BAER Assessment Soils Report – Gasquet Complex
SIX RIVERS NATIONAL FOREST
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Introduction

The Gasquet Complex consists of four fires (Bear, Peak, Feeder, and Coon) which burned in the Smith River Watershed located in Del Norte County of Northern California south of the town of Gasquet. These lands are administered by the Six Rivers National Forest and are fully within the Smith River National Recreation Area. The complex area is characterized by the steep mountainous terrain of the Siskiyou Mountains with elevations ranging from around 300 feet where the Coon Creek meets the South Fork Smith River (Coon Fire) to nearly 6,000 feet at top of Bear Mountain (Bear Fire). The area includes deep rugged river canyons cut by the Smith River and its tributaries, most of which are designated Wild and Scenic River corridors for recreation under the Wild and Scenic Rivers Act of 1968. Vegetation types are predominantly mixed evergreen forests of the Klamath-Siskyou mountains and include a diverse array of species. The climate of the area is controlled by the close proximity to the Pacific Ocean. The area receives an average of 90-100 inches of precipitation per year with most rain and snow falling in winter months. The Smith River is free flowing along its entire length and is a very popular recreation river for fishing and boating. Stream gradients are high and there are numerous rapids and bedrock canyons along the Middle and South Forks.

The fires are located in three different areas (Figurexx) with Peak and Feeder being directly adjacent to each other, henceforth just referred to as the Peak Fire. The Bear Fire is drained by the Syskiyou Fork of the Middle Fork Smith River east of Gasquet. The Coon fire is drained by Coon Creek, which is a tributary of the South Fork Smith River, directly south of Gasquet. The Peak fire is drained by Williams and Eightmile Creeks, which is a tributary of the South Fork Smith River south-east of Gasquet.

This report summarizes the potential post-wildfire effects to soil resources within the Gasquet Lightning Complexes. It is based on findings of aerial reconnaissance and field investigations of soil burn severities within each fire perimeter and modeling of soil erosion processes. Soil productivity was the only identified Value at Risk. Field investigations of post-fire forest soil conditions and post-fire erosion hazard ratings were used to determine impacts to soil productivity. The BAER assessment was conducted from 21 September through 25 September 2015.

Dominant Soils

The dominant soil types of the burned area are gravelly to very gravelly loams of Clallam (30 percent), Nanny (20 percent), Oragran (9 percent), and Kistrin (9 percent). Appendix 1 lists soil types and properties within the

Gasquet Fire complex. The Oragran soil type is shallow and weathered from serpentinized ultramafic rock. The Clallam, Nanny, and Kistrin soils are deep with metasedimentary or metaigneous parent material.

Soil Burn Severity

Soil Burn Severity (SBS) was assessed following principles described in Parsons et. al. (2010). Soil scientists Dave Young and Terry Hardy downloaded the Burned Area Reflectance Classification (BARC) imagery from the Remote Sensing Applications Center (RSAC) in Salt Lake City and collected data at various locations within the fire perimeters to validate the imagery. Soil Burned Severity for the fires within the complex is summarized in Table 1 and displayed spatially in Figure 2 in Appendix 1.

Table 1. Soil Burn Severity percentages for each fire within the Gasquet Complex.

Soil Burn Severity (SBS) - Percent				
Fire	**High**	**Moderate**	**Low**	**Very Low/Unburned**
Bear	7%	15%	47%	31%
Coon	2%	19%	49%	30%
Feeder	1%	13%	28%	58%
Peak	6%	27%	32%	35%
Total	5%	21%	41%	33%

The final BARC map was adjusted by slightly decreasing some of the high severity to moderate in the Bear and Peak fires. The same was done to a higher degree within the Coon Fire area because high rock and shrub components caused severity to be mapped higher than indicated during field sampling.

Soil hydrophobicity was variable within the Gasquet complex fires, yet generally correlated to soil burn severity. Field sampling of adjacent soil outside of the Gasquet fire indicates there was likely some continuous low to moderate hydrophobicity pre-fire. Organic layers of needles and duff would normally slow infiltration, yet now combusted, preexisting hydrophobicity could contribute to higher runoff and accelerated erosion on areas with low soil cover (mostly moderate and high SBS). In total, approximately 11,049 acres are water repellent (Table 2).

Table 2. Water repellent soils (acres) within the Gasquet Complex

Fire	Strong	Medium	Weak	Total
Bear	891	1,630	1,680	4,200
Coon	233	905	840	1,978
Feeder	31	116	95	242
Peak	819	2,415	1,396	4,630
Total	**1,973**	**5,066**	**4,010**	**11,049**

Based on soil burn severity and field data, soil hydrophobicity would be highest in the Upper Siskiyou Fork Smith River HUC7 subwatershed and would cover approximately 3 percent, followed by the South Siskiyou Fork Smith River (2 percent), and Coon Creek-South Fork Smith River (1 percent).

Erosion Hazard Rating

Erosion hazard rating utilized the California Erosion Hazard Rating system for sheet and rill erosion. EHR ratings were calculated for each soil with soil burn severity characteristics also factored in. Ratings thus represent a summary of soil physical characteristics, slope gradient, soil cover present, and level of hydrophobicity (water repellency) as observed in the field. EHR ratings for soil groups are presented in Appendix 1. Summary EHR rating for the entire fire area is 2% low, 66% moderate, 28% high, and 4% very high (Table 3).

Table 3. Erosion hazard ratings (percent) within the Gasquet Complex

Erosion hazard rating (EHR) - Percent				
Fire	**Very high**	**High**	**Moderate**	**Low**
Bear	6%	24%	69%	11%
Coon	1%	32%	64%	4%
Feeder	1%	17%	82%	0%
Peak	3%	31%	63%	3%
Average	4%	28%	66%	2%

To determine the potential sediment yield in tons per acre pre and post fire, the Forest Service Watershed Erosion Prediction Project (FS WEPP) model was used. Several interfaces utilize this model and ERMIT is typically best suited to predicting post fire erosion. Documentation may be found at http://forest.moscowfsl.wsu.edu/fswepp/. This model only looks at single hillslopes and single storm runoff events, and not annual estimates. A custom climate, generated using the PRISM module integrated within ERMIT, was used at a point between the Bear, Coon, and Peak fires at an elevation of 4,300 feet where annual precipitation averages 74 inches. Stated model output accuracy is +/- 50%; therefore, the absolute numbers are considered **best estimates** only.

