As cadets, youth gain self-confidence, break down many barriers

Being members of the Warm Springs and Jefferson County 4-H Search and Rescue clubs has helped break down barriers, not only the barriers of misunderstanding but the barriers of prejudice as well. Just ask any of the members of either club, they'll tell you.

The Warm Springs club was operating on a fairly independent agenda and then along came a tragic accident in British Columbia, Canada. That tragedy brought the two groups together so tightly that members of both clubs participate in training together and have coordinated their meetings so the clubs now meet jointly.

Members of the Warm Springs and Jefferson County 4-H Search and Rescue clubs have begun holding weekly meetings together. Members and leaders include, from left to right, Keith Baker, Jeremy Williams, Scott Hudson, Brad Posey, Sabrina Sheehan, Charity Hamilton, Andrew Hicken, Frank Brunoe, Glenn Ludwig, Sara Badten, Rain Circle, Mark Matthews, prospective member Raul Trevino and assistant leader Andy James. Not shown are Louie Smith, Joseph Scott, Jr., Tim Ludwig, Alena Brown and Michael Middlestetter.

In September, three club members, including two from the Jefferson County Cadet program and one from the Warm Springs program, and three adult leaders, traveled nearly 600 miles to Creston, BC, Canada to help in the search of a nine-year old boy who drowned in the Goat River in early August. The victim was the nephew of assistant club leader Andy James, a resident of Warm Springs.

Club members labored for hours to install a body net into the river, knowing the net would help retrieve the young victim. In one week's time, the partial remains of young Patrick Tommy were discovered in the net. A different response team, this time comprised of five Jefferson County cadets, two Warm Springs cadets, two assistant leaders and club leader Keith Baker, again traveled to Creston. The group, after two days, collected the net and returned home, leaving behind them new friends and "family."

All the while learning, the cadets, whose ages range from 10 to 18, strive to accomplish their clubs' overall goal—teamwork. Without teamwork, success is inaccessible. Often times, during training sessions, a member's life is literally in the hands of his peers. In this respect, members learn self-sufficiency as well as cooperation with others.

Baker is club leader for both cadet programs. He has found that there is a "rapid move to drop individual racial differences" and a great "acceptance of the teamwork concept." Even on the Canada trips, Baker noted that the members "bonded with the family and with each other."

These 4-H clubs operate differently than other, more traditional 4-H clubs. Membership is based on peer acceptance—membership is based not on friendship, but on the potential member's own credentials, his or her desire, sincerity, acceptance of responsibilities and willingness to work hard. New members are accepted under strict conditions and the cadets themselves determine who is in and who is out.

As with other 4-H clubs, skills learned will remain with and be used by members their entire lives. And, as members reach age 18, they can opt to become active in the Jefferson County or the Warm Springs Search and Rescue groups.

Members of the Jefferson County group joined difficult rescue efforts October 13 and 14 at Cove Palisades following a vehicle accident in which both passengers died. Baker, Andy James, Charity Hamilton, Alena Brown, Scott Hudson and Glenn Ludwig were instrumental in helping retrieve the bodies of Portland residents John Davis and Jean Smith. Members mentioned they felt that adults are shocked and amazed when the young cadets participate and successfully complete their assigned tasks. Said one cadet, "When people laugh at us because we're young, it just makes us do our jobs better."

District athletic program discussed

Parents and Warm Springs community members have been meeting to express their concerns about the athletic program in School District 509-J.

Citing incidents involving their children or relatives, some meeting participants thought these might be prejudice-related. They indicated that some students hesitated to participate in sports because of previous unfair practices that prevented Indian students from being directly involved in athletic competition.

Parents are interested in creating a positive attitude in their children about sports. If changing coaches or behavior of coaches is necessary to do that, then that is what parents would like to occur. "If our children are going to succeed," says Fritz Miller, "we need to find the answers."

Participants plan to meet with coaches in a series of scheduled community meetings. They are also discussing the possibility of meeting with administrators and the District Board of Directors after after gathering support from the community to exert pressure assuring that Indian students are treated fairly. One participant expressed, "The more we can come together, the stronger our voice can be."

