

United States
Department of
Agriculture

Natural Resources
Conservation Service

Nez Perce Soil and Water
Conservation District

County of Nez Perce -
County Commissioners

Nez Perce Tribe -
Land Services Department

Idaho Department of
Fish and Game

Idaho Department of
Agriculture - Soil
Conservation Commission

Idaho Department of
Environmental Quality

**SUPPLEMENTAL
WATERSHED PROTECTION PLAN-
ENVIRONMENTAL ASSESSMENT
SUPPLEMENT NO. 2**

**Mission-Lapwai Creek Watershed
Lewis and Nez Perce Counties, Idaho**

DECEMBER 2000

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SUPPLEMENTAL WATERSHED PROTECTION PLAN- ENVIRONMENTAL ASSESSMENT SUPPLEMENT NO. 2

Mission-Lapwai Creek Watershed Lewis and Nez Perce Counties, Idaho

| | As Built | Remaining Work | Supplement 2 | Total |
|---------------------------|-------------|----------------|--------------|-------------|
| Estimated Costs | \$1,982,700 | \$1,497,475 | \$5,211,700 | \$8,691,875 |
| Estimated Annual Benefits | 282,380 | 275,380 | 252,300 | 810,060 |
| Benefit-Cost Ratio | 0.14 | 0.18 | 0.05 | 0.12 |

| | As Built | Remaining Work | Supplement 2 | Total |
|---------------------------|-------------|----------------|--------------|-------------|
| Estimated Costs | \$1,528,710 | \$1,877,014 | \$5,814,480 | \$9,220,204 |
| Estimated Annual Benefits | 131,000 | 117,350 | 106,150 | 354,500 |
| Benefit-Cost Ratio | 0.09 | 0.06 | 0.02 | 0.04 |

| | As Built | Remaining Work | Supplement 2 | Total |
|---------------------------|-----------|----------------|--------------|-------------|
| Estimated Costs | \$337,020 | \$287,770 | \$2,250,000 | \$2,874,790 |
| Estimated Annual Benefits | 280,000 | 217,000 | 190,000 | 687,000 |
| Benefit-Cost Ratio | 0.83 | 0.75 | 0.08 | 0.24 |

DECEMBER 2000

**COPY FOR YOUR
INFORMATION**

**MISSION-LAPWAI CREEK WATERSHED
LEWIS AND NEZ PERCE COUNTIES, IDAHO**

**WATERSHED PROTECTION PLAN - ENVIRONMENTAL ASSESSMENT
SUPPLEMENT NO. 2
DECEMBER 2000**

This document describes Mission-Lapwai Supplemental Plan No. 2 for accelerated land treatment implementation on non-irrigated cropland, Animal Feeding Operations (AFOs), roads, forestland, and riparian zones within an expanded area of the Mission-Lapwai Creek watershed project area. The estimated cost of this supplement is \$7,204,200: \$3,814,920 from PL-566 funds, and \$3,389,280 from other sources.

Original financial assistance (FA) funding was provided for Land Treatment through the Idaho State Agricultural Water Quality Program (SAWQP), with technical assistance (TA) funding provided from PL-566. Supplemental Plan No. 1 provided for additional PL-566 TA and allowed for PL-566 FA to complement and enhance the existing (SAWQP) by treating the riparian area. Supplement Plan No. 2 expands the current watershed boundary of Lapwai Creek to include the entire watershed to the mouth at the Clearwater River. Alternatives considered during planning of Supplement No. 2 include Future Without Project (No Action) and a Resource Protection (RP) Plan. The Future Without Project alternative is based upon the fact that implementation of the original SAWQP plan and Supplement No. 1 is in progress. The Resource Protection Plan alternative adds to ongoing work to provide resource protection throughout the entire watershed area.

Project costs and benefits under the original Mission-Lapwai SAWQP/Plan EA, and Supplement No. 1 have been indexed to current dollars. It is estimated that 90% of the original SAWQP/Plan EA, and 30% of Supplement No. 1 works of improvement have been completed. Work completed in this report is referred to as As Built. Works of improvement to be completed is referred to as Remaining Work. The following table is a summary of the expected costs and benefits for the Mission-Lapwai project area including As Built, Remaining Work, and Supplement No. 2.

| | As Built | Remaining Work | Supplement 2 | Totals |
|-------------------------|--------------|----------------|--------------|--------------|
| Installation Costs | \$1,952,700 | \$1,455,570 | \$5,711,720 | \$9,119,990 |
| Average Annual Costs | 269,350 | 225,980 | 802,800 | 1,298,130 |
| Average Annual Benefits | 542,970 | 92,290 | 704,850 | 1,340,110 |
| Benefit Cost Ratio | 2.02 to 1.00 | 0.41 to 1.00 | .88 to 1.00 | 1.03 to 1.00 |

Project funding is provided through PL-566, State of Idaho (SAWQP), and private sources. The following table displays the breakdown of funding sources. SAWQP and private sources are listed together under Other Funds.

| | As Built | Remaining Work | Supplement 2 | Totals |
|--------------|-------------|----------------|--------------|--------------|
| PL-566 Funds | \$ 626,180 | \$1,005,620 | \$3,814,920 | \$5,446,700 |
| Other Funds | 1,810,360 | 813,350 | 3,389,280 | 6,012,990 |
| Totals | \$2,436,540 | \$1,818,970 | \$7,204,200 | \$11,459,710 |

Distribution of PL-566 funding is as follows:

| | As Built | Remaining Work | Supplement 2 | Totals |
|------------------------|-----------|----------------|--------------|-------------|
| PL-566 Funds | | | | |
| Construction | \$337,620 | \$787,770 | \$2,809,030 | 3,934,420 |
| Technical Assistance | 288,560 | 217,850 | 865,420 | 1,371,830 |
| Project Administration | 0 | 0 | 140,470 | 140,470 |
| Totals | \$626,180 | \$1,005,620 | \$3,814,920 | \$5,446,720 |

Supplemental land treatment project measures include: access roads, agrichemical handling facilities, animal trails and walkways, buffer strips, channel vegetation, constructed wetlands, critical area planting, diversions, fencing, field borders, filter strips, fish stream improvement structures, forest site preparation, forest stand improvement, grade stabilization structures, grassed waterways, heavy use area protection, nutrient management, pasture and hayland planting, pest management, ponds, prescribed grazing, range planting, residue management (no-till, mulch-till, direct seeding), riparian forest buffers, rock-lined waterways, runoff management systems, sediment basins, stockwater development, streambank and shoreline protection, stripcropping, structure for water control, subsoiling, terraces, tree and shrub establishment, use exclusion, waste management systems, water and sediment control basins, wildlife upland habitat management, and wildlife wetland habitat management. These measures will be applied to 75 percent of the area identified as needing treatment. This document fulfills requirements of the National

Environmental Policy Act, the Water Resource Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and the Natural Resources Conservation Service National Watersheds Manual. It also serves as the basis for authorization of Public Law 83-566 funding.

Prepared under the authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566, as amended (16 U.S.C. 1001-1008) and in accordance with the National Environmental Policy Act of 1969, Public Law 91-190, as amended (42 U.S.C. 4321 et. seq.).

Prepared By:

State of Idaho
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P.O. Box 25
Boise, Idaho 83707

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Nez Perce County Board of Commissioners
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Lewiston, Idaho 83501

Nez Perce Soil and Water Conservation District (NPSWCD)
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Nez Perce Tribe – Land Services Department
P.O. Box 365
Lapwai, Idaho 83540

United States Department of Agriculture (USDA)
Natural Resources Conservation Service (NRCS)
(Lead Agency)

For additional information contact:

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SUPPLEMENTAL WATERSHED AGREEMENT NO. 2

between the

Nez Perce Soil and Water Conservation District
Local Organization

Nez Perce County Board of Commissioners
County Organization

Idaho Department of Fish and Game
State Agency

Idaho Department of Agriculture - Soil Conservation Commission
State Agency

Idaho Department of Environmental Quality
State Agency

Nez Perce Tribe – Land Services Department

(The above 6 entities are herein referred to as sponsors)

State of Idaho

and the

Natural Resources Conservation Service
United States Department of Agriculture

(Referred to herein as NRCS, formerly known as the Soil Conservation Service - SCS)

Whereas, the watershed plan for Mission-Lapwai Creek Watershed (Watershed Plan), State of Idaho, executed by the sponsors named therein and SCS (presently the NRCS), became effective on the 8th day of May, 1991; and

Whereas, in order to carry out the Watershed Plan for said watershed, it has become necessary to modify said watershed agreement; and

Whereas, the responsibility for administration of the Watershed Protection and Flood Prevention Act, as amended, has been assigned by the Secretary of Agriculture to the NRCS; and

Whereas, Supplemental Watershed Plan No. 2 (Supplement No. 2) which modifies the Watershed Plan, the Watershed Supplement No. 1, and expands the watershed boundary dated 25th February, 1991 for said watershed has been developed through the cooperative efforts of the Sponsors and the NRCS;

Now, therefore, the Secretary of Agriculture through the NRCS and the Sponsors hereby agree upon the following modifications of the terms, conditions, and stipulations of said watershed agreement;

(1) The Nez Perce Tribe hereby agrees to become one of the local sponsors of the said Supplement No. 2 watershed project, through the participation of their Land Services Department.

(2) The Idaho Department of Fish and Game hereby agree to become one of the local organizations sponsoring said Supplement No. 2 watershed project.

(3) The County of Nez Perce hereby agrees to become one of the local organizations sponsoring said Supplement No. 2 watershed project through the participation of their County Commissioners.

(4) The Idaho Department of Agriculture - Soil Conservation Commission hereby agrees to become one of the local organizations sponsoring said Supplement No. 2 watershed project.

(5) The Idaho Department of Environmental Quality agrees to become one of the local organizations sponsoring said Supplement No. 2 watershed project.

(6) The project purpose for Supplement No. 2 is consistent with Supplement No. 1 and the original Watershed Plan which is watershed protection and Agricultural Water Management (Water Quality Protection and Improvement). These project purposes will be utilized to benefit and enhance anadromous fish habitat and restoration efforts within the Clearwater River watershed.

(7) Paragraph Numbered 1. is modified to read as follows:

Additional **financial assistance** funding will be supplied by the PL-83-566 program to allow for the installation of the supplemental works of improvement. All supplemental cost-share funding for land treatment will be provided through NRCS long term contracting policies and procedures. The estimated total financial assistance (construction) costs for all works of improvement, assuming a participation rate of 75 percent for the supplemental works of improvement are as follows:

| Works of Improvement | Others | NRCS | Total |
|-------------------------|--------------------|--------------------|--------------------|
| Supplement No. 2 | \$2,902,690 | \$2,809,030 | \$5,711,720 |
| As Built 1/ | 1,615,080 | 337,620 | 1,952,700 |
| Remaining Work 2/ | 667,800 | 787,770 | 1,455,570 |
| Totals | \$5,185,570 | \$3,934,420 | \$9,119,990 |

1/ Includes all practices installed to date under original Plan/EA, and Supplement No. 1.

2/ Includes all practices planned under original Plan/EA, and Supplement No. 1 remaining to be installed.

The following are the costs, units and cost-share rates which will apply for the Supplement No. 2 land treatment measures:

| Land Treatment Practice | Cost-Share Rate | Years Paid | Unit Cost | Unit Measure | Units Needed | Total Cost-Share |
|---|-----------------|------------|-----------|--------------|--------------|------------------|
| Riparian Treatment Practices | | | | | | |
| Animal Trails and Walkways | 65% | 1 | 5.00 | foot | 1,300 | 4,230 |
| Channel Vegetation | 65% | 1 | 800.00 | acre | 100 | 52,000 |
| Constructed Wetland | 65% | 1 | 20,000.00 | each | 5 | 65,000 |
| Fencing, Riparian | 65% | 1 | 1.00 | foot | 47,700 | 31,010 |
| Fish Stream Improvement | 65% | 1 | 1,000.00 | each | 53 | 34,450 |
| Grade Stabilization Structure | 65% | 1 | 6,000.00 | each | 12 | 46,800 |
| Riparian Forest Buffer | 65% | 1 | 800.00 | acre | 30 | 12,000 |
| Stockwater Development | 65% | 1 | 2,000.00 | each | 26 | 33,800 |
| Streambank & Shoreline Protection | 65% | 1 | 25.00 | foot | 20,000 | 325,000 |
| Structure for Water Control | 65% | 1 | 500.00 | each | 10 | 3,250 |
| Use Exclusion | 0% | 0 | 0 | each | 20 | 0 |
| Total Cost-Share | | | | | | 607,540 |
| Animal Feeding Operation (AFO) Practices | | | | | | |
| Waste Management System | 65% | 1 | 6,000.00 | each | 55 | 214,500 |
| Total Cost-Share | | | | | | 214,500 |
| Road Practices | | | | | | |
| Access Road | 65% | 1 | 3,500.00 | each | 20 | 45,500 |
| Critical Area Planting | 65% | 1 | 610.00 | acre | 25 | 9,910 |
| Grade Stabilization Structure | 65% | 1 | 1,500.00 | each | 68 | 66,300 |
| Runoff Management System | 65% | 1 | 2,000.00 | each | 50 | 65,000 |
| Waterway (rock-lined) | 65% | 1 | 10.00 | foot | 2,720 | 17,680 |
| Total Cost-Share | | | | | | 204,390 |

| Land Treatment Practice | Cost-Share Rate | Years Paid | Unit Cost | Unit Measure | Units Needed | Cost-Share Total |
|---|-----------------|------------|-----------|--------------|--------------|--------------------|
| Cropland Practices | | | | | | |
| Agrichemical Handling Facility | 65% | 1 | 1,000.00 | each | 50 | 32,500 |
| Buffer Strip | 65% | 1 | 71.00 | acre | 9 | 420 |
| Diversion | 65% | 1 | 1.75 | foot | 12,200 | 13,880 |
| Field Border | 65% | 1 | 71.00 | acre | 7 | 320 |
| Filter Strip | 65% | 1 | 108.00 | acre | 38 | 2,670 |
| Grade Stabilization Structure | 65% | 1 | 2,500.00 | each | 100 | 162,500 |
| Grassed Waterway | 65% | 1 | 810.00 | acre | 30 | 15,800 |
| Nutrient Management | 0% | 0 | 1.25 | acre | 22,500 | 0 |
| Pasture/Hayland Planting | 65% | 1 | 75.00 | acre | 50 | 2,440 |
| Pest Management | 0% | 0 | 1.00 | acre | 22,500 | 0 |
| Residue Management (No-till, Mulch-till, Direct Seed) | 0% | 0 | 14.00 | acre | 15,500 | 0 |
| Sediment Basin | 65% | 1 | 4,000.00 | each | 100 | 260,000 |
| Stripcropping, Field / Divided Slopes | 65% | 1 | 60.00 | acre | 1,000 | 39,000 |
| Subsoiling | 0% | 0 | 13.00 | acre | 2,250 | 0 |
| Terrace | 65% | 1 | 1.50 | foot | 13,200 | 12,870 |
| Water & Sediment Control Basin | 65% | 1 | 2,500.00 | each | 140 | 227,500 |
| Total Cost-Share | | | | | | 769,900 |
| Forestland Practices (including grazable woodland) | | | | | | |
| Critical Area Planting | 65% | 1 | 90.00 | acre | 1,900 | 111,150 |
| Fencing | 65% | 1 | 1.00 | foot | 40,000 | 26,000 |
| Forest Site Preparation | 65% | 1 | 25.00 | acre | 1,000 | 16,250 |
| Forest Stand Improvement | 65% | 1 | 10.00 | acre | 2,000 | 13,000 |
| Stockwater Development | 65% | 1 | 2,000.00 | each | 20 | 26,000 |
| Tree/Shrub Establishment | 65% | 1 | 450.00 | acre | 1,500 | 438,750 |
| Total Cost-Share | | | | | | 631,150 |
| Range/Pasture Practices | | | | | | |
| Fencing | 65% | 1 | 1.00 | foot | 12,000 | 7,800 |
| Heavy Use Area Protection | 65% | 1 | 2,500.00 | each | 10 | 16,250 |
| Pest Management | 0% | 0 | 18.00 | acre | 5,000 | 0 |
| Ponds | 65% | 1 | 10,000.00 | each | 10 | 65,000 |
| Prescribed Grazing | 0% | 0 | 2.00 | acre | 12,000 | 0 |
| Range Planting | 65% | 1 | 100.00 | acre | 2,500 | 162,500 |
| Stockwater Development | 65% | 1 | 2,000.00 | each | 20 | 26,000 |
| Use Exclusion | 0% | 0 | 10.00 | acre | 15 | 0 |
| Total Cost-Share | | | | | | 277,550 |
| Wildlife Practices | | | | | | |
| Wildlife Upland Habitat Management | 65% | 1 | 3,000.00 | each | 20 | 39,000 |
| Wildlife Wetland Habitat Management | 65% | 1 | 5,000.00 | each | 20 | 65,000 |
| Total Cost-Share | | | | | | 104,000 |
| Total Financial Assistance | | | | | | \$2,809,030 |

(8) Paragraph numbered 2. is modified to read as follows:

The NRCS will assist the sponsors in providing **technical assistance** to the landowners and operators to plan and install land treatment practices (Best Management Practices—BMPs) shown in the original Plan/EA and the land treatment practices (BMPs) outlined in Supplement No. 2. Percentages of technical assistance costs to be borne by the sponsors and the NRCS are as follows:

| | Other Funds (percent) | PL-566 Funds (percent) | Technical Assistance Costs |
|-----------------------------------|-----------------------------|------------------------------|----------------------------------|
| Supplement No. 2 | 0 | 100 | \$862,420 |
| As Built 1/ | 0 | 100 | 288,560 |
| Remaining Work 2/ | 0 | 100 | 217,850 |
| Total Technical Assistance | | | \$1,371,830 |

1/ Includes all practices installed to date under original Plan/EA and Supplement No. 1.

2/ Includes all practices planned under original Plan/EA, and Supplement No. 1 remaining to be installed.

(9) Paragraph numbered 5. is modified to read as follows:

The sponsors and NRCS will bear the cost of project **administration** that each incurs. Estimated project administration costs for land treatment implementation are as follows:

| | Other Funds | PL-566 Funds | Project Administration Costs |
|-------------------------------------|----------------|-----------------|------------------------------------|
| Supplement No. 2 | 209,660 | 140,470 | \$350,130 |
| As Built 1/ | 195,280 | 0 | 195,280 |
| Remaining Work 2/ | 145,550 | 0 | 145,550 |
| Total Project Administration | | | \$690,960 |

1/Includes all practices installed to date under original Plan/EA and Supplement No. 1.

2/Includes all practices planned under original Plan/EA and Supplement No. 1 remaining to be installed.

(10) Paragraph numbered 15. is modified to read as follows:

The program conducted will be in compliance with the nondiscrimination provisions as contained in Titles VI and VII of the Civil Rights Act of 1964, as amended, the Civil Rights Restoration Act of 1987 (Public Law 100-259) and other nondiscrimination statutes, namely, Section 504 of the Rehabilitation Act of 1973, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, and in accordance with regulations of the Secretary of Agriculture (7 C.F.R. 15, Subparts A and B), which provide that no person in the United States shall, on the grounds of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance from the Department of Agriculture or any agency thereof.

(11) Paragraphs numbered 16, 17, and 18 are hereby added as follows:

16. Certification Regarding Drug-Free Work place Requirements (7 CFR 3017, Subpart F).

By signing this watershed agreement, the sponsors are providing the certification set out below. If it is later determined that the sponsors knowingly rendered a false certification, or otherwise violated the requirements of the Drug-Free Work place Act, the NRCS, in addition to any other remedies available to the Federal Government, may take action authorized under the Drug-Free Work place Act.

Controlled substance means a controlled substance in Schedules I through V of the Controlled Substances Act (21 U.S.C.812) and as further defined by regulation (21 CFR 1308.11 through 1308.15);

Conviction means a finding of (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes;

Criminal drug statute means a Federal or non-Federal criminal statute involving the manufacturing, distribution, dispensing, use, or possession of any controlled substance;

Employee means the employee of a grantee directly engaged in the performance of work under a grant, including: (i) all direct charge employees; (ii) all indirect charge employees unless their impact or involvement is insignificant to the performance of the grant; and, (iii) temporary personnel and consultants who are directly engaged in the performance of work under the grant and who are on the grantee's payroll. This definition does not include workers not on the payroll of the grantee (e.g., volunteers, even if used to meet a matching requirement; consultants or independent contractors not on the grantees' payroll; or employees of subrecipients or subcontractors in covered workplaces).

Certification:

A. The sponsors certify that they will or will continue to provide a drug-free Work place by:

- (1) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or the use of a controlled substance is prohibited in the grantee's Work place and specifying the actions that will be taken against employees for violation of such prohibition:
- (2) Establishing an ongoing drug-free awareness program to inform employees about-
 - (a) The danger of drug abuse in the Work place;
 - (b) The grantee's policy of maintaining a drug free Work place;
 - (c) Any available drug counseling, rehabilitation, and employee assistance programs; and
 - (d) The penalties that may be imposed upon employees for drug abuse violations occurring in the work place.
- (3) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (1);
- (4) Notifying the employee in the statement required by paragraph (1) that, as a condition of employment under the grant, the employee will-
 - (a) Abide by the terms of the statement; and
 - (b) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the Work place no later than five calendar days after such conviction;
- (5) Notifying the NRCS in writing, within ten calendar days after receiving notice under paragraph (4) (b) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer or other designee on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;
- (6) Taking one of the following actions, within 30 calendar days of receiving notice under paragraph (4) (b), with respect to any employee who is so convicted-
 - (a) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
 - (b) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency.

(7) Making a good faith effort to continue to maintain a drug-free Work place through implementation of paragraphs (1), (2), (3), (4), (5), and (6).

B. The sponsors may provide a list of the site(s) for the performance of work done in connection with a specific project or other agreement.

C. Agencies shall keep the original of all disclosure reports in the official files of the agency.

17. Certification Regarding Lobbying (7 CFR 3018) (applicable if this agreement exceeds \$100,000).

(1) The sponsors certify to the best of their knowledge and belief, that:

(a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the sponsors to any person for influencing or attempting to influence an officer or employee of an agency, Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(c) The sponsors shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

(2) This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

18. Certification Regarding Debarment, Suspension, and Other Responsibility Matters-Primary Covered Transactions (7CFR 3017).

(1) The sponsors certify to the best of their knowledge and belief, that they and their principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, for receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in Paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

(2) Where the primary sponsors are unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this agreement.

The Sponsors and NRCS further agree to all other terms, conditions, and stipulations of said watershed agreement not modified herein.

