CFLR Ecological Indicator Progress Report

Project Name: Selway-Middle Fork CFLRP Project   **State: Idaho**

Introduction

Land ownership in the project area is predominantly USFS (95%). A majority of this acreage (just over 68%) is designated wilderness under the Wilderness Act of 1964. Most of this wilderness lies within the Selway-Bitterroot Wilderness, with a portion of the Frank Church-River of No Return Wilderness comprising the southern tip of the project area. An additional 19.2% of the federally owned lands in the project area are designated roadless under the Idaho Roadless Rule of 2008. The three national forests in the project area are the Bitterroot National Forest (BNF), established in 1898, the Nez Perce National Forest (NPNF), designated in 1908, and the Clearwater National Forest (CNF), established in 1908.

The remaining 5% of land in the project area that is not under USFS management is a combination of private (3.5%) and state land (1.3%). Less than 1% of the project area is Bureau of Indian Affairs land held in trust, open water, Bureau of Land Management, and U.S. Fish and Wildlife Service property. The private lands in the project area that have been developed with dwelling or business structures are located in the wildland-urban interface (WUI), and are managed under specific county regulations for WUIs. While the Idaho Department of Fish and Game (IDFG) does not manage any land itself, the elk herd units in the project area are under the management of the IDFG.

For the purposes of reporting ecological indicators, we have analyzed the entire project area as well as the "frontcountry." Frontcountry portions of the project area are the areas where silvicultural treatments are most likely because these areas are outside wilderness and roadless. The frontcountry portions of the CFLR total 13% of the project area. Throughout this report we present comparisons of the Region 1 existing vegetation mapping program's (VMap) versions 12 and 14. A CBC modified[1] VMap version 12 was used during the creation of the ecological indicators by the CBC in 2012. To score the indicators for this report the CBC used a modified version of VMap 14. So, for the purposes of this report, VMap 12 represents vegetative conditions in 2012, and VMap v14 represents the current vegetative conditions across the basin.

Recent Happenings
During the last three years the following activities have influenced the scoring of ecological indicators:

Activity	Amount	% of the Project Area
Total Fires	199,128 acres	13.9%
Stand Replacing Fire	57,660 acres	4.0%
Silvicultural Treatments	2,840 acres	0.2%
Decommissioned Roads	86.3 miles	9.3% of roads in the project area
Culverts Replaced	13 culverts	
Chemical Weed Treatments*	29,441 acres	2.0%
Biological Control Releases*	59 releases of 12,000 individuals	

* No 2014 data incorporated

Wildfire has been the dominant vector of change for vegetation across the project area in recent years. Figures 1 and 2 present the wildfires across the project area for 2012 to 2014. Note how the fires have primarily been confined to wilderness backcountry areas. This spatial preference has resulted in vegetative differences between the back and frontcountry that can be seen in several of the ecological indicators below.   It should be noted that while wildland fire in the frontcountry does result in a positive trend for some ecological indicators as reported here, wildfires in the frontcountry watersheds do not have a positive influence on our social or economic targets and restoration outcomes.   Fire is; however, the primary restoration tool for wilderness and roadless areas.

