CFLR Ecological Indicator Progress Report

Project Name: Southern Blues **State: OR**

Reporting period FY11-14

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

Assumptions

- Southern Blues Restoration Coalition Collaborative Forest Landscape Restoration Program Proposal lists the first of four restoration goals to be: "restore landscape resiliency" in response to a perceived increase in uncharacteristic levels and severity of wildfire and insect disturbances. This is consistent with the Ecological Outcome Measure of Fire Regime Restoration.

- The total CLFRP landscape acres are 690,725. Total operable Forest Service acres in this landscape are 483,245. This will be used as the "operable landscape area".

- The project expected treatment area "goal" is to treat 271,980 acres over the 10-year period (56% of the operable landscape area).

- Scoring for the landscape Fire Regime Indicator:
  Good = Expected progress is being made towards Desired Conditions across more than 30% of the expected treatment area (17% of the operable landscape area).
  Fair = Expected progress is being made towards Desired Conditions across 25% to 30% of the expected treatment area (14 to 17% of the operable landscape area).
  Poor = Expected progress is being made towards Desired Conditions across less than 25% of the expected treatment area (14% of the operable landscape area).

- Approximately 50% of the mechanical treatments will occur during the first and second 5-year period, and 80% of the prescribed burning treatments will occur during the second 5-year period resulting in greater active treatment area during the last 5-year period.

- Scoring refers to active treatment only and does not infer benefit onto adjacent non-treated areas.

Desired Conditions Target for Fire Regime Restoration: **100**% change (relative to the desired condition) occurs across **17**% of the operable landscape area by **FY 2014**.

The total operable landscape acres in this landscape are 483,245. Over the 10-year life of the project, to restore landscape resiliency the goal is to treat 271,980 acres. Through FY2014 88,409 ac have been mechanically treated, and 21,697 have received prescribed burning. Because some prescribed burning occurred on the same acres, and because it often does not alter the seral stage, it will not be counted in this assessment. The 88,409 mechanical acres will be used. These represent 33% of the goal acres and 18% of the total operable landscape acres.

Expected Progress toward Desired Condition in 5 years:

- Good = Expected progress is being made towards Desired Conditions across 17% or more of the operable National Forest CFLR landscape area.
- Fair = Expected progress is being made towards Desired Conditions across 14 to 17% of the operable National Forest CFLR landscape area.
- Poor = Expected progress is being made towards Desired Conditions across less than 14% of the operable National Forest CFLR landscape area.

To date 88,409 acres have been mechanically treated, representing a 33 percent accomplishment of the goal acres (18% of the operable landscape area). Using the expected progress above, this falls in the Good range. This assumes all treatments improved Fire Regime Condition Class (FRCC), a measure of departure from the historic range of variation, and hence sustainability. In fairness it should be noted the collaborative has set a very high treatment goal (271980 of 483245 operable landscape acres, or 56% of the operable landscape).

Desired Conditions Target for Fish and Wildlife Habitat Condition: **100**% change (relative to the desired condition) occurs across **17**% of the landscape area by **FY 2014**.

The original project proposal stated these wildlife objectives:

Vegetation restoration will vary by forest type creating a mosaic of habitats for wildlife. Habitat for old growth dependent species such as white headed woodpecker, pileated woodpecker, and goshawk will be developed more rapidly with proposed treatments. Forage habitat for big game will be improved by underburning and removal of encroaching conifers and juniper in meadows and shrub lands. Restoration of aspen, mountain mahogany, and cottonwood habitats by fencing, conifer removal, and underburning will improve habitat for numerous species including deer, elk, and neotropical bird species.

Mechanical and prescribed burning treatments will meet much of this indicated need for wildlife habitat improvement. Accordingly, improvements in Fire Regime resiliency are assumed to mean improvements in wildlife habitat. The accomplishment for this indicator is therefore also reported as 33 percent, or Good.

There were no specific Fish Habitat goals in the project proposal.

Desired Conditions Target for Watershed Condition: **100**% change (relative to the desired condition) occurs across **17**% of the landscape area by **FY2014**.

In the original project proposal, watershed improvement goals are worded very vaguely. Removing an invasive fish species (carp) was emphasized.

Within the CFLR Project Area, there are 44 subwatersheds included in the assessment. National forest ownership within subwatersheds ranged from 7-100 percent. Assessment data came from the national forest so ratings apply only to the national forest lands in the subwatersheds. Overall watershed condition within the CFLRP subwatersheds was rated "good" (functioning properly) in 7 watersheds (16%) and "fair" (functional at risk) in 37 subwatersheds (84%). No subwatersheds were rated "poor" (impaired).

