Through the Eyes of Sk'lep

A Vision of Ecosystem Stewardship in the Deadman Watershed

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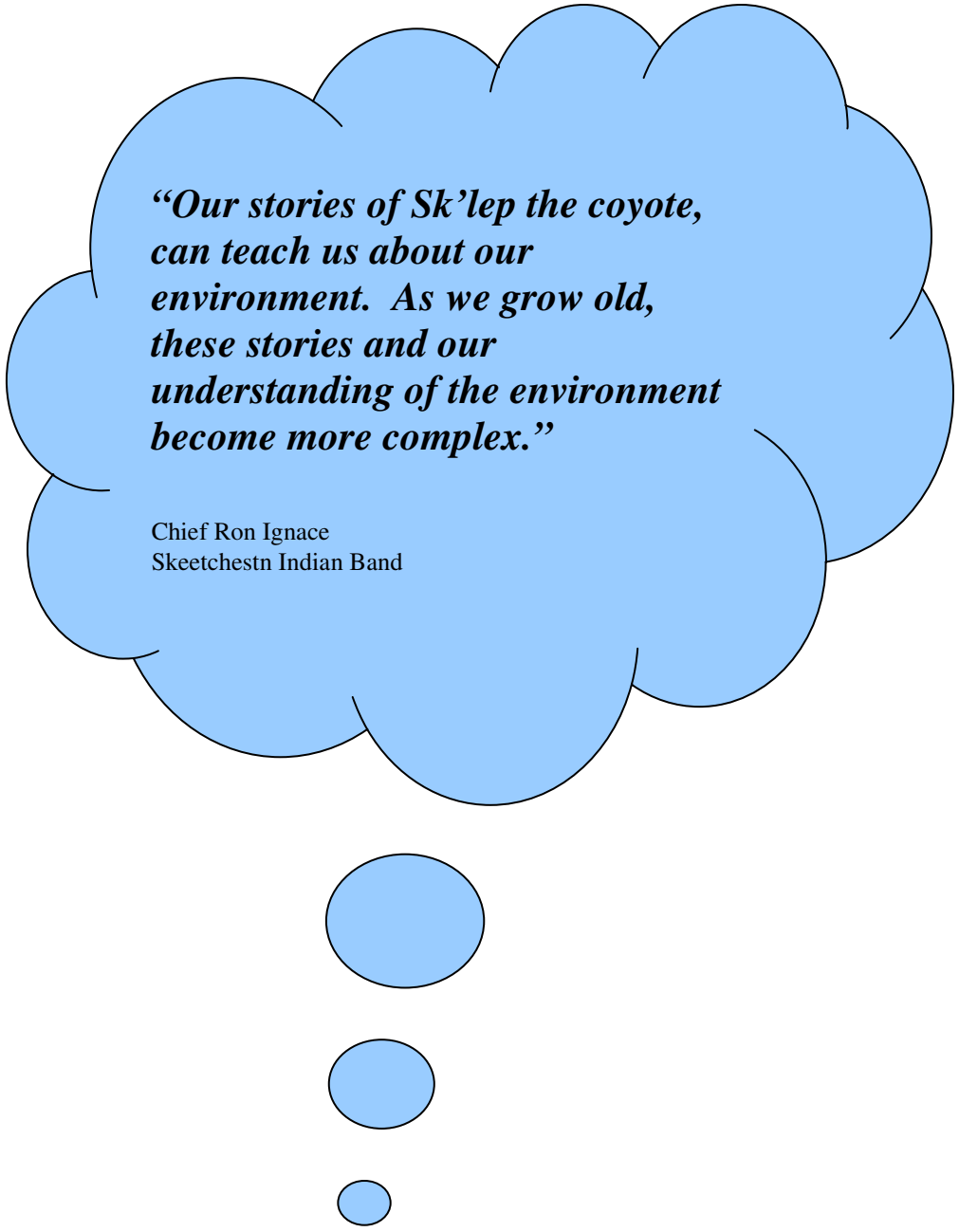

"Our stories of Sk'lep the coyote, can teach us about our environment. As we grow old, these stories and our understanding of the environment become more complex."
Chief Ron Ignace
Skeetchestn Indian Band

Background

The *Through the Eyes of Sk'lep – a Vision of Ecosystem Stewardship in the Deadman Watershed* is being led by the Skeetchestn Indian Band. Located in the heart of the arid Thompson Plateau, the People of Skeetchestn (*the meeting place - in Secwepemc*) continue to depend upon the rich Deadman River Valley for food, social, cultural and economic resources. They now share these resources with the non-aboriginal community, living both inside and outside the valley, and therefore share with these people a responsibility for sustainable development and resource stewardship. The goal of this project is to develop a community-based plan for advancing such work in the Watershed.

This broad community's dependence on the region's flora and fauna, waters and minerals presents a valuable point of interface between the environment, the local and indigenous communities relevant for sustainable use of these resources – both living and non-living. As such, this project is being presented as a case study of the role of local and indigenous communities in the conservation and sustainable use of biological diversity. It presents an analysis, framework and joint action plan for the implementation of this community's vision of environmental stewardship.

Project Description

The once abundant and diverse fish, wildlife and flora of the Deadman River valley have been put at risk by forest, mining, tourism, urban and agricultural development practices. This project will characterize the scope of stewardship planning in the valley, define the role of the Skeetchestn Band and the extended non-aboriginal community in ecosystem-level restoration planning, and provide a framework to guide specific resource management prescriptions (ie. management plans for range, fish, forest, mining tourism and urban development). Recommendations are provided for implementation of this vision including a process and business plan.