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[1] The CBC modified VMap v12 and v14 to account for fires and silvicultural treatments since the date of the imagery used to create VMap.
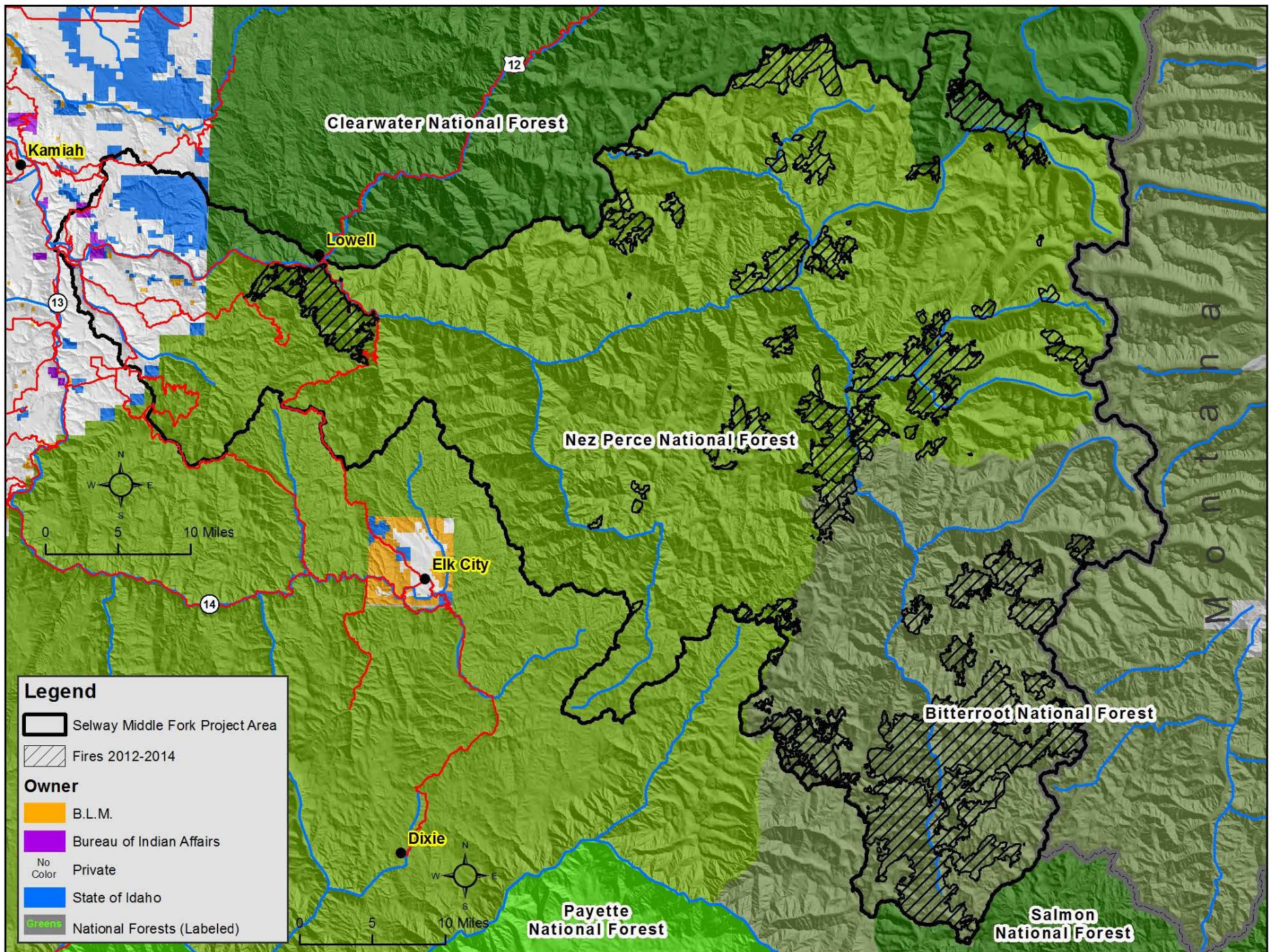
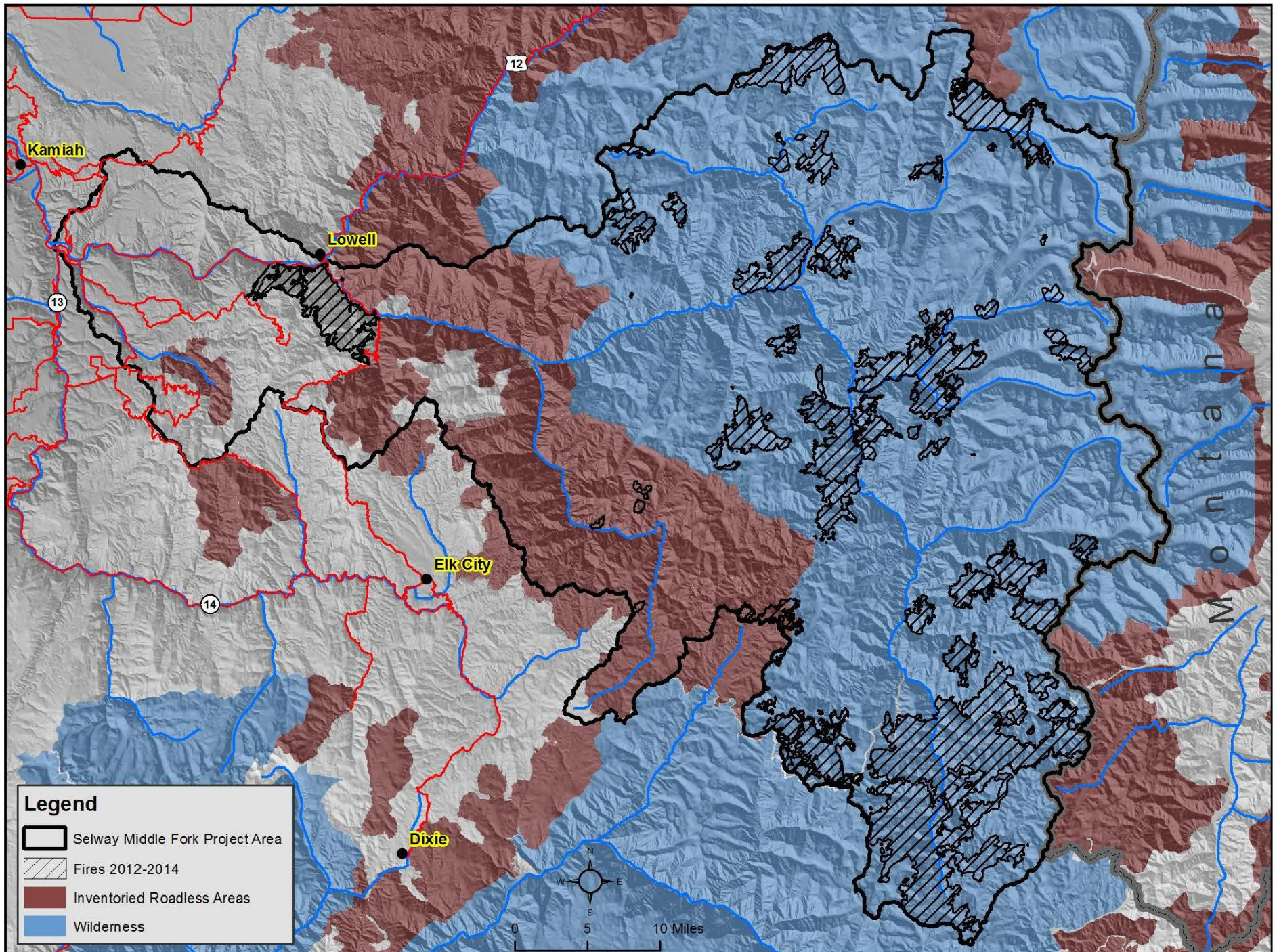**Figure 1 Selway Middle Fork Project Area land ownership**

Legend

Selway Middle Fork Project Area

Fires 2012-2014

Owner

B.L.M.

