

# **An Army of Watershed Specialists: Good Working Relationships Encourage Everyone to Value Watersheds**

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By developing strong personal relationships, physical scientists can get the field-going people in their sphere of influence to do the best job possible for the sake of watershed health. In order to accomplish a large workload with limited resources, it is valuable to use the entire workforce to find, report, and improve unacceptable watershed conditions. When there is mutual respect among hydrologists, timber sale administrators, engineers, and other Forest Service disciplines, the watershed is the biggest winner, because those employees can act as recruits in the “watershed army”. To recruit this army, hydrologists need to listen to the needs and challenges of their coworkers. This active listening promotes additional communication between watershed specialists and people who can help improve watershed conditions. When scientists participate in cooperative work to meet agency objectives, this proves their commitment to accomplishing the entire job, and fosters a cooperative spirit within the entire organization. Finally, after the army has been enlisted and beneficial watershed work has been accomplished, those employees need to feel appreciated, in order to encourage them to continue to fight for improved watershed conditions. When all Forest Service employees are interested in being good watershed stewards, the effectiveness of a single physical scientist can be multiplied.

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## INTRODUCTION

Hydrologists are a relatively scarce resource in the Forest Service, with large areas of responsibility and huge workloads. In order to maximize their effectiveness, watershed specialists can enlist other employees to help them care for the land, and accomplish more resource improvement objectives in a time when personnel and funding are dwindling. Building strong personal relationships and working together are the way to get the entire job done.

This paper contains case studies from the North Zone of the Black Hills National Forest, South Dakota, and ideas on how physical scientists can work with their fellow employees to maximize watershed benefits. A hydrologist may think, “I’m the hydrologist, and that’s all I do”. However, by thinking more broadly, and doing everything possible to build solid relationships with the other people on a district, zone, or forest, scientists can be more effective. No one can do everything on his or her own. The Black Hills in an active forest that has many timber sales, fuels projects, recreation activities, land transactions, mineral

operations, and grazing allotments. All of these actions have the potential to affect watershed resources. In order deal with this level of activity, and build good relationships, a watershed specialist should listen to the concerns and challenges facing their coworkers, demonstrate respect and understanding for other people’s jobs and viewpoints, communicate watershed concerns while participating in work that is mutually beneficial to all, and appreciate work that is done in order to achieve a better outcome for watershed values.

## CASE STUDIES

### **Mud Bogging**

Fresh out of graduate school, I was relatively new to the Forest Service, new to the job, and definitely new to the Black Hills. I didn’t know what was happening on the ground, and didn’t even really know what could happen out there.

For example, our Law Enforcement Officer (LEO) notified me of a situation where ATVs (all-terrain vehicles)

*Figure 1. ATV ruts in Johnston Gulch. Photo by Ken Boerman.*



*Figure 2. Johnston Gulch condition before signing and enforcement. Photo by Ken Boerman.*



*Figure 3. Johnston Gulch condition after signing and enforcement. Photo by Ken Boerman.*

and 4X4s had been mud bogging in a Black Hills riparian area (Figure 1). He knew this was a problem, and because he and I had communicated with each other on occasion, he knew who to contact about it. We talked more and I listened to his past experience with this kind of activity and how to stop it. I expressed to him that this was a priority area to address, and he agreed to do some enforcement work at this site. During a stakeout on Easter weekend (11 April 2004), he caught someone in the act of destroying this meadow, and issued a citation. LEOs are very busy, with more enforcement work than they could ever handle, but because we talked, and because he felt that some enforcement could make a difference at this site, we put some time and effort into patrolling this area and posting some closure signs.

Before we took any signing or enforcement measures, this area did not meet riparian objectives (Figure 2). Upstream from the photographed area, a hand-excavated trench diverts water flow out of the natural drainage channel and onto the road surface. ATVs and full-size 4x4 vehicles have driven along this road, and through this wet meadow, intentionally looking for ways to make more tracks. Fortunately, after the LEO issued a few citations, and our Recreation Staff Officer talked to some of the local off-road clubs, people have left this spot alone, and conditions are improving. In this case, lots of eyes looking for problems found an area that was in trouble, and some cooperative work helped turn things around. As a new hydrologist in a new place, I could not know everything. However, with a little help from people in the field, we were able to improve conditions at this site (Figure 3).