Nez Perce Soil and Water
Conservation District
1112 36th St. N.
Lewiston, ID 83501

By Kyle Wilson
Kyle Wilson
Chairman

Date 12-14-00

The signing of this plan was authorized by a resolution of the governing body of the Nez Perce Soil and Water Conservation District adopted at a meeting held on December 14, 2000

Bill W. Williams
Secretary

Address _____ Zip Code _____

Date 12/14/00

Nez Perce County Board
of Commissioners
1225 Idaho St.
Lewiston, ID 83501

By J.R. Van Vassel
J.R. Van Vassel
Chairman

Date 12/14/00

The signing of this plan was authorized by a resolution of the governing body of the Nez Perce County Commissioners adopted at a meeting held on Dec 4, 2000

Shirley Chaffin
Secretary

Address _____ Zip Code _____

Date Dec 4, 2000

Nez Perce Tribe -
Land Services Department
P. O. Box 365
Lapwai, ID 83540

By Jack Bell
Jack Bell
Director

Date 12/14/00

*The signing of this plan was witnessed by a representative of the governing body of the Soil Conservation
Commission operating at a meeting held in Lapwai, ID on 12/14/00*
W. J. [unclear] [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]

Idaho Soil Conservation
Commission
2270 Old Penitentiary Rd.
Boise, ID 83720-0083

By Jerry Nicolescu
Jerry Nicolescu
Administrator

Date Dec. 6, 2000

The signing of this plan was authorized by a resolution of the governing body of the Soil Conservation
Commission adopted at a meeting held on November 14, 2000

Jerry Nicolescu for
Secretary Bill Whelton

679 Come Back Lane
Sagle, IDAHO 83860
Address Zip Code

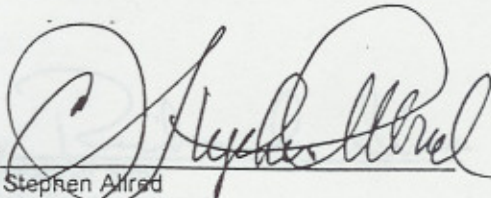
Date 12/7/00

Idaho Department of
Fish and Game
P. O. Box 25
Boise, ID 83707

By Rodney W. Sanda
Rodney Sanda
Director

Date 12-11-00

Idaho Department of
Environmental Quality
1410 N. Hilton
Boise, ID 83706-1255

By 
C. Stephen Alfred
Administrator

Date 5-12-2000

WATERSHED PROTECTION PLAN - ENVIRONMENTAL ASSESSMENT
 SUPPLEMENT NO. 2
 FOR
 MISSION/LAPWAI CREEK WATERSHED, IDAHO

United States Department of Agriculture
 Natural Resources Conservation Service
 9173 W. Barnes Dr., Ste. C.
 Boise, ID 83709-1574

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By Richard Sims
 Richard W. Sims
 State Conservationist

Date: 12/18/00

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WATERSHED PROTECTION PLAN - ENVIRONMENTAL ASSESSMENT
SUPPLEMENT NO. 2
FOR
MISSION-LAPWAI CREEK WATERSHED, IDAHO

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| Land Use | |
|---------------------------|-----------|
| Unimproved cropland | 25,000 ac |
| Improved | 11,810 ac |
| Non-irrigated Pastureland | 50 ac |
| Forestland | 24,210 ac |
| Acquisition | 770 ac |
| Wetlands | 710 ac |
| Woods | 260 ac |
| Water | 220 ac |
| Improved Pastureland | 120 ac |
| Total | 68,400 ac |

| Land Ownership | |
|----------------|-----------|
| Private | 75,000 ac |
| Tribal | 610 ac |
| State | 700 ac |
| Total | 76,310 ac |

| Participation | |
|---|----|
| Number of Potential Participants | 50 |
| Number of Minority Participants | 20 |
| Number of Limited Resource Participants | 20 |

Crops Explored: 3,740 acres

Fish/Fishery: 1,000 Acres

- Wild and Endangered (W) and Endangered (E) Species**
- Salt Sage (*Artemisia leucophylla*) (E)
 - Snake River Fall Chinook Salmon (*Oncorhynchus tshawytscha*) (E)
 - Snake River Basin Steelhead Trout (*Oncorhynchus mykiss*) (E)
 - Bull Trout (*Salvelinus confluentus*) (E)

- State of Oregon (S) Plants**
- Jewell's aster (*Aster jewellii*)
 - Short-bill manzanita (*Calochortus albidus*)
 - Pinkish goldenrod (*Helianthus filiformis*)
 - Spending's stone (*Croceus spaldingii*)
 - Prunus Dove (*Tillandsia glauca* var. *angustifolia*)

- Cultural Resources**
- Spang Machine
 - Old Pava Trail
 - Fort Lapwai
 - Culturally Significant Plants

SUMMARY

Project Name Mission-Lapwai Creek PL-566 Supplement No. 2
County Nez Perce
State IDAHO

Sponsors Nez Perce Soil and Water Conservation District; Nez Perce County Board of Commissioners; Idaho Department of Fish and Game; Idaho Department of Agriculture, Idaho Soil Conservation Commission; Idaho Department of Environmental Quality; Nez Perce Tribe, Land Services Department.

Description of the Recommended Plan Land treatment to enhance anadromous fish habitat and water quality, reduce downstream sediment damages, and protect the resource base.

Size of Supplement Area in Watershed (Supplement #2) 89,400 Acres

Total Size of Watershed (Watershed Plan, Supplement No. 1, and No. 2) 174,600 Acres

Land Use

| | |
|---------------------------|------------------|
| Non-irrigated cropland | 30,050 ac |
| Rangeland | 31,810 ac |
| Non-irrigated Pastureland | 50 ac |
| Forestland | 24,810 ac |
| Recreation | 770 ac |
| Urban areas | 710 ac |
| Wildlife | 860 ac |
| Water | 220 ac |
| Irrigated Pastureland | 120 ac |
| Total | 89,400 ac |

Land Ownership

| | |
|---------|-----------|
| Private | 75,820 ac |
| Federal | 610 ac |
| State | 760 ac |
| Tribal | 11,990 ac |

Demographics

| | |
|--|----|
| Number of Potential Participants: | 80 |
| Number of Minority Participants: | 25 |
| Number of Limited Resource Participants: | 30 |

Prime Farmland 8,240 acres

Flood Plains 2,080 Acres

Listed Threatened (LT) and Endangered (LE) Species

| | |
|--|--------|
| Bald Eagle (<i>Haliaeetus leucocephalus</i>) (LT) | 100 |
| Snake River Fall Chinook Salmon (<i>Oncorhynchus tshawytscha</i>) (LT) | 85 |
| Snake River Basin Steelhead Trout (<i>Oncorhynchus mykiss</i>) (LT) | 20,000 |
| Bull Trout (<i>Salvelinus confluentus</i>) (LT) | 1,000 |

Species of Concern (Plants)

| | |
|--|--------|
| Jessica's aster (<i>Aster jessicae</i>) | 15 |
| Broad-fruit mariposa (<i>Calochortus nitidus</i>) | 2,200 |
| Palouse goldenweed (<i>Haplopappus liatrifomis</i>) | 13,000 |
| Spalding's silene (<i>Silene spaldingii</i>) | 1,000 |
| Plumed Clover (<i>Trifolium plumosum var ampliflorium</i>) | 15 |

Cultural Resources

| | |
|-------------------------------|-----|
| Spalding Mission | 20 |
| Nez Perce Trail | 25 |
| Fort Lapwai | 140 |
| Culturally Significant Plants | 20 |

Problem Identification Low stream flows and a lack of adequate multi-layered riparian vegetation have, in part, reduced the suitability of Lapwai Creek and tributaries as quality spawning and rearing habitat for anadromous and resident cold-water fish. In addition, sediment, nutrients, and bacteria from existing land-use practices are adversely impacting water quality.

Alternative Plans Considered Future Without Project (No Action) and a Resource Protection (RP) Plan (Supplement No. 2).

Project Purpose Improve anadromous and resident cold-water fish habitat and water quality through: 1) Riparian area enhancement and protection; 2) Enhancement of in-stream habitat; 3) Reductions in sediment, nutrient, and bacterial loadings; and 4) Improvement of base stream flow conditions.

Principal project measures

| Land Treatment Practice | Unit | Extent Planned |
|---|------|---------------------------------|
| Access Road | each | 20 |
| Agrichemical Handling Facility | each | 50 |
| Animal Trails and Walkways | feet | 1,300 |
| Buffer Strip | acre | 9 |
| Channel Vegetation | acre | 100 |
| Constructed Wetland | each | 5 |
| Critical Area Planting | acre | 1,925 |
| Diversion | feet | 12,200 |
| Fencing | feet | 99,700 |
| Field Border | acre | 7 |
| Filter Strip | acre | 38 |
| Fish Stream Improvement | each | 53 |
| Forest Site Preparation | acre | 1,000 |
| Forest Stand Improvement | acre | 2,000 |
| Grade Stabilization Structure | each | 180 |
| Grassed Waterway | acre | 30 |
| Heavy Use Area Protection | each | 10 |
| Nutrient Management | acre | (Non PL-566 Cost-Shared) 22,550 |
| Pasture/Hayland Planting | acre | 50 |
| Pest Management | acre | (Non PL-566 Cost-Shared) 27,500 |
| Ponds | each | 10 |
| Prescribed Grazing | acre | (Non PL-566 Cost-Shared) 12,000 |
| Range Planting | acre | 2,500 |
| Residue Management, No-till, Mulch-till, Direct Seeding | acre | (Non PL-566 Cost-Shared) 15,500 |
| Riparian Forest Buffer | acre | 30 |
| Rock-lined Waterway | foot | 2,720 |
| Runoff Management System | each | 50 |
| Sediment Basin | each | 100 |
| Stockwater Development | each | 66 |
| Streambank & Shoreline Protection | feet | 20,000 |
| Stripcropping, Field/Divided Slopes | acre | 1,000 |
| Structure for Water Control | each | 10 |
| Subsoiling | acre | (Non PL-566 Cost-Shared) 2,250 |
| Terrace | feet | 13,200 |
| Tree/Shrub Establishment | acre | 1,500 |
| Use Exclusion (range/pasture) | acre | (Non PL-566 Cost-Shared) 15 |
| Use Exclusion (riparian) | each | (Non PL-566 Cost-Shared) 20 |
| Waste Management System | each | 55 |
| Water & Sediment Control Basin | each | 140 |
| Wildlife Wetland Habitat Management | each | 20 |
| Wildlife Upland Habitat Management | each | 20 |

Project Costs

| Supplement No. 2 | PL-566 Funds | Other Funds | Total |
|-------------------------|--------------------|--------------------|--------------------|
| Land Treatment Measures | \$2,809,030 | \$2,902,690 | \$5,711,720 |
| Project Administration | 140,470 | 209,660 | 350,130 |
| Technical Assistance | 865,420 | 276,930 | 1,142,350 |
| Total | \$3,814,920 | \$3,389,280 | \$7,204,200 |

Average Annual Cost \$802,800

Project Benefits

| Supplement No. 2 | Off-Site | On-Site | Total |
|-------------------------|-----------|-----------|-----------|
| Average Annual Benefits | \$584,460 | \$120,390 | \$704,850 |

Benefit to Cost Ratio

| | |
|------------------|--------------|
| Supplement No. 2 | 0.88 to 1.00 |
|------------------|--------------|

Effects of the Selected Alternative**Erosion and Sedimentation:**

Supplement No. 2 practices will reduce erosion an additional 416,492 tons (53 percent) and off-site sediment by 122,126 tons (67 percent). Supplement No. 2 with the Watershed Plan/EA and Supplement No. 1 will reduce erosion by 726,787 tons (55 percent) and off-site sediment by 222,504 tons (68 percent).

Water Quality:

Supplement No. 2 practices, in addition to reducing off-site sediment by 68 percent, will move toward the goal of reducing the water temperature of Lapwai Creek and tributaries by 5 degrees centigrade. Additional water quality benefits include a reduction in nutrients, pesticides and bacteria to surface waters, and the lowering of nutrient and pesticides levels in ground water. This reduction will move towards the Clean Water Act goal of achieving fishable and swimmable waters within the United States and will comply with applicable water quality standards. In addition, the temperature reduction will allow for an optimum range of temperatures for anadromous fisheries. Implementation of riparian area enhancement and erosion control measures in the Watershed Plan and Supplement No. 1 and No. 2 will provide the treatment necessary for agricultural non-point sources in order to move toward attainment of water quality standards and protection of the beneficial uses, thereby allowing removal of Lapwai Creek (17060306-ID3143-1998) from the Idaho 303(d) list.

Fisheries:

Supplement No. 2 land treatment measures will reduce the water temperatures of Lapwai Creek and tributaries, and off-site sediment and associated nutrient loading will be reduced by 68 percent. Temperature and sediment reductions will have a positive effect on both the resident and anadromous fisheries present in the watershed.

The establishment of adequate multi-layered riparian vegetation on 40.0 miles of stream length (75% of 53.0-mile total) will enhance the fisheries habitat by achieving temperature reductions, allowing for the re-introduction of large organic debris into the stream system, stabilizing streambanks, and enhancing overhanging vegetation. The upland land treatment practices will improve base stream flow conditions by reducing peak flows early in the year and sustaining a higher base flow throughout the year.

Threatened and Endangered Species:

Supplement No. 2 measures will not cause any short-term or long-term adverse impacts to the Snake River fall chinook salmon, the Snake River Basin steelhead, bull trout, their designated critical habitat, resident fisheries, or other aquatic resources. Enduring practices proposed for installation are in areas where active erosion currently is

taking place. Conservation objectives are to reduce sediment entering the creek and reduce excessive water temperatures throughout the summer. No additional sediment will be delivered to Lapwai Creek or the Clearwater River during the installation of the project. The long-term benefit of this project will be a seasonal temperature reduction and reduction of sediment delivered to the spawning and rearing areas in Lapwai Creek and the Clearwater River. With the reduction of sediment delivered to Lapwai Creek, impacts should be positive to all aquatic resources downstream.

Because of the positive effect Supplement No. 2 has on water quality, aquatic resources, and riparian vegetation along the Clearwater River and Lapwai Creek, no adverse impact to the bald eagle will occur.

Wildlife:

Supplement No. 2 will provide an overall positive effect to wildlife habitat on 53 miles of Lapwai Creek through riparian vegetation enhancement on 40 miles of Lapwai Creek (75% implementation goal for the 53-mile total).

Riparian:

Supplement No. 2 will not adversely impact the project area's streams, rivers, and riparian areas. The project is designed to reduce stream temperatures and will have a positive impact due to reduction of streambank erosion and improvement of multi-layered riparian vegetation along 53 miles of Mission/Lapwai Creeks.

Visual Resource:

The visual or aesthetic resources will be improved by the re-establishment of adequate multi-layered riparian vegetation along approximately 53 miles of stream corridor.

Cultural Resources:

No adverse impacts are expected.

Wetlands:

Several of the Supplement No. 2 land treatment measures such as sediment basins and water and sediment control basins may have the potential to impact wetlands in the project area. Appropriate steps will be taken during practice layout and construction to avoid conversion of wetlands. NRCS policy and procedure for the protection of wetlands will be followed.

Prime and Unique Farmland:

Supplement No. 2 will have a positive effect on 8,240 acres of prime farmland in the watershed.

NEED FOR SUPPLEMENT NO. 2

Introduction

The original Mission-Lapwai Creek Watershed Protection Plan - Environmental Assessment (EA) was completed in December 1990. Federal assistance for installing the project measure was authorized in February 1991. Developed as a joint endeavor between federal, state, and local entities, the project combined federal technical assistance (TA) funds (PL-566) with state financial assistance (FA) funds [Idaho State Agricultural Water Quality Program (SAWQP)] in an effort to improve water quality by reducing cropland erosion and associated nutrient transport. Supplement No. 1 provided additional PL-566 TA and FA to complement and enhance the existing SAWQP. Supplement No. 2 expands the current watershed boundary of Lapwai Creek to include the entire watershed to the confluence with the Clearwater River.

To date, a landowner participation rate of approximately 82 percent has been achieved in the original project area. On-site erosion has been reduced by 310,295 tons (59 percent) while off-site sedimentation and related nutrient loading have been reduced by 100,378 tons (71 percent) in the original project area.

In response to the Natural Resources Conservation Service (NRCS) Salmon Recovery Initiative, the project sponsors examined the Mission-Lapwai Creek Watershed Project for opportunities to improve anadromous fish habitat. The watershed historically provided quality spawning and rearing habitat for Snake River fall chinook salmon as well as Snake River Basin steelhead. Local oral traditions of the Nez Perce Tribe refer to the area's once significant salmon runs. Today only a declining population of rainbow-steelhead trout return to the Lapwai Creek system to spawn. High summer water temperatures resulting from low flows, in-stream sediment, and lack of adequate multi-layered riparian vegetation have, in part, reduced the suitability of Lapwai Creek as quality spawning and rearing habitat.

After a review of the composition and distribution of anadromous fish within the watershed and the habitat factors most limiting their success, the project sponsors developed three general goals:

- 1) Improve anadromous and resident cold water fish habitat through riparian area enhancement and sediment reduction.
- 2) Reduce stream temperatures through riparian area enhancement (increase stream shading).
- 3) Enhance degraded hydrologic conditions and decrease sediment yield in the upper watershed through runoff retention and detention practices (sediment basins/water and sediment control basins)

In June 1994, the project sponsors requested a Supplemental Watershed Protection Plan/Environmental Assessment (Supplement No. 1) to address habitat needs of resident and anadromous fish. Supplement No. 1 was approved for implementation in September 1994 and provides PL-566 technical and financial assistance to landowners and operators for the installation of land treatment practices beneficial to salmonid fisheries. Typical structural practices include sediment basins, stock water developments, and riparian area fencing. A non-structural practice, flood plain easement, was also added.

As a result of public input and consensus planning, the sponsors developed the following objective for Supplement No. 1 to enhance anadromous fish habitat in the Mission-Lapwai Creek project area:

Lower the maximum mid-summer water temperature in Mission and Lapwai Creeks by 5 degrees centigrade, thereby working toward conformance with the Clean Water Act goal of achieving fishable and swimmable waters within the United States and complying with all applicable water quality standards.

The original Mission-Lapwai Creek Watershed Protection Plan/EA (Watershed Plan) did not incorporate treatment strategies to provide enhancement and protection of riparian vegetation to address hydrologic modifications and reduce stream temperatures.

Need For Supplement No. 2

Since the implementation of Supplement No. 1, project sponsors recognized a need to expand the project boundary to include the lower half of the Lapwai Creek watershed (Appendix B). The project sponsors are requesting expansion of the treatment area to include lower Lapwai Creek to the Clearwater River to enhance and protect habitat for anadromous fish.

Rainbow-steelhead trout, threatened bull trout, and chinook salmon (like other anadromous fish) have different habitat requirements throughout their life cycle of spawning, rearing, and migration. Since the spatial and temporal availability of this habitat can vary considerably within a stream system, a total watershed habitat improvement and restoration approach is needed.

A comprehensive watershed strategy will also better address the hydrologic modifications identified in Supplement No. 1 as being detrimental to the designated beneficial uses of water in the watershed. The historic conversion of native, perennial vegetation to annual crop production has dramatically changed the timing and magnitude of runoff events. Enduring land treatment practices, principally sediment basins and water and sediment control basins, planned under Supplement No. 1, were selected for their ability to detain and retain cropland runoff, thus increasing deep percolation. This additional subsurface water could increase stream base flows in the summer months. Since the effectiveness of individual structures is dependent upon their capacity and physical placement within the watershed, increasing the project area would increase the availability of efficient structure sites. An expanded project area would also allow for a larger system of structures distributed across the entire watershed area.

Finally, applying conservation practices to riparian areas is a relatively new concept in the watershed and therefore many cooperators are skeptical about the potential benefits. With an expanded project area, the pool of eligible participants who have control of riparian areas is more than doubled. This larger participant pool will be needed to find a sufficient number of cooperators ready, willing, and able to invest in the enhancement and protection of riparian areas. These initial participants will play a key role in the demonstration of riparian conservation practices—a necessary prerequisite to their widespread adoption.

Proposed Changes

1. Expand the existing project boundary to include the entire Lapwai Creek Watershed, to the confluence with the Clearwater River. For more details, see Land Use Map in Appendix B and Acreage Tables.
2. Add 20 (each) Access Road practices.
3. Add 50 (each) Agrichemical Handling Facilities. None were previously planned.
4. Add 1,300 feet of Animal Trails and Walkways to improve livestock water distribution and access. Under Supplement No. 1, 21 Animal Trails and Walkways were planned. Under the Watershed Plan/EA, no Animal Trails and Walkways were planned.
5. Add 9 acres of Buffer Strips. Under the Watershed Plan/EA and Supplement No. 1, no Buffer Strips were previously planned.
6. Add 100 acres of Channel Vegetation. Under Supplement No. 1, 5 acres were planned. Under the Watershed Plan/EA, no Channel Vegetation was planned.
7. Add 5 (each) Constructed Wetlands to improve wetland conditions in riparian areas. No Constructed Wetlands were previously planned.
8. Add 1,925 acres of Critical Area Planting. Under the Watershed Plan/EA, 120 acres of Critical Area Planting were planned.
9. Add 12,200 feet of Diversions to decrease cropland run-off and associated soil loss. No Diversions were previously planned.
10. Add 99,700 feet of Fencing for riparian area protection and pasture cross-fencing. Under Supplement No. 1, 95,440 feet of Fencing was planned. Under the Watershed Plan/EA, no Fencing was planned.
11. Add 7 acres of Field Borders. No Field Borders were previously planned.

12. Add 38 acres of Filter Strips. No Filter Strips were previously planned.
13. Add 53 (each) Fish Stream Improvement Structures. No Fish Stream Improvements were previously planned. The planning and installation of in-stream habitat structures will involve consultation with the Idaho Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Army Corps of Engineers, Idaho Department of Water Resources, and the Nez Perce Tribe Water Resources Division, as appropriate.
14. Add 1,000 acres of Forest Site Preparation. None was previously planned.
15. Add 2,000 acres of Forest Stand Improvement. None was previously planned.
16. Add 180 Grade Stabilization Structures. No Grade Stabilization Structures were previously planned.
17. Add 30 acres of Grassed Waterways to reduce concentrated flow erosion on cropland. Under the Watershed Plan/EA, 37,000 feet of Waterways were planned.
18. Add 10 (each) Heavy Use Area Protection Practices (stream crossings) to decrease streambank erosion and in-stream sedimentation. None were previously planned.
19. Add 22,550 acres of Nutrient Management. This includes soil testing and record keeping. No Nutrient Management was previously planned. This practice will not be Cost-Shared under PL-566.
20. Add 50 acres of Pasture and Hayland Plantings. Under Supplement No. 1, no Pasture and Hayland Plantings were planned. Under the Watershed Plan/EA, 2,270 acres were planned.
21. Add 27,500 acres of Pest Management. No Pest Management was previously planned. This practice will not be Cost-Shared under PL-566.
22. Add 10 (each) Ponds. None were previously planned.
23. Add 12,000 acres of Prescribed Grazing. None was previously planned. This practice will not be Cost-Shared under PL-566.
24. Add 2,500 acres of Range Planting. None was previously planned.
25. Add 15,500 acres of Residue Management. Residue management payments will only be made as a component of a conservation system that includes other conservation practices. These practices may include buffers, fisheries enhancement, riparian improvements, and structural erosion control. No Residue Management was previously planned. This practice will not be Cost-Shared under PL-566.
26. Riparian (Flood Plain) Easements: Under Supplement No. 1, 97,150 feet were planned. No easements were planned under the Watershed Plan/EA. If additional riparian easements are needed, programs including WRP and CRP will be used to implement them.
27. Add 30 acres Riparian Forest Buffer. None was previously planned.
28. Add 2,720 feet of Rock-lined Waterways to control road ditch erosion. No Rock-lined Waterways were previously planned.
29. Add 50 (each) Runoff Management Systems. None were previously planned.
30. Add 100 (each) Sediment Basins. Under Supplement No. 1, 71 Sediment Basins were planned. Under the Watershed Plan/EA, 14 Sediment Basins were planned.
31. Add 66 (each) Stockwater Developments. Under Supplement No. 1, 29 Stockwater Developments were planned. Under the Watershed Plan/EA, no Stockwater Developments were planned.
32. Add 20,000 feet of Streambank and Shoreline Protection. Under Supplement No. 1, 9,080 feet of Streambank and Shoreline Protection was planned. Under the Watershed Plan/EA, none was planned.

33. Add 1,000 acres of Stripcropping (Field/Divided Slopes). Under the Watershed Plan/EA, 1,280 acres of Stripcropping were planned.
34. Add 10 (each) structures for water control. None were planned previously.
35. Add 2,250 acres of Subsoiling to decrease soil erosion and increase moisture infiltration. Subsoiling to be used only in conjunction with establishing a new management system which includes Residue Management (no-till, mulch-till, or direct seeding), where compaction is an identified problem. No Subsoiling was previously planned. This practice will not be Cost-Shared under PL-566.
36. Add 13,200 feet of Terraces. The Watershed Plan/EA had 35,600 feet of Terraces planned.
37. Add 1,500 acres of Tree/Shrub Establishment. None was previously planned.
38. Add 15 acres of Use Exclusion in range and pasture land units, and add 20 (each) Use Exclusion areas in riparian land units. Under Supplement No.1, 32 acres of Livestock Exclusion were planned. This practice will not be Cost-Shared under PL-566.
39. Add 55 (each) Waste Management Systems for AFO runoff containment. No Waste Management Systems were previously planned.
40. Add 140 (each) Water and Sediment Control Basins. Under Supplement No. 1, 643 Water and Sediment Control Basins were planned. Under the Watershed Plan/EA, no Water and Sediment Control Basins were planned.
41. Add 20 (each) Wildlife Wetland Habitat Management Systems. None were previously planned. These typically will be systems of practices (including shallow water areas, shelter belts, and cover vegetation) and will average 2 acres per system.
42. Add 20 (each) Wildlife Upland Habitat Management Systems. None were previously planned. These typically will be systems of practices (including shallow water areas, shelter belts, and cover vegetation) and will average 10 acres per system.

