



United States
Department of
Agriculture

Forest Service

June 2019



Huckleberry Landscape Restoration Project

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Volume 2—Appendices

Payette National Forest



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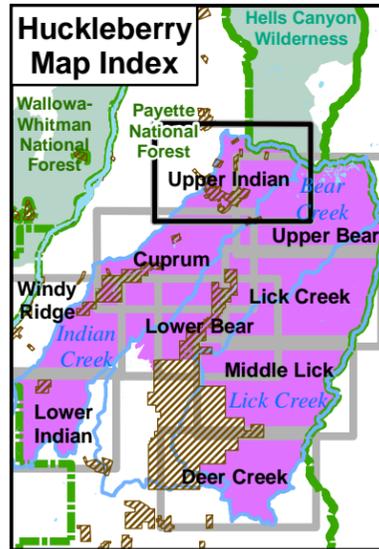
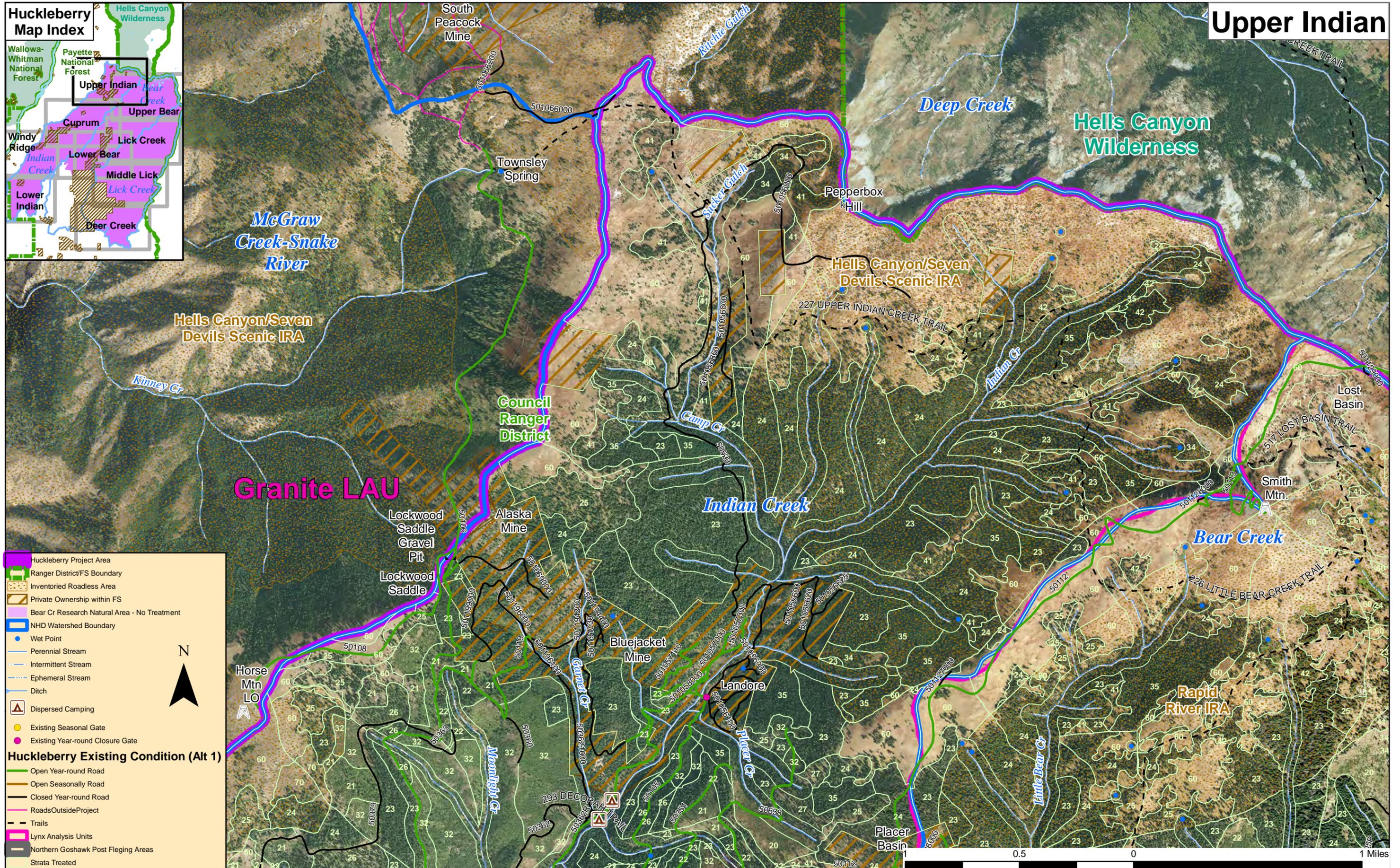
(866) 632-9992. Submit your completed form or letter to USDA by:

- (1) mail: U.S. Department of Agriculture
Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW
Washington, D.C. 20250-9410;
- (2) fax: (202) 690-7442; or
- (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Appendix 1

Maps



Upper Indian

McGraw
Creek-Snake
River

Hells Canyon
Wilderness

Hells Canyon/Seven
Devils Scenic IRA

Hells Canyon/Seven
Devils Scenic IRA

Granite LAU

Council
Ranger
District

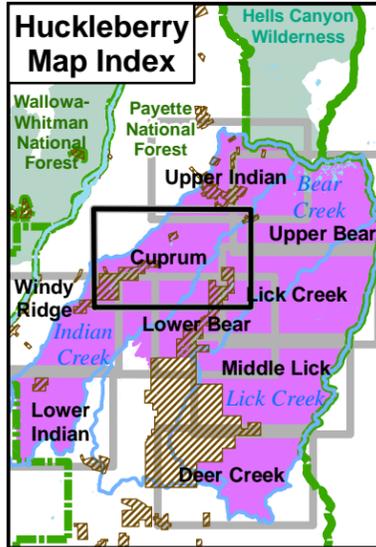
Indian Creek

Bear Creek

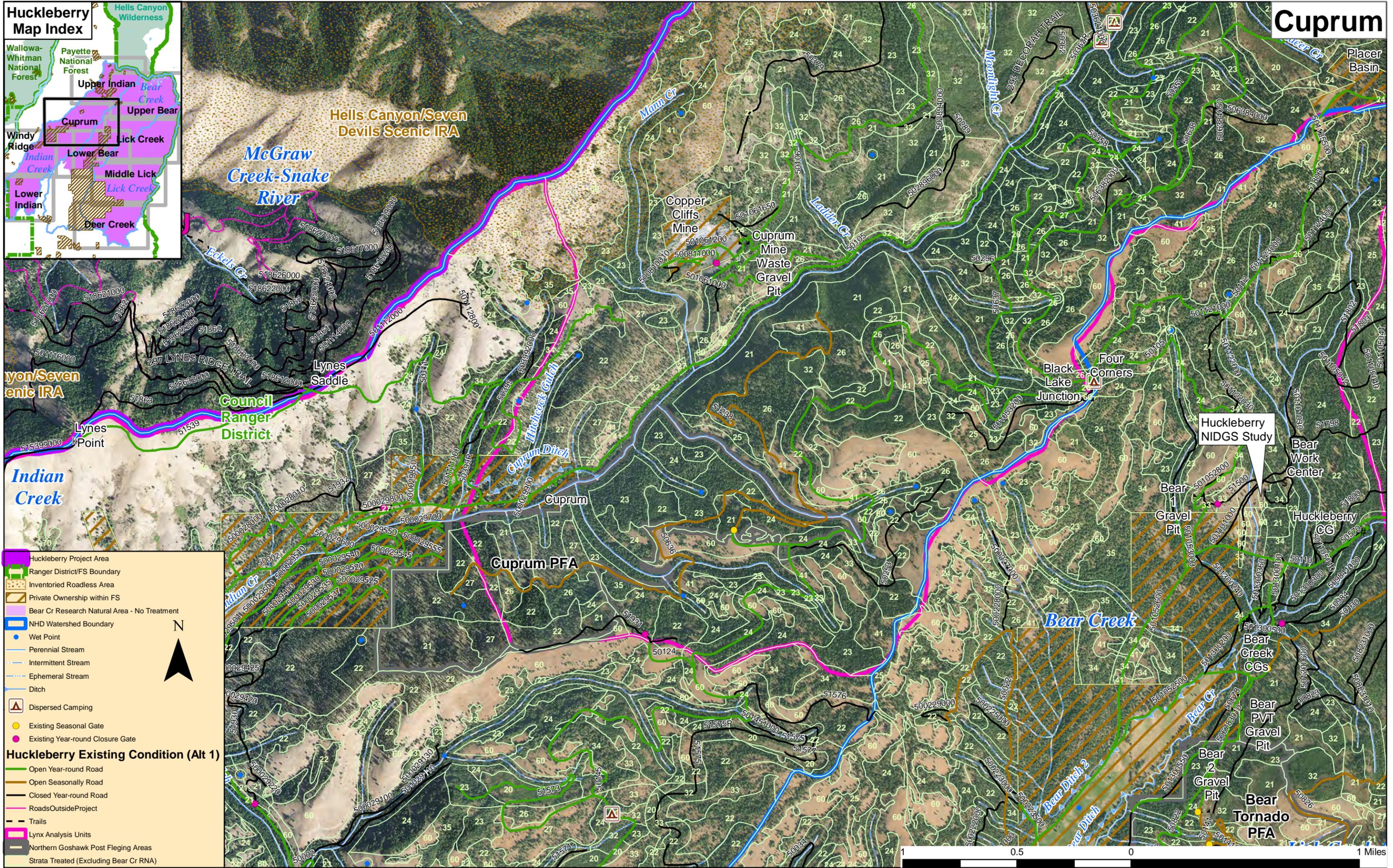
Huckleberry Existing Condition (Alt 1)

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- Inventoried Roadless Area
- Private Ownership within FS
- Bear Cr Research Natural Area - No Treatment
- NHD Watershed Boundary
- Wet Point
- Perennial Stream
- Intermittent Stream
- Ephemeral Stream
- Ditch
- Dispersed Camping
- Existing Seasonal Gate
- Existing Year-round Closure Gate
- Open Year-round Road
- Open Seasonally Road
- Closed Year-round Road
- RoadsOutsideProject
- Trails
- Lynx Analysis Units
- Northern Goshawk Post Fleging Areas
- Strata Treated





Cuprum

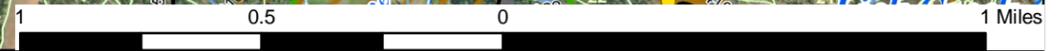


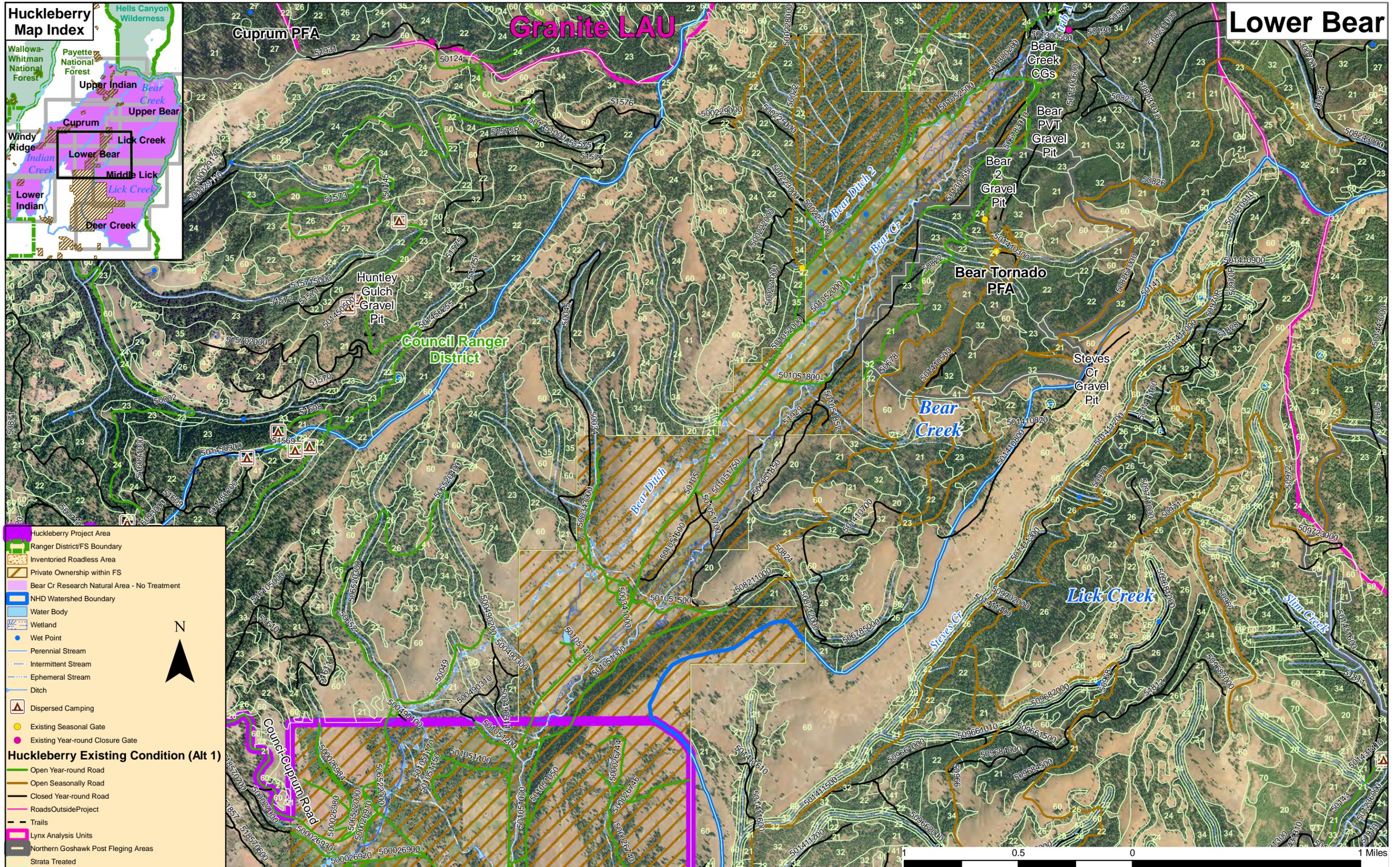
Huckleberry Project Area

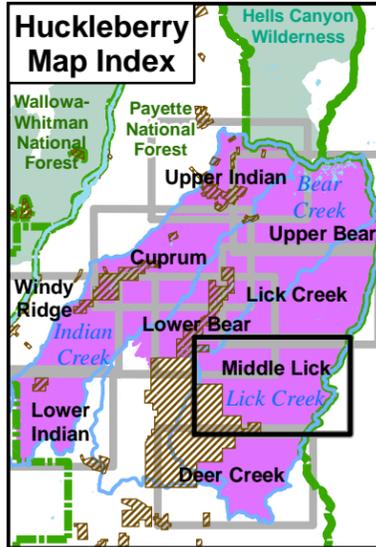
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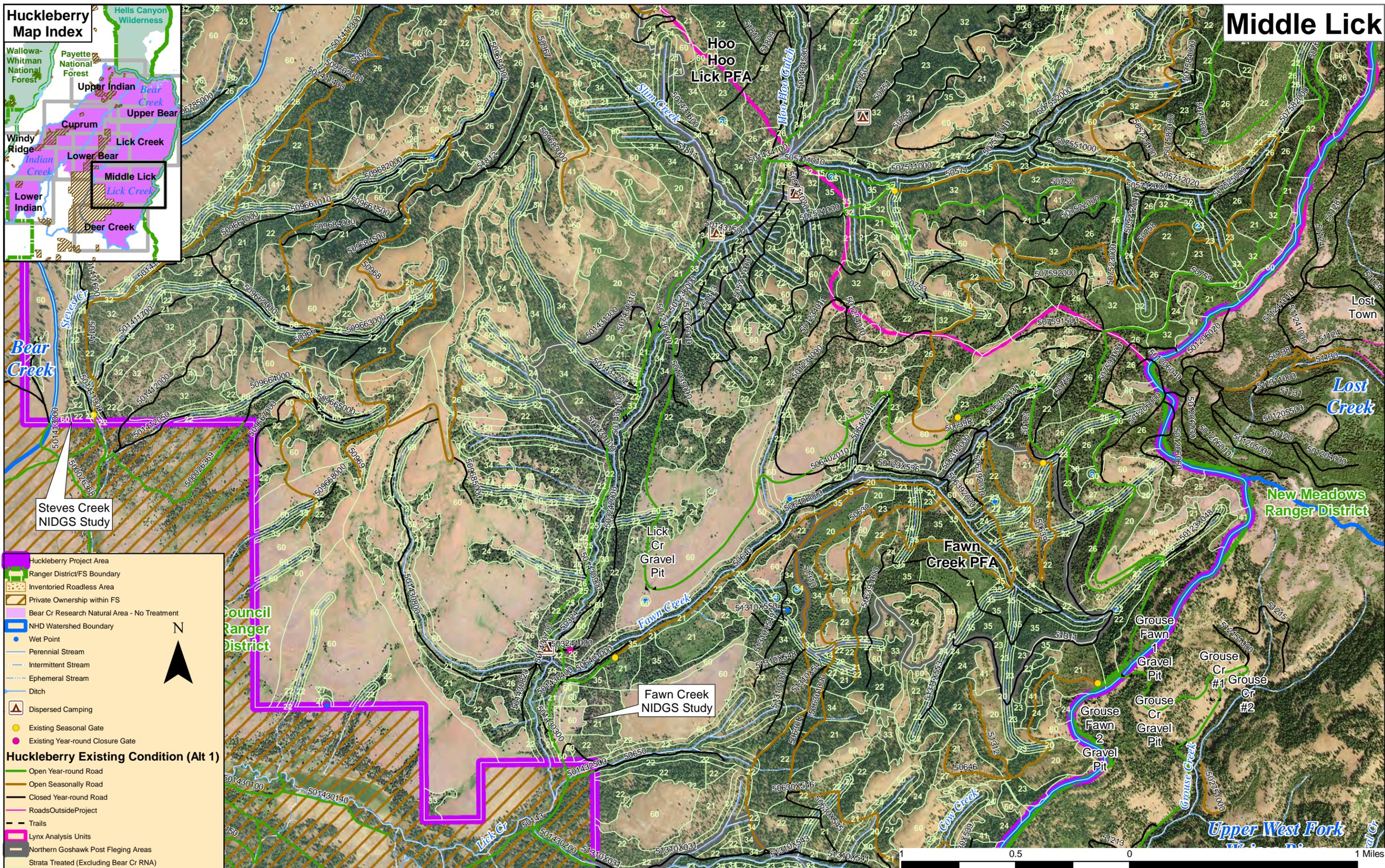
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- Strata Treated (Excluding Bear Cr RNA)







Middle Lick

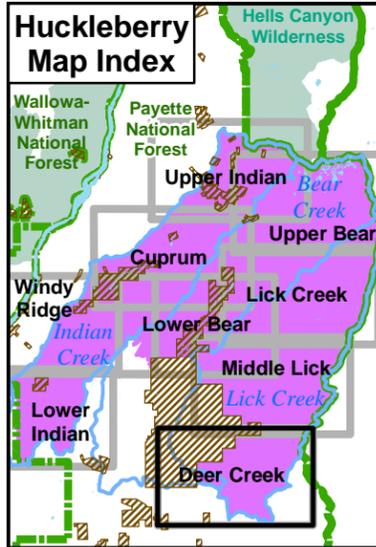


Legend

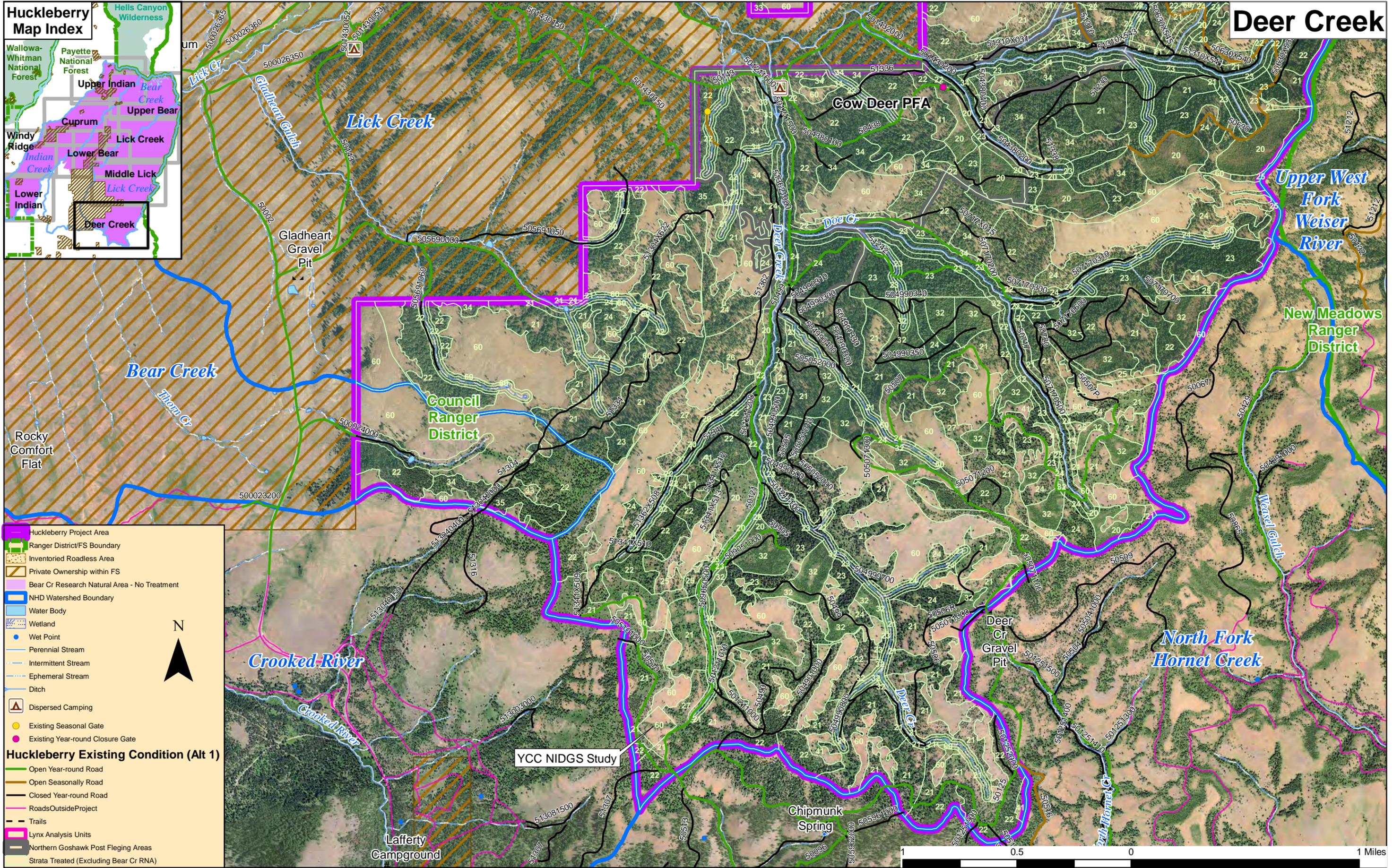
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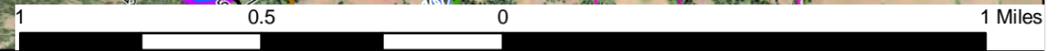


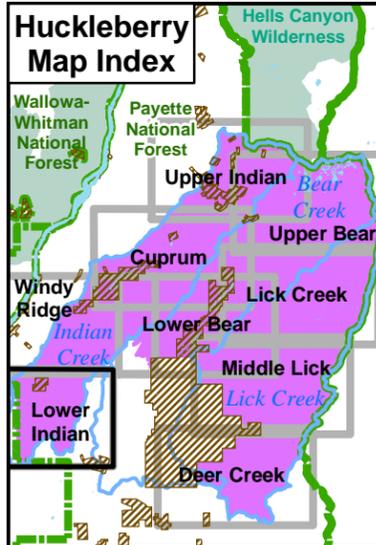
Deer Creek



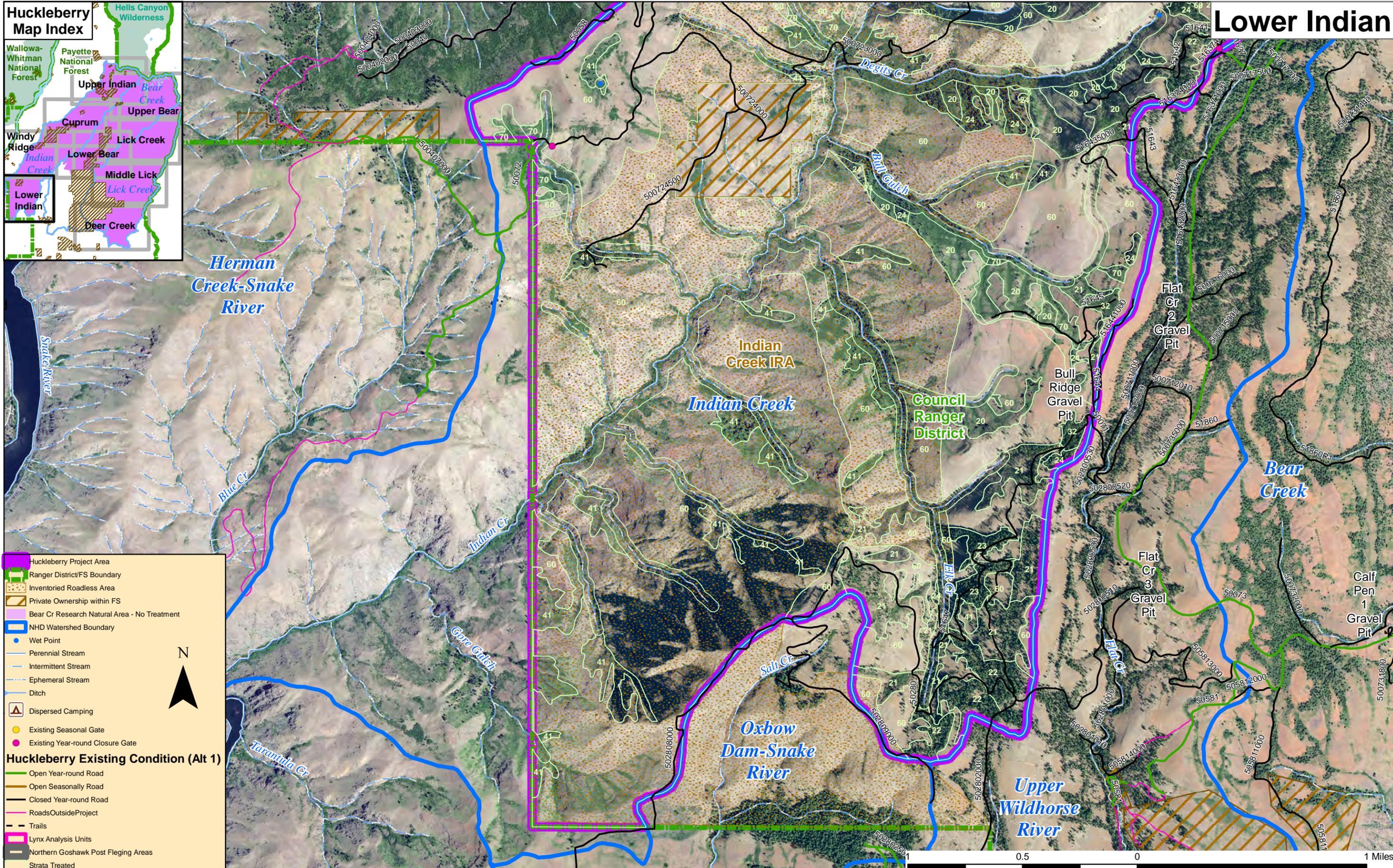
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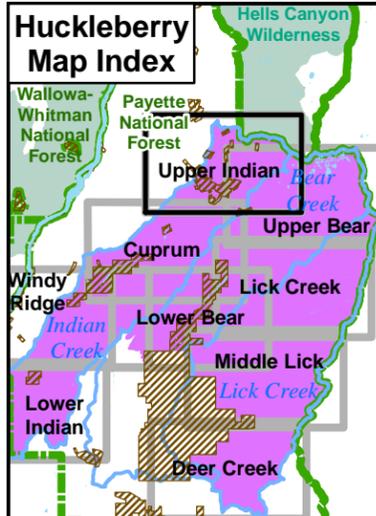
Lower Indian