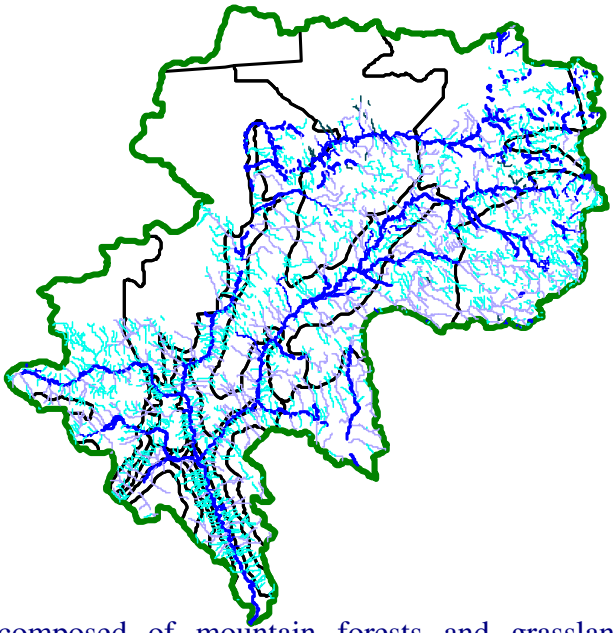
1.0 Ecosystems and the Deadman River Valley

The Deadman River Watershed is located within the traditional hunting, fishing, gathering and trading areas of the Skeetchestn Indian Band. The band is a community of the Secwepemc People who currently reside in permanent villages throughout the Thompson as well as the Quesnel, mid-Fraser, and upper Columbia watersheds. As such, the community of Skeetchestn has a post glacial history of co-existence within the region's ecosystem, and they have settled in a permanent village only within the last couple of centuries (Chief Ron Ignace. Pers. com.).

The Deadman river watershed is located northwest of Kamloops Lake and approximately 50 km west of the City of Kamloops. The watershed is primarily located within the Kamloops Forest District; however a significant portion is within the 100 Mile Forest District (Speed and Henderson 1998). The watershed has an area of approximately 1509 km^2 , has 12 sub-basins, and is located within the Thompson-Okanagan Plateau.

Sub-basins:

- Joe Ross Creek
- Vidette Lake
- Upper Deadman River
- Upper Criss Creek
- Mow Creek
- Heller Creek
- Upper Residual Creek
- Tobacco creek
- Gorge Creek
- Barricade Creek
- Lower Criss Creek
- Clemes Creek



The Deadman River Watershed is composed of mountain forests and grasslands ecosystems.

The Valley's Forest Ecosystem

Mountain forests are transition forests comprised of Interior Douglas-fir and Ponderosa Pine Zones, and grasslands comprised of the Bunchgrass Zone. For the purposes of setting biodiversity objectives, the Ministry of Forests of British Columbia further recognizes five natural disturbance types in B.C. Most of the Deadman Watershed is considered Natural Disturbance type 4 (NDT4) (Phil Holman, pers. com. Ministry of Forests, Kamloops Forest District). This ecosystem includes grassland, shrub land, and forested communities that normally experience frequent low-intensity fires. On grasslands, these fires limit encroachment by most woody trees and shrubs (Biodiversity Guidebook 1995). Late seral and climax grasslands and shrub lands are typically restricted to droughty sites that occur at low elevations or on steep south-facing slopes or fire-prone areas.

This ecosystem includes grassland, shrubland, and forested communities that normally experience frequent low-intensity fires.

The Kamloops Land and Resource Management Plan (LRMP) has designated portions of the watershed as Critical Deer and Moose Winter Range (Speed and Henderson 1998).

The grassland ecosystem

B.C. grasslands are unique in Canada because they are dominated by bunchgrass, bluebunch wheatgrass and many other plant species that occur only rarely east of the Canadian Rockies.

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Grassland communities currently face the greatest threats to their biodiversity (Harding and McCullum 1994). B.C. grasslands are unique in Canada because they are dominated by bunchgrass, bluebunch wheatgrass and many other plant species that occur only rarely east of the Canadian Rockies. Moreover, B.C.'s grasslands represent the northern limit of extensive bunchgrass vegetation in North America (Harding and McCullum 1994). Most of the grasslands in Canada have been eliminated primarily due to agricultural cultivation and livestock grazing. In the Southern Interior of B.C., fire suppression, urban development and associated outdoor recreational pursuits are all major factors contributing to the disappearance of grasslands. It should also be noted that in some instances agriculture and the responsible grazing of domestic livestock has contributed to the enhancement and preservation of grasslands. (e.g. Douglas Lake Ranch)

Fire in the Valley Ecosystem

Before European settlement, low elevation grasslands and open forests were more widespread throughout the Bunchgrass and Ponderosa Pine biogeoclimatic zones and drier elements of the Interior Douglas-fir biogeoclimatic zone. Prior to settlement, natural fire disturbances were fairly common. In addition, some of the open forests and grasslands were maintained by aboriginal use of fire. Recent human activities have altered fires regimes in much of the Deadman Valley. Several decades of fire exclusion has caused many Ponderosa pine and interior Douglas-fir stands to fill in with young conifers. This has resulted in fuel accumulations, increased probability of crown instead of surface fires, loss of understorey forage, and insect disease and damage.

Because ecosystems with frequent stand-maintaining fires (NDT4) have been so influenced by human activities and the suppression of fire, a relatively large number of wildlife species associated with grasslands are listed as threatened or endangered.

There is also a change in forage quality. Native bunchgrasses associated with fire-maintained stands produce high protein levels during the growing season. In closed and ingrown stands, the lower-growing pinegrass predominates. It produces lower protein levels in the summer and does not retain its protein through the winter. Pine grass is also extremely unpalatable to domestic livestock therefore often not grazed unless there is absolutely no other available feed. According to valley residents, these patterns are evidenced in diminishing quality and quantity of grazing areas, the distribution and abundance of certain species of wildlife and culturally important vegetation (ie. berries and medicinal plants).

Species at risk

Some of the potential endangered or vulnerable species that reside in the Deadman River watershed include[1]:

[1] John Surgenor, pers. com., Ministry of Environment, Lands and Parks, Kamloops, B.C.

- great basin spade foot toads,
- painted turtles,
- rubber boa,
- gopher snakes, racers,
- American Bittern,
- prairie falcons,
- sharp-tailed grouse,
- long-billed curlew,
- flammulated owl,
- lewis woodpecker,
- spotted bat,
- western small-footed Myotis,
- towsends big-eared bat, and
- badgers
- Western and timber rattlers,
- sandhill crane,
- great blue heron.
- Also porcupine populations have diminished drastically in recent years as noted by local residents.

Although not included in this list, Thompson River coho and steelhead populations are considered severely depressed and there has been no record of bull trout presence in the river since systematic monitoring programs began in the 1980's.