The average annual runoff for the 1971-1980 period, as measured by the U. S. Geological Survey (USGS) at the Lapwai Creek gauging station near Lapwai, Idaho, is 27,210 acre-feet. Low flows ranging from a low of 0.5 cfs per second to 30 cfs typically occur July through October and coincide with the winter precipitation period. Higher streamflow volumes occur from December through May. Exceptionally high peaks occur as a result of rain-on-snow events. The peak discharge measured at this station was 6,010 cfs on February 9, 1985. The previous peak measured was 4,380 cfs in January 1985. Both were the result of rain-on-snow events that resulted in rapid melting of the snow and high runoff rates.

Vegetative cover changes and subsequent land use and management can result in dramatic changes in stream base flow. USDA Engineering Technical Release No. 36 (TR-36, Urban Hydrology for Small Watersheds) was used to compare the massive difference between existing watershed hydrologic conditions with hydrologic conditions that may have existed during predevelopment. The TR-36 hydrologic model does have limitations of the type of analysis, but using the model demonstrates that peak flows have been increased as a result of land use changes, while generally reducing base flow.

The reduction of native, perennial plant cover to crop production has dramatically changed the timing and magnitude of spring peak flows. The higher peak flows during spring runoff indicate less water is remaining in the watershed either as soil moisture or deep percolation. This in turn would result in less water available for late season low flow, resulting in low summer flow conditions. The degree and extent of low flows is the crucial factor most limiting riparian sustenance in the watershed.

Hydrology also plays an important role in determining the composition and distribution of sed, both erodible and non-erodible, as well as other erodible materials. Large runoff events, such as the 1985 event, move massive quantities of erodible materials and large woody debris resulting in dramatic changes in stream channel morphology and stream bed composition. New channels are created as old channels are abandoned or are filled with coarse bedload materials. The pattern of coarse material accumulation and distribution affects the relationship of surface and subsurface stream flows, and in turn, affects the composition and distribution of sed and other erodible materials.

PROJECT SETTING

Location

The expanded project area encompasses an additional 89,400 acres in Nez Perce County, Idaho to the west and north of the original project area. Elevations vary from 780 feet at the confluence of Lapwai Creek with the Clearwater River to over 4,700 feet in the upper reaches of the watershed. Like the original project area, ridges are non-irrigated agricultural land, while canyon slopes and bottoms are used for livestock grazing. The higher elevations are private forestlands used for timber production and livestock grazing.

Climate

The climate of the expanded project area is very similar to the original project area, with the exception of the Lapwai area which is slightly hotter and drier. At lower elevations, the frost-free period extends for about 200 days. Upper elevations have a frost-free period of about 100 days. Precipitation ranges from an annual average of 18 inches at Lapwai to more than 26 inches at the higher elevations. Rain-on-snow events are common from January through April and often result in flash-flood conditions which scour stream floodplains and deposit large quantities of debris.

Hydrology

The Lapwai Creek watershed is characterized by extreme fluctuations in stream flow. These flows are greatest from January through April and are lowest from July through September. During the winter and spring high flow period, it is not unusual for peak flows to increase several thousand fold over summer base flows. Because streams are confined to narrow, deep canyons with moderate to steep gradients, a 10-year precipitation event can cause a large flash flood event that will scour flood plains and deposit large quantities of bedload materials. This tendency for large flow fluctuations places considerable stress on the aquatic and riparian resources in the watershed and adds to the maintenance costs of man-made structures such as roads and bridges.

During low flow periods, stream flows become partly or even entirely subsurface flow, especially in the lower gradient depositional areas. Further downstream, these subsurface flows are often forced to the surface by underlying impermeable materials such as bedrock outcrops. This stream flow pattern, from surface to subsurface and back again, is repeated as water makes its way to the Clearwater River. Stream flow losses due to deep percolation through the streambed and underlying alluvial materials is unknown but may be significant.

The average annual runoff for the 1975-1998 period, as measured by the U.S. Geological Survey (USGS) at the Lapwai Creek gaging station near Lapwai, Idaho, is 57,210 acre-feet. Low flows ranging from a few cubic feet per second (cfs) to 20 cfs typically occur July through October and coincide with the drier precipitation months. Higher streamflow volumes occur from December through May. Extremely high peaks occur as a result of rain-on-snow events. The peak discharge measured at this station was 5,010 cfs on February 9, 1996. The previous peak measured was 4,380 cfs in January 1965. Both were the result of rain-on-snow events that resulted in rapid melting of the snow and high runoff rates.

Vegetative cover changes and subsequent land use and management can result in dramatic changes to stream base flows. NRCS Engineering Technical Release No. 55 (TR-55, Urban Hydrology for Small Watersheds) was used to compare the relative difference between existing watershed hydrologic conditions with hydrologic conditions that may have existed during presettlement. The TR-55 hydrologic model does have limitations for this type of analysis, but using the model demonstrates that peak flows have been increased as a result of land use changes, which generally results in reduced base flows.

The conversion of native, perennial plant cover to crop production has dramatically changed the timing and magnitude of spring peak flows. The higher peak flows during spring runoff indicate less water is remaining in the watershed either as soil moisture or deep percolation. This in turn could result in less water available for late season base flow, creating low summer flow conditions. The degree and extent of low flows is the habitat factor most limiting salmonid populations in the watershed.

Hydrology also plays an important role in determining the composition and distribution of fish, both anadromous and resident, as well as other aquatic organisms. Large runoff events, such as the 1996 event, move massive quantities of bedload materials and large woody debris resulting in dramatic changes in stream channel morphology and stream flow behavior. New channels are created as old channels are abandoned or are filled with coarse bedload materials. The pattern of coarse material scour and deposition alters the occurrence of surface and subsurface stream flows; this in turn alters the composition and distribution of fish and other aquatic organisms.

Population and Ownership

Approximately 1,800 people reside within the expanded project area, with many living on single-family farms. The community of Lapwai, with a population of approximately 935, is the largest settlement in the expanded area and lies in the northern portion of the project area. Lapwai also is the headquarters of the Nez Perce Tribe, housing all major tribal governmental offices.

There are approximately 20 farm and ranch operations in the expanded project area averaging about 2,000 acres in size. Landownership is shown in Table A1, and associated map in Appendix B.

Table A1. Landownership

| Ownership | Supplement #1 | Supplement #2 | Total Acres (Acres) |
|-----------------|----------------------------------|----------------------------------|------------------------|
| | Original Project Area (Acres) | Expanded Project Area (Acres) | |
| Private | 74,180 | 75,820 | 150,000 |
| Nez Perce Tribe | 8,710 | 11,990 | 20,700 |
| BLM | 1,360 | 610 | 1,970 |
| State Lands | 860 | 760 | 1,620 |
| Water | 90 | 220 | 310 |
| Total | 85,200 | 89,400 | 174,600 |

Land Use

Like the original project area, five major land use categories have been identified. Land use in the expanded project area is shown in Table A2, and associated map in Appendix B. Land use acres do not fully reflect final acreage figures from Treatment Unit (TU) development. TU acres include an analysis of soils, climate, slope, and management. TU Cropland Acres are higher and, correspondingly, Rangeland Acres are lower than in the Land use table. TU acres also include Recreation, Urban, Wildlife, and Pastureland acres from the Land use acreage tables. The TU acreage figures were used in practice unit costs and project benefits development.

Table A2. Land Use

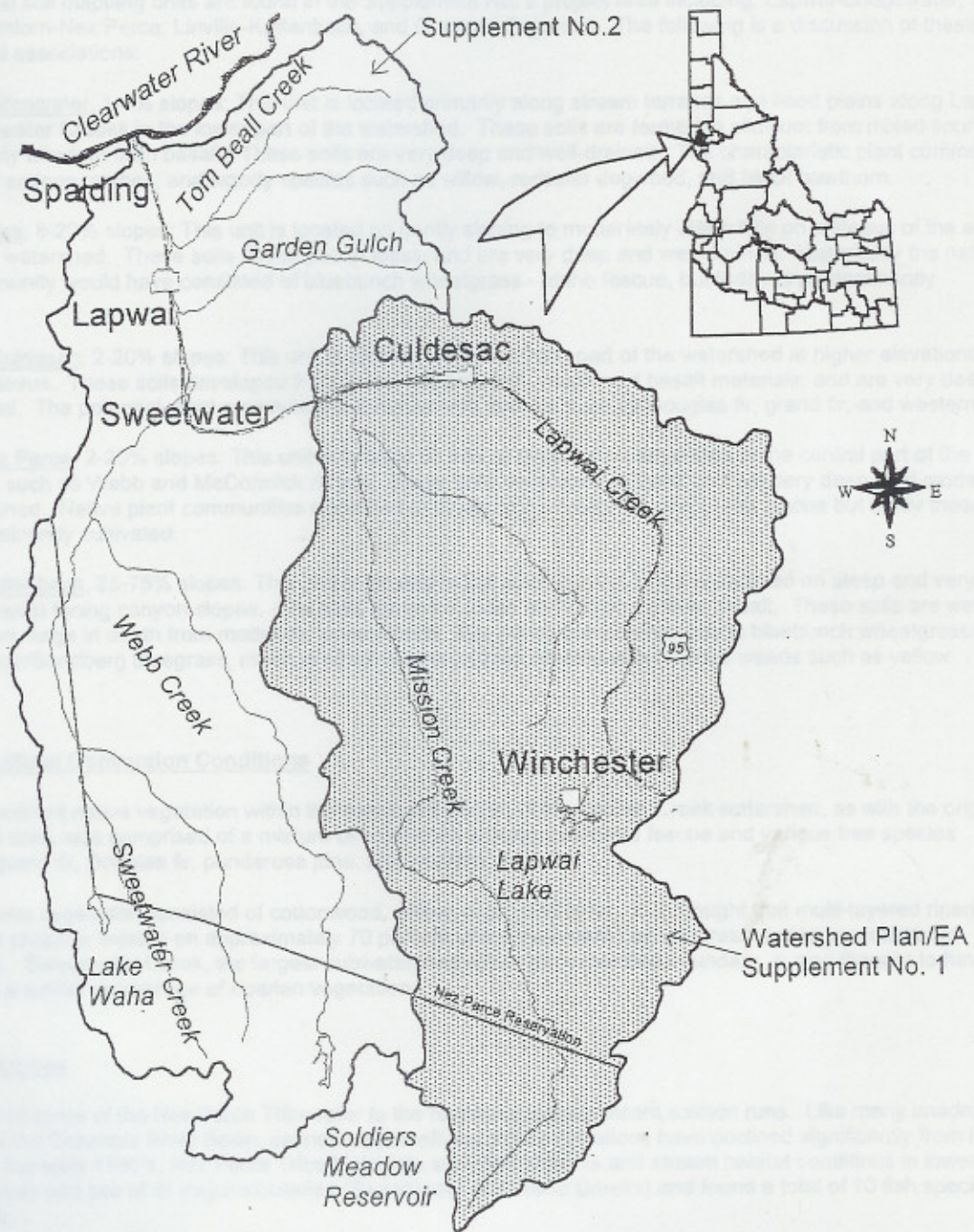
| Land Use | Supplement #1 | Supplement #2 | Total (Acres) |
|------------------------|-----------------------------|-----------------------------|------------------|
| | Original Project (Acres) | Expanded Project (Acres) | |
| Non-irrigated Cropland | 28,040 | 30,050 | 58,090 |
| Rangeland | 28,290 | 31,810 | 60,100 |
| Dry Pastureland | 4,240 | 50 | 4,290 |
| Forestland | 23,980 | 24,810 | 48,790 |
| Recreation | 170 | 770 | 940 |
| Urban Areas | 330 | 710 | 1,040 |
| Wildlife | 0 | 860 | 860 |
| Water | 90 | 220 | 310 |
| Irrigated Pastureland | 60 | 120 | 180 |
| Total | 85,200 | 89,400 | 174,600 |

Economic Profile

The local economy is driven by both the agricultural and timber industries. Area wide, 80 percent of the average annual net farm income is generated from annual crops; 10 percent from pasture; and the remaining 5 percent from timber. The seaports of Lewiston, Clarkston, and Wilma transport small grain crops and forest products to the Pacific Ocean by way of the Snake and Columbia Rivers. Transportation by railroad and truck are major methods of product distribution.

Mission - Lapwai PL-566 Supplement No.2

Location Map



Soils

The soils in the expanded area of the Lapwai Creek watershed consist primarily of soils formed in loess on ridges and plateaus and are very deep and well-drained. The foothills soils developed in loess, volcanic ash, and materials from weathered basalt. The southern part of the watershed, which is forested, also developed from loess, volcanic ash, and materials from weathered basalt and are very deep and well-drained. The Geographic Information System, Arc Info, was used to identify and quantify general soil types within the project area as shown on the general soil map in Appendix B.

There are 8,240 acres identified as prime farmland within the watershed.

Five general soil mapping units are found in the Supplement No. 2 project area including: Lapwai-Bridgewater, Naff-Palouse, Uhlorn-Nez Perce, Linville-Kettenbach, and Cramont-Culdesac. The following is a discussion of these general soil associations:

Lapwai-Bridgewater, 1-4% slopes: This unit is located primarily along stream terraces and flood plains along Lapwai and Sweetwater Creeks in the lower part of the watershed. These soils are formed in alluvium from mixed sources over gravelly alluvium from basalt. These soils are very deep and well-drained. The characteristic plant community consists of sedges, rushes, and woody species such as willow, redosier dogwood, and black hawthorn.

Naff-Palouse, 8-20% slopes: This unit is located on gently sloping to moderately steep hills on plateaus of the east side of the watershed. These soils developed in loess, and are very deep and well-drained. Historically the natural plant community would have consisted of bluebunch wheatgrass - Idaho fescue, but today is predominantly cultivated.

Cramont-Culdesac, 2-20% slopes: This unit is located in the southern part of the watershed at higher elevations on hills or plateaus. These soils developed from loess, volcanic ash, weathered basalt materials, and are very deep and well-drained. The potential plant community is forested with species such as Douglas fir, grand fir, and western larch.

Uhlorn-Nez Perce, 2-20% slopes: This unit is located on hills or plateaus on ridge tops in the central part of the watershed such as Webb and McCormick ridges. These soils developed in loess and are very deep, and moderately to well-drained. Native plant communities consisted of bluebunch wheatgrass and Idaho fescue but today these soils are predominantly cultivated.

Linville-Kettenbach, 25-75% slopes: This unit is located in the northern part of the watershed on steep and very steep south and west facing canyon slopes. The soils formed in loess and colluvium from basalt. These soils are well-drained and range in depth from moderate to very deep. The native plant community is bluebunch wheatgrass/ Idaho fescue/Sandberg bluegrass, much of which is now heavily infested with noxious weeds such as yellow starthistle.

Pre-agricultural Conversion Conditions

The predominant native vegetation within the expanded portion of the Lapwai Creek watershed, as with the original watershed area, was comprised of a mixture of bluebunch wheatgrass/Idaho fescue and various tree species including grand fir, Douglas fir, ponderosa pine, and western larch.

Riparian area vegetation consisted of cottonwood, willow, birch, and alder. It is thought that multi-layered riparian vegetation probably existed on approximately 70 percent of the mainstem Lapwai Creek during presettlement conditions. Sweetwater Creek, the largest subwatershed within the expanded boundary, is also thought to have contained a similar percentage of riparian vegetation.

Fish Resources

Local oral histories of the Nez Perce Tribe refer to the region's once significant salmon runs. Like many anadromous streams in the Columbia River Basin, salmon and steelhead trout populations have declined significantly from historic levels. In the early 1980's, Nez Perce Tribe biologists surveyed streams and stream habitat conditions in lower Lapwai Creek and two of its major tributaries (Sweetwater and Webb Creeks) and found a total of 10 fish species (Table A3).

Table A3. Fish species found in lower Lapwai Creek (below the mouth of Mission Creek), Sweetwater Creek, and Webb Creek.

| Fish Species | Lower Lapwai Creek | Sweetwater Creek | Webb Creek |
|--------------------|--------------------|------------------|------------|
| steelhead/rainbow | x | x | x |
| bridgelip sucker | x | x | x |
| northern squawfish | x | | |
| reidside shiner | x | x | |
| speckled dace | x | x | x |
| Piute sculpin | x | x | x |
| chiggermouth | x | | |
| largescale sucker | x | | |
| smallmouth bass | x | | |
| chinook salmon | x | | |

Primary Contact Recreation
 Recreation
 Recreation
 Recreation

Identified Sources of Pollution

Pollutants identified in the 1992 Idaho Department of Health and Welfare, Division of Environmental Quality (IDHW) 2025 Management Report as contributing to the water quality problems in the watershed include sediment, nutrients, and metals. In 1995 and 1998 Lapwai Creek (IDHW2025-020143-1998) was listed on the Idaho 303(d) list and is considered by Idaho to be a water quality-related stream segment. Lapwai Creek is listed for various dissolved metals, fine siltation, habitat alteration, nutrients, herbicides, pesticides, sediment, and turbidity. The primary sources of pollutants are non-point runoff, grazing lands, road construction and maintenance activities, and road and skid trail construction associated with logging. The soil and water resources problems within the watershed Lapwai Creek watershed are:

- 1) Increased flood hazard potential (Part of Lapwai and Webb along Lapwai, Sweetwater, Tom Peak, Carlin, Dutch, and Webb Creeks), loss of fish refuge vegetation, increased treatment cost for municipal and industrial water use, flood damage to residential areas (including Mission), flood damage to homes, erosion damage from high flow events along lower Lapwai Creek caused by off-site sediment and bedload.
- 2) Loss of fishery habitat caused by deposition of sediment from erosion, logging, and roads. Streambank erosion also is a significant source of sediment.
- 3) Decreased surface and ground water quality caused by sediment, nutrient, pesticide, and herbicide loading.
- 4) Loss of watershed long-term productivity caused by soil erosion.

Causes of Pollution

Agricultural (including grazing lands) and silvicultural related nonpoint source pollution is being caused by:

- Conventional tillage practices which pulverize the soil surface, leaving inadequate crop residues
- Lack of eroding soil treatment practices to control or reduce concentrated flow and gully erosion
- Excessive livestock grazing practices in riparian and watershed areas and upland range areas
- Improper forest road use and road construction
- Lack of riparian zone and restoration
- Agricultural practices which result in degraded soil quality and health

Nonpoint pollution is being caused by:

- Excessive rain runoff from non-riparian areas
- Excessive soil development construction activities

RESOURCE PROBLEMS

Problem Statement

The following problem statement was developed during the preparation of Supplement No. 2:

High summer water temperatures resulting from low flows and a lack of multi-layered riparian vegetation have, in part, reduced the suitability of the Lapwai Creek system as quality salmonid spawning and rearing habitat. Sediment, nutrients, and bacteria from existing land uses have adversely impacted water quality.

It was also determined during the preparation of this supplement that earth cover changes and subsequent land use and management within the Lapwai Creek watershed have negatively affected the hydrologic behavior of the basin resulting in detrimental effects to the instream and downstream water uses of:

- * Salmonid Spawning
- * Cold Water Biota
- * Domestic Water Supply
- * Agricultural Water Supply
- * Primary Contact Recreation
- * Secondary Contact Recreation
- * Navigation
- * Wildlife Habitat
- * Aesthetics

Pollutants and Sources of Pollutants

Pollutants identified in the 1992 Idaho Department of Health and Welfare-Division of Environmental Quality (IDHW-DEQ) Assessment Report as contributing to the water quality problems of the watershed include sediment, nutrients, and bacteria. In 1996 and 1998 Lapwai Creek (17060306-ID3143-1998) was listed on the Idaho 303(d) list and is considered by Idaho to be a water-quality-limited stream segment. Lapwai Creek is listed for bacteria, dissolved oxygen, flow alteration, habitat alteration, nutrients, organics, pesticides, sediment, and temperature. The primary nonpoint sources of pollutants are non-irrigated croplands, grazing lands, road construction and maintenance activities, and road and skid trail construction associated with logging. The soil and water resource problems within the expanded Lapwai Creek watershed are:

- 1) Increased flood hazard potential (Port of Lewiston and homes along Lapwai, Sweetwater, Tom Beall, Garden Gulch, and Webb Creeks), loss of river barge navigation, increased treatment cost for municipal and industrial water use, flood damage to historical sites (Spalding Mission), flood damage to homes, erosion damage from high flow events along lower Lapwai Creek caused by off-site sediment and bedload.
- 2) Loss of fishery habitat caused by deposition of sediment from cropland, forestland, and roads. Streambank erosion also is a significant source of sediment.
- 3) Degraded surface and ground water quality caused by sediment, nutrient, pesticide, and bacteria loading.
- 4) Loss of sustained long-term productivity caused by soil erosion.

Causes of Pollution

Agricultural (including grazing lands) and silvicultural related nonpoint source pollution is being caused by:

- Conventional tillage practices which pulverize the soil surface, leaving inadequate crop residues
- Lack of enduring land treatment practices to control or reduce concentrated flow and gully erosion
- Improper livestock grazing practices in riparian and wetland areas and upland range areas
- Improper forest road and skid trail construction
- Lack of riparian cover and protection
- Agronomic practices which result in degraded soil quality and health

Additional pollution is being caused by:

- Improper road construction and maintenance
- Improper rural development construction activities

Effects of Pollution

The following impacts and effects result from the hydrologic modifications and subsequent land use and management that have occurred in the watershed system:

- Low mid-summer flows
- Lethal or near lethal seasonal temperature extremes
- Lack of instream structure and habitat diversity
- Reduced quality of spawning and rearing habitat
- Reduced channel capacity resulting in flooding hazards and navigational impairments
- Increased municipal and industrial water treatment costs
- Increased operation and maintenance costs due to sediment deposition on roads, culverts, and barrow pits
- Crop damages and losses due to sedimentation
- Crop yield losses due to erosion
- Reduction in wildlife populations and of species diversity due to riparian and wetland habitat loss

Off-site Effects of Sedimentation

Sediment has an adverse effect on many resource users within the project area as well as downstream water users. Sediment deposits in the upstream end of the Lower Granite Reservoir reduces freeboard on dikes that protect the city of Lewiston from flooding. Deposits of sediment in Snake River port facilities reduce the load capacity of barges operating from Lewiston-Clarkston area and cause direct economic loss to barge operators. Deposition of sediment in recreation facilities reduces draft clearance of boats and requires dredging to maintain user access. The Army Corps of Engineers estimates that approximately 2,000,000 cubic yards of sediment are deposited annually in the Lower Granite pool. Of this, about 389,000 cubic yards (19.5%) of the sediment comes from the Clearwater River. It also has been estimated that approximately 2.5 percent of the Clearwater River portion, or some 9,800 cubic yards (7,000 tons), are contributed annually by the Lapwai Creek watershed. Turbidity in the stream at water intake facilities for industry and municipalities requires water treatment in excess of normal cost. The suspended sediment and bedload movement affect anadromous fisheries by absorbing sunlight and increasing stream temperatures during critical migration periods. Silt and sand are deposited in spawning beds, reducing the salmonid reproductive capacity of streams. Fine sediments also are deposited in pool habitat used by rearing salmonids.

The majority of off-site sedimentation is being caused by a combination of detrimental agricultural practices:

- Conventional tillage practices which pulverize the soil surface leaving inadequate crop residue for protection;
- Inversion tillage, such as plowing, which tends to create a moisture-restrictive layer at a depth of 8-10 inches; and
- Continued use of excessively steep and erodible lands for crop production.