Based on ERMIT runs, an average fire wide yield for the potential erosion was 125 tons/acre. These values are exceptionally high and even 50 percent of this would not be expected. Other soil scientists have recently expressed problems with the ERMIT interface. Therefore, Disturbed WEPP, which uses the same model, was used to calculated erosion rates for individual hillslopes. The baseline erosion rate was modeled at less than 1 ton per acre in the first year following a 10 year storm. Several hillslopes were modeled to get an average rate of 77 tons per acre for high soil burn severity areas, 60 tons per acre for moderate, and 12 tons per acre for low. When weighted for the entire fire area, erosion rates are modeled at 22 tons per acre for a single 10-year runoff event. Stated model accuracy is +/- 50%. Most riparian areas were unburned or had low soil severity and as modeled using Disturbed WEPP, less than 10 percent of eroded soil would reach these stream from upslope areas that burned with moderate or high soil burn severities. Less than 10 percent of streams within the Gasquet Fire area burned at moderate or high soil burn severities. In these areas, disturbed WEPP modeling indicates that approximately 90 percent of eroded soil would reach streams.

Comparisons of similar soils with similar past soil burn severities were made to predict impacts and recovery to soil productivity. Observations were made from an aerial reconnaissance flight of the Gasquet Fire and the adjacent 2008 Blue 2 Fire. Within the Blue 2 fire, areas with complete vegetation mortality can be inferred to have had moderate to severe soil burn severity. Figure 1 shows an upper polygon that burned within the Peak fire and a lower polygon that burned in the 2008 Blue 2 fire.

The upper polygon burned with moderate to high soil burn severity and would be expected to recover similar to the lower polygon which may have burned with higher soil burn severity in 2008. A similar recovery could be expected for many of the areas that burned with high soil burn severity within the Gasquet fire area. That is, impacts to soil productivity have occurred indicated by return of brush only, yet erosion rates have not been excessively high as to prevent vegetation growth, and decreasing rates of erosion. Although ERMiT also models the probable success of potential treatments in terms of reduction in sediment production, only the untreated values were used for the soils analysis, since no hillslope treatments were proposed by the BAER team.

<u>Values at risk for soils including emergency determination</u>

Threats to Soils Resources

A single Value at Risk was determined for soil resources, the decrease in soil productivity. This has occurred where soil organic matter has been combusted, and will continue to occur where soil cover is low. In some areas with moderate and high soil burn severity, dead needles remain on trees and will provide soil cover. This could limit accelerated erosion and soil productivity would begin to recover as vegetation returns. In areas where the canopy has been completely combusted, accelerated erosion and decreases to soil productivity would be longer term. Accelerated soil erosion would be much lower in areas subjected to very low and low soil burn severities especially since tree canopies are mostly intact and would continue to add soil cover.

Seventy-four percent of the soils within fire affected areas exhibited unburned/very low to low burn severities within the Gasquet Fire. Therefore, effects of the fire upon soil productivity and hydrologic function are considered within the normal range of variability at most locations within the fire perimeters. However, soils that were burned at moderate and high burn severity have been identified as Values at Risk since the potential loss in soil productivity that would occur on these soils if eroded would be substantial. Ultimately, the degree of loss of soil productivity due to erosion will depend upon the intensity and duration of future precipitation events and the rates of natural vegetative recovery. Erosion rates are expected to decline each year as revegetation and natural recovery processes occur.

Although there are acreages that could be treated for soil productivity, there is no way to treat them at a scale large enough to effectively decrease the potential loss of soil productivity associated with the fire. To summarize, the emergency determination is as follows:

Very High Risk (very likely, moderate) to soil quality is expected, due to accelerated erosion from areas, which sustained moderate to high burn severities on five percent of the Gasquet Fire. To be consistent with the BAER matrix, eight to ten years was the estimated length of time for recovery from the loss of effective ground cover and above ground organic matter. Over the long term, the loss of surface soils can lead to deceased commodity production (e.g. timber or livestock forage). In addition, the decrease in site productivity has the potential to increase the spread of invasive plant species, since noxious weeds are able to more readily establish occurrences on degraded sites. In the short term, unauthorized OHV intrusions can continue the degradation of soil productivity in localized areas of use, due to the loss of litter cover associated with the fire. **No treatments were recommended for soil productivity, since the various fires within the complex sustained predominately low to very low soil burn severities with a mosaic on unburned areas within the fire perimeters.**

Management Recommendations

As described above, soil productivity is likely to decrease in areas with high soil burn severities. This is important to consider if trees are planted in these areas. Due to a loss of soil organic matter and topsoil, soil moisture and nutrients are likely to be limiting for several decades. By planting trees at a wider spacing in areas that burned with high soil burn severity, it is less likely soil nutrients and moisture would be limiting.

References

Parsons, A., P. Robichaud, S. Lewis, C. Napper, and J. Clark. 2010. Field Guide for Mapping Post-Fire Soil Burn Severity. USFS Rocky Mountain Research Station, General Technical Report RMRS-GTR-243.

United States Department of Agriculture, Forest Service. 1993. Soil Survey of the Six Rivers National Forest, California. Pacific Southwest Region. Completed in cooperation with the U.S.D.A. Soil Conservation Service.

