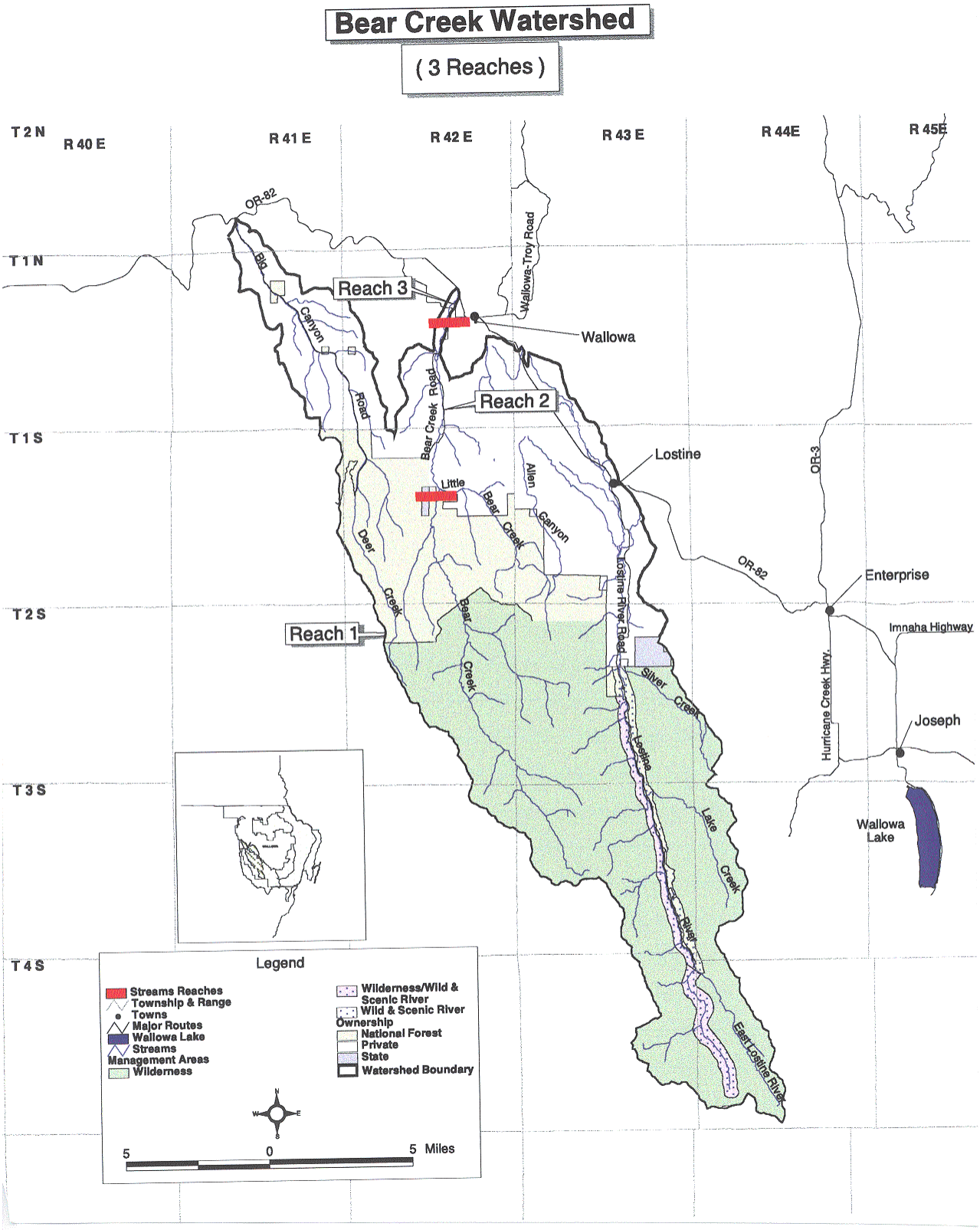
Bear Creek Watershed
(3 Reaches)
T2N
R40E
R41E
R42E
R43E
R44E
R45E
T1N
T1S
T2S
T3S
T4S
OR-82
Big Canyon Road
Reach 3
Wallowa-Troy Road
Wallowa
Reach 2
Bear Creek Road
Lostine
Little Bear Creek
Allen Canyon
Deer Creek
Bear Creek
Reach 1
Lostine River Road
OR-3
OR-82
Enterprise
Imnaha Highway
Hurricane Creek Hwy.
Joseph
Wallowa Lake
Silver Creek
Lostine River
Lake Creek
East Lostine River
Legend
Streams Reaches
Township & Range
Towns
Major Routes
Wallowa Lake
Streams
Management Areas
Wilderness
Wilderness/Wild & Scenic River
Wild & Scenic River
Ownership
National Forest
Private
State
Watershed Boundary
N
W
E
S
5
0
5 Miles