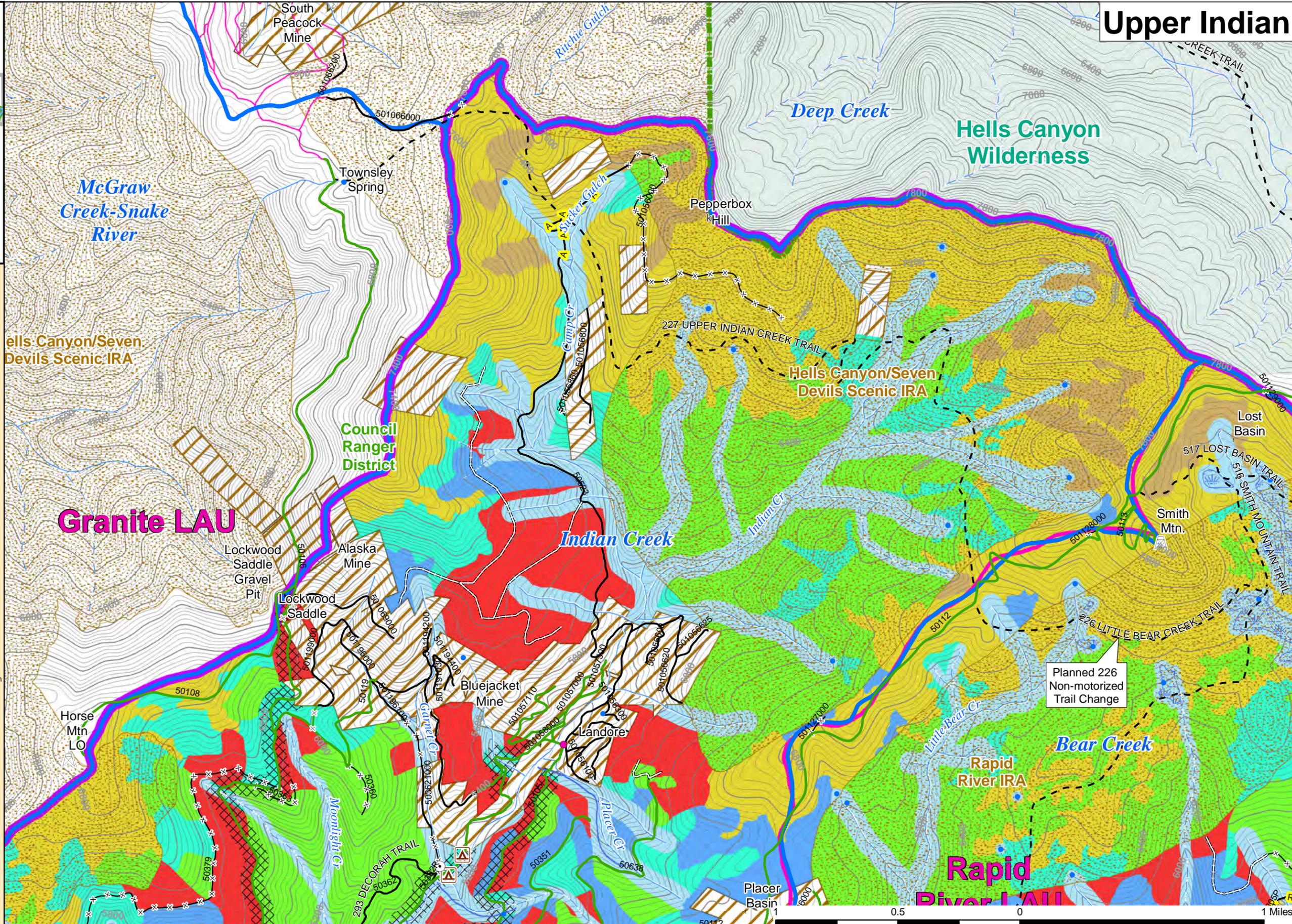
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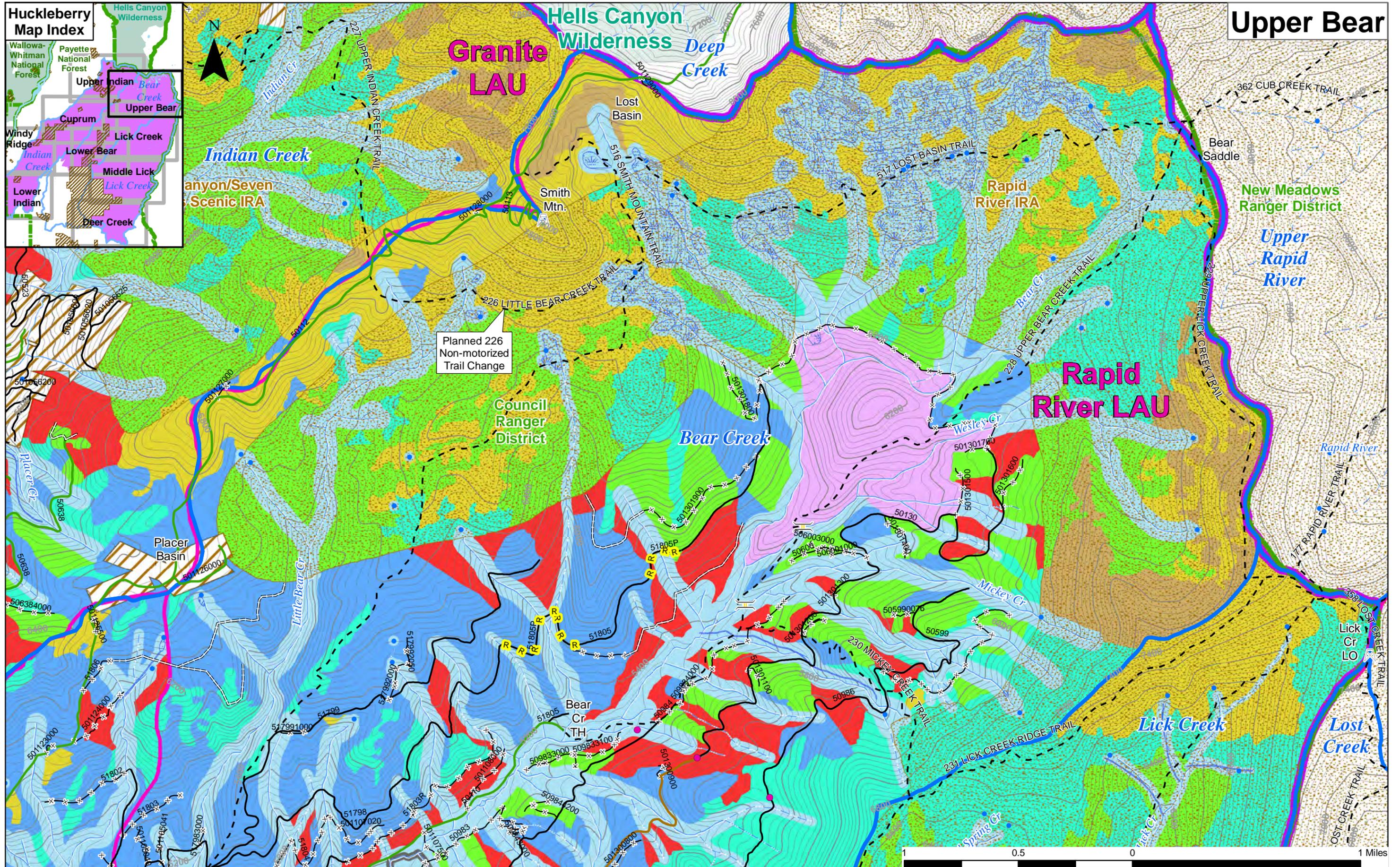


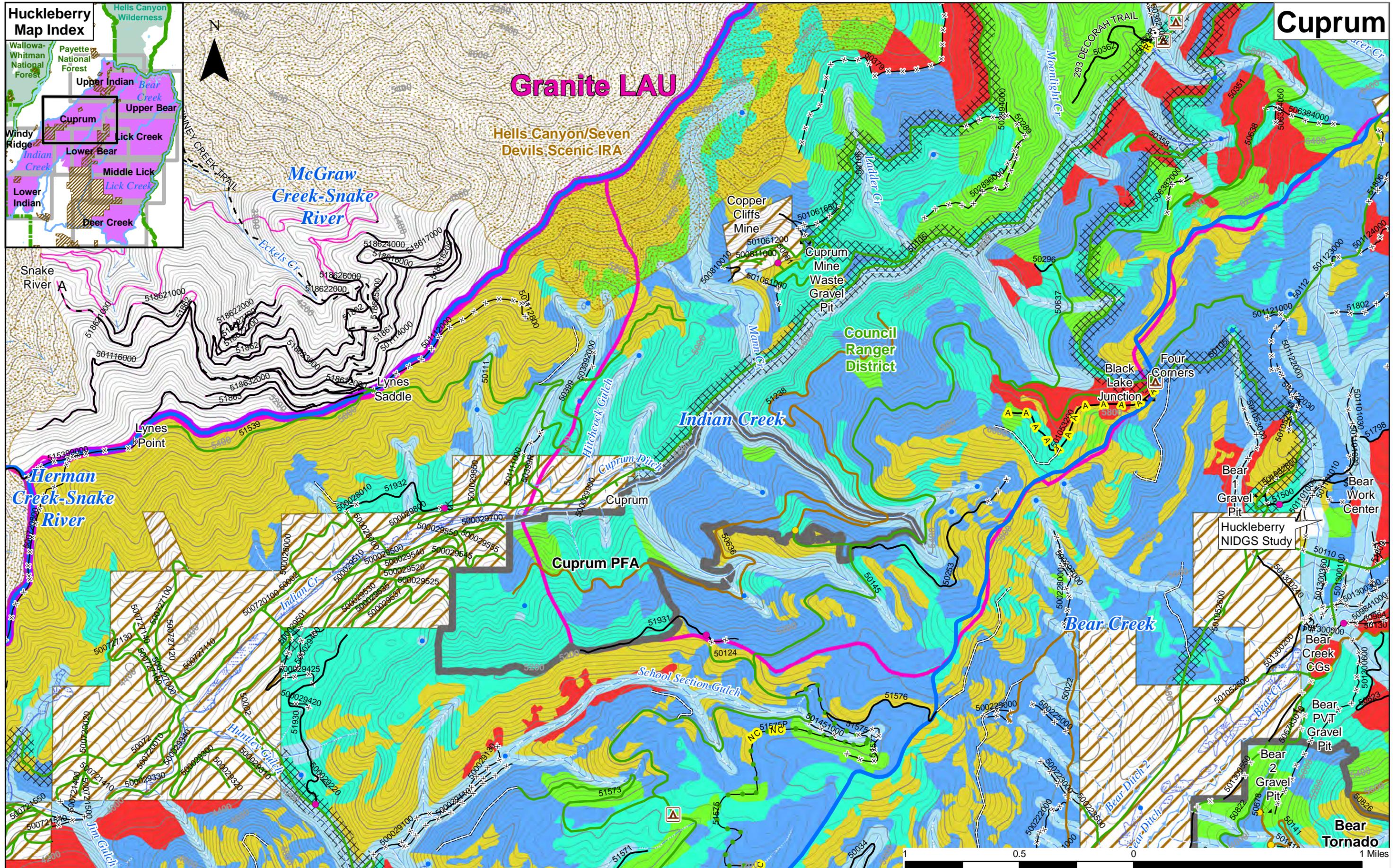
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- 51575 New Construction
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- Trail_Bridges
- Huckleberry_AOP
- Vegetation Management Opportunity**
- Commercial Thin
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- Mature NonCommercial Thinning
- Meadow Restoration
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- RCA-Fire allowed to back in
- No Treatment
- Alt 2 Shaded Fuel Break
- Lynx Analysis Units
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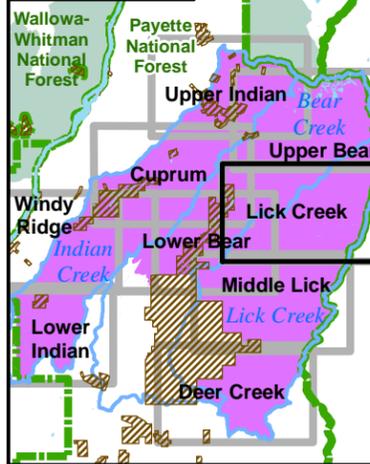
Upper Indian

Planned 226 Non-motorized Trail Change





Huckleberry Map Index



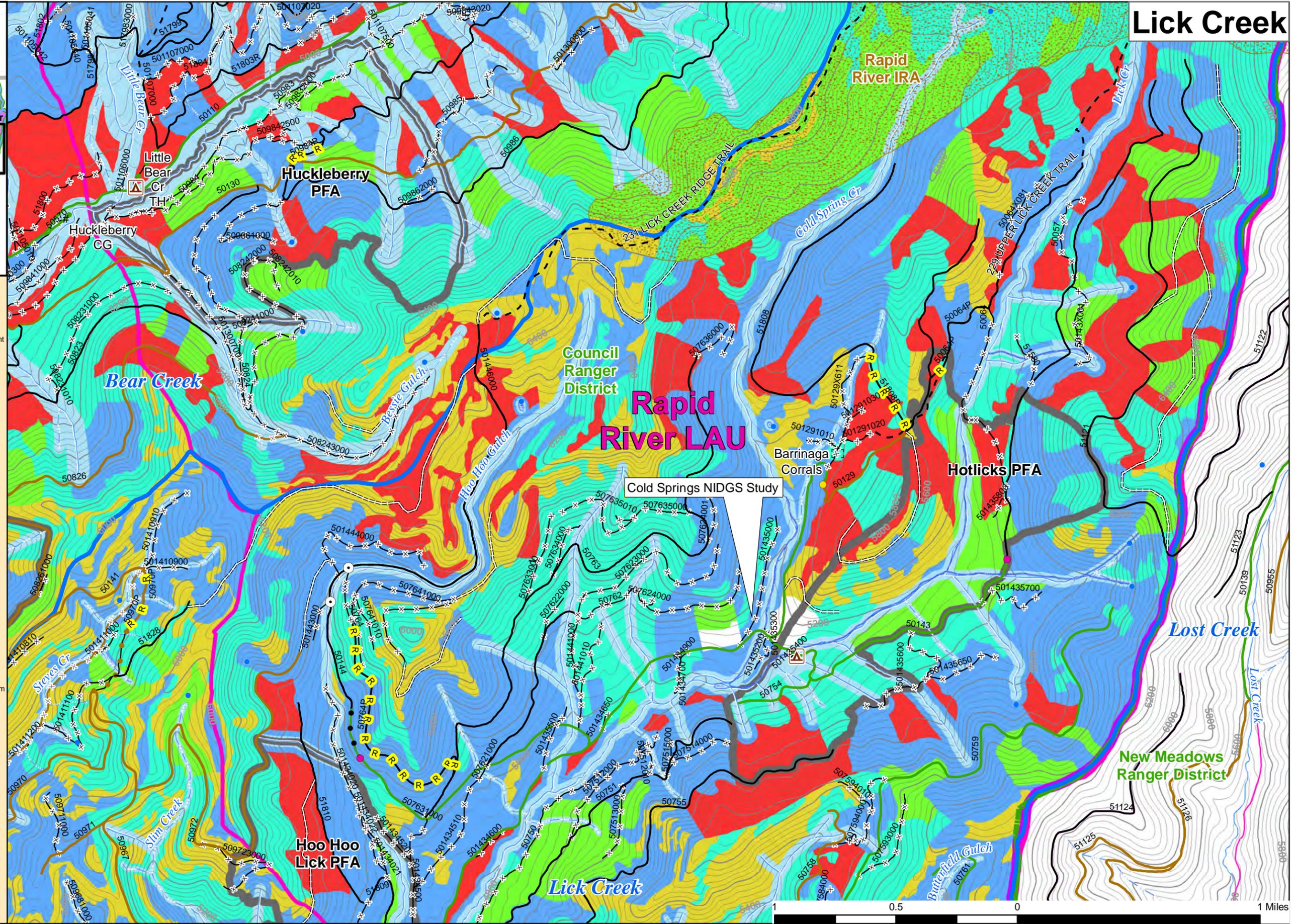
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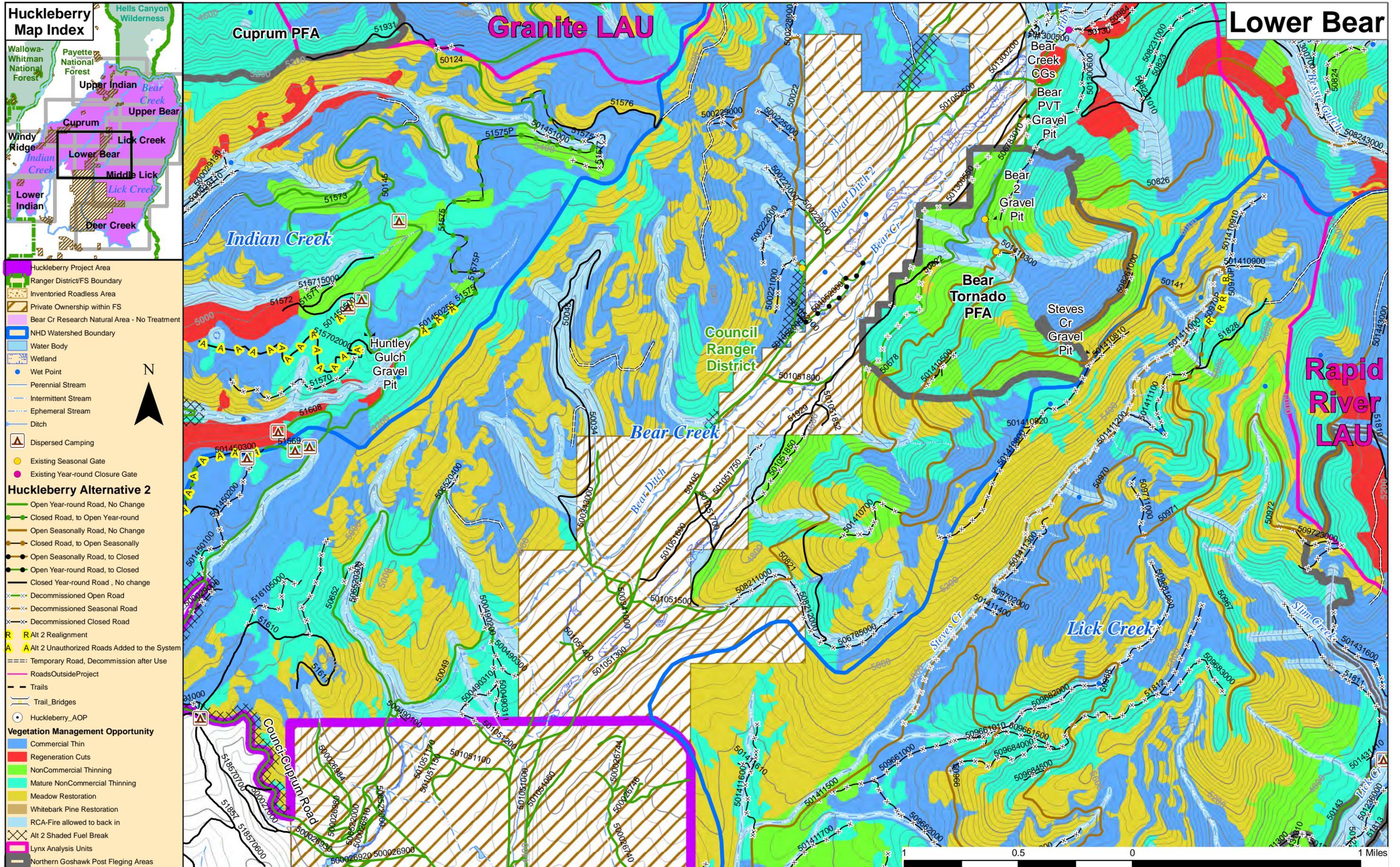
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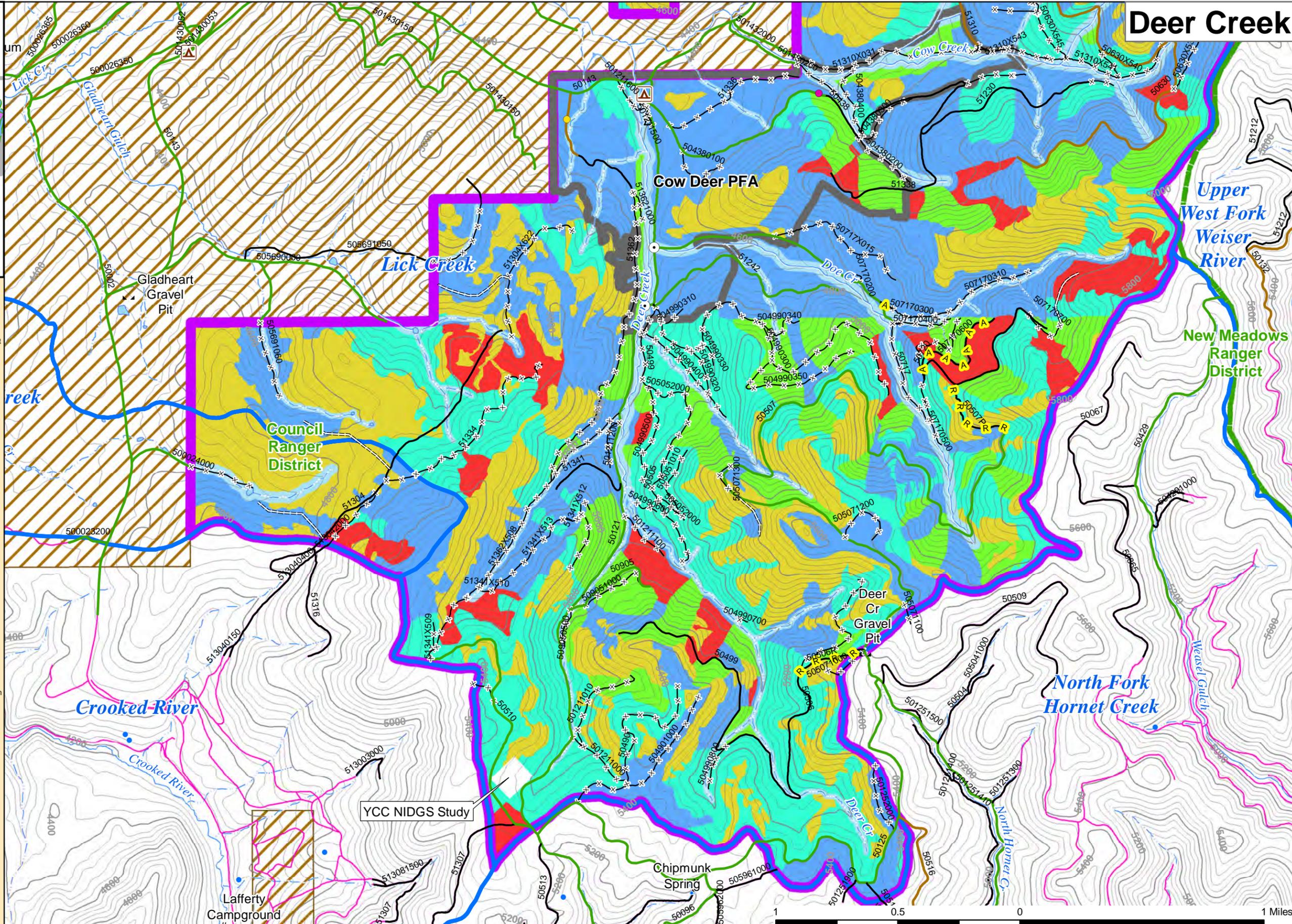
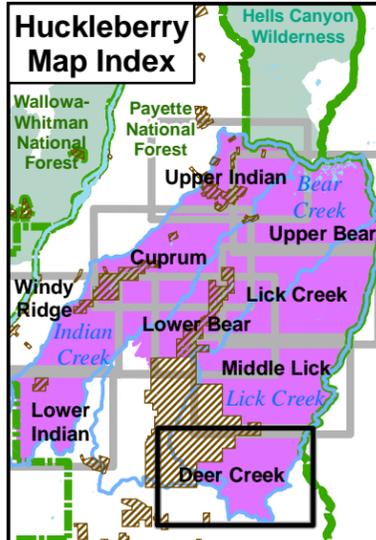
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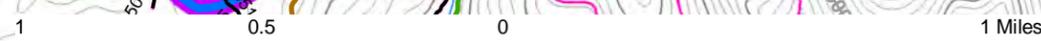


Lick Creek





Deer Creek



Huckleberry Map Index

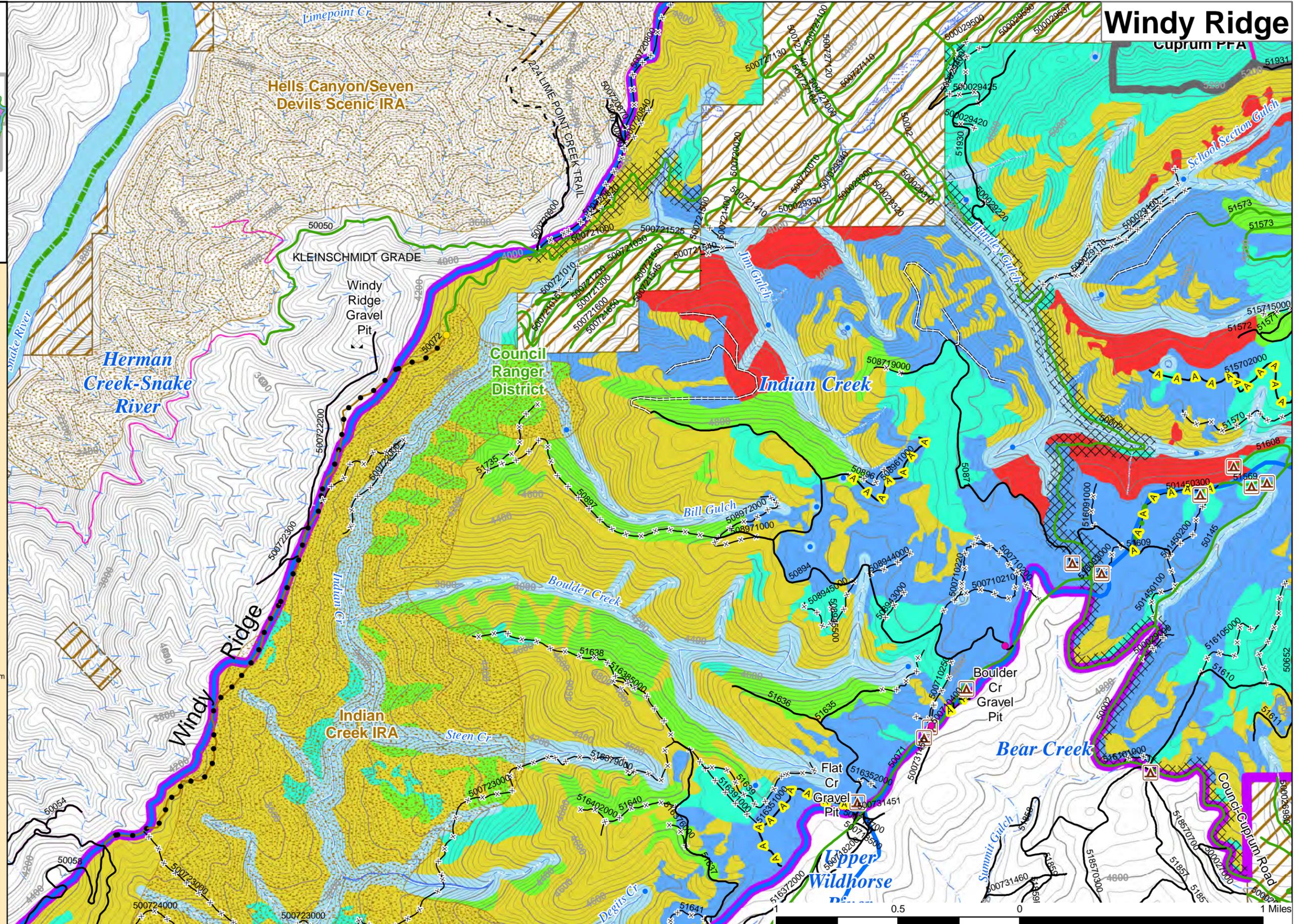
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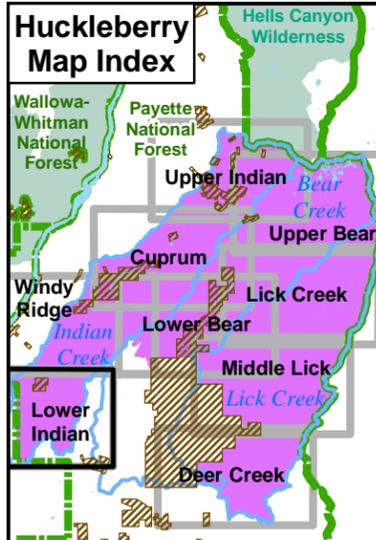
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Lower Indian

