United States Department of Agriculture

Forest Service

January 2016

Middle Fork Weiser River Landscape Restoration Project

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Volume 2–Appendices
Payette National Forest

Appendix 1
Maps

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Appendix 2
Road Treatment Table

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The following tables display road management actions by alternative in the Project. The road attributes displayed are:

- Rd number: Road number or ID
- Owner: FS refers to National Forest Service (NFS) lands, PVT are private lands
- Jurisdiction: The entity with rights to the road. FS is Forest Service, CNTY is county and Private is private
- Road Type:
  - County—County Road
  - NA—Not applicable to this attribute
  - NFSR—National Forest System Road
  - Private—Private Road
  - Unauthorized—Unauthorized route
  - Undetermined—Road type not attributed (applies to roads on private lands or under private jurisdiction)
- Status: The travel status of the road
  - Closed—Not Open the public for motor vehicle travel
  - NA—Not applicable to this attribute
  - Open—Open all year long to motor vehicle travel
  - Private—Not regulated by the National Forest
  - Seasonal—Open seasonally to motor vehicle travel
  - Unauthorized—Not Open to motor vehicle travel
- Alt 2: The treatment proposed in Alternative 2
- Alt 3: The treatment proposed in Alternative 3
- Alt 4: The treatment proposed in Alternative 4
- Road Treatments
  - Road Decommission Treatments:
  - Full Recontour—Full obliteration of the road or route

- Full Recont.-PC—Full obliteration of the road or route with (range) permittee coordination to allow for cattle movement
- Outslope 20%—Decompact road surface, provide drainage and outslope the road bed
- Spot Treatment—Roads would receive targeted work to improve drainage

- Other Designations or Treatments:
  - Add to System—These routes would be incorporated in the Payette National Forest Road Atlas. Once utilized for treatment, the roads would be put into an Operational Maintenance Level (OML) 2 closure (see definition in Glossary). Alternative 4 is the only alternative that proposes Add to System roads.
  - Convert to Trail—Current National Forest System Road that would be converted to a trail Open to all vehicles. This applies to the West Mountain Jeep Trail, FSR 51763.
  - Implement BMPs—These roads are currently OML 1 roads that Best Management Practices (BMPs) have not been implemented (see glossary). BMPs would be implemented.
  - LTC—These roads are currently OML 2 roads that would be changed to OML 1 and put into Long-term Closure (BMPs implemented)
  - New Temp Road—New temporary road construction which would be fully obliterated following use.
  - No Change—No change in STATUS. Roads may receive maintenance.
  - OM L1 to L2—Roads that are currently in OML 1 that would be changed to OML 2. These roads currently have private easements that allow for access by Potlatch Corporation. Changing the OML to 2 would allow for maintenance while ensuring access.
  - Private—Roads with private jurisdiction, no treatment planned other than log haul maintenance if applicable.
  - Reconstruction—Road improvement Activity that results in an increase of an existing road's traffic service level expansion of its capacity, or a change in its original design function.
  - Realignment—Roads proposed to realign and existing road or road network. The existing roads would be replaced by the realignment and decommissioned.
  - Unauthorized—Unauthorized route where no treatment is proposed.
  - Undetermined—Road type not attributed (applies to roads on private lands or under private jurisdiction). No treatment proposed.

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 (See Table 2 for road treatment outside of the Project area).

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
50165	FS	FS	NFSR	Open	No change	No change	No change	1.55
50165	FS	FS	NFSR	Open	No change	No change	No change	1.55
50165	FS	FS	NFSR	Seasonal	No change	No change	No change	0.04
501655000	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.01
501656000	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.02
501659500	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.23
501659600	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.70
501659700	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.22
50166	FS	FS	NFSR	Closed	Full recontour	Full recontour	Full recontour	0.98
50166	FS	FS	NFSR	Closed	No change	Full recontour	No change	1.48
50166	FS	FS	NFSR	Closed	No change	No change	No change	0.13
50166	FS	FS	NFSR	Open	No change	No change	No change	0.34
501662000	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.18
50184	FS	FS	NFSR	Closed	Implement BMPS	Implement BMPS	Implement BMPS	1.73
501841000	FS	FS	Unauthorized	Unauthorized	Spot treatment	Spot treatment	Spot treatment	0.08
50185	FS	FS	NFSR	Open	No change	No change	No change	0.97
50185A1	FS	FS	NFSR	Open	No change	No change	No change	0.37
50185A2	FS	FS	NFSR	Open	No change	No change	No change	0.03
50186	FS	CNTY	County	Open	No change	No change	No change	10.69
501861500	FS	FS	Unauthorized	Unauthorized	Spot treatment	Spot treatment	Spot treatment	0.08
501862500	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.04
501863000	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.34
501863010	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.18
501863500	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.11
501863500	PVT	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.04
501863800	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.12
501864000	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	1.25
501865000	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.21
501866000	FS	Private	Undetermined	Private	Undetermined	Undetermined	Undetermined	0.01
501866400	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.03
501868000	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.38
501869200	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.19
50186G	FS	FS	NFSR	Open	No change	Full recontour	No change	0.28
50192	FS	FS	NFSR	Closed	LTC	Full recontour	LTC	0.55
50192	FS	FS	NFSR	Open	No change	No change	No change	0.42

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
50192	PVT	FS	NFSR	Closed	No change	No change	No change	0.22
50192	PVT	FS	NFSR	Open	No change	No change	No change	0.48
501920800	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.15
501921000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.40
501922500	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.04
501922550	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.18
501922560	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.37
501923000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.27
50192P	FS	FS	NA	NA	NA	NA	Realignment	0.12
50197	FS	FS	NFSR	Seasonal	No Change	Full Recontour	No Change	2.19
50197	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	1.84
501975000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.99
501975010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.16
501976000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.52
50203	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.23
50203	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	1.18
50205	FS	FS	NFSR	Closed	No Change	No Change	No Change	1.50
502052000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.70
502052010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.16
502053000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.19
50206	FS	FS	NFSR	Open	No Change	No Change	No Change	3.47
50206	PVT	FS	NFSR	Open	No Change	No Change	No Change	1.51
502061000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.27
502061000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	1.55
502061010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.48
502061020	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.67
502061030	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.42
502061040	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.19
502061050	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.10
502061050	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.38
502061060	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.26
502061500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.12
502061510	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
502061520	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.21
502062000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.32
502062300	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.28
50207	FS	FS	NFSR	Open	No Change	No Change	No Change	0.97
502072000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
502073000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.12
50209	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	1.67
50209	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	2.16
502091000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.13
502091040	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.17
502092000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.12
50209P	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.07
50209P	PVT	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.15
50211	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	1.87
50211	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	3.41
502111000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
502113510	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.11
502113510	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Add to System	0.03
502113510	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	1.05
502113525	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.34
502113530	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.56
502113550	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.40
502113560	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.60
502113560	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.23
502113577	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.56
502113577	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.19
502113578	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.16
502113580	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.39
502113595	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.07
502114000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.12
502115000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.12
502116000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.16
50214	FS	FS	NFSR	Open	No Change	No Change	No Change	1.10
50214	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.20
50214	FS	FS	NFSR	Open	Reconstruction	Reconstruction	Reconstruction	2.51
502140250	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	1.36
502140251	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
502140252	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	1.47
502140253	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.08
502141000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.48
502141500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.48
502141510	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
502142000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.38

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
502142500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.47
502143000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.15
50218	FS	FS	NFSR	Open	No Change	No Change	No Change	7.38
50218	PVT	FS	NFSR	Open	No Change	No Change	No Change	1.74
502182000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.29
502183000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.97
502183000T1	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.39
502183000T2	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.56
502183500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.22
502183500	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	2.99
502183510	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.09
502183520	FS	FS	Unauthorized	Unauthorized	Outslope 20%	Outslope 20%	Outslope 20%	0.21
502183540	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.24
502183545	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.30
502183550	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14
502183560	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.87
502183565	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.06
502183570	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.53
502183570	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.10
502183580	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.85
502183590	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14
502184000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.67
502184500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.10
502185000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.48
502185010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.11
502185020	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.15
502186010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.13
502187000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.05
502187000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	1.21
502187010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.53
502187010T	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.45
502188000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.38
502188000	PVT	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
502189020	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.13
502189028	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.03
502189080	FS	FS	Unauthorized	Unauthorized	Unauthorized	Unauthorized	Unauthorized	0.62
50219	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.45
50223	FS	FS	NFSR	Closed	LTC	LTC	LTC	1.51

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
50225	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.22
50225	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.32
502251000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.63
502251010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.27
502251020	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.20
502252000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.11
50233	FS	FS	NFSR	Closed	Implement BMPs	Implement BMPs	Implement BMPs	0.15
50233	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.94
50233	PVT	FS	NFSR	Closed	No Change	No Change	No Change	1.80
50233	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	1.55
50233	PVT	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.60
502332000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
502332100	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.08
502333000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.23
502336000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.23
502337000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.21
50240	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.89
50240	FS	FS	NFSR	Closed	Implement BMPs	Implement BMPs	Implement BMPs	1.61
502401000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.60
502401500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	1.36
50243	FS	FS	NFSR	Open	No Change	No Change	No Change	2.51
502430001T	FS	FS	NA	NA	New Temp Road	NA	New Temp Road	1.61
502435500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.15
502435600	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.19
50245	FS	FS	NFSR	Open	Reconstruction	Reconstruction	Reconstruction	5.05
502450500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.19
502452000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.59
502453000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.04
502455500	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.14
50249	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.87
50249	FS	FS	NFSR	Open	No Change	No Change	No Change	0.50
50256	FS	FS	NFSR	Closed	Full Recont.-PC	Full Recont.-PC	Full Recont.-PC	0.56
50258	FS	FS	NFSR	Closed	Full Recont.-PC	Full Recont.-PC	Full Recont.-PC	0.72
502581000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.63
50261	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.06
50261	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.43
50261	PVT	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.64
50266	FS	FS	NFSR	Seasonal	Full Recontour	Full Recontour	Full Recontour	0.76

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
50266	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.03
502661000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.27
50270	FS	FS	NFSR	Seasonal	Full Recontour	Full Recontour	Full Recontour	0.12
50270	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.20
50277	FS	FS	NFSR	Closed	Implement BMPs	Implement BMPs	Implement BMPs	0.61
502772000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
50288	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.57
50288	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	1.33
502881000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.09
502881010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.09
502881010	PVT	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.00
50293	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.43
50293	PVT	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.57
50295	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.34
50295	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.02
50295	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.27
50295	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.20
503142000	FS	FS	Unauthorized	Unauthorized	Unauthorized	Unauthorized	Unauthorized	0.13
50317	FS	FS	NFSR	Open	No Change	No Change	No Change	0.22
50436	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.36
50436	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.19
50482	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.52
50482	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.34
504821000	FS	FS	Unauthorized	Unauthorized	Unauthorized	Unauthorized	Unauthorized	0.12
504822000	FS	FS	Unauthorized	Unauthorized	Unauthorized	Unauthorized	Unauthorized	0.15
50485	FS	FS	NFSR	Closed	Full Recont.-PC	Full Recont.-PC	Full Recont.-PC	0.76
50485	FS	FS	NFSR	Closed	LTC	Full Recontour	LTC	1.36
504853000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.12
50489	FS	FS	NFSR	Closed	Full Recont.-PC	Full Recont.-PC	Full Recont.-PC	1.76
50489R	FS	FS	NA	NA	Realignment	NA	Realignment	0.70
50491	FS	FS	NFSR	Closed	LTC	LTC	LTC	2.44
504911000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14
504912000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.18
504913000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.34
50493	FS	FS	NFSR	Closed	LTC	LTC	LTC	3.31
50493	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.41
50493	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.59
504931000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.13

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
504932000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14
504932500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.23
504934000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.35
504935000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
504936000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.11
504937000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.17
50496	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.66
504961000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.46
50498	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.05
50512	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.65
50521	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	3.10
50521	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	2.40
505211500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.09
505212000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.16
505213000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.02
505214000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.13
50538	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.17
50550	FS	FS	NFSR	Closed	LTC	LTC	LTC	0.10
50551	FS	FS	NFSR	Closed	No Change	No Change	No Change	2.00
50551	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.69
50552	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.29
50553	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.32
50554	PVT	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.26
50555	FS	FS	NFSR	Closed	Implement BMPs	Implement BMPs	Implement BMPs	0.14
50555	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.10
50566	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.24
50566	FS	FS	NFSR	Closed	No Change	No Change	No Change	2.52
50566	PVT	FS	NFSR	Closed	No Change	No Change	No Change	1.19
505661000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.15
505661010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.47
505663000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.57
505663030	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.23
505665000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.91
50566R	FS	FS	NA	NA	Realignment	NA	Realignment	0.22
50567	FS	FS	NFSR	Open	No Change	No Change	No Change	0.63
50567	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.39
505671000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.38
50574	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.21

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
50574	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.15
50589	FS	Private	Private	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	1.13
505891000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.10
505891100	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.07
505891120	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.06
505891123	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.02
505891130	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.33
505891131	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.06
505891132	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.16
505891133	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.08
505891610	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.02
50591	FS	FS	NFSR	Open	No Change	No Change	No Change	1.37
50591	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.36
50591	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	2.21
50591	PVT	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.88
505911000	FS	FS	Unauthorized	Unauthorized	Outslope 20%	Outslope 20%	Outslope 20%	0.75
505911010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.17
505911040	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.11
50593	FS	FS	NFSR	Open	No Change	No Change	No Change	0.31
50593	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.56
505938000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.48
50620	PVT	FS	NFSR	Closed	No Change	No Change	No Change	1.98
506202000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	1.25
50677	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.27
50677	FS	FS	NFSR	Closed	Outslope 20%	Outslope 20%	Outslope 20%	0.74
506771010	FS	Private	Private	Private	Private	Private	Private	0.03
50692	FS	FS	NFSR	Open	No Change	No Change	No Change	1.88
50692	PVT	FS	NFSR	Open	No Change	No Change	No Change	1.32
50692	PVT	FS	NFSR	Open	Reconstruction	Reconstruction	Reconstruction	1.19
506922000	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.01
50701	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	2.21
50701	PVT	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.87
507012000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.23
507012100	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.15
50702	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.14
50702	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.28
50703	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.38
50703	PVT	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.00

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
50704	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.10
50704	PVT	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.19
507041000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.06
50705	FS	FS	NFSR	Closed	Implement BMPs	Implement BMPs	Implement BMPs	0.22
50705	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.23
50706	FS	FS	NFSR	Open	Full Recontour	Full Recontour	Full Recontour	0.48
507061000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.26
50707	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.47
50707	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.07
50707R	FS	FS	NA	NA	Realignment	NA	Realignment	0.43
50708	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.47
507630001T	FS	FS	NA	NA	NA	NA	New Temp Road	0.61
50798	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.49
50798	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.03
50798	FS	Private	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.08
50849	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.23
50849	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.24
50849	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.01
509151000	FS	FS	Unauthorized	Unauthorized	Unauthorized	Unauthorized	Unauthorized	0.23
51054	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.43
51054	FS	FS	NFSR	Open	Full Recontour	Full Recontour	Full Recontour	0.08
510542000	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	1.42
510542050	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.28
510542051	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.43
510542100	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14
510542200	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.11
51142	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.09
51143	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.15
51144	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.95
51144	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.01
51297	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.81
51298	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	1.26
512981000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14
512982000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.35
512982000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	1.03
51299	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.15
51301	FS	FS	NFSR	Closed	No Change	No Change	No Change	2.76
51301	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.52

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
513016000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.62
51302	FS	FS	NFSR	Open	No Change	No Change	No Change	0.14
51302	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.42
513022000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.10
51302R	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.15
51305	FS	FS	NFSR	Closed	No Change	No Change	No Change	2.30
51305	FS	FS	NA	NA	New Temp Road	New Temp Road	Realignment	0.57
51305	FS	FS	NFSR	Closed	Spot Treatment	Spot Treatment	Spot Treatment	0.95
513059000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.18
51306	FS	FS	NFSR	Open	No Change	No Change	No Change	0.58
513061000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.05
513061010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.32
513061010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.13
513061020	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Add to System	0.34
513061020	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.05
513061030	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.07
51306R	FS	FS	NA	NA	NA	NA	Realignment	0.19
51517	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.83
51517	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.33
51538	FS	FS	NFSR	Closed	Implement BMPs	Implement BMPs	Implement BMPs	0.63
51538	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.18
515388000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.24
51540	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.28
51541	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.58
51541	FS	FS	NFSR	Closed	Spot Treatment	Spot Treatment	Spot Treatment	0.11
51547	FS	FS	NFSR	Closed	LTC	Full Recontour	LTC	0.85
51547R	FS	FS	NA	NA	Realignment	NA	Realignment	0.53
51549	FS	FS	NFSR	Closed	Full Recont.-PC	Full recont.-pc	Full Recont.-PC	0.30
51582	FS	FS	NFSR	Open	No Change	No Change	No Change	0.80
51582	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.35
515822500	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.17
515823000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.11
515824000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.43
515824100	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.59
515824110	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.10
515852000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.52
51587	FS	FS	NFSR	Closed	Full Recontour	Full Recontour	Full Recontour	0.19
51763	FS	FS	NFSR	Open	Convert to Trail	Convert to Trail	Convert to Trail	3.37

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
51763	FS	FS	NFSR	Open	No Change	No Change	No Change	4.37
517631010	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.08
517631011	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14
517632000	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.09
517635000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.11
51782P	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.27
51782P	PVT	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.08
51783P	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.03
51783P	PVT	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.07
51784	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.61
51784	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.20
51785	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.83
517851000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.14
51786	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.05
51787	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.19
51787	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.01
51787	PVT	Private	NFSR	Closed	No Change	No Change	No Change	0.17
51787P	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.76
51788	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.14
51789	FS	FS	NFSR	Seasonal	No Change	No Change	No Change	0.42
51789	PVT	FS	NFSR	Seasonal	No Change	No Change	No Change	0.32
51790	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.29
51791	PVT	Private	NFSR	Closed	No Change	No Change	No Change	0.45
51791R	FS	FS	NA	NA	Realignment	NA	Realignment	0.29
51791R	PVT	FS	NA	NA	Realignment	NA	Realignment	0.03
51792	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.04
51792	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.39
51793	FS	FS	NFSR	Closed	Implement BMPs	Implement BMPs	Implement BMPs	0.24
51793	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.12
51794	FS	FS	NFSR	Open	No Change	No Change	No Change	0.18
51795	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.23
51795	PVT	FS	NFSR	Closed	No Change	No Change	No Change	0.88
51796	FS	FS	NFSR	Open	No Change	No Change	No Change	0.57
51814	FS	FS	NFSR	Open	No Change	No Change	No Change	2.10
518140001T	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.52
518141001	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.07
518141002	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.56
518141002T	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	1.19

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
518141003	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.33
518141005	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.12
51817	FS	FS	NFSR	Closed	Implement BMPs	Implement BMPs	Implement BMPs	0.16
51818	FS	FS	NFSR	Closed	LTC	LTC	LTC	1.63
51819	FS	FS	NFSR	Closed	LTC	LTC	LTC	0.51
51890	FS	FS	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.15
51895	FS	FS	NFSR	Closed	Outslope 20%	Outslope 20%	Outslope 20%	0.35
51896	FS	FS	NFSR	Closed	Outslope 20%	Outslope 20%	Outslope 20%	0.19
51899	FS	FS	NFSR	Open	No Change	No Change	No Change	0.84
51933	FS	FS	NFSR	Closed	No Change	No Change	No Change	0.09
52001	FS	FS	NFSR	Open	No Change	No Change	No Change	0.11
52001P	FS	FS	NA	NA	New Temp Road	New Temp Road	Realignment	0.19
52002	FS	FS	NFSR	Open	No Change	No Change	No Change	0.19
52002P	FS	FS	NA	NA	New Temp Road	New Temp Road	Realignment	0.11
52003P	FS	FS	NA	NA	New Temp Road	New Temp Road	Realignment	0.45
52004P	FS	FS	NA	NA	New Temp Road	New Temp Road	Realignment	0.50
52005P	FS	FS	NA	NA	New Temp Road	New Temp Road	Realignment	0.16
52006P	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	0.36
52007P	FS	FS	NA	NA	New Temp Road	New Temp Road	New Temp Road	1.23
58008	FS	FS	NFSR	Open	No Change	No Change	No Change	0.08
58009	FS	FS	NFSR	Open	No Change	No Change	No Change	0.11
58009	PVT	FS	NFSR	Open	No Change	No Change	No Change	0.04
58010	FS	Private	NFSR	Closed	No Change	No Change	No Change	0.02
58011	PVT	Private	NFSR	Closed	No Change	No Change	No Change	0.16
58011	FS	Private	NFSR	Closed	OM L1 to L2	OM L1 to L2	OM L1 to L2	0.04
58012	FS	Private	NFSR	Closed	No Change	No Change	No Change	0.01
BC10	FS	Private	Undetermined	Private	Undetermined	Undetermined	Undetermined	0.00
BC109	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.09
BC110	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.01
BC113	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.06
BC114	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.03
BC1262	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.02
BC135	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.06
BC16	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.01
BC179	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.02
BC28	FS	Private	Private	Private	Private	Private	Private	0.02
BC431	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.02
BC53	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.07

Rd Number	Owner	Jurisdiction	Road Type	Status	Alt 2	Alt 3	Alt 4	Miles
BC56	FS	FS	Unauthorized	Unauthorized	Spot Treatment	Spot Treatment	Spot Treatment	0.09
BC57	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.09
BC71	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.02
BC8	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.01
BC92	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.13

Table 2: Roads that are outside the Project area but associated with the road network inside the Project. These are on the ridgetops adjacent to the Project area and the roads weave in and out of the Project.

Rd number	Owner	Jurisdiction	Road type	Status	Alt 2	Alt 3	Alt 4	Miles
51763	FS	FS	NFSR	Open	Convert to trail	Convert to trail	Convert to trail	1.11
502183000	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.05
502189028	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.19
510542000	FS	FS	Unauthorized	Unauthorized	Spot treatment	Spot treatment	Spot treatment	0.63
517631010	FS	FS	Unauthorized	Unauthorized	Full recontour	Full recontour	Full recontour	0.08
517631011	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.01
517635000	FS	FS	Unauthorized	Unauthorized	Full Recontour	Full Recontour	Full Recontour	0.04
50186G	FS	FS	NFSR	Open	No Change	Full Recontour	No Change	0.51

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Appendix 3
Cumulative Effects

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Table of Contents

List of Figures

List of Tables

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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 Middle Fork Weiser River Landscape Assessment 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 sections of Chapter 3 of the Project environmental impact statement. These activities, and reasonably foreseeable activities, may affect resources relevant to actions that are expected following the Landscape Assessment. 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 "Effects" discussion of Chapter 3 of the Landscape Assessment.

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) east of the Weiser River:

- Granite Creek—Middle Fork Weiser River
- Mica Creek—Middle Fork Weiser River
- Jungle Creek—Middle Fork Weiser River
- Little Fall Creek—Middle Fork Weiser River
- A portion of East Fork Weiser River in the Upper East Fork Drainage

This cumulative effects analysis area encompasses 57,820 acres, of which 47,817 acres are within the National Forest boundary (Table 1, Figure 1, and Figure 2).

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 decade in Table 1 and Table 2, and shown in Figure 1 and Figure 2. Detailed records of pre-1960 timber harvest in the area are not available.

There is a record of 9,816 acres of harvest on National Forest Lands and 8,495 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 the totals above.