It should also be noted that there are a variety of riparian eco-system associations specifically those involving cottonwood and other species (e.g. Cottonwood/red osier +/or cottonwood/ prickly rose) that are at risk throughout the Interior and especially in the Deadman valley. Also there is major concern about the decline of traditionally valued plant species such as spetsum or Indian hemp, Indian potatoes or spring beauty and Indian tobacco as well as others.

Community perspectives on ecosystem health

The current threat to wildlife species native to the valley are recognized by many residents as a symptom of a much larger problem related to over-all ecosystem health. According to the community of Skeetchestn, the depressed health of some species of fish, wildlife, forests and grassland vegetation provides an indicator of broader ecosystem dysfunction. This is evidenced in the bands involvement in activities around fish, wildlife, forest, agriculture, range, and water management. Skeetchestn's salmon and steelhead restoration programs include habitat recovery and hatchery-based conservation programs as part of broader resource management programming. The community's fishery on wild salmon and steelhead in Deadman Creek has been severely restricted since 1985 due to insufficient returning spawners (Don Ignace pers. com.). Recurring wildlife poaching problems in the valley are blamed in part for depressed local ungulate herds. Noxious weed and garbage problems are blamed on increased tourist traffic. Valley residents point to ever increasing access and "outdoor recreational pursuits" as the

major factors contributing to poaching, weed infestation and increasing garbage. Valley residents also point to fire control as the single largest factor affecting the loss of grasslands to forest encroachment, and the decreasing quality of grazing grasses.

Community drawings for this project depicted a community way of life based in traditional culture relevant to sustainable life in the Deadman Valley, with much detail regarding the natural environment. The pictures created by Skeetchestn Elementary School students and by participants to a community workshop were far too complex for accurate interpretation in this report. However, it was clear that the community sees the health of forests and grasslands, water, fish, wildlife, and plants through their cultural practices, as indicators of environmental health.

The community's depiction of the natural environment (past, present and future) illustrated a trend away from cultural environmental values, and an atrophy of the custom associated with sustainable resource use. This was offered in the workshops as a community perspective of ecosystem health. Restoring customary practices and incorporating traditional ecological knowledge and wisdom is advanced by Skeetchestn Community as their approach to achieving the sustainable use of the Valley's natural resources.

2.0 Ecosystem Stewardship in the Deadman River Valley

Ecosystem planning for the Deadman River

The Skeetchestn Indian Band is interested in applying an ecosystem-approach to the management of the resources within the Deadman Watershed. Current ecosystem approaches demand a better assessment of ecosystem function than currently exists, and a search for a control watershed is proposed for comparative purposes. The ecosystem-approach represents a vision that integrates ecological, economic and social factors in an equitable way, and seeks a balance between biodiversity conservation and the sustainable use of natural resources. A control watershed and a community-based ecosystem framework are suggested to guide the management, planning, and the restoration of the biodiversity within the Deadman Watershed. Workshops involving Skeetchestn and the Deadman Creek Improvement District in 2001 have helped to set the stage for this ecosystem planning collaboration.

Collaborations by Skeetchestn among residents through the watershed public forum provides for a local and ecologically-sensitive jurisdiction, arising from the Secwepemc culture and aboriginal rights.

This presents a window for addressing other jurisdictions from inside the valley. Resource development in the valley can trigger a referral process for band intervention (and by extension the Deadman Watershed Committee) when development activities threaten cultural practices, including sustainable local resource use.

Science and TEK

Currently, the Band's natural resource management activities provide an ecological focal point for federal and provincial agencies and natural resource management. Science is an important cornerstone to natural resource management programming in the valley, and the Skeetchestn Band ensures that traditional ecological knowledge is afforded local weight in decision-making through collaborative community-based programming – linking elders and their knowledge to resource management through their Secwepemc language (Chief Ron Ignace, pers. com.). The Skeetchestn Band finds that historical and contemporary local knowledge is often overlooked in many scientific based studies within the watershed. It has been our experience in the past that these local sources of knowledge and traditional ecological knowledge often prove more accurate than much of the scientific data collected and/or presented. In addition, project referrals may trigger a heritage investigation to accommodate the systematic study and analysis of an area for the purpose of protection and conservation.

Sustainable-use of Natural resources – protection through heritage

A 1998 Traditional Heritage Conservation Law sets out the Band's procedures which proponents of development are required to follow when consulting with the band. These may concern land developments and resource management projects within the bands territory, including those that may impact rivers and waterways of the Deadman Watershed and that may impact on the bands cultural practices.

This law extends current jurisdiction of the band beyond reserve lands and the confines Indian Act. The Law can function in isolation, or in concert with federal and provincial statute, or community ecosystem-conservation. The Law represents an important jurisdictional tool for the watershed's non-aboriginal residents as well, who may benefit from the protection of local natural resources and ecosystem values.

Forest practices

There are a number of areas of major concern with contemporary forest management identified by the Band and many other watershed residents. These areas of concern include the use of clearcut harvesting, almost to the exclusion of all other silvicultural systems, grossly inadequate riparian protection and excessive road and landing building. Alternatives to indiscriminate clear-cutting and high impact road building have been advanced by the Skeetchestn Indian Band for the last 20 plus years in watershed forest harvest planning with Ainsworth Lumber Company Ltd., Weyerhaeuser Canada Ltd., as well as Small Business Forest Enterprise Program and any private timber interests in the watershed. Many circumstances and opportunities exist for horse logging or other alternative harvesting and silvicultural systems in the watershed. The Band encourages more labor intensive, ecologically sensitive harvesting practices both to increase local employment as well as provide environmentally sound alternatives to contemporary harvesting practices. The Band also encourages more value from the harvest through local product development. The long terms objective is to sustainable harvest available

stands in the watershed, and create a greater community return on benefits from future forest practices (Mike Anderson, pers. com).

> "*Fisheries, soils, and water rights issues have not been taken as a starting point for planning so far, partially because the Ministry of Forests has been relied on to set agendas, and to interpret the impact of logging on these resources" (Pinkerton, et al, 1993).*

Opportunities to comment on 5 year Forest Development Planning and related silviculture plans are offered by the area forest companies for annual review in public meetings as well as directly with the band. However, interest by valley residents in leading a community-based holistic forest management planning approach is more appropriately dealt with in broader watershed-based plans. This will enable the valley residents to define sustainable harvest levels for timber products, providing a stable business market for local product development. As well, important non-timber values off the land can be protected more effectively.