Water quality of watershed determined by soil, vegetation, animal and human activities

Soils and geology

Soil is a thin layer of the earth's crust composed of mineral particles of all sizes and of varying amounts of organic materials. It is formed from the breakdown of parent rocks to fine mineral particles. This may occur by freezing and thawing in winter, heating expansion and cooling contration in summer, wind and water erosion, the grinding action of ice, gravity rockfall and avalanche movement, rock minerals in rain and snowmelt water, and the chemical action of lichens. As mineral particles accumulate, mosses and other plants establish themselves and begin adding organic material to the minerals to develop a true soil. Sediments transported by wind and water become soils as they are covered and stabilized by plants and developed by the addition of organic materials from the plants. Soils are of two types. Residual soils are those developed in place from the underlying rock formations and the surface plant cover. Transported soils include those transported by gravity, wind, or water. Characteristics of residual soils may be closely related to the kind of parent material from which they are formed.

Climate, particularly precipitation and temperature, strongly affects soil formation. Rainfall affects leaching, and temperature may affect both the mechanical breakdown of rocks and the breakdown of organic material. plant cover affects soil formation by the addition of organic material and by the extraction of water and minerals in solution through the roots. Soil bacteria, insects, and burrowing animals also play a part in the breakdown and and mixing of soil components.

Soil often determines the type of plants that will establish to form a protective cover of vegetation; and the plants in return modify and develop the soil. Plant roots increase soil porosity. Plant litter adds organic matter to be incorporated into the soil by the soil fauna. The litter slows down surface runoff, and provides a cover to protect the soil surface from beating and puddling effects of rainfall. Soil depths and soil moisture holding capacities are usually less under rough broken topographic conditions, and plant growth rates often slower.

We call the forage, the timber, and the water resources. They are all renewable resources—water renewable by cycles of climate, forage and timber renewable by growth in seasonal cycles. How each becomes available in kind, quantity, and quality, is in large measure, dependent upon the soil. Soil is, except over long periods, a nonrenewable resource. It may take more than a century to produce sufficient depth to support a high yield, high quality forest, range, or agricultural crop. Thus, the soil is the basic watershed resource, to be carefully managed and protected to preserve its function and productivity. It represents a thin skin on the land on which all land life depends.

Vegetative cover

There are three major plant cover types - grass, brush, and forest. All three types build up organic litter and affect soil development. They usually develop under differing climatic conditions and all are important to watershed management.

Whatever its composition of dominant forms, the forest usually includes, in addition to trees in various stages of growth, an understory of shrubs and a low ground cover of herbs and some grasses. While all three component levels of the forest have some effect on water, trees are the most important. Tree litter fall is the greatest, tree roots go deep into the soil, and tree crowns provide the most shade and protection to the soil against the beating action of rain and the drying action of the wind. The effects of brush and grass cover are similar to those of the forest, but on a smaller scale.

Plant cover provides significant benefits to the watershed. The crown canopy intercepts rain and reduces the force with which it strikes the ground. The canopy and stems reduce wind velocity. The litter protects the soil surface and keeps it open for infiltration at the same time that it provides a barrier to slow down surface runoff. Stems and roots lead water into the ground. Roots open up the soil and increase porosity as well as adding organic materials to the soil when they die. The uptake of minerals from the soil by the roots and their transmission to the canopy provides a recycling when leaves and twigs die and fall to produce the litter which is gradually decomposed and incorporated into the soil.

Trees and brush form windbreaks to protect crops and to reduce moisture losses from evaporation. Tree and shrub stems along riverbanks trap sediments and floating debris at times of high water. Tree and shrub roots bind and stabilize soil in streambanks and on slopes to reduce slide and slump occurence.

Management considerations

The quality of water is determined largely by the characteristics of the soils and vegetation in the surrounding watershed. Accordingly, human activities can have pronounced impacts on the quality of the watershed. These activites range from actual use of the watershed's resources, such as timber harvesting, grazing, agriculture, and urban or industrial development, to activities such as recreation.

