* | III | III | III | III | Rx II | II | II | III | III | Rx II | II |
| Rx every 12 years | III | Rx III* | III | III | III | III | III | III | III | III | III | III | Rx III |
| Thin only | III | Th III | III | III | III | III | III | III | III | III | III | III | III |
| Thin and burn 3 yrs | III | ThRx II | II | II | Rx II | II | II | Rx I | I | I | Rx I | I | I |
| Thin and burn 6 yrs | III | ThRx II | II | II | II | III | Rx II | II | II | II | II | Rx I | I |
| Thin and burn 12 | III | ThRx II | II | II | II | III | III | III | III | III | III | III | Rx II |
| Color Legend | | | | | | | | | | | | | |
| * Can go to FRCC II IF fire intensity is hot enough to reduce ground fuels by >80%, and remove/open understory by moving BA to < 80. **Start assumes woodland is previously untreated and dense overstocked | | | | | | FRCC=III | | FRCC=II | | | | FRCC=I | |

Desired Condition: Changes to FRCC from a 3 to 2 or 1 will occur on 60% (75,466 acres) of the landscape. Shift FRCC 3 to 1 on approximately 32% (40,464 acres) of the landscape and FRCC 3 to 2 on approximately 28% (35,000 acres) of the landscape.

From FY 12 to FY 14, **28,246 acres** of prescribed fire have been completed across the landscape. This represents 37% change in the DC and 22% of the NFS “landscape” that will be under prescribed fire management for shortleaf pine, pine-oak and oak woodland communities.

Wildland Urban Interface (WUI) acres account for 34,701 acres within the CFLRP landscape. To date, 2,476 acres have been treated by prescribed fire and 863 acres of mechanical.

Expected Progress toward Desired Condition in 3 years:

- Good = Expected progress is being made towards Desired Conditions across **4%** of the CFLR Landscape area (Relative to the desired condition – 3,087 acres with over and mid-story treatments with one or two burn entries divided by 75,466).
- Fair = Expected progress is being made towards Desired Conditions across **33%** of the CFLR Landscape area (Relative to the desired condition – 25,421 acres with prescribed burn ≤2 times divided by 75,466)
- Poor = Expected progress is being made towards Desired Conditions across **62%** of the CFLR Landscape area (Relative to the desired condition – 46,958 acres not yet implemented divided by 75,466)

Note: Prior to receiving the CFLRP funding the Forest was implementing restoration of shortleaf pine in the Pineknott and Cane Ridge Project areas. Thinning and prescribed fire begun in 2003. If these acres are counted, progress toward improved FRCC would be significantly higher.

Desired Conditions Target for Fish and Wildlife Habitat Condition: **80 %** change (relative to the desired condition) occurs across **55%** of the landscape area by 2014.

Goal: As described in the proposal, at least 82 breeding bird species, 47 migrant birds and 87 overwintering birds occur in the project area. Collaborators hope to reestablish Bachman’s sparrow and brown-headed nuthatch into the project area by the end of ten years, and the US Fish and Wildlife Service will assess the habitat feasibility of reintroducing the federally endangered red cockaded woodpecker as restoration progresses; these are species considered in need of immediate management attention by Partners in Flight, an international landbird conservation partnership (Rich et. al. 2004). Other target wildlife species benefiting from restoring pine-oak bluestem woodlands include:

| | | |
|--------------------------|--------------------------|-------------------------|
| Bachman’s sparrow | Brown-headed nuthatch | Red cockaded woodpecker |
| Blue-gray gnatcatcher* | Yellow-breasted chat* | Eastern Wood-pewee* |
| Chuck-Will’s-widow | Blue-winged warbler | Orchard oriole* |
| Field sparrow* | Eastern Tiger salamander | Wild turkey |
| Great Crested flycatcher | Summer tanager | White-eyed vireo* |
| Pine warbler | Bewick’s wren* | Northern bobwhite |
| Pygmy rattlesnake | Copperhead | Ornate box turtle |
| Red-headed woodpecker* | Prairie warbler* | Eastern towhee |
| Western Glass lizard | Red bat | Indiana bat |

Desired Condition: Improve canopy openness, reduce basal area and increase herbaceous ground cover in savanna, open and closed woodlands communities on 55% (40,464 acres) of the treated landscape.