A key objective of valley residents is clearly to assert community controls into resource management planning that affects their resource-based lifestyle. Future focus in watershed planning will reflect community and related ecosystem values in planning, management and resource development. The ecosystem values, ecological sensitivities and sustained resource use pans can then be incorporated more accurately and fully in plans advanced by other orders of government or forest companies.

Water quality and quantity management

Valley residents see water quality, quantity, timing of flow and flow regimes as important indicators of ecosystem health and there is a long history of community involvement in stream bank protection, tree planting and the elimination of herbicides along transportation corridors. Water management through the Deadman Creek Improvement District is primarily concerned with water flows in Deadman River for domestic, fisheries and agricultural demands. An historic dam at Snohoosh Lake was constructed at the turn of the last century to support agricultural developments in Walhachin and was reconstructed between 1968 and 1977 (Don Ignace, pers. com.) to accommodate the needs of Valley residents.

Water management planning to accommodate fish flow needs at Snohoosh Lake Dam began formally with provincial and federal fisheries managers and the Improvement District in 1985. Water flow plans of today are designed to accommodate needs for irrigation and fisheries values. Fisheries managers worked together to incorporate flow patterning that would emulate historic freshet timing and minimize low flow extremes, while protecting water reserves sufficiently to accommodate agriculture and domestic water needs downstream.

Watershed Restoration

Stream channel instability has been cited as an ongoing concern since the 1990 flood which caused wide spread channel disturbance. However, stream bank stability problems were cited along the channel in the 1980's long before the flood event, and may have exacerbated its impact. Riparian restoration programming led by the band has included replanting of indigenous vegetation, management of cattle impacts through fencing and stabilization of access points, and prescribed habitat treatments. In addition, the band has worked with valley residents to address the impact of roads, pollution, natural resource and urban development.

An Integrated Watershed Restoration Plan[2] for Deadman Watershed was prepared in association with Forest Renewal BC (FRBC) in 1998 for Ainsworth Lumber Company. The plan specified broad watershed level planning objectives to guide restoration work in stream and in upslope areas of the Deadman Valley. Unstable soil sites and eroding stream channels were targeted in areas associated with the company's forest practices. Recommendations and priorities for future assessments arose from 5 phases of overview assessments:

- Interior Watershed Assessment Procedure (IWAP)
- Sediment Source Survey (SSS)
- Overview Fish Habitat Assessment Procedure (OFHAP)
- Watershed Level Planning and Project Component Objectives
- Access Management Map

The study recommended watershed restoration work, including $1,013,920 for major project works over the subsequent 4 years, and $283,800 for preparation of watershed restoration prescriptions. The study further recommended semi-permanent deactivation of 274 km of road, permanent deactivation of 199 km of road, and 63 permanent road blockages were proposed. More detailed watershed restoration assessments and prescriptions were expected to arise during subsequent field validation and planning.

Channel stability problems associated with riparian sites on private land were considered outside of the forest company's responsibility. These did not qualify for FSRBC funding, although the habitat loss and water temperature concerns cited may be exacerbated by forest practices and climate-influenced flow extremes.

FRBC's *Watershed Level Planning* and Project *Component Objectives* were recommended to guide future watershed restoration programming associated with forest activities in the project area. Following recommendations of that report, detailed watershed assessments were conducted in Gorge Creek in 1999 and in Lower Criss Creek in 2000.

A Deadman River Watershed Restoration Plan[3] was developed in 2000 to address outstanding impacts of forest practices in the valley. The watershed restoration committee included the area

[2] Speed, M. and Henderson S. A Deadman River Watershed Integrated Watershed Restoration Plan. March 1998. Prepared by Integrated Woods Services Ltd. Funded by FRBC for Ainsworth Lumber Co. Ltd., Savona Division.

[3] Ainsworth Lumber Co. Ltd. And Weyerheauser Company Limited. Deadman River Watershed Restoration Plan. 2000-2001. Prepared by Integrated Woods Services.

forest companies, provincial Ministries of Environment and Forests, the band, and the Thompson Basin Fisheries Council. The plan outlines previous assessments, activities to date, and those activities proposed that remain outstanding from previous work and qualified for FRBC Watershed Restoration Program funds.

The plan identified 5 projects for immediate work arising from a field review of 17 upslope road sites on reserve and on private land along the Deadman River below Mowich Lake. The plan also confirmed 57 road blockages throughout the watershed proposed by Ministry of Environment, Lands and Parks and the Skeetchestn Indian Band to minimize sedimentation and to protect wildlife and heritage values.

In 2001, a *Final Report – Overview of Watershed Restoration Opportunities* was prepared by Integrated Woods Services Ltd.[4] with specific reference to instream conditions in 16 kilometers of the Deadman River channel below Mowich Lake. Opportunities for instream work (channel stability and fish habitat) and restoring riparian vegetation communities were included in the assessment. A total 36 sites were identified as a priority for stabilization work. More detailed prescriptions were recommended to direct subsequent major works on 21 sites, totaling 3434 meters of high priority shoreline and on 15 sites of moderate priority totaling 1125 meters of shoreline downstream of the lake. Deadman River sites, below the Skeetchestn Village, were considered a lower priority that regions of higher rearing and spawning value upstream. The lower reaches of the river represent relatively low density rearing, and are frequented by emmigrants to the Thompson main stem, where juvenile salmonoid survival is considered lower than in the Deadman River itself (Don Ignace, pers. com.).

[4] Overview of Watershed Restoration Opportunities in the Deadman River – Final Report, January, 2001. Prepared by Integrated Woods Services and funded by FRBC.

Deadman Valley Roads

There are 1772 km of road within the watershed and more than a quarter of that is targeted for access control. Much of the road building off the main Deadman-Vidette Road originated in the forest practices of the last century, although became popular for mining exploration and recreation. Increased traffic in the valley is noted by residents who face problems with increased vandalism, road hazards, wildlife poaching, and garbage.

Currently, 473 km of forest access road has been proposed for deactivation in the valley (Speed and Henderson 1998).