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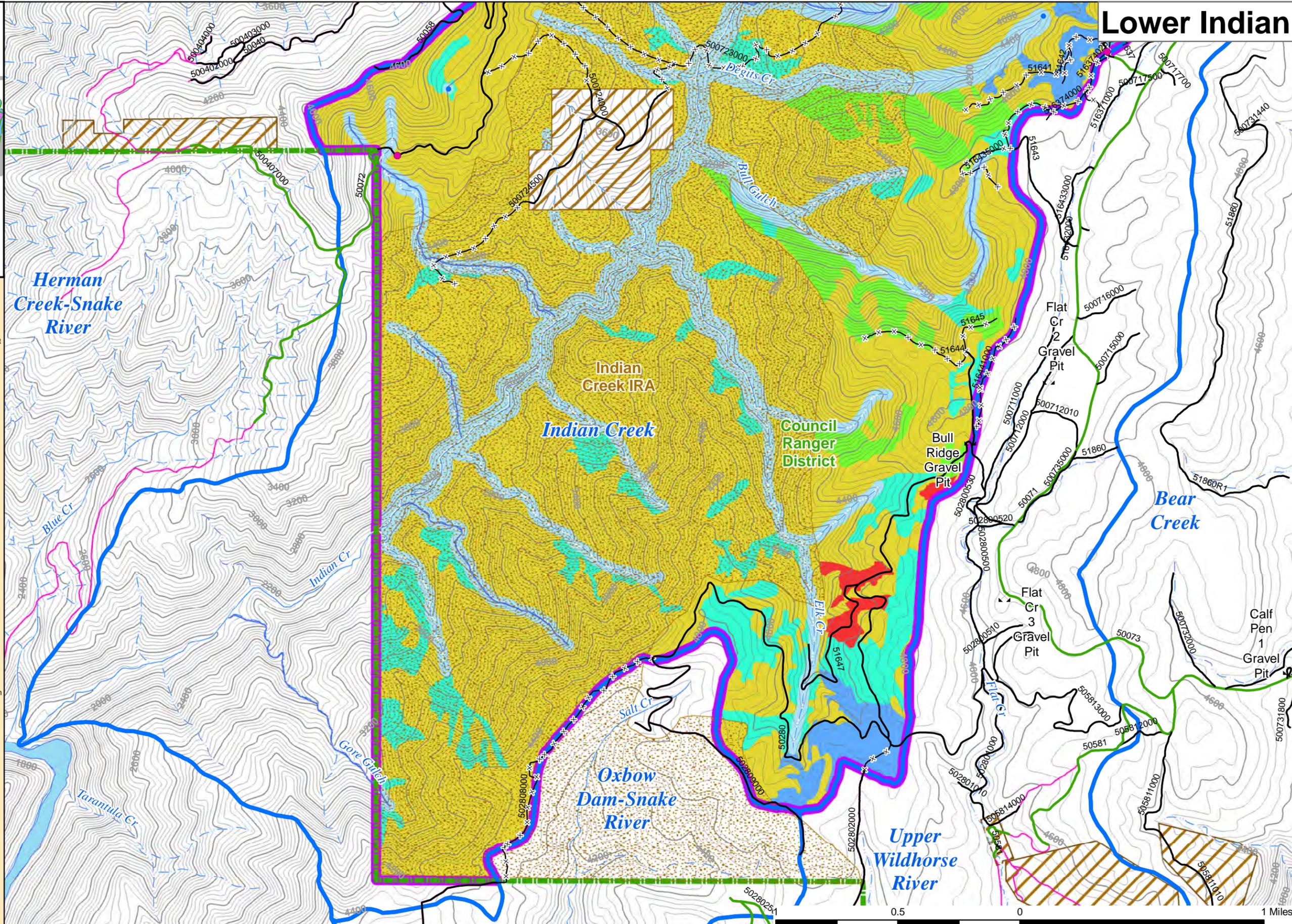
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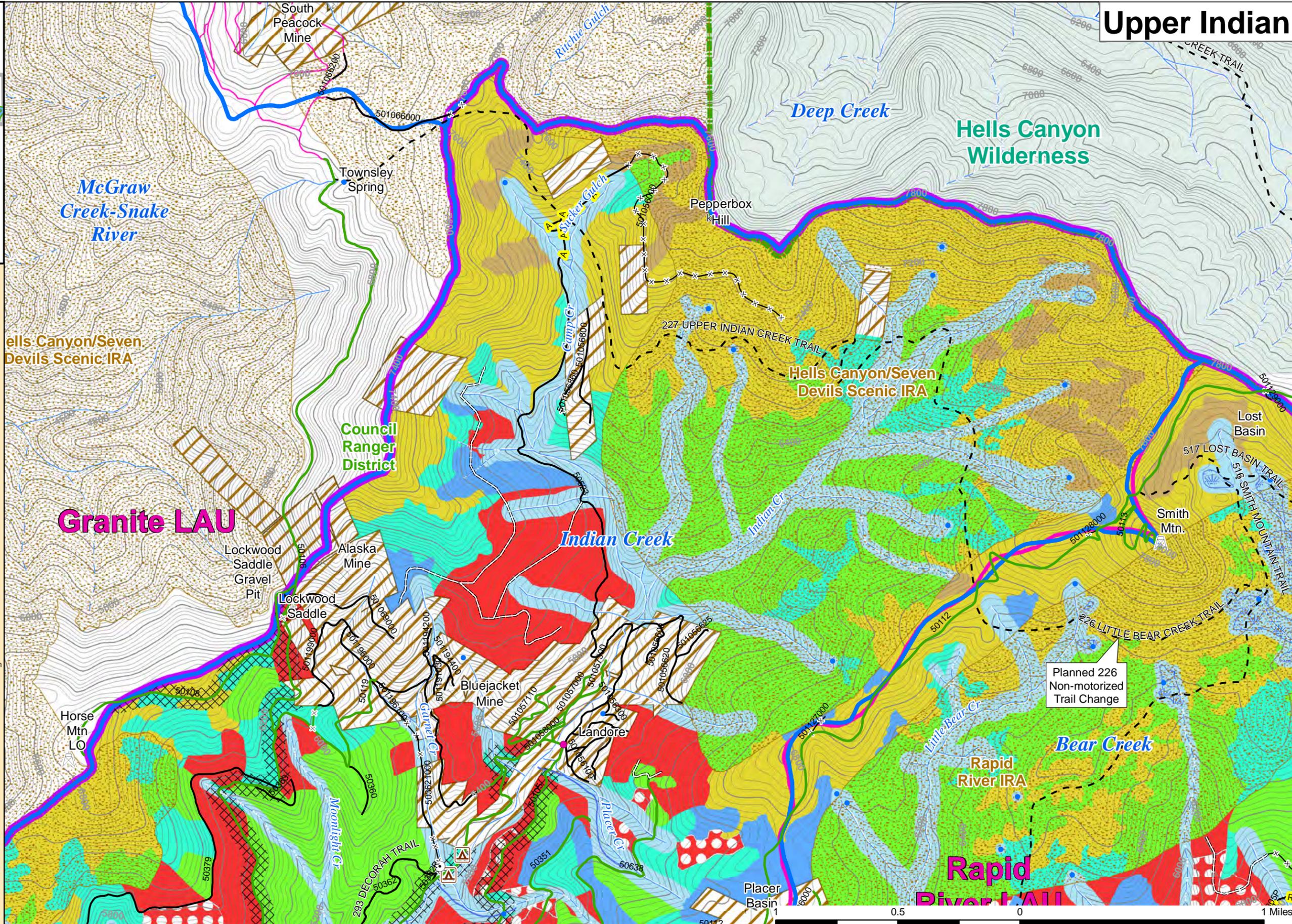
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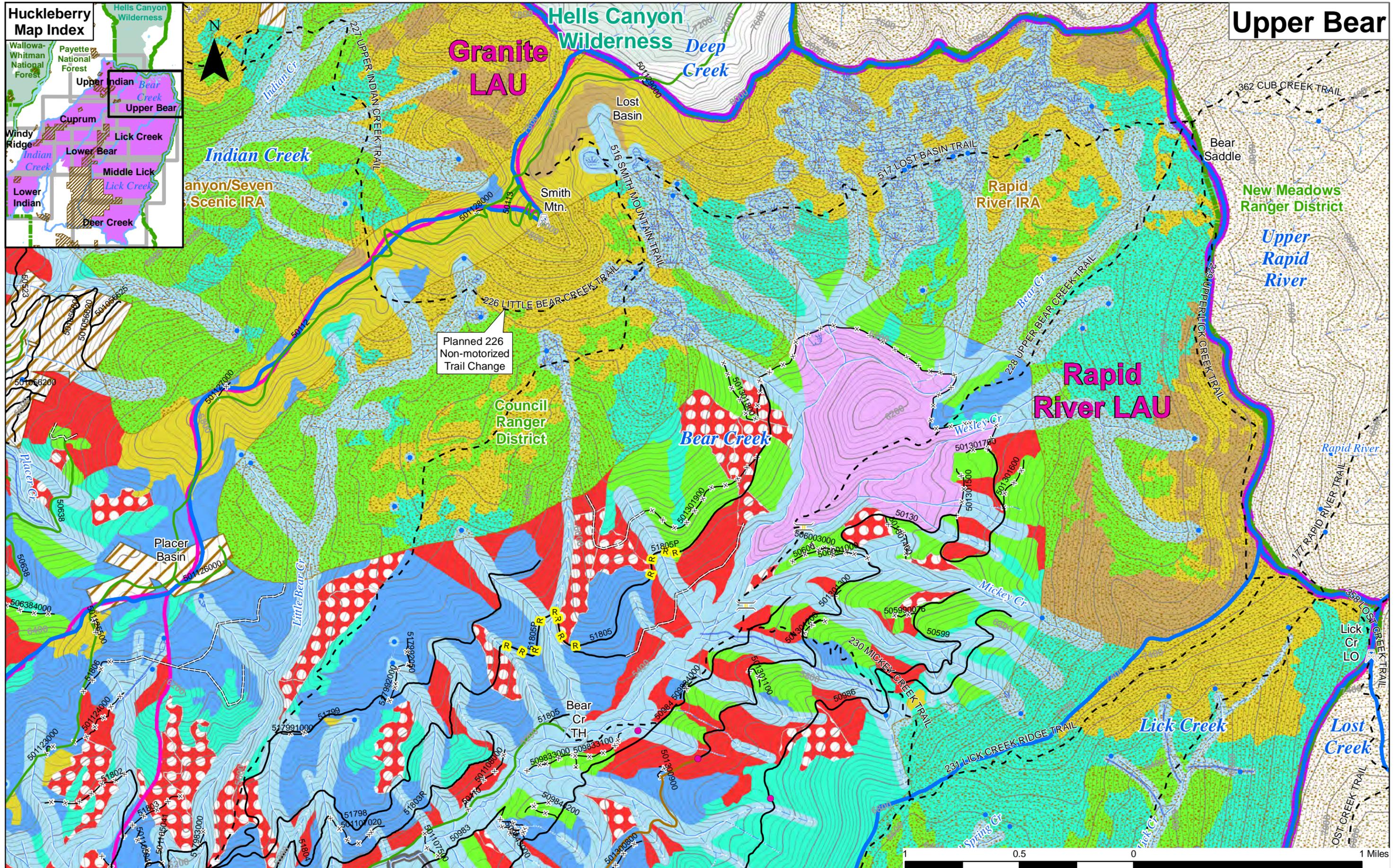
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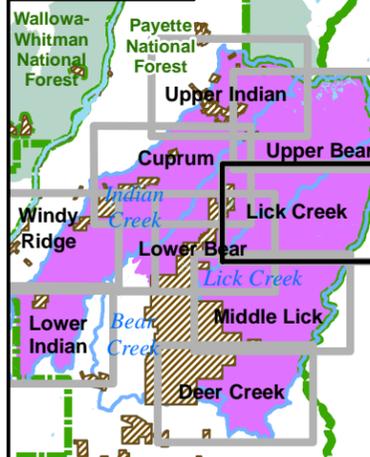


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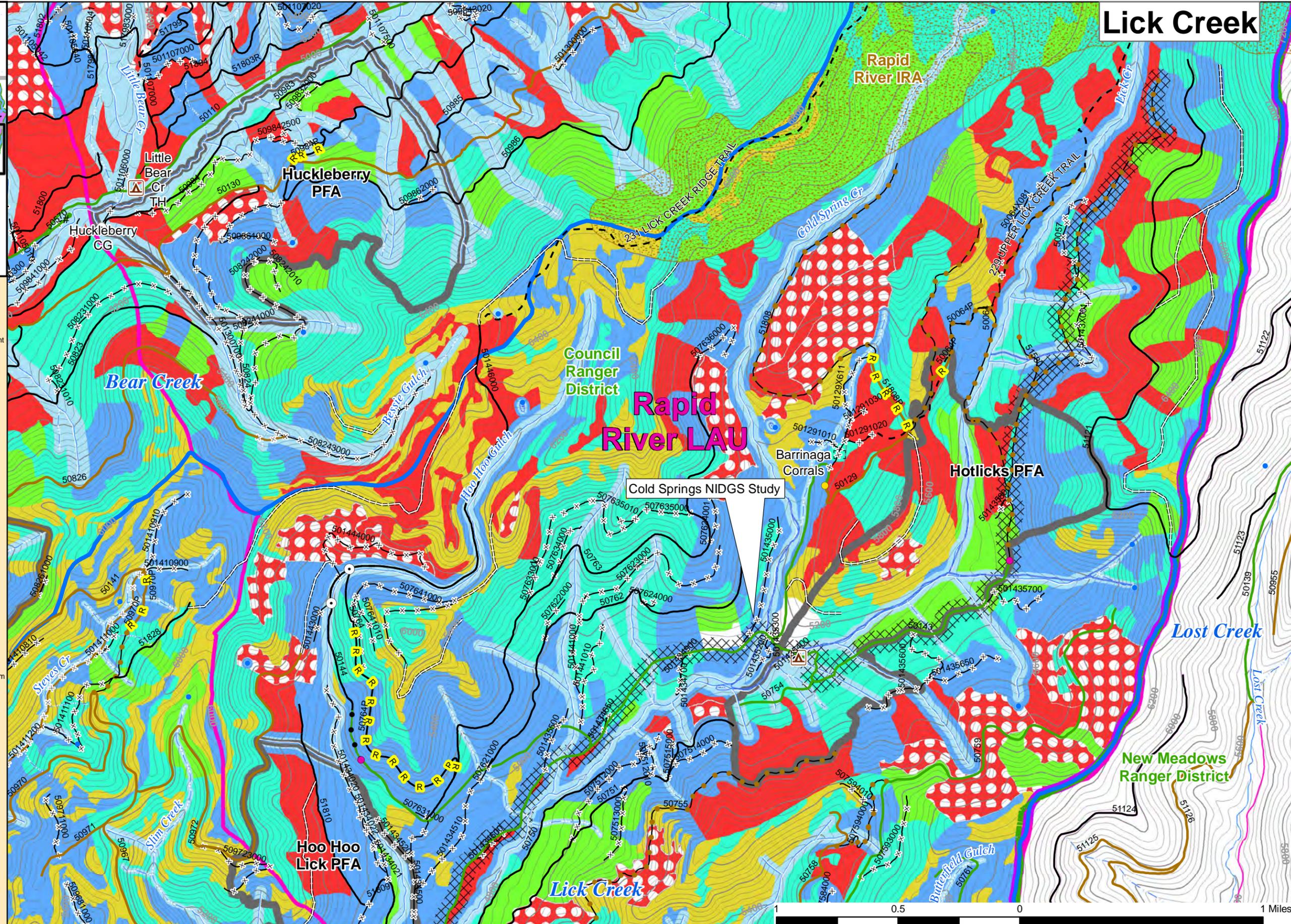




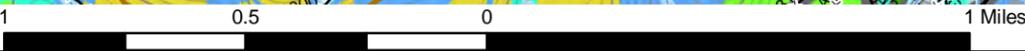
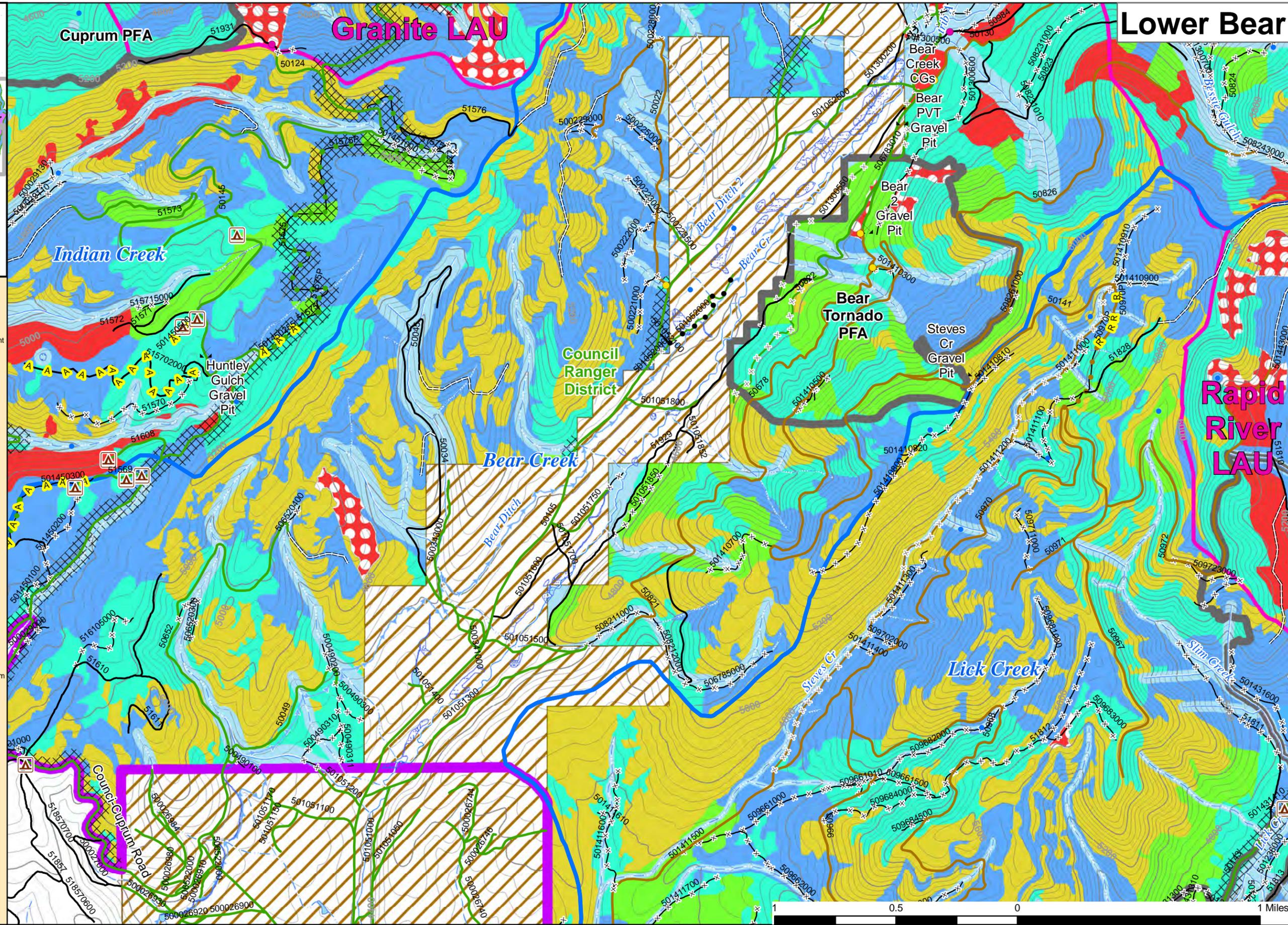
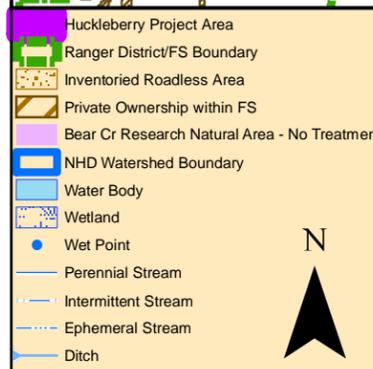
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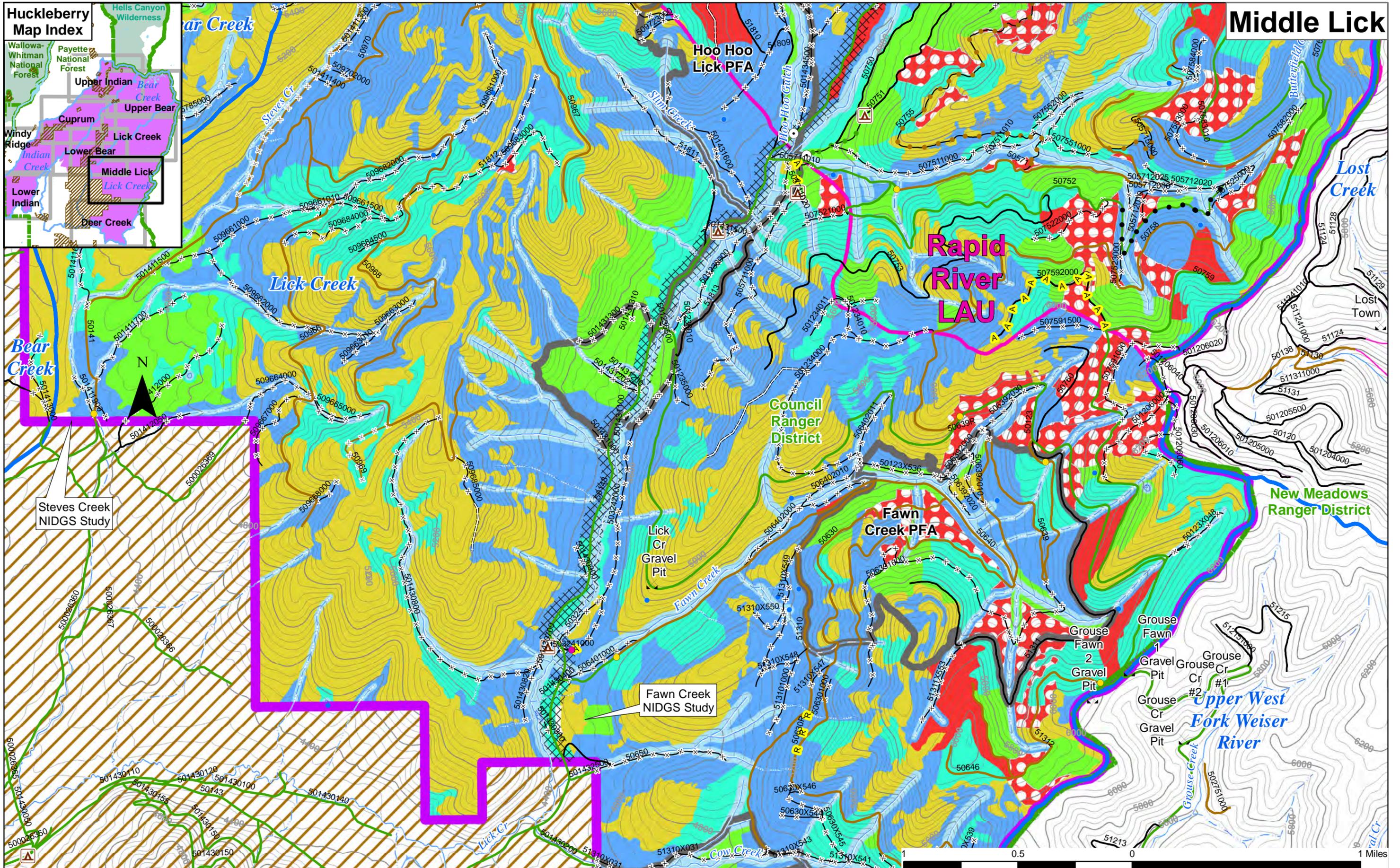


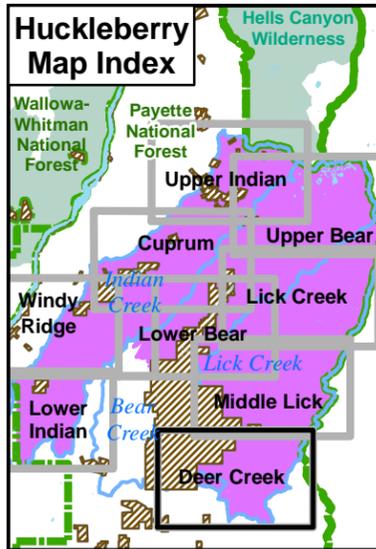
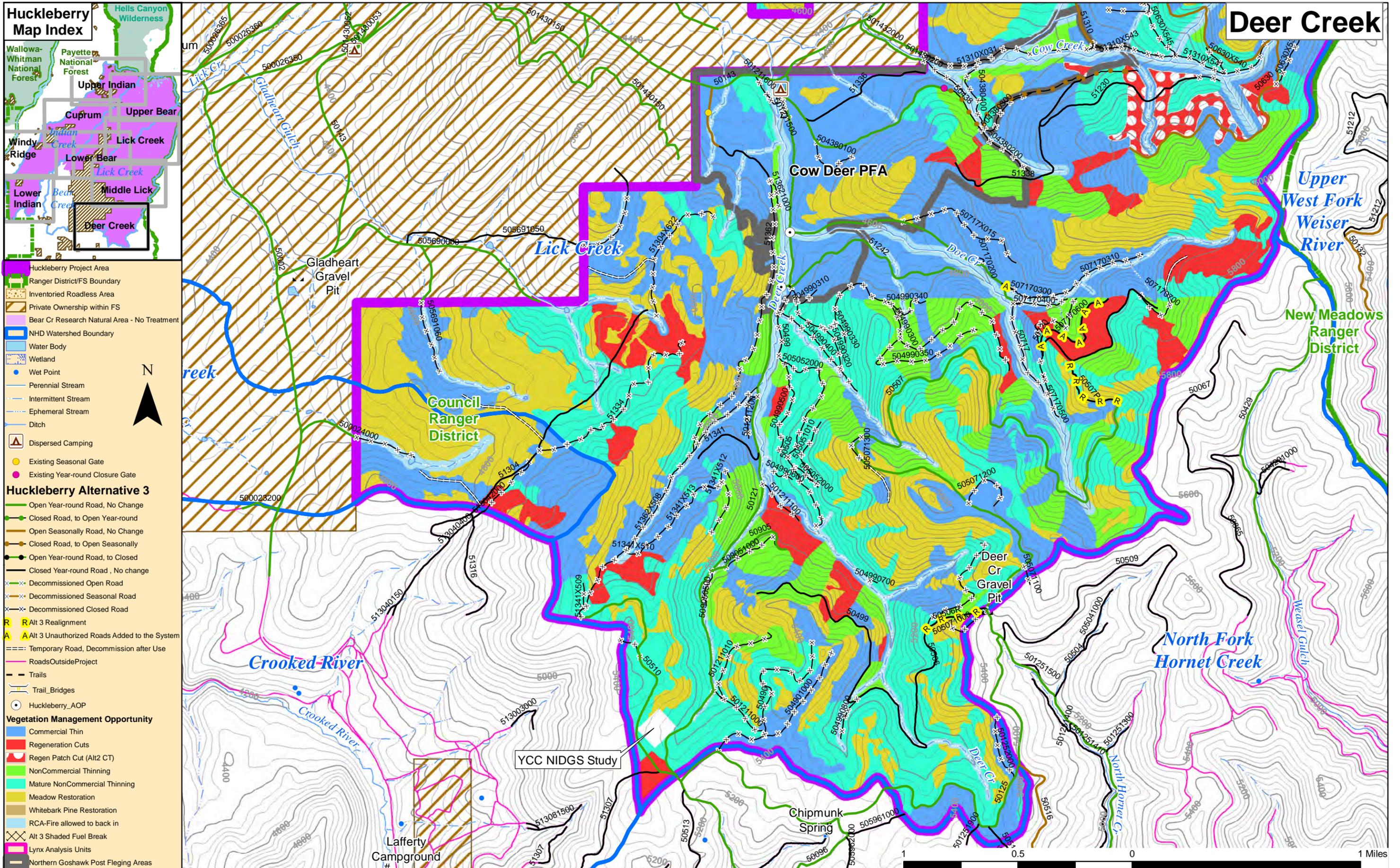
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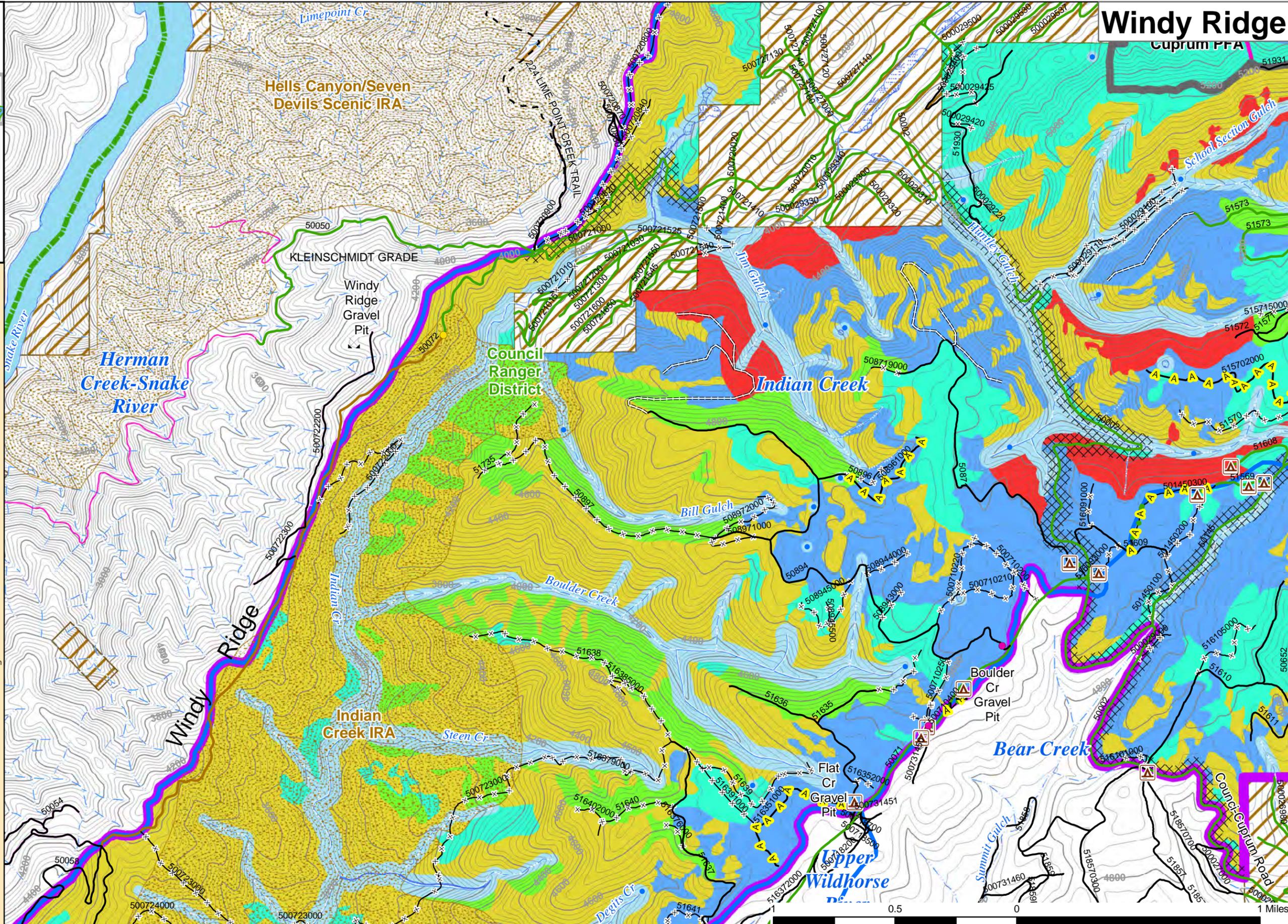
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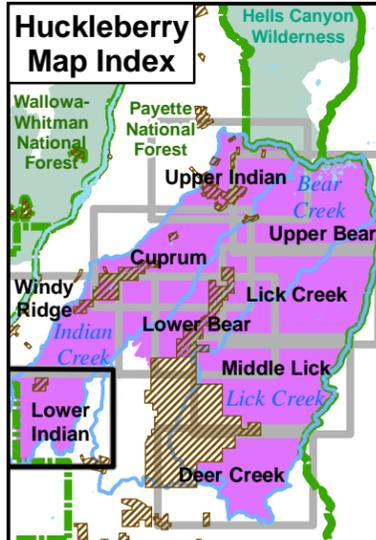
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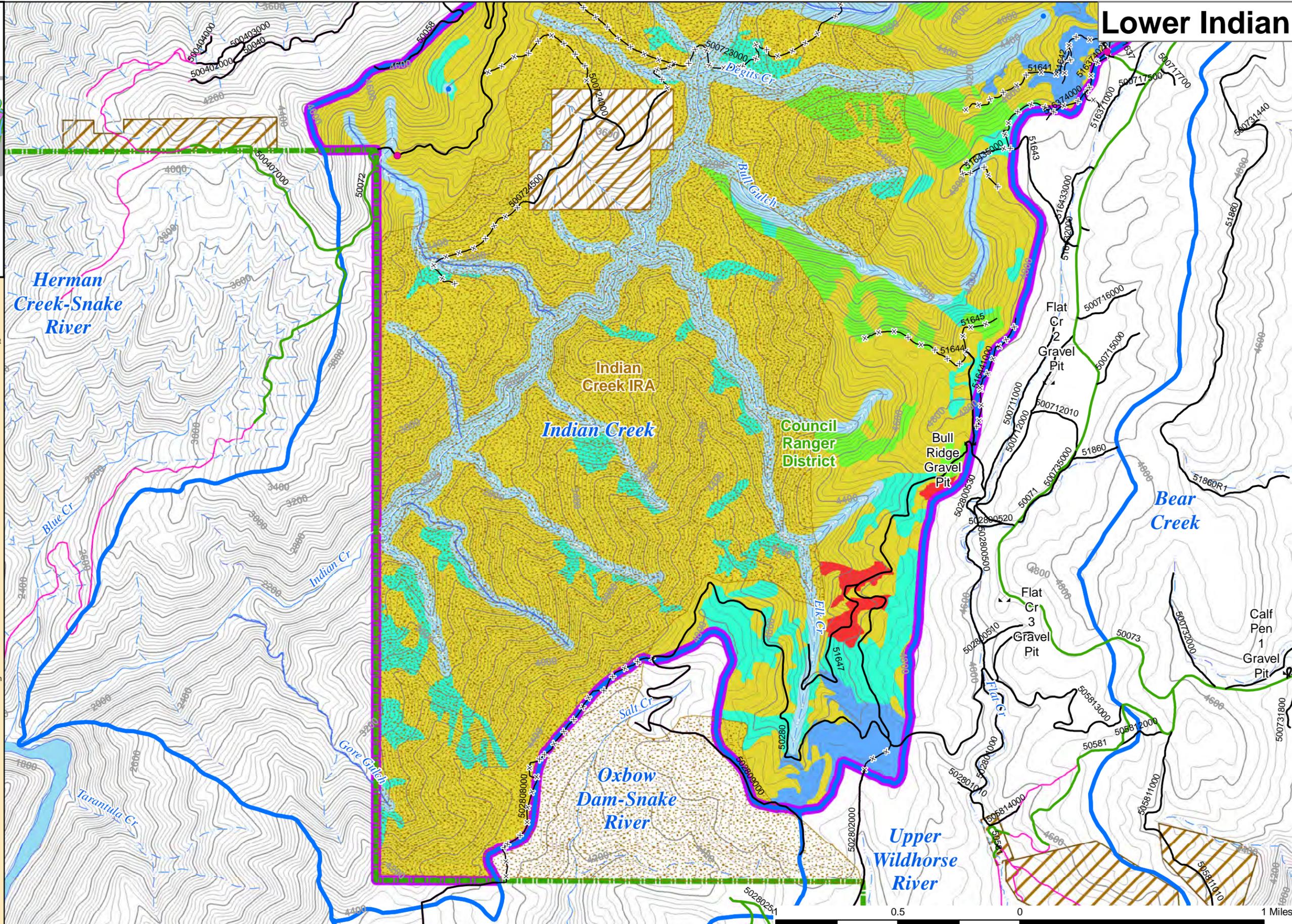
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- RoadsOutsideProject
- Trails
- Trail_Bridges
- Huckleberry_AOP