Two key resources, timber and fish, have a shared dependence on forest lands and the river systems that drain them. This has given rise to mutual difficulties in their management. The timber harvest affects forest cover, making openings and reducing cover density. Timber harvest need not cause damage in a watershed under most conditions if slope and soil are given consideration and cover regeneration can be accomplished rapidly. In snow zones, timber harvest can be used to improve the snow catch and to modify snow melt rate.

Grazing by domestic livestock tends to concentrate animals in one area. The principal impact of the grazing is on plant cover and soil. Grazing by unmanaged domestic livestock contributes to compacted soils by trampling and leads to rapid runoff and severe erosion problems. Productivity can be greatly reduced in the overgrazed areas. Generally, when the cover is thinned by grazing to less than seventy percent of the natural full cover, recovery does not come about, and degradation continues unless there is artificial aid through management practices or restorative methods.

Agricultural practices usually involve clearing of the original cover from the land, plus disturbance of the soil to prepare a seedbed for the crop to be planted. Since the crop cover is usually seasonal and not as dense as the natural cover, there is much less protection for the soil. Erosion by both wind and water may rapidly remove the finer and more fertile soil particles, thus reducing land productivity. Agricultural operations based on careful appraisal of soil, slope, and climatic conditions will involve control of runoff and prevention of erosion. Agriculture practices handled in this way can be quite compatible with watershed management.

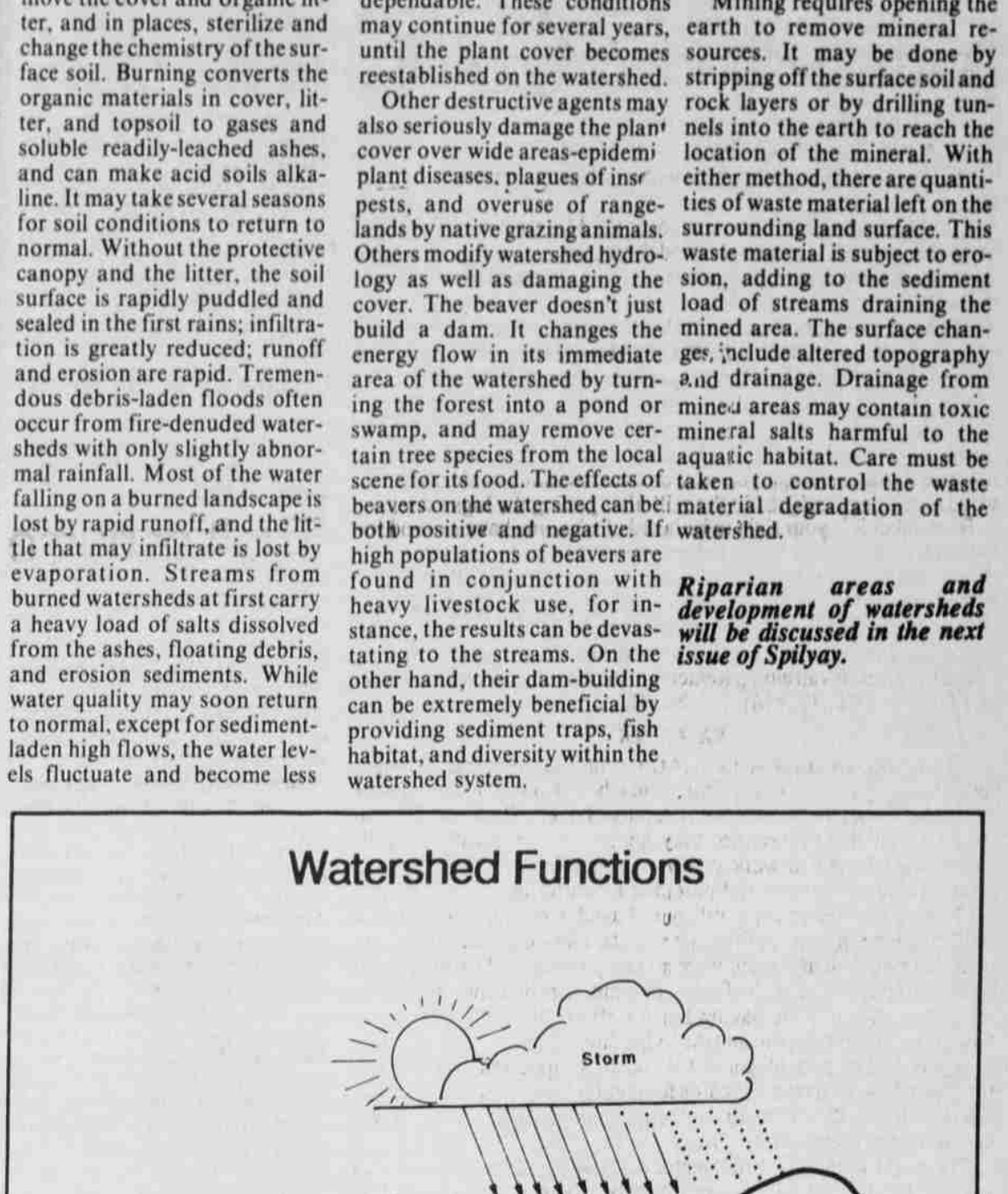
One feature needing attention in the management of plant cover on a watershed is the use of water by that cover. Effects of the plant cover on water are many and varied, but the most significant may be the consumptive use of water in plant growth and transpiration. Shade from the cover and mulch formed by the litter and reduction of wind velocity in the forest greatly reduces the evaporation of soil moisture. However, plant roots can take up all the available soil moisture to a much greater depth than evaporation does. A case in point is the accelerated encroachment of brush, particularly juniper, on the uplands in Central and Eastern Oregon. The increase in the juniper stands has drastically affected summer streamflows by intercepting surface water so that it never gets into the undergound reserves.