## Snowmobile Trail Erosion

In order to cover more ground, and accomplish more resource improvement, I enlisted the help of our engineers. They are looking at roads all the time. Since connected disturbed areas associated with roads are the main source of damage in all regions (USDA 2001), it makes sense to get more people to look at water/road interactions. By communicating my concerns and participating in joint field visits, I was able to understand the complete situation, and work cooperatively to find a solution.

After using GIS to find locations where roads overlap with perennial streamcourses, and conducting site visits to find evidence of direct sediment contributions, I contacted the engineers about rills in the fillslope of the road, and the resulting sediment plumes in the creek. Spearfish Canyon is one of the few major perennial streams on the Northern Hills District. It is a popular fishing destination with resident brook trout (*Salvelinus fontinalis*) and is one of the most visited canyons on the forest. Once I shared my concerns with the engineers, one of them brought some additional details to my attention.

Although the majority of the erosion and sedimentation problems in the Black Hills are the result of heavy summer thunderstorms, this problem was the result of snowmelt along the snowmobile trail. This road is closed in the winter, and groomed as a snowmobile trail. This grooming creates packed snow conditions on the surface of the road, and large snow berms along the sides of the road. In the spring, melting snow generates water that flows down the surface of the road, since the berms prevent water from flowing into the ditch or shedding off the road. This trapped flow gathers volume and energy as it continues downhill, forming small gullies in the road surface. Eventually, the water reaches the end of the melting snow berm, and cuts a deeper gully in the fillslope as it falls off the side of the road, and down to the creek, at the bottom of the fillslope. Because of our good working relationship, and because these conditions affect the integrity of the road as well as the stream, the engineers and I worked together with the recreation specialist to solve this problem.

The road is constructed with lead out ditches that route water and sediment through filter zones before it reaches the creek. To allow the snowmelt to access these lead out ditches, changes can be made to the snowplowing techniques used by the snowmobile trail grooming machines. The berms can be broken up by “snow ditches” or plowed openings in the berm. This allows snowmelt to escape the road surface, and flow into the filter strips, before it concentrates and generates enough volume and energy to start eroding the road surface and fillslope. Therefore, it reduces the amount of sediment

reaching the creek. With this as an example of cooperative success between engineers and hydrologists, future work can be done, where hydrologists or watershed crews can report on road maintenance problems, and engineers can find and repair watershed problems at damaged sites.

## Timber Sale Best Management Practices

Large timber sales can be difficult to survey with only one person. If other district personnel fail to look for the same problems that I look for, something will certainly be missed. That is why it is ideal to work with the other people on the districts to spot potential problems and take the necessary measures to avoid creating them in the first place.

Heavy mechanical vehicles dragging logs on a steep slope adjacent to a creek could result in excessive sediment delivery to the creek. However, to expedite emergency vegetation treatment, a special law passed by congress exempted 8,000 acres (3,240 ha) on the Black Hills National Forest from the environmental analysis requirements of the National Environmental Policy Act (NEPA). Because of this exemption, I didn't get the opportunity to identify a potential trouble spot on one of the timber sale areas. Fortunately, sale prep foresters and sale administrators – looking for the same kind of problems that I look for – brought this to my attention before the sale was even sold. They recognized the risks of operating within a few feet of a creek. The law also exempted this area from compliance with Forest Plan Standards and Guidelines, including those designed to protect soil and water quality. Despite this, the foresters and administrators still asked for my advice on how to reduce the risk to water quality.