Vegetation Management Opportunity

- Commercial Thin
- Regeneration Cuts
- Regen Patch Cut (Alt2 CT)
- NonCommercial Thinning
- Mature NonCommercial Thinning
- Meadow Restoration
- Whitebark Pine Restoration
- RCA-Fire allowed to back in
- Alt 3 Shaded Fuel Break
- Lynx Analysis Units
- Northern Goshawk Post Fleging Areas



Appendix 2
Road Treatment Table

The following table displays road management actions by alternative in the Project. The road attributes displayed are:

- ROAD ID: Road number or ID
- SYSTEM:
 - COUNTY – Road under County jurisdiction
 - NA – Not applicable to this attribute because the road does not exist
 - NFSR – National Forest System Road
 - UNAUTHORIZED – Unauthorized route not part of the Payette National Forest Road Atlas
- CURRENT STATUS – The status of each road in Alternative 1 representing the existing condition
 - OPEN – Roads open to the public year-round
 - SEASONAL – Roads open to the public seasonally
 - CLOSED – Roads that are closed year-round; this includes all unauthorized routes
 - NA – The road currently does not exist but is planned as part of a reroute
- ALTERNATIVE 2: The treatment proposed in Alternative 2
- ALTERNATIVE 3: The treatment proposed in Alternative 3
 - Road Treatments proposed in each alternative
 - ML3OPEN – Maintenance Level 3 road that is open year-round
 - ML2OPEN – Maintenance Level 2 road that is open year-round
 - ML2SEASONAL – Maintenance Level 2 road that is open seasonally
 - ML2CLOSED – Maintenance Level 2 road that is administratively closed year-round
 - ML1CLOSED – Maintenance Level 1 road that is closed year-round
 - LTC – Maintenance Level 1 road that is put into long-term storage and closed year-round
 - CONVERT – Conversion from a road to a trail
 - _A – Any of the above treatment types with an _A would be Added to the National Forest Road System
 - _R – Any of the above treatment types with an _R would be a part of a Reroute where new road is constructed, and another portion of road is decommissioned to relocate the road

- _NC – Any of the above treatment types with an _NC indicates New Construction, however it is only used for 51575P
- DECOM-ABANDON – Decommission through abandonment where no sediment issues exist and it would be more detrimental to treat
- DECOM-FR – Decommission road through Full Recontour of the road fill to match the natural hill slope
- DECOM-FRPC – Decommission road through Full Recontour with Range Permittee Coordination
- DECOM-FRTPC – Decommission road through Full Recontour with Range Permittee Coordination to leave a trail for livestock access
- DECOM-OS20 – Decommission road by decompacting the surface and out sloping 20 Percent to improve drainage
- DECOM-OS20PC – Decommission road by decompacting the surface and out sloping 20 Percent to improve drainage with Range Permittee Coordination
- DECOM-OS20PCATV – Decommission road by decompacting the surface and out sloping 20 Percent to improve drainage with Range Permittee Coordination to allow ATV use
- DECOM-ST – Decommission road through Spot Treatment of targeted work to improve drainage
- DECOM-STPC – Decommission road through Spot Treatment with Range Permittee Coordination
- DECOM-STPCATV – Decommission road through Spot Treatment with Range Permittee Coordination to allow ATV use
- TAR RECOMMENDATION – The treatment that was recommended by the Payette National Forest Travel Analysis Report. Most unauthorized roads have no TAR Recommendation because they are not National Forest System Roads and as such were not analyzed during Forest level travel analysis, however some were recommended to be added to the system, decommissioned, or further evaluated by an interdisciplinary team.
 - MAINTAIN – Maintain at the current status of the road
 - IMPROVE – Improve the maintenance level or condition of the road
 - MAINTAIN OR IMPROVE – Maintain at the current status of the road or Improve the maintenance level or condition of the road
 - DECOMMISSION – Decommission the road
 - IDT EVALUATE – Further evaluation by an interdisciplinary team during fine scale analysis
- MILES – The mileage of the road segment

Table 1: Roads within the Project area on National Forest System (NFS) lands or under National Forest jurisdiction that propose a treatment in an action alternative. This includes roads on the ridgetops that weave in and out of the Project area.

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50002	NFSR	OPEN	ML3OPEN	ML3OPEN	MAINTAIN OR IMPROVE	5.09
50002	COUNTY	OPEN	COUNTY	COUNTY		2.63
500024000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.28
500026369	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.08
500028010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
500029000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.18
500029100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.69
500029110	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.64
500029130	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.27
500029220	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
500029400	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.48
500029420	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.10
500029425	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.17
500029501	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
500029800	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.06
50022	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN	1.63
500221000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.28
500222000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.33
500223000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.21
500223500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
500224000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
500225000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.22
500227000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
500228000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.35
500228000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC	IDT EVALUATE	0.13
500229000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.26
50034	NFSR	CLOSED	LTC	ML1CLOSED	MAINTAIN	1.43

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50045	NFSR	CLOSED	LTC	ML1CLOSED	DECOMMISSION	0.29
50049	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.79
500490100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
500490200	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.11
500490300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.21
500490310	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.42
500490311	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.15
50057	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.40
50058	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	1.19
50064	NFSR	CLOSED	LTC	ML2SEASONAL	IDT EVALUATE	0.74
50064	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.36
50064	NFSR	CLOSED	DECOM-FR	ML2SEASONAL	IDT EVALUATE	0.49
50064P	UNAUTHORIZED	CLOSED	LTC	ML2SEASONAL		0.34
50064P	NA	NA	LTC_R	ML2SEASONAL_R		0.12
50064X081	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.53
50071	NFSR	CLOSED	LTC	LTC	MAINTAIN	1.78
50071	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	1.38
500710200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.40
500710210	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.35
500710220	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.46
500710250	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.32
500710255	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.13
500710400	UNAUTHORIZED	CLOSED	ML2OPEN_A	ML2OPEN_A		0.12
50072	NFSR	CLOSED	LTC	LTC	DECOMMISSION	1.27
50072	COUNTY	OPEN	COUNTY	COUNTY		2.40
50072	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	0.65
50072	NFSR	SEASONAL	ML2CLOSED	ML2SEASONAL	IMPROVE	2.79
500720800	UNAUTHORIZED	CLOSED	DECOM-OS20	CONVERT		1.92
500720820	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.17
500720840	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.24

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
500721000	UNAUTHORIZED	OPEN	ML2CLOSED	ML2CLOSED		0.24
500721010	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.16
500721500	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.28
500721540	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.10
500722000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.98
500723000	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		2.57
500724000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.82
500724500	UNAUTHORIZED	CLOSED	DECOM-OS20PC	DECOM-OS20PC		0.63
500810010	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.06
50105	COUNTY	OPEN	COUNTY	COUNTY		13.16
501051750	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.09
501051850	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.38
501052000	UNAUTHORIZED	OPEN	DECOM-FR	DECOM-FR		0.11
501052100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
501052700	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
501052800	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.12
501052900	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.09
501053000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.56
501053200	UNAUTHORIZED	CLOSED	LTC_A	ML1CLOSED_A		0.93
501056000	UNAUTHORIZED	CLOSED	ML2CLOSED_A	ML2CLOSED_A		0.47
501056000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		1.39
501056000	UNAUTHORIZED	CLOSED	ML2CLOSED_A	ML2CLOSED_A		0.16
501056860	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.09
50106	COUNTY	OPEN	COUNTY	COUNTY		4.56
501061000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
501061020	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.10
501061400	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.09
501061650	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.25
501066000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.09
501069000	UNAUTHORIZED	OPEN	DECOM-ST	DECOM-ST		0.10

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50108	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN	1.37
50110	NFSR	OPEN	ML3OPEN	ML3OPEN	IMPROVE	3.02
50110	COUNTY	OPEN	COUNTY	COUNTY		0.20
501101000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.18
501101010	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.30
501101020	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.12
501101030	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.23
501102010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.03
501104000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
501104500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.34
501105000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
501105010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
501105040	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.17
501105041	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.16
501105042	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.07
501105500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501106000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.10
501107000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.29
501107000	UNAUTHORIZED	CLOSED	CONVERT	CONVERT		0.16
501107020	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.35
501107500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.14
501108000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.34
50111	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	1.64
501111000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.16
501112000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.88
501112800	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.08
50112	COUNTY	OPEN	COUNTY	COUNTY		5.98
501121000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
501122000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.55
501122010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.03

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
501122030	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501123000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
501124000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.34
501125500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
501127000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
501128000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.05
501129000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.05
50113	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.64
50119	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	0.10
50119	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	0.86
501199000	UNAUTHORIZED	OPEN	DECOM-ST	DECOM-ST		0.10
501206000	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.56
501206040	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.24
501206060	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.55
50121	NFSR	OPEN	ML3OPEN	ML3OPEN	IMPROVE	3.35
501211000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.30
501211010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.44
501211100	UNAUTHORIZED	NA	DECOM-FRTPC	DECOM-FRTPC		0.24
501211200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.22
501211500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
501211550	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501211600	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19
501211700	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501211710	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.01
50123	NFSR	OPEN	ML3OPEN	ML3OPEN	MAINTAIN OR IMPROVE	5.87
501234000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		1.26
501234010	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.24
501234011	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.25
501234012	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.14
501235000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
501236000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.97
501236010	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.07
501236500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04
50123X048	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.32
50123X049	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
50123X536	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.36
50124	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.12
50124	NFSR	OPEN	ML2CLOSED	ML2CLOSED	MAINTAIN	0.29
50125	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	1.03
501252000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.30
50129	NFSR	CLOSED	LTC	ML2SEASONAL	IDT EVALUATE	1.04
50129	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.90
50129	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	0.53
501291010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.15
501291020	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.14
501291030	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
50129X611	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.56
50130	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.91
50130	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	3.45
50130	NFSR	CLOSED	DECOM-ABANDON	DECOM-ABANDON	IDT EVALUATE	0.94
50130	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.81
50130	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	0.66
50130	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	4.18
501300100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.14
501300200	UNAUTHORIZED	OPEN	DECOM-FR	DECOM-FR		0.17
501300210	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501300220	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.04
501300221	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.03
501300230	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.10
501300240	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.05

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
501300250	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.06
501300251	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.06
501300252	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.04
501300260	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.01
501300300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.49
501300310	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.03
501300360	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.23
501300400	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.03
501300500	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.05
501300550	UNAUTHORIZED	OPEN	DECOM-FRPC	DECOM-FRPC		0.52
501300600	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.91
501300700	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.65
501300800	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.29
501300900	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.10
501301100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
501301200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
501301210	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
501301300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04
501301400	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.23
501301500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.12
501301500	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.10
501301600	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.24
501301700	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.10
501301800	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.48
501301900	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.67
501345500	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.01
50141	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	1.39
50141	NFSR	SEASONAL	DECOM-FR	DECOM-FR	IMPROVE	2.56
50141	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	4.36
501410100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.02

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
501410300	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.12
501410500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.21
501410502	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.02
501410504	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04
501410506	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.01
501410510	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501410700	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.42
501410800	UNAUTHORIZED	CLOSED	DECOM-STPC	DECOM-STPC		1.10
501410810	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.23
501410820	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.05
501410900	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19
501410910	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.38
501411000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.15
501411100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.60
501411200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
501411300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.37
501411400	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
501411500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
501411600	UNAUTHORIZED	CLOSED	DECOM-STPCATV	DECOM-STPCATV		0.53
501411610	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
501411700	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.57
501411800	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
501411900	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.20
501412000	UNAUTHORIZED	CLOSED	DECOM-STPCATV	DECOM-STPCATV		0.64
501412050	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.11
501413000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.41
501413010	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.11
50143	NFSR	CLOSED	ML2CLOSED	ML2SEASONAL	IDT EVALUATE	2.31
50143	NFSR	OPEN	ML3OPEN	ML3OPEN	MAINTAIN OR IMPROVE	7.40
501430200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.24

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
501430300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501430310	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.01
501430400	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501430600	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.03
501430700	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.05
501430800	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		1.86
501430810	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04
501430820	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.27
501430900	UNAUTHORIZED	CLOSED	DECOM-STPC	DECOM-STPC		0.14
501431000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.12
501431100	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.07
501431200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.14
501431202	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.25
501431300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.49
501431310	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
501431410	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.03
501431500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
501431600	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.76
501432500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
501434020	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.88
501434021	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19
501434022	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.12
501434100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
501434500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.74
501434510	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.61
501434520	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.23
501434600	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.16
501434650	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.08
501434700	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.20
501434900	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.05

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
501435000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.57
501435100	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.02
501435200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.18
501435300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.02
501435400	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.03
501435500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.28
501435600	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.66
501435650	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.33
501435700	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.36
501435800	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
50143X001	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.44
50144	NFSR	CLOSED	CONVERT	CONVERT	IDT EVALUATE	1.86
50144	NFSR	OPEN	LTC	ML1CLOSED	IDT EVALUATE	0.21
50144	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	1.25
501441000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.48
501441010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.34
501443000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.18
501444000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.70
501446000	UNAUTHORIZED	CLOSED	CONVERT	CONVERT		0.45
50145	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	6.73
50145	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	2.57
501450100	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.20
501450200	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.45
501450255	UNAUTHORIZED	CLOSED	ML2OPEN_A	ML2OPEN_A		0.20
501450300	UNAUTHORIZED	CLOSED	ML2OPEN_A	ML2OPEN_A		0.54
501450500	UNAUTHORIZED	CLOSED	ML2OPEN_A	ML2OPEN_A		0.15
501451000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.14
502204000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.01
50253	NFSR	CLOSED	LTC	ML1CLOSED	DECOMMISSION	1.04
50253	NFSR	CLOSED	DECOM-FR	ML1CLOSED	DECOMMISSION	0.13

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50280	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	2.18
502802000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.16
502808000	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		1.31
50289	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	0.61
502894000	UNAUTHORIZED	CLOSED	NA	NA		0.06
502896000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.64
50296	NFSR	CLOSED	LTC	ML1CLOSED	DECOMMISSION	0.11
50324	NFSR	CLOSED	DECOM-OS20	DECOM-OS20	MAINTAIN	0.30
503241000	UNAUTHORIZED	CLOSED	LTC_A	ML1CLOSED_A	DECOMMISSION	0.07
503242000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	1.33
50351	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	1.23
50358	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	0.36
50360	NFSR	CLOSED	DECOM-FR	ML1CLOSED	DECOMMISSION	0.24
50362	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.07
50362	NFSR	CLOSED	ML2OPEN	ML2OPEN	IDT EVALUATE	0.68
503621000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST	DECOMMISSION	0.34
50362R	NA	NA	ML2OPEN_R	ML2OPEN_R		0.04
50363	NFSR	CLOSED	DECOM-FR	ML1CLOSED	DECOMMISSION	0.29
50379	NFSR	CLOSED	DECOM-FR	ML1CLOSED	DECOMMISSION	1.89
50399	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	1.47
503992000	UNAUTHORIZED	CLOSED	NA	NA		0.13
50438	NFSR	CLOSED	ML2CLOSED	ML2SEASONAL	IDT EVALUATE	0.76
50438	NFSR	CLOSED	DECOM-FR	ML2SEASONAL	IDT EVALUATE	0.26
50438	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.95
504380100	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.26
504380200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.29
504380300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.30
504380400	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.34
50490	NFSR	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV	DECOMMISSION	0.95
504901000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.52

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50499	NFSR	CLOSED	LTC	LTC	DECOMMISSION	1.25
50499	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	DECOMMISSION	0.01
50499	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.47
504990300	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		1.66
504990310	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.12
504990320	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.21
504990330	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
504990340	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.23
504990350	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.65
504990400	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.50
504990500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.33
504990600	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.10
504990700	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.04
504990800	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.20
50505	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.81
505051010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.30
505052000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.34
50506	NFSR	CLOSED	LTC	LTC	DECOMMISSION	0.86
50506	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.59
50506R	NA	NA	LTC_R	LTC_R		0.29
50507	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	3.79
505071000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.20
505071100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
505071200	UNAUTHORIZED	CLOSED	DECOM-STPCATV	DECOM-STPCATV		0.30
505071300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.15
50507P	NA	NA	ML2OPEN_R	ML2OPEN_R		0.36
50510	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	1.20
505101000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.14
50514	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.09
50523	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	1.84

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
505691050	UNAUTHORIZED	CLOSED	DECOM-STPCATV	DECOM-STPCATV		0.37
505691060	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.32
50570	NFSR	OPEN	ML3OPEN	ML3OPEN	MAINTAIN OR IMPROVE	0.17
50571	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.60
50571	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	1.82
505711000	UNAUTHORIZED	CLOSED	ML2OPEN_A	ML2OPEN_A		0.10
505711000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		1.16
505711010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
505711020	UNAUTHORIZED	CLOSED	ML2OPEN_A	ML2OPEN_A		0.05
505711020	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
505712000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.41
505712010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.16
505712020	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.40
505712025	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.13
505715000	UNAUTHORIZED	CLOSED	DECOM-FR	ML2SEASONAL		0.50
50599	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	DECOMMISSION	1.05
505990076	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.10
50600	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.36
506001000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07
506003000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
50630	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	2.45
50630	NFSR	SEASONAL	DECOM-FR	ML2SEASONAL	MAINTAIN OR IMPROVE	1.77
506301000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.10
50630R	NA	NA	ML2SEASONAL_R	ML2SEASONAL_R		0.18
50630X539	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.26
50630X540	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
50630X540	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.30
50630X544	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19
50630X545	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.50
50630X546	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50636	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.31
50636	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	2.96
50637	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	1.28
50638	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	2.58
506382000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.23
506382500	UNAUTHORIZED	CLOSED	NA	NA		0.04
506384000	UNAUTHORIZED	CLOSED	NA	NA		0.35
506384050	UNAUTHORIZED	CLOSED	NA	NA		0.08
50639	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	0.68
50639	NFSR	SEASONAL	DECOM-FR	ML2SEASONAL	IMPROVE	1.49
506391000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		1.98
506392000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.30
506392010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.33
506392020	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.24
506392030	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.38
50639R	UNAUTHORIZED	CLOSED	ML2SEASONAL_R	DECOM-FR		0.08
50639R	NA	NA	ML2SEASONAL_R	NA		0.18
50640	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	0.28
50640	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	3.75
506401000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.37
506402000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.70
506402010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.63
506402011	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.33
50646	NFSR	SEASONAL	DECOM-OS20PCATV	ML2SEASONAL	MAINTAIN	0.41
50650	NFSR	CLOSED	LTC	ML1CLOSED	DECOMMISSION	0.28
50650	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.53
50652	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	1.75
506520300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.31
506520400	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
50678	NFSR	CLOSED	LTC	ML1CLOSED	MAINTAIN	0.62

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50678	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.42
50678	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	2.19
506783000	UNAUTHORIZED	OPEN	DECOM-FRPC	DECOM-FRPC		0.05
506783010	UNAUTHORIZED	OPEN	DECOM-FRPC	DECOM-FRPC		0.08
506785000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.42
50717	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	0.86
50717	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.63
50717	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	1.13
507170200	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.05
507170300	UNAUTHORIZED	CLOSED	LTC_A	LTC_A		0.06
507170300	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.21
507170310	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.46
507170400	UNAUTHORIZED	CLOSED	LTC_A	LTC_A		0.03
507170400	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.22
507170500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
507170600	UNAUTHORIZED	CLOSED	LTC_A	LTC_A		0.53
507170700	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.20
50717X015	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.63
50720	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	0.04
50720	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.40
50750	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	1.22
50751	NFSR	CLOSED	LTC	ML1CLOSED	DECOMMISSION	1.73
50751	NFSR	CLOSED	ML2OPEN	ML2OPEN	DECOMMISSION	0.37
507511000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.92
507511010	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.07
507512000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.65
507512010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.16
507513000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.36
507514000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.34
507515000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50752	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	1.90
50752	NFSR	OPEN	DECOM-FR	ML1CLOSED	IMPROVE	0.87
507521000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.24
507522000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.46
507523000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19
507525000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.37
50753	NFSR	CLOSED	DECOM-FR	ML1CLOSED	DECOMMISSION	2.52
50754	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.35
50755	NFSR	CLOSED	LTC	ML2SEASONAL	IDT EVALUATE	3.03
507551000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.29
507551010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.25
507552000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.31
507552010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.02
50758	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	5.28
507582000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.18
507583000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.37
507583010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.03
507584000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.34
50759	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	7.03
507591000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.68
507591500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.40
507592000	UNAUTHORIZED	CLOSED	LTC_A	ML1CLOSED_A		0.89
507593000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.44
507594000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	ML2SEASONAL		0.55
507594010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19
50760	NFSR	CLOSED	DECOM-FR	ML1CLOSED	DECOMMISSION	0.68
50761	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.73
50762	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.81
50762	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	1.15
507621000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
507622000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19
507623000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.90
507624000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
507624001	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.19
50763	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	3.08
507631000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.06
507633000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.39
507633050	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04
507634000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.26
507635000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.35
507635010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.45
507636000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.33
50764	NFSR	CLOSED	DECOM-FR	ML1CLOSED	DECOMMISSION	0.23
50764	NFSR	CLOSED	DECOM-FR	ML1CLOSED	DECOMMISSION	0.19
507641000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		1.11
507641010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.24
50764P	NA	NA	LTC_R	ML1CLOSED_R		1.12
50821	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	0.61
508211000	UNAUTHORIZED	CLOSED	DECOM-STPC	DECOM-STPC		0.32
508212000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.34
50822	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.64
50822	NFSR	OPEN	DECOM-FR	DECOM-FR	MAINTAIN OR IMPROVE	0.68
508221000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.02
50823	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	1.67
508231000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.72
508231010	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.10
50824	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.21
50824	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	1.87
508241000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
508242000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.07

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
508242010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.22
508243000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.98
50826	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN	2.93
50826	NFSR	SEASONAL	DECOM-FR	DECOM-FR	MAINTAIN	0.12
508261000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
50871	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	1.68
50871	NFSR	CLOSED	ML2OPEN	ML2OPEN	IDT EVALUATE	0.11
508719000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.12
50894	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	MAINTAIN	2.96
508943000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.14
508944000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.20
508945000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.40
508945500	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.10
50896	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	0.12
50896	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.22
508961000	UNAUTHORIZED	CLOSED	LTC_A	LTC_A		0.53
50897	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	0.25
50897	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	1.46
508971000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.21
508972000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.08
508972000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.30
50905	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.45
509050500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.17
509051000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.30
50966	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	2.29
509661000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.79
509661010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
509661500	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.28
509662000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.65
509663000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.46

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
509663010	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.21
509664000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.34
509665000	UNAUTHORIZED	CLOSED	DECOM-OS20PC	DECOM-OS20PC		0.31
509666000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.19
509667000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.43
509668000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.13
50967	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN	1.34
50968	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	4.47
509681000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.58
509682000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.63
509683000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.47
509684000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.73
509684500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
509685000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.25
50969	NFSR	SEASONAL	DECOM-FR	DECOM-FR	MAINTAIN OR IMPROVE	0.38
50970	NFSR	CLOSED	ML2SEASONAL	ML2SEASONAL	DECOMMISSION	0.31
50970	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	1.98
509702000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.09
50970P	NA	NA	ML2SEASONAL_R	ML2SEASONAL_R		0.28
50971	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	0.36
509711000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.29
50972	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	2.76
509723000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.55
50983	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	1.71
509832000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.16
509833000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.29
509833050	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.01
509833100	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.21
509833200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04
509834000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
50984	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	1.95
50984	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.99
50984	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	1.80
509841000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.59
509842000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.10
509842500	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
509843000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.23
509843010	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
509843020	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
509843021	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
509844200	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.20
509844250	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
50984R	NA	NA	ML2CLOSED_R	ML2CLOSED_R		0.17
50985	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	0.69
50986	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	3.99
50986	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.45
50986	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	0.50
509861000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.60
509862000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.15
51121	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	2.74
51230	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	1.12
51230	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.10
51238	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	IMPROVE	1.97
51242	NFSR	OPEN	ML2OPEN	ML2OPEN	IMPROVE	0.95
51304	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	1.19
513042000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.30
51304X622	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.65
51307	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	0.11
51310	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN	1.94
513101000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.42