To date a total of 32,550 acres of woodland structure and understory composition has been improved through prescribed fire (28,246) and/or silvicultural activities (4,304 acres, Commercial Thinning, Precommercial Thinning, Group Selections, Salvage Cut, Seed-tree and Shelterwood). Since 2012, 240 acres have had an over-story treatment and prescribed fire treatment and 10,914 acres of prescribed fire have been completed where silvicultural treatments are currently planned but not implemented.

| Natural Community Types | % Canopy | Basal area | Ground layer | % Ground Cover | % Desired Community Types in Treated Landscape |
|-------------------------|----------|------------|---|---------------------------|--|
| Savanna | 10-30 | <30 | Grassland, sedge and forb cover | 90 – 100 grasses dominant | 2% |
| Open Woodland | 30 - 50 | 30 - 50 | Grass, sedge and forb cover; little accumulated leaf litter | 60 – 80 grasses dominant | 55% |
| Closed woodland | 50 – 80 | 50 - 90 | Shallow leaf litter; mixed grasses, sedges and herbs | 80 - 100 | 5% |
| Upland Forest | 80 – 100 | 80 – 100 | Moderately deep leaf litter | 50 – 70 | <1% |

Expected Progress toward Desired Condition in 3 years:

- Good = Expected progress is being made towards Desired Conditions across **27%** of the CFLR Landscape area (Relative to the desired condition – 11,154 acres of prescribed fire with planned mechanical completed divided by 40,464 acres of planned mechanical and prescribed fire acres planned).
- Fair = Expected progress is being made towards Desired Conditions across **42%** of the CFLR Landscape area (Relative to the desired condition – 17,092 acres prescribed fire divided by 40,464 acres)
- Poor = Expected progress is being made towards Desired Conditions across **30%** of the CFLR Landscape area (Relative to the desired condition – 12,218 acres planned and not implemented with prescribed fire divided by 40,464.)

Desired Conditions Target for Watershed Condition: **TBD %** change (relative to the desired condition) occurs across **TBD%** of the landscape area by ___ date.

Goal: The Current River Hills contain two nationally significant rivers, each designated as Outstanding National Waters requiring, by law, exceptional water quality standards to protect the associated exceptional fish and wildlife populations. A primary desired outcome of restoration activities is to recover deep rooted warm season grass and forb groundcover. This should improve soil moisture capacity, thereby decreasing precipitation runoff and allowing for increased percolation, yet slow release, of rainwater into the subsurface aquifer. Soil change studies (Luckow 2000) on the Ouachita National Forest show that soil moisture capacity increases soil carbon and nutrient cycling 15 years after achieving restoration of shortleaf pine bluestem woodlands. Restoration will likely reduce gravel entering the Current River, which may benefit the Current River watershed and improve habitat for the threatened Ozark hellbender.

The Forest identified four priority watersheds in the CFLRP project area. The four watersheds include Big Barren Creek, Headwaters Big Barren Creek, Little Barren Creek, and Lower Pike Creek all are tributaries to the Lower Current River.

Desired Condition: The Forest and collaborative has not settled on a measurable desired condition for this CFLRP. Currently the forest is claiming soil and watershed improvement accomplishments on all prescribed fire acres in Management Area 1.1 and 1.2 and some mechanical treatments within the CFLRP project acres. This approach results in 21,574 acres of S&W-RSRC-IMP to date. The Forest is currently working on a monitoring protocol for soil and water as well.

Desired Conditions Target for Landscape Scale Invasive Species Severity: **55 %** of the CFLR landscape area was restored by reducing invasive species severity (preventing, controlling, or eradicating targeted invasive species) to meet desired conditions by the end of 2014.