After several site visits and weeks of proposals and counter proposals, we reached an agreement to reduce potential impacts on water quality. Logging operations were conducted over the snow and with frozen soil conditions, to reduce soil damage and loss of ground cover. Landings were designated and placed in locations away from the stream, or in places where potential runoff would be filtered through remnant riparian and streamside vegetation. Some steeper sections of the sale were dropped, since they could not be accessed in frozen soil conditions, and couldn't be operated on during dry conditions without causing unacceptable soil damage. Finally, temporary bridges were used at pre-selected locations to enable harvest operations on the far side of the creek without damaging streambanks or building new roads. By working together to put necessary mitigation measures in place, large problems can be avoided.

## LISTEN, COMMUNICATE, PARTICIPATE, APPRECIATE

**Listen**

In order to encourage other Forest Service employees to bring problems forward, it is important to listen and show interest in their work. Listening to people and the challenges that they face helps develop trust and fosters cooperative relationships. These relationships are further strengthened by a constructive, not antagonistic, expression of needs by all sides. By presenting watershed needs and concerns, instead of simply saying, “No, you can’t do that”, people are given a chance to come up with their own solutions. This solution-oriented mindset gives people incentive to work together to find the best fit for all.

**Communicate**

When we communicate, we realize that none of us want degraded watershed conditions. Excessive streambank erosion is something Range Conservationists should be willing to bring forward, whether it’s caused by overgrazing or not. Communication is the key to this. When watershed specialists talk about why it is important to reduce streambank erosion, and range specialists talk about management techniques that can be implemented, a dialogue is maintained that can lead to tangible improvements. Without such dialogue, the effort to improve watershed conditions receives only a fraction of the attention necessary to create change.

**Participate**

One way to get people to work with each other is to participate with them on the task at hand. This includes engineering route reviews, timber sale unit inspections, grazing evaluations, and other types of projects. When hydrologists participate in reviews like these, they can learn more about what it takes to do each job in the Forest Service. This greater understanding can put their job into better perspective. Participation can also provide an interactive opportunity to explain the challenges of managing the watershed resource. It’s another way to foster good relationships.

Hydrologists that participate in fire fighting or fuel reduction work may be able to motivate their local fire organization to help them for project work, like spreading mulch after a wildfire, or monitoring efforts, like looking for damaged or ineffective travel management structures. As engines are patrolling for fires, fire fighters can look for road closures that are not working, repair them when possible, or report them for later repair. In this way,

employees can work together to improve road conditions, and reduce the impacts that damaged roads can have on watershed values.

**Appreciate**

The amount of cooperation I receive increases dramatically with the amount of appreciation I express. Once people demonstrate a willingness to help and take steps to protect or improve watershed conditions, it is important to show appreciation for that work. Constructive cooperation with people can encourage them to help more. Giving credit where credit is due, with a personal “thank you”, or a public expression of gratitude, motivates people to be advocates for the watershed. Nominating employees for spot awards is another great way to express well-deserved appreciation.

Sometimes, there are outliers, and no matter how willing and cooperative a watershed specialist may be, some employees may not want to cooperate toward achieving watershed goals. It must be understood that there will always be people like this. However, these attitudes should not keep hydrologists from attempting to connect with people, build solid working relationships, and engage them in a constructive dialogue.

## CONCLUSION

Watershed management in today’s environment takes an army of watershed specialists. It is important to make a concerted effort to get to know the field-going personnel in an office. These are the people who can have the greatest impact on the ground. Listen to their points of view. Hear and understand their day-to-day concerns. Cooperate in helping them get their jobs done. When a watershed issue needs to be addressed, explain these concerns in a way that gives people incentive to help solve problems, instead of just shutting them down. Participate in the work that needs to be done, including any fieldwork that demonstrates an interest in working toward a common goal, not just a hydrology goal. Finally, make sure to appreciate the hard work that people put forth for the watershed resource. By following these steps, an army of many can be recruited to fight the watershed battle, instead of fighting it as an army of one.

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## LITERATURE CITED

US Department of Agriculture, Forest Service. 2001. Watershed conservation practices. Forest Service Handbook 2509.25 Chapter 10. Amendment number 2509.25-2001-1. Denver, CO: USDA Forest Service, Region 2, Rocky Mountain Region. 23 p.