Bureau of Indian Affairs

No Color — Private

State of Idaho

Greens — National Forests (Labeled)

Clearwater National Forest

Nez Perce National Forest

Bitterroot National Forest

Payette National Forest

Salmon National Forest

Kamiah

Lowell

Elk City

Dixie

Montana

0 5 10 Miles

Legend

☐ Selway Middle Fork Project Area

▨ Fires 2012-2014

▨ Inventoried Roadless Areas

▨ Wilderness

Kamiah

Lowell

Elk City

Dixie

0   5   10 Miles

Montana

Figure 2 Inventoried Roadless and Wilderness Areas

Initial Landscape-scale Desired Conditions for the life of the project as defined by the Monitoring Advisory Committee

Desired Conditions Target for Fire Regime Restoration: 20% change (relative to the desired condition) occurs across 100% of the landscape area by 2018.

Cover Types
- Good = within 40% of average Historic Range of Variability (HRV)
- Fair = within 60% of average HRV
- Poor = outside 60% of average HRV

Size Classes
- Good = within 30% of average HRV
- Fair = within 50% of average HRV
- Poor = outside 50% of average HRV

Indicators
- Increase in seedling-sapling stands
- Reduction in medium size class stands
- Increases in lodgepole pine cover types
- Increases in ponderosa pine cover types

Desired Conditions Target for Fish and Wildlife Habitat Condition: 10% change (relative to the desired condition) occurs across 100% of the landscape area by 2018.

Management effectiveness at meeting desired conditions for landscape-scale wildlife habitat conditions would be scored as follows:
- Good = Open stands in the landscape above 70% of HRV midpoint
- Fair = Open stands in the landscape between 45-70% of HRV midpoint
- Poor = Open stands in the landscape below the existing 44% of HRV midpoint

Project level restoration activities would be scored as follows:
- Good = Open stands in the watershed at 51-100% of average HRV
- Fair = Open stands in the watershed at 31-50% of average HRV
- Poor = Open stands in the watershed below 30% of average HRV

Indicators
- Change in canopy cover
- Acres of habitat for Management Indicator Species
- Reduction in Riparian Habitat Conservation Area road densities
- Reduction of percent of stream road buffers
- Reduction or improvement in number of stream crossings
- Number of stream crossings with adjacent cross drain culverts
- Percent of streams with >80% overstory shade

Desired Conditions Target for Watershed Condition: 30% change (relative to the desired condition) occurs across 100% of the landscape area by 2018.

Landscape-Scale Desired Condition
Over 95% of watersheds within the project area will achieve a "Good" (Condition Rating 1 to 1.6) or better rating as assigned by the Watershed Classification Assessment Tracking Tool (WCATT) decision matrix.

Project-Scale Desired Condition
Restoration treatments implemented within a HUC6 watershed should improve the WCATT Indicator Rating by 0.3 for watersheds with a condition rating greater than 1.6 through activities affecting the Terrestrial Biological Indicators portion of WCATT.

Landscape- and Project-Scale Scoring
- Good = 90% of watersheds treated within one year maintain or improve in WCATT status score
- Fair = 60% of watersheds treated within one year maintain or improve in WCATT status score
- Poor = 30% of watersheds treated within one year maintain improve in WCATT status score

Indicators
The watershed ecological outcome measure utilizes WCATT and relies on updated scoring to provide information regarding response to restoration treatments.

Desired Conditions Target for Landscape-Scale Invasive Species Severity: 75% of the CFLR landscape area was restored by reducing invasive species severity (preventing, controlling, or eradicating targeted invasive species) to meet desired conditions by 2018.

Landscape-Scale Desired Condition
Formulating landscape desired conditions for non-native invasive species (NNIS) is difficult when the extent of new infestations is unknown. Part of the desired outcome for NNIS will include an update of the inventory for the project area. The desired condition for new invaders, predominantly in the roaded front country, is much more straightforward: aggressively deal with new invaders and provide rapid response for newly identified species. In addition, limit infestations of NNIS that do not already occur within the project area.

Landscape-Scale Scoring
Scoring targets for landscape mapping include:
- 50% of the project area mapped by year 3
- 75% of the project area mapped by year 6
- 100% of the project area mapped by year 10

Scoring targets for new invaders:
- No establishment of leafy spurge. Focus on early detection and aggressive response.
- No increase in acres of Dalmatian toadflax and rush skeletonweed. Eradicate by year 5.
- No net increase in yellow star-thistle. Reduce yellow star-thistle coverage by 10% by year 5.

Project Area Desired Condition
Treatment should not result in any increase of NNIS coverage in treatment areas. Treated areas should result in less coverage (acreage) in NNIS than pretreatment conditions.

