

**Idaho Forestry Program for State and Private Timberlands
in the Clearwater and Salmon River Basins**

Table of Contents

Executive Summary 1

I. DESCRIPTION OF THE PROPOSED ACTION – THE IDAHO FORESTRY PROGRAM I.A-1

 I.A. Background and Purpose..... I.A-1

 I.B. Action Area I.B-1

 I.C. Activities for Which Idaho Seeks Incidental Take Authorization..... I.C-1

 I.D. Species for Which Idaho Seeks Incidental Take Authorization I.D-1

 I.E. Other Federally Listed and Candidate Species..... I.E-1

 I.F. Incidental Take and Conservation Strategies I.F-1

 I.G. Idaho Forest Practices Regulations I.G-1

 I.G.1. History I.G-1

 I.G.2. Cumulative Watershed Effects (CWE) Process for Idaho..... I.G-5

 I.H. Summary of Idaho Forestry Program (IFP) Measures and Implementation I.H-1

 I.H.1. Description of the Activities for which Idaho Seeks Incidental Take Authorization....I.H-1

 I.H.1.a.Timber Harvest..... I.H-1

 I.H.1.b.Stand Improvement..... I.H-3

 I.H.1.c.Hazard Management and Prescribed Fire I.H-4

 I.H.1.d.Forest Regeneration and Site Preparation I.H-9

 I.H.1.e.Road Construction, Reconstruction, Maintenance and Abandonment..... I.H-11

 I.H. 2. Administrative Provisions of the Idaho Forestry Program I.H-16

 I.H.2.a.Enrollment..... I.H-18

 I.H.2.b.Notification and Operation Specific Plans (OSPs) I.H-27

 I.H.2.c.Variances..... I.H-51

 I.H.2.d.Compliance, Inspections and Audits..... I.H-62

 I.H.2.e.Correcting Non-compliance I.H-94

 I.H.2.f.Record Keeping and Reporting I.H-118

 I.H.2.g.Disenrollment..... I.H-136

 I.H.2.h.Training..... I.H-137

 I.H.2.i.Funding I.H-139

 I.H.2.j.Amendments I.H-141

 I.H.2.k.Dispute Resolution..... I.H-142

 I.H.2.l.State Regulatory Authority I.H-142

 I.I Adaptive Management I.I-1

II. ENVIRONMENTAL BASELINE	II.A-1
II.A. Description of the Action Area.....	II.A-1
II.A.1. Geomorphology	II.A-1
II.A.2. Climate	II.A-7
II.A.3. Vegetation	II.A-8
II.A.4. Land Uses.....	II.A-26
II.A.4.a.Forestry	II.A-26
II.A.4.b.Grazing	II.A-28
II.A.4.c.Farming.....	II.A-32
II.A.4.d.Mining	II.A-33
II.A.4.e.Residential and Urban	II.A-35
II.A.5. Land Ownership.....	II.A-35
II.A.6. Human Population and Demographics.....	II.A-36
II.A.7. Socio-economic Patterns and Trends	II.A-36
II.A.8. Aquatic and Riparian Conditions	II.A-37
II.A.8.a. Sedimentation	II.A-38
II.A.8.b. Slope Stability.....	II.A-47
II.A.8.c. Streamflow	II.A-58
II.A.8.d. Large Woody Debris.....	II.A-77
II.A.8.e. Bank Stability.....	II.A-81
II.A.8.f. Soil Compaction.....	II.A-84
II.A.8.g. Water Temperature	II.A-85
II.A.8.h. Microclimate	II.A-96
II.A.8.i. Litter Fall	II.A-97
II.A.8.j. Nutrients.....	II.A-98
II.A.8.k. Dissolved Oxygen.....	II.A-99
II.A.8.l. Habitat Conditions	II.A-100
II.B. Status of Covered Species	II.B-1
II.B.1.Bull Trout (<i>Salvelinus confluentus</i>).....	II.B-1
II.B.1.a.Conservation Status.....	II.B-1
II.B.1.b.Life History and Population Dynamics	II.B-2
II.B.1.c.Distribution, Population Abundance, and Trends	II.B-5
II.B.1.d.Enrollable Lands.....	II.B-12
II.B.1.e. Habitat Requirements and Factors Affecting Viability.....	II.B-45
II.B.1.f.Conservation Needs and Recovery Efforts	II.B-52