Table 1. Summary of Harvest Acreage by Owner, Method, and Decade

Owner	Harvest Method	Decade	Acreage
National Forest System lands	Cable	1990	3
		2000	15
	Cable Total		**18**
	Helicopter	1980	53
		1990	88
		2000	837
	Helicopter Total		**978**
	Jammer	2000	1262
	Jammer Total		**1262**
	Pickup	2000	14
	Pickup Total		**14**
	Single-Span Sky	1970	28
		1980	119
		1990	174
		2000	269
	Single-Span Sky Total		**590**
	Tractor	1960	3388
		1970	2099
		1980	1476
		1990	1872
		2000	171
		2010	146
	Tractor Total		**9151**
	Unknown	1970	7
	Unknown Total		**7**
Forest Service Total			**12021**
Private	Tractor	1990	4797
		2000	3698
	Tractor Total		**8495**
Private Total			**8495**
Grand Total			**20515**

Table 2. Harvest Method by Stand

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
1963	GRANITE CR SALV	Tractor	120	12
1963	GRANITE CR SALV	Tractor	122	20
1963	GRANITE CR SALV	Tractor	124	6
1963	GRANITE CR SALV	Tractor	125	32
1963	GRANITE CR SALV	Tractor	126	11
1964	CABIN CREEK	Tractor	317	11
1964	CABIN CREEK	Tractor	318	18
1964	CABIN CREEK 1	Tractor	227	168
1964	CABIN CREEK 2&4	Tractor	233	35
1964	CABIN CREEK 3	Tractor	319	26
1964	CABIN CREEK 4	Tractor	237	73
1964	CABIN CREEK 5	Tractor	234	12
1964	CABIN CREEK 5	Tractor	235	23
1964	CABIN CREEK 5	Tractor	236	11
1964	CABIN CREEK 5	Tractor	238	14
1964	CABIN CREEK 5	Tractor	239	5
1964	CABIN CREEK 5	Tractor	316	32
1964	CABIN CREEK 6	Tractor	225	29
1964	CABIN CREEK 6	Tractor	226	50
1964	CABIN CREEK 6	Tractor	230	8
1964	CABIN CREEK 6	Tractor	231	15
1964	CABIN CREEK 6	Tractor	232	15
1964	CABIN CREEK?	Tractor	326	8
1964	CABIN CREEK?	Tractor	327	20
1964	CABIN CREEK?	Tractor	331	36
1964	CABIN CREEK?	Tractor	336	8
1964	CABIN CREEK?	Tractor	337	3
1964	CABIN CREEK?	Tractor	338	11
1964	GRANITE CR SALV	Tractor	121	11
1964	GRANITE CR SALV	Tractor	123	9
1965	DEWEY CREEK	Tractor	263	0
1965	DEWEY CREEK	Tractor	264	0
1965	DEWEY CREEK	Tractor	265	0
1965	DEWEY CREEK 53	Tractor	266	1
1967	BEAR GAP 1	Tractor	259	288
1967	BEAR GAP 10	Tractor	258	21
1967	BEAR GAP 2	Tractor	310	48
1967	BEAR GAP 3	Tractor	262	24
1967	BEAR GAP 3	Tractor	311	30
1967	BEAR GAP 5	Tractor	260	36
1967	BEAR GAP 5	Tractor	261	40
1967	BEAR GAP 6-8	Tractor	340	80
1967	BEAR GAP 9	Tractor	334	19
1967	BEAR GAP 9	Tractor	335	19
1967	BLUE BUNCH 07	Tractor	127	8
1967	COUNCIL MTN 01	Tractor	268	32
1967	COUNCIL MTN 01	Tractor	320	8
1967	COUNCIL MTN 01	Tractor	321	10

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
1967	COUNCIL MTN 02	Tractor	272	11
1967	COUNCIL MTN 03	Tractor	269	13
1967	COUNCIL MTN 04	Tractor	270	24
1967	COUNCIL MTN 05	Tractor	271	11
1967	COUNCIL MTN 06	Tractor	306	11
1967	COUNCIL MTN 07	Tractor	275	18
1967	COUNCIL MTN 07	Tractor	276	5
1967	COUNCIL MTN 08	Tractor	279	27
1967	COUNCIL MTN 09	Tractor	281	17
1967	COUNCIL MTN 09	Tractor	282	48
1967	COUNCIL MTN 09	Tractor	283	23
1967	COUNCIL MTN 09	Tractor	285	26
1967	COUNCIL MTN 09	Tractor	286	31
1967	COUNCIL MTN 09	Tractor	287	63
1967	COUNCIL MTN 09	Tractor	322	6
1967	COUNCIL MTN 09	Tractor	323	7
1967	COUNCIL MTN 09	Tractor	324	4
1967	COUNCIL MTN 10	Tractor	277	26
1967	COUNCIL MTN 11	Tractor	288	20
1967	COUNCIL MTN 19	Tractor	278	17
1967	COUNCIL MTN 20	Tractor	273	1
1967	COUNCIL MTN 20	Tractor	274	4
1967	COUNCIL MTN 20	Tractor	307	8
1967	COUNCIL MTN 9A	Tractor	280	14
1967	COUNCIL MTN 9A	Tractor	284	34
1967	Isolated 160 01	Tractor	546	20
1967	Isolated 160 2&3	Tractor	544	75
1967	Isolated 160 3&4	Tractor	545	38
1967	COUNCIL MTN 14	Tractor	558	26
1967	COUNCIL MTN 15	Tractor	559	9
1968	BEAR GAP 2N	Tractor	247	75
1968	BEAR GAP 2N	Tractor	250	10
1968	BEAR GAP 2N	Tractor	252	6
1968	BEAR GAP 2N	Tractor	255	5
1968	BEAR GAP 4N	Tractor	309	28
1968	Isolated 160?	Tractor	547	173
1968	Isolated 160?	Tractor	548	56
1968	JUNGLE CR	Tractor	453	17
1968	JUNGLE CR	Tractor	491	89
1968	JUNGLE CR 01	Tractor	444	41
1968	JUNGLE CR 02	Tractor	452	33
1968	JUNGLE CR 03	Tractor	445	21
1968	JUNGLE CR 03	Tractor	446	6
1968	JUNGLE CR 03	Tractor	447	24
1968	JUNGLE CR 04	Tractor	448	21
1968	JUNGLE CR 05	Tractor	449	34
1968	JUNGLE CR 06	Tractor	450	7
1968	JUNGLE CR 10	Tractor	489	29
1968	JUNGLE CR 10	Tractor	490	9

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
1968	JUNGLE CR 11	Tractor	454	37
1968	JUNGLE CR 12	Tractor	455	50
1969	BEAR GAP 1N	Tractor	243	102
1969	BEAR GAP 1N	Tractor	245	31
1969	BEAR GAP 1N	Tractor	246	49
1969	BEAR GAP 1N	Tractor	248	50
1969	BEAR GAP 1N	Tractor	249	7
1969	BEAR GAP 1N	Tractor	251	34
1969	BEAR GAP 1N	Tractor	253	14
1969	BEAR GAP 1N	Tractor	254	32
1969	BEAR GAP 1N	Tractor	256	19
1969	BEAR GAP 1N	Tractor	257	58
1969	BEAR GAP 1N	Tractor	330	8
1969	BEAR GAP 1N	Tractor	342	10
1969	BEAR GAP 1N	Tractor	343	3
1969	BEAR GAP 3N	Tractor	328	12
1969	BEAR GAP 3N	Tractor	329	5
1969	BEAR GAP 4	Tractor	333	120
1969	BEAR GAP 4	Tractor	339	3
1969	COUNCIL MTN 12	Tractor	290	8
1969	COUNCIL MTN 13	Tractor	289	6
1969	DEWEY CREEK 16	Tractor	510	0
1969	DEWEY CREEK 16	Tractor	511	1
1969	DEWEY CREEK 16	Tractor	528	12
1970	JUNGLE CR 06	Tractor	456	51
1970	JUNGLE CR 07	Tractor	457	38
1970	JUNGLE CR 08	Tractor	458	16
1970	JUNGLE CR 09	Tractor	459	23
1970	NO BUSINESS	Tractor	436	30
1970	NO BUSINESS	Tractor	437	42
1970	NO BUSINESS	Tractor	442	11
1970	NO BUSINESS 05	Tractor	419	22
1970	NO BUSINESS 09	Tractor	421	20
1970	NO BUSINESS 10	Tractor	422	30
1970	NO BUSINESS 11	Tractor	345	17
1970	NO BUSINESS 11	Tractor	438	25
1970	NO BUSINESS 12	Tractor	430	37
1970	NO BUSINESS 13	Tractor	432	16
1970	NO BUSINESS 13	Tractor	433	20
1970	NO BUSINESS 13	Tractor	443	10
1970	NO BUSINESS L	Tractor	434	22
1970	NO BUSINESS L	Tractor	435	60
1971	NO BUSINESS 01	Tractor	418	5
1971	NO BUSINESS 02	Tractor	344	14
1971	NO BUSINESS 03	Tractor	423	30
1971	NO BUSINESS 03	Tractor	425	9
1971	NO BUSINESS 03	Tractor	440	12
1971	NO BUSINESS 04	Tractor	424	17
1971	NO BUSINESS 06	Tractor	426	24
1971	NO BUSINESS 06	Tractor	427	13
1971	NO BUSINESS 06	Tractor	439	16
1971	NO BUSINESS 06	Tractor	441	6
1971	NO BUSINESS 07	Tractor	428	13

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
1971	NO BUSINESS 08	Tractor	420	28
1971	NO BUSINESS 12	Tractor	431	6
1972	JUNGLE CR	Tractor	451	84
1972	NO BUSINESS 12	Tractor	429	29
1975	BLUE BUNCH SALVAGE	Tractor	267	2
1976	CORRAL CREEK 01	Tractor	244	45
1976	CORRAL CREEK 02	Tractor	240	87
1976	CORRAL CREEK 03	Tractor	220	11
1976	CORRAL CREEK 04	Tractor	221	27
1976	CORRAL CREEK 06	Tractor	224	40
1976	CORRAL CREEK 07	Tractor	241	21
1976	CORRAL CREEK 08	Tractor	228	12
1976	CORRAL CREEK 09	Tractor	332	32
1976	CORRAL CREEK 10	Tractor	223	5
1976	CORRAL CREEK 11	Tractor	222	28
1976	CORRAL CREEK 12	Tractor	219	44
1976	SUGARLOAF 1	Single-Span Sky	513	28
1976	SUGARLOAF 2&3	Tractor	514	38
1976	SUGARLOAF 2&3	Tractor	555	16
1976	SUGARLOAF 4	Tractor	512	50
1976	SUGARLOAF 5	Tractor	515	8
1976	SUGARLOAF 6	Tractor	516	93
1976	SUGARLOAF 6	Tractor	517	12
1976	SUGARLOAF 7	Tractor	519	36
1976	SUGARLOAF 8	Tractor	518	34
1976	SUGARLOAF 9	Tractor	553	20
1977	CATAMARAN 1	Tractor	464	70
1977	CATAMARAN 2	Tractor	461	43
1977	CATAMARAN 3	Tractor	462	28
1977	CATAMARAN 4	Tractor	460	16
1977	CATAMARAN 5	Tractor	488	66
1977	CATAMARAN 6	Tractor	463	15
1977	CATAMARAN 7	Tractor	472	13
1977	CATAMARAN 7	Tractor	473	3
1977	CATAMARAN?	Tractor	465	84
1977	CATAMARAN?	Tractor	466	36
1977	CATAMARAN?	Tractor	474	8
1977	CATAMARAN?	Tractor	475	13
1977	CATAMARAN?	Tractor	480	13
1977	CATAMARAN?	Tractor	497	8
1977	CORRAL CR SALV 1	Tractor	308	27
1977	CORRAL CREEK 05	Tractor	218	67
1977	MICA SADDLE 2&3	Tractor	314	57
1977	MICA SADDLE 4	Tractor	315	76
1977	UNKNOWN	(blank)	325	7
1982	MIDDLE FORK	Tractor	471	25
1982	MIDDLE FORK 01	Tractor	353	29
1982	MIDDLE FORK 03	Tractor	354	35
1982	MIDDLE FORK 09	Tractor	355	8
1982	MIDDLE FORK 2&11	Tractor	352	24
1983	DESERET 03	Tractor	501	2
1983	DESERET 04	Tractor	502	4
1983	DESERET 05	Tractor	503	16
1983	DESERET 10	Tractor	504	27
1983	DESERET 11	Tractor	534	39
1983	DESERET 11	Tractor	535	22
1983	DESERET 12	Tractor	533	29
1983	DESERET 13	Tractor	536	17

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
1983	DESERET 13	Tractor	537	4
1983	DESERET 14	Tractor	531	28
1983	DESERET 15	Tractor	532	14
1983	DESERET 16	Tractor	530	4
1983	DESERET 17	Tractor	529	6
1983	DESERET 18	Tractor	507	8
1983	DESERET 19	Tractor	506	6
1983	DESERET 20	Tractor	508	3
1983	DESERET 21	Tractor	509	5
1983	MIDDLE FORK 10&14	Tractor	351	46
1984	DESERET 01	Tractor	538	34
1984	DESERET 01	Tractor	539	8
1984	DESERET 01	Tractor	540	16
1984	DESERET 01	Tractor	541	6
1984	DESERET 01	Tractor	542	39
1984	DESERET 02	Tractor	500	5
1984	DESERET 06	Tractor	543	7
1984	DESERET 06	Tractor	563	8
1984	DESERET 07	Tractor	505	1
1984	DESERET 07	Tractor	560	12
1984	MIDDLE FORK 04	Tractor	356	33
1984	MIDDLE FORK 12	Tractor	349	24
1984	MIDDLE FORK 12	Tractor	350	56
1984	MIDDLE FORK 13	Tractor	469	12
1984	MIDDLE FORK 13	Tractor	470	9
1984	MIDDLE FORK 16	Tractor	348	28
1984	MIDDLE FORK 17	Tractor	467	3
1984	MIDDLE FORK 17	Tractor	468	3
1984	MIDDLE FORK 18	Tractor	346	39
1984	MIDDLE FORK 18	Tractor	347	109
1984	MIDDLE FORK 5-8	Tractor	357	9
1984	DESERET 08	Tractor	561	4
1984	DESERET 09	Tractor	562	11
1986	HUBBARD BASIN 306	Tractor	408	38
1988	HUBBARD BASIN 851	Tractor	477	6
1988	HUBBARD BASIN 851	Tractor	478	2
1988	HUBBARD BASIN 851	Tractor	479	8
1988	MIDDLE FORK SPRUCE	Tractor	303	51
1988	MIDDLE FORK SPRUCE	Tractor	304	14
1988	MIDDLE FORK SPRUCE	Tractor	341	6
1989	GREEN RANCH B 450	Tractor	381	3
1989	GREEN RANCH B 516	Tractor	382	0
1989	GRN RANCH E HELI 1	Helicopter	369	22
1989	GRN RNCH C SS 11A	Helicopter	360	30
1989	HUBBARD BASIN 255	Tractor	415	22
1989	HUBBARD BASIN 256	Single-Span Sky	417	27
1989	HUBBARD BASIN 306	Tractor	401	115
1989	HUBBARD BASIN 306	Tractor	402	16
1989	HUBBARD BASIN 350	Tractor	409	15
1989	HUBBARD BASIN 351	Tractor	412	26
1989	HUBBARD BASIN 353	Tractor	414	15
1989	HUBBARD BASIN 354	Single-Span Sky	416	9
1989	HUBBARD BASIN 354	Single-Span Sky	492	30
1989	HUBBARD BASIN 403	Tractor	405	17
1989	HUBBARD BASIN 450	Tractor	400	40
1989	HUBBARD BASIN 451	Tractor	399	9
1989	HUBBARD BASIN 452	Tractor	404	54
1989	HUBBARD BASIN 453	Tractor	406	28

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
1989	HUBBARD BASIN 651	Tractor	403	18
1989	HUBBARD BASIN 6750	Single-Span Sky	413	19
1989	HUBBARD BASIN 6751	Single-Span Sky	407	13
1989	HUBBARD BASIN 6751	Single-Span Sky	410	20
1989	HUBBARD BASIN 753	Tractor	397	27
1989	HUBBARD BASIN 753	Tractor	398	27
1989	HUBBARD BASIN 754	Tractor	396	31
1989	MIDDLE FORK SPRUCE	Tractor	305	9
1990	CABIN CR SALV 1	Tractor	524	33
1990	CABIN CR SALV 1A	Tractor	525	24
1990	CABIN CR SALV 1C	Tractor	526	17
1990	GREEN RANCH A 1	Tractor	380	15
1990	GREEN RANCH A 10	Tractor	365	24
1990	GREEN RANCH A 11	Tractor	494	22
1990	GREEN RANCH A 12	Single-Span Sky	364	29
1990	GREEN RANCH A 12A	Tractor	366	17
1990	GREEN RANCH A 16	Tractor	378	21
1990	GREEN RANCH A 17	Tractor	376	35
1990	GREEN RANCH A 2	Tractor	498	15
1990	GREEN RANCH A 21	Tractor	495	32
1990	GREEN RANCH A 21	Tractor	496	19
1990	GREEN RANCH A 4	Tractor	499	22
1990	GREEN RANCH A 5	Tractor	379	32
1990	GREEN RANCH A 6	Tractor	375	16
1990	GREEN RANCH A 7	Tractor	372	35
1990	GREEN RANCH A 8	Tractor	476	21
1990	GREEN RANCH A 9	Tractor	377	40
1990	GREEN RANCH D 1	Tractor	363	11
1990	GREEN RANCH D 2&3	Tractor	481	125
1990	GREEN RANCH D 5	Tractor	370	16
1990	GREEN RANCH D 5	Tractor	371	9
1990	GREEN RANCH D 6	Tractor	373	17
1990	GREEN RNCH A 14&15	Tractor	374	27
1990	GRN RANCH A13 & Z1	Tractor	493	48
1990	GRN RANCH Z SALV 2	Tractor	367	18
1990	GRNIT SQUAW SALV 6	Tractor	35	2
1990	GRNIT SQUAW SALV 7	Tractor	34	6
1990	HUBBARD BASIN 352	Tractor	411	21
1990	HUBBARD BASIN 850	Single-Span Sky	485	18
1990	HUBBARD BASIN 850	Single-Span Sky	486	3
1990	HUBBARD BASIN 850	Single-Span Sky	487	3
1990	PVT	Tractor	193	9
1990	PVT	Tractor	194	7
1990	PVT	Tractor	195	861
1990	PVT	Tractor	196	1433
1990	PVT	Tractor	197	97
1990	PVT	Tractor	198	483
1990	PVT	Tractor	199	11
1990	PVT	Tractor	200	7
1990	PVT	Tractor	201	19
1990	PVT	Tractor	202	23
1990	PVT	Tractor	203	1847
1990	SWING BOULDER SS 1	Tractor	291	12
1990	SWING BOULDER SS 2	Tractor	293	26
1990	SWING BOULDER SS 2	Tractor	294	5
1990	SWING BOULDER SS 3	Tractor	292	10
1991	BAR CREEK SALVAGE	Tractor	302	10
1991	BEAR GAP PULP SS 1	Tractor	358	10

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
1991	BEAR GAP PULP SS 1	Tractor	359	6
1991	BOULDER BAR S 2&7	Tractor	552	15
1991	BOULDER BAR SALV 1	Tractor	520	8
1991	BOULDER BAR SALV 1	Tractor	549	29
1991	BOULDER BAR SALV 2	Tractor	550	15
1991	BOULDER BAR SALV 3	Tractor	554	45
1991	BOULDER BAR SALV 4	Tractor	522	5
1991	BOULDER BAR SALV 4	Tractor	527	14
1991	BOULDER BAR SALV 5	Tractor	521	11
1991	BOULDER BAR SALV 5	Tractor	551	12
1991	BOULDER BAR SALV 6	Tractor	523	8
1991	E FK LOGEPOL SALV	Tractor	10	0
1991	GRAVL PIT FIRWD SS	Tractor	229	8
1991	GRNIT SQUAW SALV 3	Tractor	31	8
1991	GRNIT SQUAW SALV 4	Tractor	117	6
1991	GRNIT SQUAW SALV 5	Tractor	32	15
1991	GRNIT SQW 2 SAL 01	Tractor	217	22
1991	GRNIT SQW 2 SAL 03	Tractor	130	9
1991	GRNIT SQW 2 SAL 04	Tractor	118	8
1991	GRNIT SQW 2 SAL 06	Tractor	116	10
1991	GRNIT SQW 2 SAL 08	Tractor	131	10
1991	GRNIT SQW 2 SAL 10	Tractor	128	23
1991	GRNIT SQW 2 SAL 11	Tractor	129	8
1991	GRNIT SQW 2 SAL 4A	Tractor	119	16
1991	PINELOAF SALV 1	Tractor	384	14
1991	PINELOAF SALV 2	Tractor	383	5
1991	PINELOAF SALV 3	Tractor	388	6
1991	PINELOAF SALV 4	Tractor	385	2
1991	PINELOAF SALV 5	Tractor	387	3
1991	PINELOAF SALV 6	Tractor	386	3
1991	SKYLOAF SALV 1	Single-Span Sky	392	11
1991	SKYLOAF SALV 3	Tractor	395	5
1991	SKYLOAF SALV 4	Single-Span Sky	393	7
1991	WHITELICKS SALV 1	Single-Span Sky	301	7
1991	WHITELICKS SALV 3	Single-Span Sky	299	19
1991	WHITELICKS SALV 4	Tractor	298	9
1991	WHITELICKS SALV 6	Tractor	295	14
1991	WHITELICKS SALV 8	Tractor	300	6
1991	WHITELICKS SS 2&9	Tractor	297	39
1991	WHITELICKS SS 5&7	Single-Span Sky	296	24
1992	BEETLE RNDUP SS 1	Tractor	3	5
1992	BEETLE RNDUP SS 2	Tractor	5	5
1992	BEETLE RNDUP SS 3	Tractor	4	6
1992	BEETLE RNDUP SS 4	Tractor	2	30
1992	BEETLE RNDUP SS 5	Tractor	1	10
1992	GRN RNCH C SALV 7	Helicopter	482	6
1992	GRN RNCH C SALV 7	Helicopter	484	6
1992	GRN RNCH C SALV 7A	Helicopter	368	17
1992	GRN RNCH C SALV 8	Helicopter	483	9
1992	GRNIT SQUAW SALV 1	Tractor	33	3
1992	MICA SADDLE SALV 3	Tractor	148	14
1992	MICA SADDLE SALV 4	Tractor	150	15
1992	MICA SDLE SALV 1&2	Tractor	149	17
1992	SKYLOAF SALV 5	Tractor	391	7
1992	SKYLOAF SALV 6	Tractor	394	32
1992	SKYLOAF SALV 7	Tractor	389	18
1992	SKYLOAF SALV 8	Single-Span Sky	390	13
1992	SUGAR MEDLEY SALV	Tractor	362	4

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
1992	WONDERLOAF SALV 7	Tractor	242	9
1992	WONDERLOAF SALV 8	Tractor	313	12
1992	WONDERLOAF SALV 9	Tractor	312	2
1993	GRN RNCH C SALV 11	Helicopter	361	50
1994	No Business Jr	Tractor	104	6
1994	No Business Jr 01	Tractor	39	27
1994	No Business Jr 02	Tractor	38	14
1994	No Business Jr 03	Tractor	105	27
1994	No Business Jr 04	Tractor	106	8
1994	No Business Jr 5A	Tractor	36	10
1994	No Business Jr 5B	Tractor	37	12
1996	GRANITE CREEK 04	Tractor	133	6
1996	GRANITE CREEK 06	Tractor	134	7
1996	GRANITE CREEK 16	Tractor	556	17
1998	Granite Cr Fire	Tractor	135	8
1998	ISOLATED 40 CLNUP	Tractor	6	27
1998	ISOLATED 40 CLNUP	Tractor	146	13
1999	GRANITE CREEK 01	Tractor	11	29
1999	GRANITE CREEK 02	Single-Span Sky	12	6
1999	GRANITE CREEK 03	Tractor	13	24
1999	GRANITE CREEK 05	Cable	20	2
1999	GRANITE CREEK 11	Tractor	14	22
1999	GRANITE CREEK 13	Tractor	15	17
1999	GRANITE CREEK 13	Tractor	21	23
1999	GRANITE CREEK 14	Tractor	24	34
1999	GRANITE CREEK 15	Tractor	25	26
1999	GRANITE CREEK 17	Tractor	132	2
1999	GRANITE CREEK 18	Tractor	17	48
1999	GRANITE CREEK 20	Tractor	16	27
1999	GRANITE CREEK 20A	Single-Span Sky	30	10
1999	GRANITE CREEK 21	Tractor	23	8
1999	GRANITE CREEK 21A	Cable	19	1
1999	GRANITE CREEK 22	Single-Span Sky	18	1
1999	GRANITE CREEK 22	Single-Span Sky	27	4
1999	GRANITE CREEK 23	Single-Span Sky	26	14
1999	GRANITE CREEK 25	Single-Span Sky	29	5
1999	GRANITE CREEK 7&9	Tractor	22	4
1999	GRANITE CREEK 12	Tractor	557	8
2000	GRANITE CREEK 26	Tractor	28	18
2007	COUGAR BASIN 12	Tractor	8	0
2007	COUGAR BASIN 305	Tractor	9	0
2007	COUGAR BASIN 8	Tractor	7	0
2008	Grays Cr 320	Tractor	188	7
2008	Grays Cr 321A	Jammer	40	0
2008	Grays Cr 321B	Jammer	43	8
2008	Grays Cr 322	Jammer	142	2
2008	Grays Cr 322	Jammer	189	10
2008	Grays Cr 322	Jammer	190	11
2008	Grays Cr 323	Tractor	41	19
2008	Grays Cr 323	Tractor	99	6
2008	Grays Cr 323	Tractor	100	5
2008	Grays Cr 325	Single-Span Sky	98	9
2008	Grays Cr 326	Single-Span Sky	97	8
2008	Grays Cr 341	Cable	192	6
2008	Grays Cr 405	Pickup	151	10
2008	MF 001	Jammer	136	35
2008	MF 101	Jammer	57	141
2008	MF 102	Single-Span Sky	56	16

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
2008	MF 103	Helicopter	79	15
2008	MF 104	Jammer	67	27
2008	MF 104	Jammer	68	27
2008	MF 104	Jammer	69	17
2008	MF 104	Jammer	70	20
2008	MF 104	Jammer	71	31
2008	MF 104	Jammer	72	24
2008	MF 104	Jammer	73	28
2008	MF 104	Jammer	74	18
2008	MF 104	Jammer	75	36
2008	MF 104	Jammer	76	42
2008	MF 104	Jammer	83	20
2008	MF 104	Jammer	88	18
2008	MF 104	Jammer	152	7
2008	MF 104	Jammer	153	13
2008	MF 104	Jammer	162	42
2008	MF 104C	Jammer	64	5
2008	MF 105	Jammer	65	11
2008	MF 107	Jammer	62	16
2008	MF 108	Jammer	77	23
2008	MF 108	Jammer	85	14
2008	MF 108	Jammer	87	8
2008	MF 108	Jammer	159	35
2008	MF 111	Tractor	160	15
2008	MF 112	Helicopter	84	5
2008	MF 113	Helicopter	80	14
2008	MF 113	Helicopter	81	67
2008	MF 114	Tractor	164	7
2008	MF 115	Jammer	102	20
2008	MF 115	Jammer	103	3
2008	MF 115A	Jammer	59	13
2008	MF 115B	Jammer	60	14
2008	MF 115C	Jammer	61	5
2008	MF 115D	Jammer	166	17
2008	MF 116	Helicopter	158	27
2008	MF 119	Jammer	165	20
2008	MF 120	Single-Span Sky	66	15
2008	MF 120	Single-Span Sky	163	12
2008	MF 125	Helicopter	63	11
2008	MF 125	Helicopter	78	28
2008	MF 125	Helicopter	154	7
2008	MF 125	Helicopter	156	17
2008	MF 125	Helicopter	157	3
2008	MF 125 &103	Helicopter	155	126
2008	PVT	Tractor	204	32
2008	PVT	Tractor	205	7
2008	PVT	Tractor	206	139
2008	PVT	Tractor	207	24
2008	PVT	Tractor	208	15
2008	PVT	Tractor	209	73
2008	PVT	Tractor	210	165
2008	PVT	Tractor	211	15
2008	PVT	Tractor	212	240
2008	PVT	Tractor	213	2876
2008	PVT	Tractor	214	40
2008	PVT	Tractor	215	67
2008	PVT	Tractor	216	5
2008	Sugarloaf 201	Jammer	180	5

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
2008	Sugarloaf 201	Single-Span Sky	179	8
2008	Sugarloaf 204	Single-Span Sky	178	34
2008	Sugarloaf 210	Helicopter	138	5
2008	Sugarloaf 211	Helicopter	51	14
2008	Sugarloaf 220	Single-Span Sky	170	2
2008	Sugarloaf 221	Tractor	49	28
2008	Sugarloaf 222	Jammer	171	33
2008	Sugarloaf 223&4	Single-Span Sky	172	44
2008	Sugarloaf 228	Helicopter	147	26
2008	Sugarloaf 230	Single-Span Sky	141	14
2008	Sugarloaf 231	Single-Span Sky	169	12
2008	Sugarloaf 234	Single-Span Sky	54	17
2008	Sugarloaf 235	Jammer	45	77
2008	Sugarloaf 235	Jammer	92	12
2008	Sugarloaf 237	Single-Span Sky	93	15
2008	Sugarloaf 238	Jammer	48	14
2008	Sugarloaf 239	Cable	175	3
2008	Sugarloaf 240	Single-Span Sky	176	29
2008	Sugarloaf 241	Tractor	47	33
2008	Sugarloaf 241	Tractor	174	13
2008	Sugarloaf 242	Cable	177	6
2008	Sugarloaf 244	Single-Span Sky	50	28
2008	Sugarloaf 245	Jammer	90	15
2008	Sugarloaf 245	Jammer	91	8
2008	Sugarloaf 245	Jammer	181	34
2008	Sugarloaf 246	Helicopter	182	71
2008	Sugarloaf 246	Single-Span Sky	184	5
2008	Sugarloaf 247	Jammer	183	2
2008	Sugarloaf 249	Jammer	185	7
2008	Sugarloaf 250	Helicopter	89	10
2008	Sugarloaf 250 E&F	Helicopter	82	177
2008	Sugarloaf 250A&D	Helicopter	186	128
2008	Sugarloaf 250G	Helicopter	187	26
2008	Sugarloaf 251	Tractor	139	4
2008	Sugarloaf 402	Pickup	140	4
2009	Grays Cr 335A	Jammer	44	8
2009	Grays Cr 335B	Jammer	95	94
2009	Grays Cr 335C	Jammer	96	8
2009	Grays Cr 336	Jammer	143	3
2009	Grays Cr 337	Helicopter	94	7
2009	Grays Cr 338	Helicopter	145	20
2009	Grays Cr 338A	Helicopter	144	6
2009	Grays Cr 338B	Helicopter	191	7
2009	Grays Cr 338C	Helicopter	42	6
2009	Grays Cr 340	Jammer	101	11
2009	MF 100	Jammer	161	8
2009	MF 108	Jammer	55	45
2009	MF 109	Jammer	58	7
2009	MF 109	Jammer	86	14
2009	MF 117	Jammer	167	24
2009	MF 118	Jammer	168	12
2009	Sugarloaf 202	Jammer	137	9
2009	Sugarloaf 202A	Jammer	52	5
2009	Sugarloaf 227	Tractor	46	16
2009	Sugarloaf 233	Helicopter	53	16
2009	Sugarloaf 243	Jammer	173	26
2011	MF Blowdown 02	Tractor	108	14
2011	MF Blowdown 02	Tractor	110	17