BEAR CREEK[7]

Bear Creek was analyzed in three reaches:

1. Headwaters to Little Bear Creek
2. Little Bear Creek to Chamberlain Ditch diversion
3. Chamberlain Ditch diversion to Wallowa River.

Bear Creek rises in the Eagle Cap Wilderness and flows 24 miles north to join the Wallowa River near the town of Wallowa. The uppermost reach (to Little Bear Creek) is primarily in the Eagle Cap Wilderness and a roadless area. Sheep grazed in the wilderness area in the past, but no grazing has been done in recent years. Recreational facilities along the uppermost reach include a USFS campground at the wilderness trailhead.

The reach from Little Bear Creek to Chamberlain Ditch, including Little Bear Creek, is partly within the National Forest and but is bordered primarily by a few large landowners. Private lands are grazed. Resource activities include logging and grazing.

The lower reach (from Chamberlain Ditch diversion downstream) is bordered by a number of smaller private ownerships. Streamflows are low or non-existent below the irrigation diversions during base flow periods. Resource activities include logging of the forested uplands, grazing, and irrigated agriculture.

Maximum recorded streamflow at the U.S. Geological Survey (USGS) gauging station on Bear Creek upstream from the irrigation diversions was 1,730 cfs on June 15, 1974. Minimum recorded discharge is 3 cfs for February 1, 1937.

Spring chinook spawn in Bear Creek from two miles above the guard station (in the wilderness) to the first bridge downstream where the Bear Creek road crosses Bear Creek, a distance of 8.5 miles. The run size has declined significantly since the mid-1960's when index surveys were standardized as to length, location, and time of year. Index areas were chosen because the majority of spawning occurs in the index reach. The index area is from the Guard Station to the first bridge downstream where the Bear Creek road crosses Bear Creek, a distance of 6.5 miles. The average redd count in the index area from 1964 to 1973 was 25.1 redds. The average redd count from 1979 to 1988 was 7.6 redds. The average redd count from 1989 to 1998 was 1.6 redds.

NOTE: Since the original plan was completed in 1993, a Bear Creek Action Plan was written and is being implemented.

[7]See also Watershed Management - Approaches to Implementing Solutions

Bear Creek--Headwaters To Little Bear Creek

Water Quantity

Tree Density (Medium Priority).--*Tree densities in portions of this drainage keep much of the precipitation (rain and snow) from reaching the ground, and this moisture is lost to the drainage.*

A long term policy of fire depression is the primary cause of tree density. Prescribed burning of small portions in the wilderness can create areas with less fuel that would allow control of wildfires and prevent catastrophic consequences. Precommercial and commercial thinning should be used to reduce excess densities of non-wilderness areas.
NOTE: Since the original plan was completed in 1993, a Wildland Fire Use Program has been completed for the Eagle Cap Wilderness. Several wildfires have been managed for resource benefits under this program.

Minimum Flow (High Priority).--*Although there are no flow problems in this reach, irrigation withdrawals in the lowest reach of the creek remove essentially all of the water during low flow times. The committee looked at ways to possibly supplement water on this reach to supply late summer flows for salmon in the lowest reach.*

Study the possibility of adding impoundments at Getchell Meadows, Bear Lake, etc. to supply irrigation and keep the natural flow in stream during low flow times. It is suggested that the natural flow could provide water for the salmon that is not heated by being held in an impoundment at lower elevations. Above all diversions, in August of 1988, low water flow was not sufficient for fish passage.