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
51310X031	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.81
51310X032	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04
51310X541	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.62
51310X542	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.02
51310X543	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.05
51310X547	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.13
51310X548	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.16
51310X549	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.66
51310X550	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.21
51311	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	2.72
51311X553	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.40
51312	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN	0.12
51312	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	1.36
51334	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.97
51336	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	0.62
51338	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	0.73
51341	NFSR	CLOSED	LTC	LTC	DECOMMISSION	0.38
51341X509	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
51341X510	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.07
51341X512	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.10
51341X513	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.78
51362	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	0.31
51362	NFSR	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV	IDT EVALUATE	1.32
51362	NFSR	SEASONAL	ML2SEASONAL	ML2SEASONAL	MAINTAIN OR IMPROVE	0.28
513621000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.13
51362X508	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		1.32
51500	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	0.43
51539	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	1.17
515399000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.53
51569	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	0.22

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
51570	NFSR	CLOSED	LTC	LTC	DECOMMISSION	0.20
51570	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.80
515702000	UNAUTHORIZED	CLOSED	LTC_A	LTC_A		1.07
51571	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	0.72
515715000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.13
51572	NFSR	CLOSED	LTC	LTC	DECOMMISSION	0.11
51573	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN OR IMPROVE	1.51
51575	NFSR	CLOSED	ML2OPEN	ML2OPEN	IDT EVALUATE	1.87
51575P	NFSR	CLOSED	ML2OPEN_NC	ML2OPEN_NC		0.32
51576	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.64
51577	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.39
51580	NFSR	CLOSED	DECOM-FR	ML2SEASONAL	IDT EVALUATE	0.23
51608	NFSR	OPEN	ML2OPEN	ML2OPEN	MAINTAIN	0.33
51609	NFSR	CLOSED	LTC	LTC	IDT EVALUATE	0.07
51609	NFSR	CLOSED	LTC	LTC	MAINTAIN	0.45
516091000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.18
516093000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.21
51610	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.75
51610	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	0.46
516101000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.16
516105000	UNAUTHORIZED	CLOSED	DECOM-OS20PCATV	DECOM-OS20PCATV		0.42
51611	NFSR	CLOSED	LTC	ML1CLOSED	DECOMMISSION	0.58
51635	NFSR	CLOSED	LTC	LTC	DECOMMISSION	0.80
51635	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.30
516351000	UNAUTHORIZED	CLOSED	LTC_A	LTC_A		0.71
516352000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.10
51636	NFSR	CLOSED	LTC	LTC	DECOMMISSION	0.40
51637	NFSR	CLOSED	LTC	LTC	MAINTAIN	1.13
516374000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.40
516374020	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
516375000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.04
516376000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.13
516379000	UNAUTHORIZED	CLOSED	DECOM-ABANDON	DECOM-ABANDON		0.74
51638	NFSR	CLOSED	DECOM-ST	DECOM-ST	MAINTAIN	1.04
516385000	UNAUTHORIZED	CLOSED	DECOM-ST	DECOM-ST		0.17
51639	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.76
516391000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.33
51640	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.38
516402000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.13
51641	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.77
51642	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.17
51643	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.62
51643	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.36
516435000	UNAUTHORIZED	CLOSED	DECOM-FRPC	DECOM-FRPC		0.46
51644	NFSR	CLOSED	LTC	LTC	DECOMMISSION	0.41
51644	NFSR	CLOSED	DECOM-OS20	DECOM-OS20	DECOMMISSION	0.51
516441000	UNAUTHORIZED	CLOSED	DECOM-OS20	DECOM-OS20		0.52
51645	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.24
51647	NFSR	CLOSED	LTC	LTC	DECOMMISSION	0.92
51735	NFSR	CLOSED	DECOM-FR	DECOM-FR	DECOMMISSION	0.11
51798	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	3.51
51798	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	0.12
517983000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.08
51799	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	2.63
517991000	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.11
517992000	UNAUTHORIZED	CLOSED	DECOM-FRTPC	DECOM-FRTPC		0.22
517992050	UNAUTHORIZED	CLOSED	DECOM-FR	DECOM-FR		0.13
51800	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	0.68
51802	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.80
51802	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.43

ROAD ID	SYSTEM	CURRENT STATUS	ALTERNATIVE 2	ALTERNATIVE 3	TAR RECOMMENDATION	MILES
51803	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.32
51803R	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.81
51803R	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	1.00
51804	NFSR	CLOSED	ML2OPEN	ML2OPEN	IDT EVALUATE	0.33
51804	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	0.98
51805	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.58
51805	NFSR	CLOSED	DECOM-FR	ML1CLOSED	IDT EVALUATE	0.28
51805P	NA	NA	LTC_R	ML1CLOSED_R		0.90
51806	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.21
51808	NFSR	CLOSED	LTC	ML2SEASONAL	IDT EVALUATE	1.74
51808P	NFSR	NA	ML2CLOSED_R	ML2SEASONAL_R		0.36
51809	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.69
51809	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.34
51810	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.92
51811	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.25
51811	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.70
51812	NFSR	CLOSED	DECOM-FR	DECOM-FR	IDT EVALUATE	0.89
51813	NFSR	CLOSED	LTC	ML1CLOSED	IDT EVALUATE	0.67
51828	NFSR	CLOSED	LTC	LTC	MAINTAIN	0.47
51929	NFSR	CLOSED	ML2CLOSED	ML2CLOSED		1.16
51930	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	MAINTAIN	1.02
51931	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	IDT EVALUATE	0.69
51932	NFSR	CLOSED	ML2CLOSED	ML2CLOSED	MAINTAIN	0.54

Appendix 3
Cumulative Effects

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Cumulative Effects

Past, Present, and Reasonably Foreseeable Activities

Past, present, and reasonably foreseeable activities listed below are activities and natural events which are known to have already occurred, are currently occurring, or are likely to occur in the vicinity of the Huckleberry Landscape Restoration Project (Project) and may contribute cumulative effects in future proposed actions. The area encompassing these activities and events includes the Council Ranger District on the Payette National Forest (Forest), state lands, and private property unless otherwise stated.

Past and present activities and natural events have contributed to the existing condition as described in the Existing Condition discussions of Affected Environment in Chapter 3 of the Project environmental impact statement (EIS). These activities, and reasonably foreseeable activities, may affect resources relevant to actions that are expected following the Project. Therefore, past, present, and reasonably foreseeable activities have been considered in the cumulative effects analysis for each resource area.

Activities listed as reasonable and foreseeable were gleaned from the Forest's quarterly Schedule of Proposed Actions (SOPA) and from interviewing Forest program managers. All relevant projects listed are likely to occur, based on the SOPA, and are displayed in Table 3.

Created to be as comprehensive as possible, this list may unintentionally omit activities due to lack of records or knowledge. The list is intended to demonstrate that relevant past, present, and reasonably foreseeable activities are identified and considered in the analysis of cumulative effects. However, activities listed cannot stand alone and must be supported with cumulative effects analysis by resource area in the various "Environmental Effects" discussions in Chapter 3 of the Project EIS.

Because cumulative effects vary in time and space, each resource area has specified a pertinent cumulative effects analysis area in their discussion. To ensure the appropriate past, present, and reasonably foreseeable actions are considered, each resource area addressed all listed activities in the "Environmental Effects" discussion and disclosed why or why not a specific activity, or type of activity, would contribute to cumulative effects, and what those effects might be.

Areas considered for cumulative effects are contained in the following 6th level Hydrologic Unit Codes (HUCs):

- Indian Creek—Indian Creek-Snake River watershed
- Bear Creek—Wildhorse River watershed
- Lick Creek— Wildhorse River watershed

This cumulative effects analysis area encompasses 82,916 acres, of which 69,609 acres are within the National Forest boundary (Figure 1).

Past Harvest in Cumulative Effects Analysis Area

Existing GIS data for past timber harvest in the Cumulative Effects Analysis Area are given in acres by ownership and subwatershed in Table 1. Table 2 displays acreages by sale and year. Table 3 displays harvest method per decade by ownership. Figure 1 shows the Cumulative Effects Analysis Area by subwatershed and Figure 2 shows Harvest by Decade. Detailed records of pre-1950 timber harvest in the area are not available.

There is a record of 23,754 acres of harvest on National Forest Lands and 1,699 acres of harvest on private lands within the Project. The GIS data includes areas that were entered more than once, so total acreage in the past harvest history exceeds (Table 3) the totals presented in Table 1.

Table 1. Summary of Harvest Acreage by Ownership and Subwatershed

Ownership	Bear Creek	Indian Creek	Lick Creek	Total
Forest Service Lands	5096	6561	12097	23754
Private Lands	336	1363	0	1699
Total	5432	7924	12097	25453

Table 2. Summary of Sale, Harvest Method, and Acreage by Year

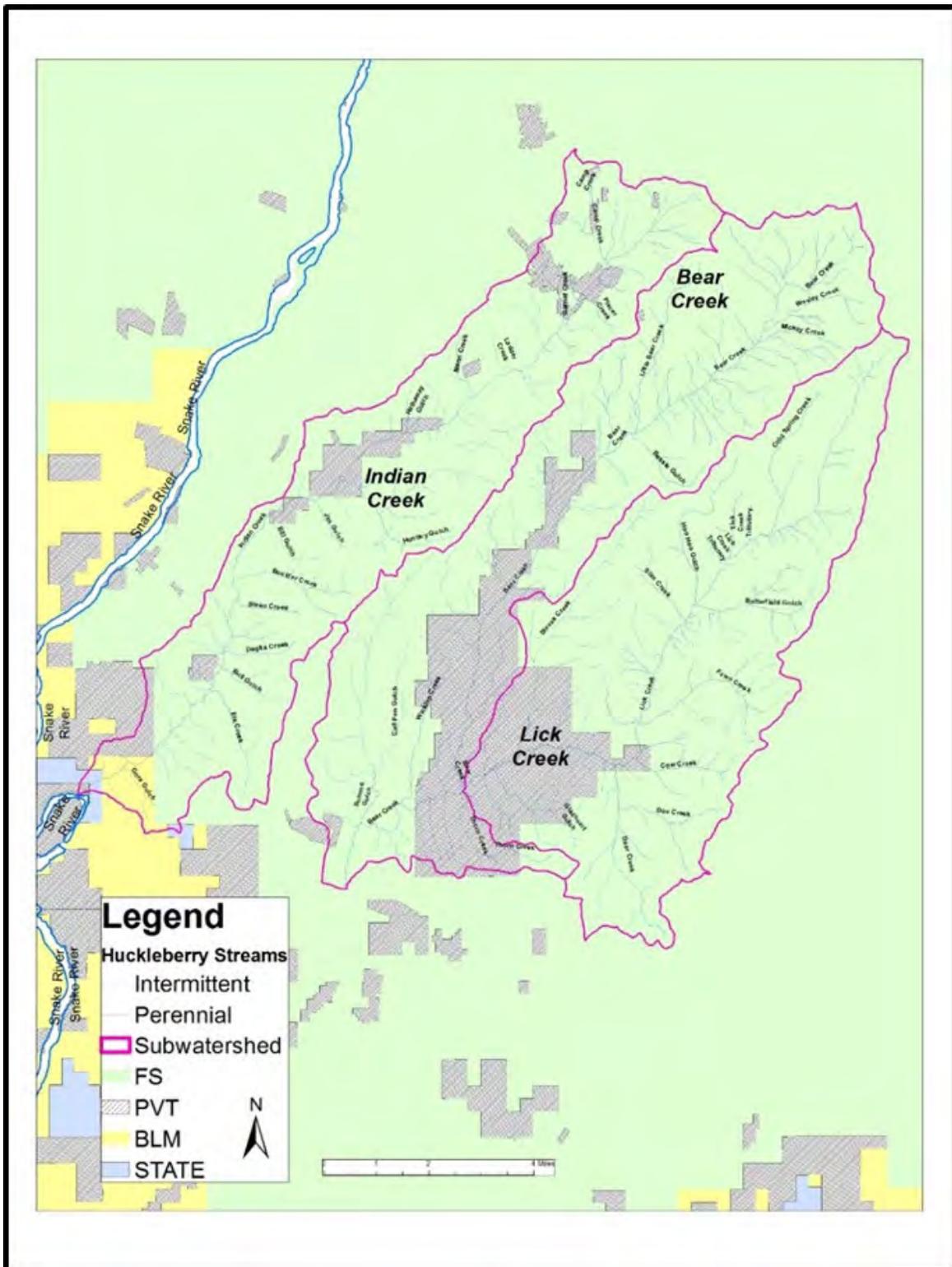
Sale Name	Majority Harvest Method	Acres	Year
Upper Steves Creek	Tractor	1067	1955
Jim Gulch Fire	Tractor	6	1960
Lft Fk N Hornet	Tractor	19	1964
Deer Creek	Tractor	434	1965
Fawn Creek	Tractor	158	1965
Hoo Hoo Thin	Tractor	243	1965
Pepper Salvage	Tractor	4	1965
Calf Pen Gulch	Tractor	73	1966
Coyote Gulch	Tractor	32	1966
Doe Creek	Tractor	257	1966
Flat Creek	Tractor	250	1966
Huntley Gulch	Tractor	1108	1968
Gladheart Gulch	Tractor	277	1969
Indian Cr Salvage	Tractor	23	1969
Admin Site 1	Tractor	57	1970
Cuprum Grade	Tractor	97	1970
Degits	Tractor	852	1970
Little Bear	Tractor	826	1970
North Lick Thin	Tractor	218	1970
Topless	Tractor	972	1972
Bull Fir	Tractor	76	1973
Fawn Creek	Tractor	627	1973
China Sue	Tractor	231	1974
Cold Lick	Tractor	188	1974
Silver King Dam	Tractor	33	1974
Slim Creek	Tractor	366	1974
Gladheart Salvage	Tractor	18	1975
Huckleberry SS	Tractor	19	1975
East Indian Creek	Tractor/Skyline	308	1976
Bessie Gulch	Tractor	330	1977
Derrick Creek	Tractor	656	1977
East Indian Salvage	Tractor	44	1978

Sale Name	Majority Harvest Method	Acres	Year
Gladheart Gulch	Tractor	48	1978
Calf Pen	Tractor	4	1979
Decora Salvage	Tractor	468	1979
Lick Thin	Tractor	245	1980
State Sale	Tractor	429	1980
Summit Gulch	Tractor	840	1980
Huckbear	Tractor	1174	1983
Steves Creek	Tractor	1447	1983
Butterfield Gulch	Tractor	1583	1984
Signa's Salute	Tractor	257	1984
Placer	Tractor	386	1986
Decorah	Skyline/Tractor	1646	1987
Oleo	Tractor	868	1988
Chipmunk Springs	Tractor	1373	1989
Fawn Salvage	Tractor	269	1990
Indian Cr Salvage	Tractor	57	1990
Oleo Blowdown	Tractor	695	1990
Decorah Firewood	Tractor	28	1992
Fawn Creek Fire	Tractor	201	1992
Fawn Creek	Tractor	217	1993
Mickey Creek	Tractor	602	1993
Thorny Beetle SS	Tractor	59	1993
Thorny Doug SS 1	Tractor	20	1993
Goofy Beetle Salvage	Tractor	13	1994
Steen Creek	Skyline/Tractor	1315	1994
Thorny Pancake	Tractor	61	1994
Butterfinger Salvage	Cable	11	1995
Chips Ahoy	Tractor	434	1995
Long Shot	Tractor	1015	1995
Parkaye	Tractor	138	1995
Hotlicks	Tractor	439	1996
Thorn Creek	Tractor	622	1996
Micky's Blowdown	Tractor	100	1997
Lookout Salvage	Tractor	137	1998
Landore Salvage	Tractor/Cable	201	2005
Bear Helicopter	Helicopter	470	2007
Bear North 10	Tractor	381	2007
Bear South	Tractor/Jammer	401	2007
Bear West	Tractor/Jammer	135	2007
Bessie Bear	Skyline	84	2007
Cuprum	Tractor/Skyline	755	2011
Summit Gulch	Tractor	13	2011
NIDGS Study Unit	Tractor	32	2017

Table 3. Summary of Harvest Method per Decade by Ownership

Owner	Harvest Method	Decade	Acreage	
Forest Service	Cable	1990	59	
		2000	84	
		2010	77	
		Cable Total		220
		Helicopter	1990	194
	2000		470	
	2010		84	
		Helicopter Total		748
		Jammer	2000	246
		Jammer Total		246
	Single-Span Sky	1970	312	
		1980	1143	
		1990	739	
		2000	115	
		2010	243	
		Single-Span Sky Total		2553
	Tractor	1950	1067	
		1960	3050	
		1970	6481	
		1980	7929	
1990		6361		
2000		756		
2010		395		
Tractor Total			26039	
Forest Service Total		29807		
Private	Tractor	1970	28	
		1980	80	
		1990	0	
		2000	1608	
	Tractor Total		1715	
Private Total		1715		
Grand Total		31522		

Figure 1. Cumulative Effects Analysis Area (Subwatersheds)



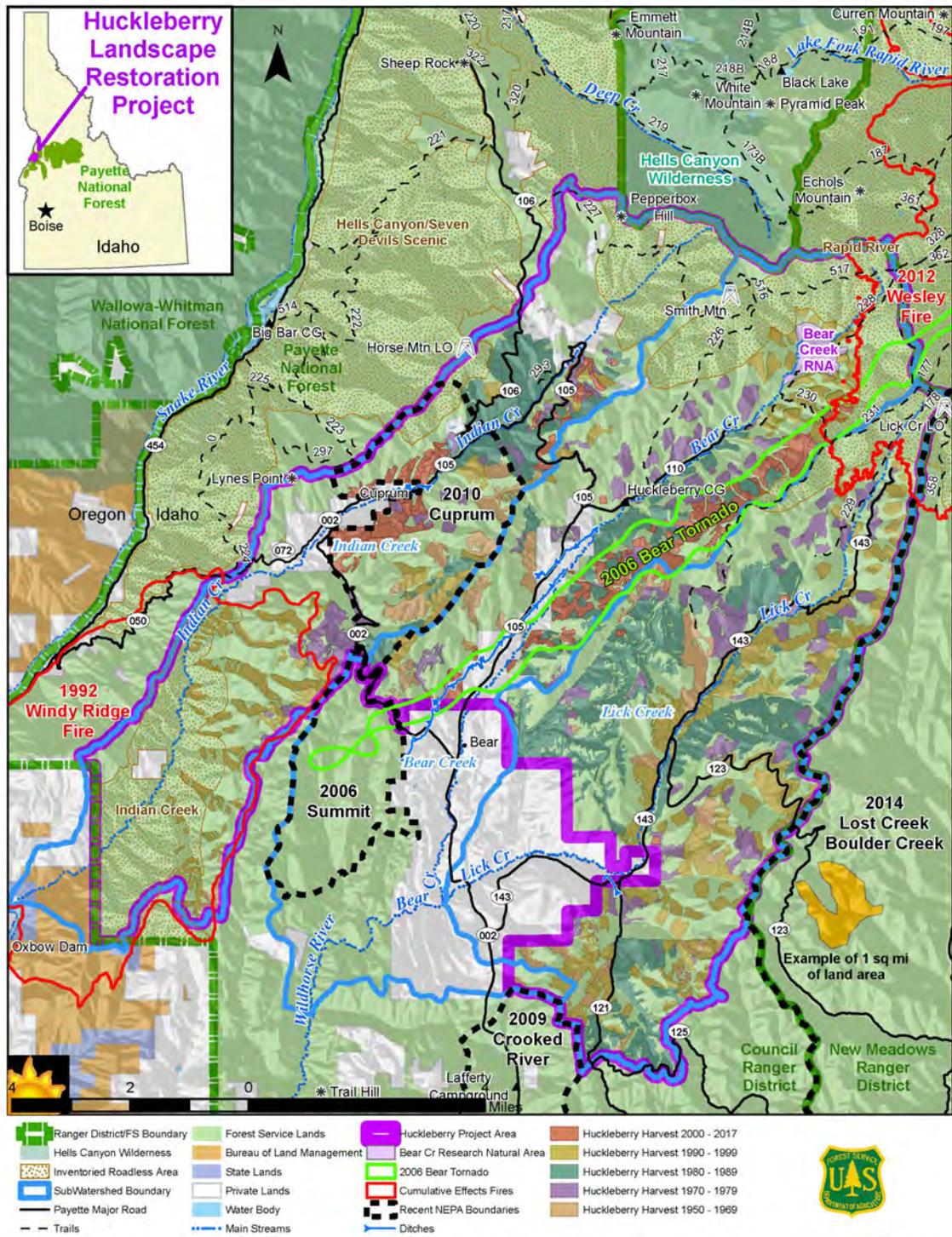


Figure 2. Past Harvest within the Project Area

Table 4. Other actions that may be considered in the Cumulative Effects Analysis for the Huckleberry Landscape Restoration Project

Action	Past, Present and Reasonably Foreseeable Description of the Action	Date
Timber harvest/ precommercial thinning/ prescribed fire/reforestation on National Forest	Timber harvest—see past harvest table and maps. From 1955 to 2017, GIS records show approximately 12,950 acres reforested on NFS lands within the project area. Records on prescribed fire are not complete; most of the planted areas received site preparation that may have included pile burning or broadcast burning. Landscape burning for restoration has not been implemented in the project area.	Early 1950s to present and ongoing
Timber harvest on private land	There are 13,300 acres of private land and 69,600 FS lands in the Cumulative Effects Analysis Area (3 Sub-watersheds). Most of the forested area has been managed using various cutting methods with a variety of silvicultural treatments or high-grading.	Early 1900s to present and ongoing
Water diversions	One diversion exists on Indian Creek (Cuprum Ditch), two on Bear Creek (Bear Ditch 1 and 2) within the Project Area.	Mid 1900s to present and ongoing

Action	Past, Present and Reasonably Foreseeable Description of the Action	Date
National Forest System Roads	<p>The majority of the road system in the Project area was developed in the 1950s, 1960s, and 1970s for timber harvest. There were a few roads and wagon trails constructed prior to World War II. Timber harvest on the Forest peaked in the 1960s and has declined since. The road system in the area was primarily developed for timber harvest. The Forest began using area transportation planning in the late 1970s. Road construction and improvement activities were planned for on an area basis rather than individual harvest units. Environmental analysis on timber sales also began at this time, resulting in improved road planning and mitigations. Roads adjacent to streams were either graveled or relocated away from streams. Poor sections of road were either improved or decommissioned. There has been an emphasis on road decommissioning and elimination during the past 20 years: 7.6 miles of road have been decommissioned within the Project area.</p> <p>Timber harvest in the area in the late 1940s and early 1950s was usually done with a Caterpillar tractor towing a track-mounted arch trailer. The tractor with the arch trailer was limited in travel on the sideslope due to potential jack-knifing. As a result, constructed skid roads were common and often difficult to distinguish from a normal road. Road construction equipment at the time consisted mostly of bulldozer tractors. Roads were typically developed adjacent to streams with limited stream buffers.</p> <p>Commercial timber harvest on the Forest reached a peak in the 1960s. During this period, the road system in the area was expanded and improvements, such as graveling and drainage, occurred on the main roads, which were constructed in the 1950's under the land-for-timber swap. The original road construction in the late 1940s and early 1950s often constructed drainage crossings using native logs for culverts and bridges. The native timber structures were replaced, and gravel was applied on the main access roads from the 1960s through the 1980s. Old log culverts are still found occasionally on older closed roads. These old log culverts are often decayed and caved in. Many culverts installed in the past are barriers to fish passage.</p>	1900s to present and ongoing
Road maintenance	Road maintenance includes cleaning culverts, blading existing roads, and brushing rights-of-way.	Past and ongoing
Fire suppression	Active fire suppression across the area since the 1930s has likely limited the number and extent of wildland fires and their associated effects on vegetation structure, composition, and function, with the exception of the Wesley Creek Fire in 2010.	1930s to present and ongoing
Fires in recorded history	The 2012 Wesley Fire burned 16,200 acres, of which 2,650 acres are in the Cumulative Effects Analysis Area. The 1992 Windy Ridge Fire had approximately 1,300 acres salvage harvested in 1994 and subsequently planted.	1960 to 2012
Livestock management	Cattle and sheep grazing have occurred throughout the area since the late 1800s. No sheep allotments are currently being used in the Project area. Management of livestock grazing is permitted under the Bear Creek, Steves Creek, and Lick Creek Allotments. Smith Mountain Allotment is currently vacant.	Late 1800s to present and ongoing
Firewood harvest on National Forest System Lands	Harvest is to occur along open roads and in designated areas, while adhering to Forest firewood permits. The Council Ranger District has opened selected roads with the Firewood Road Opening Project since 2009. Additional roads may be left open after commercial harvest activities where firewood harvest opportunities exist including access to firewood decks.	Past and ongoing
Noxious weeds	Treatment of noxious weeds would follow directions in the 1987 Payette National Forest Noxious Weed and Poisonous Plant Control Program Environmental Assessment and Decision Notice.	Past and ongoing

Action	Past, Present and Reasonably Foreseeable Description of the Action	Date
Recreation use	Camping is permitted at numerous dispersed camp sites and at one campground with associated hiking, ATV/OHV, fishing, and hunting activities. Hunting is permitted in the spring (bear, turkey) and fall (big game). Fishing is permitted during the spring, fall, and summer while snowmobiling is permitted from December through March. General travel and sightseeing on NFS lands are also popular.	1900s to present and ongoing
Campground management	Management of Huckleberry campground	Past, present and ongoing
Travel Management Plan	The Travel Management Plan Decision (signed February 2009) made cross-country motorized travel illegal from areas previously open, closed unauthorized roads that may have been travelable with motorized vehicles, increased the miles of motorized trails available for ATV use, and opened previously closed system roads to seasonal use within the Cumulative Effects Analysis Area. Many roads analyzed were left with instruction of "IDT Evaluate" to be decided with finer scale analysis at the Project level which is what this Project aims to do. The 2009 Decision had no effect on winter use.	2009 and ongoing
ATV and other motorized use	Future motorized use would be on designated roads and trails only. Cross-country travel would be discouraged through proper road closure mechanisms. Levels of unauthorized use would decrease with increased education and public awareness of travel management designations.	Past and ongoing
Use and improvement of National Forest System Recreation Trails	Management of forest trails would include erosion work, route signing, and maintenance. The trail network includes trails adjacent to and within the Project area. Existing designated system recreation trails would be maintained, including erosion control.	ongoing

Appendix 4
Monitoring and Evaluation

Monitoring and evaluation are used to determine whether the *Payette National Forest Land and Resource Management Plan* (Forest Plan)¹ is being implemented correctly and to determine the effectiveness of Forest Plan standards and guidelines, management requirements, and mitigation measures. Implementation monitoring is used to decide whether the project was implemented as planned. Effectiveness monitoring determines whether the project design and mitigation measures were effective in meeting resource protection objectives. Items that would be monitored, if an action alternative is selected, are identified in Best Management Practices and Monitoring Plans on file in the Project Record at the Council Ranger District. Table 1 provides a monitoring plan summary, and for some elements a more detailed monitoring plan summary sheet follows.

Table 1. Monitoring plan summary

Resource	Monitoring Item	Timing	Personnel
Wildlife	Implementation and effectiveness of restoration treatments to provide wildlife habitat improvement	Implementation monitoring will coincide with all harvest-related activities. Effectiveness monitoring will occur for up to 5 years following on-site restoration activities.	Journey-level wildlife biologist and wildlife technicians, coordinated with Sale Administrator and Timber Management Assistant
Fisheries	Water temperatures in the Indian Creek, Bear Creek and Lick Creek drainages including some major tributaries	Will continue to monitor water temperatures at already-established locations in the project area drainages.	Biological and hydrologic technicians, and fisheries biologist or hydrologist
Fisheries and Watershed	Implementation of RCA treatment delineation	Implementation monitoring will occur after treatment unit layout/marketing but before vegetation treatment begins. 20% of RCA treatment units will be monitored to ensure proper delineation. Priority will be given to wet meadow units and units with steep slopes and/or sensitive soils.	Hydrologist or Journey-level fisheries biologist and biological and hydrologic technicians
Fisheries and Watershed	Implementation and effectiveness of RCA treatments and prescribed fire	Implementation monitoring will occur prior to RCA treatment and immediately after in the same year, then again after prescribed fire. Focus will be on meeting project design features for RCA harvest and monitoring prescribed fire severity. Effectiveness monitoring will occur once the year following the activity; if the need for additional work or monitoring is identified, effectiveness monitoring will continue as the journey-level specialist deems appropriate for up to 5 years.	Hydrologist or Journey-level fisheries biologist and biological and hydrologic technicians
Fisheries	Implementation and effectiveness of culvert replacements	Implementation monitoring will occur in the same year as replacement. Effectiveness monitoring will occur once the year following the activity; if the need for additional work or monitoring is identified, effectiveness monitoring will continue as the journey-level specialist deems appropriate for up to 5 years.	Journey-level fisheries biologist and biological technicians

¹ USDA Forest Service. 2003. Payette National Forest Land and Resource Management Plan. USDA Forest Service, Payette National Forest, McCall, ID.