Roads are a widespread and increasing feature of most developed landscapes. Studies have found that roads can be more significant agents of change than clearcuts (Tinker *et al*. 1998). A review of these ecological effects of roads on terrestrial and aquatic communities found 7 general effects:

- Mortality from road construction,
- Mortality from collision with vehicles,
- Modification of animal behaviour by changing animal home ranges, movement and reproductive success,
- Escape response,
- Alteration of the physical environment such as soil density, temperature, patterns of runoff and sedimentation,
- Alteration of the chemical environment by adding heavy metals, salts and nutrients to roadside environments,
- Spread of exotic weeds and plants,
- Increased use by humans which promote increased hunting, fishing and passive harassment of animals (Trombulak and Frissell 2000).

Currently, 473 km of forest access road has been proposed for deactivation in the valley (Speed and Henderson 1998 Increased vehicle access is associated with increased wildlife harvest and the band has worked on plans with the provincial government to limit hunter access to conserve wildlife populations. Limiting upper valley access into the Bonaparte and Tranquille watersheds has been managed through arrangements with the Provincial Forest Service, Ministry of Environment Lands and Parks as well as regional forest companies, to minimize through traffic and to aid in wildlife harvest management.

Current road building practices often include many additions to an extensively long network of existing roads. Often these additions parallel or duplicate the already existing road network within an area. New roads are built to very high standards in terms of alignment, design speeds, visibility etc. These new road systems often require extremely wide rights of way, huge masses of earth to be moved and excessively overbuilt ditching and drainage systems that further disrupt the natural environment. The Skeetchestn Band has been calling for minimal impact road building and the use or modification of existing roads rather than the construction of new roads wherever possible for many years. The Band feels that reduction of the design parameters on forest roads would reduce hauling speeds somewhat; however, it would result in much less of the productive forest land

base being taken out of production for road bed and rights of way and much less in the way of hydrological disruption and other ecological disturbance.

Aquatic ecosystem restoration & management

Fisheries programming at Skeetchestn took on its present form in salmon enhancement activities sponsored originally by DFO's Community Economic Development Program The program was initiated in 1983 in association with the Central Interior Tribal Council and focussed on stock assessment and pilot enhancement programming. Assessment of Deadman rivers salmonid populations by provincial, federal and tribal agencies in the area over the following decade pointed out a trend of depressed or declining populations of salmon populations and steelhead. Some spawning populations like bull trout are said to have disappeared entirely (John Collins Sr., pers. com.). In addition, significant instability has been observed in riparian habitats, exacerbating the fish affects of climate extremes and human activity in the watershed.

Development of a fisheries conservation program began with a Skeetchestn By-law in 1985 prohibiting salmon harvest, followed by development of a Fisheries Conservation Center celebrated publicly in 1993, following post-flood reconstruction of the salmon hatchery. The hatchery program has focussed on coded wire tag programs to track scope and nature of catches in the approach fisheries. A wet and dry lab accommodates salmon assessment in the Thompson River mainstem, and a rearing channel was developed to for additional rearing and study of habitat treatment techniques. The fisheries program cultured indigenous streamside shrubs for valley residents and encouraged local conservation groups to participate stream-side replanting work parties as part of public awareness. Prescribed post-flood habitat work was photographed and assessed for ongoing evaluation and current instream habitat work is prescribed to meet the needs of all indigenous wild fish populations.

The Band's goals (paraphrased) for fisheries restoration[5]:

- To reestablish salmon production to full capacity;
- To reestablish the community harvest of salmon to historic levels;
- To conserve stocks and habitats at risk
- To build capacity to participate in resource stewardship

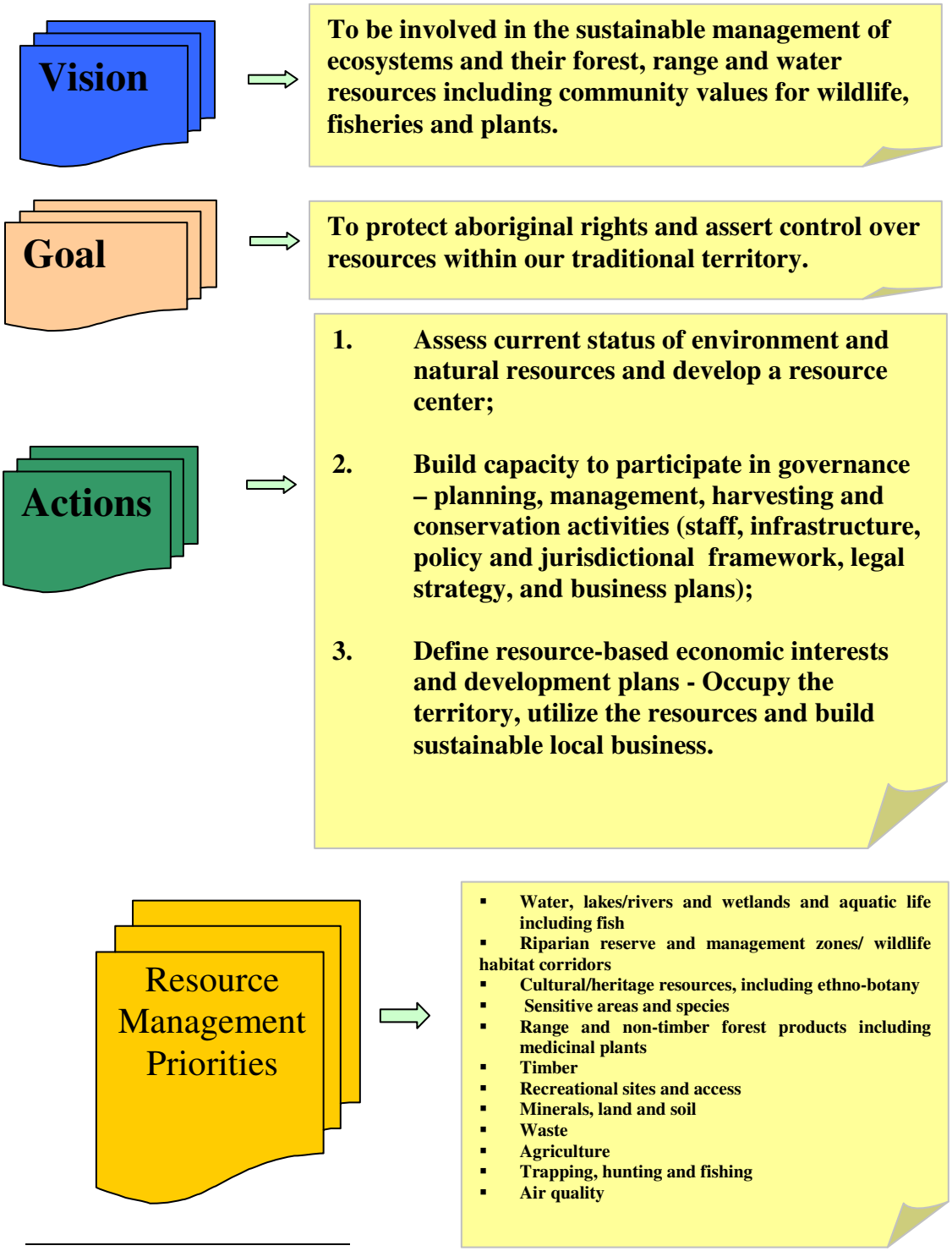
The Skeetchestn Bands fisheries programming considers both riparian and fish values.