Aquatic Habitat

For aquatic habitat, 2 subwatersheds were rated in good condition (functioning properly), 22 rated as fair (functioning at risk) and 20 subwatersheds rated poor condition (impaired function) based on habitat quality, fragmentation and stream channel condition. Watersheds in "poor condition" for aquatic habitat largely reflect legacy (past) land uses (i.e. grazing, mining, logging), including fragmentation by roads, lack of large wood in channels, and altered channel morphology. Many of these conditions continue to persist long after the original impact. Very few projects have yet to be implemented that would directly improve aquatic habitat, at least at the subwatershed scale, and thus the initial ratings have not changed at this interim 2014 evaluation.

Riparian Vegetation

For the riparian vegetation indicator, 1 subwatersheds was rated in good condition (functioning properly), 38 rated as fair (functioning at risk) and 5 subwatersheds rated poor condition (impaired function) based on relative condition and departure from potential. As with aquatic habitat, riparian conditions also reflect legacy land uses no longer active or allowed (such as streamside logging). Very few projects have yet to be implemented that would directly improve riparian vegetation, at least at the subwatershed scale, and thus the initial ratings have not changed at this interim 2014 evaluation.

Roads and Trails

Within the CFLRP area, roads have been closed or decommissioned in several of the subwatersheds since the initial 2010 evaluation, causing an increase from 8 up to 9 subwatersheds rated in good condition (functioning properly), an increase from 24 up to 25 rated as fair (functioning at risk) and a decrease down from 12 to 10 subwatersheds rated poor condition (impaired function). This shows an improvement in the roads and trails indicator rating for 3 subwatersheds in the CFLRP area thus far.

Road management is an ongoing agency emphasis, with national direction for transportation analysis to identify a "sustainable" (economic, social, and ecological) road system, and years of investment to reduce road impacts. Ongoing challenges include desire for public access for various purposes, needs for access for resource management and protection, and diminished funding for maintenance and storage or decommissioning of unneeded roads.

Watershed improvements from Fire Regime and Wildfire

Based on the 2010 WCF evaluation for fire regime and wildfire, 11 subwatersheds were rated in good condition (functioning properly) and 33 rated as fair (functioning at risk). No subwatershed and 5 rated in poor (impaired function) condition. This attribute rating is based on the percent of the forested area that is considered to be overstocked, meaning that conifer stands contain higher densities of trees relative to historic benchmarks, heightening the forest's susceptibility to insects and disease. Further, the higher stand densities create conditions that are highly to extremely susceptible to crown fire, where ladder fuels (multiple tree layers) exist to carry fire into tree crowns.

Within the CFLRP area, several NEPA projects have been completed to treat overstocked stands and to move forested communities closer to desired conditions (closer to HRV). Since the initial 2010 evaluation, these vegetation treatments have led to numerous acres across the landscape with improved FRCC thus improving watershed condition.

Evaluation for Indicator Progress Report (FY14) for Watershed Condition

In terms of evaluation progress in watershed conditions for this progress report, the focus will be on the WCATT Road and Trail (emphasis on open road density) and Fire Regime and Wildfire Indicator ratings. The following discussion summarizes desired conditions, goals, and progress towards desired conditions as of FY2014.

Desired Conditions Target for Watershed Condition at Landscape-scale:

- Improvements in open road density attribute (part of the WCATT Road and Trail Indicator rating) in 17% of the subwatersheds within the CFLRP landscape (6 of 36 subwatersheds) by the end of FY 2014.

- Improvements in fire regime and wildfire indicator in 17% of the operable landscape (30% of the expected treatment area) within the CFLRP area by the end of FY 2014.

Expected Progress toward Desired Condition in 5 years:

Road and Trail Attribute:

- Good = Expected progress is being made towards Desired Conditions across **17%** or more of the subwatersheds in the CFLR landscape area.
- Fair = Expected progress is being made towards Desired Conditions across **14% to 17%** of the subwatershed in the CFLR landscape area
- Poor = Expected progress is being made towards Desired Conditions across less than **14%** of the subwatershed in the CFLR landscape area

Fire Regime and Wildfire Indicator:

- Good = Expected progress is being made towards Desired Conditions across **17%** or more of the operable National Forest CFLR landscape area.
- Fair = Expected progress is being made towards Desired Conditions across **14% to 17%** of the operable National Forest CFLR landscape area.
- Poor = Expected progress is being made towards Desired Conditions across less than **14%** of the operable National Forest CFLR landscape area.