Appendix	II.B-A
II.C.1. Northern Idaho Ground Squirrel	II.C-1
II.C.1.a.Regulatory Status.....	II.C-1
II.C.1.b.Description of the Species	II.C-1
II.C.1.c.Life History and Habitat Requirements	II.C-1
II.C.1.d.Population Dynamics.....	II.C-2
II.C.1.e.Status and Distribution across the Range of the Species	II.C-3
II.C.1.f.Status of the Species in the Action Area	II.C-5
II.C.2. Canada Lynx	II.C-6
II.C.2.a.Regulatory Status.....	II.C-6
II.C.2.b.Description of the Species	II.C-6
II.C.2.c.Life History and Habitat Requirements	II.C-6
II.C.2.d.Population Dynamics.....	II.C-8
II.C.2.e.Status and Distribution across the Range of the Species	II.C-8
II.C.2.f.Status of the Species in the Action Area	II.C-9
II.C.2.gProposed Critical Habitat for Canada Lynx.....	II.C-10
II.C.3. MacFarlane’s Four O’clock	II.C-11
II.C.3.a.Regulatory Status.....	II.C-11
II.C.3.b.Description of the Species	II.C-11
II.C.3.c.Life History and Habitat Requirements	II.C-11
II.C.3.d.Population Dynamics.....	II.C-13
II.C.3.e.Status and Distribution across the Range of the Species	II.C-14
II.C.3.f. Status of the Species in the Action Area	II.C-14
II.C.4. Gray Wolf	II.C-15
II.C.4.a.Regulatory Status.....	II.C-15
II.C.4.b.Description of the Species	II.C-17
II.C.4.c.Life History and Habitat Requirements	II.C-17
II.C.4.d.Population Dynamics.....	II.C-18
II.C.4.e.Status and Distribution across the Range of the Species	II.C-19
II.C.4.f.Status of the Species in the Action Area	II.C-21
II.C.5. Water Howellia	II.C-22
II.C.5.a.Regulatory Status.....	II.C-22
II.C.5.b.Description of the Species	II.C-22
II.C.5.c.Life History and Habitat Requirements	II.C-22
II.C.5.d.Status and Distribution across the Range of the Species	II.C-24

II.C.5.e.	Status of the Species in the Action Area.....	II.C-24
II.C.6.	Spalding’s Catchfly	II.C-25
II.C.6.a.	Regulatory Status.....	II.C-25
II.C.6.b.	Description of the Species	II.C-25
II.C.6.c.	Life History and Habitat Requirements	II.C-25
II.C.6.d.	Status and Distribution across the Range of the Species	II.C-28
II.C.6.e.	Status of the Species in the Action Area.....	II.C-30
	Candidate Species	II.C-32
II.C.7.	Yellow-billed Cuckoo	II.C-32
II.C.7.a.	Regulatory Status.....	II.C-32
II.C.7.b.	Description of the Species	II.C-32
II.C.7.c.	Life History and Habitat Requirements	II.C-33
II.C.7.d.	Status and Distribution across the Range of the Species	II.C-33
II.C.7.e.	Status of the Species in the Action Area.....	II.C-34
III.B.	Riparian Management.....	III.B-1
III.B.1.	Sediment.....	III.B-1
III.B.1.a.	General Effects	III.B-1
III.B.1.b.	Specific Localized Effects (FAA)	III.B-3
III.B.2.	Hyporheic Flows	III.B-9
III.B.2.a.	General Effects	III.B-9
III.B.2.b.	Specific Localized Effects (FAA)	III.B-9
III.B.3.	LWD.....	III.B-10
III.B.3.a.	General Effects	III.B-10
III.B.3.b.	Specific Localized Effects (FAA)	III.B-36
III.B.4.	Bank Stability	III.B-37
III.B.4.a.	General Effects	III.B-37
III.B.4.b.	Specific Localized Effects (FAA)	III.B-38
III.B.5.	Soil Compaction.....	III.B-38
III.B.5.a.	General Effects	III.B-38
III.B.5.b.	Specific Localized Effects (FAA)	III.B-39
III.B.6.	Water Temperature.....	III.B-39
III.B.6.a.	General Effects	III.B-39
III.B.6.b.	Specific Localized Effects (FAA)	III.B-50
III.B.7.	Microclimate	III.B-52
III.B.7.a.	General Effects	III.B-52
III.B.7.b.	Specific Localized Effects (FAA)	III.B-52