Harvest Year	Sale Name	Harvest Method	Stand Label	Acres
2011	MF Blowdown 02	Tractor	114	14
2011	MF Blowdown 03	Tractor	109	28
2011	MF Blowdown 06	Tractor	111	16
2011	MF Blowdown 06	Tractor	112	42
2011	MF Blowdown 06	Tractor	113	7
2011	MF Blowdown 09	Tractor	107	5
2011	MF Blowdown 09	Tractor	115	4

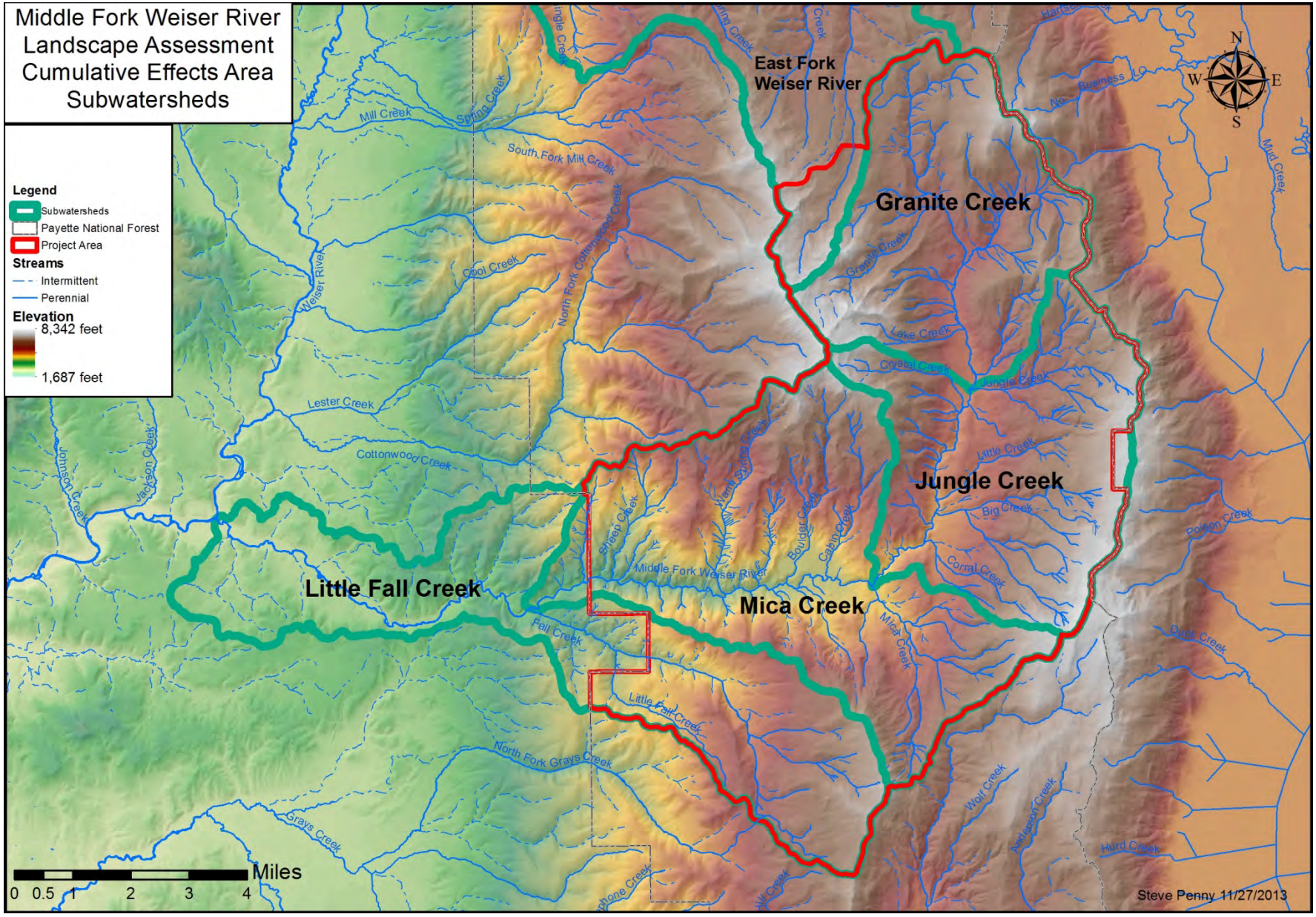

Figure 1. Cumulative Effects Analysis Area

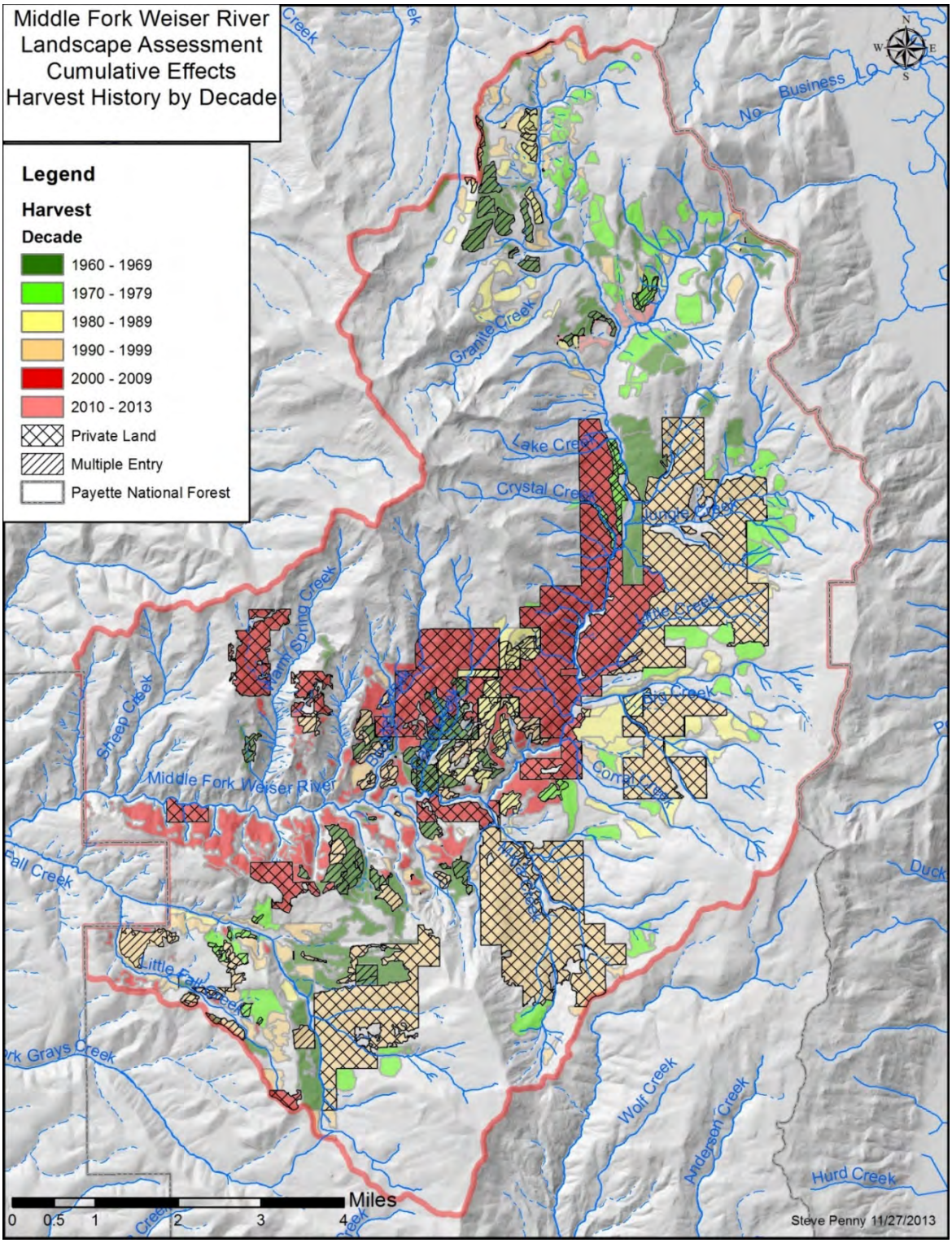

Figure 2. Past Harvest within the Project Area

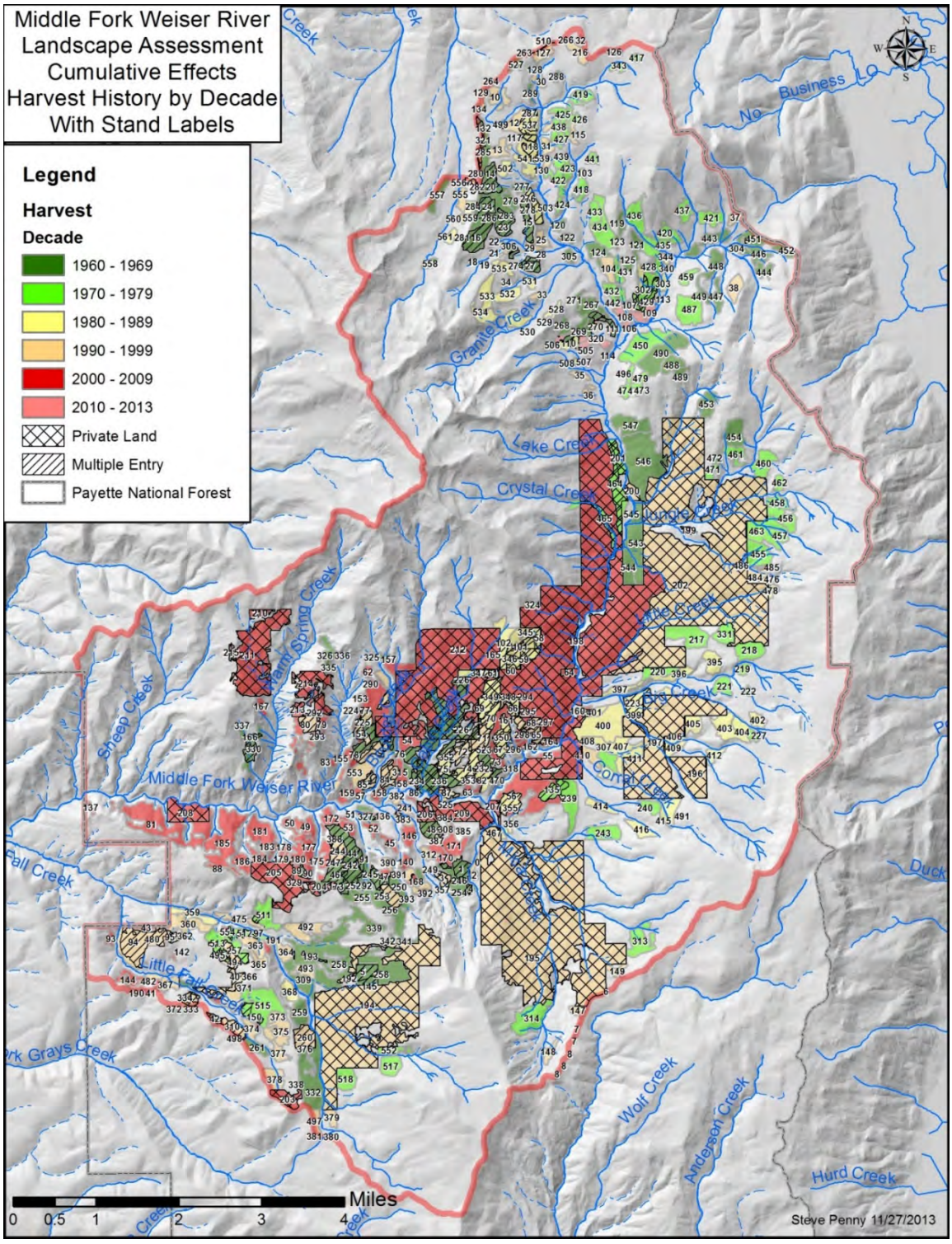

Figure 3. Past Harvest within the Project Area with Stand Labels—Crosswalk to Harvest Tab

Table 3. Other actions that may be considered in the Cumulative Effects Analysis for the Middle Fork Weiser River Landscape Assessment Project

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 1964 to 2011, GIS records show a total of 5,440 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. Activities on the Boise National Forest adjacent to the Project include the West Mountain North project which treated vegetation east of No Business Saddle.	Early 1930s to present and ongoing
	Timber harvest on private land	There are 1,852 acres of private land in the Cumulative Effects Analysis Area. Most of the forested area has been managed using various cutting methods with a variety of silvicultural treatments or high-grading. Boise Cascade is a major landowner within the Project area and has entered for harvest the majority of their ownership (see Table 1, Figure 2, and Figure 3).	Early 1900s to present and ongoing
	Timber harvest on State land	There are about 1,363 acres of State land in the Cumulative Effects Analysis Area. State land management maximizes returns to the trust beneficiaries of the State. The trust lands are intensively managed for timber growth and yield.	Early 1900s to present and ongoing
	State land acquisition	Section 36 T15N R1E and Section 16 T15N R2E, were acquired from the State of Idaho in June, 1990. Using aerial photographs from the 1960s, the following observations were made. Section 36 in Fall Creek contained no roads or logging in 1962 but was roaded and logged by 1969. The cutting could be described as a selective cut tending towards a high-grade. Section 16 in the Mica Creek drainage was roaded and logged prior to 1962. The 1962 photos showed portions of roads that were brushed in and roads undriveable. Photos from 1946 showed no roads or logging activity. The best estimate by observation is that it was logged and roaded from the late 1940s to the early 1950s with the same type of selective cut/ high-grade harvest used in section 36.	1990

Project #	Action	Past, Present and Reasonably Foreseeable Description of the Action	Date
	Water diversions	Diversion (by Fall Creek) for Mesa Orchards completely dewatered the Middle Fork Weiser River.	1939-1941
	National Forest System Roads	The majority of the road system in the Project area was developed in the 1940s, 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: 7.6miles of road have been decommissioned within the Project area. 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 bull dozer tractors. Roads were typically developed adjacent to streams with limited stream buffers. 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.	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 Grays Creek Fire in 2007.	1930s to present and ongoing
	Fires in recorded history	The Grays Creek Fire in 2007 burned 17,789 acres of which 7,890 acres are in the Cumulative Effects Analysis Area. 270 acres were salvage harvested in 2008 and 2009 and subsequently planted.	1944 to 2013
	Livestock management	Cattle and sheep grazing have occurred throughout the area since the late 1800s. No sheep allotments currently occur in the Project area. Management of livestock grazing is permitted under the Council Mountain and Indian Mountain Allotments.	Late 1800s to present and ongoing

Project #	Action	Past, Present and Reasonably Foreseeable Description of the Action	Date
	Floods	Two major flood events that impacted roads and streams in the Project area have occurred in the past two decades. First, 1997 floods resulted in the need for many road repairs, primarily in the … Second, heavy rains over several days in early June 2010 caused flooding in Warm Springs, Bar, Boulder, Upper Middle Fork Weiser, and Lake Creek as well as many small tributaries. Drainages burned by the 2007 Grays Creek Fire were especially affected, as flood waters moved quickly through these areas with likely higher peak flows than in an unburned watershed. A shallow landslide along the Middle Fork Road just downstream of the Boulder Creek confluence caused over 300 feet of the road to fail. Repairs at all stream crossings mentioned, in addition to the landslide, were completed over the summer of 2010. However, sites are still unstable and several crossings have experienced minor flooding and obstruction by debris jams since the repairs were made. It is likely that major stream crossings along the Middle Fork Road will continue to be affected by flood and high runoff events. The road is built adjacent to the stream channel, making crossings and the road prism vulnerable to the effects of high flows. In turn, these impacts affect stream channel and bank condition; when the road or a culvert fails the stream is impacted by sediment and loss of riparian vegetation.	Past, 1997, 2010, reasonably foreseeable in the future
	Wildlife Conservation Strategy (WCS) Forest Plan Amendment	The WCS's draft environmental impact statement (DEIS) has been released and public comment received. This DEIS proposes to amend the Payette National Forest Land and Resource Management Plan by changing the management area prescription from a commodity emphasis to a restoration emphasis. If this is implemented, landscape restoration projects in high priority stands (e.g., low elevation ponderosa pine) would be planned across the Forest. Increased prescribed burning and using fire for resource benefits would occur. In addition, vegetation treatments would be designed to retain old forest conditions and large tree components and to restore habitat to the historical range of variability. The Mill Creek—Council Mountain Landscape Restoration Project was designed in line with the science supporting the WCS.	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. Roads included within the Project area include Roads 50256, 50223, and 50258 in 2011 and 2013. Road 50205 was also permitted for the Council Senior Program in 2012.	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
	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. Recreational use of private land includes camping, hunting, and soaking in White Licks Hot Springs	1900s to present and ongoing
	Campground management	Management of Cabin Creek campground	Past, present and ongoing

Project #	Action	Past, Present and Reasonably Foreseeable Description of the Action	Date
	Travel Management Plan	The recent Travel Management Plan Decision (signed February 2009) made cross-country motorized travel illegal from areas previously open (areas C, D, and E on the 1995 Travel Map), closed unauthorized roads that may have been travelable with ATV or full-size 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. 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. No cross-country travel would be permitted. 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 39 miles adjacent to and within the Project area. Existing designated system recreation trails would be maintained, including erosion control and hazardous tree removal.	ongoing

Appendix 4
Monitoring and Evaluation

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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 Middle Fork Weiser River and major tributaries	Will continue to monitor water temperatures at already-established locations in the Middle Fork watershed.	Biological and hydrologic technicians, and fisheries biologist or hydrologist
Fisheries and Watershed	Implementation and effectiveness of RCA treatments and culvert replacements	Implementation monitoring will occur the same year as RCA treatment. 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 and Watershed	Implementation of RCA treatment delineation.	Implementation monitoring will occur after treatment unit layout/marking 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
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.	Hydrology technicians and hydrologist

[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	Implementation and effectiveness of Timber Best Management Practices	The majority of the monitoring will occur during harvest operations. 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, hydrology technicians
Soil and Water	Implementation and effectiveness of prescribed fire prescriptions/soil response	The majority of the monitoring will occur prior to, and immediately following, burning operations. Soil moisture at the time of burning, and vegetation/soil response to burning, will be evaluated.	Hydrologist, hydrology technicians, fuels specialist and fuels technicians
Soil and Water	Implementation of coarse woody debris retention requirements in mechanical treatment units	Monitoring would occur during and/or immediately after mechanical treatment	soil scientist, Timber Sale Administrator
Soil and Water	Implementation of trail construction erosion control and stream crossing design features.	Monitoring will occur after construction is completed	Hydrologist; soil scientist, hydrology 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:	Middle Fork Weiser River Landscape Restoration Project (MFWR). NIDGS clearances for project activities in, or adjacent to harvest units, landings, equipment parking areas, skid trails, temporary road routes, rods to be obliterated of 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:	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 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:	Middle Fork Weiser River 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:	
	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 *prior to other crew entry or other project activity* 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.

- 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: Middle Fork Weiser River Landscape Restoration Project (MFWR).Pre-Implementation Wildlife Monitoring Surveys.

Location: Payette National Forest, Council Ranger District, MFWR Project Area.

Objectives: 1. Document presence of species in units receiving restoration treatment;
2. Locate nests and/or nest stands;
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.

Parameters: 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 *Before & After* 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: Use current methods applicable to this project and the monitoring objectives, as noted in professional journals and agency reports, to meet the stated objectives.

- Locate nests and nest stands with GPS, using 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 sill include established Forest transects and those established by the West Zone.

Frequency: 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.

Duration: Sampling should continue for at least 5 years, in order to determine long-term trends in population demographics.

Data Storage: Wildlife Program Files on the District and Forest in NOGO GIS GeoDatabase and in the Forest database for NRM entry.

Analysis: Specific analysis will follow the methods described by the Principal Investigator.

Report: Annual reports summarizing survey results.

Final project report, due when funding terminated.

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:	Middle Fork Weiser River 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:	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:	1. Use roads table from the 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, 27 Oct 2015

MONITORING PLAN SUMMARY SHEET

Program:	Fisheries and Watershed
Activity	Project Monitoring
	Implementation and effectiveness of RCA treatments and culvert replacements
Project Name:	Middle Fork Weiser River Landscape Restoration Project
Location:	Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River
Objectives:	*To monitor effectiveness of the stream buffers in protecting stream channels.
	*To document the culvert replacements and determine if fish passage was provided.
Methodology:	Intermittent stream channels will be surveyed to determine fish presence/absence prior to implementation and RCA widths will be adjusted as necessary.
	A subset of RCAs will be visited to qualitatively assess if stream buffers adequately protected streams. Photographs will be taken for comparison and to document the condition of RCAs.
	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 within RCAs.
	Effectiveness monitoring will occur annually for 3 years during activities and once after 5 years. Culvert replacements will be monitoring the year of implementation and annually for 2 years.
Personnel:	One to two hydrological technicians and/or biological technicians, one fisheries biologist and/or hydrologist
Responsible Official:	Greg Lesch, Council and Acting Weiser District Ranger
Prepared by:	Trisha Giambra, West Zone Fisheries Biologist
Date:	December 2015

MONITORING PLAN SUMMARY SHEET

Program:	Fisheries
Activity	Project Monitoring
	Water temperatures
Project Name:	Middle Fork Weiser River Landscape Restoration Project
Location:	Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River
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 Middle Fork Weiser River drainage. This methodology may be adjusted, as needed.
Frequency/Duration:	Temperature monitoring will begin in 2015 and will continue annually until 2015.
Personnel:	Biological and hydrologic technicians, and fisheries biologist and/or hydrologist
Responsible Official:	Greg Lesch, Council and Acting Weiser District Ranger
Prepared by:	Trisha Giambra, West Zone Fisheries Biologist
Date:	December 2015

MONITORING PLAN SUMMARY SHEET

Program:	Fisheries and Watershed
Activity	Project Monitoring
	Implementation of RCA treatment delineation
Project Name:	Middle Fork Weiser River Landscape Restoration Project
Location:	Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River
Objectives:	*To monitor the vegetation treatments within RCAs for the MFWR Project.
Methodology:	Implementation monitoring will occur after treatment unit layout/marking but before vegetation treatment begins. About 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. This methodology may be adjusted, as needed.
Frequency/Duration:	Project specific monitoring will begin after unit layout/marking and prior to treatment.
Personnel:	Two fisheries and/or hydrology technicians may be assisted by a hydrologist and/or journey-level fisheries biologist.
Responsible Official:	Greg Lesch, Council and Acting Weiser District Ranger
Prepared by:	Trisha Giambra, West Zone Fisheries Biologist
Date:	December 2015

MONITORING PLAN SUMMARY SHEET

Program:	Soil and Water
Activity, Practice or Effect:	Project Monitoring, Soil and Water Resource Improvement, Implementation of Treatments.
Project Name:	Middle Fork Weiser River Road Decommissioning (Obliteration)
Location:	Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River
Objectives:	Determine if decommissioning has been properly implemented on approximately 29-65 miles of unauthorized and/or Forest Service system roads (depending on selected alternative) identified during the Middle Fork Weiser River EIS. 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/straw mulching within riparian areas and at stream crossings. *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.*

Parameters:	On-site field evaluation of treatments will include one or more of the following: 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, bull trout habitat drainages). Where possible, both qualitative and quantitative comparisons to pre-existing conditions will be documented. Photographs will be taken for comparison.
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.
Duration:	Monitoring will continue for up to 5 years
Data Storage:	District and/or Supervisor's Office files under Watershed Improvement
Analysis:	Field documentation, summarization of heel-to-toe transect 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.

Cost:	The total cost will be $3,030.00 per year. This covers 10 days for a GS-5 or GS-6 Hydro-Technician for implementation monitoring and 2 days for a GS-11 Hydrologist to evaluate the data and write a report. This also covers $350 for miscellaneous supplies, including transportation.
Personnel:	One GS-5 or 6 Hydro-Technician and one GS-11 Hydrologist
Responsible Individual:	West Zone Hydrologist and Hydrologic Technicians
Responsible Official:	Greg Lesch, Council and Acting Weiser District Ranger
Prepared by:	Melanie Vining, West Zone Hydrologist
Date:	December 2015

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:	Middle Fork Weiser River Road Decommissioning (With Permittee Access Coordination)
Location:	Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River
Objectives:	Determine if decommissioning **that has been designated for coordination with grazing permittees in order to allow access for cattle trailing, salting, or fence maintenance** has been properly implemented as described in the Middle Fork Weiser River EIS. Decommissioning methods for reducing surface erosion and sediment delivery and restoring soil-hydrologic function include: de-compacting the road surface, recontouring 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. *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.* NOTE: The methods described above match those described for full obliteration and, where topography allows, these will be utilized on these permittee coordination roads as long as this method allows for cattle movement and/or other permitted access listed above. However, certain roads of this category (especially if located on steep slopes) will require a travelway be either retained or reconstructed on the treated prism to allow safe passage for trailing or driving cattle. These travelways shall not exceed the width required to safely accommodate the permitted use, and should be outsloped to facilitate drainage. They should be closed at the road entrance to prohibit unauthorized motorized use. *During implementation of these treatments, coordination with the district range specialist is required.*

Parameters:

1. On-site field evaluation of treatments will include one or more of the following:

2. Visual evidence of surface coverage with ground cover, vegetation transplants, and mulching seeding in riparian areas,

3. 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.

4. 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.

Assessment of whether retained travelway has been effective at allowing for permitted use and associated impacts are confined to this travelway or if they are affecting the rest of the treated prism. Assessment of any evidence of frequent unauthorized use impacting travelway beyond the permitted use. Photos (with GPS point) and a narrative are sufficient for this purpose.

Methodology:

Implementation monitoring will be accomplished through field verification of the planned treatments in selected roads, with emphasis placed on roads within riparian and/or sensitive areas (e.g., steeper slopes, bull trout habitat drainages). Where possible, document both qualitative and quantitative comparisons to pre-existing conditions. Photographs will be taken for comparison purposes.

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 year 3 and 5 unless findings indicate sites have stabilized and re-vegetated to their natural potential.

Duration:

Up to 5 years.

Data Storage:

District and/or Supervisor's Office files under Watershed Improvement.

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 result publication.