Skeetchestn Economic Development and Natural Resources Planning

The Band led economic development and related natural resources planning within the Skeetchestn community from 1994 – 1999 that addressed sustainable natural use and development more broadly[6]. A subsequent workshop was organized by the band to define

[5] Skeetchestn fisheries planning notes, November 1994. File records.
[6] An Economic Development Plan for the Skeetchestn Indian Band, November 1997. File records.

specific natural resources management planning priorities in the community[7] which identified the need for specific sustainable resource management and capacity building plans, as well as economic development objectives. These priorities are considered in the vision, goal and action plan outlined below drawing upon current workshops.



[7] Workshop notes - Towards A Draft 5 year Action Plan for Natural Resources. Skeetchestn Natural Resources Department Meeting. February 11, 1999.

Monitoring Biodiversity - A control watershed proposal

A control watershed is proposed by the band to provide a contrast for measuring cause and effect relationships in watershed-level management. Previous attempts by the band to locate a similar watershed in the region for comparisons have failed to locate an undeveloped watershed of sufficiently similar ecological characteristics (M. Anderson, pers. com.). To be effective this requires measures to judge the success or failure of management regimes designed to sustain biological diversity. One way to monitor and identify the current status of the biological diversity is to select indicators of ecosystem conditions or properties.

A control watershed is proposed by the Band to provide a contrast for measuring cause and effect relationships in watershed-level management.

In efforts to assess the trends and status of environmental values in the Deadman Watershed, the Skeetchestn Indian Band will choose a relatively untouched watershed with the same biogeoclimatic features to use as a control watershed. This watershed will be used to compare the ecosystems and biodiversity that exist in the Deadman. The results of co-investigations will guide restoration programs and community-based recovery plans. In addition, the Skeetchestn Indian Band and the Deadman Watershed Committee have identified several ecological indicators, priorities and objectives they would like to see incorporated and managed for in a community-based ecosystem management plan for the Deadman Watershed.

Alternative control watersheds will be explored in other areas with similar ecosystems. Of particular interest to this project may be watersheds protected on large reserve lands like in Warmsprings Oregon. This would be particularly advantageous to the project if linkages can be made with parallel watershed committees, (public involvement) and government involvement in management.

3.0 A Framework for ecosystem stewardship in the Deadman Watershed

According to the Skeetchestn community, sustainable management and use of natural resources requires sensitivity for ecological values inherent in the rights and culture of the Secwepemc. Stewardship to Skeetchestn is a tool to accommodate relevant community ecological knowledge, innovations and practices into management, and it engages all valley residents dependant upon natural resources in their planning. This concept is being embraced by the Valley residents in ecosystem-based planning dialogue, and the following framework provides a glimpse of how these valley residents see their ecosystem[8].

[8] Perspectives from Skeetchestn community workshop on March 21 and a valley residents workshop on March 24, 2001.

Comparative views of valley residents on environmental stewardship

Visions

Skeetchestn. To be involved in the sustainable management of ecosystems and their forest, range and water resources including community values for wildlife, fisheries and plants.

⟺

Other Valley Residents. More Watershed community control over the environment and resources to protect sustainable resource-based cultures and lifestyles.

Goals

Skeetchestn. To protect Aboriginal rights and assert control over resources within our traditional territory.

⟺

Other Valley Residents. To protect and ensure sustainable local access to natural resources and assert community control over related environmental management in the Deadman River Watershed.

Management priorities

Skeetchestn		Valley Residents
Assert local control /sustained local resource benefits	⟷	Watershed community control /sustained local resource benefits
Healthy Environment	⟷	Environmental Management
Traditional Ecological Knowledge and wisdom	→	Access Management
Traditional.sustenance	→	Riparian Management
Watermanagement	⟷	Water Management
Forests, grasslands and wetlands management	→	Habitat protection and management

The Skeetchestn and watershed level consultations on ecosystem stewardship demonstrated significant similarities in perspectives and priorities. *Traditional ecological knowledge and Wisdom* and *Culturally-based Sustenance* are considered distinct elements of stewardship by the Skeetchestn community.

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Integrated Framework for ecosystem-based management in the Deadman River Valley

The integrated framework for ecosystem-based management in the Deadman River Valley enables organization of thematic planning among band and non-aboriginal valley residents. The framework integrates the values and priorities derived from consultations and planning among valley residents over the last 10 years, providing their perspectives, insight and experience into ecosystem-based management.

The integrated framework for ecosystem-based management in the Deadman River Valley enables organization of thematic planning among Band and non-aboriginal valley residents.

Sustainable resource use and benefits have been identified distinctly from community stewardship to accommodate a focus for strategic collaboration among residents. However, it should be noted that the residents of the valley, current and historic, consider sustainable resource benefits as the incentive for local environmental stewardship and it provides the foundation for the community-based knowledge on ecosystem function.