Water Quality

Excess Fine Sediments (Low Priority).--*There is little human caused sedimentation on this reach because much of it is in the Eagle Cap Wilderness. There is a road which ends about 4 miles below the wilderness boundary which could be a source of sedimentation.*

Road design and maintenance should be planned to avoid quick runoff and sediment entrainment.

Herbicides/Pesticides (High Priority).—See Countywide Issues

Stream Structure

No problems were identified.

Substrate

No problems were identified.

Habitat Requirements

Harassment (Study).--*Sport fishing and related recreational use may cause harassment of spawning salmon.*

If there is a problem, mitigation measures include not stocking trout, closing stream to sport fishing for non-salmon species, and/or seasonal sport fishery closures.

Bear Creek--Little Bear Creek to Chamberlain Ditch Diversion

Water Quantity

No problems were identified.

Water Quality

Weeds/Erosion (Study) –See Countywide Issues

Excess Fine Sediments (High Priority).--*Sediment is contributed to the river from roads, logging, and grazing.*

Road design and maintenance should be planned to avoid quick runoff and sediment entrainment. Limit dust from road that will settle into the creek with lignosulfonate, water, chip seal, or asphalt. If it is necessary to reduce sediment, the road or portions of the road could be relocated to a better site. If there is a sediment problem that could not be mitigated by road design, maintenance, or relocation, the road could be revegetated, use could be limited, or the road closed. Roads and ground skidding should be avoided when the soil is wet. Limiting use to times when roads are dry or frozen will minimize soil and vegetation disturbance. Skid trails should be water barred and revegetated. Manage recreational use of roads, trails, and campgrounds to reduce sediment input. Education of fishermen and campers about the effects of riparian erosion and compaction could reduce sediment input from their activities. Although an impoundment may help supplement minimum flows, it should not impound or divert necessary flushing flows.

Prevent bank erosion and degradation by livestock through physical or electric fencing, and use watering corridors or supply alternative water source. Avoid excessively high peak flows, and resultant bank erosion by keeping enough watershed vegetation to slow runoff. Wetlands and/or filter strips could be developed to filter runoff from roads and campgrounds.
NOTE: Since the original plan was completed in 1993 county road was rocked and culverts installed to reduce sediment in the creek. All the landowners in this reach have performed major erosion control measures on the roads on their property. Bear Creek and Little Bear Creek have been fenced to control livestock access. The pool ratio has improved on this reach.

Fuel Density (low Priority).--*Fuel densities have been controlled in this reach.*

Precommercial and commercial thinning has been used to reduce excess densities and fire hazard.

Herbicides/Pesticides (High Priority).—See Countywide Issues

Other Chemicals (Low Priority).--*Oil was noticed in section of water on this reach during redd counts.*

Find source of oil if it still present and mitigate the problem.
NOTE: Since the original plan was completed in 1993, no oil has been noted on this reach.

Stream Structure

Pool/Riffle Ratio (High Priority).--*Loss of large woody debris and channelization have led to decreased diversity of stream habitat and loss of a good pool/riffle ratio.*

Add and/or preserve large woody debris. Provide good riparian vegetation, including trees for future large woody debris recruitment. Avoid additional channelization.
NOTE: Since the original plan was completed in 1993, logs and some root wads were installed along the streambanks in the low flow channel project to provide cover and shade for fish.

Habitat Requirements

No problems were identified.