Cost:	The total cost will be $1500.00/year. This covers 5 days for a GS-6 Hydro-Technician for implementation monitoring of the project, and one day for a GS-11 Hydrologist to evaluate the data and write the report. This also covers $350 for miscellaneous supplies, including transportation.
Personnel:	One GS-5 or 6 Hydro-Technician and one GS-11 Hydrologist.
Responsible Individual:	West Zone Hydrologist and Hydrologic Technicians
Responsible Official:	Greg Lesch, Council and Acting Weiser District Ranger
Prepared by:	Melanie Vining, West Zone Hydrologist
Date:	December 2015

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

MONITORING PLAN SUMMARY SHEET

Program: Soil & Water

Activity, Practice or Effect: Project Monitoring, Timber Management, Implementation and Effectiveness Monitoring of Timber BMP's and SWCP's.

Project Name: Middle Fork Weiser River Landscape Restoration Project

Location: Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River

Objectives:

1. Determine if BMP's, SWCP's (as included in the timber sale contract) and project design features are being implemented.

2. Determine if BMP's and SWCP's are effective.

3. Determine if specific design features identified in the NEPA document have been carried forward to the Timber Sale Contract and implemented on the ground. Mitigations are listed in the mitigation tables under soil and water; some included in the table are listed below:

   a. Where necessary, construct slash filter windrows or utilize other erosion control methods as deemed appropriate by the district hydrologist or fisheries biologist in conjunction with the project engineer at the tow of fill slopes on newly constructed roads and landings. Slash filter windows constructed in RCAs should not be too large to allow for planting of native riparian vegetation following road construction.

   b. Tractor skiddig and use of feller-bunchers and excavators is allowed on slopes up to 35 %. Limited use of tractors, feller-bunchers and excavators on slopes between 35% and 45% may be allowed with approval of a Forest Service Soil Scientist. Prioritize monitioring of units that allowed tractor and feller bunchers on 35% to 45% slopes.

   c. On slopes beteen 35 and 45 percent, restrict ground-based harvest equipment to designated areas at all times and require operators to winch logs to skidders.

d. On tractor units, all skid trails would be designated and pre-approved by the Timber Sale Administrator and logs would be winched to the designated skidtrails. Skidtrails would be spaced at a maximum distance (preferred is 200 feet or greater) with consideration given to terrain, and to RCA location (literature shows that a 100-foot skidtrail spacing has affects to soil on approximately 11% of an area).

e. Reclaim **all** skid trails after use by ripping to 16 inches or depth of compaction, recontouring to natural slope profile and pulling slash over the trail surface to provide a minimum of 50% to maximum of 80% effective ground cover.

f. Field-validate slope gradients in specific harvest units. Enforce slope restrictions for ground-based equipment and feller buncher operations.

g. Ensure that no surface runoff is directly channeled into skyline corridors from landing areas. Stabilize disturbed areas by using waterbars, check dams, or placing slash in areas of exposed mineral soil.

h. Permanent and temporary roads, skid trails, and landings identified for obliteration would be decompacted a depth of 16” or the extent possible, recontoured, seeded with native seeds (where need is identified), and provided with a minimum of 50% to maximum of 80% ground cover (80% at stream crossings), vegetation transplants at a rate of 15 per 100 linear feet, natural mulch, CWD, and ag or wood straw, in that order of preference) to an extent deemed necessary by a fisheries biologist or hydrologist.

i. Re-use existing skid trails (as feasible) to limit creation of additional areas of DD and facilitate restoration of existing DD

j. Limit equipment operations to dry (<20% soil moisture) or frozen/snow covered conditions.

k. No equipment operation, new skid trails/roads or tree removal within 120 feet of intermittent channels and 240 feet of perennial channels unless equipment is on an existing road or skid trail and/or unless approved by fisheries biologist or hydrologist- utilize “RCA Thinning Guidelines” (Appendix 6 of the FEIS) for this project.

l. Avoid road and skid trail construction on landslide prone areas; no reserve tree or clear cut treatments in landslide prone areas

Parameters: Planned monitoring includes specific BMP and SWCP requirements for Watershed Management, Vegetation Manipulation, Timber, Roads and Trails. The special mitigation measures, identified in the NEPA document, will also be listed on the BMP checklist (See Objectives 3.a-l.).

Methodology: The BMP's and site-specific 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.

The Zone Hydrologist or soil scientist and Sale Administrator will review the NEPA document and other appropriate documentation in the office. Any special mitigation measures will be listed on the BMP checklist. The BMP's will be visually inspected during harvest activities and at the end of the operating season. Sale Administrators Daily Diary Log and Engineering Reports will also be reviewed to ensure tracking and compliance.

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.

Data Storage: The results will be written up on the monitoring results summary form, and the data stored in Soil and Water files on the district. Photos taken during monitoring will be stored on the district, with the results.

Analysis:	BMP monitoring forms, field notes, on-site photographs will be analyzed to answer the following questions: 1. Which of the Soil and Water BMP's were implemented? 2. Which of the Soil and Water BMP's appear to be effective at this time? 3. Do any of the Soil and Water BMP's need to be modified or improved? 4. Were any special mitigation measures implemented, and do they appear to be effective at this time? Results will be used to validate contract compliance along with recommending any modifications needed for any BMP &/or SWCP practices. Recommendations may include additional mitigation measures to be completed, timing and application of BMP's, and actual construction modifications.
Report:	The report will follow the format of the monitoring results data form and published in the annual monitoring results publication
Cost:	The total cost will be $3590.00. This covers 10 days for a GS-6 Hydro-Technician for implementation and effectiveness monitoring of the project and four days for a GS-11 Hydrologist or soil scientist to do a field visit, evaluate the data and write the report. This also covers $350 for miscellaneous supplies, including transportation.
Personnel:	One GS-6 Hydro-Technician and one GS-11 Zone Hydrologist or GS-11 Soil Scientist.
Responsible Individual:	West Zone Hydrologist, Forest Soil Scientist and Hydrologic Technicians
Responsible Official:	Greg Lesch, Council and Acting Weiser District Ranger
Prepared by:	Melanie Vining, West Zone Hydrologist
Date:	December 2015

MONITORING PLAN SUMMARY SHEET

Program:	Soil and Water
Activity, Practice or Effect:	Project Monitoring, Soil and Water Resource Improvement, Implementation of Treatments.
Project Name:	Middle Fork Weiser River Prescribed Fire Activities
Location:	Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River
Objectives:	Determine if prescribed fire objectives have been met within RCA's within the project area, as defined in Chapter 2 (description of Alternatives). Specifically, evaluate ground and ladder fuels consumed, channel shade affected (if any), and soil condition and response to fire.
Parameters:	A total of 3 randomly-selected perennial and 3 intermittent RCA's 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: 1. Fuels plots to monitor fuel loading before and after prescribed burning 2. 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. In at least two perennial RCAs, densiometer (or other appropriate tool) measurements to evaluate canopy and shade cover
Methodology:	Implementation monitoring will be accomplished through field verification of the planned treatments. 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 prescribed fire activities. Effectiveness monitoring will occur at a minimum the first year after implementation and then at year 3 and 5 unless findings indicate sites either were not affected by prescribed burning or have stabilized and re-vegetated to their natural potential.

Duration:	Up to five years.
Data Storage:	District files under Soil and Water.
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.
Cost:	The total cost will be $4530.00/year. This covers 6 days for a GS-6 Hydro-Technician and a GS-9 Fuels Technician for effectiveness monitoring of the project, and two days for a GS-11 Hydrologist to evaluate the data and write the report. This also covers $350 for miscellaneous supplies, including transportation.
Personnel:	One GS-6 Hydro-Technician, one GS-9 Fuels Technician and one GS-11 Hydrologist.
Responsible Individual:	West Zone Hydrologist and Hydrologic Technicians
Responsible Official:	Greg Lesch, Council and Acting Weiser District Ranger
Prepared by:	Melanie Vining, West Zone Hydrologist
Date:	December 2015

MONITORING PLAN SUMMARY SHEET

Program:	Soil
Activity, Practice or Effect:	Project Monitoring, Soil and Water Resource Improvement, Implementation of Treatments.
Project Name:	Middle Fork Weiser River – Long-term Soil Productivity (Coarse Woody Debris (CWD) Monitoring)
Location:	Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River
Objectives:	Determine if CWD retention objectives have been met in mechical treatment units (commercial and non-commercial vegetation removal) within the project area, as defined in Chapter 2 (description of Alternatives) and the Soils section of Chapter 3. Specifically, evaluate the amount and size class of CWD remaining in a unit after treatment in the context of Forest Plan Apendix A recommendations for that PVG.
Parameters:	A total of 9 randomly-selected harvest units (3 commercial thin, 3 reserve tree, and 3 biomass) across the project area will be monitored using CWD transects (based on Brown 1974 and used in the Grays Creek Fire Salvage CWD monitoring (2008 EA/DN; Council Ranger District), with additional sites visited if specific resource concerns arise after initial monitoring. On-site field evaluation of treatments: 1. Review contract requirements as transferred from EIS project design features to timber sale contract- note consistency and clarity of contract specification 2. Follow CWD transect protocol, on file at Council Ranger District hydrology office for method and total number of transects per unit. 3. Take representative photo to depict CWD levels in unit
Methodology:	Implementation monitoring will be accomplished through field verification of the planned treatments. Where possible, document both qualitative and quantitative comparisons to pre-existing conditions. Photographs will be taken for comparison purposes.
Frequency:	Monitoring will be done concurrently or immediately after harvest 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.
Duration:	Year of harvest/treatment.

Data Storage:	District files under Soil and Water.
Analysis:	Field documentation, summarization of transects by unit number (spreadsheet) 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.
Cost:	The total cost will be $2200.00/year. This covers 5 days for data collection and 2 days for a GS-11 Soil Scientist to evaluate the data and write the report. This also covers $350 for miscellaneous supplies, including transportation.
Personnel:	.GS-11 Soil Scientist
Responsible Individual:	CFLRP Soil Scientist
Responsible Official:	Greg Lesch, Council and Acting Weiser District Ranger
Prepared by:	John Dixon, Forest Soil Scientist
Date:	12/7/2015

MONITORING PLAN SUMMARY SHEET

Program:	Fire and Fuels
Activity, Practice or Effect:	Project Monitoring, Effects of Prescribed Fire on Plantations
Project Name:	Middle Fork Weiser River Landscape Restoration prescribed fire program
Location:	Council Ranger District, Granite Creek-Middle Fork Weiser River, Jungle Creek-Middle Fork Weiser River, Little Fall Creek-Middle Fork Weiser River, Mica Creek-Middle Fork Weiser River 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: 1. Visual 2. Photo points establishment
Methodology:	Implementation monitoring will be accomplished through field verification pre and post treatment. Pre treatment 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 $720/year. This covers 2 days for two GS-7 Fuels Technicians and 2 days for a GS-9 Fuels Specialist to evaluate the data and write the report.
Personnel:	Two GS-7 Fuels Technicians and one GS-9 Fuels Specialist
ResponsibleIndividual:	West Zone Fire Management Officer
Responsible Official:	Greg Lesch, Council / Weiser District Ranger
Prepared by:	Dave LaChapelle, WZ Fuels Specialist
Date:	January 25, 2016

MONITORING PLAN SUMMARY SHEET

Program:	Range and Noxious Weeds
Activity, Practice or Effect:	Project Monitoring, Noxious Weed Inventory and Treatments
Project Name:	Middle Fork Weiser River Landscape Restoration Project
Location:	All areas of harvest activity, prescribed fire, road construction and decommissioning on the Council Ranger District, Middle Fork Weiser River 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, 2150 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 Biological Science Technician, one GS-6 Biological Science Technician, one GS-5 Biological ScienceTechnician and one GS-11Rangeland Management Specialist

Responsible Individual:	West Zone Rangeland Management Specialist and Biological Science Technician
Responsible Official:	Greg Lesch, Council and Weiser District Ranger
Prepared by:	Andy Bumgarner, West Zone Rangeland Management Specialist
Date:	December 2015

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Appendix 5
Riparian Conservation Area Thinning Guide

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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 or the outer RCA of wet meadows (Alternatives 2 and 3) or both the inner/outer RCAs (Alternative 4 only).
- Treatments within and adjacent to aspen stands (e.g., 100feet to the S and W and 50 ft to the N and E) conifers would be reduced to less than 25% cover.
- Treatments within wet meadow treatment areas conifers would be reduced to less than 10% cover all riparian hardwoods would be retained.
- Where these treatments overlap with stream RCAs then 30% canopy cover would be retained.
- Any fuels that, when removed, will help reduce the mortality rate of overstory trees within the RCA when prescribed fire is implemented.

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 2003b). 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 FEIS. 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 potion 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 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).

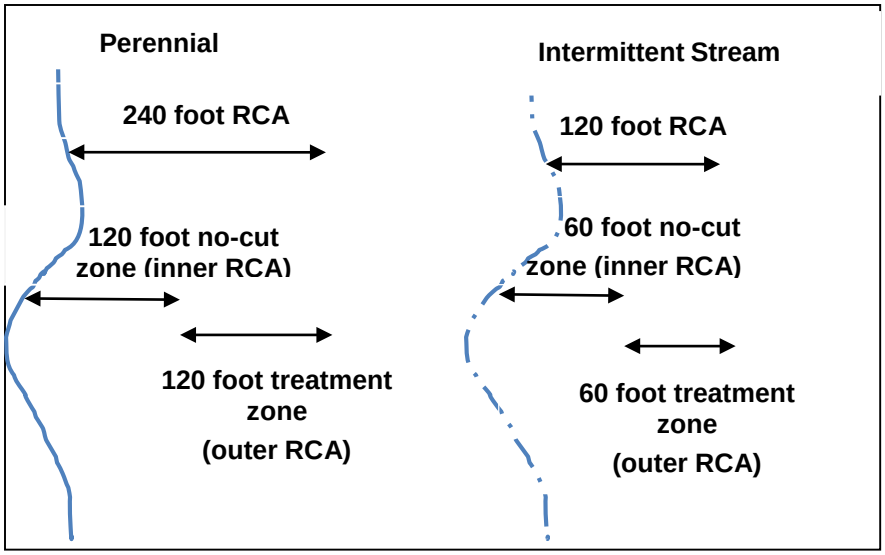

Figure 1. Diagram of no-cut and treatment zones for perennial and intermittent RCAs designated for thinning

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 this, and this would not be allowed in wet meadow areas.
- *Existing* roads, skidtrails, and landings within the RCA (and then subsequently restoring them) may be used but require approval by the fish biologist or hydrologist and 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 the 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 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.
- All mitigation measures and project design features as listed in Table 2-38 of this DEIS 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 saturated soils AND riparian vegetation). No harvest may occur within this boundary (Figure 2) unless approved of in advance by the District Fisheries Biologist and/or Hydrologist and/or 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 at 120 feet for intermittent streams and 240 feet for 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, or hydrologic technician, for field verification of the RCA treatment areas.

- NOTE: After the 2010 floods, many stream channels in the project area are likely to be damaged 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). Please 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 damage, 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 and specific mitigations, such as erosion control at relief culverts and on bare sections of fill slope, may be recommended.*

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Appendix 6
Payette National Forest Land and Resource Management Plan
Appendix A

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INTRODUCTION

Appendix A contains the mapping criteria, classification descriptions, and desired condition tables for vegetation outside of designated wilderness areas. There are separate tables and/or narratives that relate to: (1) desired conditions for separate components of forested vegetation, (2) desired conditions for woodland and shrub types, and (3) desired conditions for riparian vegetation, including vegetation in riparian conservation areas (RCAs). Desired conditions do not represent a static state; they are dynamic because the ecosystems we are working with are dynamic. The desired conditions are not something that every acre of the Forest at every point in time will possess—there will always be spatial and temporal variability. However, achievement of desired conditions, well distributed across the planning unit, is a long-term goal of Forest management. For these reasons, the desired conditions are to be evaluated at either the 5th field hydrologic unit (HU) or activity area (for snags and coarse woody debris), depending on the vegetation component of interest. A scale other than watershed may be used where it is determined that a different reference area is more appropriate for identifying opportunities for a specific type of treatment. Further details on the development of desired conditions can be found in Chapter 3 of the Final EIS, Appendix B of the Final EIS (Analysis Process), and in the Technical Reports that are part of the project record for Forested Vegetation, Snags and Coarse Woody Debris, and Non-Forest Vegetation.

In many areas, our current conditions deviate strongly from our desired conditions; this deviation creates opportunities for managing vegetation. Even under careful management, though, it may take several decades for these areas to approach desired conditions, and there are steps along that path where managers will have to choose among several approaches to maintain or trend toward desired conditions. There may be many different paths to a common endpoint that meet different management objectives, each with their own set of trade-offs. This will be the challenge of ecosystem management in managing vegetation and trying to achieve desired vegetative conditions. As we move forward in this process, and we learn more from monitoring and scientific research, our desired conditions may change, or we may alter the paths we choose to achieve them. For these reasons, it is not possible to describe a completely prescriptive approach to desired conditions, but merely offer guidance in how to consider desired conditions.

In some cases, there may be exceptions to the vegetative desired conditions. These exceptions may occur as a result of management direction in other resource areas, or when site-specific conditions are not appropriate for the desired conditions. Oftentimes, Management Area direction may have different, but overriding goals and objectives. Each Management Prescription Category (MPC) may also have a different theme as to how we would achieve desired conditions. All of this information needs to be considered when we design our projects. The desired conditions are general conditions that can be modified at the local or project level based on site-specific biophysical conditions.

DESIRED VEGETATION CONDITIONS

Forested Vegetation

Several tables below describe individual components of forested vegetation and their desired conditions. Table A-1 displays the Forested Potential Vegetation Groups. Forested vegetation refers to land that contains at least 10 percent crown cover by forest trees of any size, or land that formerly had tree cover and is presently at an earlier seral stage. Forested vegetation is described using habitat types, which use

potential climax vegetation as an indicator of environmental conditions. At the level of the Forest Plan, forested habitat types have been further grouped into potential vegetation groups (PVGs) that share similar environmental characteristics, site productivity, and disturbance regimes. Additional information on PVGs is available in the section entitled Vegetation Classification and Mapping in this Appendix.

Table A-1. Forested Potential Vegetation Groups[1]

Potential Vegetation Group
PVG 1 – Dry Ponderosa Pine/Xeric Douglas-fir
PVG 2 – Warm Dry Douglas-fir/Moist Ponderosa Pine
PVG 3 – Cool Moist Douglas-fir
PVG 4 – Cool Dry Douglas-fir
PVG 5 – Dry Grand Fir
PVG 6 – Cool Moist Grand Fir
PVG 7 – Cool Dry Subalpine Fir
PVG 8 – Cool Moist Subalpine Fir
PVG 9 – Hydric Subalpine Fir
PVG 10 – Persistent Lodgepole Pine
PVG 11 – High Elevation Subalpine Fir

[1] Forested vegetation refers to land that contains at least 10 percent crown cover by forest trees of any size or type, or land that formerly had tree cover and is presently at an earlier seral stage.

Tree Size Class

Tree size class is determined by the size of the overstory trees. The average diameter of the trees in the overstory or uppermost tree layer determines the stand's tree size class. A canopy layer has a distinct break in height, and must have a non-overlapping canopy closure of at least 10 percent. A few individual trees (such as relic trees) representing a distinctly different tree size are not recognized as defining a distinct canopy layer if the total canopy cover of those trees is less than 10 percent. Tree size class can also be determined from aerial photos by interpreting the average crown diameter of the overstory trees. For example, if the overstory trees average 22 inches diameter at breast height (DBH), then the stand is classified as a large tree size class, regardless of the size of trees that may occur in understory layers. Within any canopy layer diameter may vary considerably between individual trees.

Tree size class is based on the following diameter groupings:

- Grass/Forb/Shrub/Seedling < 4.5 feet tall
- Sapling 0.1" – 4.9" DBH
- Small trees 5.0" – 11.9" DBH
- Medium trees 12.0" – 19.9" DBH
- Large trees >20" DBH.

Table A-2 displays the desired amounts for each tree size class at the Forest-wide and 5th field HU scales. This table shows, for each PVG, a range in the percent of an area's forested vegetation desired for each tree size class. The range for each size class reflects the dynamic development of trees, considering growth rates, the type and extent of disturbances, and varying growing conditions.

The range in Table A-2 was developed from estimates of the historical range of variability (HRV). The low end of the large tree size class range is based on half the low end of HRV, provided that the minimum value does not fall below 20 percent. The upper end of the range for large trees is equal to the mean HRV value. The 20 percent value is a threshold that represents the minimum percent of a landscape area retained in the large tree size class because it is deemed necessary for assuring the viability of terrestrial wildlife species. The range for the Grass/Forb/Shrub/Seedling growth stage is based on the range of large trees and the time interval needed for this growth stage to advance to the next tree size class. The information presented in Table A-2 represents the full range of desired conditions for tree size classes encompassed by all Management Prescription Categories.

Table A-2. Forest-wide Range of Desired Size Classes Expressed as Percentage of Forested Vegetation Within Each PVG
(Includes forested vegetation in RCAs)

Tree Size	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG 10	PVG 11
G/F/S/S	1 – 18	5 – 7	9	14 – 15	3 – 7	7 – 9	7 – 16	15 – 17	13 – 15	16 – 23	9 – 15
Saplings	2 – 12	3 – 7	9	7 – 9	3 – 7	7 – 9	11 – 15	11 – 15	8 – 15	11 – 16	14 – 15
Small	2 – 18	5 – 21	18 – 27	19 – 22	4 – 22	11 – 27	21 -- 22	22 – 23	17 – 22	46 – 48	19 – 22
Medium	3 – 29	7 – 35	23 – 36	24 – 36	7 – 30	18 – 36	32 – 36	28 – 29	25 – 29	20	22 – 38
Large	24 – 91	30– 80	20 – 41	20 – 34	33 – 84	20 – 56	20 – 21	20 – 21	20 – 37		20 – 27

Similar to Table A-2, Table A-3 displays a portion of the desired ranges for the Grass/Forb/Shrub/Seedling and large tree size classes at the Forest-wide and 5th field HU scales. This table shows only that portion of the range that falls within the estimated HRV and thus presents only the HRV portion of desired condition range that is displayed in Table A-2. The low end of the large tree range is based on the low end of HRV, provided that the minimum value does not fall below 20 percent. The upper end of the range for large trees is equal to the mean HRV value. The upper end of the desired condition range is the same in Tables A-2 and A-3. The 20 percent minimum value in Table A-3 is the same as that shown in Table A-2 -- it represents the minimum percent of a forested landscape area that should remain in the large tree size class to ensure the viability of terrestrial wildlife species. The range for the Grass/Forb/Shrub/Seedling growth stage is based on the range of large trees and the time interval needed for this growth stage to advance to the next tree size class. The ranges in tree size classes in Table A-3 displays the desired condition encompassed by all Management Prescription Categories except MPC 5.2.

Table A-3. Desired Percentage Ranges for Size Classes of Forested Potential Vegetation Groups, Outside of MPC 5.2 (Includes forested vegetation in RCAs)

Tree Size	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG 10	PVG 11
G/F/S/S	1 – 12	4 – 5	9	14 – 15	3 -- 4	7 – 8	7 – 16	15 – 17	13	16 – 23	9 – 15
Large	47 – 91	59– 80	23 – 41	20 – 34	66 – 84	28 – 56	20 – 21	20 – 21	31 – 37	20	20 – 27

Note: References to PVG 10 in the above table is to be applied to the Medium Tree Size Class (overstory trees average diameter ranges from 12.0 to 19.9 inches diameter breast height). The overstory trees in PVG 10 stands (persistent lodgepole) generally do not attain an average diameter within the large tree size class (≥ 20.0 inches diameter breast height) even though individual trees may equal or exceed 20 inches in diameter.

Table A-4 displays a portion of the desired ranges for the Grass/Forb/Shrub/Seedling and large tree size classes at the Forest-wide and 5th field HU scales. This table shows only that portion of the range that falls outside of the estimated HRV and thus presents only a portion of the desired condition range that is displayed in Table A-2. The part of the desired condition range applies to those areas allocated to Management Prescription Category 5.2 where timber production is an emphasis. The low end of the large tree size class range in Table A-4 is the same as in Table A-2 -- it is based on half the low end of HRV provided that the minimum value does not fall below 20 percent. The upper end of the range for large trees is equal to the low end of HRV for large trees. It should be noted that for several PVGs the requirement that a minimum of 20 percent of the forested landscape be retained in the large tree size class results in conditions that fall within the estimate Historical Range of Variability. This is true for PVGs 4, 7, 8, 10, and 11 where the low end of the range is at or below 20 percent. The reason for requiring the 20 percent minimum value in Table A-4 is the same as in Tables A-2 and A-3 -- it represents the minimum percent of a forested landscape area that should remain in the large tree size class to ensure the viability of terrestrial wildlife species.

Table A-4. Desired Percentage Ranges for Size Classes of Forested Potential Vegetation Groups, Within MPC 5.2

Tree Size	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG 10	PVG 11
G/F/S/S	13 – 18	5 – 7	9	15	4 – 7	8 – 9	7	15	13 – 15	16	9
Large	24 – 46	30– 58	20 – 22	20	33 – 65	20 – 27	20	20	20 – 30	20	20

Note: References to PVG 10 in the above table is to be applied to the Medium Tree Size Class (overstory trees average diameter ranges from 12.0 to 19.9 inches diameter breast height). The overstory trees in PVG 10 stands (persistent lodgepole) generally do not attain an average diameter within the large tree size class (≥ 20.0 inches diameter breast height) even though individual trees may equal or exceed 20 inches in diameter.

The desired range of the Grass/Forb/Shrub/Seedling tree size class is also displayed and was developed in the same manner as in the two tables above. The desired range of the Grass/Forb/Shrub/Seedling tree size class varies between the three tables (A-2, A-3 and A-4) because of the percent of large tree size class range associated with MPCs and the time interval needed for trees to develop from the Grass/Forb/Shrub/ Seedling tree size class to the Sapling tree size class.

For example, PVG 7 has a desired range for large trees that is essentially the same regardless of MPC (20 percent in Table A-4 and 20–21 percent in Table A-3); however, the range of the Grass/Forb/Shrub/ Seedling tree size class is limited to 7 percent in MPC 5.2, while in all other MPCs the range varies from 7 to 16 percent. This wider range occurs in the MPCs other than 5.2 because a significant portion of PVG 7 occurs in MPCs (1.2, 3.1, and 4.1). These MPCs emphasize passive management strategies that would generally have the Grass/Forb/Shrub/Seedling tree size class developing into the Sapling tree size class over a longer time period than under active management in MPC 5.2. This time interval is estimated to be three times longer (30 years versus 10 years) under MPCs 1.2, 3.1, and 4.1 than under 5.2. The result is that the range of the Grass/Forb/Shrub/Seedling tree size class is greater in Table A-3 for PVG 7, even though the range of desired large tree size class is essentially the same regardless of MPC. In other PVGs this same relationship may not hold true because either the range of desired conditions for the large tree size class is substantially different, or there is only a small percentage of a PVG in an MPC requiring longer time intervals, or both.