APPENDIX 1

Soil map units and properties within the Gasquet Complex

Bear Fire Area

MUSYM	Association	Surface texture	Parent material	Depth	Soil hydrologic group	Acres
245	Clallam family, moderately deep-Hugo family, deep,maymen family association	V. gr. loam	Metasedimentary or metaigneous	Deep	B	2696
226	Kistirn-Goldridge families, deep-Deadwood family association	V. gr. loam	Metasedimentary	Deep	C	2319
274	Hugo family, moderately deep-Rock outcrop, metasedimentary complex	Gr. loam	Metasedimentary or metaigneous	Deep	B	1006
259	Nanny fanily, deep-Woodseye family-Bins family, deep association	Gr. loam	Quartz diorite and dioritic glacial till	Deep	B	912
345	Clallam family, extremely gravelly-Skalan-Goldridge families,deep	Ext. gr. loam	Metasedimentary or metaigneous	Deep	C	739
280	Deadwood family-Clallam family, deep, extremely gravelly-Rock outcrop, metasedimentary association	Gr. loam	Sedimentary, metasedimentary, or metaigneous	Shallow	C	674
210	Skalan-Goldridge-Clallam families association, deep	V. gr. loam	Metasedimentary or metaigneous	Deep	C	575
300	Rock outcrop-Xerorthents complex,metaigneous	----------	Metaigneous		D	458
525	Nanny family, deep, dioritic-Althouse family, deep, stony association	Gr. loam	Quartz diorite and dioritic glacial till	Deep	A	394
246	Clallam family, moderately deep-Maymen family association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	392
336	Clallam-Nanny families association, deep	V. gr. loam	Metasedimentary or metaigneous	Deep	B	327
257	Bins-Nanny families, deep-Woodseye family association	Loam	Metasedimentary or metaigneous	Deep	B	254
525sr	Nanny family, deep, dioritic-Althouse family, deep, stony association	Gr. loam	Quartz diorite and dioritic glacial till	Deep	A	162
403	Oragran family-Weitchpec family, moderately deep-Lithic haploxealfs, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	B	109

404	Oragran family-Witchpec family, moderately deep-Lithic Haploxeralfs, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	C	89
114	Clallam, deep-Goldridge, gravelly families association	Ext. gr. loam	Metasedimentary or metaigneous	Deep	C	85
522	Chaix family, moderately deep-Holland family, deep,dioritic association	Gr. sandy loam	Diorite	Deep	A	78
240	Hugo family, deep-Clallam family, moderately deep association	Gr. loam	Metasedimentary or metaigneous	Deep	C	70
300sr	Rock outcrop-Xerorthents complex,metaigneous	----------	Metaigneous		D	68
500	Rock outcrop, dioritic	----------	Diorite		D	58
111	Clallam family, deep-Very deep association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	55
182	Skalan-Clallam,deep families association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	37
420	Gasquet-Walnett families, deep,stony-Jayel family, moderately deep association	Stony loam	Peridote	Deep	C	33
500sr	Rock outcrop, dioritic	----------	Diorite		D	27
335	Althouse-Holland families association, deep, stony	Gr. loam	Metaigneous	Deep	B	17
259sr	Nanny fanily, deep-Woodseye family-Bins family, deep association	Gr. loam	Quartz diorite and dioritic glacial till	Deep	B	11
118	Deadwood-Clallam, deep families association	Gr. loam	Sedimentary, metasedimentary, or metaigneous	Shallow	D	5
257sr	Bins-Nanny families, deep-Woodseye family association	Loam	Metasedimentary or metaigneous	Deep	B	1

Coon Fire Area

345	Clallam family, extremely gravelly-Skalan-Goldridge families,deep	Ext. gr. loam	Metasedimentary or metaigneous	Deep	C	2459
346	Goldridge family, deep-Clallam family, moderately deep-Aiken family, deep association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	833
361	Holland family, deep-Clallam family, moderately deep-Cotati family, deep	V. gr. loam	Sedimentary, metasedimentary, or metaigneous	Deep	B	642

	association,gabbroic					
349	Goldridge-Aiken families association, deep	V. gr. loam	Metasedimentary or metaigneous	Deep	C	423
348	Skalan-Aiken families association, deep	V. gr. loam	Metasedimentary or metaigneous	Deep	C	296
281	Clallam family, deep, extremely gravelly-Deawood family association	V. gr. loam	Metasedimentary or metaigneous	Deep	B	251
420	Gasquet-Walnett families, deep,stony-Jayel family, moderately deep association	Stony loam	Peridote	Deep	C	225
405	Oragran family-Lithic Haploxeralfs, ultramafic-Rock outcrop, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	B	195
404	Oragran family-Witchpec family, moderately deep-Lithic Haploxeralfs, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	C	136
226	Kistirn-Goldridge families, deep-Deadwood family association	V. gr. loam	Metasedimentary	Deep	C	80
274	Hugo family, moderately deep-Rock outcrop, metasedimentary complex	Gr. loam	Metasedimentary or metaigneous	Deep	B	60
125	Horseshoe family, deep	Gr. loam	Mixed alluvium	Deep	C	30
430	Jayel family, moderately deep-Walnett family, deep-Lithic Xerochrepts, ultramafic association, stony	Stony clay loam	Peridote	Moderately deep	B	26
100	Typic Xerofluvents-Riverwash association	----------	----------	----------	A	15
403	Oragran family-Weitchpec family, moderately deep-Lithic haploxealfs, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	B	6
321	Hugo family, moderately deep-Maymen family complex	Gr. loam	Metasedimentary or metaigneous	Deep	C	1

Feeder Fire Area

245	Clallam family, moderately deep-Hugo family, deep,maymen family association	V. gr. loam	Metasedimentary or metaigneous	Deep	B	491
240	Hugo family, deep-Clallam family, moderately deep association	Gr. loam	Metasedimentary or metaigneous	Deep	C	189
274	Hugo family, moderately deep-Rock outcrop, metasedimentary complex	Gr. loam	Metasedimentary or metaigneous	Deep	B	118
525	Nanny family, deep, dioritic-Althouse family, deep, stony association	Gr. loam	Quartz diorite and dioritic glacial till	Deep	A	86
331	Clallam family, moderately deep-Skalan family, deep association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	10
246	Clallam family, moderately deep-Maymen family association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	4