Resource	Monitoring Item	Timing	Personnel
Soil and Water	Monitoring of detrimental disturbance (DD) levels and Coarse Woody Debris (CWD)	Monitoring will occur in timber sale and fuels treatment units following activities to determine if the Forest Plan detrimental disturbance standards are met and if Coarse Woody Debris guidelines are followed. See specific monitoring summary sheets for specific timing.	Soil scientist and hydrologic/soil technicians
Soil and Water	Implementation and effectiveness of road decommissioning and long-term closure treatments	Implementation monitoring will occur during the year of decommissioning activities. Effectiveness monitoring will occur, at a minimum, the first year after implementation, and then at years 3 and 5, unless findings indicate sites have stabilized and revegetated to their natural potential prior to 5 years post-implementation.	Hydrologic technicians and hydrologist
Soil and Water	Implementation and effectiveness of Timber and Fuels Best Management Practices, project design features, and mitigation measures	The majority of the monitoring will occur during implementation, with follow-up monitoring dependent on activity monitored. Where revegetation or reclamation is planned, monitoring will be conducted a minimum of twice—the first year for implementation and the second year for effectiveness—allowing one snowmelt and spring runoff to occur.	Hydrologist or soil scientist, hydrologic/soil technicians
Vegetation	Fire effects on plantations, harvest units, and burn only stands	Monitoring will occur pre- and post-burning operations	Fuels specialist and silviculturist
Vegetation	Harvest unit boundaries and timber marking	Monitoring will occur during sale preparation activities.	Sale preparation Forester and Silviculturist
Vegetation	Need for site preparation and regeneration in harvest units and burn only units	Monitoring will occur after harvest and/or burning operations	Silviculturist
Vegetation	Need for protection of aspen regeneration	Monitoring will occur after harvest and/or burning operations	Silviculturist and Wildlife Biologist
Vegetation	Need for IPS beetle mitigation measures	Monitoring will occur during and after harvest operations	Silviculturist, Sale Administrator, and FHP Entomologist
Vegetation	Need for general bark beetle mitigation measures	Monitoring will occur after harvest and/or burning operations	Silviculturist and FHP Entomologist
Range	Noxious weeds	Monitoring will occur immediately after harvest and road work activities and continue for the following 5 years.	Range technicians
Cultural	Cultural and archeological sites	Monitoring will occur prior to ground-disturbing activities in areas needing clearance and on-going-in areas identified as "Eligible" by the State Historical Preservation Officer	Archeologist or Archeological Technician

MONITORING PLAN SUMMARY SHEET

Program:	Wildlife – Northern Idaho ground squirrel (NIDGS) (ESA-Threatened)
Activity, Practice, or Effects:	Project Monitoring, Wildlife. Protection of NIDGS and NIDGS habitat.
Project Name:	Huckleberry Landscape Restoration Project (MFWR). NIDGS clearances for project activities in, or adjacent to harvest units, landings, equipment parking areas, skid trails, temporary road routes, roads to be obliterated or placed into long term closure, trail construction or maintenance, or any other ground-disturbing activity.
Location:	Payette National Forest, Council Ranger District, MFWR Project Area.
Objectives:	Survey, and clear for implementation, sites of planned project activities in, or adjacent to, NIDGS habitat, prior to any ground-disturbing activity occurring.
Parameters:	<ol style="list-style-type: none"> 1. As feasible, monitoring surveys should be conducted during the period that NIDGS would be active above ground, roughly April 1 through August 15, depending on the elevation of the site. 2. If no NIDGS are observed at the site, but burrows resembling NIDGS burrows are present, results of the survey will favor the possibility of NIDGS at the site. 3. Confirmation of NIDGS may require multiple visits to the site and may require more intensive monitoring in following years.
Methodology:	Wildlife staff will survey all NIDGS habitat within the Project area where any ground-disturbing activity might occur. In addition, NIDGS surveys will be conducted at specific sites, prior to any ground-disturbing activity. Monitoring surveys will follow procedures developed by the Forest, with input, when necessary, from USDI fish and Wildlife Service, Idaho Department of Fish and Game, and Dr. Eric Yensen, College of Idaho.
Frequency:	These surveys will be conducted prior to any ground-disturbing activity, or whenever the Sale Administrator requires confirmation of NIDGS, or NIDGS habitat presence or absence. Even if a particular site has been cleared for project activities for one season, the same site must be cleared again in future seasons, to ensure that NIDGS have not immigrated into the area, since the last clearance survey was conducted.

Duration:	Monitoring surveys should be conducted annually, especially at sites where ground-disturbing activity is expected.
Data Storage:	Wildlife Program Files on the District and Forest in NIDGS Geographic Information System (GIS) GeoDatabase and in the Forest database for NRM entry.
Analysis:	Update GIS information on NIDGS observations and habitat monitoring.
Report:	Wildlife field reports summarizing NIDGS monitoring results.
Cost:	40 days for 2, GS-5 Wildlife Technicians @ \$108 per day: X 2 Techs = \$8,640. 20 days for GS-6 Wildlife Technician @ \$120/day = \$2,400. 20 days for GS-11 West Zone Wildlife Biologist @ \$230 per day = \$4,600. Total cost = \$15,600 per fiscal year. Vehicles and miscellaneous equipment not included.
Personnel:	West Zone Wildlife Biologist and Wildlife staff.
Responsible Individual:	West Zone Wildlife Biologist, Payette National Forest.
Responsible Official:	District Ranger, Council Ranger District, Payette National Forest.
Prepared by:	Jon Almack, West Zone Wildlife Biologist, 27 Oct 2015.

MONITORING PLAN SUMMARY SHEET

Program:	Wildlife - Northern goshawk (NOGO)
Activity, Practice, or Effects:	Project Monitoring, Wildlife. Protection of NOGO nest sites.
Project Name:	Huckleberry Landscape Restoration Project (MFWR). NOGO clearances for project activities in, or adjacent to, nest stands and Post-Fledging Areas (PFAs).
Location:	Payette National Forest, Council Ranger District, MFWR Project Area.
Objectives:	Survey, and clear for implementation, sites of planned project activities in NOGO nest stands and PFAs, prior to other crew entry, or harvest-related activities.
Parameters:	<ol style="list-style-type: none">1. Before project activities commence, conduct field survey of stands designated as active or replacement nest stands via GIS to verify suitability as nest stands.2. Before project activities commence, survey PFAs to ensure correct harvest prescriptions to meet Southwest Guidelines or other appropriate research for conservation of PFAs.3. Conduct surveys to identify presence of NOGO adults and/or young at nests, in the nest stands, or in the PFAs.4. Following appropriate Mitigation Measures, a timing restriction on entry into the nest stand and PFA is in place from March 1 to September 30.5. If surveys by Wildlife staff show that NOGO adults and/or young are no longer present in the nest stand and/or PFA, other crew entry and/or project activities may be allowed by the Wildlife Biologist, in coordination with the Sale Administrator and the Timber Management Assistant.
Methodology:	Wildlife staff will survey all known NOGO nest sites, the replacement nest stands, and the PFAs by field surveys. In addition to visual and aural NOGO identification, recorded NOGO calls may be used to elicit vocal responses, allowing species identification.
Frequency:	These surveys will be conducted <i>prior to other crew entry or other project activity</i> of any NOGO nest stand, or PFA.

Duration:	Surveys would follow requirements noted in the Mitigation Measures. It may be necessary to survey nest stands and PFAs several times during spring and summer, to determine if NOGO adults and/or young are present.
Data Storage:	Wildlife Program Files on the District and Forest in NOGO GIS GeoDatabase and in the Forest database for NRM entry.
Analysis:	Update GIS information on nest stand and PFA condition
Report:	Wildlife field reports summarizing survey results.
Cost:	40 days for 2, GS-5 Wildlife Technicians @ \$108 per day: X 2 Techs = \$8,640. 20 days for GS-6 Wildlife Technician @ \$120/day = \$2,400. 10 days for GS-11 West Zone Wildlife Biologist @ \$230 per day = \$2,300. Total cost = \$13,340 per fiscal year. Vehicles and miscellaneous equipment not included.
Personnel:	West Zone Wildlife Biologist and Wildlife staff.
Responsible Individual:	West Zone Wildlife Biologist, Payette National Forest.
Responsible Official:	District Ranger, Council Ranger District, Payette National Forest.
Prepared by:	Jon Almack, West Zone Wildlife Biologist, 27 Oct 2015.

MONITORING PLAN SUMMARY SHEET

Program:	Wildlife – Selected Region 4 Sensitive Species and Management Indicator Species. <ul style="list-style-type: none">• White-headed woodpecker (R4SS, MIS)• Pileated woodpecker (MIS)• Flammulated owl (R4SS)• Great gray owl (R4SS)• Boreal owl (R4SS)
Activity, Practice, or Effects:	Project Monitoring, Wildlife. Protect known nest sites, monitor occupancy of source habitat by MIS and sensitive species.
Project Name:	Huckleberry Landscape Restoration Project (MFWR). Pre-Implementation Wildlife Monitoring Surveys.
Location:	Payette National Forest, Council Ranger District, MFWR Project Area.
Objectives:	<ol style="list-style-type: none">1. Document presence of species in units receiving restoration treatment;2. Locate nests and/or nest stands; <p>These objectives may change as more information is available. Portions of this work may be conducted by the Rocky Mountain Research Station or other researchers.</p>
Parameters:	<ol style="list-style-type: none">1. Conduct surveys in areas where species are suspected and locate nests.2. Record location of nest tree, species of nest tree, nest height above ground, nest aspect on tree, period of use, nest stand characteristics, and adjacent stand characteristics.3. Establish photo points at nest sites.4. Conduct <i>Before & After</i> sampling of restoration stands treated, to determine presence of species. After sampling should be annually for 5 years post-harvest & burn treatments.5. Establish photo points at representative sites, providing a basic method for tracking changes in the stand over the period of time it is moved toward HRV.

Methodology:	<p>Use current methods applicable to this project and the monitoring objectives, as noted in professional journals and agency reports, to meet the stated objectives.</p> <ul style="list-style-type: none">• Locate nests and nest stands with global positioning system (GPS), using Universal Transverse Mercator (UTM) Zone 11T, with North American Datum 1983;• Establish photo points for each nest and nest stand identified;• Use survey transects already used by the Forest for surveys on these species.• For white-headed and pileated woodpeckers, follow established Forest protocols.• For flammulated, great gray, and boreal owl surveys, conduct surveys at night, following established Forest protocols.• White-headed and pileated woodpecker monitoring will include established Forest transects and those established by the West Zone.
Frequency:	<p>Repetitive sampling should occur annually for the first 5 years post-treatment. At that point, evaluate to determine the need for changes in sampling design. As other restoration projects are conducted on the West and Central zones of the Forest, this sampling design may change again, to accommodate additional project areas with like treatments.</p>
Duration:	<p>Sampling should continue for at least 5 years, in order to determine long-term trends in population demographics.</p>
Data Storage:	<p>Wildlife Program Files on the District and Forest in NOGO GIS GeoDatabase and in the Forest database for NRM entry.</p>
Analysis:	<p>Specific analysis will follow the methods described by the Principal Investigator.</p>
Report:	<p>Annual reports summarizing survey results.</p> <p>Final project report, due when funding terminated.</p>

Cost: 40 days for 2, GS-5 Wildlife Technicians @ \$108 per day: X
2 Techs = \$8,640.
20 days for GS-6 Wildlife Technician @ \$120/day = \$2,400.
10 days for GS-11 West Zone Wildlife Biologist @ \$230 per
day = \$2,300.
Total cost = \$13,340 per fiscal year. Vehicles and
miscellaneous equipment not included.
Long-term monitoring of these sites should continue, but
cannot assign those funds at this time.

Personnel: Principal Investigator/West Zone Wildlife Biologist and 3
Wildlife Technicians from the USFS.

Responsible Individual: West Zone Wildlife Biologist, Payette National Forest.

Responsible Official: District Ranger, Council Ranger District, Payette National
Forest.

Prepared by: Jon Almack, West Zone Wildlife Biologist, 27 Oct 2015.

MONITORING PLAN SUMMARY SHEET

Program:	Wildlife – Rocky Mountain elk
Activity, Practice, or Effects:	Project Monitoring, Wildlife. Road closure effectiveness for elk habitat security.
Project Name:	Huckleberry Landscape Restoration Project
Location:	Payette National Forest, Council Ranger District, Project Area.
Objectives:	On roads used for project activities and then closed, check to ensure that each road has an effective closure in place.
Parameters:	<ol style="list-style-type: none"> 1. Identify roads that were opened for project use and then closed to vehicle access. 2. Locate the site of the road closure (gate, beginning of road obliteration, etc.). 3. Record the location and type of closure. 4. Document the effectiveness of the closure. 5. Report the effectiveness results to the District Ranger and Forest Wildlife Program Manager.
Methodology:	<ol style="list-style-type: none"> 1. Use roads table from the Final Environmental Impact Statement (FEIS) to identify the roads that are slated for closure following use on the project. 2. Identify the type of closure specified for each road slate for closure. Temporary roads are to be fully obliterated. Preferred closure for NFS roads to be closed to public use is obliteration of the initial portion of the road visible from an open road. Other closure types could include a gates or barricades. 3. Record the location of the closure by GPS, UTM, Zone 11T, using North American Datum 1983. 4. Record at least one digital photograph of the closure site and of any situation that needs corrective action, to make the closure effective for preventing vehicle access to the road. 5. All results will be documented in a report to the District Ranger, so that ineffective closures can be assigned priority to be brought into compliance with this Project Design Feature.

Frequency:	These surveys will be conducted following the period when the road is no longer needed for project activities and the appropriate closure has been placed. In some cases, a second survey may be necessary at a particular closure site, to ensure that the closure meets the intention of blocking vehicle access.
Duration:	Many of these closure effectiveness monitoring surveys would be conducted immediately after the closure is put in place. Many of these activities will be on a sub-watershed basis. For example, once all of the access roads and haul routes are no longer needed in the East Fork Weiser River sub-watershed, these closure effectiveness surveys would be conducted for all of the closed roads in that sub-watershed.
Data Storage:	Wildlife Program Files on the District and Forest in NOGO GIS GeoDatabase and in the Forest database for NRM entry.
Analysis:	No analysis required.
Report:	Wildlife field reports summarizing survey results.
Cost:	Cost varies, depending on personnel and time involved. GS-5 Wildlife Tech @ \$108/day) x 10 days = \$1,080. Wildlife Biologist GS-11(6) @ \$230/day x 5 days = \$1,150. Total cost = \$2,230 per fiscal year. Vehicles and miscellaneous equipment not included.
Personnel:	West Zone Wildlife Biologist and Wildlife staff.
Responsible Individual:	West Zone Wildlife Biologist, Payette National Forest.
Responsible Official:	District Ranger, Council Ranger District, Payette National Forest.
Prepared by:	Jon Almack, West Zone Wildlife Biologist, 20 March 2012

MONITORING PLAN SUMMARY SHEET

Program: Fisheries

Activity Project Monitoring
Implementation and effectiveness of culvert replacements

Project Name: Huckleberry Landscape Restoration Project

Location: Council Ranger District: Indian Creek, Bear Creek and Lick Creek

Objectives: *To document culvert replacements and determine if fish passage was provided

Methodology: Culvert replacements will be photographed and evaluated for fish passage.
This methodology may be adjusted as needed.

Frequency/Duration: Implementation monitoring will coincide with activities.
Culvert replacements will be monitored the year of implementation and annually for 2 years.

Personnel: One biological technician, one fisheries biologist

Responsible Official: Council District Ranger

Prepared by: Trisha Giambra, West Zone Fisheries Biologist

Date: February 2019

MONITORING PLAN SUMMARY SHEET

Program: Fisheries

Activity Project Monitoring
Water temperatures

Project Name: Huckleberry Landscape Restoration Project

Location: Council Ranger District: Indian Creek, Bear Creek, Lick Creek and some major tributaries

Objectives: *To monitor stream temperatures in the project area.

Methodology: Established stream temperature monitoring sites will continue to be monitored with thermographs placed in-stream at locations in the Huckleberry Project drainages. This methodology may be adjusted, as needed.

Frequency/Duration: Temperature monitoring will begin in 2019 and will continue annually until 2025. This may be adjusted, as needed.

Personnel: Biological technicians, fisheries biologist

Responsible Official: Council District Ranger

Prepared by: Trisha Giambra, West Zone Fisheries Biologist

Date: February 2019

MONITORING PLAN SUMMARY SHEET

Program:	Fisheries and Watershed
Activity	Project Monitoring Implementation of RCA treatment delineation
Project Name:	Huckleberry Landscape Restoration Project
Location:	Council Ranger District: Indian Creek, Bear Creek and Lick Creek subwatersheds
Objectives:	To monitor the consistency of vegetation treatments within RCAs for the Huckleberry Project with project design features in the FEIS/Record of Decision (ROD)
Methodology:	Implementation monitoring will occur after treatment unit layout/marketing but before vegetation treatment begins or, if time does not permit this, after vegetation treatment. 20% or more of RCA treatment units will be monitored to ensure proper delineation. Perennial streams and fish-bearing intermittent streams should be delineated with 240-foot buffers; intermittent streams with 120 buffers. Vegetation treatments that may occur inside these buffers are described in Chapter 2 and Appendix 5 of the FEIS. Monitoring priority will be given to units with aspen and units with steep slopes and/or sensitive soils. This methodology may be adjusted, as needed. <i>Note: the only commercial/mechanical treatments in RCAs will be in the Lick Creek subwatershed; only limited hand-thinning as part of fuels reduction will be done in Bear and Indian Creeks.</i>
Frequency/Duration:	Project specific monitoring will begin after unit layout/marketing and prior to treatment.
Personnel:	Two fisheries and/or hydrologic technicians and/or a hydrologist and/or journey-level fisheries biologist.
Responsible Official:	Council District Ranger
Prepared by:	Trisha Giambra, West Zone Fisheries Biologist
Date:	February 2019

MONITORING PLAN SUMMARY SHEET

Program:	Water and Fisheries
Activity, Practice or Effect:	Project Monitoring, Soil and Water Implementation of Treatments in RCAs
Project Name:	Huckleberry Landscape Restoration Project, Harvest and Prescribed Fire Activities
Location:	Council Ranger District: Indian Creek, Bear Creek and Lick Creek subwatersheds
Objectives:	Determine if harvest and/or prescribed fire objectives have been met within RCA's within the project area, as defined in Chapter 2 (description of Alternatives) and FEIS Appendix 5. Specifically, evaluate any ground disturbance as a result of thinning, ground and ladder fuels consumed, channel shade affected (if any), and soil condition and response to fire.
Parameters:	<p>A total of 20% of RCA's (emphasis on perennial, fish bearing or non-fish bearing) across the project area will be monitored, with additional sites visited if specific resource concerns arise after prescribed fire operations take place. On-site field evaluation of treatments:</p> <ol style="list-style-type: none">1. Fuels plots to monitor fuel loading and canopy cover before and after prescribed burning within the outer (treated) and inner (untreated) portion of the RCA2. Establish photo points and take before (existing condition) and post treatment photos.3. Where time and personnel allow, heel to toe transects in conjunction with photo points to determine amount and type of ground cover, and severity of burn.
Methodology:	Monitoring will be done once before treatment, immediately after, and again 1-2 years after. Where possible, document both qualitative and quantitative comparisons to pre-existing conditions. Photographs will be taken for comparison purposes.
Frequency:	In order to establish a baseline, monitoring will begin before harvest and prescribed fire activities. Effectiveness monitoring will occur at a minimum the first year after implementation and then at year 1 or 2 unless findings indicate sites either were not affected by treatment or have stabilized and re-vegetated to their natural potential.

Duration:	Up to five years.
Analysis:	Field documentation, summarization of fuels plots, densitometer, heel-to-toe transect data and on-site photographs before and after project implementation.
Report:	The written report will follow the format of the monitoring results data form developed on the Payette National Forest and be included in the annual monitoring result publication.
Personnel:	One GS-6 hydrologic technician or fisheries technician, one GS-9 fuels technician and one GS-11 hydrologist and/or journey-level fisheries biologist.
Responsible Individual:	West Zone Hydrologist and Hydrologic Technicians
Responsible Official:	Council District Ranger
Prepared by:	Melanie Vining, West Zone Hydrologist
Date:	February 2019

MONITORING PLAN SUMMARY SHEET

Program:	Soil and Water
Activity, Practice or Effect:	Project Monitoring, Soil and Water Resource Improvement, Implementation of Treatments
Project Name:	Huckleberry Landscape Restoration Project Road Decommissioning Treatments
Location:	Council Ranger District: Lick Creek, Bear Creek and Indian Creek subwatersheds
Objectives:	<p>Determine if decommissioning has been properly implemented on approximately 142-168 miles of unauthorized and Forest Service system roads (depending on selected alternative) identified in the Huckleberry FEIS/ROD. Decommissioning methods for reducing surface erosion and sediment delivery and restoring soil-hydrologic function include: de-compacting the road surface, recontouring to natural slope profile (as much as possible) to disperse runoff, utilizing native vegetation transplants, natural mulch, slash, and ag or wood straw over disturbed surfaces to provide a minimum of 50% and maximum 80% ground cover (80% at stream crossings), pulling culverts/re-establishing natural channel and seeding/fertilizing/mulching within riparian areas and at stream crossings. <i>The objective is to achieve restoration of natural ground contours and drainage patterns while attempting to match the coverage on the obliterated prism to the surrounding terrain without impeding would-be foot, wildlife, or livestock travel along the restored prism. Roads with additional travel/access needs (i.e., range permittee access) would be monitored for recovery while meeting this need.</i></p>
Parameters:	<p>On-site field evaluation of treatments will include one or more of the following:</p> <ul style="list-style-type: none">- Visual evidence of surface coverage with ground cover, vegetation transplants, and mulching or seeding in riparian areas- - Establish photo points and take before (existing condition) and post treatment photos. Utilize GPS coordinates and/or a permanent reference point to ensure replicability of photo point.

- 100-pace heel to toe transects in conjunction with each photo point to determine amount and type of ground cover.

**If time and budget constraints do not allow for this method, the minimum monitoring will include replication of photo points and a qualitative description of the site recovery/trend.*

Methodology:

Implementation monitoring will be accomplished through field verification of the planned treatments on selected roads, with emphasis placed on roads within riparian and/or sensitive areas (e.g., steeper slopes, sensitive soils). Where possible, both qualitative and quantitative comparisons to pre-existing conditions will be documented. Photographs will be taken for comparison. Effectiveness monitoring will be done at each photo point established during implementation using methods described above.

Frequency:

Implementation monitoring will occur during the year of decommissioning activities. Effectiveness monitoring will occur, at a minimum, the first year after implementation, and then at years 3 and 5, unless findings indicate sites have stabilized and revegetated to their natural potential or need additional work, in which case monitoring may be extended.

Duration:

Monitoring will continue for up to 5 years

Analysis:

Field documentation, summarization of heel-to-toe transect data and on-site photographs before and after project implementation.

Report:

The written report will follow the format of the Monitoring Results Data form developed on the Payette National Forest and be included in the annual monitoring results publication.

Responsible Official:

Council District Ranger

Prepared by:

Melanie Vining, West Zone Hydrologist

Date:

February 2019

Note: The road decommissioning itself could be done via contract or Forest crew (Force Account). If work is done via contract, the monitoring report should also evaluate the effectiveness of the contract language and oversight (i.e., Contracting Officers Representative, inspectors) at achieving desired results. This evaluation should be used as a tool by which to determine changes, if any, that could improve contract specifications or administration for road decommissioning.

MONITORING PLAN SUMMARY SHEET

Program:	Soil and Water
Activity, Practice or Effect:	Project Monitoring, Soil and Water Resource Improvement, Implementation of Treatments
Project Name:	Huckleberry Landscape Restoration Project Road Long-Term Storage Treatments
Location:	Council Ranger District: Lick Creek, Bear Creek and Indian Creek subwatersheds
Objectives:	Determine if long-term storage has been properly implemented on approximately 22-63 miles of Forest Service system roads (depending on selected alternative) identified in the Huckleberry FEIS/ROD. Methods for reducing surface erosion and sediment delivery and restoring soil-hydrologic function include: removing or bypassing culverts at intermittent and perennial stream crossings, installing water bars to ensure effective drainage, outsloping or scarifying road surface to reduce runoff, recontouring the road entrance to natural slope profile (as much as possible) utilizing native vegetation transplants at restored crossings and adding natural mulch, slash, and ag or wood straw over disturbed crossing to provide a minimum of 50% and maximum 80% ground cover (80% at stream crossings). <i>The objective is to achieve restoration of drainage patterns conducive to storage of the road, maintenance-free, for a period of 15-30 years or more.</i>
Parameters:	<p>On-site field evaluation of treatments will include one or more of the following:</p> <ul style="list-style-type: none"> - Visual evidence of surface coverage with ground cover, vegetation transplants, and mulching or seeding in riparian areas - Establish photo points and take before (existing condition) and post treatment photos at perennial crossings. Utilize GPS coordinates and/or a permanent reference point to ensure replicability of photo point. - - Monitoring of effectiveness of recontoured or otherwise physically closed entrance <p><i>*If time and budget constraints do not allow for this method, the minimum monitoring will include replication of photo points and a qualitative description of the site recovery/trend.</i></p>

Methodology:	Implementation monitoring will be accomplished through field verification of the planned treatments on selected roads, with emphasis placed on roads within riparian and/or sensitive areas (e.g., steeper slopes, sensitive soils). Where possible, both qualitative and quantitative comparisons to pre-existing conditions will be documented. Photographs will be taken for comparison. Effectiveness monitoring will be done at each photo point established during implementation using methods described above.
Frequency:	Implementation monitoring will occur during the year of closure. Effectiveness monitoring will occur, at a minimum, the first year after implementation, and then at years 3 and 5, unless findings indicate sites have stabilized and revegetated to their natural potential or need additional work, in which case monitoring may be extended.
Duration:	Monitoring will continue for up to 5 years
Analysis:	Field documentation, summarization of observations and data and on-site photographs before and after project implementation; keep data in binder with project name on front and spine as well as stored electronically.
Report:	The written report will follow the format of the Monitoring Results Data form developed on the Payette National Forest and be included in the annual monitoring results publication.
Responsible Official:	Council District Ranger
Prepared by:	Melanie Vining, West Zone Hydrologist
Date:	February 2019

MONITORING PLAN SUMMARY SHEET

Program:	Soil & Water
Activity, Practice or Effect:	Project Monitoring, Timber and Fuels Management, Implementation and Effectiveness Monitoring of Project Design Features (PDFs), Mitigation Measures, BMPs
Project Name:	Huckleberry Landscape Restoration Project
Location:	Council Ranger District: Lick, Bear, and Indian Creek subwatersheds
Objectives:	<ol style="list-style-type: none"> 1. Determine if PDFs, Mitigation Measures, and BMPs are included in the timber sale contracts, thinning contracts, and burn plans. 2. Determine if PDFs, Mitigation Measures, and BMPs are included in the timber sale contracts, thinning contracts, and burn plans are implemented. 3. Determine if implemented PDFs, Mitigation Measures, and BMPs are included in the timber sale contracts, thinning contracts, and burn plans are effective.
Parameters:	Planned monitoring includes specific BMP and SWCP requirements for Watershed Management, Vegetation Manipulation, Timber, Roads and Trails, Fuels Management and any specific PDFs and mitigation measures identified in the NEPA document.
Methodology:	<p>The BMPs and PDFs and mitigation measures will be monitored through qualitative field observations and some quantitative measurements of slope and distance. Field forms and on-site photographs will be evaluated for reporting monitoring results.</p> <p>The district hydrologist or soil scientist and sale administrator will review the NEPA document and other appropriate documentation in the office. Any special PDFs, mitigation measures or BMPs to monitor will be identified and then visually inspected during implementation, with follow up as determined by initial results. Sale Administrators Daily Diary Log and Engineering Reports will also be reviewed to ensure tracking and compliance.</p>
Frequency:	The majority of the monitoring will take place during harvest operations. Where re-vegetation or reclamation occurs, monitoring will need to be conducted twice, the first year for implementation and the second year for effectiveness, allowing one snowmelt and spring runoff to occur.

