

When soil and water conservation is the primary objective, wood production may be limited to careful single-tree group selection harvesting with low-impact equipment to minimize soil and water disturbance. Reforestation of badly eroded or mined areas requires special management practices such as contouring, grade stabilization structures, water and sediment control basins, land smoothing, cover crop and tree planting on fragile areas, and livestock exclusion. Recreation activities on areas where soil and water conservation has been given highest priority should be limited to low-impact activities with a minimum of vehicular access and exposure of soil. In all cases, the forest understory and ground cover should be managed to reduce soil exposure and enhance filtering action, and to improve cattle forage (where applicable) and wildlife food, cover and nesting.

Soil and water resource conservation as a secondary objective automatically includes the use of BMPs and WMGs. However, special attention is needed on deep sandy soils where high infiltration rates require special nutrient and pesticide management practices to protect the ground water resource. Heavier clay soils also require special consideration to prevent erosion and compaction. Water management during silvicultural, grazing and recreational activities, for wildlife habitat management, or for reduction of flood flows, may require special drainage or retention projects and practices.

Soil and water conservation efforts enhance the productivity and quality of other resources. They promote sustainable timber production by reducing the erosion of fertile topsoil. BMP buffer zones provide a high diversity of species and stand structure for wildlife habitat and aesthetic and recreational values. In turn, sustainable timber production provides the economic basis for keeping the land in forest cover and protecting soil and water resources.

## Practices that enhance soil and water conservation

Where soil and water conservation is a major goal, the management activities will include intensive conservation practices that address specific conservation needs. Examples include the following:

- establishing and maintaining a vegetative cover on forest and grazing lands which have a high erosion potential;

- restoring actively eroding areas and protecting them from damage during silvicultural or grazing operations;
- constructing access roads and firebreaks on highly erodible slopes in a manner that reduces erosion potential; this includes planning for gentle grades, constructing turnouts, installing water bars and planting grass seed on temporary roads;
- using prescribed burning to promote herbaceous ground cover for erosion control purposes;
- limiting pesticide use and nutrient additions (including aerial applications) to the type and amount as specified on the product label;
- managing drainage networks to perpetuate longterm water table levels and maintain wetland functions.

Where the soil and water resources are managed as a secondary goal, all management activities will follow the BMPs and WMGs. The effectiveness of soil and water conservation practices can be evaluated against the stated objectives in the stewardship management plan with the help of conservation experts. These experts can recommend the use of BMPs during harvesting, site preparation, road construction, stream crossings and firelines. Erosion control and soil conservation measures such as contouring, mulching and replanting may be suggested, as is the amount of active erosion and soil displaced by windrowing. The rate and method of pesticide application and the degree of brush and weed control as well as information on soil tests and nutrient additions may be recommended. Finally, any wetlands are inspected to evaluate compliance with the management guidelines and to assess new changes in hydrologic characteristics.

## Soil and water conservation in action

### Example 1

Mr. Gillis has 80 acres of eroded land on his property in northwest Florida, of which 20 acres has been mined as a borrow pit for highway construction. The contractor failed to stabilize and restore the area, and over a 15-year period the borrow pit has eroded into a series of gullies (see Figure 9). It was evident that many tons of sediment had washed away and had been deposited