The following problems occur as a result of these practices:

- Degradation of water quality which impacts fish, wildlife, and recreation opportunities.
- Increased operation and maintenance costs because of sediment deposition on roads, in barrow pits, and at bridges and culverts.
- Accelerated sediment deposition at the Ports of Lewiston and Clarkston, increasing the likelihood of flooding and navigational hazards.
- Crop damage and losses caused by sedimentation.

Summary

The Watershed Plan/EA addressed only a few of the major impacts and effects resulting from the hydrologic modifications and subsequent land use and management. Off-site sediment and associated nutrient loading and on-site erosion were reduced under the Watershed Plan/EA by 64 percent and 58 percent respectively. Positive impacts resulting from the implementation of the Watershed Plan/EA include:

- Improved quality of spawning and rearing habitat
- Reduced flooding at the Port of Lewiston

- Reduced municipal and industrial water treatment costs
- Reduced road, culvert, and barrow pit operation and maintenance costs
- Reduced crop damages and losses
- Reduced crop yield losses

Supplement No. 1 and Supplement No. 2 will address these additional resources problems within the Lapwai Creek watershed:

- Lethal or near-lethal seasonal temperature extremes
- Lack of instream structure and habitat diversity
- Reduction of wildlife populations and of species diversity due to riparian and wetland habitat loss
- Low mid-summer flows

Lower the average mid-summer water temperatures in Lapwai Creek by 2 degrees centigrade, thereby working toward conformance with the Clean Water Act mandate of fishable and swimmable waters within the United States and compliance with all applicable water quality standards.

Table 6 (page 20-31) reflects modifications to the Watershed PWSHA Evaluation of Identified Concerns as a result of the ongoing process initiated during the preparation of Supplement No. 2.

Species References

Riparian Habitat

Riparian areas are those areas associated with streams, rivers, and wet areas where vegetative communities are predominantly influenced by their association with water. Riparian plants, with their large, extensive root systems, play a major role in stabilizing streambanks, shading the stream, and providing hiding cover for fish. Changes in stream channel profiles also can affect stream temperatures, water velocity, and sediment delivery and deposition, as well as habitat for fish and other aquatic life.

During the Mission/Lapwai Erosion/Revegetation Analysis Cooperative River Basin Study promoted in 1988, a riparian inventory was completed. Inventory methods included a 15-foot-wide buffer of adequate multi-layered vegetation on each side of the stream channel for a functioning riparian area. The inventory indicated that 70 percent of the mainstem of Mission Creek was comprised of inadequate riparian vegetation. According to the River Basin Study, adequate multi-layered riparian vegetation probably existed on approximately 70 percent of the mainstem of Mission Creek prior to human development. A reconnaissance level riparian inventory utilizing aerial infrared photos and ground surveys was conducted on Lapwai Creek during the preparation of Supplement No. 1 in an attempt to match the inventory criteria used during the River Basin Study. The results indicated that 50 percent of the mainstem Lapwai Creek was comprised of inadequate multi-layered riparian vegetation.

As with the preparation of Supplement No. 1, aerial infrared photography and other estimates were used to determine the extent of inadequate multi-layered riparian vegetation within the expanded project area (Supplement No. 2). Results indicate that the extent of inadequate multi-layered riparian vegetation is approximately 65 percent for the mainstem Lapwai Creek (above Mission Creek) and 21 percent for the mainstem Sunwater Creek, a total of approximately 21 stream miles. A field reconnaissance completed for the preparation of this supplement identified an additional 22 miles of above 1 stream with inadequate riparian vegetation (23 miles total).

Research has conclusively shown that the maintenance or reestablishment of streamside vegetation is a major part of successful stream management for steelhead and other anadromous salmonids (Haver 1979; Reeves and Hovick 1984; Johnson 1982). Riparian vegetation, in addition to providing cover, provides habitat for terrestrial insects that fall into the stream and become food for juvenile salmonids, and provides plant materials that become food of aquatic invertebrates (Havens and Smith 1974).

RESOURCE INVENTORY AND FORECASTING

Scoping of Concerns

During the planning of Supplement No. 2, input was solicited from the sponsors, landowners, and a technical advisory group comprised of various specialists and fisheries biologists from the Idaho Department of Fish and Game (IDFG), the United States Department of Interior - Fish and Wildlife Service (FWS), and the Natural Resources Conservation Service (NRCS). Meetings were held with the sponsors, landowners, and the technical advisory group to review existing resource data, discuss watershed problems, and determine objectives related to the enhancement of anadromous fish.

As a result of public input and consensus planning, the sponsors developed the following objective for Supplement No. 2 to enhance anadromous fish habitat in the Lapwai Creek Watershed:

- * Lower the average mid-summer water temperatures in Lapwai Creek by 5 degrees centigrade, thereby working toward conformance with the Clean Water Act mandate of fishable and swimmable waters within the United States and compliance with all applicable water quality standards.

Table B (page 30-31) reflects modifications to the Watershed Plan/EA Evaluation of Identified Concerns as a result of the scoping process initiated during the preparation of Supplement No. 2.

Existing Resources

Riparian Zones:

Riparian zones are those areas associated with streams, lakes, and wet areas where vegetative communities are predominantly influenced by their association with water. Riparian plants, with their large, extensive root systems, play a major role in stabilizing streambanks, shading the stream, and providing hiding cover for fish. Changes in stream channel profiles also can affect stream temperatures, water velocity, and sediment delivery and deposition, as well as habitat for fish and other aquatic life.

During the Mission-Lapwai Erosion/Sedimentation Analysis Cooperative River Basin Study prepared in 1985, a riparian inventory was completed. Inventory criteria included a 15-foot-wide buffer of adequate multi-layered vegetation on each side of the stream channel for a functioning riparian area. The inventory indicated that 72 percent of the mainstem of Mission Creek was comprised of inadequate riparian vegetation. According to the River Basin Study, adequate multi-layered riparian vegetation probably existed on approximately 70 percent of the mainstem of Mission Creek prior to human development. A reconnaissance-level riparian inventory utilizing aerial infrared photos and ocular estimates was conducted on Lapwai Creek during the preparation of Supplement No. 1 in an attempt to match the inventory criteria used during the River Basin Study. The results indicated that 58 percent of the mainstem Lapwai Creek was comprised of inadequate multi-layered riparian vegetation.

As with the preparation of Supplement No. 1, aerial infrared photography and ocular estimates were used to determine the extent of inadequate multi-layered riparian vegetation within the expanded project area (Supplement No. 2). Results indicate that the extent of inadequate multi-layered riparian vegetation is approximately 92 percent for the mainstem Lapwai Creek (below Mission Creek) and 31 percent for the mainstem Sweetwater Creek, a total of approximately 21 stream miles. A field reconnaissance completed for the preparation of this supplement identified an additional 32 miles of tributary streams with inadequate riparian vegetation (53 miles total).

Research has consistently shown that the maintenance or reestablishment of streamside vegetation is a major part of successful stream management for steelhead and other anadromous salmonids (Narver 1976; Reeves and Roelefs 1984; Johnson 1985). Riparian vegetation, in addition to providing cover, provides habitat for terrestrial insects that fall into the stream and become food for juvenile salmonids, and provides plant materials that become food of aquatic invertebrates (Reiser and Bjornn 1979).

Fish Resources:

Lapwai Creek and its major tributaries were important historically as reproductive habitat for Snake River Basin steelhead, which the National Marine Fisheries Service (NMFS) listed as Threatened under the Endangered Species Act on February 5, 1999. Steelhead spawn in March and April and typically spend 2 years in freshwater before migrating to the sea. They spend 2-3 years in the Pacific Ocean before returning to their natal stream to spawn. Although juvenile steelhead were present in the three streams shown in Table A3 (page 13), Kucera et al. (1983) documented spawning only in Sweetwater Creek and possibly in Webb Creek. Recent surveys have not documented steelhead spawning in Lapwai Creek below Mission Creek, although juvenile steelhead do occur in the stream reach (Paul Kucera, personal communication, 1996).

Factors detrimental to steelhead spawning and rearing in the Lapwai Creek watershed include:

- 1) the regular occurrence of extreme high runoff events and extreme low summer flows;
- 2) high summer water temperatures;
- 3) poor instream and riparian cover; and
- 4) siltation of spawning gravels.

These factors decrease survival of steelhead eggs, larvae, and juveniles and decrease the stream's carrying capacity for adult (resident) rainbows and juvenile steelhead.

Measures that could enhance spawning and rearing habitat for steelhead and resident trout include:

- 1) augmentation of summer flows (to prevent stream de-watering and to moderate water temperatures);
- 2) installation of in-stream habitat structures, such as large boulders, check dams, and large root wads (to provide cover and resting habitat for adult and juvenile fish); and
- 3) protection and restoration of riparian vegetation (to stabilize banks, provide cover for juvenile and adult salmonids, moderate stream water temperatures, and increase the salmonid food base).

The 1996 flood event had both negative and positive effects on salmonids in the Lapwai Creek system. The large bedload flows certainly killed many fish, including their eggs and larvae. However, the introduction of additional large woody debris and the scour holes they created has increased the amount of pool habitat, which is a major limiting factor to salmonids in this system. While it is difficult to precisely assess the direct effects of the 1996 floods on fish, the long-term effects will likely benefit fish (Ed Schriever, IDFG, personal communication). Often the operation of heavy equipment in streams during or shortly after floods negates some of the flood's positive effects on fish habitat.

Threatened and Endangered Species:

The FWS and the NMFS have identified the following threatened and endangered species and candidate species that may occur in the project area:

Listed Threatened or Endangered:

- Bald Eagle (*Haliaeetus leucocephalus*)
- Snake River fall chinook salmon (*Oncorhynchus tshawytscha*)
- Snake River Basin steelhead (*Oncorhynchus mykiss*)
- Bull Trout (*Salvelinus confluentus*)

Species of Concern:**Plant Species -**

- Jessica's aster (*Aster jessicae*)
- Broad-fruit mariposa (*Calochortus nitidus*)
- Palouse goldenweed (*Haplopappus liatrifolius*)
- Spalding's silene (*Silene spaldingii*)
- Plumed Clover (*Trifolium plumosum* var *amplifolium*)

The bald eagle, bull trout, steelhead, and salmon all are associated with the Clearwater River system. The bald eagles winter along the Clearwater River and also may be associated with major tributaries like Lapwai Creek.

The designated critical habitat for Snake River fall chinook salmon includes the Clearwater River from its confluence with the Snake River upstream to its confluence with Lolo Creek. The project area is approximately 10 miles above the confluence of the Snake and Clearwater Rivers at Lewiston, Idaho. Although not within the designated critical

habitat for salmon, activities within the adjacent project area influence the quality of aquatic resources downstream. Critical habitat is a regulatory term describing the land, water, and air space containing the physical and biological features essential for the survival and recovery of threatened and endangered species. Critical habitat for threatened steelhead includes the Clearwater River. Critical habitat for bull trout includes upstream sections of the Clearwater River.

Other:

Plants of Special Interest – Used by Nez Perce Tribe

The following plants traditionally used by the Nez Perce tribe may be found in the Lapwai Creek Watershed:

Root foods:

Alium geyeri – Wild onion
Camassia quamash – Common camas*
Daucus pusillus – Wild carrot, American carrot, Rattlesnake weed
Ligusticum verticulatum – Kouse Kouse*
Lomatium canbyi – Wild potato, Canby's lomatium, Canby's desert-parsley
Lomatium cous – Cous, cous biscuit-root*
Perideridia quamash - Yampa

Berries:

Amelanchier alnifolia – Serviceberry*
Berberis nervosa – Oregon grape
Crataegus douglasii – Black hawthorn
Crataegus columbiana – Columbia hawthorn, Red hawthorn
Fragaria sp. – Wild strawberry
Prunus virginiana – Chokecherry
Ribes aureum – golden currant
Ribes oxycanthoides – Northern gooseberry, red sweet gooseberry
Ribes inerme – Whitestem gooseberry, Purple sour gooseberry
Rosa sp. – Wild rose
Rubus ursinus – Blackberry
Rubus nivalis – Blackcap raspberry
Rubus idaeus – Red raspberry
Rubus spectabilis – Salmonberry
Rubus parviflorus – Thimbleberry
Sambucus cerulea – Blue elderberry
Vaccinium membranaceum – Thin-leaved blueberry, Big huckleberry, Tall bilberry*
Vaccinium scoparium – Grouseberry, whortleberry, Fireberry*

Other plant foods:

Aleectoria jubata – Pine tree lichen
Balsamorhiza sagittata – Arrowleaf balsamroot
Cirsium scariosum – Elk thistle
Heracleum lanatum – cow parsnip
Larix occidentalis – Tamarack
Lomatium grayi – Wild celery
Pinus ponderosa – Ponderosa pine

Non-food plants:

Apocynum cannabinum – Dogbane hemp
Arctostaphylos uva-ursi – Kinnickinnick

*Still commonly used today.

Treatment Unit Descriptions**Summary of Treatment Units:****TU #1 - TU #4 From Watershed Plan/EA and Supplement No. 1**

- TU #1 Non-Irrigated Cropland, cut-over timber soils, 0-10% slopes
Watershed Plan/EA
- TU #2 Non-Irrigated Cropland, cut-over timber soils, >10% slopes
Watershed Plan/EA
- TU #3 Non-Irrigated Cropland, prairie soils, 0-12% slopes
Watershed Plan/EA
- TU #4 Non-Irrigated Cropland, prairie soils, >12% slopes
Watershed Plan/EA

TU #5 - TU#15 For Supplement No. 2

- TU #5 Non-Irrigated Cropland, prairie soils, 0-8% slopes, 8,186 acres
Supplement No. 2
- TU #6 Non-Irrigated Cropland, prairie soils, 8-20% slopes, 12,982 acres
Supplement No. 2
- TU #7 Non-Irrigated Cropland, prairie soils, >20% slopes, 4,122 acres
Supplement No. 2
- TU #8 Non-Irrigated Cropland, prairie soils, 0-20% slopes, 22 inch precipitation, 5,580 acres
Supplement No. 2
- TU #9 Non-Irrigated Cropland, cut over timber soils, 2-15% slopes, 2,426 acres
Supplement No. 2
- TU #10 Riparian Areas, 53 miles or 2,696 acres
Supplement No. 2
- TU #11 Grazable Woodland, 0-20% slopes, 12,594 acres
Supplement No. 2
- TU #12 Forestland, 20-75% slopes, 13,925 acres
Supplement No. 2
- TU #13 Roads, 784 miles or 2,048 acres
Supplement No. 2
- TU #14 Animal Feeding Operations (AFOs), 115 Total Feeding Operations
Supplement No. 2
- TU #15 Rangeland, 25-75% slopes, 24,632 acres
Supplement No. 2

Cropland:

All cropland is non-irrigated and is used for the production of various crops including winter wheat, spring wheat, fall barley, spring barley, safflower, buckwheat, oats, spring peas, lentils, garbanzo beans, Austrian winter peas, canola, and rape. The rotation varies depending on the precipitation. Typically the lower elevation cropland areas consist of a crop/fallow rotation when moisture is limiting or are annually cropped with a two- to three-year rotation when moisture is adequate. The higher elevation areas typically have a two-year rotation with a few producers using a three-year rotation. Lands over 20% slope typically have lower crop yields and higher nutrient and soil losses depending on the depth of topsoil and the level of management. Average yields of all crops are shown in table A4. A treatment unit map is located in Appendix B.

Table A4. Average Crop Yields (per acre).

| | |
|----------------|-----------|
| Winter Wheat | 80 bu |
| Spring Wheat | 60 bu |
| Fall Barley | 60 bu |
| Spring Barley | 60 bu |
| Oats | 70 bu |
| Canola | 1,200 lbs |
| Safflower | 1,200 lbs |
| Buckwheat | 40 bu |
| Fall peas | 1,800 lbs |
| Spring peas | 1,800 lbs |
| Lentils | 2,000 lbs |
| Garbanzo Beans | 1,400 lbs |

The Food Security Act (FSA) of 1985 is currently in place and having its impact in the watershed. Approximately 80 percent (26,637 acres) of the total cropland is considered to be highly erodible land (HEL). It is estimated that 75 percent (19,978 acres) of the HEL land is being treated under FSA for conservation compliance.

Use and management of the cropland is tied directly to the soils and slope on which they occur. Five cropland treatment units (TUs) have been established by grouping areas having similar soils, climate, physical landscape features, crop rotations and tillage operations, erosion rates, and other soil map unit characteristics. There are approximately 30,050 cropland acres within the project boundaries.

Nutrient Loss Summary

A soil leaching and surface runoff potential summary is provided for each cropland TU in table A5. Data was generated with the aid of the National/Soils Database and User Decisions Support System for Risk Assessment of Ground Water and Surface Water Contamination (NPURG). The soil leaching loss potential and soil surface runoff loss potential were calculated for the predominate soils of each cropland TU. These soil loss potentials are expressed numerically as 1 for high risk, 2 for intermediate, 3 for low, and 4 for very low. This means that a rating of 1 would have a high risk of potential nutrient movement (leaching) below the plant root zone and also a high risk of nutrient loss through surface runoff in soil solution, compared with a rating of 3 which would have a low leaching and surface runoff loss potential. A general soil leaching loss potential map is located in Appendix B.

TABLE A5 Soil Leaching and Surface Loss Index

| Treatment Unit Number | Lewis-Nez Perce Soil Survey Soil Mapping Unit | Soil Leaching Loss Potential | Soil Solution Surface Loss Potential | |
|-----------------------|---|------------------------------|--------------------------------------|---|
| 5 | Broadax Silt Loam, 2-8% Slopes | 3 | 2 | |
| 6 | Naff-Palouse Silt Loam, 2-8% Slopes | | | |
| | Naff | 3 | 2 | |
| 7 | Thatuna-Naff-Tilma Silt Loam, 10-25% Slopes | | | |
| | | Thatuna | 3 | 1 |
| | | Naff | 3 | 2 |
| 8 | Uhlorn-Vollmer Silt Loam, 8-20% Slopes | | | |
| | | Uhlorn | 2 | 2 |
| 9 | Driscoll-Larkin Silt Loam, 2-10% Slopes | | | |
| | | Vollmer | 3 | 1 |
| | | Driscoll | 3 | 1 |
| | Larkin | 3 | 2 | |

Cropland Treatment Unit Descriptions:

Treatment Unit 5 - Non-irrigated cropland, prairie soils, 0-8% slopes, 8,186 acres

This treatment unit consists of cropland areas with 0 to 8 percent slopes. The topography consists of broad, gently sloping ridge tops with slopes averaging 5 percent and slope lengths of 600 feet. Average annual rainfall is 18 inches. The representative soil for this treatment unit is Broadax and associated soils. These soils were developed in loess and have a silt loam surface texture. These soils are predominantly very deep and well-drained with the depth to bedrock at greater than 60 inches.

Crop Data

The major crops grown include wheat, barley, garbanzo beans, and peas. Average per-acre yields are 62 bushels for wheat, 3,000 pounds for barley, 1,800 pounds for garbanzo beans, and 1,500 pounds for peas. About 5 years out of 10, soil moisture is adequate and annual cropping occurs. The 5 years out of 10 when soil moisture is limiting, the rotation is wheat/fallow.

Resource Problems

On the flatter slopes of this unit, areas of deposition occur. Runoff from this treatment unit deposits directly into the creeks or into other treatment units. A combined sheet and rill erosion sediment delivery rate of 18 percent has been established for Treatment Unit 5. An ephemeral gully erosion sediment delivery rate of 40 percent has been established to represent this unit. This is a critical unit with a combined annual sheet, rill, and ephemeral gully erosion soil loss of 98,232 tons per year, with 23,085 tons of sediment delivered annually to the streams in the watershed.

The majority of erosion on this treatment unit is from sheet and rill, ephemeral gully, and classic gully erosion. Conservation practices will focus on those practices which trap sediment, increase infiltration, prevent gully erosion, and reduce sheet/rill erosion.

Causes of Resource Problems

A saturated moisture profile results in poor infiltration during the critical erosion period from December to April. Sediment loss is increased from sheet, rill, and ephemeral gully erosion. Fish habitat degradation results from clogged interstitial space affecting spawning survivability and fish food-organism habitat.

Treatment Unit 6 - Non-irrigated cropland, prairie soils, 8-20% slopes, 18" precipitation, 12,982 acres

This treatment unit consists of cropland areas with 8 to 20 percent slopes. The topography consists of ridge and side slopes averaging 14 percent with short (250 feet) slope lengths. The representative soil for this treatment unit is Naff and associated soils. These soils were developed in loess and have a silt loam surface texture. The soils are predominantly very deep and well-drained with a depth to bedrock at greater than 60 inches.

Crop Data

The major crops grown include wheat, barley, garbanzo beans, lentils, safflower, buckwheat, and peas. Average per acre yields are 67 bushels for wheat, 3,000 pounds for barley, 1,600 pounds for garbanzo beans, 800 pounds for lentils, 600 pounds for safflower, 40 bushels for buckwheat, 1,500 pounds for peas. When soil moisture is adequate, annual cropping occurs; however, when soil moisture is limiting, the rotation is wheat/fallow.

Resource Problems

Runoff from this treatment unit deposits directly into the creeks or into other treatment units. A combined sheet and rill erosion sediment delivery rate of 19 percent has been established for Treatment Unit 6. An ephemeral gully erosion sediment delivery rate of 41 percent has been established to represent this unit. This is a critical unit with a combined annual sheet, rill, and ephemeral gully erosion soil loss of 175,257 tons per year, with 40,440 tons of sediment delivered annually to the streams in the watershed.

Causes of Resource Problems

Saturated moisture profiles during the critical erosion period (December to April) result in increased erosion and sediment loss from sheet, rill, and ephemeral gully erosion. Rain-on-frozen-soil (common to this area) also accelerates erosion. Fish habitat degradation occurs in areas of close proximity to riparian zones.

Treatment Unit 7 - Non-irrigated cropland, prairie soils, greater than 20% slopes, 4,122 acres

This treatment unit consists of cropland areas with greater than 20 percent slopes. The topography consists of ridge, side slopes with steep but short (200 feet) slope lengths, and slopes averaging 25 percent. Average annual rainfall ranges from 18 to 22 inches. The representative soil for this treatment unit is Thatuna and associated soils. These soils were developed in loess and have a silt loam texture. The soils are predominantly very deep and moderately well-drained with a depth to bedrock at greater than 60 inches.

Crop Data

The major crops grown include wheat, barley, garbanzo beans, lentils, and peas. Average per acre yields are 67 bushels for wheat, 3,000 pounds for barley, 1,800 pounds for garbanzo beans, 800 pounds for lentils, and 1,530 pounds for peas. When soil moisture is adequate, annual cropping occurs; however, when soil moisture is limiting, the rotation is wheat/fallow.

Resource Problems

Runoff from this treatment unit deposits directly into the creeks or into other treatment units. A combined sheet and rill erosion sediment delivery rate of 23 percent has been established for Treatment Unit 7. An ephemeral gully erosion sediment delivery rate of 48 percent has been established to represent this unit. This is a critical unit with a combined annual sheet, rill, and ephemeral gully erosion soil loss of 82,440 tons per year, with 22,055 tons of sediment delivered annually to the streams in the watershed.

Causes of Resource Problems

The presence of a restrictive clay layer in the soil results in a perched water table during the critical erosion period. Steep slopes in combination with saturated soils and rain-on-frozen-soil conditions result in severe erosion rates. Fish habitat degradation occurs in areas of close proximity to streams.

Cropland Treatment Unit 8 - Non-irrigated cropland, prairie soils, 2-20% slopes, 22" precipitation, 5,580 acres

This treatment unit consists of cropland areas with 2 to 20 percent slopes. The topography consists of broad, gently sloping ridge tops with slopes averaging 14 percent and slope lengths of 300 feet. Average annual rainfall is 22 inches. The representative soil for this treatment unit is Uhlorn and associated soils. These soils were developed in loess and have a silt loam texture. The soils are predominantly very deep and well-drained with a depth greater than 60 inches to bedrock.