Although current conditions may prevent us from obtaining desired condition for quite some time, over a longer period (perhaps more than 100 years) management actions should result in forested vegetation that is approaching Forest-wide desired conditions for tree size classes, when all of the 5th field HUs are averaged together. The 5th HU is deemed an appropriate analysis unit for evaluating project-level contributions because mid-scale data and other information is generally available or is feasible to generate. This scale also coincides with other scales of analysis that may be undertaken before or as part of project-level planning. The 5th field HU also facilitates a good distribution of desired components across the Forest.

Canopy Closure

As previously mentioned the overstory or uppermost tree layer determines the tree size class, for a stand or other area delineated for management actions. Trees that compose a distinct break in height determine the canopy layer, and these trees must have a non-overlapping canopy closure of at least 10 percent. A few individual trees (such as relic trees) representing a distinctly different tree size are not recognized as defining a distinct canopy layer if the total canopy cover of those trees is less than 10 percent. These trees are instead included with the trees in the size class that are closest to their own size.

Canopy closure classes are based on the following:

- Low = 10-39% canopy closure
- Moderate = 40-69% canopy closure
- High = 70% or more canopy closure

Canopy closure may be determined through ocular estimates from aerial photo interpretation or while conducting stand exams. Canopy cover as expressed here represents total non-overlapping crown closure of all trees in a stand except for trees in the seedling size class. Trees in the seedling size class are used to estimate canopy closure only when they represent the only structural layer present.

For example, if the average diameter of the overstory trees is >20" DBH, then the stand is classified as being in the large tree size class, regardless of what size trees comprise other canopy layers that may be present in the understory. This is to be interpreted such that, in the 5th field HU of concern, the area occupied by stands classified as being in the large tree size class, for each potential vegetation group, should fall within the ranges indicated for each canopy closure class, or show that management actions will assist a PVG in moving towards a size class distribution within the ranges over the long-term.

Table A-5 displays the desired condition for canopy closure for the large tree size class associated with the large tree desired ranges displayed in Table A-3 above. This is the desired condition for all MPCs except 5.2.

Table A-5. Desired Percentage Ranges for Canopy Distribution within the Large Tree Size Class, Represented by Canopy Closure Classes – Outside of MPC 5.2
(Includes vegetation in RCAs)

Canopy Closure	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG 10	PVG 11
Low	80-100	74 - 94	5 - 25	0 - 14	25 - 45	0 - 20	0 - 14	0	0	0	0 - 16
Moderate	0 -20	6 - 26	75 - 95	87-100	55 - 75	80-100	86-100	51 - 71	51 - 71	81-100	84-100
High	0	0	0	0	0	0	0	39 - 49	39 - 49	0 - 19	0

Note: References to PVG 10 in the above tables are to be applied to the Medium Tree Size Class (overstory trees average diameter ranges from 12.0 to 19.9 inches diameter breast height). The overstory trees in PVG 10 stands (persistent lodgepole) generally do not attain an average diameter within the large tree size class (= 20.0 inches diameter breast height) even though individual trees may equal or exceed 20 inches in diameter. Canopy closure classes are as follows: Low is 10-39%; Moderate is 40-69%; and High is >70%.

Table A-6 displays the desired condition for canopy closure for the large tree size class associated with the large tree desired ranges in Table A-4 above. This is the desired condition for MPC 5.2.

Table A-6. Desired Percentage Ranges for Canopy Distribution within the Large Tree Size Class, Represented by Canopy Closure Classes – Within MPC 5.2

Canopy Closure	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG 10	PVG 11
Low	80-100	4-24	0-20	0-20	3-23	0-20	23-43	0	0	0	57-77
Moderate	0 -20	76-96	80-100	80-100	77-97	80-100	57-77	30-50	30-50	81-100	23-43
High	0	0	0	0	0	0	0	50-70	50-70	0 - 19	0

Note: References to PVG 10 in the above tables are to be applied to the Medium Tree Size Class (overstory trees average diameter ranges from 12.0 to 19.9 inches diameter breast height). The overstory trees in PVG 10 stands (persistent lodgepole) generally do not attain an average diameter within the large tree size class (≥ 20.0 inches diameter breast height) even though individual trees may equal or exceed 20 inches in diameter. Canopy closure classes are as follows: Low is 10-39%; Moderate is 40-69%; and High is >70%.

Although current conditions may prevent us from obtaining desired condition for quite some time, over a longer period (perhaps more than 100 years) management actions should result in forested vegetation that is approaching Forest-wide desired conditions for canopy closure, when all of the 5th field HUs are averaged together.

Species Composition

Table A-7 displays the desired condition ranges for forested vegetation species composition at the Forest-wide scale. Scales below the Forest-wide level are not expected to mirror these values because of the specific mix of habitat types that are present in individual analysis areas. For example, for PVG 1, the desired range of 96-99 percent ponderosa pine would be attained when evaluated at the Forest-wide scale.

The remainder of PVG 1, up to 4 percent of the area, would be any other combination of tree cover. For an individual 5th field HU, the proper species "mix" would be determined by the dominant management prescription categories (MPCs) for that watershed, and other concerns such as wildlife or wildland/urban interface.

Table A-7 represents the Forest-wide desired species composition across all size classes, as adapted from the Historical Range of Variability of the Idaho Southern Batholith Ecosystem (Morgan and Parsons 2001). Individual species represented by an asterisk (*) were not explicitly modeled during the development of the Historical Ranges of Variability. They were not included because they occur in habitat types that represent only a minor part of the PVGs within the Idaho Southern Batholith, or because of little information known about their historical occurrence within a PVG. This latter reason was often the case with quaking aspen.

The appropriate species composition for the 5th field HU being analyzed may vary from this table based on the mix of habitat types present. For project application it is necessary to determine the mix of habitat types that comprise the PVGs within the 5th field HU analysis area. For this usually more limited set of habitat types, describe the desired species composition that will achieve the goals of having landscapes dominated by early seral species that are better adapted to site conditions, and are usually more resilient to disturbances such as fire. The desired range of species in Table A-7 is evaluated for Forest-wide monitoring.

Table A-7. Desired Percentage Ranges for Species Composition of Forested Potential Vegetation Groups, For Forest-wide Evaluation

Species	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG10	PVG11
Aspen	*	*	1-11	4-13	*	*	6-11	*	*	*	*
Lodgepole pine		*	*	10-20	*	1-5	28-42	25-34	29-37	82-94	18-25
Ponderosa pine	96-99	81-87	26-41	*	80-88	23-41	*				
Western larch					0-1	15-29	*	9-16	*		
Whitebark pine										*	32-47
Douglas-fir	0-2	10-16	47-69	66-81	7-17	15-25	24-34	23-37	*	*	
Englemann spruce					*	0-2	3-5	10-17	28-33	*	8-13
Grand fir					0-1	9-23	*				
Subalpine fir						0-3	12-21	11-17	29-33	*	18-29

Note: Use this table as a reference. For project purposes describe the desired species composition for the 5th field HU based on species composition of the habitat types present within the 5th field HU analysis area. Refer to the appropriate habitat type guide for the analysis area when determining the correct species mix including those species that may occur as accidentals.

Snags and Coarse Woody Debris

Snags and coarse woody debris are much finer-scale elements than vegetation components such as species composition, size class, and canopy closure. As such, they are to be evaluated during project planning for the activity area, which better reflects the scale at which to consider these elements and to plan projects that provide for maintaining or improving trends in snag and coarse wood amounts. The activity area for snags and coarse woody debris is the specific site affected, whether the effects are positive or negative. Actions affecting activity areas that need to be assessed include timber harvest, reforestation, timber stand improvement, and prescribed fire activities.

Snags and coarse wood are known to fluctuate both spatially and temporally. Snags are often found in clumps, whereas coarse wood recruitment over time may form from clumped snags. Coarse wood may move around on the landscape, often resulting in a more even distribution than snags. These tables are not meant to provide an even distribution of snags and coarse wood across every acre of the forested landscape, but to provide numbers that serve as a guide to approximate an average condition for an activity area.

Management actions should result in both short-term and long-term replacement of snags by retaining sufficient number of live trees, including those with broken tops, cavities, lightning scars, dead portions, etc. as future recruitment. Rely on site specific information, normal mortality rates, and experience with mortality of residual trees following vegetation management activities when determining the number of trees needed to provide for future snag recruitment.

Localized differences may also occur. For example, on certain habitat types, such as PVG 7 being managed for lodgepole pine as the early seral species, it may be difficult to have an abundance of material in the greater 20" DBH classes, primarily due to the smaller size generally attained by lodgepole pine trees. There may also be cases where local site conditions do not represent the conditions described by the Potential Vegetation Group. Such situations include broad ecotones between forest and non-forest communities, very shallow or highly disturbed soils like those that have resulted from some past mining activities, or other localized conditions that have affected the site potential. These differences should be documented during project design. Furthermore, although the best available science was used to determine desired condition values, new scientific information and monitoring studies may display that adjustments are needed in the numbers.

On a landscape or watershed level, certain areas can have very high snag/coarse wood numbers, while others may be much lower. At some point in time, areas that have low numbers may have a drastic increase due to a disturbance event, while a young regenerating forest that previously had high snag numbers may not have many current snags, but could have high tonnages of coarse wood left over from the previous stand and its disturbance event. Ecosystems and landscapes are dynamic; our intent is not to create a static condition on every acre, but to incorporate those dynamics into our implementation, while using management tools to improve conditions when necessary, or maintain those conditions that provide for desired components.

When planning an activity, the intent is to either maintain a desired condition, or to trend toward the desired condition. If an area is already within the range of desired conditions, a management action should either keep the area within the desired ranges, or when the action results in moving outside the range, a mechanism to move you back into the range needs to be provided. An example of this would be a prescribed burn that would burn some of the coarse woody debris, but would also create mortality of trees, which would become snags and future coarse woody debris. If an area is above or below the desired range, it may not be possible to meet the desired ranges over the short term. However, actions can be taken to trend toward the desired ranges. This would include leaving some portion of the snags and coarse woody debris that are available, although perhaps not enough to meet desired ranges. Another example is an action that over the long term produces larger size class trees, which would eventually become large snags and coarse woody debris.

Tables A-8 and A-9 display the desired ranges for snags and coarse woody debris that contribute toward wildlife habitat and long-term soil productivity.

Desired numbers were developed for each PVG so that the numbers would be reflective of productivities and disturbance regimes. Agee (2002) presents several diagrams that depict the spatial and temporal variability found in snag/coarse wood numbers, according to the fire regimes of different forest types.

Table A-8. Desired Range of Snags Per Acre for Potential Vegetation Groups

Diameter Group	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG 10	PVG 11
10" – 20"	0.4-0.5	1.8-2.7	1.8-4.1	1.8-2.7	1.8-5.5	1.8-5.5	1.8-5.5	1.8-7.5	1.8-7.5	1.8-7.7	1.4-2.2
Greater than 20"	0.4-2.3	0.4-3.0	0.2-2.8	0.2-2.1	0.4-3.5	0.2-3.5	0.2-3.5	0.2-3.0	0.2-3.0	**NA**	1.4-2.2
Total	0.8-2.8	2.2-5.7	2.0-6.9	2.0-4.8	2.2-9.0	2.0-9.0	2.0-9.0	2.0-10.5	2.0-10.5	1.8-7.7	2.8-4.4
Minimum Height	**15'**	**30'**	**30'**	**30'**	**30'**	**30'**	**30'**	**30'**	**30'**	**15'**	**15'**

Note: This table is not meant to provide an even distribution of snags across every acre of the forested landscape, but to provide numbers that serve as a guide to approximate an average condition for an activity area.

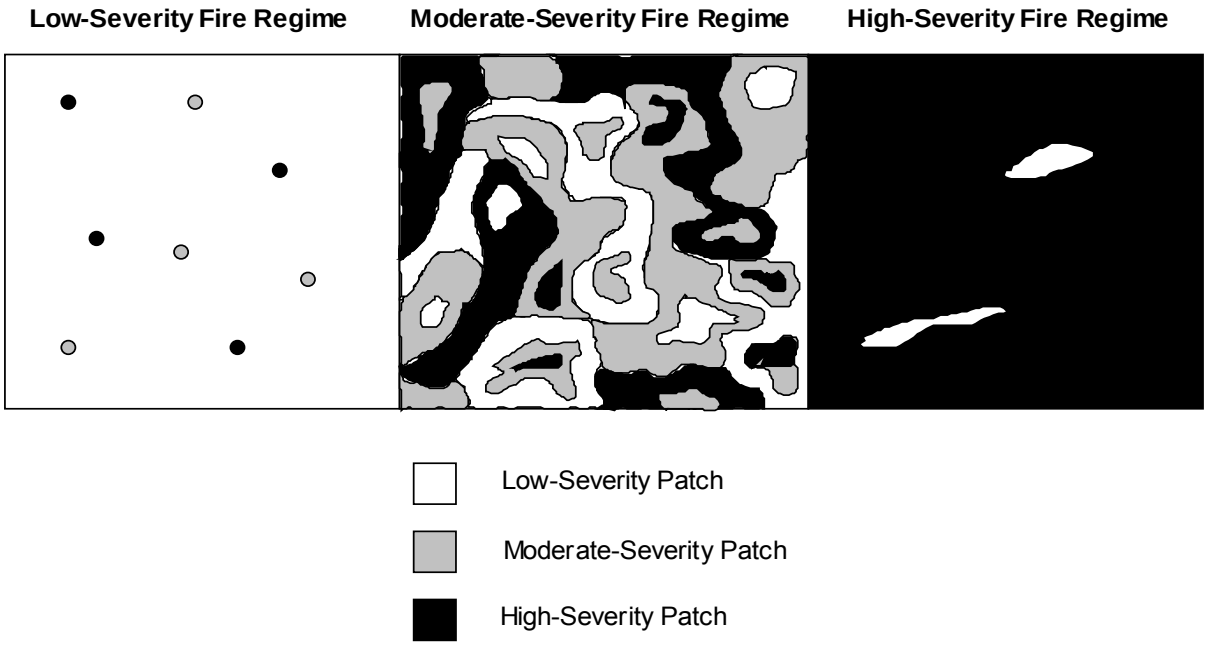
According to Agee, the landscape ecology of historical fire regimes is a function of place. Low-severity fire regimes had small patches and little edge, while high-severity regimes had the largest patch sizes and moderate edge. Moderate- or mixed-severity fire regimes had intermediate patch sizes and maximum amounts of edge. See Figure A-1.

Table A-9. Desired Range of Coarse Woody Debris, in Tons Per Acre, and Desired Amounts in Large Classes for Potential Vegetation Groups

Indicator	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG10	PVG11
Dry weight (Tons per ac.) in Decay Classes I and II	3 – 10	4 – 14	4 – 14	4 – 14	4 – 14	4 – 14	5 – 19	5 – 19	5 – 19	5 – 19	4 – 14
Distribution[1] >15"	>75%	>75%	>65%	>65%	>75%	>65%	>50%	>25%	>25%	>25%	>25%

Note: The recommended distribution is to try to provide coarse wood in the largest size classes, preferably over 15" in DBH, which provide the most benefit for both wildlife and soil productivity. This table is not meant to provide an even distribution of coarse wood across every acre of the forested landscape, but to provide numbers that serve as a guide to approximate an average condition for an activity area.

Figure A-1. Patch Dynamics of Fire Regimes (Agee 1998)

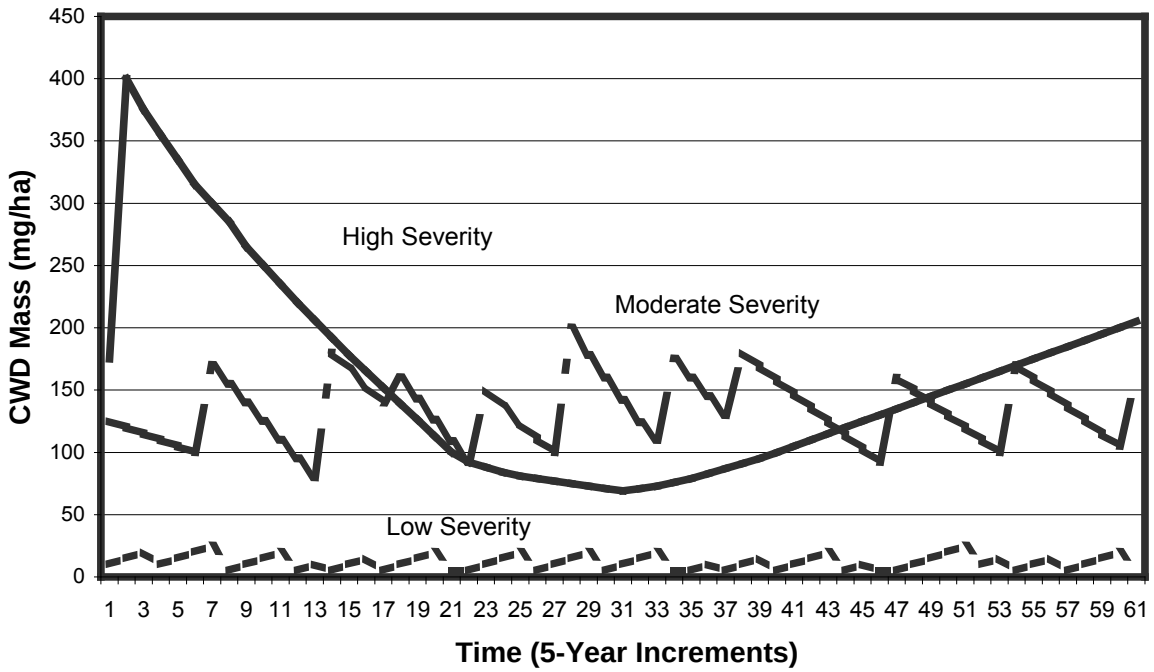


Agee (2002) also discusses how coarse woody debris dynamics (snags plus logs) have historically varied by fire regime (Figure A-2). In low-severity fire regimes, frequent, low-intensity fires limited coarse woody debris. His graph displays the fluctuations found in low-severity fire regimes, where levels will reach a peak, and then cycle downwards. As this graph displays, the peaks may be as high as 30-35 mg/ha (approximately 13-16 tons/acre), and the lows could be less than 1 mg/ha (approximately 0.5 tons/acre). The average on these graphs is probably somewhere around 5 tons (Graham pers. comm. 2001). Although fires were frequent, they rarely affected every acre. In moderate-severity fire regimes, fires both consumed and created coarse woody debris several times a century (Agee 2002). In high-severity fire regimes, a "boom-and-bust" dynamic operated: substantial coarse woody debris creation after a stand replacement fire, followed by a century or more without further substantial input.

These graphics represent well the spatial and temporal cycling of coarse woody debris and the patch dynamics at which they operate. Therefore, it is important to understand the dynamics of the particular PVG that a project is in, to best determine desired levels. In some PVGs, snags and coarse woody debris come as pulses over time (see Figure A-2). There may be little dead material available until a disturbance event, at which time levels may far exceed these desired conditions; over time levels will approach desired conditions, eventually recycling back to the first condition with little dead material.

Although snags and coarse woody debris are managed at the activity area, it is useful to have some knowledge of the larger landscape area to assist in determining the appropriate number and amount that fall within the desired ranges described in Tables A-8 and A-9. For example, in a watershed that has had large recent fires, there are probably an abundance of snags, therefore, project contributions may not be as important. In a heavily managed watershed, project contributions to snag and coarse wood levels may be more important than in a watershed with little active management. Areas with many roads may have higher impacts to snags from firewood gathering activities; therefore, scheduled projects may need to contribute higher levels within the desired range, to balance out effects that may or may not be directly related to the project.

Figure A-2. Temporal Cycling of Coarse Woody Debris by Fire Regime (Agee 2002)



To assist in determining the appropriate amounts of snags and course wood to manage for, it is also important to utilize the historical fire regimes that are typically found in each PVG. Table A-10 illustrates the historic fire regime by PVG.

Table A-10. Historical Fire Regimes For Forested Potential Vegetation Groups

Potential Vegetation Group	Historical Fire Regime
1-Dry ponderosa pine – Xeric Douglas-fir	nonlethal
2-Warm, dry Douglas-fir – moist ponderosa pine	nonlethal
3-Cool, moist Douglas-fir	mixed1-mixed2
4-Cool, dry Douglas-fir	mixed1-mixed2
5-Dry grand fir	nonlethal-mixed1
6-Cool, moist grand fir	mixed1-mixed2
7-Warm, dry subalpine fir	mixed2
8-Warm, moist subalpine fir	lethal
9-Hydric subalpine fir	lethal
10-Persistent lodgepole pine	lethal
11-High elevation subalpine fir	mixed2

Many of our forest stands will not be able to meet desired conditions for many decades. In many instances, the desired conditions cannot be met at this point in time, or within the 10-15 year planning period. The desired conditions presented in Tables A-8 and A-9 may not occur in young and many intermediate aged stands. This is part of the temporal variability in the numbers of snags and coarse woody debris. As we move toward desired conditions in large tree size, canopy closure, and species composition, so will we also move toward the desired conditions for snags and coarse wood. An area or group of stands may be within desired conditions in this 50-year period, and in the next 50-year period they may fall outside the range of desired conditions, while an adjacent area moves into the desired condition ranges. Vegetation within landscapes is dynamic, and it is anticipated that desired conditions will be achieved in a dynamic fashion.

In seedling, sapling, and small tree size stands, it may be difficult to have large-diameter snags and coarse woody debris. In this case, some of the tonnage and snag numbers can be in smaller size classes. However, it is not expected that the total amounts will be made up in smaller size classes. But there will be opportunities to trend toward the desired ranges. An example would be in a stand dominated by 6”-12” DBH trees. In a thinning operation, we would want to leave some distribution of material that falls within the range of size classes available, with preponderance toward the larger (12” DBH) trees. However, the amount of material retained that is less than 6” diameter should be balanced against the fire hazard that it, and the finer material that often comes with it, may create.

Several different factors determine the potential fire hazard created by surface fuels including kind, depth, continuity, extent, connectivity to overstory vegetation, and adjacent fuels. The risk of creating a potentially hazardous condition should also be considered relative to the management objectives for the area. For example, the willingness to accept risk associated with retaining material in the smaller class may be much different for a wildland/urban interface area than in an isolated site adjacent to wilderness. In addition, juxtaposition of the area within the landscape relative to fuel breaks and vegetative mosaics can help frame risk to the landscape at large. In a stand of primarily 3”-6” DBH trees, it would be difficult to come close to desired ranges based on concerns about that sized material. In these cases, our activities should reflect a trend toward creating larger material, which ties in with the desired conditions for large trees as well. For these reasons, we have included size class distributions for both snags and coarse woody debris.

Another reason to reduce reliance on small size classes for coarse woody debris is that our primary objective is to provide the majority of the wood in the large (>15” diameter) size class, as this material is retained on site longer. As stated above, some small and intermediate stage stands will not have the larger material available, and the expectation is not to compensate with an abundance of material in the small and medium size classes. However, if that is all there is available, some material should be left in those size classes to assist with long-term soil productivity. Brown et al. (2001) indicate that on sites where most of the coarse wood loading is comprised of larger pieces (>15” diameter), there is less of a hindrance to using prescribed fire. Conversely, leaving excessive material in the 3-6” diameter size class could hamper prescribed fire efforts in the future by creating conditions where fire would not achieve desired effects.

Spatial distribution of snags and coarse wood is also important. It would not be desirable for all the dead material in a watershed to be clumped into one corner, and the remainder of the area to have very little or no material. Snags are generally found in clumps, and the watershed would have groups of clumps throughout. This is why the activity area was chosen as the distribution unit. Within an activity area, snags should be provided in patches or more uniformly, depending on what is appropriate for the PVG. Snag patches should be distributed across the activity areas rather than clumped together in a portion of the activity area. Coarse woody debris is generally somewhat more evenly distributed. Within an activity area, distribution for coarse wood should reflect historical disturbance regimes appropriate for the PVG.

When implementing a project, document how the project maintains or trends toward the desired conditions.

Management treatments may not produce all the dead material in the amounts and/or decay classes desired in a single action. However, treatments should be designed to provide structural, compositional, and functional elements that contribute to long-term sustainability of snags and coarse wood. In many cases, actions will consume coarse wood (e.g., prescribed fire). However, if the action results in the development of large trees, this will contribute to providing the desired levels of large snags and coarse woody debris over time.

Historical fire regimes, particularly the non-lethal and mixed1 regimes, continually recycled material. Larger material may take several fire cycles before it is fully consumed. This constant recycling also helps to provide a variety of decay classes, another important component of achieving desired conditions. Some wildlife species prefer hard snags, while others prefer those with more decay. Therefore management actions should result in a variety of snag and coarse wood decay classes. Only decay classes I and II count towards the desired amounts, to provide for continual recruitment into decay class III. The goal is to provide coarse woody debris in decay class III, because this material is eventually incorporated into the soil.

Vegetative Hazard and Wildfire

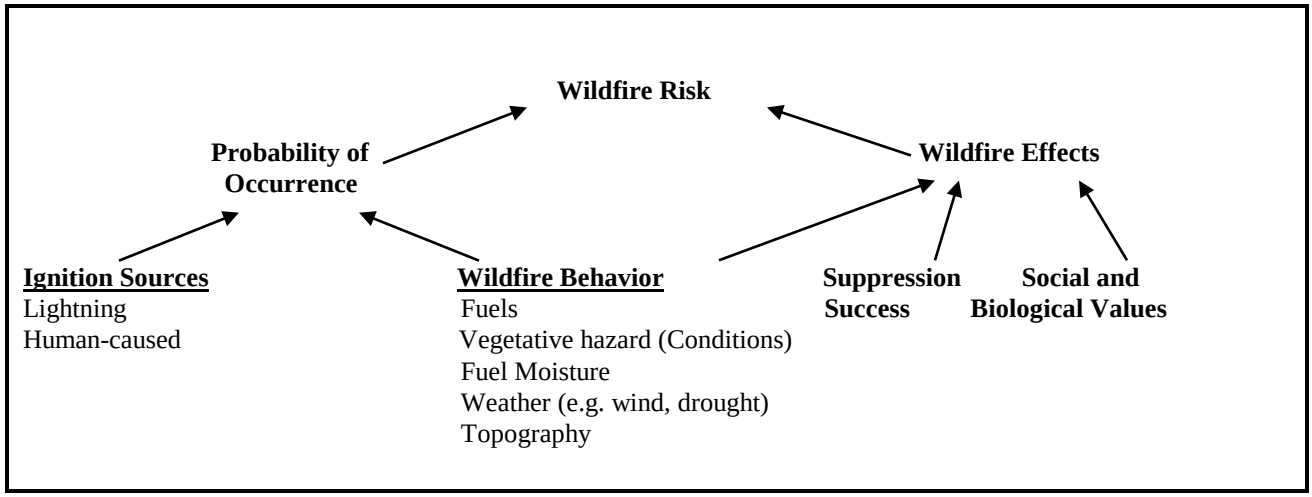
Vegetative desired conditions are directly related to vegetative hazard conditions in that they both define conditions that can occur on the landscape. In non-lethal and mixed1 fire regimes, conditions closest to historical are expected to reduce the risk of lethal wildfires due to the emphasis on larger, widely spaced trees. Ignitions that occur within these conditions are more likely to stay on the ground, increasing the chances of keeping a wildfire small (Omi and Martinson 2002, Wagle and Eakle 1979). This is not the case, however, in the mixed2 and lethal fire regimes. By definition, lethal fires are consistent with the way these regimes operate.