III.B.8. Litter Fall.....	III.B-53
III.B.8.a.General Effects	III.B-53
III.B.8.b.Specific Localized Effects (FAA)	III.B-53
III.B.9. Nutrients	III.B-53
III.B.9.a.General Effects	III.B-53
III.B.9.b.Specific Localized Effects (FAA)	III.B-54
III.B.10.Dissolved Oxygen.....	III.B-54
III.B.10.a.General Effects	III.B-54
III.B.10.b.Specific Localized Effects (FAA)	III.B-54
III.C. Road Management.....	III.C-1
III.C.1.Sediment	III.C-1
III.C.1.a.General Effects	III.C-1
III.C.1.b.Specific Localized Effects (FAA)	III.C-4
III.C.2.Unstable Slopes	III.C-7
III.C.2.a.General Effects	III.C-7
III.C.2.b.Specific Localized Effects (FAA)	III.C-12
III.C.3.Hydrologic Connectivity.....	III.C-15
III.C.3.a.General Effects	III.C-15
III.C.3.b.Specific Localized Effects (FAA)	III.C-18
III.C.4.Fish Passage.....	III.C-20
III.C.4.a.General Effects	III.C-20
III.C.4.b.Specific Localized Effects (FAA)	III.C-21
III.D. Upland Harvest Management (Current FPA Measures).....	III.D-1
III.D.1.Sediment	III.D-1
III.D.1.a.General Effects	III.D-1
III.D.1.b.Specific Localized Effects (FAA).....	III.D-1
III.D.2.Unstable Slopes	III.D-2
III.D.2.a.General Effects	III.D-2
III.D.2.b.Specific Localized Effects (FAA).....	III.D-2
III.D.3.Large Woody Debris (LWD).....	III.D-2
III.D.3.a.General Effects	III.D-2
III.D.3.b.Specific Localized Effects (FAA).....	III.D-3
III.D.4.Streamflow	III.D-3
III.D.4.a.General Effects	III.D-3
III.D.4.b.Specific Localized Effects (FAA).....	III.D-3
III.F. Summary of Effects.....	III.F-1

Table of Tables

I. DESCRIPTION OF THE PROPOSED ACTION – THE IDAHO FORESTRY PROGRAM

Table I.B-1	Forested land ownership in the Clearwater and Salmon River basins	I.B-3
Table I.G-1	Idaho Forest Practices Act timeline	I.G-2
Table I.H-1	Idaho smoke management acreage accomplishments, 2002-2004	I.H-8
Table I.H-2	Forest improvement treatment acres	I.H-11
Table I.H-3	Timetable for Enrollee and audit requirements.....	I.H-23
Table I.H-4	IFP terms requiring an OSP upon forest practice notification	I.H-28
Table I.H-5	IFPA & IFP comparison	I.H-53
Table I.H-6	Culvert or crossing installations on Class I streams	I.H-75
Table I.H-7	Road construction issues.....	I.H-76
Table I.H-8	Layout and marking of stream RPZs	I.H-77
Table I.H-9	Yarding through the no-harvest zone.....	I.H-77
Table I.H-10	2004 IFPA audit results	I.H-82
Table I.H-11	Overall compliance rates for all FPWQ audits from 1984 through 2004	I.H-84
Table I.H-12	Implementation monitoring	I.H-92
Table I.H-13	Non-compliant conditions and corrective measures	I.H-98
Table I.H-14	Changed circumstances management response framework.....	I.H-126
Table I.H-15	IFP reporting overview	I.H-128
Table I.I-1	The IFP implementation framework.....	I.I-16
Table I.I-2	Changed circumstances management response framework.....	I.I-21
Table I.I-3	Sediment delivery and erosion source evaluation: roads	I.I-23