Goal: The most serious invasive species locally are sericea lespedeza and spotted knapweed with Japanese stilt grass becoming a growing threat. These are pervasive along roadsides throughout the project area and are poised to spread throughout Ozark woodlands in the absence of the highly competitive and resilient grass-forb groundcover associated with higher-quality restored pine and oak woodlands. The strategy is to outpace the slow spread of these exotics by restoring groundcover diversity before exotics have a chance to spread. At the time the MoPWR proposal was submitted the Forest did not have a complete inventory of the invasive species and reported that 200 acres would be treated over the 10 year period of the project based on the best estimates at the time. The Forest has since increase the amount of inventoried and mapped invasive plant population in the project area and plans to finish mapping by the end of 2017.

Desired Condition: Control (eradicate, reduce and contain) 80% of the current mapped and inventoried non-native and invasive plant infested acres.

To date, 535 distinct populations of invasive plants have been mapped, representing 16 invasive species totaling 704 acres of infestation. To date, 467 acres have been treated with herbicide application (includes 78 acres of retreatments).

Expected Progress toward Desired Condition in 3 years:

- Good = Expected progress is being made towards Desired Conditions across **69%** of the CFLR Landscape area (Relative to the desired condition – 704 infested acres*80%=563 acres divided. 389 acres of initial herbicide treatments divided by 563 acres).
- Poor = Expected progress is being made towards Desired Conditions across **31%** of the CFLR Landscape area (Relative to the desired condition –Remainder of untreated NNIP infestations)

Scoring for National Reporting

Landscape-scale scoring

Few (if any) CFLR-funded Landscapes propose to meet every proposed desired condition on every acre or achieve landscape scale objectives through the mechanical treatment of every acre within their landscape boundary. Rather, multiple projects with multiple objectives (fire risk reduction, wildlife habitat improvement, stream restoration, etc) should facilitate meeting these broader objectives. Scoring at this level reflects the degree to which individual Landscapes are moving towards Desired Conditions at broader spatial extent. Landscape-scale scoring is conducted by the multi-party monitoring group at each Landscape.

- Good = Expected progress is being made towards Desired Conditions across ____% of the CFLR landscape area.
- Fair = Expected progress is being made towards Desired Conditions across ____% of the CFLR landscape area
- Poor = Expected progress is being made towards Desired Conditions across ____% of the CFLR landscape area

“Expected progress” will be defined using 5 year benchmarks for FY2010 projects and 3 benchmarks for FY2012 for each DC based on a percentage of the lifetime outcome specified in each Landscape’s proposal.

Current Project-scale Evaluation (Based on the Collaborative's landscape scale monitoring)

| 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 | Good 22% of Landscape | Y | N/A |
| Fish and Wildlife Habitat Condition | WIT | Good 55% of Landscape | Y | N /A |
| Watershed Condition | FACTS | NA | Y | N/A |
| Invasive Species | TESP, FACTS | Good 55% of Landscape | Y | N/A |

Narrative (optional):

Project-scale scoring²

Each management action funded through CFLR will have its own project-level objectives that are designed to contribute to achieving Desired Conditions at larger scales. Project-scale scoring should reflect how well the results of an individual management activity met the objectives for that project. Individual projects may not meet every desired condition of the CFLRP project. Project-scale scoring is conducted following completed management activities by the multi-party monitoring group at each Landscape.

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

Current Project-scale Evaluation (Based on and aggregation of the Collaborative’s project level monitoring)

| 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 | Good – 4% Fair – 33% Poor – 62% | Y | N/A |
| Fish and Wildlife Habitat Condition | FACTS/WIT | Good – 27% Fair – 42% Poor – 30% | Y | N/A |
| Watershed Condition | FACTS | NA | Y | N/A |
| Invasive Species | TESP | Good – 69% Poor – 31% | Y | N/A |

Narrative (optional):

² An individual activity might not need to lead to a fully restored acre (for example), but if it sets the landscape up for the next treatment it may still get a good rating. For example if a successful thinning doesn’t restore a fire regime, but it sets up landscape for subsequent burns that might, it could still receive a “good” rating.