Peak Fire Area

525	Nanny family, deep, dioritic-Althouse family, deep, stony association	Gr. loam	Quartz diorite and dioritic glacial till	Deep	A	2286
259	Nanny fanily, deep-Woodseye family-Bins family, deep association	Gr. loam	Quartz diorite and dioritic glacial till	Deep	B	2244
403	Oragran family-Weitchpec family, moderately deep-Lithic haploxealfs, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	B	1765
245	Clallam family, moderately deep-Hugo family, deep,maymen family association	V. gr. loam	Metasedimentary or metaigneous	Deep	B	1219
420	Gasquet-Walnett families, deep,stony-Jayel family, moderately deep association	Stony loam	Peridote	Deep	C	1067
257	Bins-Nanny families, deep-Woodseye family association	Loam	Metasedimentary or metaigneous	Deep	B	823

274	Hugo family, moderately deep-Rock outcrop, metasedimentary complex	Gr. loam	Metasedimentary or metaigneous	Deep	B	375
500	Rock outcrop, dioritic	----------	Dioritic	----------	D	364
400	Rock outcrop-Rubble land association, ultramafic	----------	Ultramafic	----------	D	337
226	Kistirn-Goldridge families, deep-Deadwood family association	V. gr. loam	Metasedimentary	Deep	C	274
246	Clallam family, moderately deep-Maymen family association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	269
331	Clallam family, moderately deep-Skalan family, deep association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	186
405	Oragran family-Lithic Haploxeralfs, ultramafic-Rock outcrop, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	B	184
300	Rock outcrop-Xerorthents complex,metaigneous	----------	Metaigneous	----------	D	178
430	Jayel family, moderately deep-Walnett family, deep-Lithic Xerochrepts, ultramafic association, stony	Stony clay loam	Peridote	Moderately deep	B	173
404	Oragran family-Witchpec family, moderately deep-Lithic Haploxeralfs, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	C	116
501	Rock outcrop-Maymen family complex, doiritic	----------	Dioritic	----------	D	116
404sr	Oragran family-Witchpec family, moderately deep-Lithic Haploxeralfs, ultramafic complex	V. stony loam	Serpentinized ultramafic	Shallow	D	100
225	Goldridge-Kistirn-Aiken families association, deep	V. gr. loam	Metasedimentary or metaigneous	Deep	C	58
111	Clallam family, deep-Very deep association	V. gr. loam	Metasedimentary or metaigneous	Deep	C	23
300sr	Rock outcrop-Xerorthents complex,metaigneous	----------	Metaigneous	----------	D	15
259sr	Nanny fanily, deep-Woodseye family-Bins family, deep association	Gr. loam	Quartz diorite and dioritic glacial till	Deep	B	9

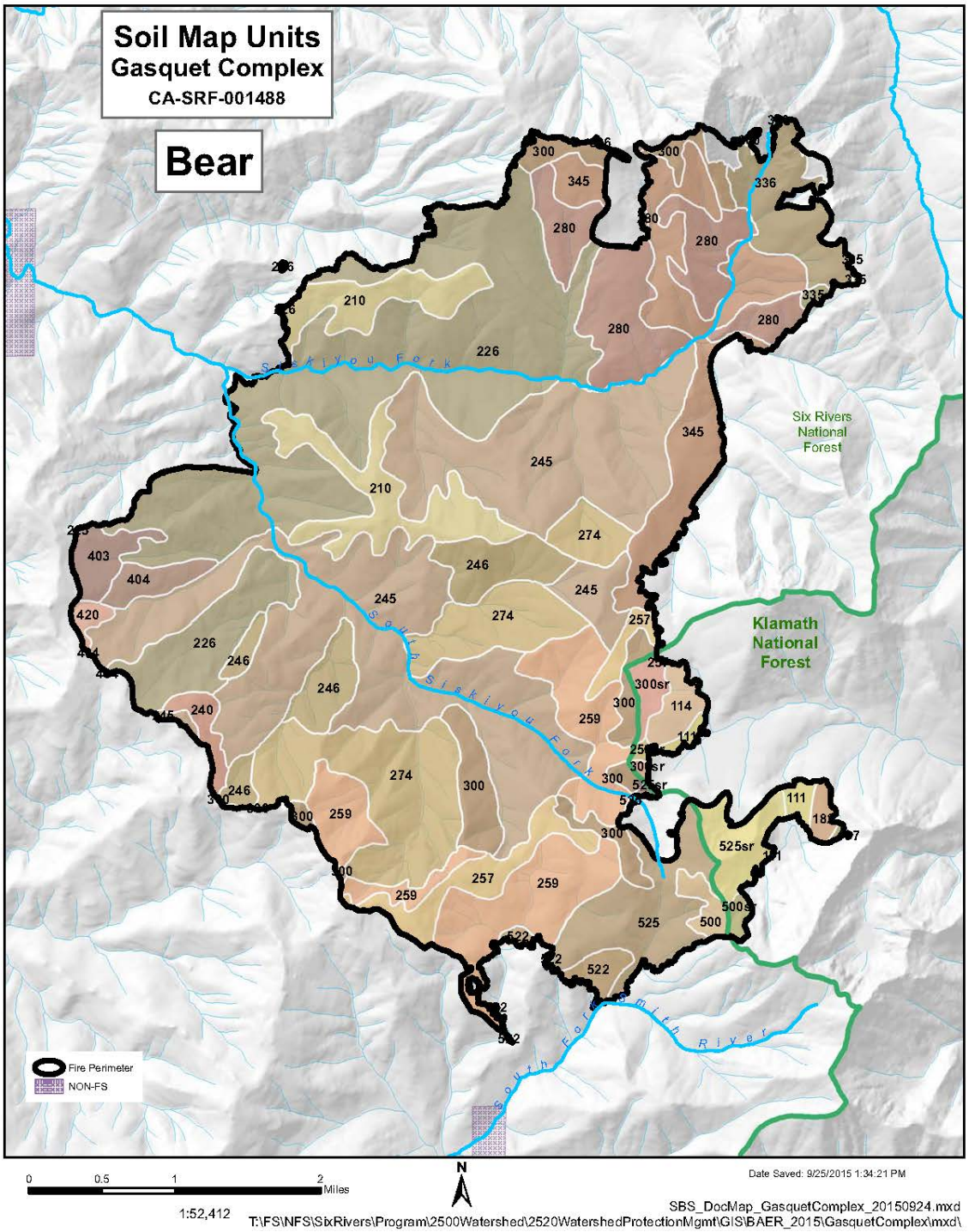
114	Clallam, deep-Goldridge, gravelly families association	Ext. gr. loam	Metasedimentary or metaigneous	Deep	C	3