II. ENVIRONMENTAL BASELINE

Table II.A-1	Mass failure hazard ratings	II.A-3
Table II.A-2	Surface erosion hazard ratings	II.A-5
Table II.A-3	IDL timber types	II.A-11
Table II.A-4	IDL timber types in the Clearwater and Salmon River basins.....	II.A-12
Table II.A-5	Timber types on IDL land within bull trout core areas with > 5% state and private forest land ownership.....	II.A-13
Table II.A-6	Timber types on IDL land within steelhead population areas with > 5% state and private forest land ownership.....	II.A-14
Table II.A-7	Timber types on IDL land within Chinook population areas with > 5% state and private forest land ownership.....	II.A-15
Table II.A-8	Land uses in the Clearwater and Salmon River basins	II.A-26
Table II.A-9	Annual sawtimber growth in the Clearwater and Salmon River basins (board feet per acre (bf/ac) and million board feet (mmbf)).....	II.A-28
Table II.A-10	IDL grazing leases in the Clearwater and Salmon River basins	II.A-30

Table II.A-11	Land ownership in the Clearwater and Salmon River basins	II.A-35
Table II.A-12	Forested land ownership in the Clearwater and Salmon River basins	II.A-36
Table II.A-13	General population and workforce trends for counties containing land in the Clearwater River basin, 1980 to 2000	II.A-37
Table II.A-14	General population and workforce trends for counties containing land in the Salmon River basin, 1980-2000.....	II.A-37
Table II.A-15	Clearwater River basin landslides reported by McClelland et al. (1997)	II.A-49
Table II.A-16	Comparative landslides rates reported by PWA (1997).....	II.A-50
Table II.A-17	CWE mass failure hazard ratings in bull trout core areas	II.A-53
Table II.A-18	CWE mass failure hazard ratings for bull trout local populations that contain >5% state and private timberland	II.A-54
Table II.A-19	Water yield increases due to timber harvest in the Inland Northwest.....	II.A-59
Table II.A-20	Hydrologically connected road length in FAA's	II.A-66
Table II.A-21	Effects of wildfire on peak streamflows	II.A-72
Table II.A-22	LWD delivery mechanisms in Southeast Alaska [adapted from Murphy and Koski (1989)]	II.A-78
Table II.A-23	LWD delivery mechanisms in Oregon Coast Range [adapted from Long (1987)] ..	II.A-78
Table II.A-24	Tributary temperatures in the Clearwater River drainage on August 3, 2000	II.A-91
Table II.A-25	Tributary temperatures in the Selway River drainage on August 4, 2000	II.A-91
Table II.A-26	Tributary temperatures in the Lochsa River drainage on August 4, 2000	II.A-92
Table II.A-27	Maximum weekly water temperatures in the Selway and Middle Fork Salmon River drainages in Summer 2001	II.A-93
Table II.A-28	IDFG relative quality of occupied habitat.....	II.A-100
Table II.B-1	Bull trout occupied streams in the Clearwater River management unit.....	II.B-8
Table II.B-2	Bull trout occupied streams in the Salmon River management unit.....	II.B-9
Table II.B-3	Summary of the recovery criteria for bull trout in the Clearwater River management unit	II.B-10
Table II.B-4	Estimated current and recovered values for recovery criteria in the Salmon River recovery unit	II.B-11
Table II.B-5	Existing condition and risk of Salmon River core areas relative to the four recovery criteria used to evaluate the risk of extinction for bull trout.....	II.B-12
Table II.B-6	Area of enrollable lands in the Clearwater and Salmon River management units....	II.B-14
Table II.B-7	Land ownership in Clearwater River management unit core areas.....	II.B-15
Table II.B-8	Forestland ownership in Clearwater River recovery unit core areas	II.B-16
Table II.B-9	Forestland ownership in Middle Fork Clearwater core area local and potential population areas	II.B-17
Table II.B-10	Forestland ownership in North Fork Clearwater core area local population areas ...	II.B-20
Table II.B-11	Forestland ownership in South Fork Clearwater core area local population areas ...	II.B-22