Ecosystem Planning Framework

1. Community stewardship

- Deadman Watershed Committee may provide a clearing-house and focal point for community-based management of the valley's natural resources;
- Create linkages to band jurisdiction and regional forest and other planning efforts to protect local and sustainable use and discourage non-compliance to community values;
- Develop a communications plan including regular meetings and a newsletter to link valley residents to:
  - i) Watershed Planning
  - ii) Sustainable economic development strategies for forest, grassland, water and fishery resources
  - iii) Policy and planning efforts of outside resource agencies and companies;
  - iv) Topical meeting dates and information sources

2. Sustainable resource use and benefits

- Encourage local employment and training in habitat protection projects, sustainable resource extraction and in community-based resource management programming;
- Apply visions and goals established in long term local programming and planning for sustainable resource use in the valley;
- Facilitate thematic resource-use planning to address broader ecosystem values, to collaborate on alternative eco-friendly resource development, to create more local value and benefits;

3. Environmental protection

- Establish ongoing watershed restoration themes around air, water, species and habitat restoration, pollution and recycling;
- Identify indicator species and sites for monitoring ecosystem health as part of Band-based programs involving valley residents;
- Coordinate access management plans in the Deadman River Watershed;
- Establish control watershed and communications/monitoring plans.

4. Forest, grass, water and wetlands management

- Build local resource stewardship capacity through community projects, training and management programs linked to watershed committee and engaging valley residents;
- Define and implement alternative forest harvest strategies, particularly in riparian areas, and encourage sustainable use of non-timber forest products to increase local jobs and value from land base;
- Review and refine water management strategies through Improvement District in concert with riparian restoration strategy to address fish and other values;
- Extend salmon test fisheries into the Thompson River to monitor, selectively harvest and use passing salmon and steelhead stocks to engage approach fisheries and conserve local stocks;
- Develop grasslands/range management programs associated with grazing and forest tenures through watershed committee to restore riparian area, sensitive grasslands and forests;
- Incorporate planned and controlled burns in forest and grassland management to reduce forest encroachment, revitalize browse, to enhance grazing areas, and protect other values;
- Restore and monitor species and habitats at risk through community projects engaging land owners and tenure holders in the valley;
- Monitor and advance access management planning considering forest, grassland and wetland ecosystem values.

5. Water management

- Develop a communications theme between valley residents, Ministry of Environment, Lands and Parks, DFO and the Band to address naturalization of flow regimes as required to maintain ecosystem values, flood control and water needs;
- Establish a community-based water monitoring program considering flow regimes, temperature and other quality values including bedload movement sediment loading, dissolved nutrient content and in stream biological composition.
- Report on cause and effect relationships associated with land and resource use in the valley and water management priorities of the valley residents.

- Work towards establishing larger/wider, more comprehensive riparian reserve and management zones on all riparian features.

- Strive for alternatives to current forest management practices within these riparian management zones.

- Develop, in collaboration with D.F.O., best management practices for riparian zones that will begin to address sedimentation, water temperatures, wildlife habitat and movement corridor needs, and traditional riparian vegetation.

6. Contributing traditional and local knowledge and practices into sustainable use practices

- Extend the Band jurisdiction to watershed to protect ecosystem values and related cultural and sustainable resource use practices;
- Utilize the 1998 Traditional Heritage Conservation Law to advance understanding and values associated with cultural practices in development planning, resource protection and authorization;
- Continue efforts to document traditional language, innovations and practices associated with sustainable resource use practices and broader ecosystem values;
- Encourage incorporation of new locally developed knowledge, innovations and practices where they are relevant to the sustainable use of the valley's natural resources.

3.0 Capacity Building for Ecosystem-based Management

There is a common vision held by valley residents for community-based control over resource, utilization in the Deadman watershed. The common goal is to support the local resource-based jobs and cultures. The following key steps are from current and previous community and watershed planning (1994, 1997, 1999 and 2001) to guide capacity building for those involved resource protection and sustainable use in the valley:

1. **Reinstate Deadman Watershed Committee**: develop an action, communications and business plan engaging valley residents in watershed management;

2. **Continue efforts to develop a resource center** including staff, equipment, and data center. The center should address cultural/sustainable use practices in the valley, language and traditional knowledge, as well as a specific reference species and habitats at risk, and project activities. Consider a habitat and management atlas to integrate data, management and ecological modeling tools as well as academic linkages to SFU/SCES and U.C.C. In conjunction with Weyerhaeuser, the Band

is presently working towards the long term goal of developing a local comprehensive natural resource data base and forestry field office to be set up within the watershed and staffed by Band and other community members.

3. **Develop policy and regulatory tools** to implement sustainable resource management plans in forestry, range, fisheries and cultural resources etc. that embraces community/watershed values, utilizes local knowledge and extends control and benefit sharing plans for the residents of the Deadman River Watershed. Consider role of band jurisdiction and model for incorporating TEK;

4. **Collaborate on eco-friendly and sustainable resource restoration and management strategies** with watershed residents that increase local knowledge, employment, value and benefits from natural resources. Focus on land use practices, water, forests, range and riparian areas. Address community recycling and value added products from resources available within the valley;

5. **Provide training and infrastructure development to facilitate local employment** in future resource management work as part of community involvement in stewardship;

6. **Build a business plan** to support process (communications and planning), training, and policy development from the perspectives of valley residents.

4.0 Project Business Planning

The following themes provide the basis for proposal planning that will support elements of the proposed program of work. The business plan to be developed will address the relational as well as the financial objectives that are the foundation for future work.

Themes	Agencies (not exclusive)	Objective
Communications and planning	▪ Deadman Watershed Committee and partner agencies (various)	▪ Collaboration ▪ Political weight in planning
Jurisdiction	▪ Skeetchestn Indian Band	▪ By-laws ▪ Incorporation by reference ▪ Consensus policy building
Science	▪ University College of the Cariboo ▪ Secwepemc Cultural Education Society/Simon Fraser University	▪ Field research station ▪ Research and control watershed ▪ Link traditional ecological knowledge local knowledge and science
Management and environmental protection	▪ Fisheries and Oceans Canada ▪ Ministry of Environment, Lands and Parks ▪ Forest Renewal BC & Forest Companies	▪ Assessment, inventory and status ▪ Resource people ▪ Policy development

	▪ Fisheries Renewal BC	
Sustainable resource use	▪ Indian and Northern Affairs ▪ Natural Resource agencies (various) ▪	▪ Alternative forest practices ▪ Value added products ▪ Non-timber forest products ▪ Increased forage value and naturalized forest succession ▪ Naturalized flows ▪ Recycling ▪ Pollution control ▪ Domestic animal control
Training and youth	▪ Environment Canada ▪ Ministry of Environment, Lands and Parks ▪ Habitat Conservation Trust Fund.	▪ Salmonids in the classroom and stream stewardship training ▪ School children environmental advocacy and awareness (tree planting) ▪ Technical training and internships.