Project-Scale Scoring

Each project will be scored as follows for NNIS:

- Good = Post-treatment NNIS coverage reduced by 60-100%
- Fair = Post-treatment NNIS coverage reduced by 30-60%
- Poor = Post-treatment NNIS coverage reduced by less than 30%, or any increase

Indicators

- Percent of project area mapped
- Reduction within existing infestations
- Number of new infestations within treated areas
- Establishment of native species following treatment

Scoring for National Reporting

Current Landscape-Scale Evaluation (Based on the Monitoring Advisory Committee'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	VMap v12 & 14 Forest Inventory & Analysis (FIA) Treatments Recent fires Oct. 2014 Landsat	**Good/Fair** 84% of HUC6s are within HRV for seed/sap stands. Cover Types PP - 37% = Poor ES-AF - 76% = Good GF-C - 156% = Fair DF - 63% = Fair L-DF - 0% = Poor LP - 52% = Fair	**Yes**	
Fish and Wildlife Habitat Condition	NHD Streams Roads Culverts/barriers Culverts replaced Road decommissioning VMap v12 & 14 Treatments Recent fires	**Good** Open stands at 80% of HRV average. 41 of 63 watersheds with increased habitat for flammulated owls. 47 of 63 watersheds with American marten habitat within the HRV (compared to 6 out of 63 in 2012).	**Yes**	
Watershed Condition	Watershed Condition Classes Culverts replaced Road decommissioning	**Good** All subwatersheds receiving treatments improved WCATT* score<table><tr><td>WCATT Rating</td><td>Avg. Score 2012</td><td>Avg. Score 2014</td></tr><tr><td>Good</td><td>1.22</td><td>1.21</td></tr><tr><td>Fair</td><td>1.80</td><td>1.70</td></tr></table>	**Yes**	
Invasive Species	Weed data from: USFS Idaho County Weed Control Nez Perce Tribe	**Fair** Failed to meet the 3-year target of 50% of the project area inventoried, but	**No**	Mapped 270,000 acres of the project area for a total of 390,000 acres inventoried (27% of project area). 3-year

	Private contractors Montana Conservation Corps Back Country Horsemen of NCI Selway-Bitterroot Frank Church Foundation Outfitters/Guides Private landowners Volunteers	aggressively treated priority weeds and new invaders.		target was 50%.

*WCATT scores were adjusted depending on number of culverts replaced and roads decommissioned.

Current Project-Scale Evaluation (Based on the Monitoring Advisory Committee'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	VMap v12 & 14 FIA Treatments Recent fires Oct. 2014 Landsat	**Poor** Seedling/Sapling stands in frontcountry at 48% of HRV average. Open stands in frontcountry at 21% of HRV average.	**No**	Good = within 30% of average HRV Fair = within 50% of average HRV Poor = outside 50% of average HRV
Fish and Wildlife Habitat Condition	NHD Streams Roads Culverts/barriers Culverts replaced Road decommissioning VMap v12 & 14 Treatments Recent fires	**Fair** Open Stands 29 HUC6s as 'Good" 18 HUC6s as 'Fair' 16 HUC6s as 'Poor'	**Yes**	
Watershed Condition	Watershed Condition Classes Culverts replaced Road decommissioning	**Good** 6 subwatersheds receiving treatments improved WCATT Scores	**Yes**	
Invasive Species	Weed data from: USFS Idaho County Weed Control Nez Perce Tribe Private contractors Montana Conservation Corps Back Country Horsemen of NCI Selway-Bitterroot Frank Church Foundation Outfitters/Guides Private landowners Volunteers	**Good** 82% control on areas chemically treated 4 sites with 100% control Treatment Priorities 1. Eradicate new invaders 2. Eradicate satellite populations 3. Control 4. Contain 5. Reduce	**Yes**	

Narrative

Fire Regime Restoration

Figure 3 presents the percent of the forested area presently in a seedling/sapling size class. The predominance of wildfires in the wilderness has affected size class distribution in those areas when compared to the frontcountry. The VMap v12 data points represent 2012 conditions while the VMap14 points incorporate the three fire seasons' worth of disturbance plus the relatively small amount of silvicultural treatment in the roaded frontcountry.
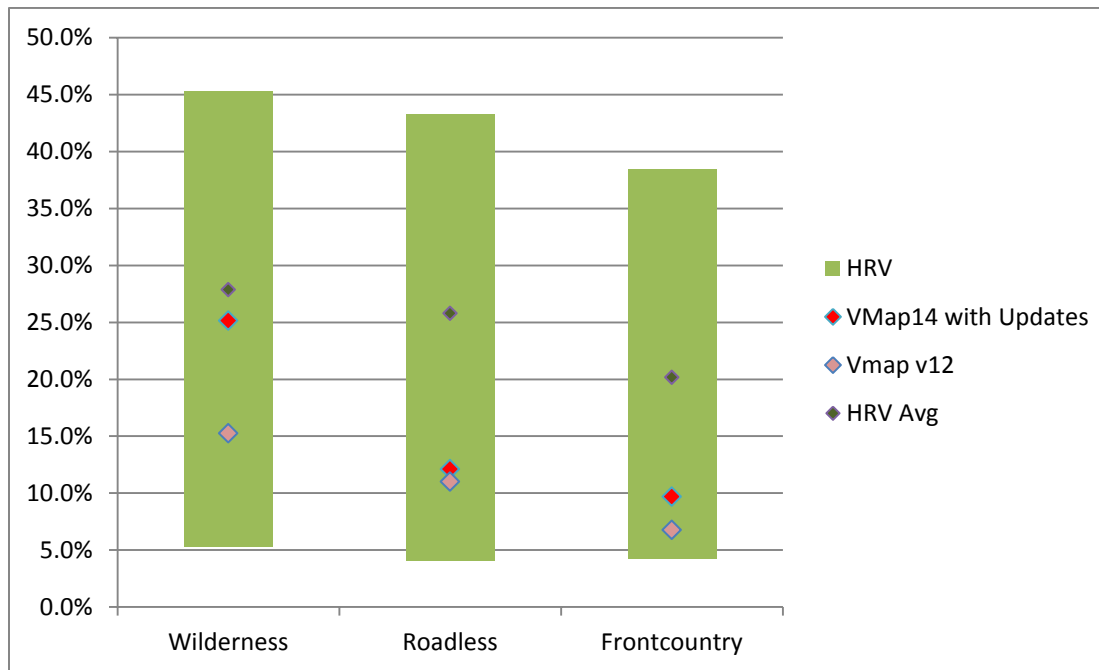