Crop Data

The major crops grown include wheat, barley, garbanzo beans, lentils, and peas. Average per acre yields are 75 bushels for wheat, 3,000 pounds for barley, 1,700 pounds for garbanzo beans, 1,200 pounds for lentils, and 1,600 pounds for peas. Crop rotations are predominantly a two-year annual cropping system.

Resource Problems

On the flatter slopes of this unit, areas of deposition occur. Runoff from this treatment unit deposits directly into the creeks or into other treatment units. A combined sheet and rill erosion sediment delivery rate of 15 percent has been established for Treatment Unit 8. An ephemeral gully erosion sediment delivery rate of 30 percent has been established to represent this unit. This is a critical unit with a combined annual sheet, rill, and ephemeral gully erosion soil loss of 142,290 tons per year, with 23,435 tons of sediment delivered annually to the streams in the watershed.

Causes of Resource Problems

Steep slopes, in combination with rain-on-frozen-soil conditions, result in accelerated sediment loss from sheet, rill, and ephemeral gully erosion. Fish habitat degradation occurs in areas of close proximity to streams.

Cropland Treatment Unit 9 - Non-irrigated cropland, cut over timber soils, 2-15% slopes, 2,426 acres

This treatment unit consists of cropland areas with 2 to 15 percent slopes. The topography consists of broad, gently sloping ridge tops with slopes averaging 8 percent and slope lengths of 200 feet. Average annual rainfall is 22 inches. The representative soil for this treatment unit is Driscoll and associated soils. These soils were developed in loess and have a silt loam surface texture. The soils are predominantly very deep and moderately well-drained with a depth to bedrock of greater than 60 inches.

Crop Data

The major crops grown include wheat, barley, garbanzo beans, lentils, and peas. Average per acre yields are 65 bushels for wheat, 3,000 pounds for barley, 1,800 pounds for garbanzo beans, 900 pounds for lentils, 1,600 pounds for peas. Crop rotations are predominantly a 2-year annual cropping system, however, some 3-year rotations are used in this treatment unit.

Resource Problems

On the flatter slopes of this unit, areas of deposition occur. Runoff from this treatment unit deposits directly into the creeks or into other treatment units. A combined sheet and rill erosion sediment delivery rate of 15 percent has been established for Treatment Unit 9. An ephemeral gully erosion sediment delivery rate of 30 percent has been established to represent this unit. This is a critical unit with a combined annual sheet, rill, and ephemeral gully erosion soil loss of 42,455 tons per year, with 7,280 tons of sediment delivered annually to the streams in the watershed.

Causes of Resource Problems

The presence of a perched water table during the critical erosion period results in accelerated soil loss from sheet, rill, and ephemeral gullies. Rain-on-frozen-soil conditions (common to the area) also increase sediment loss. Fish habitat degradation occurs in areas of close proximity to streams.

Riparian Treatment Unit Description:

Treatment Unit 10 - Riparian Areas, 2,696 acres or 53 miles

Riparian Areas are located adjacent to perennial and intermittent stream courses within the Lapwai Creek watershed on all land use types. The riparian resources within the Lapwai Creek watershed vary from the open camas prairie cropland to narrow, shrub-dominated riparian areas to broad, tree-dominated riparian zones in the flatter U-shaped valley at the mouth. The lower half of Lapwai Creek is dominated by trees and shrubs over a relatively wide accessible floodplain. The upper half is primarily a narrow, rocky canyon with a corresponding narrow riparian area. Tributaries are short, steep, and dominated by shrub thickets. The headwaters of Lapwai Creek originate on the Camas Prairie cropland.

Good condition riparian areas can be recognized by a comparatively high density of shrubs or trees, or both. Together, these woody plants perform important functions such as maintaining streambank stability and trapping sediment and debris. They also shade the stream and provide hiding cover for fish. Poor condition riparian zones are functioning below their potential and can be identified by few, if any, woody plants.

Riparian Area Data

Aerial infrared photographs and ocular estimates were used to determine the extent of inadequate multi-layered riparian vegetation within the expanded project area (Supplement No. 2). Results indicate that the extent of inadequate multi-layered riparian vegetation is approximately 92 percent for the mainstem Lapwai Creek and 31 percent for the mainstem Sweetwater Creek. A field reconnaissance completed for this supplement identified an additional 53 miles of tributary streams with inadequate riparian vegetation.

Resource Problems

Riparian zones are unstable from lack of protective woody and perennial grass vegetative cover. Results are bare, exposed soil as well as unstable streambanks. Direct sedimentation from streambanks adversely affects stream temperature, water velocity, and habitat for fish and other aquatic species. Water quality problems are exacerbated during low flow periods when nutrients are delivered to the stream. Total average annual streambank erosion for areas with accelerated erosion on Sweetwater Creek is 450 tons; Lapwai Creek is 414 tons; and a total of 6,360 tons for the remaining tributaries. Sweetwater Creek has a sediment delivery rate of 90%, Lapwai Creek 95%, and the remaining tributaries are 70%. Total average annual streambank erosion for this treatment unit amounts to 7,224 tons, with a total of 5,251 tons of sediment delivered annually to the streams.

Causes of Resource Problems

The degradation of riparian areas is caused by stream channelization, improper road construction and maintenance, livestock overgrazing, and the direct removal of vegetation to facilitate farming operations. Floodplain encroachment is also a widespread problem as evidenced by the extensive flood-related property damage caused by the 1996 runoff event. Despite good intentions, channelization activities following the flood have had a negative impact on the ability of riparian areas to withstand future flood events.

Grazable Woodland Treatment Unit Description:

Treatment Unit 11 - Grazable Woodland, 0-20% slopes, 12,594 acres

This treatment unit is located on nearly level to moderately steep slopes (0-20%) on plateau landscape positions. It occurs at higher elevations (3,000 ft.). The majority of the land is owned and operated by non-industrial private forest (NIPF) landowners. Common forest habitat types range from Douglas fir/snowberry to grand fir/twinflower. In well-managed timber stands, production can range from 60 to 100 cubic feet/acre/year (or 300 to 375 board feet/acre/year Scribner Rule).

Suitable forage is generally found in the ponderosa pine and Douglas fir habitat types. In the higher and wetter habitats where grand fir is the climax tree species, livestock forage is often not adequate unless the tree canopy coverage is open (less than about 60 percent) or if the stand is young.

Resource Problems

Timber harvest activities are concentrated in times of high market values or in periods when landowners have more acute financial needs. This leads to the potential for unplanned and multiple-stand harvest entries within the common stand rotation age of a well-managed forest. NIPF timber harvest operations are rarely coordinated across ownership boundaries.

High-grading and poor regeneration provisions are common results of logging activities on NIPF lands. Logging can be accomplished by ground-based skidding systems on this less-steep treatment unit. Unplanned skid trails have resulted in concentrated water flow and increased erosion in past harvest operations. Poorly planned skid trails also result in a higher amount of soil surface disturbance. Livestock utilization of palatable grass species can be detrimental on roads and trails that have been seeded for resource protection.

Unrestricted livestock grazing in this treatment unit has often resulted in the degradation of riparian areas. The loss of streamside vegetation has allowed streambanks to erode at an accelerated rate and has resulted in the degradation or loss of salmonid habitat.

Erosion Summary

Erosion occurs on exposed soils following disturbance from harvest activities. The potential for accelerated erosion is most acute during the harvest event and for up to a year or more following. Sheet and rill erosion is estimated at 2.12 tons per acre per year with a sediment delivery rate (SDR) of 17%, and gully erosion is estimated at 0.5 tons per acre per year, with an SDR of 39%. Total annual sediment delivery to the watershed streams from this treatment unit amounts to 6,995 tons. Sediment delivery can also occur from concentrated livestock, especially around watering or riparian sites. This is addressed in the riparian treatment units.

Causes of Resource Problems

The greatest single cause of erosion and sedimentation is from logging activities (forested roads and skid trails and, to a lesser degree, log landings). Newly constructed roads are a greater risk than older roads, which have had an opportunity to stabilize and revegetate.

The Idaho Forest Practices Act (FPA) is in place to address non-point source pollution from forest activities. It is administered by the Idaho Department of Lands (IDL). FPA generally protects the forest resource adequately; however, IDL jurisdiction of FPA ends after timber harvest activities cease. Roads that continue to be used for non-harvest purposes usually represent an ongoing source of erosion, sedimentation, and water quality degradation.

Forestland Treatment Unit Description:

Treatment Unit 12 - Forestland, 20-75% slopes, 13,925 acres

This treatment unit is located on moderately steep to very steep slopes (20-75%) on dissected plateau landscape positions. This treatment unit is on intermediate elevations in the watershed. The majority of the land is owned and operated by non-industrial private forest (NIPF) landowners. It is common for this treatment unit to be associated with range treatment units on aspect-influenced vegetation areas.

The common forested habitat type is ponderosa pine/snowberry. In well-managed timber stands, production can range from 70 to 130 cubic feet/acre/year (or 300 to 500 board feet/acre/year Scribner Rule). Woodland grazing by livestock is common, but slope and water availability can limit management options.

Resource Problems

Timber harvest activities are concentrated in times of high market values or in periods when landowners have particular financial needs. This leads to the tendency for unplanned and multiple-stand harvest entries within the longer stand rotation age of a well-managed forest. NIPF timber harvest operations are rarely coordinated across ownership boundaries.

High-grading and poor regeneration provisions are common results of logging activities on NIPF lands. Brush encroachment following harvest is a common problem. Logging is done by cable systems on the part of the treatment unit that is steeper than 35 percent. On the less-sloping part of the treatment unit, logging can be done with ground-based systems.

Erosion Summary

Erosion occurs on exposed soils following disturbance from harvest activities. The potential for accelerated erosion is most acute during the harvest event and for up to a year or more following. Sheet and rill erosion is estimated at 3.63 tons per acre per year with a sediment delivery rate (SDR) of 15%, and gully erosion is estimated at 0.5 tons per acre per year, with an SDR of 30%. Total annual sediment delivery to the watershed streams from this treatment unit amounts to 9,670 tons. Sediment delivery can occur from concentrated livestock, especially around watering or riparian sites. This is addressed in the riparian treatment units.

Causes of Resource Problems

The greatest single cause of erosion and sedimentation is from logging activities (forested roads and skidding operations and, to a lesser degree, from log landings). Newly constructed roads are a greater risk than older roads, which have had an opportunity to stabilize and revegetate.

The Idaho Forest Practices Act (FPA) is in place to address non-point source pollution from forest activities. It is administered by the Idaho Department of Lands (IDL). FPA generally protects the forest resource adequately; however, IDL jurisdiction of FPA ends after timber harvest activities cease. Roads that continue to be used for non-harvest purposes usually represent an ongoing source of erosion, sedimentation, and water quality degradation.

Roads Treatment Unit Description:

Treatment Unit 13 - Roads, 409 miles or 2,048 acres

This treatment unit is located adjacent to all roads within the watershed, including paved, improved dirt, and unimproved dirt.

Road Data

Estimated Road Lengths(from Nez Perce Tribe GIS section):

Highway - 17 miles

Light Duty (improved dirt) - 119.4 miles

Unimproved dirt - 272.8 miles

Resource Problems

Accelerated sediment yields occur from unsurfaced roads throughout the watershed, especially during times of road maintenance. Road-associated erosion occurs on all road types including forest roads and roads on steep gradients through cropland. Classic gully erosion occurs as road-ditch-accumulated water is routed through associated cropland. Sediment from roads is deposited on associated cropland and in adjacent streams affecting fish and aquatic resources.

Erosion Summary

Total annual sheet and rill and gully erosion is estimated at 11,450 tons per year with a sediment delivery rate (SDR) of 32%. Total annual sediment delivery to the watershed streams from this treatment unit amounts to 3,665 tons.

Causes of Resource Problems

Agricultural activities and cultivation of road ditches to control weeds result in inadequate road ditch development and therefore poor drainage systems for runoff. Road maintenance activities followed by periods of heavy precipitation can result in direct sediment delivery to streams and severe erosion of newly constructed ditches. Severe classic gully erosion through cropland can result from ditch runoff routed through fields. Increased sedimentation to streams results in increased stream temperatures, poor aquatic conditions, and degradation of salmonid spawning habitat.

AFO Treatment Unit Description:**Treatment Unit 14 - Animal Feeding Operations (AFOs), 115 Total Feeding Operations**

Animal feeding operations (AFOs) within the Mission-Lapwai Creek Supplement No. 2 watershed area were inventoried in the summer of 1996. The mainstem of Lapwai Creek below Jacques Spur was inventoried along with tributaries including Garden Gulch Creek, Sweetwater Creek, Tom Beall Creek, and Webb Creek. The AFOs within the watershed predominantly have small total numbers of animal units, typically less than 25. The highest density of AFOs exists along the mainstem of Lapwai Creek where the most "mini-ranch" type of development has occurred. These AFOs typically have a couple of horses or calves.

Fifty-five waste management systems will be installed. Individual waste management systems will include practices such as dikes, diversions, fencing, livestock water development (livestock pipeline and trough), manure transfer, waste storage facilities, and waste utilization (nutrient management), as needed, site-specific.

Resource Problems

Water quality degradation has occurred throughout the watershed where AFOs are in close proximity to streams and no alternative water sources are available. Steep slopes and poor containment of runoff accelerate animal waste delivery to streams and further degrade water quality conditions.

Causes of Resource Problems

Direct animal access to streams and poor containment of runoff on steep slopes have resulted in degraded water quality conditions. Precipitation on frozen soils further accelerates stream-delivered pollutants.

Rangeland Treatment Unit Description:**Treatment Unit 15 - Rangeland, 25-75% Slopes, 24,632 acres**

Rangelands in the Lapwai Creek watershed are located on steep, rocky canyon slopes that are not suited to cultivation. Rangelands are found primarily on Kettenbach, Gwin, Linville, and Waha soils. Once dominated by native perennial bunchgrasses such as bluebunch wheatgrass and Idaho fescue, most areas now are infested with exotic annuals, primarily cheatgrass and yellow starthistle. Compared to the potential natural plant communities, these communities rate in poor ecological condition (poor range condition). The technology to economically treat infested areas does not presently exist. Use of these rangelands is limited to early spring livestock grazing before yellow starthistle spines develop.

Resource Problems

The present shallow-rooted annual plant communities are not as effective in contributing to water infiltration and retention as the potential natural plant community would be. A greater proportion of precipitation becomes surface runoff, resulting in streambank erosion and sediment and nutrient delivery to streams. Noxious weed infestations have reduced range condition, resulting in drastic reductions in forage production and reduced carrying capacity. Noxious weed invasion causes poor plant diversity and reduction of desirable wildlife habitat, and adversely impacts culturally significant plant populations.

Sheet and rill erosion is estimated at 4.5 tons per acre per year with a sediment delivery rate (SDR) of 25%, and gully erosion is estimated at 1.0 tons per acre per year, with an SDR of 55%. Total annual sediment delivery to the watershed streams from this treatment unit amounts to 41,260 tons.

Causes of Resource Problems

Improper and excessive grazing has resulted in poor range conditions and heavy noxious weed infestations. Invading weeds have drastically reduced carrying capacities and therefore rangeland values. Economic alternatives to return rangelands to their natural condition, or to a more productive condition, are difficult, long-term processes requiring intense management.

FORECASTED CONDITIONS

Forecasted conditions are predictions about what conditions would be in the future—without project action, assuming that all existing programs remain constant.

On-site Damages:

Critical factors for on-site damages are sediment and associated pollutants produced from increased runoff, concentrated flow erosion, and streambank and channel instability caused by degraded riparian areas. Topsoil is a valuable non-renewable resource. The average erosion rates from cropland are well above the maximum annual acceptable soil loss for productive soils. Channel erosion from unstable streambanks and headcuts is a large contributor of sediment. Erosion on rangeland, forests, grazable woodland, and roads also contributes to sedimentation problems in the watershed.

Off-site Damages:

Sediment, nutrients, and bacteria, as well as degraded riparian corridors, increased stream temperatures, and streambank erosion are the primary problems related to off-site damages affecting the anadromous fisheries in the watershed. An estimated 183,136 tons of sediment will be delivered to Lapwai Creek every year if no action is taken (Table C, pages 35-37).

Fisheries:

Study results published by the American Fisheries Society in 1991 indicated that approximately 214 of about 400 stocks of salmon, steelhead, and sea-run cutthroat trout in the Pacific Northwest and California are at risk of extinction, with 106 stocks already extinct.

Snake River fall chinook salmon is listed as threatened (LT). The Snake River Basin steelhead was listed as threatened (LT) in the fall of 1997. Bull trout was listed threatened (LT) in June 1998. Critical habitat for bull trout, chinook salmon, and steelhead includes the Clearwater River. As a major tributary to the Clearwater, Lapwai Creek has a direct impact on the listed critical habitat. Without watershed treatment on a large scale, the health of the watershed will continue to decline, as will habitat for the area's anadromous fisheries.

Table B - Evaluation of Additional Identified Concerns (continued)

| Economic, Social, Environmental and Cultural Concern | Degree of Concern | Degree of Significance to Decision Making 1/ | Remarks |
|--|-------------------|--|---|
| Water Quality | High | High | Stream temperatures exceed temperature criteria for anadromous fisheries |
| Fisheries | High | High | Spawning and rearing affected by water temperature and sediment |
| Visual Resource | Moderate | Moderate | Inadequate riparian vegetation |
| T&E Species | High | High | Clearwater River designated critical habitat for Snake River fall chinook salmon, bull trout, and Snake River Basin steelhead |
| Wildlife | Moderate | Moderate | Poor habitat diversity due to lack of structural diversity in riparian areas. |
| Cultural Resources | High | High | Possibility of unknown sites of significance |
| Native Traditions | High | High | Anadromous fisheries present in watershed. Culturally significant plants |
| Sedimentation | High | High | Impacts navigation at Port |
| Streams | High | High | Sediment degrades the fishery |
| Reservoirs | High | High | All runoff passes through Lower Granite Reservoir |
| Soil Erosion | High | High | High erosion and sediment delivery |
| River Navigation | High | High | Dredged sediment from Port of Lewiston/Clarkston |
| Flooding | High | High | Sediment increases the hazard at Lewiston |
| Riparian | High | High | 53 miles of inadequate multi-layered riparian vegetation |

Table B - Evaluation of Additional Identified Concerns (continued)

| Economic, Social, Environmental and Cultural Concern | Degree of Concern | Degree of Significance to Decision Making 1/ | Remarks |
|--|-------------------|--|--|
| Municipal and Industrial Water Use | High | High | River is a source of water supply |
| Transportation (Roads) | High | High | Sediment delivery as a result of road maintenance |
| Wetlands | High | High | Occur within riparian corridor |
| Recreation | High | High | Pathogens (bacteria/viruses) impact primary and secondary recreation in streams. |
| Ground Water | High | High | Nitrate and bacteria levels in wells are a concern |
| Important Farmland | High | High | 8,240 acres of Prime Farmland in the watershed |
| Air Quality | None | | |
| Irrigation | Low | Low | LOID 2/ water impacts |
| Human Safety and Health | High | High | Bacteria, Pathogens, Nutrients and Pesticides from AFOs and cropland |

- 1/ High - Must be considered in the analysis of alternatives
- Moderate - May be affected by some alternative solutions
- Low - Consider, but not significant
- None - Need not be considered in the analysis
- 2/ - LOID - Lewiston Orchards Irrigation District

FORMULATION OF ALTERNATIVES

Formulation Process

Formulation of Supplement No. 2 alternatives followed the inventory, forecasting, and analysis of cropland, AFOs, roads, private forestland, rangeland, pastureland, riparian areas, and hydrologic conditions occurring in the watershed.

Formulation proceeded with an analysis of the land treatment application that was installed and what remains to be installed, as a result of the implementation of the State Agricultural Water Quality Program (SAWQP) and PL-566 program administered by the Nez Perce Soil and Water Conservation District and the Lewis Soil Conservation District. An inventory of existing riparian vegetative conditions was completed during the preparation of this supplement. An inventory of possible enduring land treatment practice sites was also completed.

The Technical Advisory Group evaluated land treatment practices to determine which practices should be included to address resource problems in the project area.

The goal is to achieve a 5-degree-centigrade reduction in the average mid-summer water temperatures in Lapwai Creek to meet the Idaho State Water Quality Standards as stated in the Idaho Water Quality Standards and Wastewater Treatment Requirements. All potential alternatives were formulated with this goal in mind.

Evaluation of Alternative Plans

Cost estimates and benefits for the 1990 Mission-Lapwai Creek Watershed Protection Plan/Environmental Assessment (EA) were indexed to 1999 dollars. The costs and benefits for Supplement No. 1 (1994) were also indexed to 1999 dollars. Supplement No. 2 practices, units needed, and costs were developed by an interdisciplinary team after an inventory of the project area was complete. Supplement No. 2 treatment needs took into account the land treatment measures already planned and being implemented through the Watershed Plan/EA.

Table C (page 35-37) displays a summary and comparison of alternative plans.

No Action Alternative (Without Supplement No. 2 Project Conditions):

This alternative includes the 1990 Mission-Lapwai Creek Watershed Protection Plan/EA, and the 1994 Supplement No. 1.

The original 1990 Mission-Lapwai Creek Watershed Protection Plan/EA utilized PL-566 funding for technical assistance and Idaho SAWQP funding for financial assistance. The Resource Protection (RP) Plan was the selected alternative. Currently an estimated 90 percent of the works of improvement are in place, with the remaining work expected to be installed as scheduled. The Watershed Plan/EA included 1,440 acres of conservation tillage, 22,360 acres of crop residue use, 580 acres of contour (cross slope) farming, 1,280 acres of stripcropping, 2,270 acres of pasture and hayland planting and management, 37,000 feet of grassed waterway, 14 sediment basins, 120 acres of critical area planting, and 35,600 feet of terraces.

The 1990 cost of the original project was estimated at \$1,510,960: \$178,000 from PL-566 technical assistance funds and \$1,332,960 from other sources. Average annual benefits were estimated at \$112,790 with annual costs at \$91,920. The benefit-to-cost ratio is 1.23 to 1.00. The average annual reduced cost of crop production was estimated at \$46,280. Operation, maintenance, and replacement costs were estimated at \$5,030 per year.

The Supplemental Mission-Lapwai Creek Watershed Protection Plan/EA (Supplement No. 1) was approved for implementation in 1994. This supplement added 5 acres of channel vegetation, 11 acres of deferred grazing, 95,440 feet of fencing, 32 acres of livestock exclusion, 9,080 feet of streambank and shoreline protection, 29 stockwater developments, 21 animal trails and walkways, 71 sediment basins, 643 water and sediment control basins, and 97,150 feet of flood plain easement. Currently an estimated 30 percent of the works of improvement are in place with the remaining work expected to be installed as scheduled.

The 1994 cost of Supplement No. 1 was \$2,056,850: \$1,243,530 from PL-566 funds and \$813,320 from other sources. Average annual benefits were estimated at \$42,490 with annual costs at \$260,480. The benefit-to-cost ratio was 0.16 to 1.0. The operation, maintenance, and replacement costs were estimated at \$67,810 per year.

The original 1990 Mission-Lapwai Creek Watershed Protection Plan/EA costs and benefits were updated to 1994 dollars. Some re-evaluation of benefits and costs were made and then divided between as-built and remaining work for the Supplement No. 1 Plan. The total 1994 cost of the no action alternative (Watershed Plan/EA plus Supplement No. 1) was \$3,780,610: \$1,450,380 from PL-566 funds and \$2,330,230 from other sources. The average annual benefits were estimated at \$563,380 with annual costs at \$427,680. The benefit-to-cost ratio is 1.32 to 1.00. The average annual reduced cost of crop production was estimated at \$82,710. The operation, maintenance, and replacement costs were estimated at \$73,530 per year.

Alternative # 1 Resource Protection (RP) Plan - Supplemental Mission-Lapwai Creek Watershed Protection Plan - Environmental Assessment: - (Supplement No. 2)

Supplement No. 2.