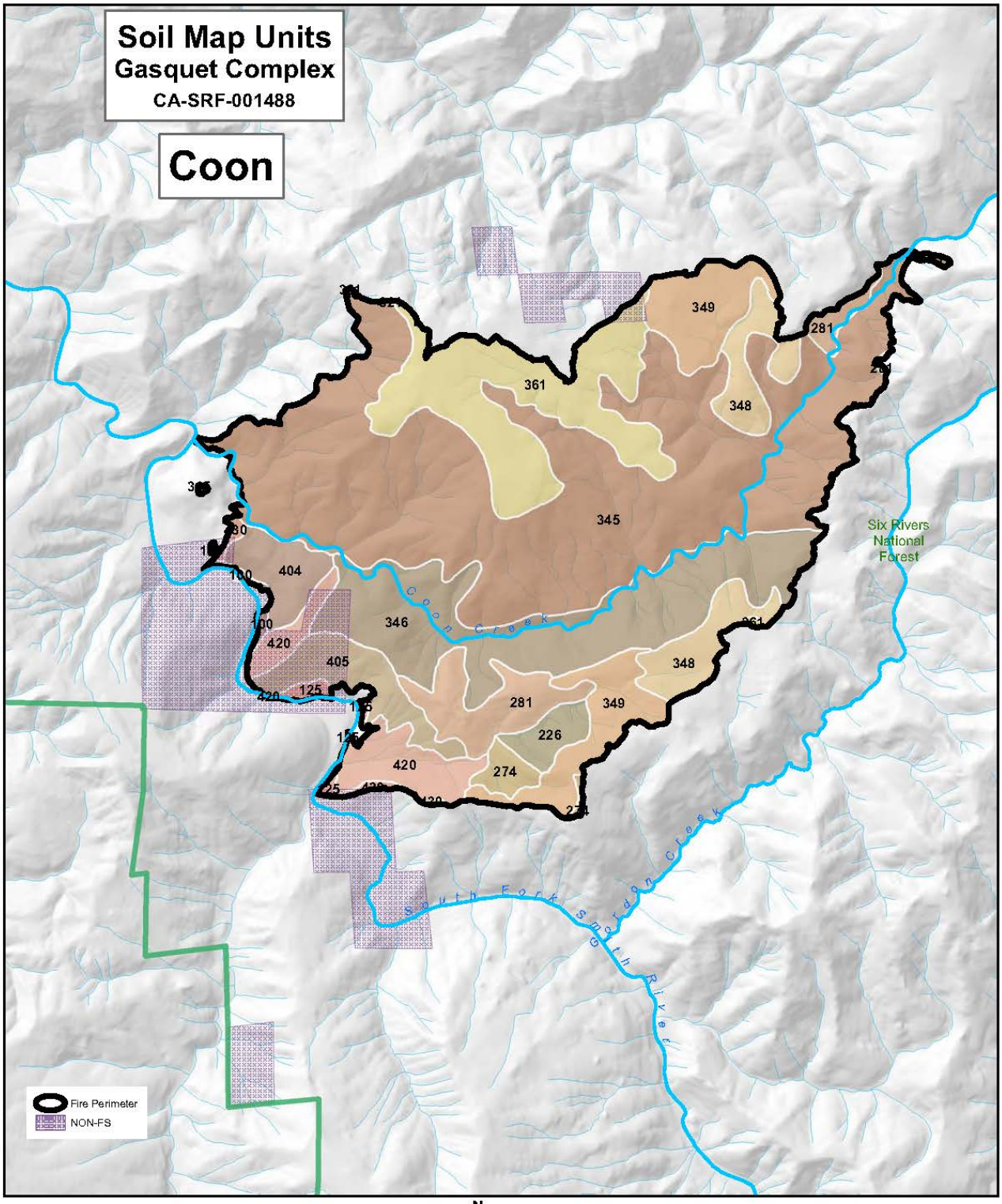
Erosion hazard rating by soil burn severity within the Gasquet Complex

Soil Map Unit	Soil Map Unit Name	Total Acres	Soil Hydrologic Group	Erosion Hazard Rating by Soil Burn Severity			
				unb/v.low	low	mod	high
100	Typic Xerofluvents-Riverwash association	15	A	L	L	L	L
111	Clallam family, deep-Very deep association	78	C	L	M	H	H
114	Clallam, deep-Goldridge, gravelly families association	88	C	M	H	VH	VH
118	Deadwood-Clallam, deep families association	5	D	M	H	VH	VH
125	Horseshoe family, deep	30	C	L	M	H	H
182	Skalan-Clallam,deep families association	37	C	M	H	H	VH
197	Woodseye family-Rock outcrop association	0	D	M	H	VH	VH
210	Skalan-Goldridge-Clallam families association	575	C	M	M	H	VH
225	Goldridge-Kistirn-Aiken families association	58	C	M	M	H	H
226	Kistirn-Goldridge families, deep-Deadwood family association	2672	C	M	M	H	H
240	Hugo family, deep-Clallam family, moderately deep association	259	C	M	M	H	H
245	Clallam family, moderately deep-Hugo family, deep,maymen family association	4405	B	M	M	H	VH
246	Clallam family, moderately deep-Maymen family association	666	C	M	H	H	VH
257	Bins-Nanny families, deep-Woodseye family association	1077	B	L	M	M	M
259	Nanny fanily, deep-Woodseye family-Bins family, deep association	3156	B	M	M	H	VH
274	Hugo family, moderately deep-Rock outcrop, metasedimentary complex	1558	B	M	H	H	VH
280	Deadwood family-Clallam family, deep, extremely gravelly-Rock outcrop, metasedimentary association	674	C	M	H	H	HH
281	Clallam family, deep, extremely gravelly-Deawood family association	251	B	M	M	H	VH
300	Rock outcrop-Xerorthents complex,metaigneous	635	D	M	H	VH	VH
321	Hugo family, moderately deep-Maymen family complex	1	C	M	H	H	VH
331	Clallam family, moderately deep-Skalan family, deep association	196	C	M	M	H	VH
335	Althouse-Holland families association,	17	B	M	H	H	H