Figure 3 Seed/Sap Stands by Wilderness, Roadless, and Frontcountry

Similar to the seedling/sapling results above, significant levels of natural disturbance over the past three years has affected change in canopy cover across the forested portions of the project area. Figure 4 presents the percent of the forested area presently in an open canopy condition (canopy cover <40%). Again, the greatest shifts were seen in the wilderness portions of the project area.
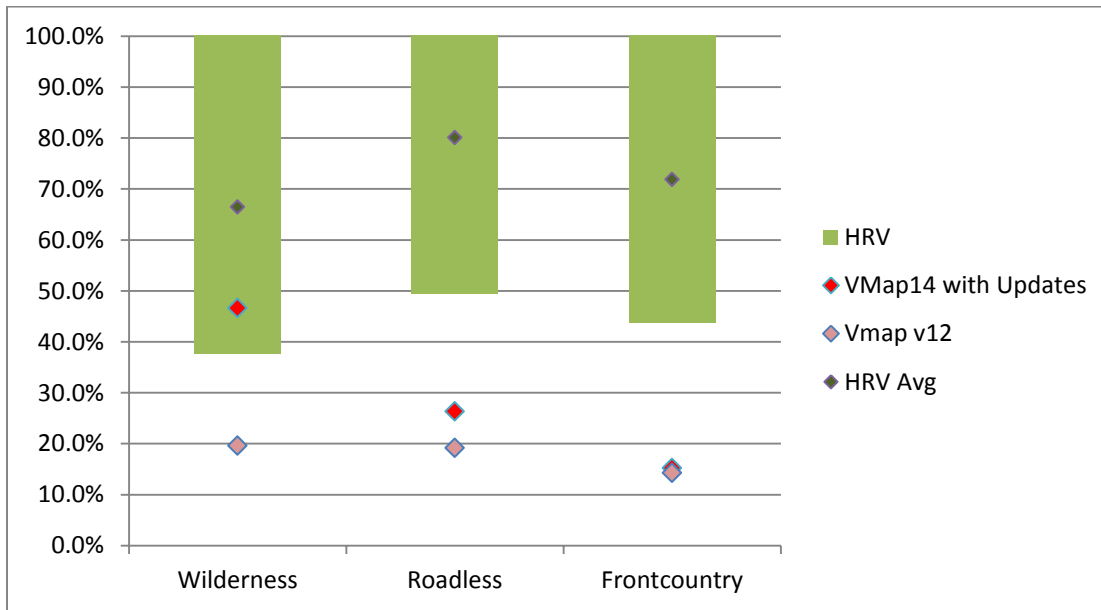
Figure 4 Open Stands (<40% canopy cover) by Wilderness, Roadless, and Frontcountry