Duration:	Two years, to be re-evaluated at that time
Analysis:	<p>Monitoring forms, field notes, on-site photographs will be analyzed to answer the following questions:</p> <ol style="list-style-type: none">1. Which of the Soil and Water PDFs, Mitigation Measures, and BMPs were implemented?2. Which of the Soil and Water PDFs, Mitigation Measures, and BMPs appear to be effective at this time?3. Do any of the Soil and Water PDFs, Mitigation Measures, and BMPs need to be modified or improved?4. Were any special mitigation measures implemented, and do they appear to be effective at this time? <p>Results will be used to validate contract compliance along with recommending any modifications needed for any PDFs, Mitigation Measures, and BMPs. Recommendations may include additional mitigation measures to be completed, timing and application of PDFs, Mitigation Measures, and BMPs, and actual construction modifications.</p>
Report:	The report will follow the format of the monitoring results data form and published in the annual monitoring results publication.
Personnel:	One GS-6 hydrologic technician and one GS-11 hydrologist or GS-11 soil scientist.
Responsible Individual:	West Zone Hydrologist, Soil Scientist and Hydrologic Technicians
Responsible Official:	Council District Ranger
Prepared by:	Melanie Vining, West Zone Hydrologist
Date:	February 2019

MONITORING PLAN SUMMARY SHEET

Program:	Soil Resources
Activity, Practice or Effect:	Project Monitoring, Soil and Water Resource Improvement, Implementation of Treatments
Project Name:	Huckleberry Landscape Restoration Project (LRP) – Soil Detrimental Disturbance (DD) Monitoring in Timber Harvest and Fuels Treatment Units
Location:	Huckleberry LRP-Project Area, Council Ranger District
Objectives:	Determine Pre-Harvest and post-harvest DD in Timber Sale Units. Evaluate results in relation to timber sale activities, NEPA project design feature and mitigation measure requirements, and Forest Plan standards.
Parameters:	Soil disturbance indicators described in Forest Soils Disturbance Monitoring Protocol (FSDMP) and determination of DD in activity areas as defined in Payette Forest Plan. Make other observations related to effects on productivity, project design features, and mitigations.
Frequency and Duration:	Variable. The most effective timing would once before and then again at 2-3 years following harvest and/or fuels treatment activities. Additional monitoring visits would be beneficial to provide longer-term results and document recovery trends.
Analysis:	Field-transects using the FSDMP to assign disturbance classes. Determine DD percentages in activity areas according to Forest Plan definitions and professional evaluation of soil productivity functions and conditions. Utilize timber sale contract, FS administration records, and other implementation information to interpret findings.
Report:	Results and relevant feedback or recommended corrective actions will be reported to district staff and personnel and summaries will be provided as needed for annual reporting. A written report will follow the format of the monitoring results data form developed on the Payette National Forest and be included in the annual monitoring result publication.
Personnel:	Soil Scientist and hydro/soil technicians (if available)
Responsible Individual:	Soil Scientist
Responsible Official:	Council Ranger District
Prepared by:	Andre Snyder, Soil Scientist
Date:	February 2019

MONITORING PLAN SUMMARY SHEET

Program:	Soil Resources
Activity, Practice or Effect:	Project Monitoring, Soil and Water Resource Improvement, Implementation of Treatments
Project Name:	Huckleberry Landscape Restoration Project (LRP) – Coarse Woody Debris (CWD) Monitoring
Location:	Huckleberry LRP-Project Area, Council Ranger District
Objectives:	Measure CWD following harvest and fuels activities to determine if CWD guidelines are being followed and contract requirements are being achieved. Coarse woody debris provides benefits for soil productivity, vegetative health, wildlife habitat and carbon storage. The Payette Forest Plan includes desired ranges and sizes of CWD in tons/acre for specific habitat types/potential vegetation groups in Appendix A.
Parameters:	Downed Coarse Woody Debris in tons/acre as described in the Payette Forest Plan Appendix A and in Payette NF “Protocol for Monitoring Snags and Coarse Woody Debris”. Timber harvest and/or fuels treatment units from this project would be included in the selection of activity areas for forest-wide CWD monitoring.
Methodology:	Field-transects using the Payette NF “Protocol for Monitoring Snags and Coarse Woody Debris”. Collect data, photographs and make other observations related to effects on productivity, project design features, and mitigations.
Frequency and Duration:	Variable, but typically monitoring will be concurrent with or immediately after harvest and/or fuels treatment activities. The most effective timing would be while the sale is still active to take advantage of the opportunity to bring additional CWD into any units that are lacking.
Analysis:	Field-transects using the Payette NF “Protocol for Monitoring Snags and Coarse Woody Debris” to determine tons/acre of CWD and document size classes. Compare findings to the guidelines in Appendix A of Forest Plan and what is required in the timber sale contract. Field documentation, summarization of transects by unit number (spreadsheet) and on-site photographs before and after project implementation.

Report:	Results and relevant feedback or recommended corrective actions will be reported to district staff and personnel and summaries will be provided as needed for annual reporting. A written report will follow the format of the monitoring results data form developed on the Payette National Forest and be included in the annual monitoring result publication.
Personnel:	Soil Scientist and hydro/soil technicians (if available)
Responsible Individual:	Soil Scientist
Responsible Official:	Council Ranger District
Prepared by:	Andre Snyder, Soil Scientist
Date:	February 2019

MONITORING PLAN SUMMARY SHEET

Program:	Fire and Fuels
Activity, Practice or Effect:	Project Monitoring, Effects of Prescribed Fire on Plantations
Project Name:	Huckleberry Landscape Restoration prescribed fire program
Location:	Council Ranger District, Bear Creek, Indian Creek, and Lick Creek subwatersheds
Objectives:	Evaluate the effects of prescribed fire on plantations and measure the mortality
Parameters:	The following on-site field evaluation of treatments will be used: <ol style="list-style-type: none"> 1. Visual 2. Photo points establishment
Methodology:	Implementation monitoring will be accomplished through field verification pre and post treatment. Pretreatment photo points will be established in key areas to get the best representation of condition.
Frequency:	Monitoring will occur post burn, within 1 year of implementation.
Duration:	1 year
Data Storage:	District and/or Supervisor's Office files under Fire and Fuels, report accomplishments in FACTS data base
Analysis:	Field documentation and on-site photographs
Report:	The report will document pre and post conditions of plantation via field notes and photos.
Cost:	The total cost will be \$1000/year. This covers 2 days for GS-7 Fuels Technician and 2 days for a GS-9 Fuels Specialist to evaluate the data and write the report. This is cost per RX burn unit.
Personnel:	GS-7 Fuels Technician and GS-9 Fuels Specialist
Responsible Individual:	West Zone Fuels Specialist
Responsible Official:	Ronda Bishop, Council / Weiser District Ranger
Prepared by:	David LaChapelle WZ Fuels Specialist
Date:	March 13, 2019

MONITORING PLAN SUMMARY SHEET

Program:	Range and Noxious Weeds
Activity, Practice or Effect:	Project Monitoring, Noxious Weed Inventory and Treatments
Project Name:	Huckleberry Landscape Restoration Project
Location:	All areas of harvest activity, prescribed fire, road construction and decommissioning on the Council Ranger District, Huckleberry Project Area
Objectives:	Inventory and treat noxious weed infestations prior to project implementation. Monitor effects of timber harvest, prescribed fire, road construction and decommissioning on existing noxious weed populations and potential new populations. Provide follow up monitoring and treatment to areas where infestations are found and treated.
Parameters:	All roads scheduled for obliteration will be inventoried and treated for noxious weeds pre and post project implementation. All roads scheduled to be constructed or improved for project activities will be inventoried and treated for noxious weeds pre and post construction. All gravel pit sites will be inventoried and treated pre and post material transportation. Records will be kept on where gravel is hauled within the project area so that follow up monitoring can take place on those sites and roads.
Methodology:	Monitoring will be accomplished through field inspections of the planned treatments including timber harvest, prescribed fire, gravel pit sites, and road construction/improvement/obliteration.
Frequency:	Immediately pre and post any project activities.
Duration:	Monitoring will continue up to 5 years.
Data Storage:	Council Ranger District, 2900 files.
Analysis:	Field inspections and documentation followed by treatment if necessary.
Report:	Annually
Cost:	For annual monitoring and weed treatments \$20,000 per year.
Personnel:	One GS-7 Range Technician, one GS-6 Range Technician, one GS-5 Range Technician and one GS-11 Rangeland Management Specialist
Responsible Individual:	West Zone Rangeland Management Specialist and Range Technician

Responsible Official: Ronda Bishop Council and Weiser District Ranger
Prepared by: Andy Bumgarner, West Zone Rangeland Management Specialist
Date: 03/13/2019

Appendix 5
Riparian Conservation Area Thinning Guide

Riparian conservation areas (RCAs) will be treated with this project.

Treatment would apply to:

- Upland vegetation that occurs within the outer portion of an RCA, not riparian vegetation itself
- Conifers that are encroaching into aspen stands
- Treatments within and adjacent to aspen stands (e.g., 100 feet to the S and W and 50 feet to the N and E): conifers would be reduced to less than 25% cover
- Fuels that, when removed through hand thinning (lop and scatter), will help reduce the mortality rate of overstory trees within the RCA when prescribed fire is implemented

Note: Treatments more aggressive than a commercial thin and that would result in canopy cover less than 30%—shelterwood, clearcuts, skips and gaps—would NOT be implemented in RCAs. Instead, if an RCA were identified for treatment adjacent to a unit with these more aggressive treatments planned, the treatment for the RCA would be different than for the uplands, even if it were “lumped” into the same unit.

These actions, on a site-specific basis, are consistent with direction for upland vegetation desired conditions and RCAs in Appendices A and B, respectively, of the Payette National Forest Land and Resource Management Plan (Forest Plan) (USDA Forest Service 2003a). Treatments would be limited to thinning where at least a 30% canopy cover would be retained and would be developed in consultation with the district fish biologist and/or hydrologist to ensure riparian function is maintained. The maximum number of RCA acres that could be thinned with each action alternative can be found in Chapter 2 of the Environmental Impact Statement (EIS). The following guidelines will be used for RCA layout:

For any water feature, there will be no mechanical treatment in actual riparian vegetation, and only the outer portion (half) of the RCA will be treated. There will be a no-cut zone in the inner RCA and limited equipment use in the remainder of the RCA.

For an intermittent stream, thinning and limited equipment use may occur in the outer 60 feet of the RCA (furthest from the stream); the no-cut zone is a minimum 60 feet from the stream. See (Figure 1).

For a perennial or intermittent fish-bearing stream, thinning and limited equipment use may occur in the outer 120 feet of the RCA (furthest from the stream); the no-cut zone is a minimum 120 feet from the stream. See (Figure 1).

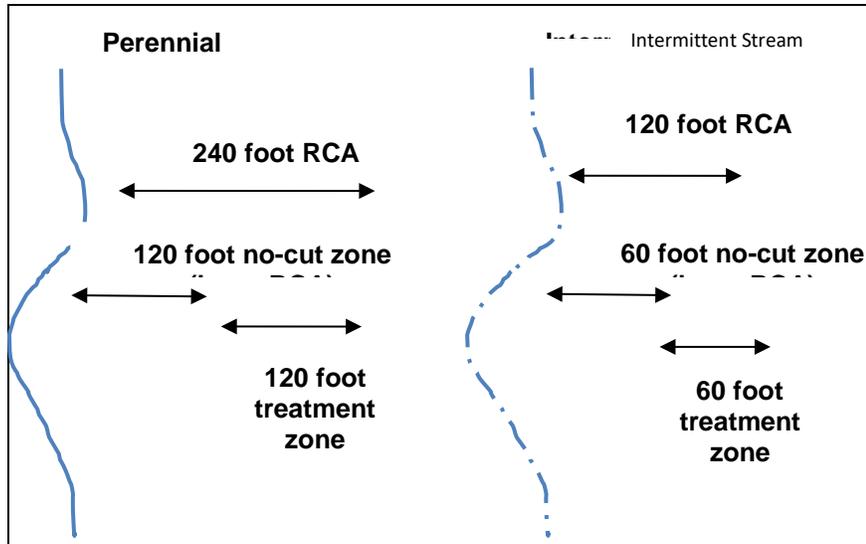


Figure 1. Diagram of no-cut and treatment zones for perennial and intermittent RCAs designated for thinning

Equipment use and harvest within the outer portion of the RCA will be limited as described below:

Harvest must be accomplished using hand felling and an off-road jammer or skyline yarder to winch trees to existing roads or skid trails unless over frozen or snow-covered soils; the hydrologist or fisheries biologist must give site-specific approval for exceptions during winter conditions.

Using existing roads, skidtrails, and landings within the RCA (and then subsequently restoring them) may be approved by the fish biologist or district hydrologist. All skid trails and temporary roads will be obliterated after use. Many times, these existing roads, trails, and landings will be the best or only way to harvest in the RCA or the adjacent unit; however, alternative routes to remove logs should be explored.

New temporary road, skidtrail, and landing construction in an RCA may be approved by the fish biologist and/or district hydrologist if Forest Plan Standards for the soil, water, riparian, and aquatic (SWRA) resource can be met. These would be obliterated and restored after use.

Skyline harvest over a stream is allowed only if full log suspension can be achieved over the stream channel and within the RCA (unless specifically approved by the fisheries biologist or hydrologist).

All mitigation measures and project design features as listed in Table 2.2-3 of this EIS would apply.

Selection of Treatment Sites within RCAs:

For seeps (wet areas characterized by riparian vegetation but limited in extent to saturated or wet soils and no channelized base flow): Flag and mark a 30-foot buffer around the edge (measured from the edge of hydric soils or riparian vegetation, whichever provides the larger buffer). No harvest may occur within this boundary (Figure 2) unless approved of in advance by the district fisheries biologist or hydrologist and associated with aspen restoration.

For springs, ponds, and wetlands (characterized by riparian vegetation and a more-or-less year-round base flow that is channelized at some point [spring] [Figure 3] or is characterized by flat topography and a shallow water table) (Brooks et al 1991). A 120-foot buffer will be flagged and marked around springs, ponds, and wetlands. Equipment restrictions are the same as for perennial streams as noted above. In some cases, where springs are tributary to a larger perennial stream—and are located close to, or within, the stream’s RCA—incorporating them into the larger RCA and buffering around just the source of the spring may make sense (Figure 5).

In some RCAs it will not be possible to harvest up to the 60-foot or 120-foot no-cut zone due to topography or road/trail placement. Equipment may not be capable of reaching that far into the RCA from approved roads and trails. In these instances, the feasible boundary line should be flagged where it is possible to harvest using a jammer or skyline yarder (i.e., 75 feet away from an intermittent stream instead of 60 feet).

RCAs that are not practical to treat will be buffered 120 feet for intermittent streams and 240 feet for intermittent fish-bearing and perennial streams; the maximum acres of RCA to be treated varies by alternative and will be limited to the selected alternative as described in the Record of Decision (ROD) for this project. Intermittent streams that are fish-bearing will be buffered as perennial streams.

During implementation, a map and description of the layout of the RCA portion of the unit would be provided to the hydrologist, fisheries biologist or hydrologic technician, for field verification of the RCA treatment areas.

NOTE: Some stream channels in the project area are likely to be disturbed and altered, either by excess deposition or erosion/incision. As RCAs are evaluated for treatment, buffer off the outer edge of the disturbed stream bank/scoured area if damage (i.e., raw, steep banks) to the channel has occurred (Figure 4). If the RCA has experienced excessive erosion from side slopes (e.g., overland flow, new or frequent gullies) do not consider the RCA a candidate for treatment or contact the fish biologist and/or hydrologist for a field visit. In addition, ephemeral channels may have “blown out” (Figure 4), while others remain intact (Figure 5). Create unit boundaries that protect existing vegetation and “bank trees” along these channels. No RCA buffer is required along ephemeral channels. If it is not obvious whether a channel is intermittent or ephemeral because of recent erosion, contact the district hydrologist and/or fish biologist.



Figure 2. Seep—no channelized flow and dries up by mid-summer



Figure 3. Spring (source)—channel flowing right to left



Figure 4. Note newly-incised channel, likely an ephemeral channel before the last flood event. If these are frequent, and evidence of overland flow and erosion from side slopes is present, a Riparian Conservation Area may not be a good candidate for treatment



Figure 5. The two photos above show ephemeral channels—no defined bed and bank

Implementation:

All work within RCAs (i.e., harvesting, skid trail and landing rehabilitation, slash chipping) should occur within the same season. Minimize ground disturbance in RCAs.

In certain cases, the main road in an area may be located on the outer edge of the RCA (between 200 and 240 feet for perennial or 100 and 120 feet for intermittent streams). In most cases it would be fine to use this road as the outer RCA boundary—pulling timber up to the road and harvesting above the road like a "regular" unit. *However, the layout crew should coordinate with the district fish biologist and/or hydrologist to ensure there are no site-specific concerns. Specific mitigations, such as erosion control at relief culverts and on bare sections of fill slope, may be recommended.*

If unidentified RCAs are discovered during layout or implementation, they may be treated if: 1) they meet intent of RCA treatments; 2) all Project Design Features and restrictions can be adhered to; and 3) they meet the following criteria:

- They fall outside of the Bear Creek and Indian Creek drainages and the Bear Creek RNA;
- The area is proposed for treatment but was identified during the layout/implementation phase of the project;
- In PVG 1 and 2 – the existing canopy closure of forested areas within the stand is greater than 65 percent.
- In PVG 5 and 6 – the existing canopy closure of the stand is greater than 70 percent.

Appendix 6

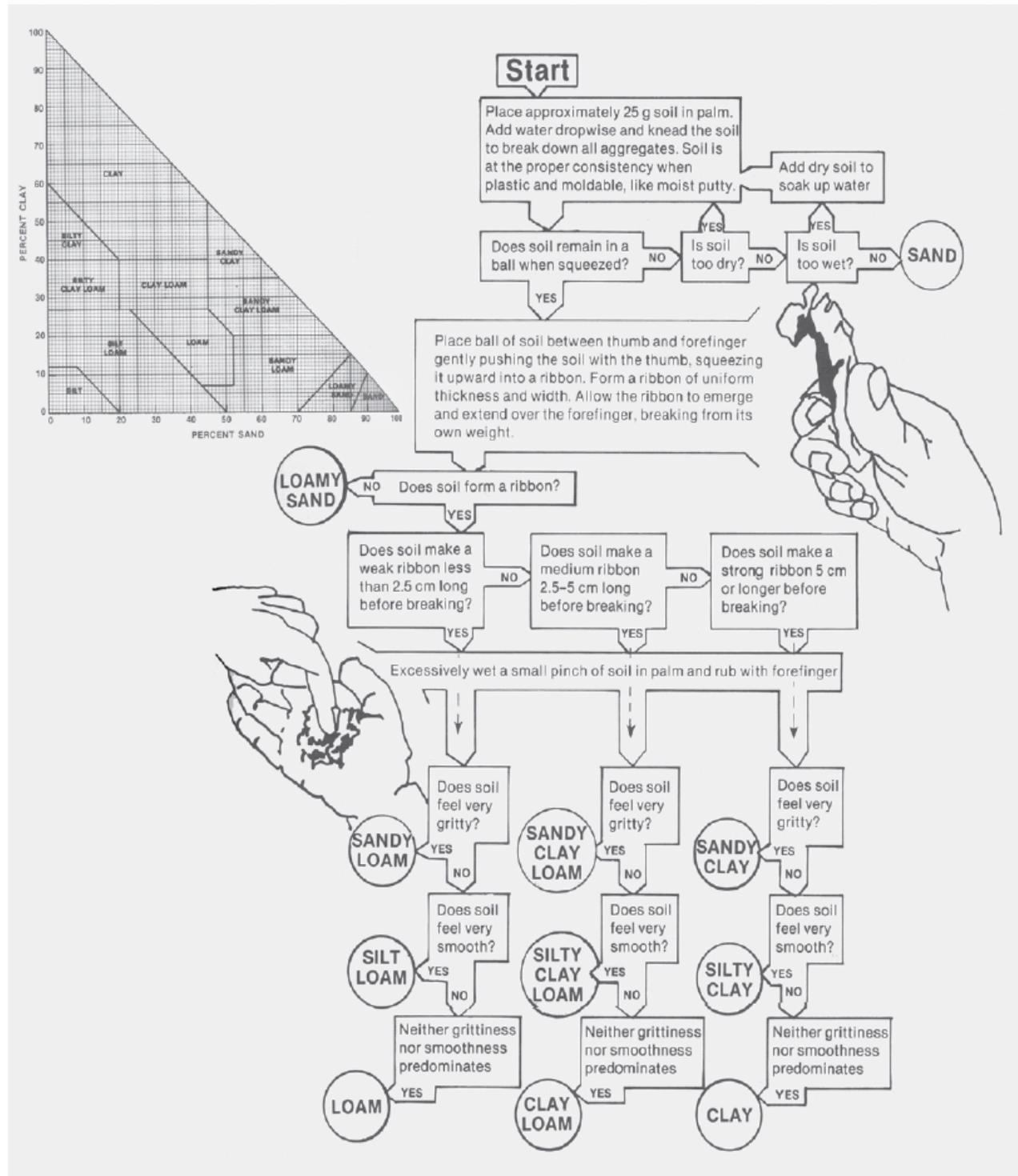
Soil Moisture Equipment Operability Guide

Soil Moisture Equipment Operability Guide (USDA, Payette National Forest 2018)

Field Guide to Soil Moisture Conditions Relative to Operability of Logging Equipment			
(Soil Textural Group and Moisture Conditions)*			
Soil Moisture	Coarse Soils	Light Soils	Heavy Soils >35% clay
(% increases Downward)	(coarse sand, loamy sand, fine sand, very fine sand)	(sandy loam, fine sandy loam, very fine sandy loam)	(heavy clay loam, silty clay loam, sandy clay, silty clay, clay)
Dry Soils	Dry, loose, single grained, flows thru fingers.	Dry, loose, flows thru fingers.	Hard, baked, cracked, sometimes has loose crumbs on surface
Slightly Moist Soils	Still appears dry, will not form a ball with pressure.	Still appears to be dry, will not form a ball. No water staining on hand.	Somewhat pliable, will form ball under pressure, will not break upon tossing. Forms a weak ribbon. light soil/water staining on hand
Moist Soils	Still appears dry, will not form a ball with pressure.	Tends to ball under pressure. Ball breaks under tossing. light water staining on hand	Forms a ball, will not break upon tossing. Easily ribbons out between fingers, slick feeling. Medium to heavy water staining on hand At Plastic Limit.
Very Moist Soils	Tends to stick together slightly sometimes forms a very weak ribbon upon tossing.	Forms a weak ball, holds up upon tossing, will not stick. west outline on hand, forms a weak ribbon At Plastic Limit.	Easily ribbons out between fingers, has a sticky feeling. >Plastic Limit.
Wet Soils	Upon squeezing, free water may appear. Wet outline is left on hand. Nonplastic.	Forms a soft ball, can squeeze out free water medium to heavy soil/water coating on hand	Forms a soft ball. Can squeeze out free water. Thick soil/water coating on hand, slick and sticky.
* use with the <u>Then soil texture diagram</u> (see attachment)			
How to use:			
1. Dig a small pit and sample 4 to 6 inches below the mineral soil surface (below the surface litter).			
2. Determine soil textural group (coarse soils, light soils, medium soils, heavy soils) to use on chart above (see attached). Then texture diagram; consult soil scientist if necessary).			
3. Collect enough soil to form a 1 to 2 inch ball by molding with hand pressure. Pick out excessive rock fragments & squeeze with 6 directional squeezes.			
4. If a ball is formed that holds together under repeated tosses (1 to 2 feet into the air), logging equipment (feller bunchers, skidders, off-road jammers) should be restricted to operations on designated primary constructed trails or roads.			
5. The conditions described in the area above the light blue zone typically present a low to moderate risk of detrimental soil disturbance from logging equipment traffic.			
6. The conditions in the light blue shaded area commonly result in a high risk of detrimental soil disturbance from logging equipment traffic.			
7. The conditions described in the darker blue and cross-hatched area present a very high risk of detrimental soil disturbance from logging equipment traffic.			
NOTE:			
a. Soils with higher clay contents are more susceptible to damage with lower amounts of moisture.			
b. Plastic limit is the water content in the soil at the point of a solid and semisolid state—a condition highly susceptible to compaction.			
c. Slick is the descriptor that denotes the amount of clay in the soil that creates a slippery feeling.			
d. Use with care: this guide may not be appropriate for all conditions given the high variabilities in soils, topography and climate.			
e. "Logging equipment" - typical: feller-bunchers, skidders, off-road jammers; and others with >6 psi ground pressure			

Thein Soil Texture Determination Diagram

Instructional diagram for determining soil texture by feel



Appendix 7
Legacy Tree Guide

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Legacy Tree Guide Payette National Forest

Perry and Amaranthus (1997) defined forest legacies as “anything handed down from a pre-disturbance ecosystem.” In simplest terms, legacy trees are those that survived the previous stand-initiating disturbance event in lethal fire regimes, or survived numerous low- to moderate-intensity disturbance events in the other fire regimes.

Legacy trees tend to emerge above younger trees in some homogenous stand conditions, but this can be variable depending on the topography and the time elapsed since the last disturbance event.

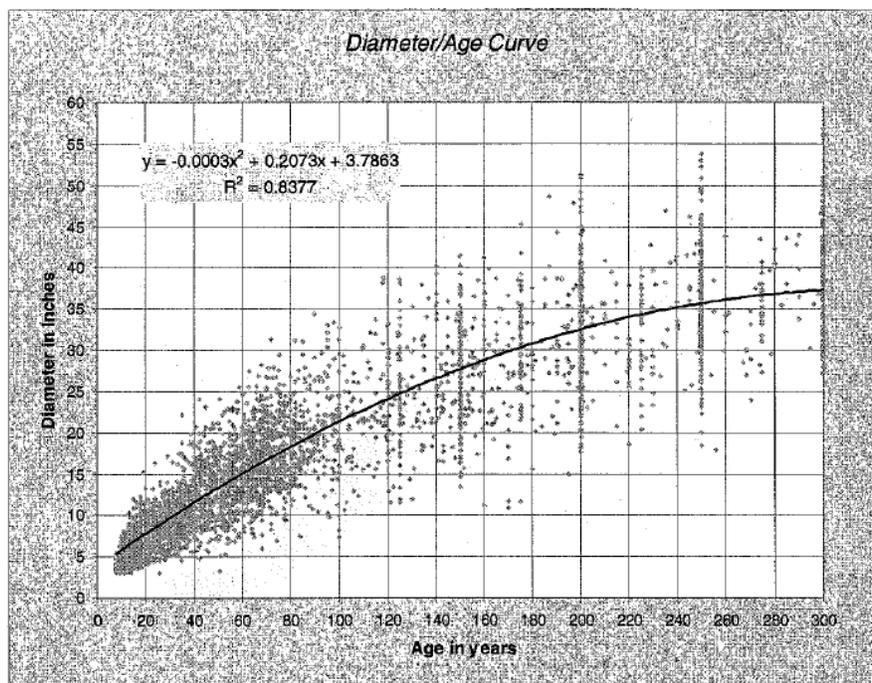
The remainder of this document outlines a process for identifying legacy ponderosa pine, western larch, and Douglas-fir for the Huckleberry project on the Payette National Forest. For the purposes of this exercise, it was assumed that all legacy trees should exceed 150 years of age. Based on sampling within the project area, most trees that meet the criteria for legacy trees in this guide are at least 150 years old. This is a good indicator that the guide does identify trees that were resilient enough to survive previous disturbance events.

The basis for this guide is *Identifying Old Trees and Forests in Eastern Washington* (Van Pelt 2008). Modifications have been made based on professional judgment, inventory data on the Payette National Forest (USDA Forest Service 2004), and sampling conducted in the Huckleberry project area to provide a simple process to identify legacy trees. As with all field guides, the scoring system provided in this document will not address every situation, and application of both professional judgment and common sense will be necessary and is encouraged.

The intent of this guide is to aid in identification of trees that are greater than approximately 150-200 years in age and have survived previous disturbance events.

It is well documented that diameter is a poor indicator of the age of individual trees (Van Pelt 2008, Johnston 2014). Payette National Inventory data (USDA Forest Service 2004) also appear to support this conclusion. Figure 1 on the following page (from the Payette National Forest inventory data (USDA Forest Service 2004) indicates that the average diameter at breast height (DBH) of a 150-year-old tree is approximately 27 inches but could range from approximately 13 to 42 inches DBH while the average DBH of a 200-year-old tree is approximately 33 inches but could range from 17 to 52 inches DBH. The table also indicates that it is rare for trees greater than 40 inches DBH to be less than 150 years in age and for trees greater than 50 inches DBH to be less than 200 years old.

Based on this information the indicators described in the species sections below will be used to identify legacy trees in the Huckleberry Landscape Restoration Project:



This graph displays the average progression of diameter as trees age. It is not specific to any particular species, as it includes all species from all strata and all working groups.

Data source: individual tree measurements from the 1979, 1991, and 2001 forest inventories. Also included is data from permanent growth plots for young trees. No cull or suppressed trees are included; only trees designated as live, crop, or site trees in the database were used for this graph. Age groupings are apparent around 150, 175, 200, and 250 years because stand exams rarely require exact age measurements beyond a certain age (often around 120-150), and are therefore estimated to the nearest 25 or 50 years.

Figure 1. Average progression of diameter as trees age

Ponderosa Pine

Legacy ponderosa pine tend to have little terminal leader growth, the top of the crown is generally flattened as the lateral branches reach the same height as the terminal, branches throughout the bole become larger in diameter, and lower branches tend to droop. Huckaby et al. (2003) noted that the majority of trees with large fire scarred cat-faces are legacies since most trees established more recently have not been subjected to the same fire regimes as occurred historically.

As with many tree species with wide distributions and ecological amplitudes, age and size of ponderosa pine are not closely correlated (Van Pelt 2008, pg. 75). Because ponderosa pine can grow in vegetation zones ranging from rocky cliffs to riparian zones, the size of the tree reveals little about its age (Van Pelt 2008, pg. 75). However, the color and condition of the bark, knot indicators on the main trunk of the tree, and the overall form of the tree's crown do provide an indication of the tree's age.