Table II.B-12	Forestland ownership in South Fork Clearwater core area potential population areas	II.B-23
Table II.B-13	Forestland ownership in Lochsa River core area local population areas	II.B-24
Table II.B-14	Land ownership in Salmon River recovery unit core areas	II.B-28
Table II.B-15	Forestland ownership in Salmon River recovery unit core areas.....	II.B-29
Table II.B-16	Forestland ownership in Little-Lower Salmon core area local population areas	II.B-32
Table II.B-17	Forestland ownership in Little-Lower Salmon core area potential population areas	II.B-32
Table II.B-18	Forest land ownership in Lemhi core area local population areas	II.B-37
Table II.B-19	Forest land ownership in South Fork Salmon core area local population areas	II.B-41
Table II.B-20	Forest land ownership in South Fork Salmon core area potential population areas	II.B-41
Table II.B-21	Federal Register notices for most recent final rules that list threatened and endangered species, designate critical habitats, or apply protective regulations to listed species considered in this consultation.....	II.B-61
Table II.B-22	South Fork Salmon River spring/summer Chinook salmon MPG population characteristics.....	II.B-81
Table II.B-23	Population characteristics and viability status for independent populations within the South Fork Salmon River spring/summer Chinook Salmon MPG	II.B-82
Table II.B-24	Characteristics of independent populations in the Middle Fork Salmon River spring/summer Chinook salmon MPG.....	II.B-84
Table II.B-25	Population characteristics and viability status of independent populations in the Middle Fork Salmon River spring/summer Chinook salmon MPG.....	II.B-85
Table II.B-26	Characteristics of independent populations in the Upper Salmon River spring/summer Chinook salmon MPG	II.B-88
Table II.B-27	Population characteristics and viability status of independent populations in the Upper Salmon River spring/summer Chinook salmon MPG.....	II.B-89
Table II.B-28	Amount of state, private, and federal timberland within each spring/summer Chinook population.....	II.B-91
Table II.B-29	Snake River steelhead mitigation programs, facilities, and numbers of juveniles released	II.B-96
Table II.B-30	Characteristics of independent populations in the Salmon River steelhead MPG....	II.B-99
Table II.B-31	Population characteristics and viability status of independent populations in the Salmon River Steelhead MPG	II.B-101
Table II.B-32	Clearwater River steelhead MPG population characteristics.....	II.B-104
Table II.B-33	Population characteristics and viability status of independent populations in the Clearwater River steelhead MPG.....	II.B-105
Table II.B-34	Amount of state, private, and federal timberland within each steelhead population.	II.B-108
Table II.C-1	Mapped lynx habitat by National Forest within the range of the IFP.....	II.C-10
Table II.C-2	MIMA Element Occurrences (EOs) in the Salmon River canyon.....	II.C-15

III. EFFECTS OF THE ACTION

Table III.B-1	Stream bank length located within 150 feet of harvest units in FAA watersheds by decade	III.B-5
Table III.B-2	Potential effects on riparian sediment delivery in FAA watersheds	III.B-8
Table III.B-3	LWD loading rates for six Inland Northwest studies using 10-centimeters x 2-meters qualifying piece size	III.B-12
Table III.B-4	LWD loading rates for studies using 10-centimeters x 1-meter qualifying piece size	III.B-13
Table III.B-5	Number of pieces of large woody debris (LWD) greater than 2 meters length and greater than 10 centimeters diameter per 1000 feet	III.B-14
Table III.B-6	Plot allocation by data source and supervisory area	III.B-15
Table III.B-7	Average LWD loading rates over the period of simulation for the 27 plots harvested in Year 0.....	III.B-27
Table III.B-8	Riparian stand harvest relationships from 2004 interagency audit data	III.B-29
Table III.B-9	LWD modeling sensitivity results	III.B-31
Table III.B-10	Potential effects of harvest after the life of the 30-year IFP	III.B-35
Table III.B-11	Potential effects on LWD loading in Class I streams in FAA watersheds.....	III.B-37
Table III.B-12	Potential effects on stream temperature in Class I streams in FAA watersheds by decade	III.B-51
Table III.C-1	WARSEM road sediment comparisons to natural background rates of watershed erosion in FAAs and reductions over 30 years of the IFP	III.C-7
Table III.C-2	Landslides in FAA watersheds associated with the 1995 to 1996 floods	III.C-13
Table III.C-3	Hydrologically connected road length in FAAs	III.C-19
Table III.C-4	Class I stream crossings in FAA watersheds	III.C-22
Table III.C-5	Cranberry Creek culvert costs and benefits	III.C-24
Table III.C-6	Estimates of Class I stream habitat area potentially available through improvement or replacement of culverts on existing roads in FAA watersheds.....	III.C-27