Figure 5 presents the same data as Figure 4, but displayed by subwatershed (HUC6), grouped by wilderness, roadless (IRA), and frontcountry. HUC6s in the wilderness have experienced much more change than frontcountry HUC6s. Several wilderness HUC6s have had greater than 75% of their area burned in the last three years.
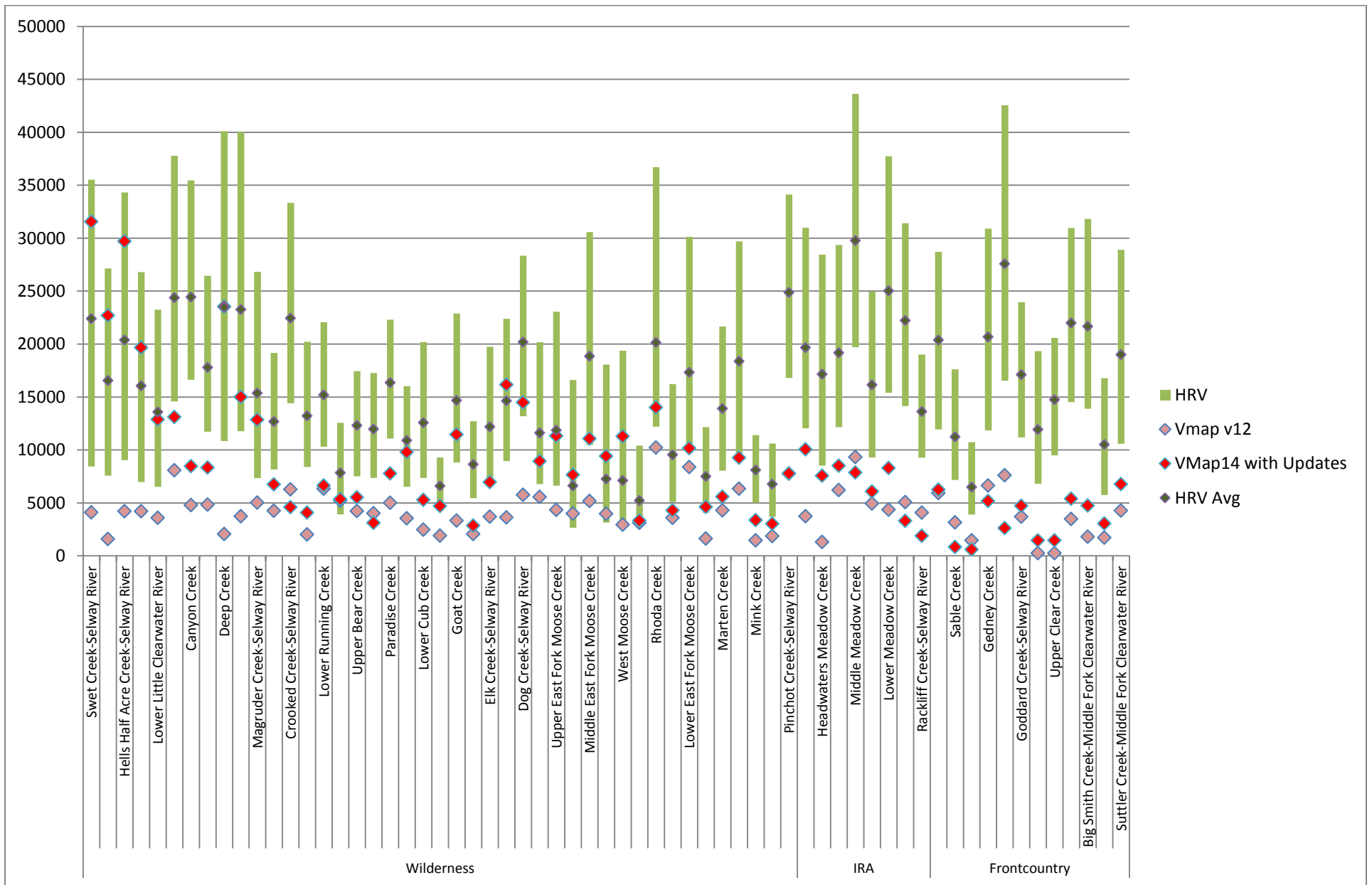
Figure 5 Open Stands by HUC6 by Wilderness, Roadless, and Frontcountry

Figure 6 presents a comparison of cover types. There are several peculiar discrepancies among the datasets that point out the fact that VMap versions 12 and 14 are two different datasets. One major difference is the cover type "Transitional Forest" which was new to version 14. Transitional Forest was created to capture recent stand replacing effects of fire and significant insect disturbances; previous versions placed these areas into a grass or shrub cover type. Note how VMap14's Transitional Forest plus Grass/Shrub approximates VMap v12's Grass/Shrub. There have also been some reclassifications of cover types. Note the difference between v12 and 14 for Ponderosa pine (PP), Grand fir-Cedar (GF-C), and Douglas fir (DF). There has obviously been some reassigning of cover types between the remote sensing of versions of VMap. We have included Forest Inventory and Analysis data points as they reflect real, on the ground plot data.
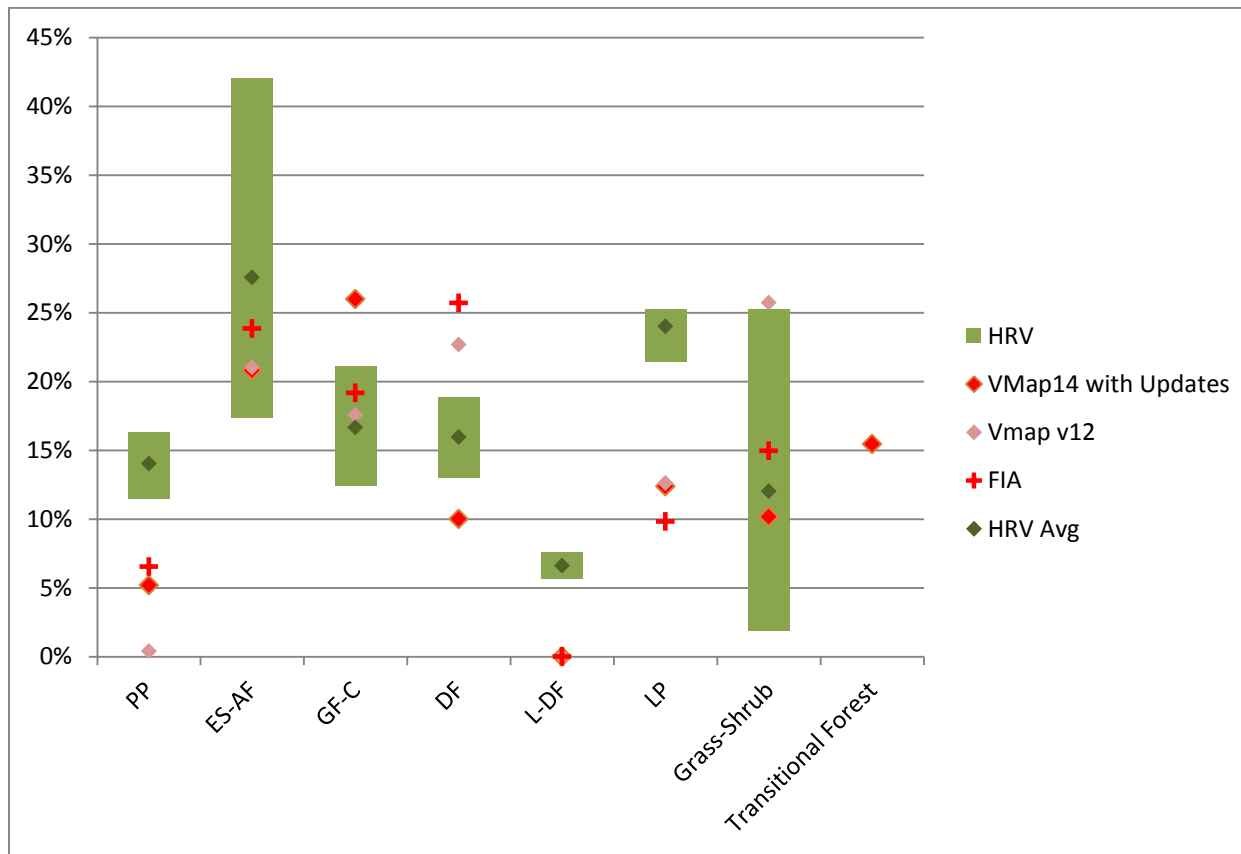