Unlike trunk diameter, maximum plate width of the bark is well correlated with tree age (Van Pelt 2008, pg. 79). As the tree ages, the outermost bark continues to flake off, causing the colorful plates of outer bark to get wider, while the width of the dark fissures in between those plates remain relatively constant (Van Pelt 2008, pg. 78). Bark plates substantially

wider than the fissures is an indication of old age (Figure 2 and Figure 3; Van Pelt 2008, p. 79).



Figure 2. Bark patterns on mature ponderosa pine. Note residual charcoal in the center photo (Van Pelt 2008, pg. 79).

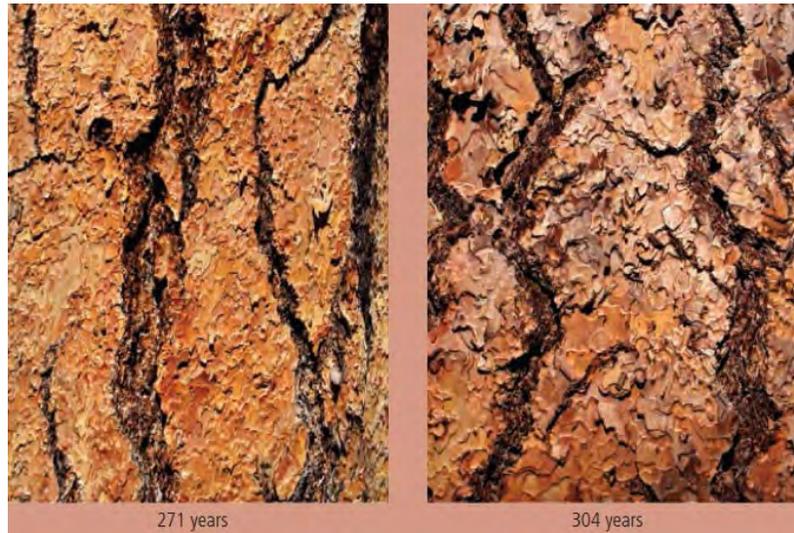


Figure 3. Bark patterns on old ponderosa pine. The colorful bark plates are generally more than three times wider than the darker fissures that separate them (Van Pelt 2008, pg. 79).

Ponderosa pine growth is whorl-based, like many members of the pine family (Van Pelt 2008, pg. 80). This pattern repeats every year so that over time the tree will consist of a series of branch whorls separated by short sections of trunk (Figure 4) (Van Pelt 2008, pg. 80). Over time, branches in the lower crown die due to shading and the lower crown lifts as the tree grows taller (Figure 5) (Van Pelt 2008, pg. 80).

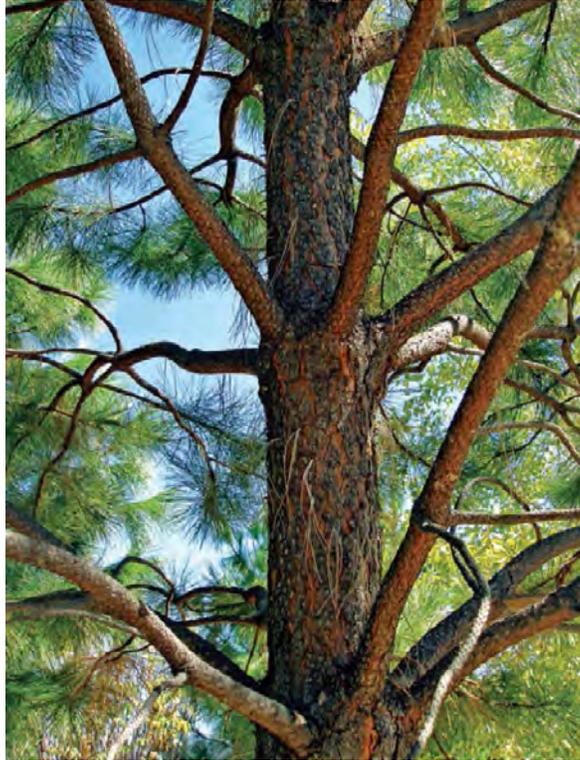


Figure 4. Whorl-based branch growth on a young ponderosa pine (Van Pelt 2008, pg. 81).



Figure 5. The whorl-based branch growth is clearly visible below the receding crown of this ponderosa pine (Van Pelt 2008, pg. 82).

Dead branches are usually present in the lower crowns of 100-year-old trees, but eventually fall off, leaving tell-tale signs of where the branches once were (Figure 6) (Van Pelt 2008, p. 80 and 81). As the tree grows, the bark begins to cover up the locations of these former branches. However, residual evidence may be visible on trees older than 200 years (Figure 7;

Van Pelt 2008, p. 81). Only in old age are the scars of original branches completely covered (Figure 8) (Van Pelt 2008, p. 81).



Figure 6. Old branch whorls are still visible decades after the branches have fallen off (Van Pelt 2008, pg. 83).



Figure 7. A century may pass before bark growth completely obscures old branch locations (Van Pelt 2008, pg. 84).



Figure 8. The rough and deeply furrowed bark of old trees shows no indication of where the original branches were located when the tree was younger (Van Pelt 2008, pg. 85).

The appearance of a tree of a given age is affected by a number of factors, including site productivity and overall tree vigor. In general, differences become accentuated with age (Van Pelt 2008, p. 83). To aid in their identification, a series of crown profiles of trees has been prepared representing trees of different ages and degrees of vigor (Figure 9; Van Pelt 2008, pp. 83 and 84).

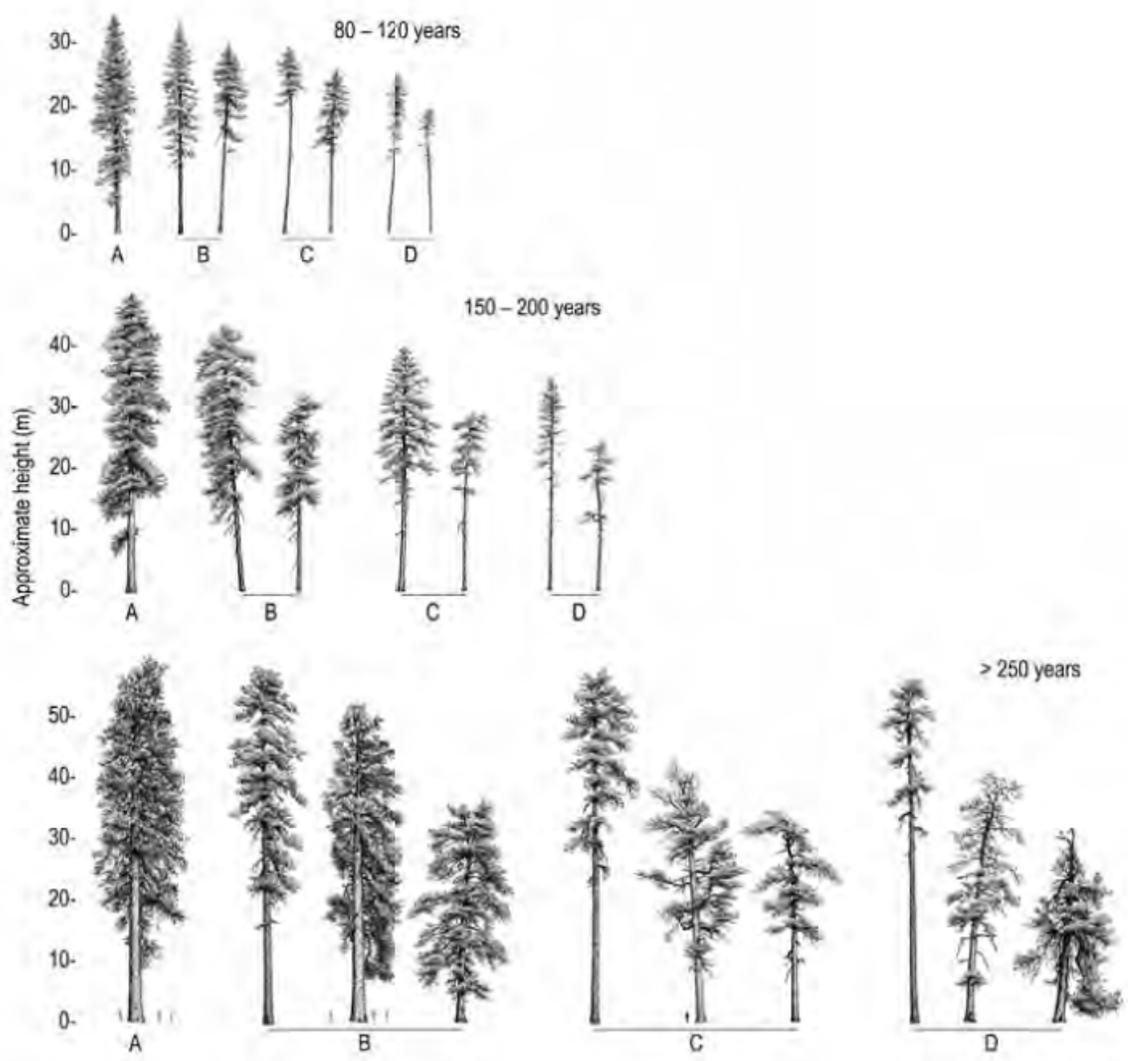


Figure 9. Ponderosa pine crown form and tree vigor on the Payette National Forest

Figure 9 represents three age and four vigor classes (A-high vigor to D-low vigor). Vigor is a function of site productivity and response to disturbance and environmental stress. More than one individual is shown for vigor classes B through D to illustrate possible variations. Competition-based mortality usually ensures that most trees in vigor classes C and D do not survive to the next age class.

Table 1. Rating System for Determining Ponderosa Pine Legacy Trees

Lower Trunk Bark Condition^a	Score
Dark Bark with Small Fissures	0
Outmost Bark Ridge Flakes Reddish, Fissures Small	1
Colorful Plates, Width About Equal to Fissure Widths	2
Maximum Fissure to Fissure Plate Width ≥ 6 inches and < 10 inches	3
Maximum Fissure to Fissure Plate Width ≥ 10 inches	5
Knot Indicators on Main Trunk Below Crown	Score
Dead Branches Below Main Crown, Whorl Indicators Extending Nearly to Tree Base	0
Old Knot/Whorl Indicators Visible Below Main Crown	1
No Knot/Whorl Indicators Visible	3
Crown Form (Refer to Figure 8)	Score
Similar to a Tree in Top Row	0
Similar to a Tree in Middle Row	3
Similar to a Tree in Bottom Row	5
Scoring Key^b	
< 2	Young Tree
2–5	Mature Tree
≥ 6	Legacy Tree

^aDetermine bark conditions on the uphill side of tree near DBH.

^bChoose one score from each category and sum scores to determine developmental stage.

Western Larch

In some ways, western larch fills the niche occupied by ponderosa pine in environments too cold for the pine to tolerate (Van Pelt 2008, p. 99). Old, but slender trees can be found rising above canopies of Engelmann spruce and subalpine fir at the upper elevations. Elsewhere, and under more favorable conditions, the larch can dominate forest stands with subordinate mixtures of grand fir, lodgepole pine, and Douglas-fir (Van Pelt 2008, pp. 99 and 101).

Like ponderosa pine, western larch develops very thick bark with age. Mature trees often have the rugged, grayish-brown bark of a Douglas-fir (Figure 10; Van Pelt 2008, p. 101). Old trees, greater than 250 years, often develop the richly colored bark of a ponderosa pine (Figure 11) (Van Pelt 2008, p. 101). However, the bark transformation from young to mature to old is not as consistent, nor as predictable, as that of ponderosa pine (Van Pelt 2008, p. 101). Ultimately, bark characteristics must be used with other characteristics to determine approximate tree age (Van Pelt 2008, p. 103).



Figure 10. Mature western larch (left) will often have bark that is difficult to distinguish from Douglas-fir (right) (Van Pelt 2008, pg. 102).



Figure 11. The bark of very old western larches (left) is often a mimic for ponderosa pine bark (right) (Van Pelt 2008, p. 102)

While larch branches do not grow in a whorl-based manner, young trees still develop tiers of original branches. As the stand develops, lower branches are shed as they become shaded (Van Pelt 2008, p. 106). Depending on the stand's density, the crown base often will recede at a rate comparable to the height growth of the stand (Van Pelt 2008, p. 106). Similar to ponderosa pine, as the tree grows, bark begins to cover up the locations of these former branches.

As the maturing stand thins, light is able to penetrate below the living crown (Van Pelt 2008, p. 106). Larches often respond by producing epicormic branches below the base of the live crown (Van Pelt 2008, pg. 106).

Epicormic branches, which start from the cambium and not from terminal buds, often occur at the axils of branches and twigs, the sites of old branch wounds, or other locations where the bark is thin (Figure 12; Van Pelt 2008, p. 106). The crowns of mature western larch are often a combination of original and epicormic branches, a pattern that becomes accentuated as trees age (Van Pelt 2008, p. 106). Because epicormic branches form on the outside of the trunk, they can grow in any direction, even tangential to the trunk. Original branches, in contrast, always form perpendicular (radially oriented) to the trunk. If many epicormic branches start from a common locus, a fan-shaped system of branches will result (Figure 13; Van Pelt 2008, p. 108).

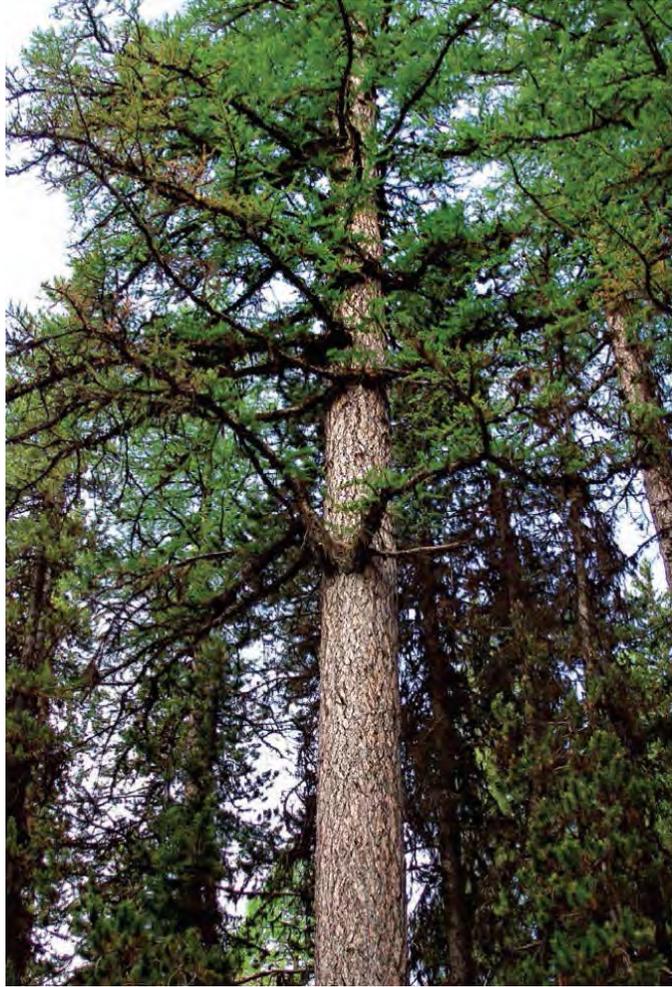


Figure 12. Epicormic branches developing below the main crown in a maturing western larch (Van Pelt 2008, p. 105).



Figure 13. Mature western larch. The graceful crown consists of original branches and an unmistakable radiating fan of epicormic branches adorning the base of the crown (Van Pelt 2008, p. 106).

Crown complexity, arising from damage due to prolonged mistletoe infections or physical events, can assist in determining tree age (Figure 14; Van Pelt 2008, p. 109). In a manner similar to the production of epicormic branches, larches have the ability to produce reiterated trunks following crown damage (Figure 15) (Van Pelt 2008, p. 109). A series of profiles have been prepared to illustrate the crown structures that can occur in western larch during its lifetime, including the variations imposed by site productivity and elevation (Figure 16).



Figure 14. Large limbs with mature bark are a sign of an old tree. In this case, the twisted shape resulted from an old mistletoe infection (Van Pelt 2008, pg. 109).



Figure 15. Reiterated trunk formation in western larches. Old trees can recover from crown damage by producing secondary trunks, as illustrated here (Van Pelt 2008, pg. 110).

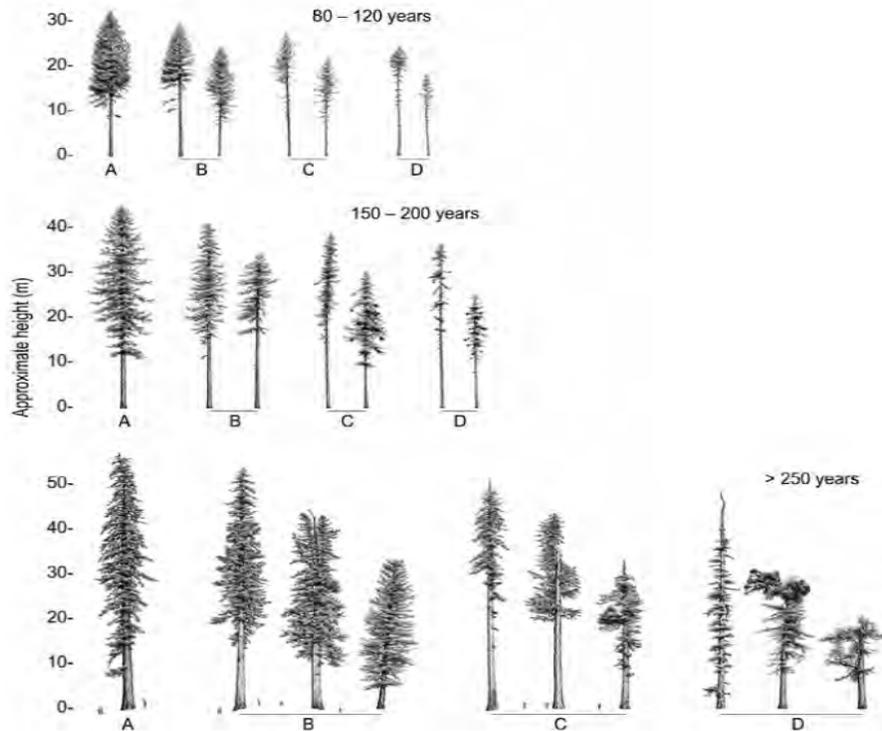


Figure 16. Western larch crown form and tree vigor on the Payette National Forest.

Figure 16 shows idealized forms representing three age and four vigor classes (A-high vigor to D-low vigor). Vigor is a function of site productivity and response to disturbance and environmental stress. More than one individual is shown for vigor classes B through D to illustrate possible variations. Competition-based mortality usually ensures that most trees in vigor classes C and D do not survive to the next age class.

Table 2. Rating System for Determining Western Larch Legacy Trees

Lower Trunk Bark Condition^a	Score
Hard, Bony Bark with Small Fissures	0
Hard Bark with Moderately Deep Fissures (2 to 4 inches)	1
Deep Fissures Present (>4 inches)	3
Maximum Fissure to Fissure Plate Width \geq 6 inches	3
Knot Indicators on Lower One-third of Tree	Score
Branch Stubs Present	0
Old Knot/Whorl Indicators Visible	1
No Knot/Whorl Indicators Visible	2
Lower Crown Indicators	Score
No Epicormic Branches	0
Small Epicormic Branches Present	1
Large and/or Gnarly Epicormic Branches Present	2
Crown Form (Refer to Figure 15)	Score
Similar to a Tree in Top Row	0
Similar to a Tree in Middle Row	3
Similar to a Tree in Bottom Row	5
Scoring Key^b	
<3	Young Tree
3–6	Mature Tree
\geq 7	Legacy Tree

^aDetermine bark conditions on the uphill side of tree near DBH.

^bChoose one score from each category and sum scores to determine developmental stage.

Douglas-fir

This species shares many features with ponderosa pine and western larch; namely, Douglas-fir have very thick bark at maturity and the ability to withstand moderate- to high-intensity fires (Van Pelt 2008, p. 121). Old Douglas-firs are very fire-resistant due largely to the protective bark that develops with age (Van Pelt 2008, p. 123). In contrast, the thin bark of young trees offers little protection, even with low-intensity fires (Van Pelt 2008, p. 123). The thin bark begins to thicken and develop vertical fissures as trees mature (Van Pelt 2008, p. 123). For the first 100 to 200 years, the bark is hard and bony, and usually brown to gray (Figure 17 and Figure 18; Van Pelt 2008, p. 123).

Douglas-fir growth is whorl-based, like that of ponderosa pine (Van Pelt 2008, pg. 124). In Douglas-fir, the lower crown begins to recede once a stand has achieved canopy closure (Van Pelt 2008, pg. 124). The lower branches die when they become too heavily shaded. Once dead, they often rot at their base and drop off the tree, leaving just a small scar in the otherwise unblemished bark (Figure 19; Van Pelt 2008, p. 124).



Figure 17. The hard, bony bark of mature trees. Depending on environmental conditions, Douglas-fir bark is either brown or gray. In this case the gray is caused by lichens (Van Pelt 2008, p. 123).



Figure 18. Hard, but thick bark is common on old Douglas-fir in the drier parts of its range (Van Pelt 2008, p. 125).



Figure 19. Branch scars on a mature Douglas-fir. The locations of original branches that have since died and fallen off are still evident. One original live branch and some epicormic branches are still visible in this photograph (Van Pelt 2008, p. 126).

Ultimately, branch scars are hidden by the continually expanding trunk after a period of several decades to more than a century (Van Pelt 2008, p. 124). During that interval, the bark will be thinner at these spots than in the surrounding areas (Van Pelt 2008, p. 125). If changes in the surrounding forest occur, such as the opening up of the canopy or the death of a neighboring tree, epicormic branches begin to form at some of these old wounds (Van Pelt 2008, p. 125). Old Douglas-fir trees often have an upper crown of original branches and a lower crown composed of the dead remnants of original branches surrounded by younger epicormic branches and fan-shaped epicormic systems (Figure 20; Van Pelt 2008, p. 125).



Figure 20. Epicormic branches. A fan of epicormic branches (visible at the base of the Douglas-fir crown) often indicates a tree in late maturity (Van Pelt 2008, p. 126).

Crown profiles of Douglas-fir at three age classes and four vigor classes (A-D) are presented in (Figure 21) (Van Pelt 2008, p. 125). As with ponderosa pine and western larch, variation in crown structure is a function of age, productivity, and crown damage (Van Pelt 2008, p. 125). Naturally, not all of the trees in one series will advance to the next (Van Pelt 2008, p. 125). For example, competition-based mortality will ensure that most of the trees in classes 1C and 1D do not make it to the next stage (Van Pelt 2008, p. 125).

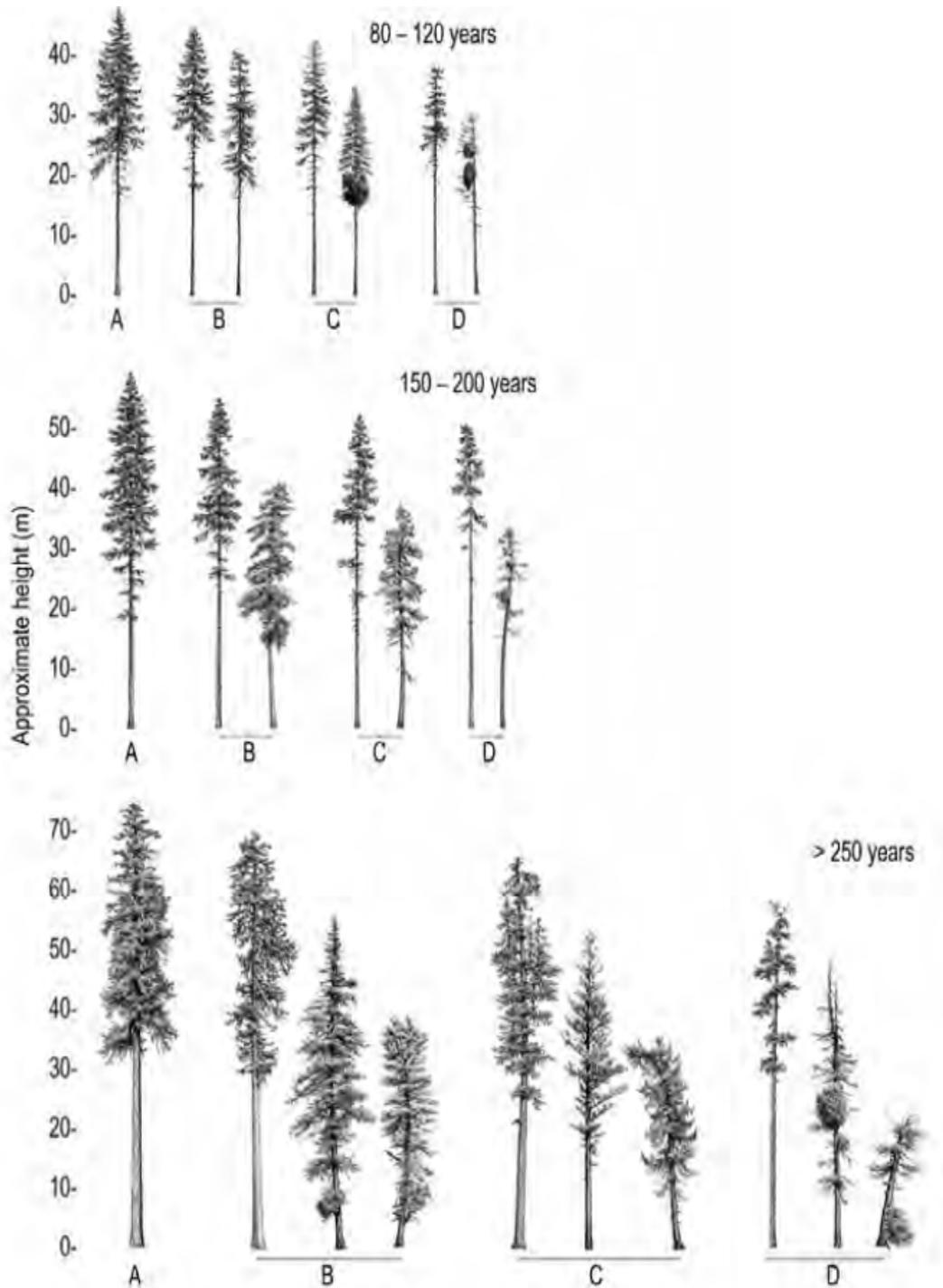


Figure 21. Douglas-fir crown form and tree vigor on the Payette National Forest.

Figure 21 shows idealized forms representing three age and four vigor classes (A-high vigor to D-low vigor). Vigor is a function of site productivity and response to disturbance and environmental stress. More than one individual is shown for vigor classes B through D to illustrate possible variations. Competition-based mortality usually ensures that most trees in vigor classes C and D do not survive to the next age class.

Table 3. Rating System for Determining Douglas-fir Legacy Trees

Bark Condition, Lower One-third of Tree^a	Score
Hard, Bony Bark with Small Fissures	0
Hard Bark with Moderately Deep Fissures (2 to 4 inches)	1
Deep Fissures Present (>4 inches)	3
Knot Indicators on Lower One-third of Tree	Score
Branch Stubs Present	0
Old Knot/Whorl Indicators Visible	1
No Knot/Whorl Indicators Visible	3
Lower Crown Indicators	Score
No Epicormic Branches	0
Small Epicormic Branches Present	1
Large and/or Gnarly Epicormic Branches Present	3
Crown Form (Refer to Figure 20)	Score
Similar to a Tree in Top Row	0
Similar to a Tree in Middle Row	3
Similar to a Tree in Bottom Row	5
Scoring Key^b	
<3	Young Tree
3 - 6	Mature Tree
≥7	Legacy Tree

^aDetermine bark conditions on the uphill side of tree near DBH

^bChoose one score from each category and sum scores to determine developmental stage.

Definitions

Crown Ratio: The ratio of crown length to total tree height, after accounting for gaps in the crown.

DBH: Tree diameter at 4.5 feet above ground level.

Hawksworth Rating: A system for rating dwarf mistletoe infections. The crown is looked at in thirds with the crown divided horizontally. The percentage of limbs infected is determined in each third. If more than 50% are infected, the rating for that third is 2. If less than 50% are infected, the rating is 1. If there is no infection, the rating is 0. The ratings for the three thirds are added together to determine a rating from 0 to 6.

Large Tree Size Class Stand: Stands with at least 10% canopy closure from 20-inch DBH and larger trees.

Ephemeral Streams: Streams that flow only during periods of high run-off.

Bed or Bank of Ephemeral Streams: Area along streams scoured or shaped by flowing water.

Overstory: The canopy layer made up of large mature trees as opposed to the understory sapling size trees.

Dominant Trees or Co-dominant Trees: Trees that are a part of the primary overstory canopy layer.

Crown Separation: The horizontal distance between tree crowns.

Riparian Conservation Areas (RCA): Perennial streams have a 240-foot RCA and a 120-foot no-cut zone. Intermittent streams have a 120-foot RCA and a 30-foot no-cut zone. The no-cut zones are marked on the ground with orange paint.

Legacy Trees: See attachment.

(b) Additional trees to be cut, if any, are marked by Forest Service with Blue tracer paint.

(c) Cutting unit boundaries and other trees that shall be left uncut are marked by Forest Service with Orange tracer paint.