Calculations/Evaluation/Assumptions

Road and Trail Indicator (Weighted at 70% of Watershed Condition Evaluation):

a. **17%** of the subwatersheds within the CFLRP landscape by the end of FY 2014. – The SBRC (Southern Blues Restoration Coalition) Watershed/Aquatic Monitoring Subcommittee identified several of the 36 subwatersheds that could potentially benefit from improvements in roads through FY2014 (based on the Malheur NF Accelerated Vegetation Treatment Planning Schedule – Silvies, Jane, Damon, Starr, Soda-Bear Planning Projects). The subwatersheds are Stancliffe Creek-Silvies River, Lower Trout Creek, Lower Poison Creek, Van Aspen Creek-Silvies River, Van Aspen Creek-Silvies River, Shirttail Creek, Middle Bear Creek and Lower Bear Creek sub-watersheds.

b. **Metrics:** WCATT Road and Trail Attributes. For each of the subwatersheds compare Open Road Density at end of FY10 to ratings at end of FY14. Proximity to Water and Mass Wasting are not expected to Change. A Condition rating rule set is found in (Potyondy and Geier 2010) the Forest Service Watershed Condition Classification Technical Guide, October 25, 2010, p. 43.

The table below displays the number of subwatersheds in each of the three categories for the Open Road Density attribute (based on GIS analysis of open road density with the CFLRP area). To date significant progress (change in WCATT Indicator Rating for Open Road Density) has been made in 3 subwatersheds (see Table below). This results in only 8% of subwatersheds showing significant progress, and using the expected progress described above, fall into the Poor range.

Attributes	FY10 - Rating (1=Good; 2=Fair; 3=Poor)	FY14 - Rating (1=Good; 2=Fair; 3=Poor)
Open Road Density	Number of subwatersheds 8 Good, 24 Fair, 12 Poor (Good: <1 mi/mi squared OR locally determined) (Fair: 1 - 2.4 mi/mi squared OR locally determined) (Poor: >2.4 mi/mi squared OR locally determined)	Number of subwatersheds 9 Good, 25 Fair, 10 Poor (Good: <1 mi/mi squared OR locally determined) (Fair: 1 - 2.4 mi/mi squared OR locally determined) (Poor: >2.4 mi/mi squared OR locally determined)

Fire Regime and Wildfire Indicator (Weighted at 30% of Watershed Condition Evaluation):
To date 88,409 acres have been mechanically treated, representing a 33 percent accomplishment of the goal acres (18% of the operable landscape area). Using the expected progress above, this falls in the Good range. This assumes all treatments improved Fire Regime Condition Class (FRCC), a measure of departure from the historic range of variation, and hence sustainability. In fairness it should be noted the collaborative has set a very high treatment goal (271,980 of 483,245 operable landscape acres, or 56% of the operable landscape). Both this goal and achievement at the landscape scale to date are far more than any other CFLRP in the Region, and perhaps in the country.

We assume the improvement in Fire Regime Condition Class from our vegetation treatments and prescribed burning would reduce adverse effects from uncharacteristic wildfire, thus providing higher protection and maintenance of hydrologic function and watershed processes. Furthermore, vegetation treatments are designed to decrease the rate of HRV departure in forested and non-forested vegetative communities, which contribute to a more resilient landscape – this improves the ability of the National Forest resources to adapt the a changing climate. Overall, vegetation treatments would provide progress towards improvement in Watershed Condition Score for the Fire Regime and Wildfire Indicator (WCF 2011).

Overall Calculation -- the watershed condition ecological indicator is evaluated at being poor-good for the two indicators assessed (overall evaluation of FAIR) in terms of progress being made towards desired conditions. There is still a greater need for increased emphasis on other watershed/aquatic treatments across the landscape, such as treating hydrologically connected roads, culvert replacements, wet meadow restoration, headcut abatement, riparian thinning to enhance hardwood recruitment, juniper thinning, etc.

INVASIVE SPECIES

Desired Conditions Target for Landscape Scale Invasive Species Severity: 17.4% of the CFLR landscape area was restored by reducing invasive species severity (preventing, controlling, or eradicating targeted invasive species) to meet desired conditions by 2021 date. This ranks as Poor (High Severity) using the following criteria.