Figure 6 Forest Type Comparison

Fish and Wildlife Habitat Condition

USFS activities have had a positive effect on fish habitat in the frontcountry of the project area in the past three years. Thirteen culverts have been replaced and 86.3 miles of roads have been decommissioned. In addition 32.4 miles of these roads were within 300 feet of streams. All of these activities have been spread across six HUC6s in the frontcountry. We assume that the next time the USFS rescores the WCATT that these HUC6s will improve scores, and for the purposes of this report, we have improved the scores based upon miles decommissioned and culverts replaced.

For terrestrial wildlife habitats we selected two species that require drastically different habitats. Flammulated owls require open understories to successfully forage for moths and grasshoppers (Hayward and Verner 1994). American martens have a preference for mid- to late-seral coniferous forests with moderate- to high-canopy closure at mid- to-high elevations (Ruggiero et al. 1994). Martens are often labeled as interior forest species since they prefer large patches of late-seral forest (Ruggiero et al. 1994). Martens prefer high densities of snags and coarse woody debris (Buskirk et al. 1989), as complex physical structure near the ground provides refuge sites, access to prey, and a protective thermal environment (Buskirk and Ruggerio 1994).

It makes sense that wildfire suppression would benefit American marten habitat while negatively affecting flammulated owl habitat. Reduced disturbance in ponderosa pine stands would allow for understories to fill in, thus reducing flammulated owl habitat. Reduced disturbance would also allow marten habitat to increase as stands become larger and denser. In our original ecological indicators report this was the case; currently, the recent levels of natural disturbance have helped to narrow this departure. The following two figures present 2012 levels, current levels of habitat, and the historic range for American marten and flammulated owl.

41 of 63 watersheds have experienced increases of habitat for flammulated owls since 2012.