Bear Creek--Chamberlain Ditch Diversion to Wallowa River

Water Quantity

Irrigation Withdrawal (High Priority).--*Natural flows are low during late summer (after mid-July) and the ditch takes essentially all of the flow. This creates a physical barrier to fish migration and a decrease in available habitat.*

Preserving (and possibly increasing through tree density management) upper watershed snowpack will help snowpack melt as late as possible. Limit irrigation diversions from one watershed to another. (There is an out-of-basin diversion in the upper reaches of Little Bear Creek, but apparently it is dry by late summer.) Leasing water from water right holders during low flow time (after second cutting) may be a viable way to supplement late summer flows. Irrigation efficiency may allow diverters to keep additional water instream. Impoundments (as discussed above) may be used to supply irrigation needs and keep the natural flow instream.
NOTE: Since the original plan was completed in 1993, all irrigation ditches are gauged with cooperation of irrigators.

Minimum Flow (High Priority).--*Low minimum flows in this reach during late summer result in the loss of salmon habitat.*

See discussion under "Irrigation Withdrawal" in this section. Vegetative cover in the drainage should be kept in a healthy condition to avoid quick runoff and promote recharge of aquifer. Good recharge of the aquifer will protect, and possibly, increase spring flows, which supply water during minimum flow times. Limiting compaction from roads, logging, grazing, campgrounds, and trails will also promote infiltration and recharge the aquifer.
NOTE: Since the original plan was completed in 1993, landowners began in 1997 to shut off all irrigation withdrawal for a 24-hour period to aid fish passage. It was determined by ODFW when this would be beneficial. A low flow channel project was completed in 1998 on this whole stretch that consists of numerous rock vortex weirs that concentrate the water to aid fish passage and provide pools for fish.

Water Quality

Excess Fine Sediments (High Priority).--*Excess fine sediment creates a variety of habitat problems; activities in this reach have the potential to add sediment to the river.*

See "Bear Creek--Little Bear Creek to Chamberlain Ditch Diversion."
NOTE: Since the original plan was completed in 1993, numerous landowners have constructed livestock exclusion fences along both sides of Bear Creek.

Septic (Study).--*Study effects of leakage from septic systems on water quality and salmon habitat.*

If leakage from septic systems causes water quality problems, there are several options to mitigate the effects. The county's comprehensive land use plan could be used to limit future development. Current septic systems could be improved (with technical assistance from the ODEQ). Municipality sewer treatment could be provided at the town of Wallowa.

Herbicides/Pesticides (High Priority).—See Countywide Issues

Feedlots (High Priority).--*Nutrient runoff from feedlots can result in excess algal growth and excessive fine sediments. Feedlots (or other heavy livestock use) on the edge of streams result in devegetation of the riparian area and streambank erosion.*

Prevent bank erosion and degradation by livestock through physical or electric fencing of the riparian area. Use watering corridors or supply alternative sources of stock water. Provide wetlands and/or filter strips for feedlot runoff.

Other Chemicals (Low Priority).--*Farmland fertilizer runoff contributes nutrients that can result in excessive algal growth.*

Avoid farmland fertilizer runoff.

Stream Structure

Pool/Riffle Ratio (High Priority).--*Loss of large woody debris and channelization have led to decreased diversity of stream habitat and loss of a good pool/riffle ratio.*

> Add and/or preserve large woody debris. Provide good riparian vegetation, including trees, for future large woody debris recruitment. Avoid additional channelization.
> NOTE: Since the original plan was completed in 1993, logs and some root wads were installed along the streambanks in the low flow channel project to provide cover and shade for fish.

Channelization (Low Priority).--*Channelization limits diversity of stream structure and habitat.*

> Preserve riparian vegetation (and plant where necessary) to provide streambank stability and avoid the need for channelization. Avoid excess peak flows and bank erosion that result from excessive upland devegetation. Avoid channelization and building structures on the floodplain.

Substrate

Physical Barriers (Study).--*Lack of water below irrigation diversions creates a physical barrier to fish passage.*

> Water could be leased from water-right holders during low flow times to supplement flow. Irrigation efficiency could allow more water to be left in the creek. The diversion barrier could be modified to better provide passage. Study the feasibility of using well water supplementation to improve instream flows. See minimum flow – low flow channel

Habitat Requirements

Diversion Screening (Low).—*All irrigation diversions and return flows have been screened Since the original plan was completed in 1993.*

> Diversions and returns should be screened, monitored, and maintained.