5.0 Forward - A Vision for advancing ecosystem-based management in the Deadman River Valley

The common environmental perspectives among valley residents associated with the resource-based cultures and lifestyle provides the basis for collective environmental stewardship in the Deadman River Watershed. Future collaborations will embrace the environmental culture of the band and the common environmental values of other valley residents. Valley residents share a common vision to share sustainable resource dependant lifestyles and culture as the foundation for ecosystem stewardship.

> "*There are considerable potential management and community economic development benefits to be derived from the completion of the collaborative process, for the band community and for the watershed community as a whole*" (Pinkerton et al, 1993)

The valley residents also share a common goal for developing watershed level controls over resource management and environmental protection to advance principles of sustainable use. Future watershed planning work will consider these perspectives as a framework for ecosystem-based management. This framework provides a window into the community's view of their environment. It accommodates thinking around holistic management, organized in a manner that reflects their perspectives, and it will provide for clear interpretation by valley residents of cause and effect relationships arising from their adaptive management approaches in the future. This also provides a thematic approach for monitoring ecosystem health.

By advocating the development of the watershed process, the Skeetchestn Indian Band and valley residents can extend ecosystem values, knowledge innovations and practices into area management. As in the Secwepemc legend depicting the discovery of the natural environment "Sek'lep Juggles His Eyes"[9], the development of a collaborative vision in the Deadman River Valley is akin to the coyote recovering his sight. The vision and the process will facilitate important linkages between the valley residents and the ecosystem they live in. This will aid in developing a better understanding of the human-ecosystem linkages in order to sustain the natural resources of the valley and the lifestyles that they support.

Appendix I

Summary perspectives from Skeetchestn Community and Band Council Workshops. (* denotes multiple hits)

Vision for Stewardship in the Deadman Valley?

To be involved in the sustainable management of ecosystems and their forest, range and water resources including community values for wildlife, fisheries and plants.

Skeetchestn Indian Band workshops 1997, 1999 & 2001.

Participants:

[9] Secwepemc story as told to the Skeetchestn Community gathering by Chief Ron Ignace and Marianne Boelsher as per Eida Matthew, North Thompson Indian Band.

To protect aboriginal rights and assert control over resources within our traditional territory.

Skeetchestn Indian Band workshop November 1997.

Goal

Healthy Environment

- Clean air
- Industries accountable to eco-friendly practices
- Do not pollute
- Respect the earth/land
- Clean up and stabilize our creek
- Recycling programs
- Less waste
- Too many stray dogs
- Sewage treatment
- Recycle depot***
- Less vehicles
- Monitor refuse
- No pesticides
- Clean up litter along roadways

Traditional Ecological Knowledge and Wisdom

- Spiritual
- Ecosystem-based management
- Teach the kids
- Horticulture
- Respect for our hunting and gathering
- Cultural awareness
- Revive traditional practices

Traditional Sustenance

- Preserve the plants
- Lots of Sxusem and Sqlelten
- Whooshum

- **Skeetchestn community wildlife management***
- **Management for traditional plants**
- **Importance of fires**
- **Better control of ocean fishing world wide**
- **Salmon**
- **Wildlife preservation**
- **Restoration of indigenous species**
- **Increase fish stocks***
- **Organic food**

Water Management

- **Clean water**
- **Less cattle around water**
- **Protect our waters in the territory**

Forests, grasslands and wetlands

- **No clear cuts**
- **Cut blocks smaller than 40 hectares**
- **Protect deer and moose habitat**
- **Protect fish habitats**
- **Protect medicinal plants**
- **Reforestation**
- **Plant more trees in community***
- **Forest management**
- **Horse logging**
- **Save our trees**
- **More control of forests in the tree belt**
- **Education in forest management**
- **Healthy forests***

Appendix II

Summary Perspectives from the Deadman Valley Residents Workshop March 24, 2001.

Vision for Stewardship in the Deadman Valley?

More Watershed community control over the environment and resources to protect sustainable resource-based cultures and lifestyles.

Participants:

- Ron Craig
- Peggy Keeping
- Gerry Keeping
- Bob George
- Alan Dube
- Martin and Lori Shvil (sp?)
- Mendel Rubinson
- John Philip
- Missy Bendzak

Goal

To protect and ensure sustainable local access to natural resources and assert community control over related environmental management in the Deadman River Watershed.

Environmental Issues framework

(Those with * denote multiple hits)

Watershed Community Control/sustainable resource benefits

- **Monitoring the TFL transfer to company in 100 Mile House and away from the neighboring community of Savona**
- **Have a say in forest practices***
- **United front**
- **Community voice**
- **Equitable representation**
- **Local employment opportunities**

- **Reactivate watershed committee**
- **Defending the ranchers and farmers against the governments Sensitive Streams Classification**

Environmental Management

- **Educate public about garbage left**
- **No pesticides**
- **Develop possible alternatives to pesticides for farming**
- **Limit export and encourage local sustainable use**

Access Management

- **Put the Deadman Road back into no-thru-road**
- **Engine horsepower limitation on valley lakes**
- **Concerned about overly-built logging roads**
- **No logging or mining in the valley bottom****
- **Protection from traffic impacts on natural resources (tourists, logging, mining etc.)**
- **Noxious weeds**

Riparian Management

- **Need wider logging buffer zones on all valley water courses, especially upper valley intermittent streams, potholes and lakes***
- **Riparian work along the entire watershed***
- **Propagate and plant 1000's of cottonwood whips along the Deadman**

Water Management

- **Water quality**
- **Water quantity**

Habitat protection and Management

- **Agriculture**
- **Sustainable cattle grazing plan in habitat plans**
- **Fisheries**
- **Reestablish extirpated or threatened species**
- **Wildlife habitat**
- **Steelhead recovery**
- **Native fish and habitat**

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