47 of 63 watersheds show American marten habitat within the HRV (compared to 6 out of 63 in 2012).
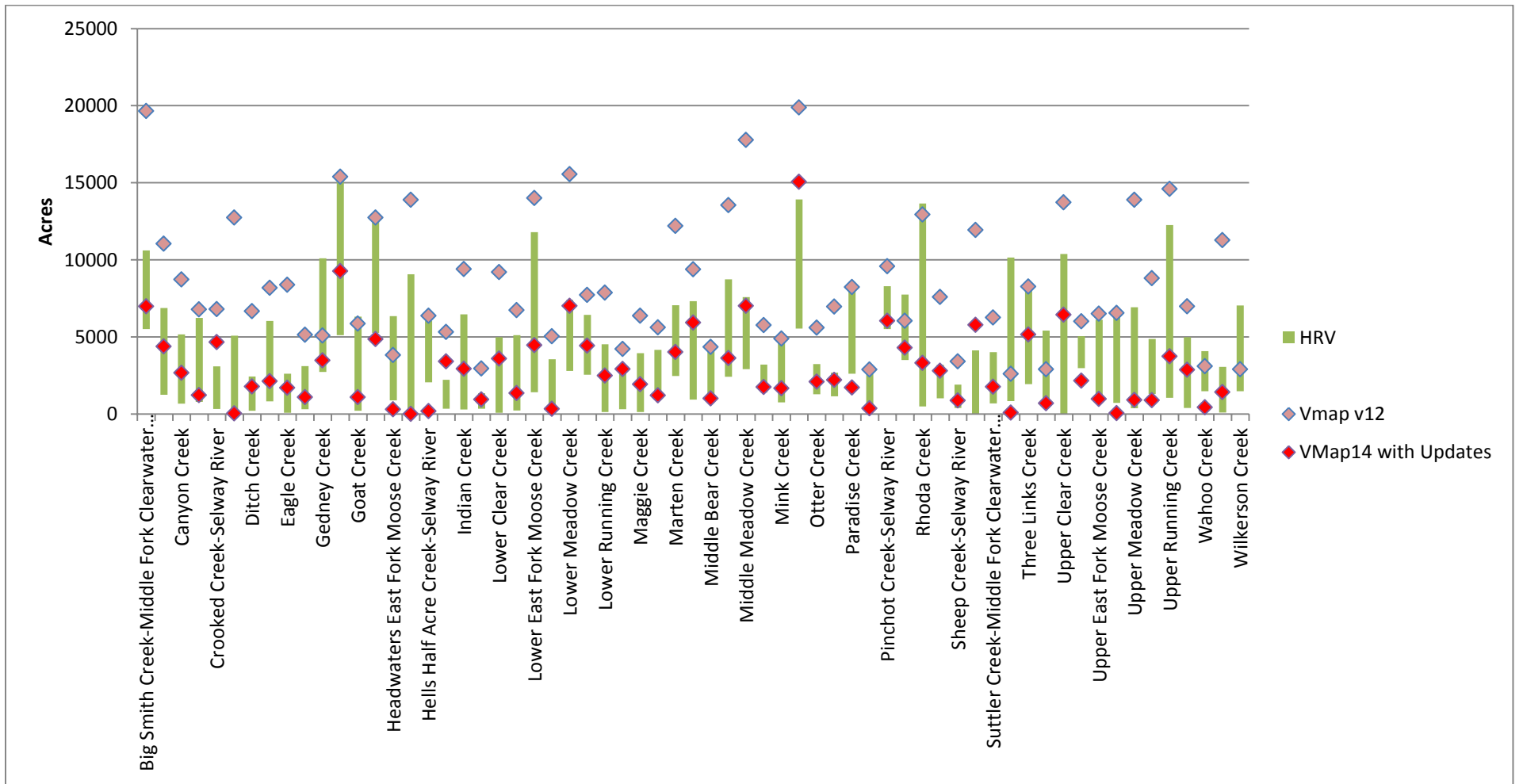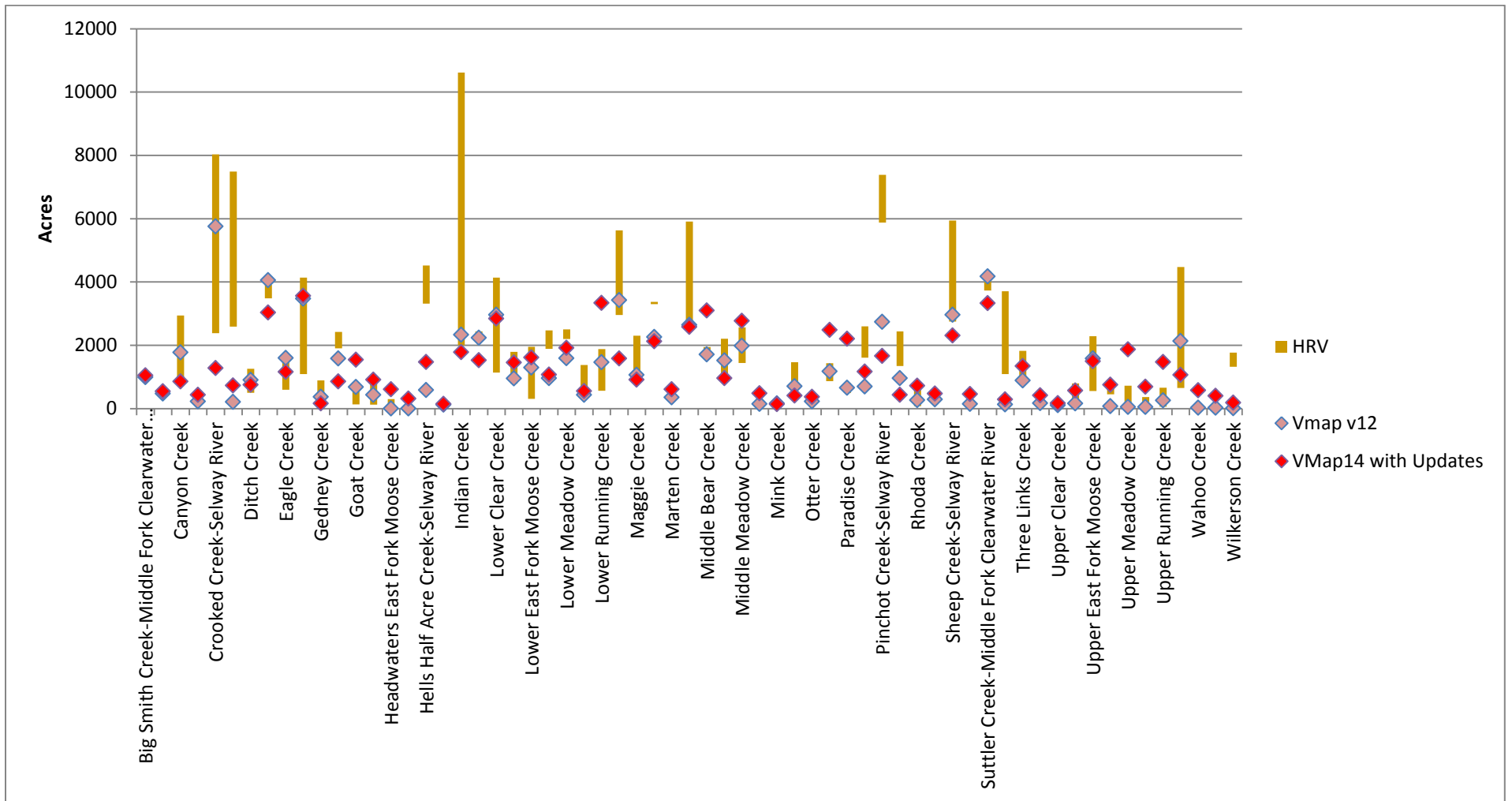
Figure 7 American Marten Habitat by HUC6

Figure 8 Flammulated Owl Habitat by HUC6