Wildfires, regardless of whether they are characteristic or uncharacteristic, are undesirable in some cases, particularly in wildland/urban interface areas. Although wildfire risks can in part be addressed through the use of defensible space, in many situations watersheds are a more appropriate scale to deal with concerns about firefighter and public safety, as well as the multitude of infrastructures, resources, and values that are often associated with interface. Therefore, the juxtaposition and arrangement of vegetative conditions relative to wildland/urban interface issues were considered at the watershed or 5th field HU scale. This is important because in some cases desired vegetative conditions may contribute to hazard. In particular, the desired conditions for forested vegetation in MPC 5.2 are more hazardous than areas outside of this MPC due to the emphasis on vegetative attributes that promote timber production. Here the large tree desired condition is lower than in other MPCs to allow for a greater mix of all size classes over time. In addition, stand densities are greater to provide sufficient volumes for removal of timber products.

Alhough these conditions increase the hazard associated with lethal wildfires, the risk of these types of events may be reduced using a variety of vegetation management techniques. These techniques can include strategic placement of fuel breaks, surrounding vulnerable areas with vegetative conditions where fires can be more easily suppressed, or arranging treatments in a way that breaks up the continuity of more hazardous conditions (Fulé 2001, Omi and Martinson 2002, Deeming 1990, Finney 2001, Graham et al. 1999). These types of treatments, if strategically located, can be effective without being extensive. Because desired conditions are evaluated at the 5th field HU or watershed scale, treatments to mitigate hazardous conditions to ajacent areas should not prevent achievement of desired vegetative conditions.

Although the vegetative management techniques described above can reduce the risk of lethal wildfire, they address only one (vegetative conditions) of several factors and, therefore, cannot eliminate this risk (Figure A-3). The efforts made by property owners on their own behalf are an essential element in protecting homes in the wildland/urban interface.

Figure A-3. Factors That Contribute To Wildfire Risk
(Adopted from Bachman and Allgöwer 1999)



Shrublands

Desired conditions have been developed for various sagebrush communities (refer to Vegetation Classification portion of this Appendix for descriptions of sagebrush types). Shrublands occur on areas not classified as forestland and where shrub cover is has the potential to be greater than 10 percent shrub cover. Desired conditions are expressed as ranges for the amounts of acres found in the various condition classes (canopy cover classes) for sagebrush. The canopy covers refers only to the canopy cover of sagebrush, and does not include the associated species that may be found co-occurring with sagebrush. To reach the desired ranges, conditions would have to be within these ranges. Forest-wide direction states that we will evaluate the desired conditions at the 5th level HU watershed. All of the desired ranges are Forest-wide desired conditions, and each watershed is the analysis unit that will therefore, contribute to the Forest-wide condition. Although current conditions may prevent us from obtaining desired condition for quite some time, over a longer period management actions should result in non-forested vegetation that is approaching Forest-wide desired conditions, when all of the 5th field HUs are averaged together. The 5th HU is deemed an appropriate analysis unit for evaluating project level contributions, and also ensures a distribution of desired components across the Forest.

Tables A-12 presents the desired condition values for the mountain big sagebrush and basin big sagebrush communities. As an example, in a watershed with 12,000 acres of mountain big sagebrush, 3600-4800 acres would be in the 0-10 percent canopy cover class, 3,600-4,800 acres would be in the 11-20 percent canopy cover class, and 2,400-3,600 acres with a greater than 21 percent canopy cover, but with no more than 600 acres with a canopy cover greater than 31 percent. This would average upward with other watersheds to meet Forest-wide desired conditions.

Often, other shrub species will co-occur with sagebrush species or subspecies. Refer to the Vegetation Classification portion of this Appendix for description of the types. The presence of these other species also has ecological importance in terms of their function and contribution to processes. However, sagebrush species and subspecies in this case are being used as indicators of conditions. If we manage to desired conditions, the other associated shrub species will also respond as we represent of range of conditions on the landscape for sagebrush community types.

Table A-11. Desired Condition Ranges for Mountain Big Sagebrush and/or Basin Big Sagebrush

Mt. Big Sagebrush Canopy Cover Classes	Desired Amounts Of Canopy Cover Classes By Percent Of Area
0-10% canopy cover	30-40% of area
11-20% canopy cover	30-40% of area
21-30%, >31% canopy cover	20-30% of total area, with <= 5% in the >31% canopy cover class

As was recognized for the forested vegetation types, in some cases it may take many years to develop conditions that meet the desired conditions. If a watershed has recently experienced a large extent wildfire, it can be many years before the necessary structural complexity can develop at a landscape level. Conversely, a watershed with little disturbance over many years may all be in a dense canopy cover. Management actions that reduce the canopy covers would be an example of "trending toward" desired conditions, even if only applied on a small scale. When at desired conditions, maintenance would entail management actions that keep the balance of canopy cover classes within the range of desired conditions, or can provide for moving back into desired conditions. As some acres become denser through succession, other acres may be treated to limit overall canopy cover density. Another example is a watershed at desired conditions, but with the canopy cover over 21 percent at the high end of range (30 percent of acres). Although at desired, it may be necessary for management activities to reduce some of the higher canopy covers, to prevent conditions from exceeding those desired ranges and not having enough in the other canopy cover classes. Natural disturbances will certainly play a role also in the movement of acres in and out of canopy cover classes.

Riparian Vegetation

For riverine riparian vegetation, which includes coniferous potential vegetation, refer to Tables A-1 through A-9 (size class (outside MPC 5.2), canopy closure (outside of MPC 5.2), species composition, snags, and coarse woody debris) for the desired conditions. This includes the upland portions of coniferous vegetation found in the RCAs. This information is also related to information presented in Appendix B, Table 1.

Riparian vegetation is dominated by a variety of species, age classes, and structures including deciduous trees, willows, alders, sedges and hydric grasses, depending on stream substrate, gradient, elevation, soil-hydrologic, and disturbance processes. Riparian areas have their own disturbance processes that influence vegetative dynamics, with an almost continual readjustment in successional stages in many areas. Riparian vegetation is also influenced by processes in the uplands, as well as by those upstream in the watershed.

There is a high variability in site conditions relative to the factors discussed above, which will influence riparian vegetation desired conditions in any site-specific location. Therefore, site-specific desired condition determinations are needed.

Grasslands, Montane Shrubs, Wetlands/Marshes, And Other Vegetation Types

Other vegetation types not described in the above sections do exist on the Forest. Desired conditions need to be determined on a project basis based on local and available information. Most of these other types are described in the Vegetation Classification section. Other Forest-wide and Management Area Direction may apply to these types, such as limiting potential establishment and spread of noxious weeds. Some of these communities may also be important as habitats for rare plants.

Spatial Patterns

Recent advances in theory and empirical studies of vegetation and landscape ecology indicate that if goals of maintaining biological diversity across landscapes are to be achieved in the long term, then management needs to consider issues such as variability, scale, pattern, disturbance, and biotic processes. This is a daunting task that requires both a conceptual framework to organize and simplify ecosystem complexity and knowledge of the details of particular systems (Spies and Turner 1999). Elements of spatial pattern—including items such as the amount, proportion, size, interpatch distance, variation in patch size, and landscape connectivity—occur within vegetation types and between vegetation types. Landscape spatial patterns affect ecological processes and can be illustrated through differences in plants species composition and structure, as well as habitat utilization by wildlife. Despite recent interest and progress, it remains challenging to determine for various processes or organisms the conditions under which spatial heterogeneity is and is not important (Spies and Turner 1999). Forested ecosystems often include recognizable patchiness, usually corresponding to physical changes in topography, hydrology, substrate, or as a reflection of large disturbances (Bormann and Likens 1979, Whittaker 1956). Patchiness in the landscape itself can create changes in microclimate at patch edges, displaying demographic fluxes of a large number of individual plant species. This can result in varied plant species distribution and edge-oriented patterns (Matlack and Litvaitis 1999). These effects can subsequently result in changes to ecological processes and habitat utilization.

Within a subwatershed or watershed, there may be several forested vegetation types interspersed with several non-forested vegetation types. Additionally, there may be several MPC designations superimposed upon these vegetation types. It is important to consider the composition of the landscape that contains a project area. At the project level, opportunities exist to consider spatial patterns and how a project can affect the spatial patterns, and what those effects (positive or negative) will be to plant and animal species. During project design, considerations of spatial patterns are dependent upon what conditions are currently present and the overriding management concerns for the area. Generally, these conditions and concerns are site-specific, depending on the appropriate scale at which the project is operating. Repeating patterns of change emerge at landscape scales, and some order can be found through descriptions of successional pathways, patch mosaics, and seral stages that facilitate the understanding and management of vegetation at landscape scales. The challenge and art is to simplify without losing important attributes and to work with simplifications without losing sight of the underlying complexity (Spies and Turner 1999). Another useful way of understanding vegetation dynamics is to characterize it as a shifting mosaic of patches of different ages and developmental stages (Bormann and Likens 1979). The proportion of different age classes or seral stages across a landscape and over time is one of the fundamental characteristics of the vegetation mosaic.

Quantitative methods are available (McGarigal and Marks 1995, Baker and Cai 1992, Turner and Gardner 1991, Turner 1990, Turner 1989, O'Neill et al. 1988) to describe spatial patterns that relate patterns to ecological processes in order to monitor changes through time, to compare different vegetation types, and to evaluate the effects of alternative management options within a spatial context (Spies and Turner 1999). Diaz and Apostol (1992) provide a process for developing and implementing land management objectives

for landscape patterns, written specifically to help shape the landscapes created through National Forest land management activities. There is considerable variability in patterns among landscapes; the most productive approach is to make considerations on a case-by-case basis (Matlack and Litvaitis 1999). Subwatersheds may also possess very small amounts of a vegetation type. The majority of the vegetation type may be in an adjoining subwatershed, with only a small portion overlapping into the subwatershed of concern, or only small patches of a vegetation type may be found interspersed throughout. Consideration of whether or not meeting and sustaining a desired condition for such small amounts of vegetation will also depend upon the juxtaposition of these fragments to adjoining vegetation types or subwatersheds and the overriding management concerns of the area.

In some cases, the prevailing landscape pattern has been altered so strongly that determining appropriate landscape patterns may need to be based more on historical information. Historically, fire was an important disturbance that maintained the dynamics between native grass and big sagebrush dominance. Frequent small fires opened the shrub canopy and aided establishment of native perennial grasses at small scales, creating a mosaic of grass and shrub communities in different stages of development at large scales (Knick 1999). The dynamics of the system changed when cheatgrass invaded the sagebrush ecosystem, providing continuous fuels, compared to more patchily distributed native bunchgrasses. This facilitated fire spread and loss of shrubs, resulting in shrublands fragmented into smaller patches, thus increasing the boundaries and the spaces between patches. Ultimately, many patches did not persist (Knick and Rotenberry 1997). This is an example where patch and pattern have changed and so may no longer provide for the processes and habitat associated with these systems (Knick and Rotenberry 2000, Connelly et al. 2000, Paige and Ritter 1999, Knick and Rotenberry 1995, Rotenberry and Wiens 1980). Consideration of spatial patterns and subsequent management will be particularly difficult in these highly disrupted ecosystems and vegetation types.

Recommended management considerations to positively influence spatial patterns include:
- Maintaining or restoring the full range of age class and patch size distributions,
- Developing future goals for spatial patterns,
- Utilizing management strategies that that can create different levels of edge or interior patches,
- Considering spatial patterns within the prevailing physical template, and
- Considering important locations such as special soils, riparian areas, wetlands, cliffs, talus, caves, and others (Spies and Turner 1999).

VEGETATION MAPPING

Forested Vegetation Mapping

Forested vegetation is described using habitat types, which use potential climax vegetation as an indicator of environmental conditions. Individual habitat types are named according to the dominant climax overstory species in conjunction with the dominant understory species. At the level of the Forest Plan, forested habitat types have been further grouped into potential vegetation groups (PVGs) that share similar environmental characteristics, site productivity, and disturbance regimes. The purpose of these groupings is to simplify the description of vegetative conditions for use at the broad scale. For additional details on the specific habitat types and groupings into PVGs, see Mehl et al. (1998) and Steele et al. (1981).

Forested PVGs were mapped using a modeling process. The Forest was divided into groupings of 5th field HUs that shared similar larger scale environmental characteristics, such as climate and geology. Each one of these 5th field HU groups was modeled separately. Models were based primarily on slope, aspect, elevation and land type association groups. Other information was brought into developing modeling rules

within a 5th field HU group depending upon vegetation present in these groups and the availability of information. This additional information included forest inventory information, forest timber strata, cover type information, existing habitat type mapping, cold air drainage models and any other information that may have assisted with the development of modeling rules. Where necessary, some field verification did take place. Modeling rules were developed and processed in Arc Grid. Draft maps were sent to District personnel knowledgeable with the area for review, and refinements made as necessary.

Non-Forested Vegetation Mapping

Existing vegetation or cover type is a seral stage to a climax plant community, and generally results from some form of disturbance. The dominant overstory can vary with this successional change. Cover type classifications typically describe the current dominant vegetative cover or species occupying a site. Cover types can be used to describe seral stage species composition in relation to climax species composition or historical conditions. Existing non-forested vegetation groups or cover types may approximate the dominant climax vegetation, or in other situations, display variations from past use, management, and/or disturbance. This form of classification recognizes ecological influences that contribute to broad-scale cover type extent and future development. Unlike forested vegetation, shrubland and woodland successional change is not likely to be fully detected at the broad scale using only cover types. This is because the same overstory species may occur as part of several successional stages for the vegetative community. However, a cover type's density or canopy cover can be used as a complimentary indicator to define, in part, successional change, ecological condition, and disturbance regime influence. Similar to forest canopies, shrub or woodland overstories exert a competitive influence on herbaceous understory composition and productivity.

Cover types representing shrublands, grasslands, meadows, etc. were mapped as existing vegetation cover types using a remote sensing classification of LANDSAT developed at the University of Montana (Redmond et al. 1998) or in areas not covered by this project, with the Idaho/Western Wyoming Land Cover Classification developed by Utah State University (Edwards and Homer 1996). Riparian life forms were also determined from the Utah State University data. A more detailed classification of riparian types is not available at the broad-scale.

VEGETATION CLASSIFICATION

Forest Vegetation - Potential Vegetation Groups

PVG 1 - Dry Ponderosa Pine/Xeric Douglas-fir

This group represents the warm, dry extreme of the forested zone. Typically this group occurs at lower timberline down to 3,000 feet and up to 6,500 feet on steep, dry, south-facing slopes. Ponderosa pine is a dominant cover type that historically persisted due to frequent nonlethal fire. Under such conditions, open park-like stands of large, old ponderosa pine dominated the area, with occasional Douglas-fir, particularly at higher elevations. Understories are sparse and consist of low to moderately dense perennial grasses such as bluebunch wheatgrass and Idaho fescue. In some areas, shrubs such as mountain snowberry and bitterbrush dominate. This group is found scattered throughout the Payette National Forest. .

PVG 2 - Warm, Dry Douglas-fir/Moist Ponderosa Pine

This group represents warm, mild environments at low-to-middle elevations, but may extend upward to 6,500 feet on dry, southerly slopes. Ponderosa pine, particularly at lower elevations, or large ponderosa pine mixed with smaller size classes of Douglas-fir, are the dominant cover types in this group. Historically, frequent nonlethal fire maintained stands of large, park-like ponderosa pine. Douglas-fir

would occur on moister aspects, particularly at higher elevations. Understories are mostly graminoids such as pinegrass and elk sedge, with a cover of shrubs such as common snowberry, white spirea, and mallow ninebark. This group is found in many places on the Payette National Forest.

PVG 3 - Cool, Moist Douglas-fir

This group represents the cooler extremes in the Douglas-fir zone. The group can extend from 6,800 feet down to 4,800 feet following cold air. Adjacent sites are often subalpine fir. Some areas support grand fir. Ponderosa pine occurs as a major seral species only in the warmest extremes of the group. In cold air areas, particularly where cold air accumulates to form frost pockets, lodgepole pine may dominate. In some areas, Douglas-fir is the only species capable of occupying the site. The conifer cover types that historically dominated are a combination of several factors including fire frequency and intensity, elevation, and topography. Understories in this group are primarily shrub species including mountain maple, mountain ash, and blue huckleberry. Several other species, including scouler willow, thimbleberry, and chokecherry, may occur from disturbance, depending on its severity. Historical fire regimes were mixed (generally mixed1 where ponderosa pine occurs and mixed2 where other species dominate), creating a diversity of vegetative combinations. Very little of this PVG occurs on the Payette National Forest; what does occur is found in isolated cool-air drainages.

PVG 4 - Cool, Dry Douglas-fir

Douglas-fir is the only species that occurs throughout the entire range of the group. Lodgepole pine may be found in areas with cold air. Quaking aspen is also a common early seral species. Understories are sparse due to the cool, dry environment, and often support pinegrass and elk sedge. Understories of low shrubs, such as white spirea, common snowberry, Oregon grape, and mallow ninebark, occur in some areas that represent slightly different environments across the group. The historical fire regime was primarily mixed1-mixed2, depending on the fuels present at the time of ignition. Organic matter accumulates slowly in this group; so fire effects depend on the interval between fires, stand density and mortality, and other factors. This group may be found in minor amounts at higher elevations in the Douglas-fir zone in other parts of the Forest. In these cases, it is usually found above 6,000 feet on sites that are too cool to support ponderosa pine. Where it is common, it occurs at lower elevations in areas that are beyond the extent of ponderosa pine.

PVG 5 - Dry Grand Fir

The Dry Grand Fir Group is found throughout the distribution of grand fir. It ranges from 4,300 to 6,400 feet in elevation, often on drier upper slopes and ridges. Ponderosa pine and Douglas-fir are common cover types that appear to have been maintained by fire regimes that were historically nonlethal to mixed1. In many areas this group may have resembled PVG 1 and PVG 2, with open park-like stands of large ponderosa pine. Mixed species stands were likely restricted to small micro-sites that burned less frequently. Understories are similar to PVG 2 in that pinegrass, elk sedge, and white spirea are common.

PVG 6 - Moist Grand Fir

This group ranges in elevation from 3,400 to 6,500 feet and represents more moist environments in the grand fir zone. It often occurs adjacent to dry grand fir, and the two may intermix with each other, depending on topography. Ponderosa pine is common at the drier extremes of the group, and lodgepole pine occurs in colder areas. Western larch may also be present as an early seral species. Cover types of Douglas-fir and Engelmann spruce also occur in this group. Understories in this group are shrubby and include blue huckleberry, mountain maple, mountain ash, mallow ninebark, and occasionally pachistima. A conspicuous herb layer is also common, particularly following disturbance. Historical fire regimes were mixed, ranging from mixed1 to mixed2, in part due to the wide environment represented by this group. Where ponderosa pine was maintained as a common seral species, it appears that fires were more often

mixed1 because ponderosa pine produces a heavy seed that generally disperses only short distances. In other areas where western larch or Douglas-fir were maintained as common seral species, mixed2 fire may have been more common. Douglas-fir and larch produce lighter seed that can disperse much farther than ponderosa pine.

PVG 7 - Warm, Dry Subalpine Fir

This group is common on the Forest. It represents warmer, drier environments in the subalpine fir zone. Elevations range from 4,800 to 7,500 feet. At lower elevations, this group is found on steep, north-to-east aspects, but shifts to south-to-west aspects as elevation increases. Adjacent sites at lower elevations are Douglas-fir or grand fir, and these commonly intermix where topography controls cold air flow. Douglas-fir is the most common cover type throughout the group. Ponderosa pine may be found at the warmest extremes, particularly where this group grades into the Douglas-fir or grand fir zone. Lodgepole pine or Engelmann spruce may occur at cool, moist extremes, but these cover types rarely dominate. Understories are commonly shrubby and include mountain maple, mountain ash, serviceberry, and scouler willow. Historical fire regimes were generally mixed2, though mixed1 fires may have occurred where ponderosa pine was maintained.

PVG 8 - Warm, Moist Subalpine Fir

This group occurs mainly north of Cascade, primarily on the Payette National Forest and as a relatively minor PVG on the Boise National Forest. It becomes better represented on the Nez Perce National Forest. Elevations range from 5,000 to 7,200 feet but may follow cooler air down to 4,500 feet. This group occurs on moist, protected areas such as stream terraces, toe slopes, and steep, northerly aspects. Cover types include lodgepole pine, western larch, Douglas-fir, and Engelmann spruce. The presence of these and combinations depend on site conditions and past disturbances. Dense shrubs are common in the understory and include Sitka alder, menziesia, blue huckleberry, Utah honeysuckle, mountain maple, mountain ash, and serviceberry. Historical fire in this group was more commonly lethal, though underburns may have occurred occasionally. Ignitions likely occurred in adjacent areas due to the location of this group. Whether these areas burned or not may have depended on weather prior to and at the time of the ignition.

PVG 9 - Hydric Subalpine Fir

Seasonally high water tables control this group, and the extent may be small in some areas depending on the presence of these conditions. Elevations range from 9,000 to as low as 4,500 feet in frost pockets and along cold air drainages. This group most commonly occurs on wet toe slopes, stream terraces, seep areas, and old bogs. Cover types are lodgepole pine, followed by Engelmann spruce and subalpine fir. Early seral conditions usually support lodgepole pine because this species can tolerate intermittent high water tables and cold air that often accumulates. In severe frost-prone areas, lodgepole pine can persist for long periods. In other areas with better cold air drainage, Engelmann spruce and subalpine fir rapidly establish under the lodgepole pine. Understories in this group are primarily dominated by herbs and grasses that require the seasonal influence of a high water table. Shrubs are sparse, though Labrador tea can dominate some sites. Historically, fire was lethal in this group. Like PVG 8, ignitions more likely occurred on adjacent drier slopes, and burning in this group likely depended on weather conditions before and at the time of the ignition.

PVG 10 - Persistent Lodgepole Pine

This group is common throughout the subalpine fir zone. It represents cold, dry subalpine fir sites that range in elevation from over 9,200 down to 5,200 feet in frost-pockets. Lodgepole pine is the dominant cover type, though small amounts of other species may occasionally occur. Understories can be sparse. Generally, grasses and scattered forbs are the most common understory components. Shrubs are sparse and consist mainly of low-growing huckleberries, including dwarf huckleberry and grouse whortleberry.

Historically, this group experienced lethal fire, though nonlethal fires may have occurred during stand development. Lodgepole pine is more often non-serotinous in western portions of the Forest and appears to become more serotinous moving easterly. Within the Forest, lodgepole pine may reproduce in areas that experience nonlethal fires. The result is more vertical stand diversity in some areas than is often found where lodgepole pine is mostly serotinous. Over time, the combinations of these low-intensity events, subsequent reproduction, and mountain pine beetle mortality would have created fuel conditions that allowed lethal fires to occur under the right weather conditions.

PVG 11 - High Elevation Subalpine Fir (with whitebark pine)

This group occurs at the highest elevations of the subalpine fir zone and generally represents the upper timberline conditions. It often grades into krummholz or alpine communities. Whitebark pine is a major seral species in this group. Engelmann spruce and subalpine fir are the climax co-dominates. In some areas, whitebark pine serves as a cover for Engelmann spruce-subalpine fir establishment. Understories are primarily forbs and grasses tolerant of freezing temperatures that can occur any time during the growing season. Shrubs are sparse due to the cold, harsh conditions. Historically, the fire regime in this group is characterized as mixed2, though the effects of fires were highly variable. Ignitions are common due to the high elevation, however fuel conditions were historically sparse due to the cold growing conditions and shallow soils. Therefore, fire effects were patchy. Fire regimes are mixed2 with whitebark pine being a major seral component.

Old Forest

"Old forest" is a component of the large tree size class, whereas "old growth" is typically described as a set of characteristics associated with the late successional stage of forested vegetation groups or types. Based on recent research encompassing the central Idaho batholith, old growth late successional stage characteristics were important, but not extensive on the historic landscape (Morgan and Parsons, 2001). However, the large tree component was common (Morgan and Parsons, 2001; Wisdom et al. 2000). Table A-12 (Morgan and Parsons 2001) shows the estimated percent of forested landscapes in the central Idaho batholith that were historically occupied by stands in the large tree size class (medium tree size class for PVG 10, persistent lodgepole pine), and by stands with late successional old growth characteristics. Estimates were developed for each of the 11 potential vegetation groups on the Ecogroup.

The main reason for the large differences between Large Tree percent and Old Growth percent is that vegetation structural conditions in central Idaho developed in conjunction with disturbance processes (fire, insect, disease, wind, etc.) and climate variations. Conversely, late successional old growth characteristics develop in the absence of frequent disturbances (Hamilton et al. 1993). In central Idaho, disturbance is a common occurrence. Historically, forested stands in lower-elevations vegetation groups likely developed large trees and relatively open canopies during mid-successional stages, and these conditions were maintained over time by frequent low-intensity fire disturbance. Dense stands and decadence typically associated with late successional stage conditions (old growth) rarely, if ever, occurred. Thus, historical stands dominated by large and old seral trees like ponderosa pine could be considered old forest, but not as "old growth" under any definition that incorporates a full set of late successional conditions.

Table A-12. Historic Levels Of Central Idaho Stands Occupied By Large Tree Size Classes And Stands With Late Successional Old Growth Characteristics
(From Morgan and Parsons, 2001)

	PVG 1	PVG 2	PVG 3	PVG 4	PVG 5	PVG 6	PVG 7	PVG 8	PVG 9	PVG 10	PVG 11
Percentage of PVG historically in the large tree size class (mean value)	91	80	41	34	84	56	21	21	37	19	27
Percentage of PVG estimated to represent old-growth	0	0	8.5	8.4	0.4	2.5	4	5.5	26	0	1.2

Note: Large tree size class refers to stands where the overstory trees average 20 inches diameter or greater. Medium tree size class refers to stands where the overstory trees average between 12 and 19.9 inches diameter.

The threshold to meet viability for large-tree-dependent terrestrial species has been determined to be 20 percent of the forest stands classified as being in the large tree size class. The 20 percent threshold has been adopted based on several references concerning viability and biodiversity needs for goshawk and other forest-dependent wildlife species that require one or more components of the large tree size class (Fahrig 1997, Graham et al. 1997, Graham et al. 1999, Graham and Jain 1998, Reynolds et al. 1992, Wisdom et al. 2000). This threshold has been incorporated into the desired conditions for forested vegetation PVGs found in this appendix, and into Forest Plan management direction (Wildlife Resources) through the following standard:

> Maintain at least 20 percent of the acres within each forested PVG found in a watershed (5th field HU) in large tree size class (medium tree size class for PVG 10, persistent lodgepole pine). Where analysis of available datasets indicates that the large tree size class (medium tree size class in PVG 10) for a potential vegetation group in a watershed (5th field HU), is less than 20 percent of the total PVG acres, management actions shall not decrease the current area occupied by the large tree size class, except when:
>
> > a) Fine or site/project scale analysis indicates the quality or quantity of large tree size class for a PVG within the 5th field HU would not contribute to habitat distribution or connective corridors for TEPCS and MIS species in short or long-term, and
> >
> > b) Management actions that cause a reduction in the area occupied by the large tree size class would not degrade or retard attainment of desired vegetation conditions in the short or long-term as described in Appendix A, including snags and coarse woody debris.