	deep, stony						
336	Clallam-Nanny families association, deep	327	B	M	M	H	H
345	Clallam family, extremely gravelly-Skalan-Goldridge families,deep	3198	C	M	M	H	VH
346	Goldridge family, deep-Clallam family, moderately deep-Aiken family, deep association	833	C	M	H	H	VH
348	Skalan-Aiken families association, deep	296	C	L	M	M	H
349	Goldridge-Aiken families association, deep	423	C	L	M	M	H
361	Holland family, deep-Clallam family, moderately deep-Cotati family, deep association,gabbroic	642	B	M	M	H	H
400	Rock outcrop-Rubble land association, ultramafic	337	D	M	H	H	VH
403	Oragran family-Weitchpec family, moderately deep-Lithic haploxealfs, ultramafic complex	1881	B	M	M	H	H
404	Oragran family-Witchpec family, moderately deep-Lithic Haploxeralfs, ultramafic complex	341	C	H	H	H	VH
405	Oragran family-Lithic Haploxeralfs, ultramafic-Rock outcrop, ultramafic complex	379	B	M	H	H	VH
420	Gasquet-Walnett families, deep,stony-Jayel family, moderately deep associations	1325	C	M	M	H	H
430	Jayel family, moderately deep-Walnett family, deep-Lithic Xerochrepts, ultramafic association, stony	199	B	M	M	H	H
500	Rock outcrop, dioritic	422	D	M	H	H	VH
501	Rock outcrop-Maymen family complex, doiritic	116	D	M	H	VH	VH
522	Chaix family, moderately deep-Holland family, deep,dioritic association	78	A	M	M	H	H
525	Nanny family, deep, dioritic-Althouse family, deep, stony association	2766	A	M	M	H	VH
257sr	Bins-Nanny families, deep-Woodseye family association	1	B	L	M	M	M
259sr	Nanny fanily, deep-Woodseye family-Bins family, deep association	19	B	M	M	H	VH
525sr	Nanny family, deep, dioritic-Althouse family, deep, stony association	162	A	M	H	VH	VH
404sr	Oragran family-Witchpec family, moderately deep-Lithic Haploxeralfs, ultramafic complex	100	D	M	H	H	VH
300sr	Rock outcrop-Xerorthents complex,metaigneous	83	D	M	H	H	VH
500sr	Rock outcrop, dioritic	27	D	M	M	H	VH

Map 1 – Soil Map Units within the Gasquet Complex





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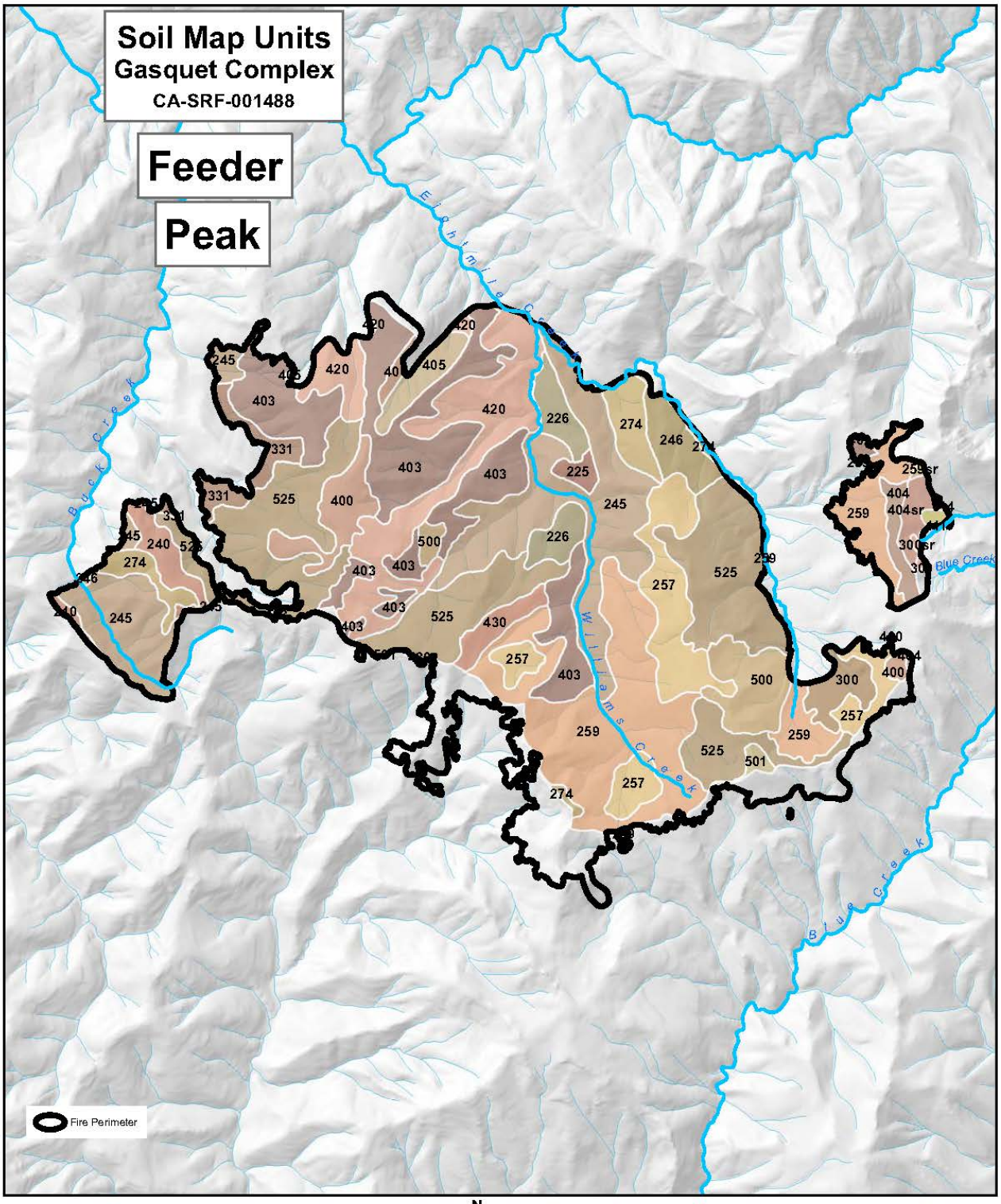