Table of Figures

Figure 1 Clearwater and Salmon River basins with timberland ownership 1

I. DESCRIPTION OF THE PROPOSED ACTION – THE IDAHO FORESTRY PROGRAM

Figure I.B-1 Clearwater and Salmon River basins locationI.B-1
 Figure I.B-2 Clearwater and Salmon River basins timberland ownershipI.B-2
 Figure I.B-3 Sixth-level HUCs with at least one covered species and more than 5 percent state
 and private timberlands.....I.B-5
 Figure I.H-1 IDL Field Office Organization..... I.H-17
 Figure I.H-2 Road terms implementation timeframe..... I.H-21
 Figure I.H-3 Stream term implementation timeframe I.H-22
 Figure I.H-4 Inspection and audit hierarchy I.H-64
 Figure I.H-5 Inspection flow I.H-72
 Figure I.H-6 Overall compliance rates for all FPWQ audits from 1984 through 2004 I.H-84
 Figure I.H-7 General inspection or compliance sequence I.H-95
 Figure I.H-8 Inspection and correction flow..... I.H-96
 Figure I.H-9 Example of term documentation needs..... I.H-119

II. ENVIRONMENTAL BASELINE

Figure II.A-1 CWE mass failure hazard ratings in the Clearwater and Salmon River basins II.A-4
 Figure II.A-2 CWE surface erosion hazard ratings in the Clearwater and Salmon River basins..... II.A-6
 Figure II.A-3 Average annual precipitation from 1961 to 1990 in Idaho II.A-8
 Figure II.A-4 Forested lands in the Clearwater and Salmon River basins II.A-10
 Figure II.A-5 Large fires in the Clearwater River basin occurring between 1870 and 1925 II.A-17
 Figure II.A-6 Large fires occurring in the Clearwater River basin between 1926 and 1950 II.A-18
 Figure II.A-7 Large fires occurring in the Clearwater River basin between 1951 and 2003 II.A-19
 Figure II.A-8 Point occurrence of fires in IDL Fire Protection Districts in the Clearwater River
 basin between 1984 and 2004 II.A-20
 Figure II.A-9 Historic fire regimes in the Clearwater River basin (DRAFT) II.A-21
 Figure II.A-10 Ecosystems at risk for the Clearwater River basin (DRAFT)..... II.A-22
 Figure II.A-11 Locations of large (greater than five hectares) fires in the Salmon River basin,
 Idaho, between 1908 and 2003 II.A-23
 Figure II.A-12 Historic fire regimes in the Salmon River basin (DRAFT) II.A-24
 Figure II.A-13 Ecosystems at risk for the Salmon River basin (DRAFT) II.A-25
 Figure II.A-14 Estimated timber harvest in the Clearwater River basin..... II.A-27
 Figure II.A-15 Estimated timber harvest in the Salmon River basin II.A-28
 Figure II.A-16 IDL grazing leases in the Clearwater and Salmon River basins II.A-31