Other Forested/Woodland Vegetation Types

Aspen

Aspen covers a broad environmental range across the Intermountain Region (Mueggler and Campbell 1982). It grows at elevations as low as 5,000 and as high as 11,000 feet. Aspen occurs both as a seral and climax tree species within its range (Mueggler 1985). Where it is seral, it is an early seral stage of forested PVGs. Throughout these areas, individual stands are relatively small, seldom exceeding 5 acres (Mueggler 1985). Where aspen is seral, it is maintained on the landscape by disturbance. Historically, fire is

considered a primary disturbance agent (Jones and DeByle 1985). Fires result in single-aged stands that develop from root suckering. Fire frequencies vary greatly and severities range from low to high. Aspen does not burn readily. However, all but the lowest severity fires kill aspen because of its thin, uninsulated bark. Therefore, most fire effects in aspen are lethal.

Grassland And Shrubland Vegetation

Grassland Cover Types

Perennial Grass Slopes - This cover type connects with the dry forested cover types, mountain big sagebrush, and bitterbrush groups, and is more prevalent in the north and northwestern foothills and canyonlands of the Ecogroup. It usually occurs between the 10-to-18 inch precipitation zone, on southern and western aspects. The group is predominantly made up of bluebunch wheatgrass. Perennial grasses are dominant on the sites, composing 80 to 90 percent of production. Sandberg bluegrass is a lesser but constant associate. The forb component contains a large number of species, few of which are common throughout. The most common forbs are Indian wheat, shining chickweed, salsify, yarrow, lupine, balsamroot, biscuit root, hawksbeard, fleabane, milkvetch, and phlox. Ground cover is typically greater than 65 percent. This vegetation group can be susceptible to damage under very hot and dry conditions. Stand recovery is very difficult and slow in the Idaho Batholith. Historic fire intervals are frequent (20 years), with typically a mixed1 to mixed2 fire regime, depending upon the amount of Idaho fescue present. This group is highly susceptible to several invaders including annual bromes, rush skeletonweed, yellow starthistle, several knapweeds, dyer's woad, and Dalmatian toadflax.

Perennial Grass Montane - This cover type connects with numerous forested cover types, mountain big sagebrush and bitterbrush groups, and bluebunch communities. It is very highly rated, in terms of ecotone diversity. It usually occurs between the 18-to-30 inch precipitation zone on southern aspects, and 14 to 30 inches on northern aspects. Ground cover is usually greater than 80 percent. Idaho fescue is the predominant grass in this group. Other grass species that occur are slender wheatgrass, sedges, intermediate oatgrass, western needlegrass, and Richardson needlegrass. Forbs compose 40 to 65 percent of overall production. Common forbs are yarrow, bessaya, geum, Indian paintbrush, lupines, phlox, and balsamroot. Historic fire intervals are frequent (20 years) in typically nonlethal to mixed1 regimes. Certain species within the community are susceptible to fire damage under very hot and dry conditions, but recovery occurs in a few years. Trampling damage is minimal to nonexistent and primarily occurs at the higher elevations. Bluegrass is a common invader. This group is highly susceptible to several invaders including annual bromes, rush skeletonweed, yellow starthistle, several knapweeds, dyer's woad, and Dalmatian toadflax.

Shrubland Cover Types

Mountain Big Sagebrush - This cover type connects with the greatest number of other forest, non-forest, and riparian cover types. This type consists of large blocks with a wide range of distribution. This group occurs in the 14-to-18+ inch precipitation zone, on well-drained sites and on soils with a high content of rock or gravel. Structural stage ranges are typically balanced, with high ground cover and few cryptogams. Fire intervals can be frequent, ranging from 20-60 years, with a mixed2 fire regime. Historic vegetation disturbances were related to ungulate grazing of southern exposures, due to less snow and early green-up. Understory forb and grass species can be variable and diverse. Bitterbrush, grey horsebrush, and green rabbitbrush are frequently present. Snowberry is present on moister sites.

Montane Shrub - This cover type is usually interspersed as stringers and patches within the mountain big sagebrush, aspen, and conifer cover types. Its patchiness is strongly related to mesic soils with high water-holding capacity and/or northerly exposures. Typically this group has multiple vegetation layers that are dominated by sprouting species. Species include chokecherry, snowberry, serviceberry, and wild rose.

Several other browse species may occur. This group usually has a rich and diverse herbaceous component. These conditions provide extremely diverse wildlife habitats and an important watershed group. Fire intervals are typically 20 to 40 years, with a mixed2 fire regime. Ungulate and grazing disturbance are not uncommon components. Insect and disease may be common, with occasional outbreaks.

Bitterbrush - This type is usually associated with southern to western exposures. Soils tend to be shallow (10 to 20 inches), with stony or rocky loams tending towards sandy textures. Typically bitterbrush occurs in small patches interspersed with the lower ecological thresholds of ponderosa pine and with all the sagebrush types except Wyoming Big Sagebrush. Older stands have a variety of age classes, while younger stands are typically homogeneous in age. In some sites sagebrush may appear as a co-dominant. Fire intervals are seldom, usually greater than 40 years, with a mixed1 fire regime. This group is highly susceptible to cheatgrass and diffuse knapweed invasion. Common understory species are bluebunch wheatgrass, Sandberg bluegrass, junegrass, needle and thread, and Idaho fescue. Perennial grasses make up the largest portion of the composition. Common forbs include yarrow, lomatium, lupine, arrowleaf balsamroot, and milkvetch.

Riparian Vegetation

There are no comprehensive riparian classifications or vegetative community descriptions for the Ecogroup. Hall and Hansen (1997) have developed a riparian habitat type classification for Bureau of Land Management Districts in Southern and Eastern Idaho that includes portions of the South Hills on the Sawtooth. Riparian community type classifications have been developed by Youngblood et al. (1985) for eastern Idaho-western Wyoming, and by Padgett et al. (1989) for Utah and Southeastern Idaho. Due to the lack of comprehensive classification information for our area, the Forest Plan Revision Team chose to use the Utah LANDSAT cover types to describe these communities.

Riverine Riparian

This cover type consists of vegetative communities dominated by conifer species and shrubs. The primary conifers are subalpine fir, Engelmann spruce, limber pine, and Douglas-fir, with some aspen. Other trees and shrubs include Rocky Mountain maple, serviceberry, chokecherry, thinleaf alder, currants, and willows. These communities generally occur on steep slopes and occupy edges of riparian zones with A and B stream channel types. Padgett et al. (1989) and Youngblood et al. (1985) stated that these community types in their areas likely represent successional stages within described forested communities. For this reason, Padgett et al. recommended consulting available forest habitat type classifications for additional information.

Deciduous Tree

This cover type consists of a dominant overstory of black or narrowleaf cottonwood. Associated tree species include thinleaf alder, Rocky Mountain maple, water birch, and aspen. Primary shrub species include chokecherry and willows. Location is generally below 5,500 feet along stream channels in lower canyons. This cover type usually requires a moist and coarse substrate.

Shrub Riparian

This cover type is dominated by willow species. Primary associated tree and shrub species include cottonwoods, swamp birch, thinleaf alder, Rocky Mountain maple, shrubby cinquefoil, and chokecherry. Grasses and forbs include sedges, tufted hairgrass, Geranium, louseworts, and American bistort. This type is found in mid to upper elevations in broad wet meadows and alluvial terraces on relatively low gradients (1 to 3 percent).

Herbaceous Riparian
This cover type is typically found in mountain meadows where soil moisture is abundant throughout the growing season. Principle species include sedges, woodrush, reedgrass, pinegrass, timothy, bluegrass, tufted hairgrass, saxifrage, and fireweed. This type has a wide range of occurrence, typically found in broad flat meadows.

Other Vegetation

Wetlands
Wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, wet meadows, seeps, and similar areas. These lands are transitional between terrestrial and aquatic systems. Vegetative species found in wetlands are heavily influenced by local site conditions.

Marshes - This cover type is permanently or semi-permanently flooded and dominated by hydric species located adjacent to small streams, beaver ponds, lakes, and meadows. Sedges are the most common species. This type usually occurs around the 7,000-foot elevation level. Sites are dominated or co-dominated by bulrushes, cattails, woodrushes, or sedges.

Bogs, Fens, and Peatlands – These are wetlands that typically have sub-irrigated cold waters sources. Peatlands are generally defined as wetlands with waterlogged substrates and at least 30 centimeters of peat accumulation (Moseley et al. 1994). The vegetation is often dense and dominated with low-growing perennial herbs (Skinner and Pavlick 1994).

Wet Meadows and Seeps – These are wet openings that contain grasses, sedges, rushes and herbaceous forbs that thrive under saturated moist conditions. These habitats can occur on a variety of substrates and may be surrounded by grasslands, forests, woodlands, or shrublands (Skinner and Pavlick 1994).

Alpine
Alpine habitats are defined as the area above treeline in high mountains. Rocky or gravelly terrain is generally prevalent. Grasses and sedges often form thick sod-like mats in meadows. Most alpine plant species have unique adaptations to survive the harsh conditions of this habitat (Billings 1974). Many plants grow in mats or cushions. Perennials predominate in the alpine floras, as the growing season is often too short for annuals to complete their life cycles (Strickler 1990).

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Appendix 7
Legacy Tree Guide

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Table of Contents

List of Figures

List of Tables

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.

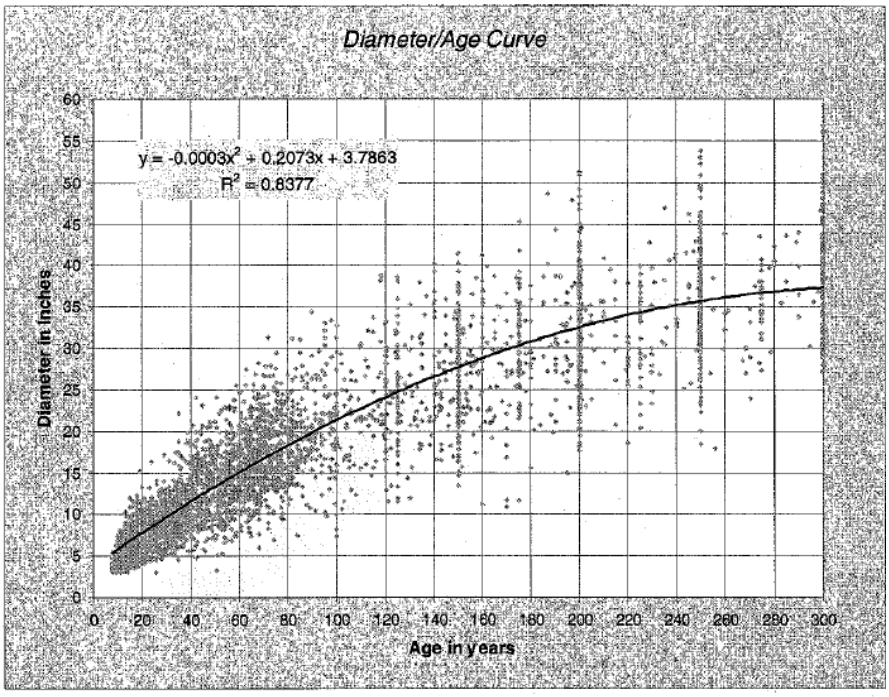
The remainder of this document outlines a process for identifying legacy ponderosa pine, western larch, and Douglas-fir for the Lost Creek-Boulder Creek project on the Payette National Forest. For the purposes of this exercise, it was assumed that all legacy trees should exceed 150 years of age. Based 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 2004), and sampling conducted in the Lost Creek-Boulder Creek 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 1on 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 Middle Fork Weiser River 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).

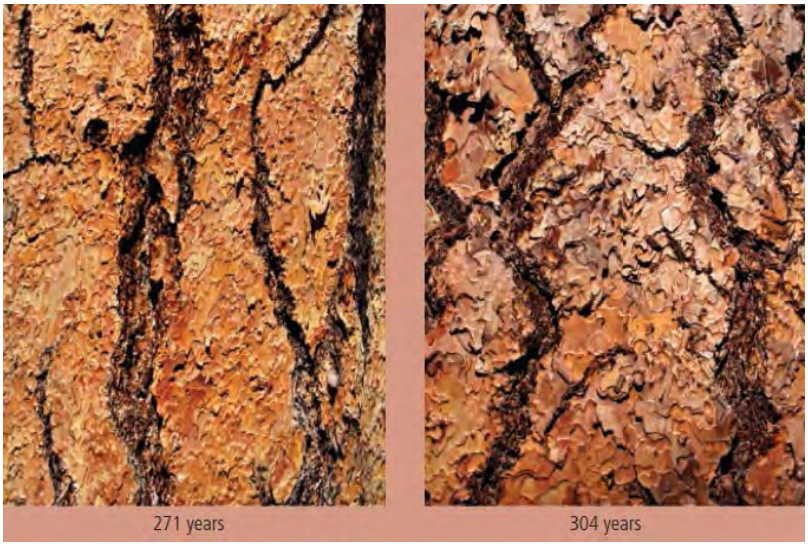


Figure 3. Bark patterns on old ponderosa pine. The colorful bark plates are generally more than three times wider than the darker fissures that separate them (Van Pelt 2008, pg. 79).

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).

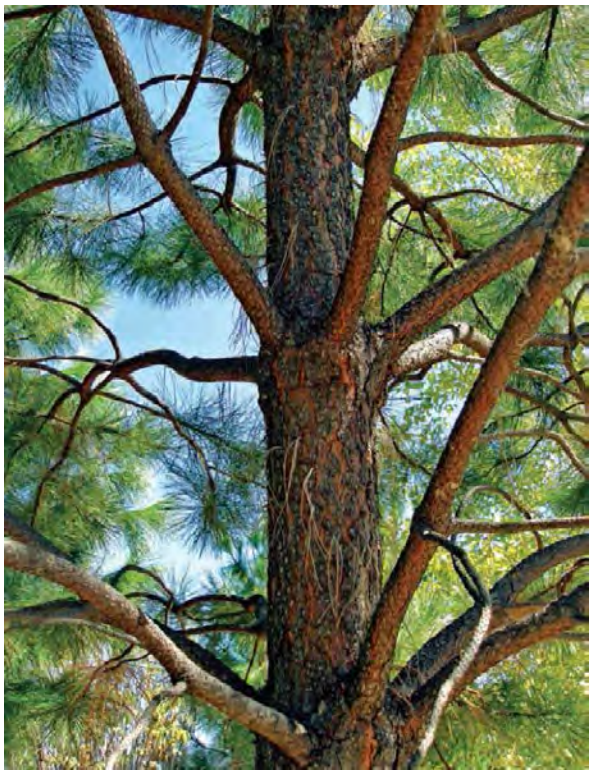


Figure 4. Whorl-based branch growth on a young ponderosa pine (Van Pelt 2008, pg. 81).

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).

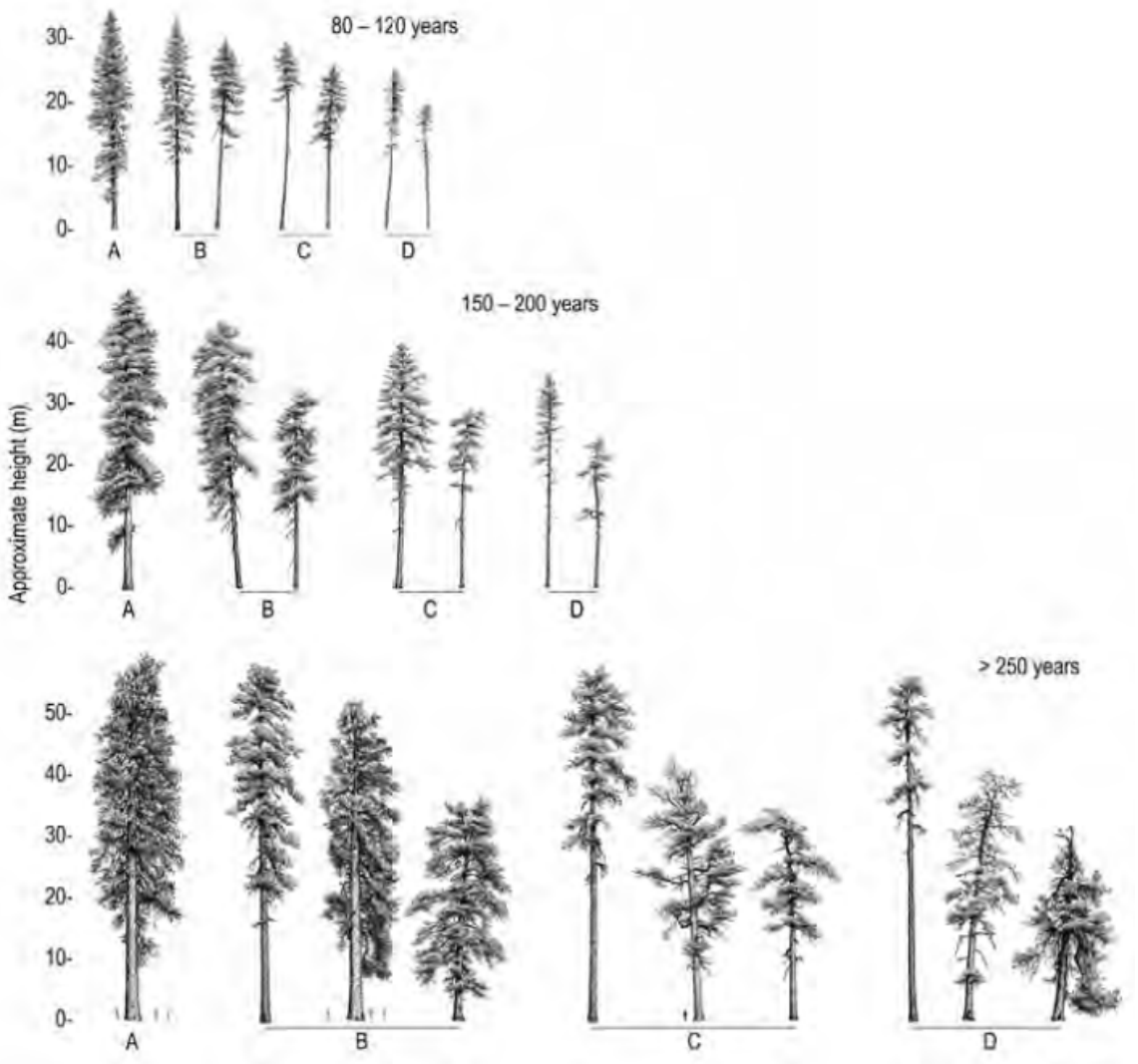


Figure 9. Ponderosa pine crown form and tree vigor on the Payette National Forest

Figure 9represents 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

[a]Determine bark conditions on the uphill side of tree near DBH.
[b]Choose 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).**

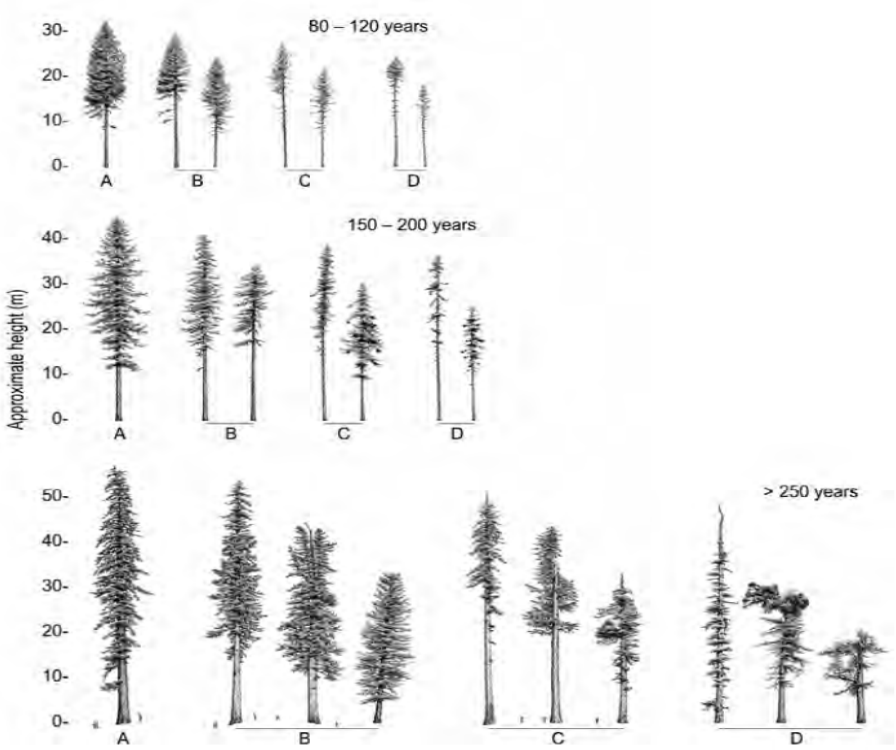


Figure 16. Western larch crown form and tree vigor on the Payette National Forest.

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 ≥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
≥7	Legacy Tree

[a]Determine bark conditions on the uphill side of tree near DBH.
[b]Choose 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).

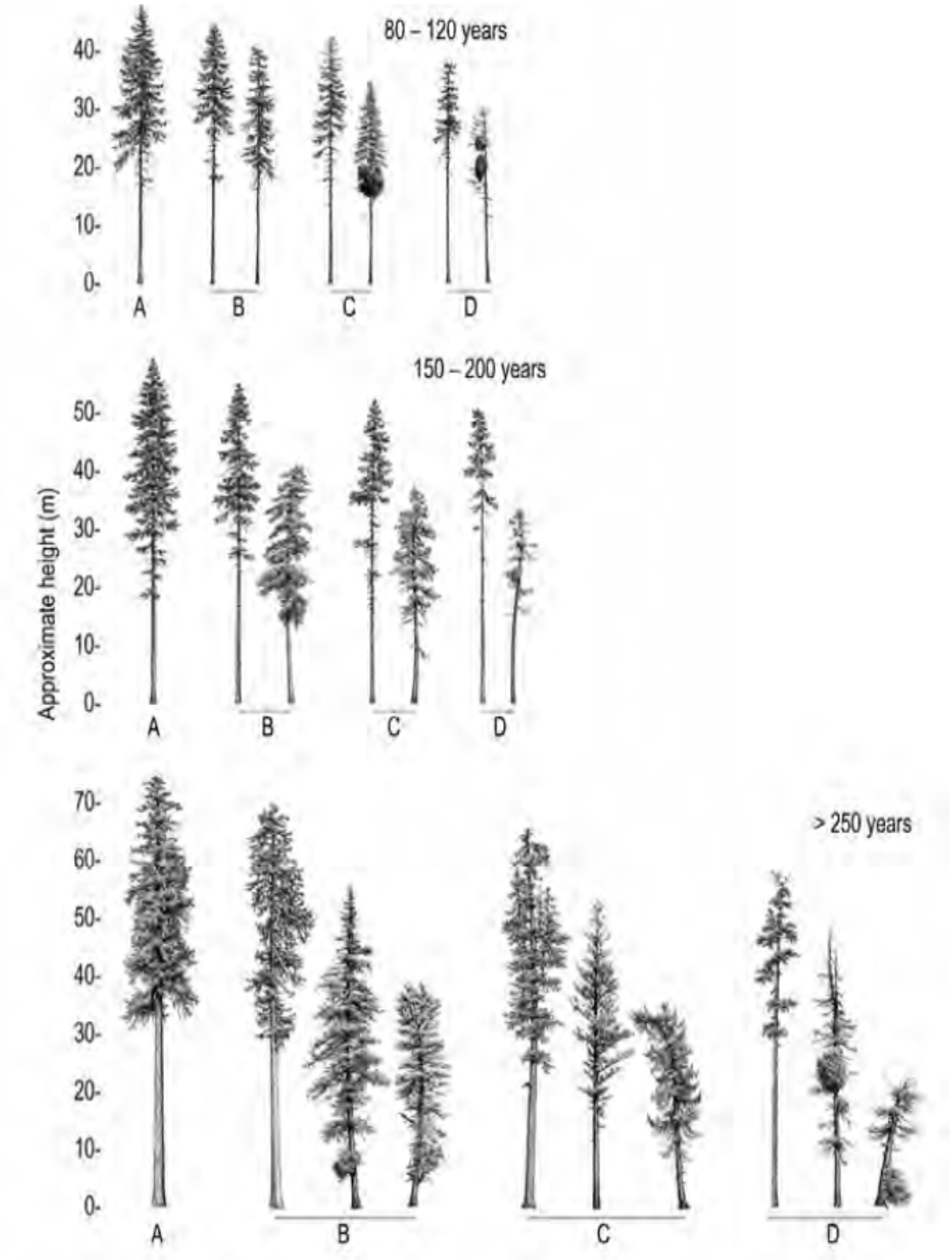


Figure 21. Douglas-fir crown form and tree vigor on the Payette National Forest.

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

[a]Determine bark conditions on the uphill side of tree near DBH
[b]Choose one score from each category and sum scores to determine developmental stage.

Definintions

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.

Appendix 8
Proposed Forest Plan Amendment

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Introduction

Alternative 4 in the Middle Fork Weiser River Landscape Restoration Project (Project) DEIS would require a site-specific, non-significant amendment (Forest Service Handbook [FSH] 1926.51) of the Forest Plan. Specifically, the Forest-wide standard TEST15 (USDA Forest Service 2003a, p. III-12) states, "Unless a broad-scale assessment has been completed that substantiates different historical levels of unsuitable habitat, limit disturbance within each LAU as follows: If more than 30% of lynx habitat within a LAU is currently in unsuitable condition, no additional habitat may be changed to unsuitable habitat as a result of vegetative management projects." The proposed amendment would provide for more than 30% of modeled lynx habitat in the Project area to be changed from suitable, to unsuitable, in the short term, in order to develop a mosaic of vegetation structure that would improve lynx habitat in the long term. A discussion of the proposed vegetation treatments and lynx management documents is necessary, to properly understand the need for this Proposed Forest Plan Amendment.