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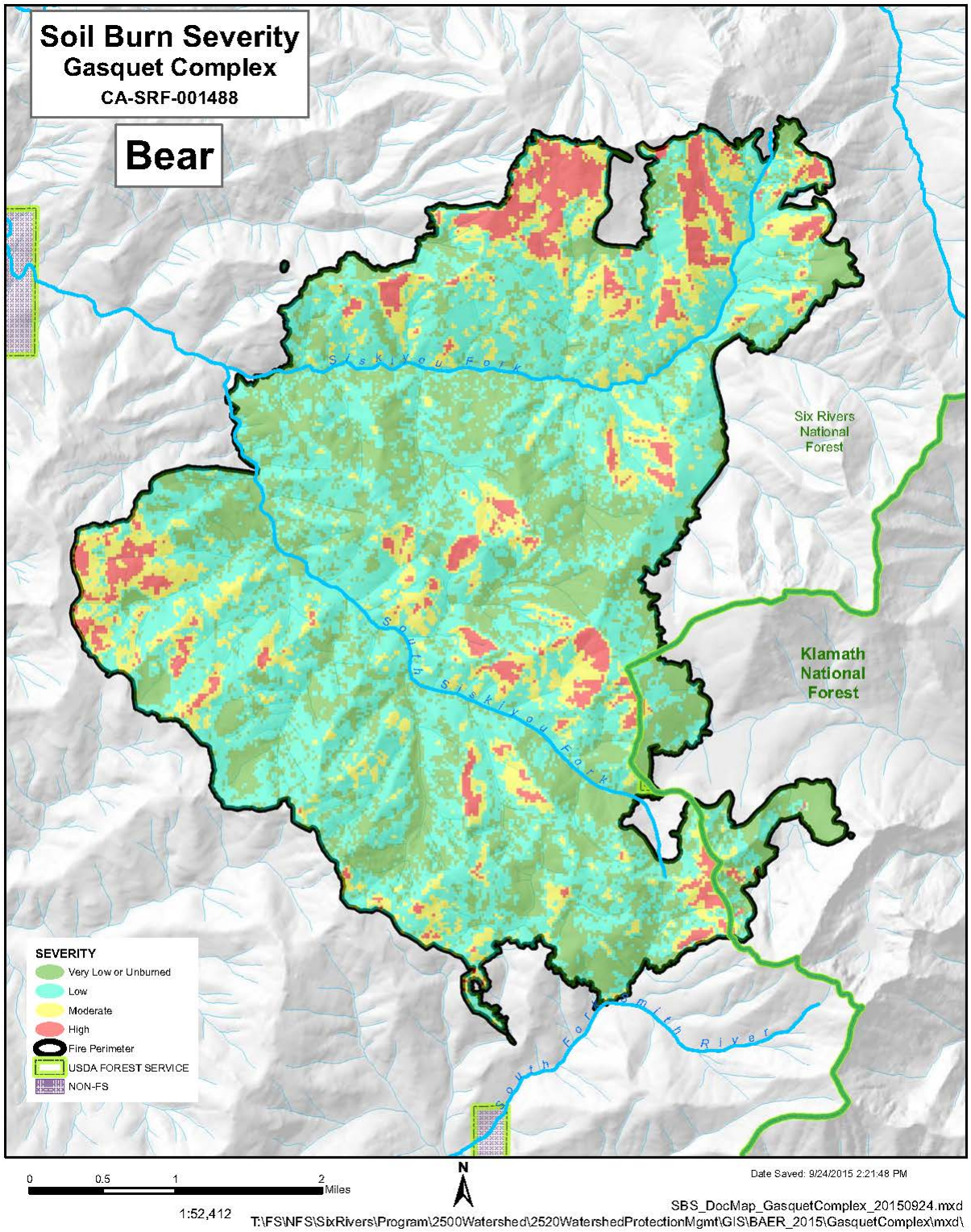
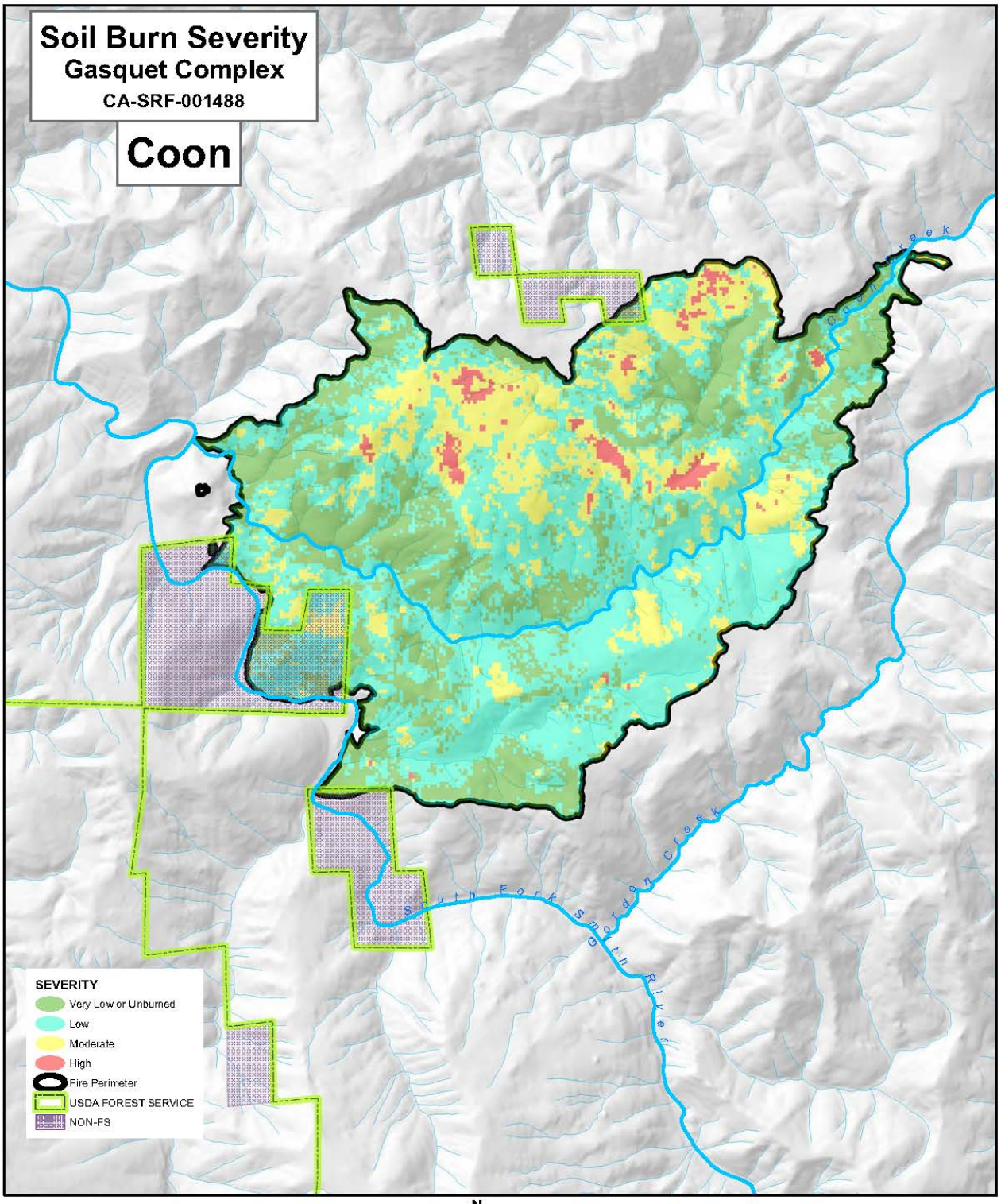
Map 2 – Soil Burn Severity Map.