The supplement adds to the no action alternative to meet the water quality objective established during the supplemental planning process. This alternative includes, in addition to the practices specified in the no action alternative, the addition of 20 (each) access roads, 50 (each) agrichemical handling facilities, 1,300 feet of animal trails and walkways, 9 acres of buffer strips, 100 acres of channel vegetation, 5 (each) constructed wetlands, 1,925 acres of critical area planting, 12,200 feet of diversions, 99,700 feet of fencing, 7 acres of field borders, 38 acres of filter strips, 53 fish stream improvement structures, 1,000 acres of forest site preparation, 2,000 acres of forest stand improvement, 180 grade stabilization structures, 30 acres of grassed waterway, 10 acres of heavy use area protection, 50 acres of pasture and hayland planting, 10 (each) ponds, 2,500 acres of range planting, 30 acres of riparian forest buffer, 2,720 feet of rock-lined waterway, 50 runoff management systems, 100 (each) sediment basins, 66 (each) stockwater developments, 20,000 feet of streambank and shoreline protection, 1,000 acres of stripcropping (field/divided slopes), 10 (each) structures for water control, 13,200 feet of terraces, 1,500 acres of tree/shrub establishment, 55 (each) waste management systems, 140 (each) water and sediment control basins, 20 acres of wildlife wetland habitat management and 20 acres of wildlife upland habitat management. In addition, 22,500 acres of nutrient management, 27,500 acres of pest management, 12,000 acres of prescribed grazing, 15,500 acres of residue management, 2,250 acres of subsoiling, 15 acres use exclusion (range/pasture) and 20 (each) use exclusion (riparian) will be planned but not cost-shared under PL-566. Implementation of this alternative would require an approximate participation rate of 75 percent of the landowners and operators. This rate of participation appears likely, with an overall project participation rate estimated at 74 percent using the NRCS South National Technical Center (SNTC) Social Sciences Technical Note "Guide for Estimating Participation in Conservation Operations and Watershed Protection Projects."

The cost of Supplement No. 2 is \$7,204,200: \$3,814,920 from PL-566 funds and \$3,389,280 from other sources. Average annual benefits are estimated at \$704,850, and average annual costs estimated at \$802,800. The benefit-to-cost ratio is 0.88 to 1.00. The average annual reduced cost of crop production is estimated at \$79,950. Operation, maintenance, and replacement costs are estimated at \$205,330 per year.

The total updated Supplemental Mission-Lapwai Creek Watershed Protection Plan - Environmental Assessment cost (Original Plan and Supplement No. 1) is \$4,255,510: \$1,631,800 from PL-566 funds and \$2,623,710 from other sources. The average annual benefits were estimated at \$635,260, and average annual costs estimated at \$495,330. The benefit-to-cost ratio is 1.28 to 1.00. The average annual reduced cost of crop production was estimated at \$92,880. The operation, maintenance, and replacement costs are estimated at \$82,980 per year.

The total Alternative 1 (Supplemental Mission-Lapwai Creek Watershed Protection Plan - Environmental Assessment and Supplement No. 2) cost is \$11,459,710: \$5,446,720 from PL-566 funds and \$6,012,990 from other sources. The average annual benefits are estimated at \$1,340,110, and average annual costs estimated at \$1,298,130. The benefit-to-cost ratio is 1.03 to 1.00. The average annual reduced cost of crop production is estimated at \$172,830. The operation, maintenance, and replacement costs are estimated at \$288,310 per year.

Risk and Uncertainty

Due to the number of landowners involved, there is some uncertainty as to whether all land treatment measures will be installed. Landowner acceptance of enduring land treatment practices is relatively good. Some structural practices have been installed under the Original Plan/Supplement No. 1; however, limiting factors are low commodity prices and limited technical assistance. A moderate structural effort has occurred in the Big Canyon Creek State Agricultural Water Quality Program (SAWQP) project area which is located adjacent to the Mission-Lapwai Creek Watershed. The close proximity of this increased structural activity should allow producers in the watershed to realize the benefits of on-farm enduring land treatment practices. Landowner acceptance of riparian practices is low, due in part to lack of current technical assistance and follow-up contacts. Increased technical assistance should allow for additional and periodic one-on-one follow-up contacts with landowners and operators having control of the riparian areas.

Riparian and structural treatment needs for Mission-Lapwai Creek were determined utilizing inventory data gathered during supplement preparation. Variations in practice units will no doubt occur as individual contracts for implementation are developed in the field.

Obstacles to project implementation may exist. One is landowner and operator reluctance to enter into a long-term contract with NRCS based on prior experience with compliance issues related to the Food Security Act (FSA). Secondly, the economic advantages of participation in the recommended riparian enhancement practices are not obvious. The majority of the water quality practices primarily provide off-site benefits.

Rationale for Plan Selection

Implementation of Supplement No. 2 will result in water quality benefits including reduction in delivery of nutrients, pesticides and bacteria to surface waters, and the lowering of nutrient and pesticides levels in ground water. This reduction will move towards the Clean Water Act goal of achieving fishable and swimmable waters within the United States and will comply with applicable water quality standards. Implementation of riparian area enhancement and erosion control measures in the Watershed Plan and Supplement No. 1 and No. 2 will provide the treatment necessary for agricultural non-point sources in order to move toward attainment of water quality standards and protection of the beneficial uses, thereby allowing removal of Lapwai Creek (17060306-ID3143-1998) from the Idaho 303(d) list.

Supplement No. 2 practices will reduce erosion an additional 416,492 tons (53 percent) and off-site sediment by 122,126 tons (67 percent). Supplement No. 2 measures will provide long-term benefits to Listed Threatened and Endangered Species Snake River fall chinook salmon, Snake River Basin steelhead, bull trout, their designated critical habitat, as well as resident fisheries or other aquatic resources, by providing seasonal temperature reduction and reduction of sediment delivered to the spawning and rearing areas in Lapwai Creek and the Clearwater River. The establishment of adequate multi-layered riparian vegetation on 40.0 miles of stream length (75% of 53.0-mile total) will enhance the fisheries habitat and provide an overall positive effect to wildlife habitat, riparian areas, and aesthetic resources by achieving temperature reductions, allowing for the re-introduction of large organic debris into the stream system, stabilizing streambanks, and enhancing overhanging vegetation. The land treatment practices will improve base stream flow conditions by reducing peak flows early in the year and sustaining a higher base flow throughout the year.

Supplement No. 2 will have a positive effect on 8,240 acres of prime farmland in the watershed.

The no action alternative does not achieve the sponsors' water quality objective of temperature reduction for an additional 53 miles of stream in the watershed area. The no action alternative currently has an 82 percent participation rate.

Recommended Plan:

Alternative # 1 (RP Plan) has been selected as the Recommended Plan. This plan is a combination of the no action alternative and Supplement No. 2.

Supplemental Mission-Lapwai Creek Watershed Protection Plan - Environmental Assessment

The total cost of this Supplemental Plan/EA (including the Watershed Plan/EA, Supplement No. 1, and Supplement No. 2) is \$11,459,710: \$5,446,720 from PL-566 funds and \$6,012,990 from other sources. Average annual benefits are estimated at \$1,340,110, and average annual costs estimated at \$1,298,130. The benefit-to-cost ratio is 1.03 to 1.00. The average annual reduced cost of crop production is estimated at \$172,830. Operation, maintenance, and replacement costs are estimated at \$288,310 per year.

The Recommended Plan meets the sponsors' objective for water quality improvement through temperature reduction and allows for additional annual sediment reduction.

Table C - Summary and Comparison of Alternative Plans

| Effects | No Action <u>1/</u> | Alternative # 1 (Recommended) |
|--|--|--|
| Project Investment | \$4,255,510 | \$11,459,710 |
| Adverse (Average Annual) | \$495,330 | \$1,298,130 |
| Beneficial (Average Annual) | \$635,260 | \$1,340,110 |
| Net Beneficial (Average Annual) | \$139,930 | \$41,980 |
| BC Ratio | 1.28 to 1 | 1.03 to 1 |
| Environmental Quality Account | | |
| Off-site Sediment (Tons) To Clearwater River | | |
| Total Yield (Before Treatment) | 223,702 <u>2/</u> | 223,702 |
| Total (After Treatment) | 233,945 <u>2/</u> | 101,576 |
| Reduction (Tons) | None <u>2/</u> (0%) | 122,126 (55%) |
| Erosion (Tons) | | |
| Total (Before Treatment) | 1,001,208 <u>2/</u> | 1,001,208 |
| Total (After Treatment) | 1,001,208 <u>2/</u> | 584,716 |
| Reduction (Tons) | None <u>2/</u> (0%) | 416,492 (42%) |
| Erosion Reduction (Supplement #2 Subwatershed Only) | (0) | 416,492 (53%) |
| Sediment Reduction To Clearwater River (Supplement #2 Subwatershed Only) | (0) | 122,126 (67%) |
| Water Quality (Surface and Ground) | | |
| Surface Water Temperature | Improved fisheries habitat and water quality on 12.2 miles of stream | Stream temperature reduced 5 degrees C to optimum range for anadromous fish on 53.0 additional miles of stream |

1/ No action alternative is the Watershed Plan/EA plus Supplement No. 1.

2/ No action tons of erosion and off-site sediment includes Supplement No. 1 with treatment and new acres in Supplement #2 without treatment.

Table C - Summary and Comparison of Alternative Plans (continued)

| Effects | No Action ^{1/} | Alternative # 1 (Recommended) |
|---|---|--|
| Environmental Quality Account (cont.) | | |
| Surface Water (cont.) | | |
| Off-Site Sediment Reduction | 61 percent reduction | 67 percent reduction on an additional 89,400 acres |
| Nutrients and Pesticides | Detains 61 percent of nutrients and pesticides attached to soil particles | 67 percent reduction on an additional 89,400 acres |
| Pathogens and Bacteria | Minimal effect | Meet primary and secondary water quality contact standards |
| Dissolved Oxygen (DO) | Minimal effect | Increased DO from decreased temperature |
| Total Dissolved Solids (TDS's) EPA and Idaho DEQ 303(d) list | Partial effect Partial effect | Meet water quality stnds. Remove Lapwai Creek and tributaries from 303(d) list |
| Ground Water (Domestic Water Supply) Nutrients, Pesticides, Pathogens, and Bacteria | Minimal Effect | Meet drinking water standards |
| Re-establish Anadromous Fisheries as a Viable Component of the Ecosystem and Restore Ecosystem Health | Improved fisheries habitat and water quality on 12.2 miles of stream | Improved fisheries habitat and water quality on additional 53 miles of stream |
| Adequate Multi-layered Riparian Vegetation (%) On Lapwai Creek | 41 percent | 70 percent (Natural Condition) |
| T&E Species – Fisheries Bull trout Snake River fall chinook salmon Snake River Basin steelhead Spawning Habitat | Partial effect | 67 percent sediment reduction |
| Rearing Habitat | Minimal Effect | Riparian habitat enhanced on 53.0 additional miles of stream |
| Water Temperature | Minimal Effect | Water temperature Reduced 5 degrees C |

^{1/} No action alternative is the Watershed Plan/EA plus Supplement No. 1.

Table C - Summary and Comparison of Alternative Plans (continued)

| Effects | No Action ^{1/} | Alternative # 1 (Recommended) |
|--|---|--|
| Environmental Quality Account (cont.) | | |
| Sediment and Sedimentation | 61 percent reduction | 67percent reduction on an additional 89,400 acres |
| Physical Barriers | Minimal Effect | Eliminate Physical Barriers |
| Juvenile Survival | Minimal Effect | Improve water quality, habitat, water temperature, eliminate barriers, and enhance in-stream cover |
| Other Social Effects Account | | |
| Improved Visual and Aesthetic Values | Riparian vegetation enhanced on 12.2 miles of stream corridor | Riparian vegetation enhanced on 53.0 additional miles of stream corridor |
| Opportunities to Continue Traditional Fishing Activities | Minimal Effect | Increased opportunity due to habitat enhancement |
| Re-establishment of Opportunities to Harvest Anadromous Fish | Minimal Effect | Increased opportunity due to habitat enhancement & water quality improvements |
| Public Health Hazards | Minimal Effect | Meet water quality standards for surface and ground water |
| Regional Economic Development Account | | |
| Beneficial Effect Average Annual | | |
| Region | \$137,230 | \$257,620 |
| Rest of Nation | \$498,030 | \$1,082,490 |
| Adverse Effect Average Annual | | |
| Region | \$338,550 | \$824,970 |
| Rest of Nation | \$156,780 | \$473,160 |

^{1/} No action alternative is the Watershed Plan/EA plus Supplement No. 1.

Table C - Summary and Comparison of Alternative Plans (continued)

| Effects | No Action ^{1/} | Alternative # 1 (Recommended) |
|--|---|--|
| Environmental Quality Account (cont.) | | |
| Sediment and Sedimentation | 61 percent reduction | 67percent reduction on an additional 89,400 acres |
| Physical Barriers | Minimal Effect | Eliminate Physical Barriers |
| Juvenile Survival | Minimal Effect | Improve water quality, habitat, water temperature, eliminate barriers, and enhance in-stream cover |
| Other Social Effects Account | | |
| Improved Visual and Aesthetic Values | Riparian vegetation enhanced on 12.2 miles of stream corridor | Riparian vegetation enhanced on 53.0 additional miles of stream corridor |
| Opportunities to Continue Traditional Fishing Activities | Minimal Effect | Increased opportunity due to habitat enhancement |
| Re-establishment of Opportunities to Harvest Anadromous Fish | Minimal Effect | Increased opportunity due to habitat enhancement & water quality improvements |
| Public Health Hazards | Minimal Effect | Meet water quality standards for surface and ground water |
| Regional Economic Development Account | | |
| Beneficial Effect Average Annual | | |
| Region | \$137,230 | \$257,620 |
| Rest of Nation | \$498,030 | \$1,082,490 |
| Adverse Effect Average Annual | | |
| Region | \$338,550 | \$714,400 |
| Rest of Nation | \$156,780 | \$580,080 |

^{1/} No action alternative is the Watershed Plan/EA plus Supplement No. 1.

RECOMMENDED PLAN

Purpose and Summary

The Recommended plan is Alternative # 1 (RP Plan). This plan is a combination of the no action alternative and Supplement No. 2 and is designed to improve the water quality of Mission-Lapwai Creek through temperature reductions. In addition, plan implementation will result in reduced sedimentation.

The implementation of the planned land treatment measures will be accomplished following PL-566 long-term contracting policies and procedures. Measures to be installed will be identified in the participant's conservation plan (long-term contract) as developed, approved, and administered by the sponsoring conservation districts. Standards, specifications, eligibility criteria, and complete descriptions of the planned land treatment measures are contained in the NRCS Field Office Technical Guide (FOTG).

Plan Elements

Conservation practices were selected to allow for water quality improvements in the form of temperature reductions. In addition to the practices planned in the Watershed Plan/EA, Supplement No. 2 includes the addition of enduring land treatment practices such as constructed wetlands, diversions, grade stabilization structures, ponds, and waste management systems.

It is the goal of this plan to treat 75 percent of the riparian area that was identified as needing treatment (2,022 acres or 40 miles). In addition, this plan will apply land treatment measures on 75 percent of the project area cropland (24,972 acres).

The land treatment measures to be installed under the supplement, as well as those measures that were planned under the Watershed Plan/EA, are listed in Table 1 (page 40).

Mitigation Features

The project will be installed so that wildlife, fisheries, and significant cultural resources will not be adversely affected.

Permits and Compliance

All installation activities will occur on private land. If permits or licenses are required, the individual landowner/operator will be responsible for obtaining and paying for them. Planned fish stream improvement measures may require a "Stream Alteration Permit" from the Idaho Department of Water Resources (IDWR) and/or a 404 permit from the U.S. Army Corps of Engineers (COE), and any needed corresponding coordination with the Nez Perce Tribe - Water Resources Division. The permitting agencies (IDWR and COE) may also require permit certification from other state and federal agencies.

Costs

Total project cost for Supplement No. 2, Supplement No. 1, and the Watershed Plan/EA, including installation, technical assistance, local costs and project administration is \$11,459,710. Total project costs and benefits are displayed in Tables 1, 2, 4, 5A, and 6. Costs and benefits are distributed as follows: Remaining Work, which includes practices planned under the Watershed Plan/EA and Supplement No. 1 remaining to be installed; As Built, which includes all practices installed to date under the Watershed Plan/EA and Supplement No. 1; and Supplement No. 2, which includes the costs and benefits associated with the additional practices added as a result of this supplement. It should be noted that the Remaining Work and Supplement costs are estimates based on the projected practice application. Final costs will be those actually incurred at the time of installation.

Installation costs will be shared by the individual landowner/operator and PL-566 financial assistance funds. Total installation cost is \$9,119,990.

The estimated technical assistance costs for Supplement No. 2, Supplement No. 1, and the Watershed Plan/EA are \$1,648,760. Technical assistance costs include the direct cost of local NRCS staff to accomplish planning, design, field layout, preparation of plans and specifications, construction inspection, and status reviews.

Project administration includes all administrative costs associated with the installation of the planned project. These costs include review and approval of long-term contracts, administration of contracts, and administrative supervision of practice application. Total project administration costs, including local and NRCS costs for Supplement No. 2,

Supplement No. 1, and the Watershed Plan/EA are \$690,960. Estimated average annual operation and maintenance costs for Supplement No. 2, Supplement No. 1, and the Watershed Plan/EA are \$288,310. Estimated average annual damage reduction benefits for Supplement No. 2, Supplement No. 1, and the Watershed Plan/EA are \$1,340,110. No relocation or displacements will be required. The project will not adversely affect fish or wildlife, so no special mitigating provisions are planned.

Installation and Financing

The implementation of planned land treatment measures will be through individual land treatment contracts. These contracts will follow NRCS PL-566 long-term contracting policies and procedures.

The contract period may not be less than 3 years (36 months) nor more than 10 years (120 months). The contract period for individual contracts can vary depending on the length of the existing PL-566 contract. Contracts, on average, will schedule all cost-shared conservation practices for installation within a five- to six-year period. Each contract is to extend for at least two years (24 months) beyond the application of all required conservation treatment. The two-year period is required to ensure adequate establishment of the conservation treatment.

NRCS will use PL-566 technical assistance funds to help the sponsors develop individual contracts and schedule and supervise practice installation. NRCS also will assist the sponsors by certifying practice application, providing needed follow-up assistance, and completing annual status reviews. The landowners/operators will be responsible for the operation and maintenance of their installed measures.

The sponsors will encourage the development and application of long-term contracts on all identified cropland and riparian areas needing treatment. They will provide leadership through an aggressive information and education program to encourage application of land treatment measures necessary for the success of the project. Residue management (no-till, mulch-till, direct seeding) is included as a non-cost-shared component on all cropland treatment units when the operator also installs structural erosion control measures or vegetative riparian treatment in the cropland area.

Individual landowners/operators will be responsible for installing all scheduled land treatment measures. They will provide all land rights, permits, and water rights necessary for construction and inspection.

Technical assistance furnished by the NRCS in carrying out the plan is contingent on the appropriation of funds for this purpose.

The landowners/operators will make arrangements for financing their share of the installation as well as operation, maintenance, and replacement costs.

Operation Maintenance and Replacement

Individual landowners/operators will maintain applied land treatment measures throughout the life of the long-term contract. The contract will explain the operation and maintenance required for each scheduled land treatment measure. Some measures, such as sediment basins and water and sediment control basins, may require additional operation and maintenance and possible replacement during the life of the contract. Technical assistance for operation and maintenance will be provided by NRCS.

A joint inspection of applied land treatment measures will be made annually by the sponsors, NRCS, and the landowner/operator throughout the lifetime of the long-term contract. The sponsors will encourage the continued operation and maintenance of installed measures, with each participant, after the contract is completed.

Table 1. Estimated Installation Costs.

Mission-Lapwai Creek Watershed - Idaho
(Dollars) 1/

| As Built | | | | | |
|---|------|-------------------------|------------------|------------------|------------------|
| Remaining Work | | | | | |
| Installation Cost Item | Unit | Non-Federal Land Number | PL-566 Funds | Other Funds | Total |
| As Built | | | 337,620 | 1,615,080 | 1,952,700 |
| Remaining Work | | | 787,770 | 667,800 | 1,455,570 |
| Total Installation | | | 1,125,390 | 2,282,880 | 3,408,270 |
| Technical Assistance | | | 506,410 | 0 | 506,410 |
| Project Administration | | | 0 | 340,830 | 340,830 |
| Channel Vegetation | acre | 5 | | | |
| Critical Area Planting | acre | 120 | | | |
| Crop Residue Use | acre | 22,360 | | | |
| Cross Slope Farming | acre | 580 | | | |
| Deferred Grazing | acre | 11 | | | |
| Fencing | feet | 95,440 | | | |
| Grassed Waterway | feet | 37,000 | | | |
| Livestock Exclusion | acre | 32 | | | |
| Pasture/Hayland Planting | acre | 2,270 | | | |
| Residue Management No-till | acre | 1,440 | | | |
| Sediment Basin | each | 85 | | | |
| Stocktrails & Walkways | each | 21 | | | |
| Stockwater Development | each | 29 | | | |
| Streambank/Shoreline Protection | feet | 9,080 | | | |
| Stripcropping | acre | 1,200 | | | |
| Terrace | feet | 35,600 | | | |
| Water & Sediment Control Basin | each | 643 | | | |
| Wetland & Flood Plain Easement | feet | 97,150 | | | |
| Totals (As Built & Remaining Work) | | | 1,631,800 | 2,623,710 | 4,255,510 |

Supplement No. 2

| Installation Cost Item | Unit | Non-Federal Land Number | PL-566 Funds | Other Funds | Total |
|--------------------------------------|------|-------------------------|----------------|----------------|------------------|
| Riparian Treatment Practices | | | 607,540 | 382,660 | 990,200 |
| Technical Assistance | | | 188,040 | 10,000 | 198,040 |
| Project Administration | | | 30,380 | 32,870 | 63,250 |
| Riparian Enduring Practices | | | | | |
| Animal Trails and Walkways | feet | 1,300 | | | |
| Channel Vegetation | acre | 100 | | | |
| Constructed Wetland | each | 5 | | | |
| Fencing, Riparian | feet | 47,700 | | | |
| Fish Stream Improvement | each | 53 | | | |
| Grade Stabilization Structure | each | 12 | | | |
| Riparian Forest Buffer | acre | 30 | | | |
| Stockwater Development | each | 26 | | | |
| Streambank & Shoreline Protection | feet | 20,000 | | | |
| Structure for Water Control | each | 10 | | | |
| Riparian Management Practices | | | | | |
| Use Exclusion | acre | 20 | | | |
| Subtotals Riparian Practices | | | 825,960 | 425,530 | 1,251,490 |

Table 1. Estimated Installation Costs (continued).