Fire, whether occurring naturally or human caused, is one of the most widespread destructive agents affecting plant cover. Under dry wind conditions, fire can almost completely remove the cover and organic litter, and in places, sterilize and change the chemistry of the surface soil. Burning converts the organic materials in cover, litter, and topsoil to gases and soluble readily-leached ashes, and can make acid soils alkaline. It may take several seasons for soil conditions to return to normal. Without the protective canopy and the litter, the soil surface is rapidly puddled and sealed in the first rains; infiltration is greatly reduced; runoff and erosion are rapid. Tremendous debris-laden floods often occur from fire-denuded watersheds with only slightly abnormal rainfall. Most of the water falling on a burned landscape is lost by rapid runoff, and the little that may infiltrate is lost by evaporation. Streams from burned watersheds at first carry a heavy load of salts dissolved from the ashes, floating debris, and erosion sediments. While water quality may soon return to normal, except for sediment-laden high flows, the water levels fluctuate and become less dependable. These conditions may continue for several years, until the plant cover becomes reestablished on the watershed.

Other destructive agents may also seriously damage the plant cover over wide areas-epidemi plant diseases, plagues of insect pests, and overuse of rangelands by native grazing animals. Others modify watershed hydrology as well as damaging the cover. The beaver doesn't just build a dam. It changes the energy flow in its immediate area of the watershed by turning the forest into a pond or swamp, and may remove certain tree species from the local scene for its food. The effects of beavers on the watershed can be both positive and negative. If high populations of beavers are found in conjunction with heavy livestock use, for instance, the results can be devastating to the streams. On the other hand, their dam-building can be extremely beneficial by providing sediment traps, fish habitat, and diversity within the watershed system.

Mining requires opening the earth to remove mineral resources. It may be done by stripping off the surface soil and rock layers or by drilling tunnels into the earth to reach the location of the mineral. With either method, there are quantities of waste material left on the surrounding land surface. This waste material is subject to erosion, adding to the sediment load of streams draining the mined area. The surface changes include altered topography and drainage. Drainage from mined areas may contain toxic mineral salts harmful to the aquatic habitat. Care must be taken to control the waste material degradation of the watershed.

Riparian areas and development of watersheds will be discussed in the next issue of Spilyay.



Watersheds help circulate water in the Hydrologic (water) Cycle, collecting, purifying and distributing it.