Background

Vegetation

Many of the stands proposed for treatment in Alternative 4, which would contribute to unsuitable lynx habitat, exceeding the 30 percent threshold, are found in the following potential vegetation groups (PVGs). In addition, treatment acres are proposed in currently suitable lynx habitat,in order reduce fuel loads, to thin seral species trees found in higher elevation stands, and to increase the presence of trace tree species, such as quaking aspen (*Populous tremuloides*) and whitebark pine *(Pinus albicaulis).*

Potential Vegetation Group 7—Warm, Dry Subalpine Fir: This group represents warmer, drier environments in the subalpine fir zone. Elevations range from 4,800 feet to 7,500 feet. At lower elevations, this group is found on steep, north-to-east aspects, but shifts to south-to-west aspects as elevation increases. Adjacent sites at lower elevations are Douglas-fir, or grand fir, and these commonly intermix where topography controls cold air flow. Douglas-fir is the most common cover type throughout this PVG. Ponderosa pine may be found at the warmest extremes, particularly where this group grades into the Douglas-fir, or grand fir zone. Lodgepole pine or Engelmann spruce may occur at cool, moist extremes, but these cover types rarely dominate. Understories are commonly shrubby and include mountain maple (*Acer glabrum*), mountain ash (*Sorbus scopulina* or *S. sitchensis*), serviceberry (*Amelanchier alnifolia*), and scouler willow (*Salix scouleriana*). Historical fire regimes were generally mixed2, although mixed1 fires may have occurred where ponderosa pine was maintained. A mixture of burning patterns has created a mosaic of early seral stages. With a recent history of fire suppression, these sites are losing their mosaic pattern and becoming more uniform. Unless thinned to maintain diversity, the risk of extensive, stand-replacement fire and insect epidemics at these sites will increase.

Potential Vegetation Group 9—Hydric Subalpine Fir: Seasonally high water tables control this group; its extent may be small in some areas, depending on the presence of those conditions. Elevations range from 9,000 feet, to as low as 4,500 feet in frost pockets and along cold air drainages. This group most commonly occurs on wet toe slopes, stream terraces, seep areas, and old bogs. Cover types are lodgepole pine, followed by Engelmann spruce and subalpine fir. Early seral conditions usually support lodgepole pine, because this species can tolerate intermittent high water tables and cold air that often accumulates. In severe frost-prone areas, lodgepole pine can persist for long periods. In other areas with better cold air drainage, Engelmann spruce and subalpine fir rapidly establish under the

lodgepole pine. Understories in this group are primarily dominated by herbs and grasses that require the seasonal influence of a high water table. Shrubs are sparse, although Labrador tea (*Ledum glandulosum*) can dominate some sites. Historically, fire was lethal in this group, although underburns may have occasionally taken place. Ignitions more likely occurred on adjacent drier slopes, and burning in this group likely depended on weather conditions before and at the time of the ignition. Estimates of fire frequency range from 140 to 400 years. Generally, ignitions occurred on adjacent drier sites and the fire was wind-driven into these sites. Fire patterns could range from a high-intensity crown fire to a patchy underburn with occasional torching of tree clusters, depending on the burning conditions.

Potential Vegetation Group 10—Persistent Lodgepole Pine: This group is common throughout the subalpine fir zone. It represents cold, dry subalpine fir sites that range in elevation from over 9,200 feet down to 5,200 feet in frost pockets. Lodgepole pine is the dominant cover type, although small amounts of other species may occasionally occur. Understories may be sparse. Generally, grasses and scattered forbs are the most common understory components. Shrubs are sparse and consist mainly of low-growing huckleberries, including dwarf huckleberry (*Vaccinium caespitosum*) and grouse whortleberry (*V. scoparium*). Historically, this group experienced lethal fire, although nonlethal fires may have occurred during stand development. Lodgepole pine is more often nonserotinous in western portions of the Forest and appears to become more serotinous when moving easterly. Within the Forest, lodgepole pine may reproduce in areas that experience nonlethal fires. The result is more vertical stand diversity in some areas than is often found where lodgepole pine is mostly serotinous. Over time, the combinations of these low-intensity events, subsequent reproduction, and mountain pine beetle (*Dendroctonus ponderosae*) mortality would have created fuel conditions that allowed lethal fires to occur under the right weather conditions. Infrequent stand-replacing fires—usually interspersed with a few underburns and mountain pine beetle attacks—typified the historical process. Stand-replacement fires have occurred approximately every 100 to 300 years, with mixed severity burns occurring every 25 to 70 years.

Potential Vegetation Group 11-High-elevation Subalpine Fir (with Whitebark Pine): This group occurs at the highest elevations of the subalpine fir zone and generally represents the upper timberline conditions. It often grades into krummholz or alpine communities. Whitebark pine is a major seral species in this group. Engelmann spruce and subalpine fir are the climax co-dominates. In some areas, whitebark pine serves as a cover for Engelmann spruce–subalpine fir establishment. Understories are primarily forbs and grasses tolerant of freezing temperatures, which can occur any time during the growing season. Shrubs are sparse due to the cold, harsh conditions. Historically, the fire regime in this group is characterized as mixed2, although the effects of fires have been highly variable. Ignitions are common, due to the high elevation; however, fuel conditions are historically sparse, due to the cold growing conditions and shallow soils. Therefore, fire effects have been patchy. Fire regimes are mixed2, with whitebark pine being a major seral component.

Alternative 4 proposes treatment of 2,259 acres in PVGs 7, 9, 10, and 11. (DEIS p. 158).

Quaking Aspen: Quaking aspen is the most broadly distributed tree species in the Idaho Southern Batholith, occurring within 10 of the 11 PVGs; however, aspen is strictly a successional component of these systems. Under historical conditions, quaking aspen has been a more common community type within those habitat type classes experiencing a frequent (<50 years) fire return interval with mixed severity. Fire is considered a natural and necessary feature of the aspen seral community type. Fire suppression efforts and grazing have significantly reduced the natural fire processes within the quaking aspen communities.

The result has been a major shift from a preponderance of young aspen communities to a preponderance of mature aspen communities throughout the planning landscape.

Effects Common to All Action Alternatives

Many aspen stands throughout the analysis area have been negatively impacted by conifer competition and lack of grove/landscape disturbance factors, such as wildfire. Conifer species tend to draw a significant amount of water away from aspen stands, affecting riparian, meadow, and aspen communities, which ultimately changes the structure and composition of the forest. In all action alternatives, there would be a re-establishment of aspen stands, where they have departed from desired conditions, as described in Campbell and Bartos (2000). Specifically, all action alternatives reduce conifer canopy cover in the short term, to approximately 25% or less; prescribed burning would maintain a mosaic canopy closure in the long term. All action alternatives would promote aspen stands that vary by patch sizes, size classes, and densities. The primary difference is that Alternatives 2 and 4 have more aspen treatment acres. Restoration of aspen ecosystems is also expected to support vegetation diversity and increase habitat quality for terrestrial wildlife species.

Unlike Alternative 1, all action alternatives allow treatments that would reduce conifer encroachment and probability for uncharacteristic wildfire within aspen stands. Additionally, maintaining these stands with fire would further promote aspen within the analysis area for the long term.

Alternative 4

Aspen in both climax stands and as a seral component of coniferous stands

Similar to Alternative 2, Alternative 4 has 1,087 acres of aspen treatments (CT-ASP) in PVGs 5, 6, 7, and 9. Aspen also occur throughout PVGs 2, 10, and 11. Other treatments (e.g., CT-FT, NCT, FT-PC-MSw) would also enhance aspen in areas where there is incidental aspen, but the densities of aspen are not high enough to justify aspen enhancement as the primary purpose of treatment. Alternative 4 has the most treatment potential in these PVGs (e.g., more than Alternative 2). All treatments would emphasize aspen restoration where aspen stands are present.

Whitebark Pine

The decline of whitebark pine, and other distressed 5-needle white pines, was brought to the attention of the Chief of the U.S. Forest Service, through the reports *Managing for Healthy White Pine Ecosystems in the United States to Reduce the Impacts of White Pine Blister Rust* (Samman et al. 2003) and *Whitebark Pine in Peril: A Case for Restoration* (Schwandt 2006).

Alternative 4 proposes 357 acres of potential treatments in PVG 11 and, thus, possesses the most potential to maintain and promote whitebark pine in the analysis area. All treatments would emphasize whitebark pine restoration, where the species is present, and would specifically involve reducing subalpine fir densities, collecting cones, and planting rust-resistant seedlings.

Wildlife Resources

Canada Lynx

The Canada lynx is listed as a threatened species under the ESA, as amended. Several documents guide lynx management on federal lands.

The 2003 Forest Plan adopted the 2000 Canada Lynx Conservation Assessment and Strategy (2000 LCAS, Ruediger et al. 2000), by adopting conservation measures dependent on risk factors for lynx as Forest Plan Standards, Guidelines, Goals, or Objectives. The 2000 LCAS conservation measures identified the delineation of Lynx Analysis Units (LAUs) and additional measures, such as TEST15, for those LAUs (The roughly 6,000-acre size of, and habitat classes found within, LAUs mimics an adult female lynx home range). In 2005, the U.S. Fish and Wildlife Service prepared the Lynx Recovery Outline (USDI Fish and Wildlife Service 2005), which provides interim guidance for consultation and recovery efforts, until a formal recovery plan has been approved. Under the Recovery Outline, lynx habitat was stratified into core, secondary, and peripheral areas, based on lynx occupancy, reproduction, and use by lynx, as documented by historical and current lynx observation records.

The 2000 LCAS identified science limitations for lynx and lynx habitat. Since then, many additional studies have occurred, advancing what is known about lynx and lynx habitat. Revision of the 2000 LCAS was initiated in September 2010. The 2013 LCAS (Interagency Lynx Biology Team 2013) is a full revision of the 2000 LCAS, incorporating all prior amendments and clarifications, substantial new scientific information that has emerged since 2000, including related parts of the Lynx Recovery Outline, as well as drawing on experience gained in implementing the 2000 LCAS (Interagency Lynx Biology Team 2013). The 2013 LCAS made several major changes to the 2000 LCAS, including stratifying lynx habitat into core areas and secondary/peripheral areas, along with conservation measures for those habitat areas.

The conservation measures adopted from the 2000 LCAS changed in the 2013 LCAS. The conservation measure identical to TEST15 is now a conservation measure for only core areas in the 2013 LCAS and only the core areas have LAUs delineated. In the 2013 LCAS, the Payette National Forest is identified as a secondary/peripheral area, TEST15 is not included as a conservation measure, and LAUs are not to be delineated.

The lynx source habitat model (DEIS Chapter 3, Figure 3-19), developed for the Boise National Forest Wildlife Conservation Strategy (Nutt et al. 2010) and applied on the Payette National Forest (Egnew et al. 2015), was used to evaluate lynx habitat and the effects of agency activities on lynx.

Lynx use late-seral forests for denning, rearing their young, and hunting alternative sources of prey (Ruggiero et al. 1999). Small patches of old forest with down wood provide denning habitat (Wisdom et al. 2000). The common component of denning habitat is large amounts of either logs or root wads, which provide escape and thermal cover for kittens. These late-successional forest stands also may provide refuge from inclement winter weather and summer drought.

Lynx foraging habitat supports its primary prey, the snowshoe hare (*Lepus americanus*) and/or important alternate prey, particularly red squirrels (*Tamiasciurus hudsonicus*), but also mice and grouse (especially during summer) (Ruggiero et al. 1994). Lynx primarily forage in early seral forests and in some mid-seral forests that support high numbers of prey. The best quality snowshoe hare habitats support a high density of young trees or shrubs (4,500 stems or branches per acre), especially with branches that protrude above the snow. These

conditions may occur in early successional stands, following some type of disturbance, or in older forests, with a substantial understory of shrubs and young conifers. Red squirrel densities tend to be highest in mature cone-bearing forests with high quantities of logs (Ruediger et al. 2000).

Vegetative communities capable of providing source habitat conditions include PVGs 3, 7, 8, 9, 10, and 11 (Egnew et al. 2015). Source habitat for lynx was assessed within the Middle Fork Weiser LAU, which encompasses virtually the entire Project area. The Project area contains 7,427 acres of lynx habitat (referred to as "source habitat capacity"); currently, approximately 6,812 acres (92%) is in a suitable condition ("source habitat"). These numbers are based on the acreage of suitable habitat that was consulted on with the Fish and Wildlife Service in 2008 (USDA Forest Service 2008) for the Weiser River Watershed. During our current analysis, we used more recent vegetation data, which included changes in PVG assignments and use of a new lynx habitat model (Egnew et al. 2015) that determines acreage of source habitat. Some of these numbers may change slightly, as we work more with the new lynx model.

No lynx observations have been documented within the Project area. Incidental track surveys were conducted by snowmobile, while conducting trail camera surveys during the winters of 2006 through 2013, along the mountain crest running north–south on the east boundary of the Project area; no lynx tracks or photos were identified. Although the Project area contains the Middle Fork Weiser River LAU, and abuts three other LAUs (established with the Forest Plans for the Payette and Boise national Forests), this portion of the Forest is not considered part of a core lynx population, due to the lack of observations, lack of documented reproduction, and habitat that is isolated from core lynx populations (Figure 2). Current condition of modeled lynx source habitat in the Project area. Lynx are more likely to occur in the more remote areas of the northwest and northeast parts of the Forest, but even in those areas, no recent observations have been reported. This viewpoint is supported by the revised, third edition of the LCAS (2013 LCAS, Interagency Lynx Biology Team 2013), which identifies the Project area as secondary habitat for lynx. The 2013 LCAS suggests habitat should be managed for a mosaic of habitat classes that would provide for lynx foraging, traveling, and denning year round. The secondary habitat would support any lynx that may use the area while moving from one core area to another.

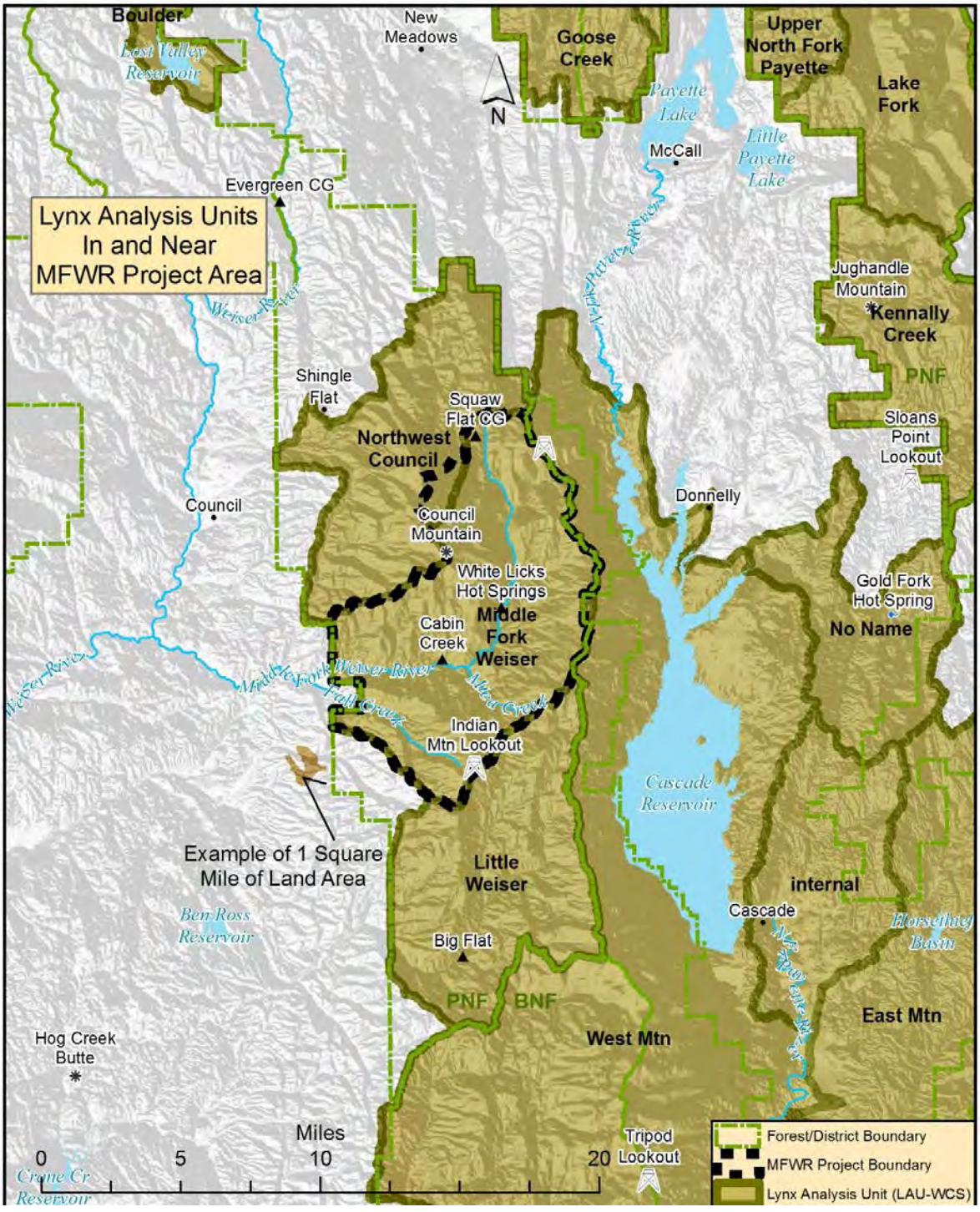

Figure 1. Lynx analysis units (LAUs) identified in and adjacent to the Project area

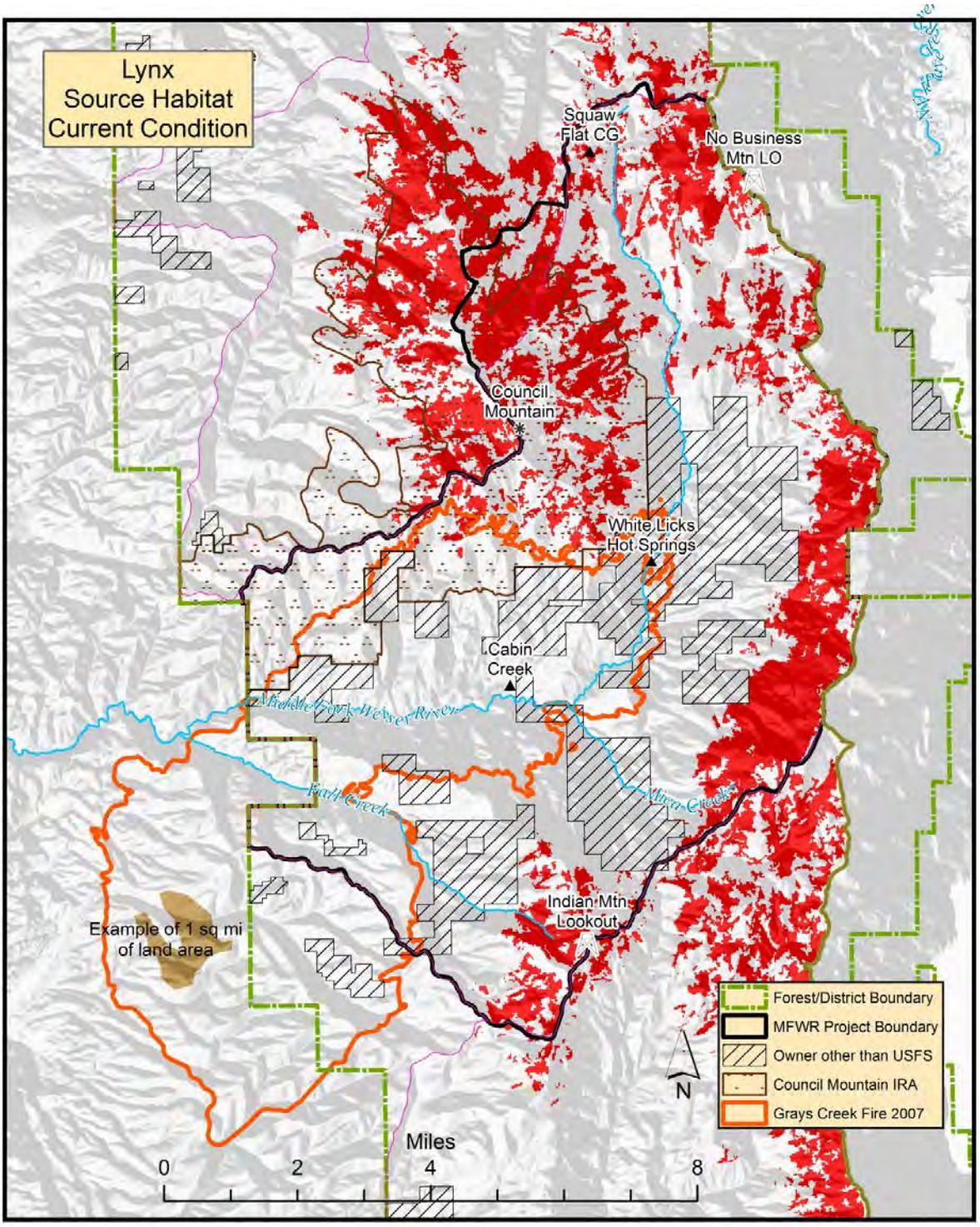

Figure 2. Current condition of modeled lynx source habitat in the Project area

Effects Common to All Action Alternatives

Under all of the action alternatives, prescribed fire would be used to reduce wildfire fuel loads on the ground. These burns would not occur in forested stands in lynx habitat. Because the PVGs used to describe lynx source habitats are all forested components of the LAU, the burns do not show as an effect to lynx habitat, under the lynx habitat model. Some burning will occur outside of the non-forested patches, removing small amounts of trees along the edges of adjacent forested stands. The small number of trees burned along the outside edges of forested patches would be negligible and unmeasurable.

The types of treatments in under Alternative 4 would be identical to Alternative 2. Alternative 4 addresses internal and external comments concerning additional restoration in higher elevation stands that contain a viable seral tree component. This alternative would treat stands in PVGs 7–11 that have a viable seral species component of mature ponderosa pine, Douglas fir, and western larch, in addition to those stands proposed for treatment under Alternative 2.

Alternative 4 would alter more than 30% of suitable lynx habitat to an unsuitable condition in the short term (2000 LCAS). However, with an infestation of multiple species of insects ongoing in most of the high elevation stands, if these sites are left to natural conditions created by this infestation, much of the area would become denning habitat, which would mean a large conversion from foraging and traveling habitats to denning habitat. The 2000 LCAS suggests denning habitat be maintained in patches greater than 5 acres, so that at least 10% of the LAU is denning habitat. The insect infestation would likely create more dead, dying, and down trees, increasing denning habitat to a level above 10% of the LAU, and decreasing the mosaic of lynx habitat in the area. These conditions would also increase the wildfire fuel load in these stands.

Patch cuts in insect-infested areas would provide small, scattered openings that would promote the maintenance of shrubs, such as scouler willow (*Salix scouleriana*), huckleberry (*Vaccinium* spp.), rose (*Rosa* spp.), spirea (*Spirea* spp.), snowberry (*Symphoricarpos* spp.), and western service berry (*Amelanchier alnifolia*). Patch cuts would also provide sites for regeneration of spruce, subalpine fir, and lodgepole pine, all of which support snowshoe hare source habitats. Patch cuts also provide areas of lower fuel loads, which have the potential to shift a crown fire to a ground fire, possibly preventing a stand-replacement wildfire. Free thin harvest would also open the canopy, providing sites where shrub and regenerating trees can support snowshoe hare habitat. Both treatment approaches would provide lynx foraging habitat directly adjacent to, or very close to, denning habitat (Ruediger et al. 2000). Although this alternative would leave more than 30% of lynx habitat as unsuitable, it is consistent with the *2013 Canada Lynx Conservation Assessment and Strategy*[1], which provides flexibility for forest management in "Secondary Areas" that do not support core populations of lynx. In the long-term, Alternative 4 would provide the best support of lynx source habitat in the LAUs, while producing a mosaic of habitats, which would provide lynx foraging, traveling, and denning habitat in the long term.

The Payette Forest Coalition (PFC) has expressed interest in exploring ways to increase the diversity in forested stands at higher elevations. As a Secondary Area in the lynx recovery

[1] Interagency Lynx Biology Team. 2013. Canada lynx conservation assessment and strategy. 3rd edition. Missoula, MT: USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication R1-13-19.

effort, the Forest could play an important role in providing a greater mosaic of lynx habitats. The Forest could provide security, foraging, and denning support to lynx that may be moving among core lynx populations. If the Forest Service manages the Forest to enhance this habitat mosaic, and to maintain it into the future, this area could better support the recovery of lynx in Idaho, by providing conditions for genetic interchange among core populations. .

ESA Determinations

Alternatives 2, 3, and 4 *May Effect, but are Not Likely to Adversely Affect* the Canada lynx or its habitat.

Forest Plan Direction

The Payette National Forest Land and Resource Management Plan was completed in 2003. It establishes the direction for all aspects of forest management. The following desired condition is of most direct relevance to the Big Creek Restoration and Access Management Plan and is excerpted here for reference:

> From Forest Plan page III-8, Threatened, Endangered, Proposed, and Candidate Species: *"Habitats for Threatened and Endangered Species are managed consistent with established and approved Recovery Plans. Management actions either contribute to, or do not prevent recovery or de-listing of these species. Habitats for Proposed and Candidate species are managed to help preclude listing as Threatened or Endangered under the Endangered Species Act (ESA). Degrading effects from Forest programs are at levels that do not threaten the persistence of Threatened, Endangered, Proposed, or Candidate species populations."*

As Forest Plan (USDA 2003) management direction, a standard is a "binding limitation placed on management actions. It must be within the authority and ability of the Forest Service to enforce. A project or action that varies from a relevant standard may not be authorized unless the Forest Plan is amended to modify, remove, or waive application of the standard."

Alternative 4 would mechanically treat vegetation in high elevation lynx habitat in the Middle Fork Weiser River project area. After treatment, more than 30% of lynx habitat within the LAU would be in unsuitable condition. Therefore, Alternative 4 may be inconsistent with the Forest Plan direction regarding management of lynx habitat. Forest-wide standard TEST15 on page III-12, Management Direction for Threatened, Endangered, Proposed, and Candidate Species, of the Forest Plan, states:

> *Unless a broad-scale assessment has been completed that substantiates different historical levels of unsuitable habitat, limit disturbance within each LAU as follows: If more than 30 percent of lynx habitat within a LAU is currently in unsuitable condition, no additional habitat may be changed to unsuitable habitat as a result of vegetative management projects. Fire use, or fire hazard reduction and associated vegetation management activities within the wildland urban interface watersheds, that develop or maintain fuel profiles needed to reduce the risk of wildfire threats to the wildland urban interface areas, are NOT bound by this standard.*

Project Specific Forest Plan Amendment

The Forest Plan would be amended for this project specific activity. This plan amendment would allow the amount of unsuitable lynx habitat in the Middle Fork Weiser LAU of the Middle Fork Weiser River project to exceed 30%. This project specific amendment would apply only for the decision made in this project. The effective date of this project specific amendment would be on the date the project may be implemented in accordance with the administrative review regulations at 36 CFR 218.

Although this standard would be amended, the benefits to lynx habitat outweigh the temporary loss of suitable habitat. The increase in vegetative diversity in lynx habitat would also benefit declining vegetative species, such as the quaking aspen and whitebark pine.

The impacts of this amendment will be analyzed in the specialist reports and summarized in the environmental impact statement. The environmental impact statement will be made available for public review and comment. Should Alternative 4 be selected by the decision maker, it will also be subject to consultation with affected Tribes, US Fish and Wildlife Service, and NOAA Fisheries. As part of one of the alternatives analyzed in the Middle Fork Weiser River Landscape Restoration Project, this amendment will also be subject to the objection process prior to release of a final decision.

This forest plan amendment, its analysis, and the decision document will comply fully with 36 CFR 219.13 regarding Plan amendments and administrative changes under the 2012 Planning Rule.