Mission-Lapwai Creek Watershed - Idaho
(Dollars) 1/

| Supplement No. 2 (continued) | | | | | |
|---|-----------------------|--------|------------------|------------------|------------------|
| Installation Cost Item | Non-Federal Land Unit | Number | PL-566 Funds | Other Funds | Total |
| Animal Feeding Operation (AFO) Practices | | | 214,500 | 115,500 | 330,000 |
| Technical Assistance | | | 66,000 | 0 | 66,000 |
| Project Administration | | | 10,730 | 10,720 | 21,450 |
| Waste Management System | each | 55 | | | |
| Subtotals Animal Feeding Operation Practices | | | 291,230 | 126,220 | 417,450 |
| Road Practices | | | 204,390 | 110,060 | 314,450 |
| Technical Assistance | | | 62,890 | 0 | 62,890 |
| Project Administration | | | 10,220 | 10,220 | 20,440 |
| Access Road (Spot Road Rocking) | each | 20 | | | |
| Critical Area Planting | acre | 25 | | | |
| Grade Stabilization Structure | each | 68 | | | |
| Lined Waterway | feet | 2,720 | | | |
| Runoff Mgt. System | each | 50 | | | |
| Subtotals Road Practices | | | 277,500 | 120,280 | 397,780 |
| Cropland Practices | | | 769,900 | 1,406,420 | 2,176,320 |
| Technical Assistance | | | 236,890 | 198,380 | 435,270 |
| Project Administration | | | 38,500 | 88,080 | 126,580 |
| <u>Cropland Educting Practices</u> | | | | | |
| Agrichemical handling Facility | each | 50 | | | |
| Buffer Strip | acre | 9 | | | |
| Diversion | feet | 12,200 | | | |
| Field Border | acre | 7 | | | |
| Filter Strip | acre | 38 | | | |
| Grade Stabilization Structure | each | 100 | | | |
| Grassed Waterway | acre | 30 | | | |
| Pasture/Hayland Planting | acre | 50 | | | |
| Sediment Basin | each | 100 | | | |
| Stripcropping, Field/Divided Slopes | acre | 1,000 | | | |
| Terrace | feet | 13,200 | | | |
| Water & Sediment Control Basin | each | 140 | | | |
| <u>Cropland Management Practices</u> | | | | | |
| Nutrient Management | acre | 22,500 | | | |
| Pest Management | acre | 25,500 | | | |
| Residue Management | acre | 15,500 | | | |
| Subsoiling | acre | 2,250 | | | |
| Subtotals Cropland Practices | | | 1,045,290 | 1,692,880 | 2,738,170 |

Table 1. Estimated Installation Costs (continued).

Mission-Lapwai Creek Watershed - Idaho
(Dollars) 1/

| Supplement No. 2 (continued) | | | | | |
|---|-----------------------|--------|------------------|------------------|-------------------|
| Installation Cost Item | Non-Federal Land Unit | Number | PL-566 Funds | Other Funds | Total |
| Forestland Practices | | | 631,150 | 339,850 | 971,000 |
| Technical Assistance | | | 194,200 | 0 | 194,200 |
| Project Administration | | | 31,560 | 31,560 | 63,120 |
| Critical Area Planting | acre | 1,900 | | | |
| Fencing | feet | 40,000 | | | |
| Forest Site Preparation | acre | 1,000 | | | |
| Forest Stand Improvement | acre | 2,000 | | | |
| Stockwater Development | each | 20 | | | |
| Tree/Shrub Establishment | acre | 1,500 | | | |
| Subtotals Forest Practices | | | 856,910 | 371,410 | 1,228,320 |
| Range/Pasture Practices | | | 277,550 | 492,200 | 769,750 |
| Technical Assistance | | | 85,400 | 68,550 | 153,950 |
| Project Administration | | | 13,880 | 31,010 | 44,890 |
| <u>Range/Pasture Enduring Practices</u> | | | | | |
| Fencing | feet | 12,000 | | | |
| Heavy Use Area Protection | each | 10 | | | |
| Pest Management | acre | 5,000 | | | |
| Ponds | each | 10 | | | |
| Prescribed Grazing | acre | 12,000 | | | |
| Range Planting | acre | 2,500 | | | |
| Stockwater Development | each | 20 | | | |
| <u>Range/Pasture Management Practices</u> | | | | | |
| Use Exclusion | acre | 15 | | | |
| Subtotals Range/pasture Practices | | | 376,830 | 591,760 | 968,590 |
| Wildlife Practices | | | 104,000 | 56,000 | 160,000 |
| Technical Assistance | | | 32,000 | 0 | 32,000 |
| Project Administration | | | 5,200 | 5,200 | 10,400 |
| Upland Wildlife Habitat Management | acre | 20 | | | |
| Wetland Wildlife Habitat Management | acre | 20 | | | |
| Subtotals Wildlife Practices | | | 141,200 | 61,200 | 202,400 |
| Supplement No. 2 | | | | | |
| Installation | | | 2,809,030 | 2,902,690 | 5,711,720 |
| Technical Assistance | | | 865,420 | 276,930 | 1,142,350 |
| Project Administration | | | 140,470 | 209,660 | 350,130 |
| Totals Supplement No. 2 | | | 3,814,920 | 3,389,280 | 7,204,200 |
| Total Project | | | 5,446,720 | 6,012,990 | 11,459,710 |

1/ Price Base 2000

Table 2A, Estimated Cost Distribution (Continued)

Mission-Lapwai Creek Watershed – Idaho
(Dollars) 1/

| Installation Cost Item | Installation Cost - PL-566 Funds | | | | Installation Cost - Other Funds | | | | Total Installation |
|---------------------------------------|----------------------------------|------------------------|----------------------|--------------|---------------------------------|------------------------|----------------------|-------------|--------------------|
| | Construction | Project Administration | Technical Assistance | Total PL-655 | Construction | Project Administration | Technical Assistance | Total Other | |
| Range & Pasture Enduring | 277,550 | 13,880 | 85,400 | 376,830 | 149,450 | 13,870 | | 163,320 | 540,150 |
| Fencing | | | | | | | | | |
| Heavy Use Area Protection | | | | | | | | | |
| Ponds | | | | | | | | | |
| Range Planting | | | | | | | | | |
| Stockwater Development | | | | | | | | | |
| Range & Pasture Management | | | | | 342,750 | 17,140 | 68,550 | 428,440 | 428,440 |
| Pest Management | | | | | | | | | |
| Prescribed Grazing | | | | | | | | | |
| Use Exclusion | | | | | | | | | |
| Subtotals Range & Pasture | 277,550 | 13,880 | 85,400 | 376,830 | 492,200 | 31,010 | 68,550 | 591,760 | 968,590 |
| Wildlife | 104,000 | 5,200 | 32,000 | 141,200 | 56,000 | 5,200 | | 61,200 | 202,400 |
| Upland Wildlife Habitat Mgt. | | | | | | | | | |
| Wetland Wildlife Habitat Mgt. | | | | | | | | | |
| Supplement No. 2 | 2,809,030 | 140,470 | 865,420 | 3,814,920 | 2,902,690 | 209,660 | 276,930 | 3,389,280 | 7,204,200 |
| Treatment Unit Totals | | | | | | | | | |
| As built | 337,620 | | 288,560 | 626,180 | 1,615,080 | 195,280 | | 1,810,360 | 2,436,540 |
| Remaining Work | 787,770 | | 217,850 | 1,005,620 | 667,800 | 145,550 | | 813,350 | 1,818,970 |
| Total Project | 3,934,420 | 140,470 | 1,371,830 | 5,446,720 | 5,185,570 | 550,490 | 276,930 | 6,012,990 | 11,459,710 |

1/ Price Base 2000

Table 4. Estimated Average Annual Costs.

Mission-Lapwai Creek Watershed - Idaho
(Dollars) 1/

| Evaluation Unit | Average Annual Installation Cost | Operation Maintenance & Replacement | Average Annual Technical Asst. | Average Annual Project Admin. | Totals |
|------------------|----------------------------------|-------------------------------------|--------------------------------|-------------------------------|-----------|
| Supplement No. 2 | 473,690 | 205,330 | 94,740 | 29,040 | 802,800 |
| As Built | 192,830 | 28,750 | 28,490 | 19,280 | 269,350 |
| Remaining Work | 137,450 | 54,230 | 20,560 | 13,740 | 225,980 |
| Grand Totals | 803,970 | 288,310 | 143,790 | 62,060 | 1,298,130 |

1/ Price Base 2000, amortized over 25 years at a discount rate of 6.625 percent.

June, 2000

Table 5A. Estimated Average Annual Watershed Protection Damage Reduction Benefits.

Mission-Lapwai Creek Watershed - Idaho
(Dollars) 1/

| Item | Supplement # 2 Estimated Average Annual Damages | | Average Annual Damage Reduction | | |
|----------------------------|--|-----------------|---------------------------------|----------|-------------------|
| | Without Project | With Project | Supplement # 2 | As Built | Remaining Work |
| Off-site | | | | | |
| Fishery | 182,770 | 65,880 | 116,890 | 83,890 | 15,720 |
| Flood | 45,690 | 16,470 | 29,220 | 20,970 | 3,920 |
| M&I Water Supply | 27,420 | 9,880 | 17,540 | 12,580 | 2,350 |
| Navigation | 520,890 | 187,750 | 333,140 | 243,280 | 45,580 |
| Recreation | 18,280 | 6,590 | 11,690 | 8,390 | 1,570 |
| Roadways | 118,800 | 42,820 | 75,980 | 50,350 | 9,430 |
| Subtotals | 913,850 | 329,390 | 584,460 | 419,460 | 78,570 |
| On-site | | | | | |
| Long term Productivity | 54,210 | 32,740 | 21,470 | 22,430 | 2,490 |
| Farming Operations 2/ | 40,940 | 21,970 | 18,970 | 17,490 | 1,940 |
| Subtotals | 95,150 | 54,710 | 40,440 | 39,920 | 4,430 |
| Reduced Cost of Production | 0 | 0 | 79,950 | 83,590 | 9,290 |
| Totals | 1,009,000 | 384,100 | 704,850 | 542,970 | 92,290 |

Grand Total 1,340,110

1/ Price base 2000, 6.625 % discount rate.

June, 2000

2/ Includes annual crop losses resulting from erosion and sediment deposition, and reduced farming efficiencies.

Table 6. Comparison of Average Annual Benefits and Costs.

Mission-Lapwai Creek Watershed - Idaho
(Dollars) 1/

| Evaluation Unit | Off-site Benefits 2/ | On-site Benefits 2/ | Reduced | Total Benefits | Costs 3/ | Benefit to Cost Ratio | |
|------------------|----------------------|---------------------|---------------------|------------------|------------------|-----------------------|----------------|
| | | | Production Costs 2/ | | | | |
| Supplement No. 2 | 584,460 | 40,440 | 79,950 | 704,850 | 802,800 | 0.88 | to 1.00 |
| As Built | 419,460 | 39,920 | 83,590 | 542,970 | 269,350 | 2.02 | to 1.00 |
| Remaining Work | 78,570 | 4,430 | 9,290 | 92,290 | 225,980 | 0.41 | to 1.00 |
| Totals | 1,082,490 | 84,790 | 172,830 | 1,340,110 | 1,298,130 | 1.03 | to 1.00 |

1/ Price Base 2000, 6.625% discount rate

June, 2000

... to identify unknown cultural and historical sites. Due to the archaeological and historical sensitivity in the project area, it is likely that professional archaeologists or trained cultural resource personnel will be needed for site-specific investigations. NRCS personnel will consult with the Nez Perce Tribe Cultural Resources Department to ensure proper installation on tribal lands. Procedures for considering cultural resources in non-point activities have been agreed upon by NRCS and the State Historic Preservation Officer (SHPO). These procedures are included in the NRCS General Manual and State Level Agreement and will be followed for all activities.

Soil and Sedimentation

The installation of as-built and remaining practice installation under the Watershed Plan/EA and Supplement No. 1 will reduce erosion by 310,203 tons (59 percent) and off-site sediment by 150,575 tons (71 percent).

Supplement No. 2 practices will reduce erosion an additional 416,442 tons (83 percent) and off-site sediment by 182,187 tons (87 percent).

Supplement No. 2 combined with the Watershed Plan/EA and Supplement No. 1 will reduce erosion by 726,645 tons (83 percent) and off-site sediment by 332,764 tons (87 percent).

Water Quality

The Watershed Plan/EA and Supplement No. 1 enhanced the water quality and the spawning and rearing habitat for the warm water species by reducing off-site sediment and associated nutrients by 71 percent.

Supplement No. 2 practices, in addition to reducing off-site sediment by 86 percent, will reduce the water temperature of Lower Creek and tributaries by 3 degrees centigrade. Additional water quality benefits include a reduction in nutrients, pesticides, and herbicides to water bodies and the lowering of nitrate and pesticide levels in ground water. This reduction will help insure the Clean Water Act goal of achieving fishable and swimmable waters within the United States and all areas with applicable water quality standards. In addition, the temperature reduction will allow for an optimum water temperature to exist for the area's anadromous fishery. Implementation of the Watershed Plan and the practices No. 1 and No. 2 will provide the treatment necessary to restore Lower Creek (Tributary to the Lapwai River - Idaho 22810) to a Class B water body.

Shading

No shade is provided by riparian forest as a result of practices implemented and planned under the Watershed Plan/EA.

Supplement No. 2 will provide riparian forest shade on the riparian forest areas and stream. The provided practices, designed to reduce stream temperature, will be expected to improve riparian habitat through the reduction of streambank erosion and the addition of improved riparian forest vegetation.

EFFECTS OF RECOMMENDED PLAN

General Effects

A broad range of environmental, economic, and social factors were considered during the environmental assessment and scoping process. Areas of potential impact were evaluated and an analysis made as to their degree of significance towards decision making.

Table D (pages 51-52) displays the effects of Supplement No. 2 on Resources of Principal National Recognition.

The following contains a description of the project's expected impacts and effects:

Cultural Resources

NRCS personnel will review cultural resource databases to determine the presence of known cultural resource sites for all proposed practice installation that would include ground-disturbing activities. On-site investigation by NRCS personnel will be needed to identify unknown cultural and historical sites. Due to the archaeological and historical sensitivity of the project area, it is likely that professional archaeologists or trained cultural resource personnel will be needed for site-specific investigations. NRCS personnel will consult with the Nez Perce Tribe Cultural Resources Division on all proposed practice installation on tribal lands. Procedures for considering cultural resources in non-project activities have been agreed upon by NRCS and the State Historic Preservation Officer (SHPO). These procedures are contained in the NRCS General Manual and State Level Agreement and will be followed for all activities.

Erosion and Sedimentation

The combination of as-built and remaining practice installation under the Watershed Plan/EA and Supplement No. 1 will reduce erosion by 310,295 tons (59 percent) and off-site sediment by 100,378 tons (71 percent).

Supplement No. 2 practices will reduce erosion an additional 416,492 tons (53 percent) and off-site sediment by 122,126 tons (67 percent).

Supplement No. 2 combined with the Watershed Plan/EA and Supplement No. 1 will reduce erosion by 726,787 tons (55 percent) and off-site sediment by 222,504 tons (67 percent).

Water Quality

The Watershed Plan/EA and Supplement No. 1 enhanced the water quality and the spawning and rearing habitat for the area's fishery resource by reducing off-site sediment and associated nutrients by 71 percent.

Supplement No. 2 practices, in addition to reducing off-site sediment by 68 percent, will reduce the water temperature of Lapwai Creek and tributaries by 5 degrees centigrade. Additional water quality benefits include a reduction in nutrients, pesticides, and bacteria to surface waters and the lowering of nutrient and pesticide levels in ground water. This reduction will move towards the Clean Water Act goal of achieving fishable and swimmable waters within the United States and will comply with applicable water quality standards. In addition, the temperature reduction will allow for an optimum range of temperatures to exist for the area's anadromous fisheries. Implementation of the Watershed Plan and Supplements No. 1 and No. 2 will provide the treatment necessary to remove Lapwai Creek (17060306-ID3143-1998) from the Idaho 303(d) list.

Streams

No adverse impact has occurred, nor will occur, as a result of practices implemented and planned under the Watershed Plan/EA.

Supplement No. 2 will not adversely impact the project area's streams and rivers. The proposed practices, designed to reduce stream temperatures, will have a positive impact through the reduction of streambank erosion and the addition of improved multi-layered riparian vegetation.

Fisheries

Supplement No. 2 land treatment measures will reduce the water temperatures of Lapwai Creek and tributaries by 5 degrees centigrade. Off-site sediment and associated nutrient loading will be reduced by 67 percent. The planned temperature and sediment reductions will have a positive effect on both the resident and anadromous fisheries present in the watershed.

Establishment of adequate multi-layered riparian vegetation on 53.0 miles of stream length will enhance fisheries habitat by achieving much-needed temperature reductions and re-introduction of large organic debris into the stream system.

Threatened and Endangered Species

No adverse impact will occur to the plant species of concern since upland earthmoving/ground-disturbing activities associated with structural implementation will occur on cropland which already has been disturbed.

Designated critical habitat for Snake River fall chinook salmon includes the Clearwater River from its confluence with the Snake River upstream to its confluence with Lolo Creek. Designated critical habitat for the Snake River Basin steelhead includes the Clearwater River. Designated critical habitat for bull trout is the Clearwater River headwaters about 25 miles upstream from the Lapwai Creek confluence. Mission-Lapwai Creek is not designated critical habitat for fall chinook salmon, bull trout, or steelhead. Implementation of planned measures will occur approximately 15 miles above the confluence of the Snake and Clearwater Rivers.

Supplement No. 2 land treatment measures will reduce off-site sediment and associated nutrient loading by 67 percent and will reduce the water temperatures of Lapwai Creek and tributaries by 5 degrees centigrade.

Supplement No. 2 measures will not cause any short-term or long-term adverse impacts to anadromous and resident fisheries or other aquatic resources. Enduring practices proposed for installation are in areas where active erosion currently is taking place. Conservation objectives are to stop sediment entering the creek and reduce excessive water temperatures throughout the summer. No additional sediment will be delivered to Lapwai Creek or the Clearwater River during the installation of the project. The long-term benefit of this project will be a seasonal temperature reduction coupled with a reduction of sediment delivered to the spawning and rearing areas in Lapwai Creek and the Clearwater River.

Installation of enduring practices in the upper watershed is expected to modify present hydrologic conditions to better simulate pre-agricultural conversion conditions by reducing the peak flows. This may allow for increased late summer flows as water retained even for short periods by the enduring practices may be available for later-season baseflow, either as soil moisture or deep percolation.

No adverse effect on the designated habitat for the Snake River fall chinook salmon, bull trout, or the Snake River Basin steelhead is expected. With the reduction of sediment delivered to Lapwai Creek, impacts should be positive to all aquatic resources downstream.

Because of the positive effect Supplement No. 2 has on water quality, aquatic resources, and riparian vegetation along the Clearwater River and Lapwai Creek, no adverse impact to the bald eagle will occur.

Wetlands

Several of the Supplement No. 2 land treatment measures (such as sediment basins and water and sediment control basins) may have the potential to impact wetlands in the project area. Appropriate steps will be taken during practice layout and construction to avoid conversion of wetlands. NRCS policy and procedure for the protection of wetlands will be followed.

Wildlife

The Watershed Plan/EA and Supplement No. 1 provided an overall positive effect to wildlife habitat through riparian vegetation enhancement on approximately 12.2 miles of stream corridor. Although 2,270 acres of permanent vegetation were planned for installation, most seeded areas are being managed as pasture and hayland and provide very few wildlife benefits.

Supplement No. 2 will provide an overall positive effect to wildlife habitat through riparian vegetation enhancement on an additional 53.0 miles of stream corridor.

Visual Resource

The visual or aesthetic resources will be improved by the re-establishment of adequate multi-layered riparian vegetation on approximately 53.0 miles.

Other

The Watershed Plan/EA and Supplement No. 1 eliminated the formation of gullies through the installation of grassed waterways and sediment basins on approximately 60 acres.

The installation of additional sediment basins, water and sediment control basins, and grassed waterways under Supplement No. 2 will eliminate the formation of gullies on approximately 64 additional acres. Farming costs associated with repair of gullies and damage to equipment during farming operations in gullied fields will be eliminated on these acres.

Table D - Effects of the Selected Plan on Resources of Principal National Recognition

| Types of Resources | Principal Sources of National Recognition | Measurement of Effects |
|---|---|--|
| Air Quality | Clean Air Act, as amended (42 U.S.C.7401 et seq.) | No effect. |
| Areas of particular concern within the coastal zone | Coastal Zone Management Act of 1972, as amended (16 U.S.C.1451 et sq.) | Not present in planning area. |
| Endangered and threatened critical habitat | Endangered Species Act of 1973 as amended (16 U.S.C.1531 et seq.) | Bald eagle and bull trout, no adverse effect. Snake River fall chinook salmon and Snake River Basin steelhead, not likely to adversely effect. |
| Fish and wildlife habitat | Fish and Wildlife Coordination Act (16 U.S.C.Sec.661 et seq.) | Positive effect on the anadromous fishery. |
| Floodplains | Executive Order 11988, Floodplain Management | Positive effect due to riparian enhancement and decreased sedimentation. |
| Historic and cultural properties | National Historic Preservation Act of 1966 as amended (16 U.S.C.Sec 470 et seq.) | Prehistoric site and 2 cemeteries. No effect. |
| Prime and unique farmland | CEQ Memorandum of August 1980: Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act, Farmland Protection Policy Act of 1981. | Positive effect on 8,240 acres of Prime Farmland in the watershed |

Table D - Effects of the Selected Plan on Resources of Principal National Recognition (continued)

| Types of Resources | Principal Sources of National Recognition | Measurement of Effects |
|---|---|--|
| Water quality (Surface and Ground water) | Clean Water Act of 1977 (33 U.S. 1251 et seq.) | Sediment yield, bacteria, and nutrient and pesticide loading from cropland, roads, forestland, riparian areas, and AFOs will be reduced. Water temperature will be reduced an average of 5 degrees centigrade. |
| Wetlands Protection of Wetlands | Executive Order 11990, Clean Water Act of 1977 (33 U.S.C.1251, et seq.) Food Security Act of 1985. | No adverse effect. |
| Wild and scenic rivers | Wild and Scenic Rivers Act, as amended (16 U.S.C.1271 et seq.) | Not present in planning area. |

The Watershed Plan/Environmental Assessment (EA) for the Mission/Lapwai Creek Watershed did not identify significant negative impacts to the human environment that would require the completion of an Environmental Impact Statement (EIS). A Biological Assessment (BA) and "Finding of No Significant Impact" (FONSI) has been completed for the project.

CONSULTATION AND PUBLIC PARTICIPATION

In providing primary leadership for the project, the Nez Perce Soil and Water Conservation District (SWCD) played a major role in the coordination and development of Supplement No 2.

On February 20, 1996 an initial project scoping meeting was held with the following agencies to identify problems, gather existing resource information, and establish water quality objectives:

- Lewis Soil Conservation District
- Nez Perce County Board of Commissioners
- Nez Perce Tribe – Land Services Department
 - Fisheries Division
 - Natural Resources Division
- Nez Perce Soil and Water Conservation District
- Idaho Department of Fish and Game
- Idaho Division of Environmental Quality
- Idaho Department of Lands
- Idaho Department of Water Resources
- Idaho Department of Agriculture - Soil Conservation Commission
- USDI Fish and Wildlife Service
- USDA Natural Resources Conservation Service
- USDC National Marine Fisheries Service

The Nez Perce SWCD formed a Technical Advisory Committee (TAC) from the above listed groups and agencies. The TAC met several times during the planning process and assisted with problem identification, resource inventory information, and alternatives development and selection.

During the planning process, the Nez Perce SWCD met with local landowners on March 13, 1997; February 20, 1996; and June 15, 1995, to discuss the stated goals and objectives of the proposed project, particularly as they relate to the region's anadromous fisheries resources. Treatment needs were also discussed at these meetings. Concerns expressed included Snake River fall chinook salmon critical habitat designation and Snake River Basin steelhead Endangered Species Act (ESA) petitions and listings.

The Nez Perce SWCD developed a list of recommended project steering committee members. Subsequent follow-up contacts were made with the local landowners by NRCS personnel to discuss conservation practice selection and installation costs.

Coordination with the State Historic Preservation Officer (SHPO) regarding cultural resources will occur when known sites are identified during project implementation. Consultation with the U.S. Fish and Wildlife Service (FWS) regarding threatened and endangered species was successfully completed for Supplement No. 2. Informal consultation with the FWS, in the form of a biological assessment, has concluded in a No Adverse Impact decision for the bald eagle. Because the project area is a tributary to designated critical habitat for the Snake River fall chinook salmon and Snake River Basin steelhead, informal consultation with the National Marine Fisheries Service (NMFS) in the form of a biological assessment (BA) has concluded in a "Not Likely to Adversely Affect" decision.