Good (Low Severity) – Treatment activities conducted to meet the Invasive species Desired Conditions result in an **average** restoration performance outcome of 67% – 100% across all invasive species treatment activities within the CFLR Landscape Area over the life of the CFLR Landscape. The **actual** number of acres restored is at least 67% of the **planned** number of acres restored across the entire CFLR Landscape Area.
Fair (Medium Severity) – Landscape activities conducted to meet the Desired Conditions result in an **average** restoration performance outcome of 34% – 66% across all invasive species treatment activities within the CFLR Landscape Area over the life of the CFLR Landscape. The **actual** number of acres restored is 34%-66% of the **planned** number of acres restored across the entire CFLR Landscape Area.
Poor (High Severity) – Landscape activities conducted to meet the Desired Conditions result in an **average** restoration performance outcome of 0% – 33% across all invasive species treatment activities within the CFLR Landscape Area over the life of the CFLR Landscape. The **actual** number of acres restored is less than 33% of the **planned** number of acres restored across the entire CFLR Landscape Area.

Desired Conditions

The Southern Blues Restoration Coalition CFLRP's desired condition/trend with regard to invasive plants was to have no net increase in invasive plant infested acreage. Over the 10 years, the program plans to restore 2,500 acres with a desired treatment efficacy of 50%.

Invasive Species Summary

From our achievements to date, the Invasive Species component scores Poor/High Severity as <33% of the planned number of acres restored across the entire CFLR landscape area has been treated. The value of 17.4% was derived by taking the percentage of infested acreage in the CFLR treated for invasive plants since 2012 and estimating an efficacy of 50%.

$$\frac{200 \text{ acres treated}}{574 \text{ acres infested}} \times 50\% \text{ efficacy} = 17.4\% \text{ desired conditions target for invasive species}$$

We do not have data on treatment efficacy at this point; however, 50% was used as an estimate as manual/mechanical treatment methods are partially effective.

Scoring well for invasive species is difficult at this point in time for the Southern Blues. Malheur National Forest is enjoined from using any herbicides to control invasive plants. This stems from a lawsuit and the subsequent decision from the United States District Court, which prohibited the use of herbicides and biological controls on all lands of the Malheur National Forest until an Environmental Impact Statement (EIS) is approved. We anticipate that we will be able to fully implement integrated weed management across the Forest in spring 2015.

During the summers of 2012-2014, we increased our manual/mechanical treatments of selected infestations to the extent practical, yet we are also aware that these inefficient and costly treatment methods are not sufficient. In the late summer 2014, the forest hired an Invasive Plants Specialist to coordinate and implement more efficient treatments. Assuming more treatment options become available, the efforts to attain the desired condition should improve within the CFLR landscape area in the future. Additionally, more effort towards prevention and early detection, rapid response (EDRR) are planned.

Scoring for National Reporting

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	If NO, briefly explain…
Fire Regime Restoration	FACTS, Haugo et al. 2015	Good	Y	
Fish and Wildlife Habitat Condition	FACTS, Haugo et al. 2015	Good	Y	Progress in landscape sustainability assumed to be progress in improving wildlife habitat.
Watershed Condition	WCAT and WCF	Fair	N	Need greater emphasis on and attention to this.
Invasive Species	FACTS	Poor	N	Need to complete EIS so herbicides can be used.

Project-scale scoring

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 = 70% or more of implemented treatments result in measurable progress towards individual **project-level** objectives.
- Fair = 30% - 70% of implemented treatments result in measurable progress towards individual **project-level** objectives.
- Poor = 30% or less of implemented treatments result in in measurable progress towards individual **project-level** objectives.

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	Good	Y	
Fish and Wildlife Habitat Condition	FACTS	Good	Y	
Watershed Condition	WCAT and WCF	Fair	N	Need greater emphasis on and attention to this.
Invasive Species	FACTS	Poor	N	Need to complete EIS so herbicides can be used.

Narrative:

Fire Regime: We assumed all mechanical treatments were effective at meeting objectives. Prescribed burning acres were not counted because some of them occurred on the same acres.

Fish and Wildlife: We assumed improvements in Fire Regime condition also meant improvements in wildlife habitat. From here on out, wildlife needs more focus and monitoring. The project proposal, for example, mentioned monitoring goshawk presence/absence.

Watershed: There is a great need for increased emphasis here.

Invasives: Invasive treatment accomplishment is expected to improve with completion of an EIS in 2015 that will allow herbicide use, currently enjoined.

Reference

Haugo, R., C. Zanger, T. DeMeo, C. Ringo, A. Shlisky, K. Blankenship, M. Simpson, K. Mellen-McLean, J. Kertis, and M. Stern. 2015 A new approach to evaluate forest structure restoration needs across Oregon and Washington, USA. Forest Ecology and Management 335:37-50.