0 0.5 1 2 Miles

1:48,000

N

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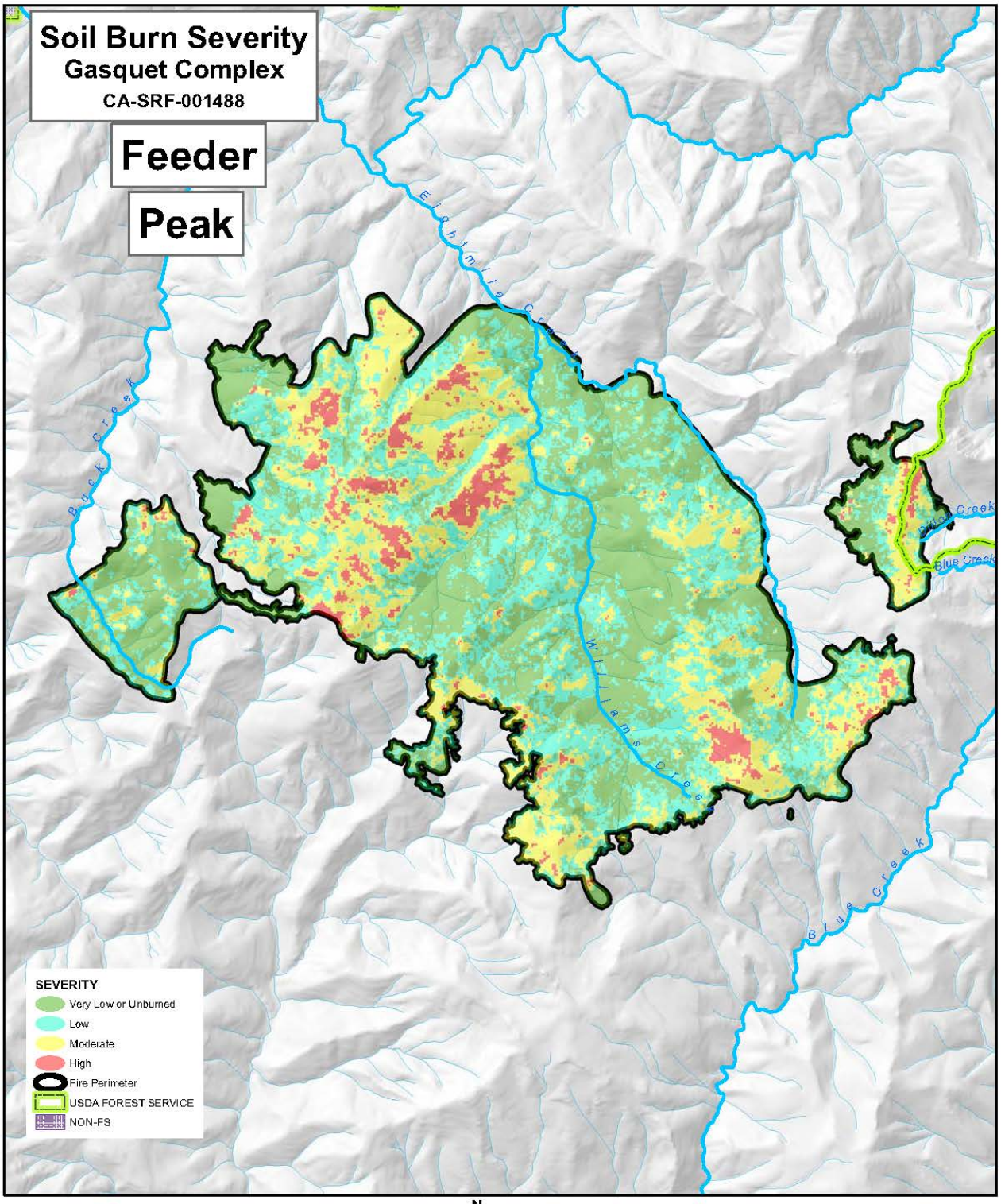

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