LIST OF PREPARERS

| Name | Present Title | Education | Prior Experience (Title and Yrs. In Position) | Other (Licenses, etc.) |
|--|---|--|---|------------------------|
| NRCS State Conservationist's Office | | | | |
| Lee E. Brooks | Assistant State Conservationist (Technical Services) 6 yrs. | B.S.-Range | 6 yrs.-Area Conservationist 18 yrs.-District Conservationist 2 yrs.-Range Conservationist | |
| David Hoover | State GIS Coordinator 9yrs. | B.S.-Soil and Resource Mgt. | 14 yrs.-Soil Scientist | |
| NRCS Technical Services Division | | | | |
| Ron Abramovich | Water Supply Specialist 9yrs. | B.S.-Watershed Sciences | 2 yrs.-Forest Hydrologist WNTC-Portland, OR | |
| Denis Feichtinger | Agricultural Economist 11 yrs. | B.S.-Ag. Business B.A.-Mass Communication | 4 yrs.-Watershed Economist 2 yrs.-Soil Conservationist | |
| Frank Fink | Biologist 12 yrs. | B.S.-Fish and Wildlife Management | 5 yrs.-Watershed Biologist 4 yrs.-District Conservationist 2 yrs.-Soil Conservationist | Wildlife Society |
| Ralph Fisher | Agronomist 4 yrs. | B.S.-Agronomy | 8 yrs.-FSA Specialist 4 yrs.-Res. Planning Spec. 6 yrs.-Area Resource Conv. 5 yrs.-District Conservationist 3 yrs.-Soil Conservationist | |
| Scott Henderson | Soil Conservationist 5 yrs. | B.S.-Range Resources | 6 yrs.-Range Conservationist 3 yrs.-Soil Conservationist | S.R.M. |
| John Kendrick | Planning Specialist 5 yrs. | B.S.-Natural Resources Planning and Interpretation | 6 yrs.-Area Proj. Ldr. (WR) 2yrs.-Area Resource Conv. 4 yrs.-District Conservationist 4 yrs.-Soil Conservationist | SWCS |
| Arthur Shoemaker | State Conservation Engineer (SCE) 4 yrs.-Idaho | B.S.-Agricultural Engineering | 10 yrs.-State Conservation Engineer (SCE)-Utah 6 yrs.-Assistant SCE -Idaho 6 yrs.-Area Engineer 5 yrs.- Field Engineer | P.E |
| Terril Stevenson | Geologist 11 yrs. | B.S.-Geology | 3 yrs.-Geology Team Leader 6 yrs.-Engineering Geologist | R.P.G |
| Dan Ogle | Plant Materials Specialist 7 hrs. | B.S.-Range Science | 6 yrs.-Area Range Conservationist 8 yrs.-Range Conservationist | S.R.M. |
| Jim Cornwell | State Range Management Specialist 9 yrs. | B.S.-Range Management | 2 yrs. -Resource Conservationist 5 yrs. -Area Range Conservationist 4 yrs. -District Conservationist 3 yrs. -Range Conservationist | S.R.M. |

LIST OF PREPARERS (continued)

| Name | Present Title | Education | Experience (Title and Yrs. in Position) | Other (Licenses, etc.) |
|--|---|--|--|------------------------|
| NRCS Technical Services Division cont. | | | | |
| Jim Wood | Water Quality Specialist 9yrs. | B.S.-Wildlife Ecology M.S.-Watershed Management | 3 yrs.-USDA.- ARS Range Scientist | |
| NRCS Division Support Staff | | | | |
| Frank Gariglio | Forestry-Soils Specialist 5 yrs. | B.S.-Forestry | 8 yrs.-Soil Scientist 1 yr.-Soil Conservationist 10 yrs. District Conservationist | |
| Dale Gooby | Civil Engineer 6 yrs. | B.S.-Agronomy B.S.-Civil Engineering | 5 yrs.- Soil Conservationist | |
| Ed Haagen | Resource Soil Scientist 10 yrs. | B.S.-Agronomy/Soils | 13 yrs.-Soil Survey Party Leader 4 yrs.-Soil Survey Staff | |
| Tim Schroeder | Division Resource Conservationist 2 yrs. | B.S.-Forestry | 9 yrs.-District Conservationist 3 yrs.-Soil Conservationist | |
| NRCS Field Office Staff | | | | |
| Lynn Rasmussen | District Conservationist 5 yrs. | B.S.-Crop Science M.S.-Soils/Water Quality | 6 yrs.- Soil Conservationist | |
| Idaho Fish and Game | | | | |
| Ed Schriever | Regional Fishery Biologist 10yrs. | B.S.- Fisheries Science | 5 yrs.- Fish Hatchery 1 yr.- Fish Culturist | |
| Idaho Department of Environmental Quality | | | | |
| James Bellatty | Regional Administrator 5yrs. | B.S.-Resource Mgt. M.S.-Interdisciplinary Studies-Environmental Science | 7 yrs.-Water Quality Specialist | |
| John Cardwell | Regional Water Quality Manager 3yrs. | B.S.- Geology | 5 yrs.-Grnd Wtr Spec-ID.DEQ 3 yrs.-Grnd Wtr Spec-OR.DEQ 3 yrs.-Emergency Manager 2 yrs.-Response Contractor | |

The Supplemental Watershed Plan/Environmental Assessment was reviewed and concurred in by NRCS State staff specialists having responsibility for agronomy, biology, economics, engineering, forestry, geology, GIS, hydrology, planning, range conservation, riparian, soils, and water quality.

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APPENDIX A
REVIEW COMMENTS

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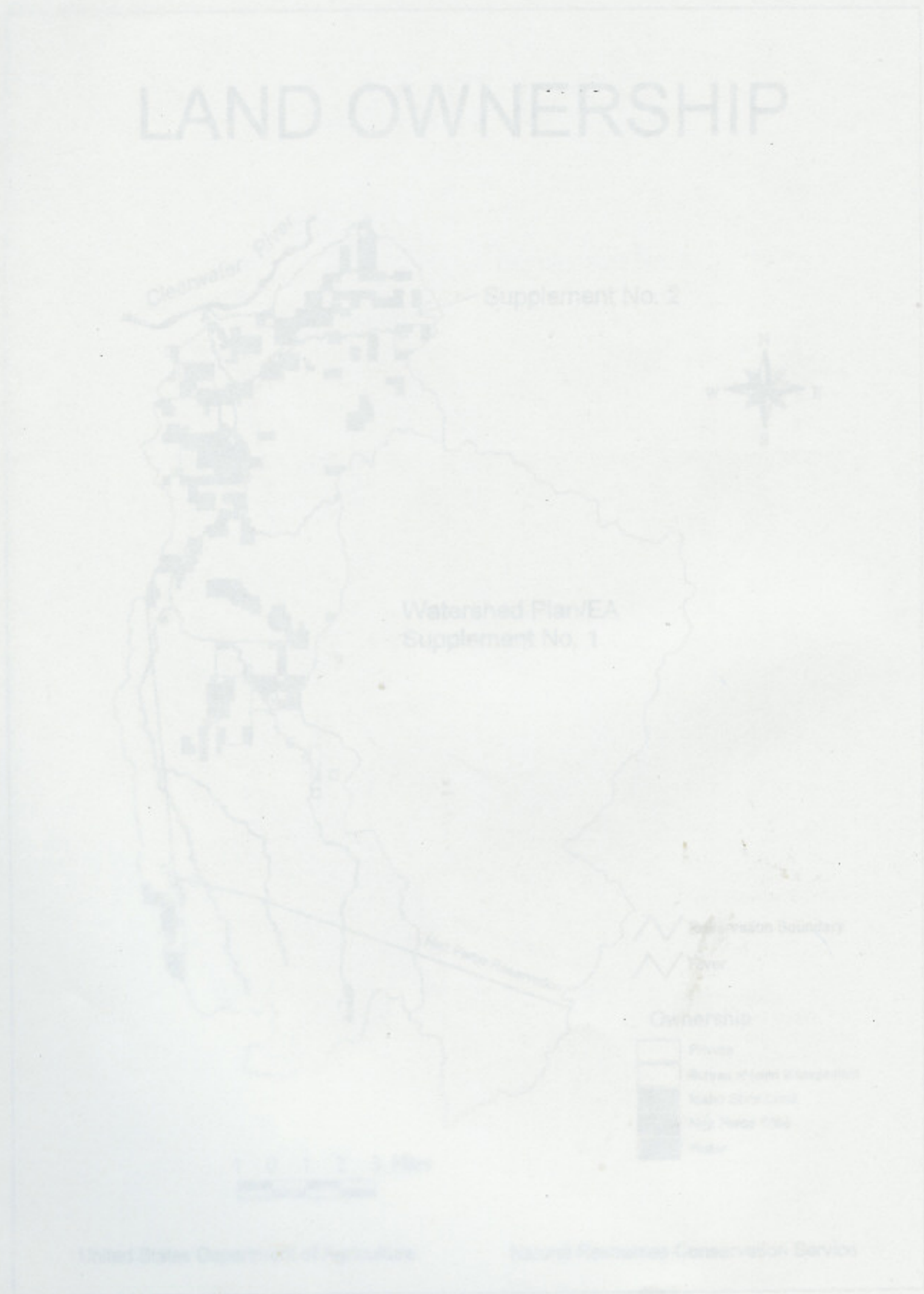
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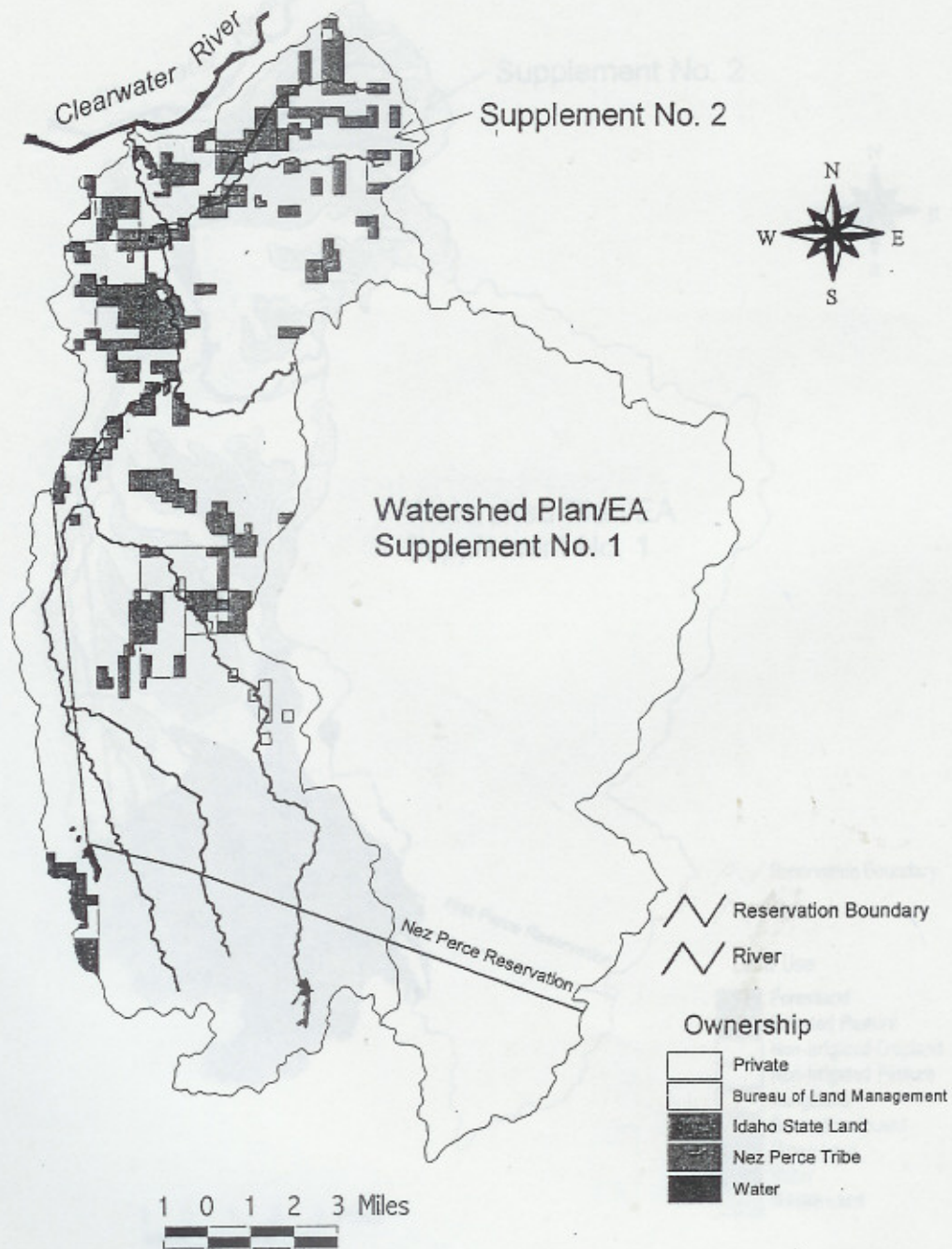
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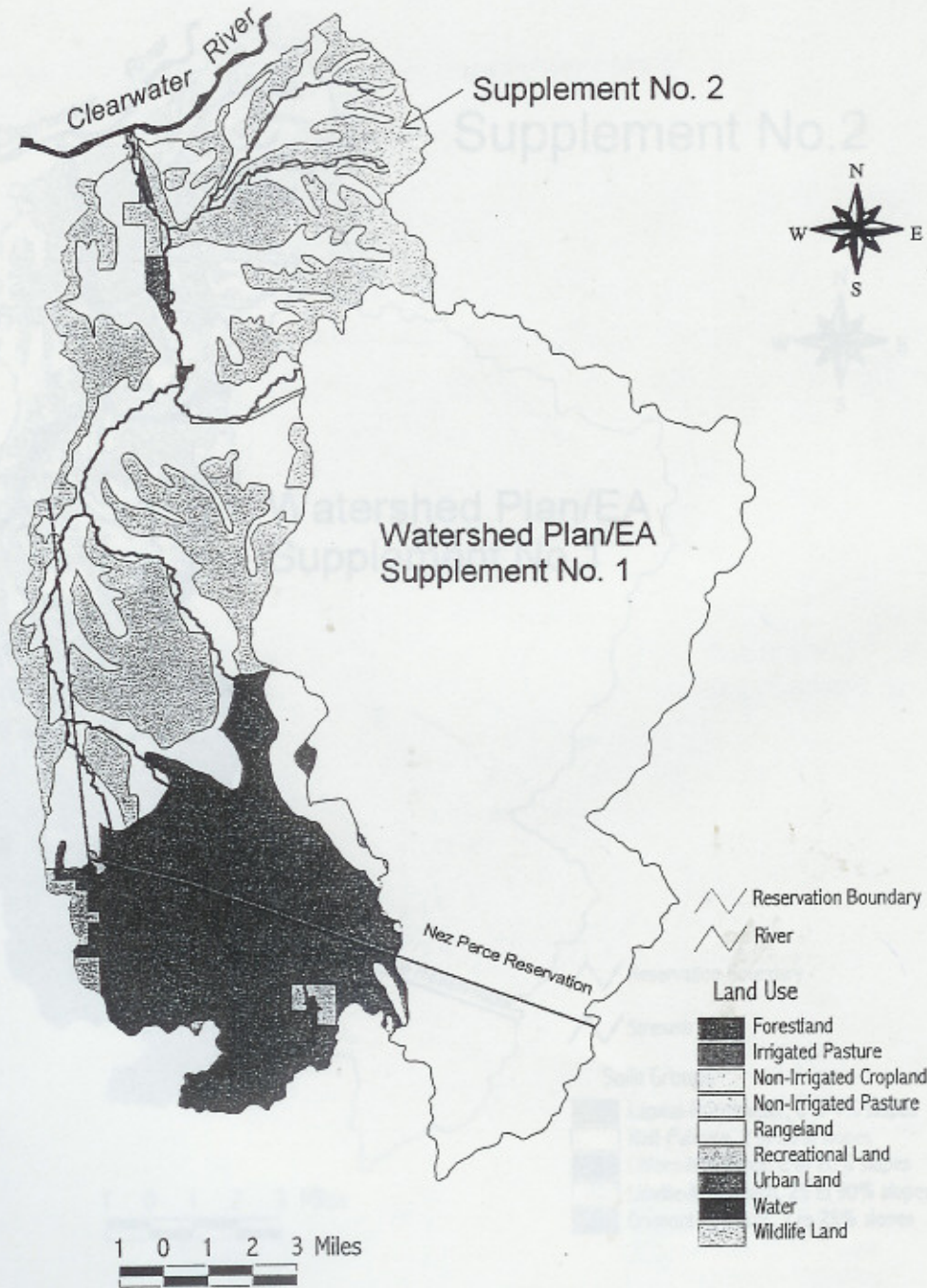
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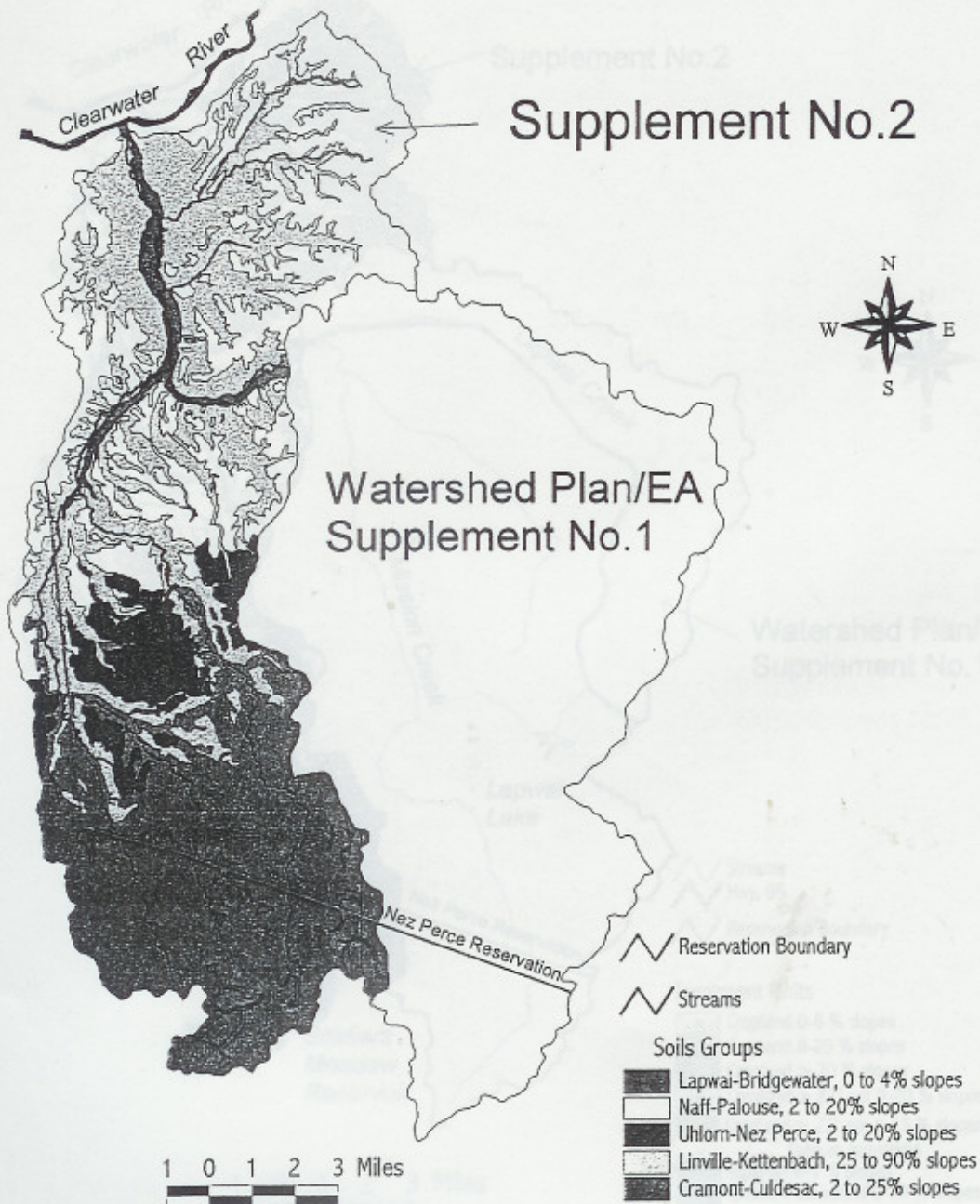
LAND OWNERSHIP



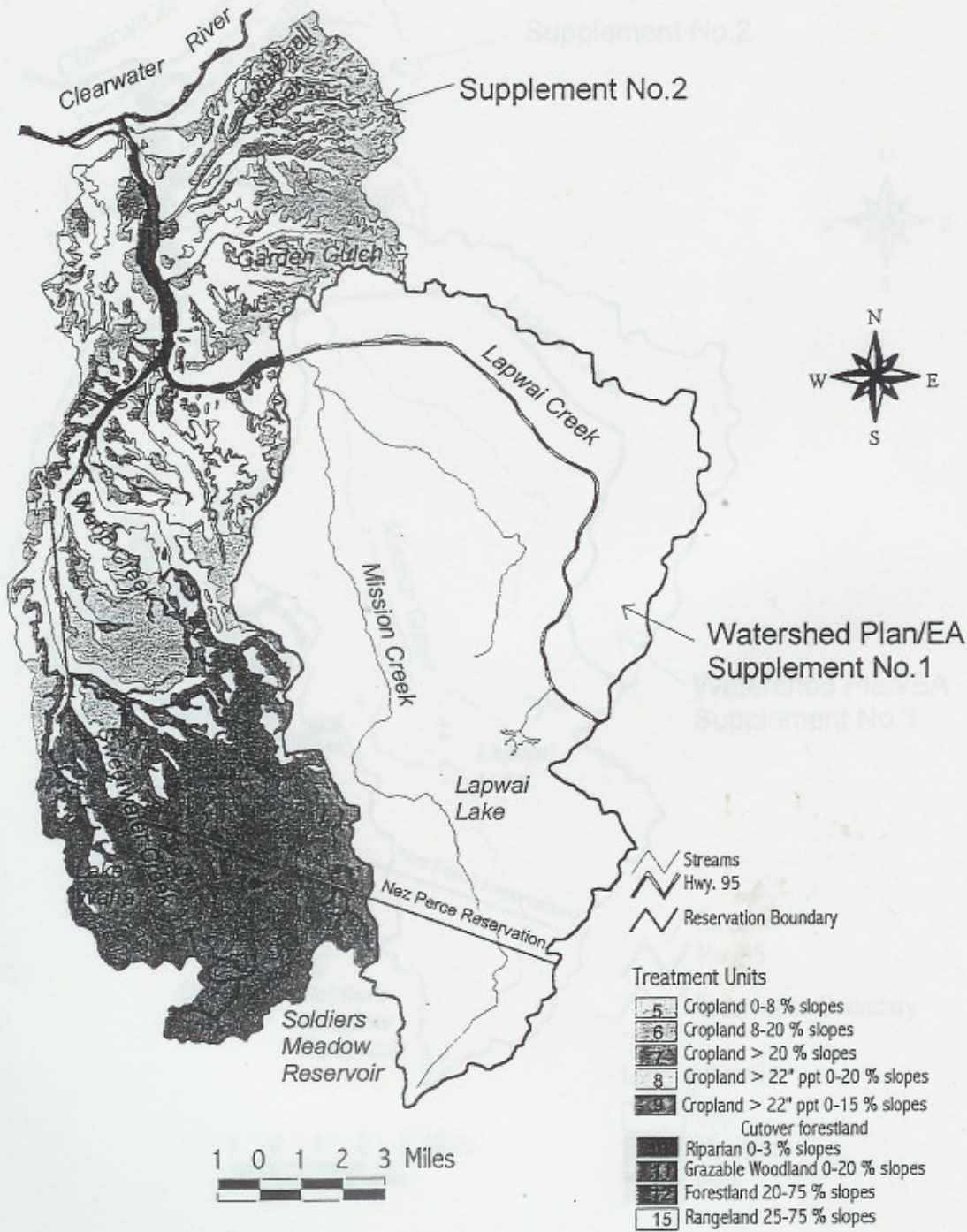
LAND USE



TREATMENT UNITS GENERAL SOILS



TREATMENT UNITS



LEACHING POTENTIAL