Figure II.A-17	Mineral leases and mining permits in the Clearwater and Salmon River basins	II.A-34
Figure II.A-18	Sediment impaired streams in the Clearwater and Salmon River basins.....	II.A-40
Figure II.A-19	Sediment filtration effectiveness of buffer zones	II.A-42
Figure II.A-20	Water and sediment delivery paths from roads.....	II.A-45
Figure II.A-21	Road-related landslides from McClelland et al. (1997).....	II.A-51
Figure II.A-22	CWE mass failure hazard ratings for the North Fork Clearwater bull trout core area.....	II.A-54
Figure II.A-23	CWE mass failure hazard ratings for the South Fork Clearwater bull trout core area.....	II.A-55
Figure II.A-24	CWE mass failure hazard ratings for the Middle-Lower Clearwater bull trout core area.....	II.A-56
Figure II.A-25	CWE mass failure hazard ratings for the Little-Lower Salmon bull trout core area.....	II.A-57
Figure II.A-26	1934 Aerial photo from North Fork Clearwater River	II.A-68
Figure II.A-27	2004 Orthoimage of same area displayed in Figure II.A-26 for 1934.....	II.A-69
Figure II.A-28	1934 Aerial photo in North Fork Clearwater River	II.A-70
Figure II.A-29	2004 Orthoimage of same area displayed in Figure II.A-28 for 1934.....	II.A-71
Figure II.A-30	Drainage area at point of last fish occurrence.....	II.A-76
Figure II.A-31	Illustration of uppermost fish presence.....	II.A-77
Figure II.A-32	LWD recruitment effectiveness	II.A-79
Figure II.A-33	CWE hydrologic risk ratings for watersheds in the Clearwater and Salmon River basins	II.A-83
Figure II.A-34	Riparian shade effectiveness.....	II.A-86
Figure II.A-35	Clearwater River drainage FLIR observations by IRZ Consulting.....	II.A-87
Figure II.A-36	Clearwater River mainstem water temperatures August 3, 2000.....	II.A-88
Figure II.A-37	Middle Fork Clearwater River water temperatures August 3, 2000.....	II.A-88
Figure II.A-38	South Fork Clearwater River water temperatures August 3, 2000	II.A-89
Figure II.A-39	Selway River water temperatures August 4, 2000.....	II.A-89
Figure II.A-40	Lochsa River water temperatures August 4, 2000	II.A-90
Figure II.A-41	Maximum weekly water temperatures in the Clearwater and Salmon River basins in Summer 2000.....	II.A-94
Figure II.A-42	Temperature impaired streams in the Clearwater and Salmon River basins	II.A-95
Figure II.A-43	Habitat ratings for the Clearwater River basin.....	II.A-101
Figure II.A-44	Habitat ratings for the Salmon River basin.....	II.A-102
Figure II.B-1	Bull trout recovery units (management units) in the Columbia River DPS.....	II.B-2
Figure II.B-2	Bull trout distribution in the Clearwater River management unit.....	II.B-7
Figure II.B-3	Bull trout distribution in the Salmon River management unit	II.B-8
Figure II.B-4	Enrollable lands in the Clearwater River management unit	II.B-14

Figure II.B-5	Middle-Lower Clearwater River core area	II.B-17
Figure II.B-6	North Fork Clearwater River core area.....	II.B-19
Figure II.B-7	South Fork Clearwater River core area.....	II.B-22
Figure II.B-8	Lochsa River core area	II.B-24
Figure II.B-9	Selway River core area	II.B-26
Figure II.B-10	Enrollable lands in the Salmon River management unit.....	II.B-27
Figure II.B-11	Protected areas in the Salmon River basin.....	II.B-30
Figure II.B-12	Little-Lower Salmon River core area	II.B-31
Figure II.B-13	Upper Salmon River core area	II.B-33
Figure II.B-14	Middle Salmon-Panther core area.....	II.B-34
Figure II.B-15	Lemhi River core area.....	II.B-36
Figure II.B-16	Middle Salmon-Chamberlain core area with local and potential populations	II.B-38
Figure II.B-17	South Fork Salmon River core area with local and potential populations	II.B-40
Figure II.B-18	Middle Fork Salmon River core area with local populations	II.B-43
Figure II.B-19	Pahsimeroi River core area with local populations.....	II.B-44
Figure II.B.20	Locations of the Snake River sockeye salmon populations.....	II.B-66
Figure II.B-21	Current and historic distribution of Snake River fall Chinook salmon.....	II.B-69
Figure II.B-22	Snake River fall Chinook abundance and productivity in the context of viability curves.....	II.B-73
Figure II.B-23	Major populations groups (MPGs) and independent populations in the Snake River spring/summer Chinook salmon ESU.....	II.B-78
Figure II.B-24	South Fork Salmon River spring/summer Chinook salmon Major Population Group (MPG) and independent populations within the MPG.....	II.B-80
Figure II.B-25	Middle Fork Salmon River spring/summer Chinook salmon MPG and independent populations.....	II.B-83
Figure II.B-26	Upper Salmon River spring/summer Chinook MPG and independant populations .	II.B-87
Figure II.B-27	Overlap of land enrollable in the Idaho Forestry Program and ESA-listed spring/summer Chinook populations within the IFP area.....	II.B-90
Figure II.B-28	Major populations groups (MPGs) and independent populations within the Snake River steelhead DPS.....	II.B-93
Figure II.B-29	Returns of natural-origin adult steelhead at the uppermost Snake River dam, 1962 to 2005	II.B-94
Figure II.B-30	Salmon River steelhead MPG and independent populations	II.B-98
Figure II.B-31	Clearwater River Steelhead MPG and independent populations	II.B-103
Figure II.B-32	Overlap of land enrollable in the IFP and steelhead populations.....	II.B-107
Figure II.C-1	Probable Historic Distribution of NIDGS.....	II.C-4
Figure II.C-2	Northern Rocky Mountain gray wolf recovery areas depicting endangered (yellow) and experimental, non-essential (blue) status of gray wolves.	II.C- 17

Figure II.C-3	Distribution of documented and suspected wolf packs, other documented groups, and public wolf reports in Idaho, 2007	II.C-20
Figure II.C-4	Distribution of SISP	II.C-29
III. EFFECTS OF THE ACTION		
Figure III.B-1	Sediment filtration effectiveness of buffer strips for diffuse sources	III.B-2
Figure III.B-2	Example of GIS map data used in FAA assessments	III.B-4
Figure III.B-3	Distribution of LWD loads in streams in unmanaged stands from six comparable Inland Northwest studies	III.B-12
Figure III.B-4	Characteristics of all stands used in simulation	III.B-17
Figure III.B-5	Characteristics of stands able to support harvest in simulation	III.B-18
Figure III.B-6	Species composition and stand types for plots used in simulation	III.B-19
Figure III.B-7	Geometry associated with random tree fall pattern	III.B-23
Figure III.B-8	Distribution of LWD loads in streams after 30 years	III.B-26
Figure III.B-9	LWD modeling sensitivity results	III.B-31
Figure III.B-10	Simulated LWD recruitment over 30 years vs. distance from the stream	III.B-33
Figure III.B-11	LWD loading in 27 harvested plots including effects of potential harvest outside the standard IFP 75-foot RPZ and in relation to starting LWD loading of 60 pieces and reference stream loading of 87.5.....	III.B-34
Figure III.B-12	Riparian shade effectiveness.....	III.B-40
Figure III.B-13	Slope distance versus horizontal distance.....	III.B-41
Figure III.B-14	Summary of Class II canopy cover measurements for pretreatment (2001) and post-treatment (2002-2005) from Gravelle and Link 2007.....	III.B-43
Figure III.B-15	Mica Creek water temperature monitoring locations.....	III.B-45
Figure III.B-16	Mica Creek maximum daily temperature comparison.....	III.B-47
Figure III.B-17	Comparison between post-harvest maximum weekly maximum temperature (MWMT) for Site 1 (clearcut) and Site 3 (control)	III.B-48
Figure III.B-18	Comparison between post-harvest maximum weekly maximum temperature (MWMT) for Site 2 (partial cut) and Site 3 (control).....	III.B-48
Figure III.B-19	Mica Creek maximum daily temperature comparison.....	III.B-49
Figure III.C-1	Example of GIS road map for an FAA	III.C-5
Figure III.C-2	WARSEM road sediment modeling results in FAAs	III.C-5
Figure III.C-3	WEPP road sediment modeling results in FAAs	III.C-6
Figure III.C-4	Culvert overtopping probability in 30 years	III.C-11
Figure III.C-5	Landslides within the Breakfast Creek associated with the 1995 to 1996 floods and CWE mass wasting hazard mapping	III.C-13
Figure III.C-6	Hydrologically connected road length (miles per square miles) in FAAs	III.C-20
Figure III.C-7	Hydrologically connected road length (as percent of stream miles) in FAAs	III.C-20
Figure III.C-8	Cranberry Creek stream crossing and potential fish barrier locations	III.C-23

Figure III.C-9 Cranberry Creek culvert costs versus benefits III.C-25
Figure III.C-10 Cranberry Creek culverts - area versus stream length III.C-25